

Invitation to Bid #18PSX0298

GUIDE RAILING PARTS

Contract Specialist: **Janet DelGreco Olson**

Date Issued: **16 November 2018**

Due Date: **3 December 2018 at 2:00 PM Eastern Time**

**Department of Administrative Services
Procurement Division**



TABLE OF CONTENTS

GUIDE TO ELECTRONIC BID SUBMISSIONS	3
OVERVIEW	6
SCOPE	6
INSTRUCTIONS TO BIDDERS	6
BID REQUIREMENTS	7
AWARD CRITERIA	10

Invitation to Bid (“ITB”)

GUIDE RAILING PARTS

Guide to Electronic Bid Submissions

1. Introduction To BizNet

It is now a requirement of Department of Administrative Services (“DAS”)/Procurement Division that all companies create a Business Network (BizNet) account and add their company profile to the State of Connecticut (“CT”) BizNet system. Companies are responsible for maintaining and updating company information in their BizNet accounts as updates occur. Companies that have been certified through the Supplier Diversity or the Pre-Qualification Program, have already created a BizNet account.

The BizNet login is: <https://www.biznet.ct.gov/AccountMaint/Login.aspx>

New Companies: Create an account by clicking the BizNet login link above and then the button on the right labeled “Create New Account”. Login and select “Doing Business with the State” and “Company Information”. Please be sure to complete information in all tabs (“Company Information”, “Account’s”, “Address”, etc.).

Existing Companies Needing to Update Their Information: Login to BizNet and select “Doing Business with the State” and “Company Information”.

Anyone having difficulty connecting to their account or downloading or uploading forms should call DAS/Procurement Division at 860-713-5095.

2. Business Friendly Legislation

As a result of Public Act 11-229, DAS/Procurement Division’s goal is to make doing business with the State of CT more business friendly. To eliminate redundancy, forms that were repetitively filled out with each ITB are being automated in BizNet.

DAS/Procurement Division began the transition to on-line bidding by automating the submission of affidavits and non-discrimination forms on October 1, 2011. Companies must submit forms electronically to their BizNet account if they haven’t already done so. These forms must be updated on an annual basis, no later than thirty (30) days after the effective date of any material change. Rather than completing them with each bid submittal, companies that have already filed these forms have the ability to view, verify and update their information prior to submitting a bid response.

Instructions for Uploading Affidavits and Non-Discrimination Forms:

Click on the following link for instructions on how to upload Affidavits and Non-Discrimination forms:

<http://das.ct.gov/images/1090/Upload%20Instructions.pdf>

(a) AFFIDAVITS

THE FOLLOWING FORMS MUST BE SIGNED, DATED, NOTARIZED, UPLOADED OR UPDATED ON BIZNET. TO OBTAIN A COPY OF THESE FORMS, YOU MUST LOGIN INTO BIZNET AND FOLLOW THE INSTRUCTIONS LISTED ABOVE.

- (1) OPM Ethics Form 1 – Gift & Campaign Contribution Certification
- (2) OPM Ethics Form 5 – Consulting Agreement Affidavit
- (3) OPM Ethics Form 6 – Affirmation of Receipt of State Ethics Laws Summary
- (4) OPM Form 7 – Iran Certification

For information regarding these forms, please access the Office of Policy & Management’s website by clicking on the following link: <http://www.ct.gov/opm/cwp/view.asp?a=2982&q=386038>

(b) NON-DISCRIMINATION

CHOOSE ONE (1) FORM THAT APPLIES TO YOUR BUSINESS. COMPLETE AND UPLOAD OR UPDATE ON BIZNET ANNUALLY. TO OBTAIN A COPY OF THESE FORMS, YOU MUST LOGIN INTO BIZNET AND FOLLOW THE INSTRUCTIONS LISTED ABOVE.

- (1) Form A – Representation by Individual (Regardless of Value)
- (2) Form B – Representation by Entity (Valued at \$50,000 or less)
- (3) **Form C – Affidavit by Entity (RECOMMENDED) (Valued at \$50,000 or more)**
- (4) Form D – New Resolution by Entity
- (5) Form E – Prior Resolution by Entity

For information regarding these forms and on which form your company should complete, please access the Office of Policy & Management’s (“OPM’s”) website by clicking following link: http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806

3. Online Bid Responses

Any ITB posted by DAS/Procurement Division must be submitted electronically. The common forms listed below have also been automated in the BizNet system. In addition, specific forms are now web based and fillable, as noted below. To complete forms; download them from your BizNet account, complete your submittal response, and then upload these completed documents (as well as any other required submittal documents) through BizNet prior to the date and time upon which the Bid is due pursuant to this ITB. Late submissions will not be accepted. All bid responses submitted must be e-signed. **Bid responses that are not e-signed are not received by DAS/Procurement and cannot be viewed or considered.** If any required documents have not been uploaded, the system will not allow you to e-sign. After successful e-signature, Bidders will get a confirmation that their bid has been successfully submitted. If you do not receive this electronic confirmation, please contact DAS/Procurement at 860-713-5095. Bid pricing will be available for public viewing for twenty four (24) hours after bid closing.

- Contractor Information/Electronic Signature Page – Web Based fillable Form
- Employment Information Form (DAS-45) – Web Based fillable Form

- Statement of Qualifications (DAS-14) – PDF Fillable Form
- Connecticut Economic Impact Form (DAS-46) – Web Based fillable Form
- Contract Exhibit B – Price Schedule (SP-16)
- Bid Addendum (SP-18) – if applicable

Additional forms such as those listed below must be reviewed carefully and accepted by the bidder prior to bid submittal:

- Standard Terms and Conditions (SP-19)
- Invitation to Bid Document (SP-22)
- Invitation to Bid Contract (SP-50)
- Contract Exhibit A – Description of Goods & Services and Additional Terms & Conditions
- Contract Exhibit A – Attachment 1
- Contract Exhibit A – Attachment 2
- Contract Exhibit C – SEEC Form 11

4. Insurance Accord Certificates

Contractors are responsible for maintaining their BizNet account with new and/or updated insurance information.

The following documentation will need to be uploaded to each company's BizNet account and evidencing that the State of Connecticut is an additional insured:

- (a) Certificate of Insurance (Accord Form)
 - Owner's & Contractor's Protective Liability
 - Commercial General Liability
 - Automobile Liability
 - Worker's Compensation Liability
 - Umbrella Liability
- (b) The insurance policy declaration page
- (c) The additional insured endorsement to the policy

Training documentation relating to the completion of the above-reference forms is available through the DAS website under "DAS Business Friendly Initiatives" at the following website: [http://portal.ct.gov/DAS/Search-Results?SearchKeyword=insurance instructions](http://portal.ct.gov/DAS/Search-Results?SearchKeyword=insurance%20instructions)

Bidders are cautioned that there may be additional documents, attachments or requirements depending on the complexity of the bid. Please read ALL bid documents carefully and provide all required information. Failure to do so may result in rejection of your bid.

Overview

The State of Connecticut DAS is soliciting this supplemental ITB for Guide Railing Parts for the CT Department of Transportation (“ConnDOT”). Once awarded this ITB will be rolled into Contract Award 18PSX0228.

Scope

The Contract resulting from this supplemental bid is to provide the additional guide railing parts currently not covered under Contract Award 18PSX0228 and will be procured as needed by the Client Agency.

As this is a bid, there are no negotiations. Terms and conditions cannot be changed and pricing shall be listed as specified only – no additional charges are permitted.

You can view partial contract award 18PSX0228 by clicking on the following link:

https://biznet.ct.gov/SCP_Documents/Results/20194/018_0228.pdf

Instructions to Bidders

1. Bid Schedule

RELEASE OF ITB:	Date:	16 November 2018
RECEIPT OF QUESTIONS:	Date:	20 November 2018
ANSWERS TO QUESTIONS POSTED AS ADDENDUM:	Date:	23 November 2018
BID DUE DATE:	Date:	3 December 2018 at 2:00 PM Eastern Time

2. Pre-Bid Meeting Requirements:

This bid contains no pre-bid meeting requirements.

3. Questions:

Questions for the purpose of clarifying this bid must be received no later than the date and time specified in Section I, “Bid Schedule” and must be directed to the Contract Specialist, Janet DelGreco Olson via email: janet.delgreco@ct.gov.

4. Communications

During the period from your organization's receipt of this ITB, and until a contract is awarded, your organization shall not contact any employee of the State of CT concerning this procurement except in writing directed to the Contract Specialist, Janet DelGreco Olson via email: janet.delgreco@ct.gov.

5. Public Bid Opening

Public bid openings are now conducted online. Bid pricing submitted will be available for public view through your BizNet account and is available for twenty four (24) hours after the bid due date and time.

How to View Bid Results:

- Go to the DAS/Procurement website: http://www.biznet.ct.gov/SCP_Search/Default.aspx?Acclast=2
- Click on the heading "Current Solicitations"
- Click radio button "Under Evaluation"
- Search for the bid (18PSX0298)
- Click on "Public Opening" under the bid due date and time

Bid Requirements

1. Motor Carrier Safety Review.

If the Performance requires the use and operation of any commercial motor vehicle, as defined in section 14-1 or any vehicle defined in section 14-163c(a) of the Connecticut General Statutes ("CGS"), each bidder whose submittal is not rejected will be the subject of a Safety Fitness Review ("SFR") conducted by the Connecticut Department of Motor Vehicles ("CTDMV").

If the SFR results in a rating for the bidder that exceeds the acceptable out of service rating as set forth at <http://www.ct.gov/dmv/cwp/view.asp?a=804&q=512530&dmvPNavCtr=|#55445>, then the affected bidder will be deemed to be not responsible and their submittal will be rejected.

Please include your Federal DOT ID number where specified in Exhibit B. If you do not include the number in Exhibit B and then fail to provide it subsequently when and as asked, your submittal will be rejected.

Further information concerning the SFR may be obtained from CTDMV at:
<http://www.ct.gov/dmv/cwp/view.asp?a=804&q=512530&dmvPNavCtr=|#55445>

2. Quantities and/or Usages

If applicable, any quantities set forth in this ITB are estimated quantities and/or usages only and in no way represent a commitment and/or intent to purchase any particular amount. Actual quantities may vary and will be identified on individual purchase orders issued by the Client Agency.

3. Brand Name Specifications and/or References

The use of the name of a manufacturer or of any particular make, model or brand in describing an item does not restrict bidders to that manufacturer or specific article unless limited by the term "no substitute". However, the article being offered must be of such character and quality so that it will serve the purpose for which it is to be used equally as well as that specified, and the bidder shall warrant to the State that it is fit for that purpose. Bids on comparable items must clearly state the exact article being offered including any and all applicable options and the bidder shall furnish such other information concerning the article being offered as will be helpful in evaluating its acceptability for the purpose intended. If the bidder does not indicate that the article offered is other than as specified, it will be understood that the bidder is offering the article exactly as specified. Bidders must submit complete documentation on the specifications and quality levels of the proposed products. Bids submitted that do not contain this documentation are subject to rejection.

4. Lowest Responsible Qualified Bidder; Micro Business Preference

The Contract resulting from this ITB will be awarded to the lowest responsible qualified bidder. The qualities of articles to be supplied, their conformity with the needed specifications, their suitability to the requirements of the State government and the delivery terms will be taken into consideration, and the life-cycle costs and trade-in or resale value of the articles may be considered where it appears to be in the best interest of the State. In determining the lowest responsible qualified bidder, a price preference of up to ten per cent (10%) may be given for the purchase of the goods or services from micro businesses, or up to fifteen per cent (15%) in the case of "veteran-owned" (as described below) micro businesses. Micro business means a business with gross revenues not exceeding three million dollars (\$3,000,000) in the most recently completed fiscal year.

To be considered for the ten percent (10%) price preference, bidders must submit prior to the bid due date a copy of their Internal Revenue Service tax return form for the most recently completed fiscal year, confirming the amount of their gross revenues for that fiscal year. Failure to provide such tax return prior to the bid due date will deny bidder consideration for the ten per cent (10%) price preference. For bidders who have not yet filed their tax return for the most recently completed fiscal year, in lieu of a tax return, a letter from a certified public accountant attesting to the bidder's gross estimated revenues for the most recently completed fiscal year will be accepted.

To be considered for the fifteen per cent (15%) price preference, bidders must submit prior to the bid due date a copy of their current certification from the CT State Department of Veteran Affairs as to both "veteran-owned" and "micro business" status. "Veteran-owned" micro business means a micro business of which at least fifty-one per cent (51%) of the ownership is held by one or more "veterans" of the "armed forces." In accordance with Section 27-103(a) of the CGS, "veterans" means any person honorably discharged, or released under honorable conditions, from active service in the armed forces and "armed forces" means the United States Army, Navy, Marine Corps, Coast Guard and Air Force and any reserve component thereof, including the CT National Guard. Interested bidders may obtain the certification application by visiting: www.ct.gov/ctva and selecting "Veteran Owned Micro Business" option. Failure to provide such certification prior to the bid due date will deny bidder consideration for this price preference.

5. Stability of Bid Prices

Any price offerings from bidders must be valid for a period of sixty (60) days from the due date of the bid.

6. Amendment or Cancellation of the ITB

DAS reserves the right to cancel, amend, modify or otherwise change this ITB at any time if it deems it to be in the best interest of the State to do so.

7. Bid Modifications

No additions or changes to any bid will be allowed after the bid due date, unless such modification is specifically requested by DAS. DAS, at its option, may seek bidder retraction and/or clarification of any discrepancy or contradiction found during its review of bids.

8. Bidder Presentation of Supporting Evidence

Bidders must be prepared to provide any evidence of experience, performance, ability, and/or financial surety that DAS deems to be necessary or appropriate to fully establish the performance capabilities represented in their bids.

9. Bidder Demonstration of Services and/or Products

At the discretion of DAS, bidders must be able to confirm their ability to provide all services bid. Any required confirmation must be provided at a site approved by DAS.

10. Erroneous Awards

DAS reserves the right to correct inaccurate awards.

11. Bid Expenses

Bidders are responsible for all costs and expenses incurred in the preparation of bids and for any subsequent work on the bid that is required by DAS.

12. Ownership of Bids

All bids shall become the sole property of the State and will not be returned.

13. Ownership of Subsequent Products

Any product, whether acceptable or unacceptable, developed under a contract awarded as a result of this ITB shall be the sole property of the State unless otherwise stated in the contract.

14. Oral Agreement or Arrangements

Any alleged oral agreements or arrangements made by bidders with any State agency or employee will be disregarded in any State bid evaluation or associated award.

Award Criteria

Pursuant to CGS 4a-59 and DAS Procurement Regulations 4a-52-8 and 4a-52-18, the award shall be made to the lowest, responsible qualified bidder. The following factors, in descending order of relative importance, will be considered in the evaluation to determine the lowest, responsible qualified bidder:

- (a) Pricing
- (b) The conformity of the supplies, materials, equipment or contractual services to the specifications
- (c) Bidder's past performance
- (d) Bidder's financial responsibility
- (e) Delivery Terms
- (f) The administrative costs of the State
- (g) Life-cycle costs, trade-in or resale value of the supplies, materials or equipment

DAS may award by individual item, group of items, or the entirety of all items. DAS may also reject any and all bids in whole or in part, and waive minor irregularities and omissions if, in the judgment of DAS, the best interest of the state will be served.

CONTRACT #18PSX0298

(Note: this Contract will be rolled into Contract Award 18PSX0228 once awarded)

Between

THE STATE OF CONNECTICUT

Acting by its

DEPARTMENT OF ADMINISTRATIVE SERVICES

AND

Awarded Contractor

GUIDE RAILING PARTS

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/16

Contract Table of Contents

1. Definitions	35. Whistleblowing
2. Term of Contract; Contract Extension	36. Notice
3. Description of Goods and Services	37. Insurance
4. Price Schedule, Payment Terms and Billing, and Price Adjustments	38. Headings
5. Rejected Items; Abandonment	39. Number and Gender
6. Order and Delivery	40. Parties
7. Contract Amendments	41. Contractor Changes
8. Assignment	42. Further Assurances
9. Termination	43. Audit and Inspection of Plants, Places of Business and Records
10. Cost Modifications	44. Background Checks
11. Breach	45. Continued Performance
12. Waiver	46. Working and Labor Synergies
13. Open Market Purchases	47. Contractor Responsibility
14. Purchase Orders	48. Severability
15. Indemnification	49. Confidential Information
16. Forum and Choice of Law	50. References to Statutes, Public Acts, Regulations, Codes and Executive Orders
17. Contractor Guaranties	51. Cross-Default
18. Implied Warranties	52. Disclosure of Records
19. Goods, Standards and Appurtenances	53. Summary of State Ethics Laws
20. Delivery	54. Sovereign Immunity
21. Goods Inspection	55. Time of the Essence
22. Emergency Standby for Goods and/or Services	56. Reserved
23. Setoff	57. Campaign Contribution Restriction
24. Force Majeure	58. Reserved
25. Advertising	59. Protection of Confidential Information
26. Americans With Disabilities Act	60. Antitrust
27. Representations and Warranties	61. Reserved
28. Representations and Warranties Concerning Motor Vehicles	EXHIBIT A - Description of Goods & Services and Additional Terms and Conditions
29. Disclosure of Contractor Parties Litigation	EXHIBIT A – Attachment 1
30. Entirety of Contract	EXHIBIT A – Attachment 2
31. Exhibits	EXHIBIT B - Price Schedule
32. Executive Orders	EXHIBIT C - Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations
33. Non-Discrimination	
34. Tangible Personal Property	

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

This Contract (the "Contract") is made as of the Effective Date shown on the contract award form, number SP-38 corresponding to the subject procurement and is by and between, the contractor identified on such Form SP-38 (the "Contractor,") which is attached and shall be considered a part of this Contract, with a principal place of business as indicated on the signature page form, number SP-26, acting by the duly authorized representative as indicated on the SP-26, and the State of Connecticut, Department of Administrative Services ("DAS"), with a principal place of business at 450 Columbus Boulevard, Hartford, Connecticut 06103, acting by Janet DelGreco Olson, its Contract Specialist, in accordance with Sections 4a-2 and 4a-51 of the Connecticut General Statutes.

Now therefore, in consideration of these presents, and for other good and valuable consideration, the receipt and sufficiency of which the parties acknowledge, the Contractor and the State agree as follows:

1. Definitions. Unless otherwise indicated, the following terms shall have the following corresponding definitions:
 - (a) Bid: A submittal in response to an Invitation to Bid.
 - (b) Claims: All actions, suits, claims, demands, investigations and proceedings of any kind, open, pending or threatened, whether mature, unmaturing, contingent, known or unknown, at law or in equity, in any forum.
 - (c) Client Agency: The Connecticut Department of Transportation and any department, commission, board, bureau, agency, institution, public authority, office, council, association, instrumentality or political subdivision of the State of Connecticut, as applicable, who is authorized and chooses to make purchases under, and pursuant to the terms and conditions of, this Contract.
 - (d) Confidential Information: This shall mean any name, number or other information that may be used, alone or in conjunction with any other information, to identify a specific individual including, but not limited to, such individual's name, date of birth, mother's maiden name, motor vehicle operator's license number, Social Security number, employee identification number, employer or taxpayer identification number, alien registration number, government passport number, health insurance identification number, demand deposit account number, savings account number, credit card number, debit card number or unique biometric data such as fingerprint, voice print, retina or iris image, or other unique physical representation. Without limiting the foregoing, Confidential Information shall also include any information that the Client Agency or DAS classifies as "confidential" or "restricted." Confidential Information shall not include information that may be lawfully obtained from publicly available sources or from federal, state, or local government records which are lawfully made available to the general public.
 - (e) Confidential Information Breach: This shall mean, generally, an instance where an unauthorized person or entity accesses Confidential Information in any manner, including but not limited to the following occurrences: (1) any Confidential Information that is not encrypted or protected is misplaced, lost, stolen or in any way compromised; (2) one or more third parties have had access to or taken control or possession of any Confidential Information that is not encrypted or protected without prior written authorization from the State; (3) the unauthorized acquisition of encrypted or protected Confidential Information together with the confidential process or key that is capable of compromising the integrity

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

of the Confidential Information; or (4) if there is a substantial risk of identity theft or fraud to the Client Agency, the Contractor, DAS or State.

- (f) Contract: The agreement, as of its Effective Date, between the Contractor and the State for any or all Goods or Services at the Bid price.
- (g) Contractor: A person or entity who submits a Bid and who executes a Contract.
- (h) Contractor Parties: A 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.
- (i) Day: All calendar days other than Saturdays, Sundays and days designated as national or State of Connecticut holidays upon which banks in Connecticut are closed.
- (j) Force Majeure: Events that materially affect the cost of the Goods or Services or the time schedule within which to Perform and are outside the control of the party asserting that such an event has occurred, including, but not limited to, labor troubles unrelated to the Contractor, failure of or inadequate permanent power, unavoidable casualties, fire not caused by the Contractor, extraordinary weather conditions, disasters, riots, acts of God, insurrection or war.
- (k) Goods: For purposes of the Contract, all things which are movable at the time that the Contract is effective and which include, without limiting this definition, supplies, materials and equipment, as specified in the Invitation to Bid and set forth in Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2.
- (l) Goods or Services: Goods, Services or both, as specified in the Invitation to Bid and set forth in Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2.
- (m).
- (n) Invitation to Bid: A State request inviting bids for Goods or Services. This Contract shall be governed by the statutes, regulations and procedures of the State of Connecticut, Department of Administrative Services.
- (o) Records: All working papers and such other information and materials as may have been accumulated by the Contractor in performing the Contract, including but not limited to, documents, data, plans, books, computations, drawings, specifications, notes, reports, records, estimates, summaries and correspondence, kept or stored in any form.
- (p) Services: The performance of labor or work, as specified in the Invitation to Bid and set forth in Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2.
- (q) .
- (r) State: The State of Connecticut, including DAS, the Client Agency and any office, department, board, council, commission, institution or other agency of the State.
- (s) Termination: An end to the Contract prior to the end of its term whether effected pursuant to a right which the Contract creates or for a breach.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (t) Title: all ownership, title, licenses, rights and interest, including, but not limited to, perpetual use, of and to the Goods or Services.
2. Term of Contract; Contract Extension. The Contract will be in effect from the Date of Award through October 31, 2021. The parties, by mutual agreement, may extend this Contract for additional terms beyond the original term, prior to Termination or expiration, one or more times for a combined total period not to exceed the complete length of the original term, but only in accordance with the section in this Contract concerning Contract Amendments.
3. Description of Goods or Services and Additional Terms and Conditions. The Contractor shall perform as set forth in Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2. For purposes of this Contract, to perform and the performance in Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2 is referred to as "Perform" and the "Performance."
4. Price Schedule, Payment Terms and Billing, and Price Adjustments.
- (a) Price Schedule: Price Schedule under this Contract is set forth in Exhibit B.
- (b) Payment Terms and Billing:
- (1) Payment shall be made only after the Client Agency receives and accepts the Goods or Services and after it receives a properly completed invoice. Unless otherwise specified in the Contract, payment for all accepted Goods or Services shall be due within forty-five (45) days after acceptance of the Goods or Services, or thirty (30) days if the Contractor is a certified small contractor or minority business enterprise as defined in Conn. Gen. Stat. § 4a-60g. The Contractor shall submit an invoice to the Client Agency for the Performance. The invoice shall include detailed information for Goods or Services, delivered and Performed, as applicable, and accepted. Any late payment charges shall be calculated in accordance with the Connecticut General Statutes.
- (2) THE STATE SHALL MAKE ALL PAYMENTS TO THE CONTRACTOR THROUGH ELECTRONIC FUNDS TRANSFER VIA THE AUTOMATED CLEARING HOUSE ("ACH"). CONTRACTOR SHALL ENROLL IN ACH THROUGH THE OFFICE OF THE STATE COMPTROLLER PRIOR TO SENDING ANY INVOICE TO THE STATE. THE CONTRACTOR MAY OBTAIN DETAILED INFORMATION REGARDING ACH AT: [HTTP://WWW.OSC.CT.GOV/VENDOR/DIRECTDEPOSIT.HTML](http://www.osc.ct.gov/vendor/directdeposit.html).
- (c) Notwithstanding any language regarding Contractor price increases herein, the Price Schedule will be adjusted to reflect any increase in the minimum wage rate that may occur during the term of this Contract as mandated by State law and in accordance with the terms of this section. Contractor shall provide documentation, in the form of certified payroll or other documentation acceptable to the State, substantiating the amount of any increase in Contractor labor costs as a result of changes to the minimum wage rate within ninety (90) days of the statutorily identified effective date of any increase in the minimum wage. Upon receipt, and verification of Contractor documentation DAS shall adjust the Price Schedule accordingly through a supplement to this Contract.
- (d) Price Adjustments:
Prices for the Goods or Services listed in Exhibit B shall remain unchanged for twelve (12) months following the Effective Date of the Contract. The Contractor shall have the right to request a price adjustment only during the thirty (30) days immediately preceding the annual anniversary dates of the Effective Date of the Contract during the term of the Contract. During this thirty (30) day period, the Contractor may submit a request in writing

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

to DAS for a price adjustment that is consistent with and relative to price changes originating with and compelled by manufacturer and/or market trends and which changes are outside of the Contractor's control. The Contractor must fully document its request, attaching to the request, without limitation, such manufacturer and market data, as support the requested adjustment. DAS may, in its sole discretion, approve or disapprove the requested adjustment, in whole or in part. Any approved adjustment shall be final and shall remain unchanged until the next annual anniversary date of the Effective Date of the Contract.

The Contractor shall submit all requests in accordance with Section #36. Notice. A request made to the Client Agency shall not be valid and the parties shall treat it as if the Contractor had not made the request at all. A request made to the Client Agency shall not be considered timely and shall not toll or extend the running of the thirty (30) days. The right of the Contractor to request a particular price adjustment shall lapse upon the expiration of the applicable thirty (30) days. If the Contractor fails to make a timely request, then the price shall remain unchanged from the previous year and shall continue through the next succeeding twelve (12) months and until the second annual anniversary of the Effective Date of the Contract, if approved, price adjustments shall become effective ten (10) days after the date of the approval. The Contractor shall honor any purchase orders issued prior to the effective date of the approval at the price in effect at the time of the issuance of the purchase order.

5. Rejected Items; Abandonment.

(a) The Contractor may deliver, cause to be delivered, or, in any other way, bring or cause to be brought, to any State premises or other destination, Goods, as samples or otherwise, and other supplies, materials, equipment or other tangible personal property. The State may, by written notice and in accordance with the terms and conditions of the Contract, direct the Contractor to remove any or all such Goods ("the "Rejected Goods") and any or all other supplies, materials, equipment or other tangible personal property (collectively, the "Contractor Property") from and out of State premises and any other location which the State manages, leases or controls. The Contractor shall remove the Rejected Goods and the Contractor Property in accordance with the terms and conditions of the written notice. Failure to remove the Rejected Goods or the Contractor Property in accordance with the terms and conditions of the written notice shall mean, for itself and all Contractor Parties, that:

- (1) they have voluntarily, intentionally, unconditionally, unequivocally and absolutely abandoned and left unclaimed the Rejected Goods and Contractor Property and relinquished all ownership, title, licenses, rights, possession and interest of, in and to (collectively, "Title") the Rejected Goods and Contractor Property with the specific and express intent of (A) terminating all of their Title to the Rejected Goods and Contractor Property, (B) vesting Title to the Rejected Goods and Contractor Property in the State of Connecticut and (C) not ever reclaiming Title or any future rights of any type in and to the Rejected Goods and Contractor Property;
- (2) there is no ignorance, inadvertence or unawareness to mitigate against the intent to abandon the Rejected Goods or Contractor Property;
- (3) they vest authority, without any further act required on their part or the State's part, in the Client Agency and the State to use or dispose of the Rejected Goods and Contractor Property, in the State's sole discretion, as if the Rejected Goods and Contractor Property

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

were the State's own property and in accordance with law, without incurring any liability or obligation to the Contractor or any other party;

- (4) if the State incurs any costs or expenses in connection with disposing of the Rejected Goods and Contractor Property, including, but not limited to, advertising, moving or storing the Rejected Goods and Contractor Property, auction and other activities, the State shall invoice the Contractor for all such cost and expenses and the Contractor shall reimburse the State no later than thirty (30) days after the date of invoice; and
 - (5) they do remise, release and forever discharge the State and its employees, departments, commissions, boards, bureaus, agencies, instrumentalities or political subdivisions and their respective successors, heirs, executors and assigns (collectively, the "State and Its Agents") of and from all Claims which they and their respective successors or assigns, jointly or severally, ever had, now have or will have against the State and Its Agents arising from the use or disposition of the Rejected Goods and Contractor Property.
- (b) The Contractor shall secure from each Contractor Party, such document or instrument as necessary or appropriate as will vest in the Contractor plenary authority to bind the Contractor Parties to the full extent necessary or appropriate to give full effect to all of the terms and conditions of this section. The Contractor shall provide, no later than fifteen (15) days after receiving a request from the State, such information as the State may require to evidence, in the State's sole determination, compliance with this section.
6. Order and Delivery. The Contract shall bind the Contractor to furnish and deliver the Goods or Services in accordance with Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2 and at the prices set forth in Exhibit B. Subject to the sections in this Contract concerning Force Majeure, Termination and Open Market Purchases, the Contract shall bind the Client Agency to order the Goods or Services from the Contractor, and to pay for the accepted Goods or Services in accordance with Exhibit B.
7. Contract Amendments.
No amendment to or modification or other alteration of the Contract shall be valid or binding upon the parties unless made in writing, signed by the parties and, if applicable, approved by the Connecticut Attorney General.
8. Assignment. The Contractor shall not assign any of its rights or obligations under the Contract, voluntarily or otherwise, in any manner without the prior written consent of DAS. DAS may void any purported assignment in violation of this section and declare the Contractor in breach of Contract. Any Termination by DAS for a breach is without prejudice to DAS's or the State's rights or possible Claims.
9. Termination.
 - (a) Notwithstanding any provisions in this Contract, DAS, through a duly authorized employee, may Terminate the Contract whenever DAS makes a written determination that such Termination is in the best interests of the State. DAS shall notify the Contractor in writing of Termination pursuant to this section, which notice shall specify the effective date of Termination and the extent to which the Contractor must complete its Performance under the Contract prior to such date.
 - (b) Notwithstanding any provisions in this Contract, DAS, through a duly authorized employee, may, after making a written determination that the Contractor has breached the Contract,

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

Terminate the Contract in accordance with the provisions in the Breach section of this Contract.

- (c) DAS shall send the notice of Termination via certified mail, return receipt requested, to the Contractor at the most current address which the Contractor has furnished to DAS for purposes of correspondence, or by hand delivery. Upon receiving the notice from DAS, the Contractor shall immediately discontinue all services affected in accordance with the notice, undertake all commercially reasonable efforts to mitigate any losses or damages, and deliver to the Client Agency all Records. The Records are deemed to be the property of the Client Agency and the Contractor shall deliver them to the Client Agency no later than thirty (30) days after the Termination of the Contract or fifteen (15) days after the Contractor receives a written request from either DAS or the Client Agency for the Records. The Contractor shall deliver those Records that exist in electronic, magnetic or other intangible form in a non-proprietary format, such as, but not limited to, ASCII or .TXT.
- (d) Upon receipt of a written notice of Termination from DAS, the Contractor shall cease operations as DAS directs in the notice, and take all actions that are necessary or appropriate, or that DAS may reasonably direct, for the protection, and preservation of the Goods and any other property. Except for any work which DAS directs the Contractor to Perform in the notice prior to the effective date of Termination, and except as otherwise provided in the notice, the Contractor shall terminate or conclude all existing subcontracts and purchase orders and shall not enter into any further subcontracts, purchase orders or commitments.
- (e) The Client Agency shall, within forty-five (45) days of the effective date of Termination, reimburse the Contractor for its Performance rendered and accepted by the Client Agency in accordance with Exhibit A, Exhibit A Attachment 1 and Exhibit A Attachment 2 in addition to all actual and reasonable costs incurred after Termination in completing those portions of the Performance which the notice required the Contractor to complete. However, the Contractor is not entitled to receive and the Client Agency is not obligated to tender to the Contractor any payments for anticipated or lost profits. Upon request by DAS or the Client Agency, as applicable, the Contractor shall assign to DAS or the Client Agency, or any replacement contractor which DAS or the Client Agency designates, all subcontracts, purchase orders and other commitments, deliver to DAS or the Client Agency all Records and other information pertaining to its Performance, and remove from State premises, whether leased or owned, all of Contractor's property, equipment, waste material and rubbish related to its Performance, all as DAS or the Client Agency may request.
- (f) For breach or violation of any of the provisions in the section concerning Representations and Warranties, DAS may Terminate the Contract in accordance with its terms and revoke any consents to assignments given as if the assignments had never been requested or consented to, without liability to the Contractor or Contractor Parties or any third party.
- (g) Upon Termination of the Contract, all rights and obligations shall be null and void, so that no party shall have any further rights or obligations to any other party, except with respect to the sections which survive Termination. All representations, warranties, agreements and rights of the parties under the Contract shall survive such Termination to the extent not otherwise limited in the Contract and without each one of them having to be specifically mentioned in the Contract.
- (h) Termination of the Contract pursuant to this section shall not be deemed to be a breach of contract by DAS.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

10. Cost Modifications. The parties may agree to a reduction in the cost of the Contract at any time during which the Contract is in effect. Without intending to impose a limitation on the nature of the reduction, the reduction may be to hourly, staffing or unit costs, the total cost of the Contract or the reduction may take such other form as the State deems to be necessary or appropriate.
11. Breach. If either party breaches the Contract in any respect, the non-breaching party shall provide written notice of such breach to the breaching party and afford the breaching party an opportunity to cure the breach within ten (10) days from the date that the breaching party receives such notice. Any other time provided for in the notice shall trump such ten (10) days. Such right to cure period shall be extended if the non-breaching party is satisfied that the breaching party is making a good faith effort to cure but the nature of the breach is such that it cannot be cured within the right to cure period. The notice may include an effective Contract Termination date if the breach is not cured by the stated date and, unless otherwise modified by the non-breaching party in writing prior to the Termination date, no further action shall be required of any party to effect the Termination as of the stated date. If the notice does not set forth an effective Contract Termination date, then the non-breaching party may Terminate the Contract by giving the breaching party no less than twenty four (24) hours' prior written notice. If DAS believes that the Contractor has not performed according to the Contract, the Client Agency may withhold payment in whole or in part pending resolution of the Performance issue, provided that DAS notifies the Contractor in writing prior to the date that the payment would have been due in accordance with Exhibit B.
12. Waiver.
 - (a) No waiver of any breach of the Contract shall be interpreted or deemed to be a waiver of any other or subsequent breach. All remedies afforded in the Contract shall be taken and construed as cumulative, that is, in addition to every other remedy provided in the Contract or at law or in equity.
 - (b) A party's failure to insist on strict performance of any provision of the Contract shall only be deemed to be a waiver of rights and remedies concerning that specific instance of Performance and shall not be deemed to be a waiver of any subsequent rights, remedies or breach.
13. Open Market Purchases. Failure of the Contractor to Perform within the time specified in the Contract, or failure to replace rejected or substandard Goods or fulfill unperformed Services when so requested and as the Contract provides or allows, constitutes a breach of the Contract and as a remedy for such breach, such failure shall constitute authority for DAS, if it deems it to be necessary or appropriate in its sole discretion, to Terminate the Contract and/or to purchase on the open market, Goods or Services to replace those which have been rejected, not delivered, or not Performed. The Client Agency shall invoice the Contractor for all such purchases to the extent that they exceed the costs and expenses in Exhibit B and the Contractor shall pay the Client Agency's invoice immediately after receiving the invoice. If DAS does not Terminate the Contract, the Client Agency will deduct such open market purchases from the Contract quantities. However, if the Client Agency deems it to be in the best interest of the State, the Client Agency may accept and use the Goods or Services delivered which are substandard in quality, subject to an adjustment in price to be determined by the Client Agency.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

14. Purchase Orders.

- (a) The Contract itself is not an authorization for the Contractor to ship Goods or begin Performance in any way. The Contractor may begin Performance only after it has received a duly issued purchase order against the Contract for Performance.
- (b) The Client Agency shall issue a purchase order against the Contract directly to the Contractor and to no other party.
- (c) All purchase orders shall be in written or electronic form, bear the Contract number (if any) and comply with all other State and Client Agency requirements, particularly the Client Agency's requirements concerning procurement. Purchase orders issued in compliance with such requirements shall be deemed to be duly issued.
- (d) A Contractor making delivery without a duly issued purchase order in accordance with this section does so at the Contractor's own risk.
- (e) The Client Agency may, in its sole discretion, deliver to the Contractor any or all duly issued purchase orders via electronic means only, such that the Client Agency shall not have any additional obligation to deliver to the Contractor a "hard copy" of the purchase order or a copy bearing any hand-written signature or other "original" marking.

15. Indemnification.

- (a) The Contractor shall indemnify, defend and hold harmless the State and its officers, representatives, agents, servants, employees, successors and assigns from and against any and all (1) Claims arising, directly or indirectly, in connection with the Contract, including the acts of commission or omission (collectively, the "Acts") of the Contractor or Contractor Parties; and (2) liabilities, damages, losses, costs and expenses, including but not limited to, attorneys' and other professionals' fees, arising, directly or indirectly, in connection with Claims, Acts or the Contract. The Contractor shall use counsel reasonably acceptable to the State in carrying out its obligations under this section. The Contractor's obligations under this section to indemnify, defend and hold harmless against Claims includes Claims concerning confidentiality of any part of or all of the Contractor's bid, proposal or any Records, any intellectual property rights, other proprietary rights of any person or entity, copyrighted or uncopyrighted compositions, secret processes, patented or unpatented inventions, articles or appliances furnished or used in the Performance.
- (b) The Contractor shall not be responsible for indemnifying or holding the State harmless from any liability arising due to the negligence of the State or any other person or entity acting under the direct control or supervision of the State.
- (c) The Contractor shall reimburse the State for any and all damages to the real or personal property of the State caused by the Acts of the Contractor or any Contractor Parties. The State shall give the Contractor reasonable notice of any such Claims.
- (d) The Contractor's duties under this section shall remain fully in effect and binding in accordance with the terms and conditions of the Contract, without being lessened or compromised in any way, even where the Contractor is alleged or is found to have merely contributed in part to the Acts giving rise to the Claims and/or where the State is alleged or is found to have contributed to the Acts giving rise to the Claims.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (e) The Contractor shall carry and maintain at all times during the term of the Contract, and during the time that any provisions survive the term of the Contract, sufficient general liability insurance to satisfy its obligations under this Contract. The Contractor shall cause the State to be named as an additional insured on the policy and shall provide (1) a certificate of insurance, (2) the declaration page and (3) the additional insured endorsement to the policy to DAS all in an electronic format acceptable to DAS prior to the Effective Date of the Contract evidencing that the State is an additional insured. The Contractor shall not begin Performance until the delivery of these 3 documents to DAS. Contractor shall provide an annual electronic update of the 3 documents to DAS on or before each anniversary of the Effective Date during the Contract Term. State shall be entitled to recover under the insurance policy even if a body of competent jurisdiction determines that State is contributorily negligent.
- (f) This section shall survive the Termination of the Contract and shall not be limited by reason of any insurance coverage.
16. 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.
17. Contractor Guaranties. Contractor shall:
- (a) Perform fully under the Contract;
 - (b) Guarantee the Goods or Services against defective material or workmanship and to repair any damage or marring occasioned in transit or, at the Client Agency's option, replace them;
 - (c) Furnish adequate protection from damage for all work and to repair damage of any kind, for which its workers are responsible, to the premises, Goods, the Contractor's work or that of Contractor Parties;
 - (d) With respect to the provision of Services, pay for all permits, licenses and fees and give all required or appropriate notices;
 - (e) Adhere to all Contractual provisions ensuring the confidentiality of Records that the Contractor has access to and are exempt from disclosure under the State's Freedom of Information Act or other applicable law; and
 - (f) Neither disclaim, exclude nor modify the implied warranties of fitness for a particular purpose or of merchantability.
18. Implied Warranties. DAS does not disclaim, exclude or modify the implied warranty of fitness for a particular purpose or the warranty of merchantability.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

19. Goods, Standards and Appurtenances. Any Goods delivered must be standard new Goods, latest model, except as otherwise specifically stated in the Contract. Remanufactured, refurbished or reconditioned equipment may be accepted but only to the extent allowed under the Contract. Where the Contract does not specifically list or describe any parts or nominal appurtenances of equipment for the Goods, it shall be understood that the Contractor shall deliver such equipment and appurtenances as are usually provided with the manufacturer's stock model.
20. Delivery.
- (a) Delivery shall be made as ordered and in accordance with the Contract. Unless otherwise specified in the Contract, delivery shall be to a loading dock or receiving platform. The Contractor or Contractor's shipping designee shall be responsible for removal of Goods from the carrier and placement on the Client Agency loading dock or receiving platform. The receiving personnel of the Client Agency are not required to assist in this process. The decision of DAS as to reasonable compliance with delivery terms shall be final and binding. The burden of proof of proper receipt of the order shall rest with the Contractor.
 - (b) In order for the time of delivery to be extended, the Client Agency must first approve a request for extension from the time specified in the Contract, such extension applying only to the particular item or shipment.
 - (c) Goods shall be securely and properly packed for shipment, according to accepted standard commercial practice, without extra charge for packing cases, baling or sacks. The containers shall remain the property of the Client Agency unless otherwise stated in the Contract.
 - (d) All risk of loss and damage to the Goods transfers to the Client Agency upon Title vesting in the Client Agency.
21. Goods Inspection. The Commissioner of DAS, in consultation with the Client Agency, shall determine the manner and prescribe the inspection of all Goods and the tests of all samples submitted to determine whether they comply with all of the specifications in the Contract. If any Goods fail in any way to meet the specifications in the Contract, the Client Agency or the Commissioner of DAS may, in its sole discretion, either reject it and owe nothing or accept it and pay for it on an adjusted price basis, depending on the degree to which the Goods meet the specifications. Any decision pertaining to any such failure or rejection shall be final and binding.
22. Emergency Standby for Goods and/or Services. If any Federal or State official, having authority to do so, declares an emergency or the occurrence of a natural disaster within the State of Connecticut, DAS and the Client Agency may request the Goods and Services on an expedited and prioritized basis. Upon receipt of such a request the Contractor shall make all necessary and appropriate commercially reasonable efforts to reallocate its staffing and other resources in order to give primary preference to Performing this Contract ahead of or prior to fulfilling, in whole or in part, any other contractual obligations that the Contractor may have. The Contractor is not obligated to make those efforts to Perform on an expedited and prioritized basis in accordance with this paragraph if doing so will make the Contractor materially breach any other contractual obligations that the Contractor may have. Contractor shall acknowledge receipt of any request made pursuant to this paragraph within 2 hours from the time that the Contractor receives it via purchase order or through a request to make an expedited or prioritized purchase through the State of Connecticut Purchasing Card (MasterCard) Program (the "P-Card Program"). If the

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

Contractor fails to acknowledge receipt within 2 hours, confirm its obligation to Perform or actually Perform, as set forth in the purchase order or through the P-Card Program, then DAS and the Client Agency may procure the Performance from another source without further notice to Contractor and without creating any right of recourse at law or in equity against DAS or Client Agency.

23. Setoff. In addition to all other remedies available hereunder, the State, in its sole discretion, may setoff (1) any costs or expenses that the State incurs resulting from the Contractor's unexcused nonperformance under the Contract and under any other agreement or arrangement that the Contractor has with the State and (2) any other amounts that are due or may become due from the State to the Contractor, against amounts otherwise due or that may become due to the Contractor under the Contract, or under any other agreement or arrangement that the Contractor has with the State. The State's right of setoff shall not be deemed to be the State's exclusive remedy for the Contractor's or Contractor Parties' breach of the Contract, all of which shall survive any setoffs by the State.
24. Force Majeure. The State and the Contractor shall not be excused from their obligation to Perform in accordance with the Contract except in the case of Force Majeure events and as otherwise provided for in the Contract. In the case of any such exception, the nonperforming party shall give immediate written notice to the other, explaining the cause and probable duration of any such nonperformance.
25. Advertising. The Contractor shall not refer to sales to the State for advertising or promotional purposes, including, but not limited to, posting any material or data on the Internet, without DAS's prior written approval.
26. Americans With Disabilities Act. The Contractor shall be and remain in compliance with the Americans with Disabilities Act of 1990 ("Act"), to the extent applicable, during the term of the Contract. DAS may Terminate the Contract if the Contractor fails to comply with the Act.
27. Representations and Warranties. The Contractor, represents and warrants to DAS for itself and Contractor Parties, that:
- (a) if they are entities, they are duly and validly existing under the laws of their respective states of organization and authorized to conduct business in the State of Connecticut in the manner contemplated by the Contract. Further, as appropriate, they have taken all necessary action to authorize the execution, delivery and Performance of the Contract and have the power and authority to execute, deliver and Perform their obligations under the Contract;
 - (b) they will comply with all applicable State and Federal laws and municipal ordinances in satisfying their obligations to the State under and pursuant to the Contract, including, but not limited to (1) Connecticut General Statutes Title 1, Chapter 10, concerning the State's Codes of Ethics and (2) Title 4a concerning State purchasing, including, but not limited to Section 22a-194a concerning the use of polystyrene foam;
 - (c) the execution, delivery and Performance of the Contract will not violate, be in conflict with, result in a breach of or constitute (with or without due notice and/or lapse of time) a default under any of the following, as applicable: (1) any provision of law; (2) any order of any court or the State; or (3) any indenture, agreement, document or other instrument to which it is a party or by which it may be bound;

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (d) they are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any governmental entity;
- (e) as applicable, they have not, within the three years preceding the Contract, in any of their current or former jobs, been convicted of, or had a civil judgment rendered against them or against any person who would Perform under the Contract, for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a transaction or contract with any governmental entity. This includes, but is not limited to, violation of Federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (f) they are not presently indicted for or otherwise criminally or civilly charged by any governmental entity with commission of any of the offenses listed above;
- (g) they have not within the three years preceding the Contract had one or more contracts with any governmental entity Terminated;
- (h) they have not employed or retained any entity or person, other than a bona fide employee working solely for them, to solicit or secure the Contract and that they have not paid or agreed to pay any entity or person, other than a bona fide employee working solely for them, any fee, commission, percentage, brokerage fee, gifts, or any other consideration contingent upon or resulting from the award or making of the Contract or any assignments made in accordance with the terms of the Contract;
- (i) to the best of their knowledge, there are no Claims involving the Contractor or Contractor Parties that might reasonably be expected to materially adversely affect their businesses, operations, assets, properties, financial stability, business prospects or ability to Perform fully under the Contract;
- (j) they shall disclose, to the best of their knowledge, to DAS in writing any Claims involving them that might reasonably be expected to materially adversely affect their businesses, operations, assets, properties, financial stability, business prospects or ability to Perform fully under the Contract, no later than ten (10) Days after becoming aware or after they should have become aware of any such Claims. For purposes of the Contractor's obligation to disclose any Claims to DAS, the ten (10) Days in the section of this Contract concerning Disclosure of Contractor Parties Litigation shall run consecutively with the ten (10) Days provided for in this representation and warranty;
- (k) their participation in the Invitation to Bid process is not a conflict of interest or a breach of ethics under the provisions of Title 1, Chapter 10 of the Connecticut General Statutes concerning the State's Code of Ethics;
- (l) the Bid was not made in connection or concert with any other person or entity, including any affiliate (as defined in the Tangible Personal Property section of this Contract) of the Contractor, submitting a bid for the same Goods or Services, and is in all respects fair and without collusion or fraud;
- (m) they are able to Perform under the Contract using their own resources or the resources of a party who is not a Contractor;

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (n) the Contractor shall obtain in a written contract all of the representations and warranties in this section from any Contractor Parties and to require that provision to be included in any contracts and purchase orders with Contractor Parties;
- (o) they have paid all applicable workers' compensation second injury fund assessments concerning all previous work done in Connecticut;
- (p) they have a record of compliance with Occupational Health and Safety Administration regulations without any unabated, willful or serious violations;
- (q) they owe no unemployment compensation contributions;
- (r) they are not delinquent in the payment of any taxes owed, or, that they have filed a sales tax security bond, and they have, if and as applicable, filed for motor carrier road tax stickers and have paid all outstanding road taxes;
- (s) all of their vehicles have current registrations and, unless such vehicles are no longer in service, they shall not allow any such registrations to lapse;
- (t) each Contractor Party has vested in the Contractor plenary authority to bind the Contractor Parties to the full extent necessary or appropriate to ensure full compliance with and Performance in accordance with all of the terms and conditions of the Contract and that all appropriate parties shall also provide to DAS, no later than fifteen (15) days after receiving a request from DAS, such information as DAS may require to evidence, in DAS's sole determination, compliance with this section;
- (u) except to the extent modified or abrogated in the Contract, all Title shall pass to the Client Agency upon complete installation, testing and acceptance of the Goods or Services and payment by the Client Agency;
- (v) if either party Terminates the Contract, for any reason, they shall relinquish to the Client Agency all Title to the Goods delivered, accepted and paid for (except to the extent any invoiced amount is disputed) by the Client Agency;
- (w) with regard to third party products provided with the Goods, they shall transfer all licenses which they are permitted to transfer in accordance with the applicable third party license;
- (x) they shall not copyright, register, distribute or claim any rights in or to the Goods after the Effective Date of the Contract without DAS's prior written consent;
- (y) they either own or have the authority to use all Title of and to the Goods, and that such Title is not the subject of any encumbrances, liens or claims of ownership by any third party;
- (z) the Goods do not infringe or misappropriate any patent, trade secret or other intellectual property right of a third party;
- (aa) the Client Agency's use of any Goods shall not infringe or misappropriate any patent, trade secret or other intellectual property right of a third party;
- (bb) if they procure any Goods, they shall sub-license such Goods and that the Client Agency shall be afforded the full benefits of any manufacturer or subcontractor licenses for the use of the Goods; and

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

(cc) they shall assign or otherwise transfer to the Client Agency, or afford the Client Agency the full benefits of any manufacturer's warranty for the Goods, to the extent that such warranties are assignable or otherwise transferable to the Client Agency.

28. Representations and Warranties Concerning Motor Vehicles. If in the course of Performance or in any other way related to the Contract the Contractor at any time uses or operates "motor vehicles," as that term is defined by Conn. Gen. Stat. §14-1 (including, but not limited to such services as snow plowing, sanding, hauling or delivery of materials, freight or merchandise, or the transportation of passengers), the Contractor, represents and warrants for itself and the Contractor Parties, that:

- (a) It is the owner of record or lessee of record of each such motor vehicle used in the Performance of the Contract, and each such motor vehicle is duly registered with the Connecticut Department of Motor Vehicles ("ConnDMV") in accordance with the provisions of Chapter 246 of the Connecticut General Statutes. Each such registration shall be in valid status, and shall not be expired, suspended or revoked by ConnDMV, for any reason or cause. If such motor vehicle is not registered with ConnDMV, then it shall be duly registered with another state or commonwealth in accordance with such other state's or commonwealth's applicable statutes. Each such registration shall be in valid status, and shall not be expired, suspended or revoked by such other state or commonwealth for any reason or cause.
- (b) Each such motor vehicle shall be fully insured in accordance with the provisions of Sections 14-12b, 14-112 and 38a-371 of the Connecticut General Statutes, as amended, in the amounts required by the said sections or in such higher amounts as have been specified by ConnDMV as a condition for the award of the Contract, or in accordance with all substantially similar provisions imposed by the law of the jurisdiction where the motor vehicle is registered.
- (c) Each Contractor Party who uses or operates a motor vehicle at any time in the Performance of the Contract shall have and maintain a motor vehicle operator's license or commercial driver's license of the appropriate class for the motor vehicle being used or operated. Each such license shall bear the endorsement or endorsements required by the provisions of Section 14-36a of the Connecticut General Statutes, as amended, to operate such motor vehicle, or required by substantially similar provisions imposed by the law of another jurisdiction in which the operator is licensed to operate such motor vehicle. The license shall be in valid status, and shall not be expired, suspended or revoked by ConnDMV or such other jurisdiction for any reason or cause.
- (d) Each motor vehicle shall be in full compliance with all of the terms and conditions of all provisions of the Connecticut General Statutes and regulations, or those of the jurisdiction where the motor vehicle is registered, pertaining to the mechanical condition, equipment, marking and operation of motor vehicles of such type, class and weight, including, but not limited to, requirements for intrastate carriers with motor vehicles having a gross vehicle weight rating or gross combination weight rating or gross vehicle weight or gross combination weight of 18,001 pounds or more or interstate carriers with motor vehicles having a gross vehicle weight rating or gross combination weight rating or gross vehicle weight or gross combination weight of 10,001 pounds or more otherwise described by the provisions of Conn. Gen. Stat. § 14-163c(a) and all applicable provisions of the Federal Motor Carrier Safety Regulations, as set forth in Title 49, Parts 382 to 399, inclusive, of the Code of Federal Regulations. If the Contractor is a "motor carrier," as that term is defined in section 49 CFR Part 390, and the Contractor is subject to an order issued by the Federal Motor Carrier Safety Administration that prohibits such Contractor from operating or

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

allowing the operation of a motor vehicle, then the Contractor shall comply fully with such order. In addition, if a motor vehicle or its operator is declared out of service pursuant to Conn. Gen. Stat. § 14-163c(d)(4), then the Contractor shall not operate or allow the operation of that motor vehicle and shall not allow the operator to operate a motor vehicle while the respective subject out-of-service order is in effect.

29. Disclosure of Contractor Parties Litigation. The Contractor shall require that all Contractor Parties, as appropriate, disclose to the Contractor, to the best of their knowledge, any Claims involving the Contractor Parties that might reasonably be expected to materially adversely affect their businesses, operations, assets, properties, financial stability, business prospects or ability to Perform fully under the Contract, no later than ten (10) Days after becoming aware or after they should have become aware of any such Claims. Disclosure shall be in writing.
30. Entirety of Contract. The Contract is the entire agreement between the parties with respect to its subject matter, and supersedes all prior agreements, bids, offers, counteroffers and understandings of the parties, whether written or oral. The Contract has been entered into after full investigation, neither party relying upon any statement or representation by the other unless such statement or representation is specifically embodied in the Contract.
31. Exhibits. All exhibits referred to in and attached to this Contract are incorporated in this Contract by such reference and shall be deemed to be a part of it as if they had been fully set forth in it.
32. 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, Executive Order No. 61 of Governor Dannel P. Malloy promulgated December 13, 2017 concerning the Policy for the Management of State Information Technology Projects, as issued by the Office of Policy and Management, Policy ID IT-SDLC-17-04, and 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 in accordance with their respective terms and conditions. If Executive Orders 14, 61 or 49 are applicable, it is deemed to be incorporated into and are made a part of the Contract as if it had been fully set forth in it. At the Contractor's request, the State shall provide a copy of these orders to the Contractor.
33. Non-discrimination.
- (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;

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

(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

(10) "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, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

(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,

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

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

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (f) 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.

- (g)
 - (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.

- (h) 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.

34. 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;

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (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;
 - (4) 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.
35. 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.
36. Notice. All notices, demands, requests, consents, approvals or other communications required or permitted to be given or which are given with respect to this Contract (for the purpose of this section collectively called "Notices") shall be deemed to have been effected at such time as the notice is placed in the U.S. mail, first class and postage pre-paid, return receipt requested or placed with a recognized, overnight express delivery service that

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

provides for a return receipt. All such Notices shall be in writing and shall be addressed as follows:

If to DAS:

State of Connecticut Department of Administrative Services
Procurement Division
450 Columbus Boulevard, Suite 1202
Hartford, CT 06103
Attention: Janet DelGreco Olson

If to the Contractor:

At the address set forth on Form SP-38.

37. **Insurance.** Before commencing Performance, the Contractor shall obtain and maintain at its own cost and expense for the duration of the Contract, the following insurance as described in (a) through (h) below. Contractor shall assume any and all deductibles in the described insurance policies. The Contractor's insurers shall have no right of recovery or subrogation against the State and the described Contractor's insurance shall be primary coverage. Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the State.
- (a) **Owner's and Contractor's Protective Liability:** The Contractor shall purchase Owner's and Contractor's Protective Liability Insurance for an in the name of the State of Connecticut. This insurance will provide a total limit of \$1,000,000 per occurrence for all damages arising out of injury to or death of all persons and out of injury to or destruction of property in any one accident or occurrence and, subject to that limit per occurrence, a total (or aggregate) limit of \$2,000,000 for all damages arising out of "bodily injury to or death of all persons in all accidents or occurrences and out of injury to or destruction of property during the policy period.
 - (b) **Commercial General Liability:** \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. Coverage shall include, Premises and Operations, Independent Contractors, Products and Completed Operations, Contractual Liability and Broad Form Property Damage coverage. If a general aggregate is used, the general aggregate limit shall apply separately to the project or the general aggregate limit shall be twice the occurrence limit.
 - (c) **Automobile Liability:** \$1,000,000 combined single limit per accident for bodily injury. Coverage extends to owned, hired and non-owned automobiles. If the vendor/contractor does not own an automobile, but one is used in the execution of the contract, then only hired and non-owned coverage is required. If a vehicle is not used in the execution of the contract then automobile coverage is not required.
 - (d) **Workers' Compensation and Employers Liability:** Statutory coverage in compliance with the Compensation laws of the State of Connecticut. Coverage shall include Employer's Liability with minimum limits of \$100,000 each accident, \$500,000 Disease – Policy limit, \$100,000 each employee.
 - (e) **Reserved**

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (f) **Umbrella Liability:** Excess/umbrella liability insurance may be included to meet minimum requirements. Umbrella coverage must indicate the existing underlying insurance coverage.
- (g) **Claims Made:** Not acceptable with the exception of Professional Liability when specified.
- (h) **Reserved**
- 38. **Headings.** The headings given to the sections in the Contract are inserted only for convenience and are in no way to be construed as part of the Contract or as a limitation of the scope of the particular section to which the heading refers.
- 39. **Number and Gender.** Whenever the context so requires, the plural or singular shall include each other and the use of any gender shall include all genders.
- 40. **Parties.** To the extent that any Contractor Party is to participate or Perform in any way, directly or indirectly in connection with the Contract, any reference in the Contract to "Contractor" shall also be deemed to include "Contractor Parties," as if such reference had originally specifically included "Contractor Parties" since it is the parties' intent for the terms "Contractor Parties" to be vested with the same respective rights and obligations as the term "Contractor."
- 41. **Contractor Changes.** The Contractor shall notify DAS in writing no later than ten (10) Days from the effective date of any change in:
 - a. its certificate of incorporation or other organizational document;
 - b. more than a controlling interest in the ownership of the Contractor; or
 - c. the individual(s) in charge of the Performance.

This change shall not relieve the Contractor of any responsibility for the accuracy and completeness of the Performance. DAS, after receiving written notice by the Contractor of any such change, may require such agreements, releases and other instruments evidencing, to DAS's satisfaction, that any individuals retiring or otherwise separating from the Contractor have been compensated in full or that provision has been made for compensation in full, for all work performed under terms of the Contract. The Contractor shall deliver such documents to DAS in accordance with the terms of DAS's written request. DAS may also require, and the Contractor shall deliver, a financial statement showing that solvency of the Contractor is maintained. The death of any Contractor Party, as applicable, shall not release the Contractor from the obligation to Perform under the Contract; the surviving Contractor Parties, as appropriate, must continue to Perform under the Contract until Performance is fully completed.

- 42. **Further Assurances.** The parties shall provide such information, execute and deliver any instruments and documents and take such other actions as may be necessary or reasonably requested by the other party which are not inconsistent with the provisions of this Contract and which do not involve the vesting of rights or assumption of obligations other than those provided for in the Contract, in order to give full effect to the Contract and to carry out the intent of the Contract.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

43. 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.
- (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 will pay for all costs and expenses of any audit or inspection which reveals information that, in the sole determination of the State, is sufficient to constitute a breach by the Contractor under this Contract. The Contractor will remit full payment to the State for such audit or inspection no later than 30 days after receiving an invoice from the State. If the State does not receive payment within such time, the State may setoff the amount from any moneys which the State would otherwise be obligated to pay the Contractor in accordance with this Contract's Setoff provision.
- (e) 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 Contract, or (ii) the expiration or earlier termination of this Contract, 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.
- (f) 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.
- (g) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

44. Background Checks. The State may require that the Contractor and Contractor Parties undergo criminal background checks as provided for in the State of Connecticut Department of Emergency Services and Public Protection Administration and Operations Manual or such other State document as governs procedures for background checks. The Contractor and Contractor Parties shall cooperate fully as necessary or reasonably requested with the State and its agents in connection with such background checks.

45. Continued Performance. The Contractor and Contractor Parties shall continue to Perform their obligations under the Contract while any dispute concerning the Contract is being resolved.

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

46. Working and Labor Synergies. The Contractor shall be responsible for maintaining a tranquil working relationship between the Contractor work force, the Contractor Parties and their work force, State employees, and any other contractors present at the work site. The Contractor shall quickly resolve all labor disputes which result from the Contractor's or Contractor Parties' presence at the work site, or other action under their control. Labor disputes shall not be deemed to be sufficient cause to allow the Contractor to make any claim for additional compensation for cost, expenses or any other loss or damage, nor shall those disputes be deemed to be sufficient reason to relieve the Contractor from any of its obligations under the Contract.
47. Contractor Responsibility.
- (a) The Contractor shall be responsible for the entire Performance under the Contract regardless of whether the Contractor itself performs. The Contractor shall be the sole point of contact concerning the management of the Contract, including Performance and payment issues. The Contractor is solely and completely responsible for adherence by the Contractor Parties to all applicable provisions of the Contract.
 - (b) The Contractor shall exercise all reasonable care to avoid damage to the State's property or to property being made ready for the State's use, and to all property adjacent to any work site. The Contractor shall promptly report any damage, regardless of cause, to the State.
48. Severability. If any term or provision of the Contract or its application to any person, entity or circumstance shall, to any extent, be held to be invalid or unenforceable, the remainder of the Contract or the application of such term or provision shall not be affected as to persons, entities or circumstances other than those as to whom or to which it is held to be invalid or unenforceable. Each remaining term and provision of the Contract shall be valid and enforced to the fullest extent possible by law.
49. 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. However, all materials associated with the Bid and the Contract are subject to the terms of the Connecticut Freedom of Information Act ("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, especially including the Bid, the Records and the specifications, 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 said documentation as CONFIDENTIAL, DAS will endeavor to keep said information confidential to the extent permitted by law. DAS, 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. The Contractor shall have the burden of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall DAS or the State have any liability for the disclosure of any documents or information in its possession which

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

the State or DAS believes are required to be disclosed pursuant to the FOIA or other requirements of law.

50. References to Statutes, Public Acts, Regulations, Codes and Executive Orders.

All references in this Contract to any statute, public act, regulation, code or executive order shall mean such statute, public act, regulation, code or executive order, respectively, as it has been amended, replaced or superseded at any time. Notwithstanding any language in this Contract that relates to such statute, public act, regulation, code or executive order, and notwithstanding a lack of a formal amendment to this Contract, this Contract shall always be read and interpreted as if it contained the most current and applicable wording and requirements of such statute, public act, regulation, code or executive order as if their most current language had been used in and requirements incorporated into this Contract at the time of its execution.

51. Cross-Default.

- (a) If the Contractor or Contractor Parties breach, default or in any way fail to Perform satisfactorily under the Contract, then DAS may, in its sole discretion, without more and without any action whatsoever required of the State, treat any such event as a breach, default or failure to perform under any or all other agreements or arrangements ("Other Agreements") that the Contractor or Contractor Parties have with DAS. Accordingly, DAS may then exercise at its sole option any and all of its rights or remedies provided for in the Contract or Other Agreements, either selectively or collectively and without such election being deemed to prejudice any rights or remedies of DAS, as if the Contractor or Contractor Parties had suffered a breach, default or failure to perform under the Other Agreements.
- (b) If the Contractor or Contractor Parties breach, default or in any way fail to Perform satisfactorily under any or all Other Agreements with DAS or the State, then DAS may, in its sole discretion, without more and without any action whatsoever required of the State, treat any such event as a breach, default or failure to Perform under the Contract. Accordingly, the State may then exercise at its sole option any and all of its rights or remedies provided for in the Other Agreements or the Contract, either selectively or collectively and without such election being deemed to prejudice any rights or remedies of DAS or the State, as if the Contractor or Contractor Parties had suffered a breach, default or failure to Perform under the Contract.

52. 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.

53. 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

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

54. Sovereign Immunity. The parties acknowledge and agree that nothing in the Invitation to Bid or the Contract shall be construed as a modification, compromise or waiver by the State of any rights or defenses of any immunities provided by Federal law or the laws of the State of Connecticut to the State or any of its officers and employees, which they may have had, now have or will have with respect to all matters arising out of the Contract. To the extent that this section conflicts with any other section, this section shall govern.
55. Time of the Essence. Time is of the essence with respect to all provisions of this Contract that specify a time for performance; provided, however, that this provision shall not be construed to limit or deprive a party of the benefits of any grace or use period allowed in this Contract.
56. Reserved.
57. Campaign Contribution Restriction. For all State contracts as defined in Conn. Gen. Stat. § 9-612(g)(1) 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," attached as Exhibit C.
58. Reserved.
59. Protection of Confidential Information.
- (a) Contractor and Contractor Parties, at their own expense, have a duty to and shall protect from a Confidential Information Breach any and all Confidential Information which they come to possess or control, wherever and however stored or maintained, in a commercially reasonable manner in accordance with current industry standards.
- (b) Each Contractor or Contractor Party shall develop, implement and maintain a comprehensive data - security program for the protection of Confidential Information. The safeguards contained in such program shall be consistent with and comply with the safeguards for protection of Confidential Information, and information of a similar character, as set forth in all applicable federal and state law and written policy of DAS or State concerning the confidentiality of Confidential Information. Such data-security program shall include, but not be limited to, the following:
- (1) A security policy for employees related to the storage, access and transportation of data containing Confidential Information;
- (2) Reasonable restrictions on access to records containing Confidential Information, including access to any locked storage where such records are kept;
- (3) A process for reviewing policies and security measures at least annually;

Contract # 18PSX0298

Contract Document

SP-50 Rev. 10/29/18

Prev. Rev. 1/19/18

- (4) Creating secure access controls to Confidential Information, including but not limited to passwords; and
 - (5) Encrypting of Confidential Information that is stored on laptops, portable devices or being transmitted electronically.
- (c) The Contractor and Contractor Parties shall notify DAS, the Client Agency and the Connecticut Office of the Attorney General as soon as practical, but no later than twenty-four (24) hours, after they become aware of or suspect that any Confidential Information which Contractor or Contractor Parties have come to possess or control has been subject to a Confidential Information Breach. If a Confidential Information Breach has occurred, the Contractor shall, within three (3) business days after the notification, present a credit monitoring and protection plan to the Commissioner of Administrative Services, the Client Agency and the Connecticut Office of the Attorney General, for review and approval. Such credit monitoring or protection plan shall be made available by the Contractor at its own cost and expense to all individuals affected by the Confidential Information Breach. Such credit monitoring or protection plan shall include, but is not limited to reimbursement for the cost of placing and lifting one (1) security freeze per credit file pursuant to Connecticut General Statutes § 36a-701a. Such credit monitoring or protection plans shall be approved by the State in accordance with this Section and shall cover a length of time commensurate with the circumstances of the Confidential Information Breach. The Contractors' costs and expenses for the credit monitoring and protection plan shall not be recoverable from DAS, the Client Agency, any State of Connecticut entity or any affected individuals.
- (d) The Contractor shall incorporate the requirements of this Section in all subcontracts requiring each Contractor Party to safeguard Confidential Information in the same manner as provided for in this Section.
- (e) Nothing in this Section shall supersede in any manner Contractor's or Contractor Party's obligations pursuant to HIPAA or the provisions of this Contract concerning the obligations of the Contractor as a Business Associate of Covered Entity.

60. Antitrust.

Contractor hereby irrevocably assigns to the State of Connecticut all rights, title and interest in and to all Claims associated with this Contract that Contractor now has or may or will have and that arise under the antitrust laws of the United States, 15 USC Section 1, *et seq.* and the antitrust laws of the State of Connecticut, Connecticut General Statute § 35-24, *et seq.*, including but not limited to any and all Claims for overcharges. This assignment shall become valid and effective immediately upon the accrual of a Claim without any further action or acknowledgment by the parties.

61. Reserved.

EXHIBIT A

DESCRIPTION OF GOODS & SERVICES AND ADDITIONAL TERMS & CONDITIONS

1. DESCRIPTION OF GOODS AND SERVICES

(a) **SCOPE:**

Contractor shall provide guide railing parts as requested by Client Agency.

(b) **FORM 817:**

FORM 817 "Standard Specifications for Roads, Bridges and Incidental Construction ("Standards")": Reference is made in the Contract to the Client Agency's Standards. Performance under this Contract must conform with the Standards set forth in FORM 817, including all supplements and other applicable standards. A copy of the Standards may be viewed at the following: <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>

(c) **SPECIAL REQUIREMENTS:**

Contract items containing any combination of bolts, washers and nuts must be packaged in the same container. All wood posts must be bundled thirty (30) posts per bundle and banded with a minimum of three (3) bands. A notarized certificate of treatment and notarized materials certificate must accompany each order as such certificates are more fully described in the Client Agency's Standards.

As prescribed in the specifications listed in Attachment 1, Contractor shall drill holes in wood posts and wood block outs prior to delivery.

(d) **MATERIAL SPECIFICATIONS:**

All material furnished under the Contract must be in strict accordance with the Client Agency's Standards and the following standard sheets and miscellaneous sheets marked "Attachment 1":

HW-910_01 W-Beam Metal Beam Rail Hardware,
HW-910_02 Metal Beam Rail (R-B 350) Guide Rail,
HW-910_03 Metal Beam Rail (Type MD-B 350),
HW-910_04 Metal Beam Rail (Type R-B 350) Systems 5, 5A, and 6,
HW-910_05 Metal Beam Rail R-B 350 Span Type I, II, III Sections,
HW-910_06 R-B 350 Bridge Attachment Safety Shape Parapet,
HW-910_07 R-B 350 Bridge Attachment Vertical Shape Parapet,
HW-910_08 R-B 350 Bridge Attachment Trailing End,
HW-910_09a Miscellaneous Guide Rail Transitions Sheet 1,
HW-910_09b Miscellaneous Guide Rail Transitions Sheet 2,
HW-910_10 Metal Beam Rail 8" x 6" Box Beam,
HW-910_11 Curved Guide Rail Treatment Detail,
HW-910_12a Merritt Parkway Guide Rail Attachment – System 2 & 3,
HW-910_12b Merritt Parkway Guide Rail,
HW-910_12c Merritt Parkway Guide Rail Trailing End Attachments,
HW-910_12d Merritt Parkway Median Guide Rail and End Anchor,
HW-910_13a Thrie-Beam Metal Beam Rail Hardware,

EXHIBIT A

DESCRIPTION OF GOODS & SERVICES AND ADDITIONAL TERMS & CONDITIONS

HW-910_13b Thrie-Beam Transitions,
HW-910_14a Thrie-Beam 350 Bridge Attachment,
HW-910_14b Thrie-Beam 350 Guide Rail Transition to R-B 350 Guide Rail,
HW-910_15 MD-B 350 Median Barrier Safety Shape Attachment Type I,
HW-910_16 MD-B 350 Median Barrier Safety Shape Attachment Type II,
HW-910_17 R-B Terminal Section,
HW-910_18 Metal Beam Rail (Type MD-I),
HW-910_19a Metal Beam Rail (Modified Type R-I) and End Anchorages Type I,
HW-910_19b Metal Beam Rail (Modified Type R-I) and End Anchorages Type II,
HW-910_19c Metal Beam Rail (Modified Type R-I) Systems 2 and 3,
HW-910_20 MASH W-Beam Hardware,
HW-910_21 Metal Beam Rail (R-B MASH) Guide Rail,
HW-910_22 Metal Beam Rail (MD-B MASH) Guide Rail,
HW-910_23 Metal Beam Rail (R-B MASH) Half and Quarter Post Spacing,
HW-910_24 Metal Beam Rail Span Section Types II and III,
HW-910_25 Metal Beam Rail Transition 350 to MASH,
HW-911_01 R-B End Anchorage Type I and II,
HW-911_02 MD-B End Anchorage Type I,
HW-911_03 Anchor in Earth Cut Slope & Anchor in Rock Cut Slope,
HW-911_05 Merritt Parkway Guide Rail End Anchors,
HW-918_01a Three Cable Guide Rail (I-Beam Posts) Sheet 1 (Post-2013 – 6” Wire Spacing),
HW-918_01b Three Cable Guide Rail (I-Beam Posts) Sheet 2 (Post-2013 – 6” Wire Spacing),
HW-918_01c Three Cable Guide Rail (I-Beam Posts) Sheet 3 (Post-2013 – 6” Wire Spacing),
TR-1205_01 Delineation, Delineators and Object Marker Details.

Archived Standard Sheets

217-B Two-Cable Guide Railing,
217-C Three-Cable Guide Railing,
217-D Wire Rope Railing-Three Cable (Wood Posts),
217-E Wire Rope Railing-Three Cable (Wood Posts),
910 Metal Beam Rail Elements.

Miscellaneous Sheets

M Standard Wire Rope Railing,
O Miscellaneous.

All of the specifications for the standard drawings and detail sheets noted above are described and marked as “Attachment 1”.

EXHIBIT A

DESCRIPTION OF GOODS & SERVICES AND ADDITIONAL TERMS & CONDITIONS

- (e) **MATERIALS CERTIFICATE:**
A properly executed and notarized materials certificate and certified test report, in accordance with the provisions of Section 1.06.07 of Client Agency's Standards must accompany each shipment of goods. Failure to comply with this requirement may result in rejection of delivery by the Client Agency. The Contractor shall assume all costs associated with the return of any rejected items back to the point of the shipment's origin.

- (f) **PURCHASE ORDERS:**
When ConnDOT is the Client Agency, questions pertaining to purchase orders must be directed to the processing unit at 860-594-2070.

- (g) **WARRANTY:**
All items that the Contractor supplies must be warrantied against defects in materials or workmanship or both. The warranty must provide the Client Agency with full replacement cost of the deficient item(s) and the cost of any labor, packing, shipping, etc. required to replace the defective item(s).

- (h) **PRICING:**
Pricing shall be in accordance with the specifications in Exhibit B, Price Schedule. All pricing shall include all packing, packages and include transportation with delivery charges fully prepaid by Contractor, free on board (F.O.B.) shipping destination.

- (i) **DELIVERY:**
Contractor shall make all deliveries in the quantities and to the location specified on each purchase order. If ConnDOT is the Client Agency, all routine deliveries must be made between 8:00 a.m. and 3:30 p.m., Monday through Friday. Primary delivery locations include, but are not limited to:

DOT 133	Waterbury	100 Chase River Road
DOT 128	Colchester	88 Old Hartford Ave
DOT 188	Rocky Hill	660 Brook Street
DOT 190	Milford	44 Banner Drive

Each delivery must be accompanied by a packing slip that references the purchase order number, identifies the item(s) and quantities being delivered and includes the Contractor's invoice number.

Contractor shall make routine deliveries of all items offered under Contract within thirty (30) days after receipt of Client Agency's order.

EXHIBIT A

DESCRIPTION OF GOODS & SERVICES AND ADDITIONAL TERMS & CONDITIONS

Contractor shall make deliveries on flatbed vehicles only with a minimum length of twelve feet (12'). Failure to comply may result in the refusal of delivery.

(j) **INVOICES AND PAYMENTS:**

If the Client Agency is ConnDOT, Client Agency's accounts payable unit will issue payments through the State Comptroller's Office. The Client Agency payments and invoicing inquiries must be directed to 860 594-2305.

All invoices must include:

1. Contractor F.E.I.N. or social security number,
2. Complete name and billing address,
3. Project number, if applicable,
4. Invoice number and date,
5. Purchase order number,
6. Itemized description of services or material supplies or both,
7. Adjustments, if applicable,
8. Ticket numbers corresponding to each invoice must be listed or attached to the company invoice as a separate sheet, if applicable and

Payments may be delayed if the invoice form is not properly completed in accordance with the instructions noted above. Please mail Client Agency's invoices to the following address:

State of Connecticut
Department of Transportation
Attn: Accounts Payable SW1A
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

(k) **GEOGRAPHIC LIMITATIONS:**

Geographic limitations of each maintenance district are outlined on district map marked "Attachment 2".

2. ADDITIONAL TERMS AND CONDITIONS:

(a) **CONTRACT SEPARATELY/ADDITIONAL SAVINGS OPPORTUNITIES:**

DAS reserves the right to seek additional discounts from Contractor, or to contract separately for a single purchase if, in the judgment of DAS, the quantity required is sufficiently large enough to enable the State to realize a cost savings over and above the prices set forth in the Price Schedule, Exhibit B, whether or not such a savings actually occurs.

EXHIBIT A

DESCRIPTION OF GOODS & SERVICES AND ADDITIONAL TERMS & CONDITIONS

(b) **MANDATORY EXTENSION TO CLIENT AGENCIES:**

Contractor shall offer and extend Contract (including pricing, terms and conditions) to political sub-divisions of the State (towns and municipalities), schools, and not-for-profit organizations.

(c) **PURCHASING MASTERCARD CREDIT CARD ("PCARD"):**

Notwithstanding the provisions of Section 4(b) (2) of Contract, purchases may be made using the PCard in accordance with Memorandum No. 2011-11 issued by the Office of the State Comptroller.

Contractor shall be equipped to receive orders issued by Client Agency using the PCard. Contractor shall be responsible for the credit card user-handling fee associated with PCard purchases. Contractor shall charge to the PCard only upon acceptance of Goods delivered to Client Agency or the rendering of Services.

Contractor shall capture and provide to its merchant bank, Level 3 reporting at the line item level for all orders placed by PCard.

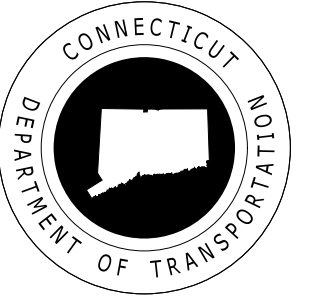
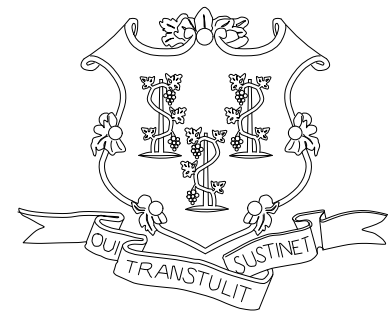
Questions regarding the state of Connecticut MasterCard Program may be directed to Ms. Kerry DiMatteo, Procurement Card Program Administrator at 860-713-5072.

(d) **SUBCONTRACTORS:**

DAS must approve any and all subcontractors utilized by Contractor in writing prior to any such subcontractor commencing any work. Contractor acknowledges that any work provided under Contract to any state entity is work conducted on behalf of the State and that the Commissioner of DAS or his/her designee may communicate directly with any subcontractor as the State deems necessary or appropriate. Contractor shall be responsible for all payment or fees charged by the subcontractor(s). A performance evaluation of any subcontractor shall be provided promptly by Contractor to DAS upon request. Contractor must provide the majority of services described in the ITB and specifications.

(e) **SECURITY AND PROPERTY ENTRANCE POLICES AND PROCEDURES:**

Contractor shall adhere to established security and/or property entrance policies and procedures for each requesting Client Agency. It is the responsibility of each Contractor to understand and adhere to those policies and procedures prior to any attempt to enter any Client Agency premises for the purpose of carrying out the scope of work described in this Contract.



ATTACHMENT 1

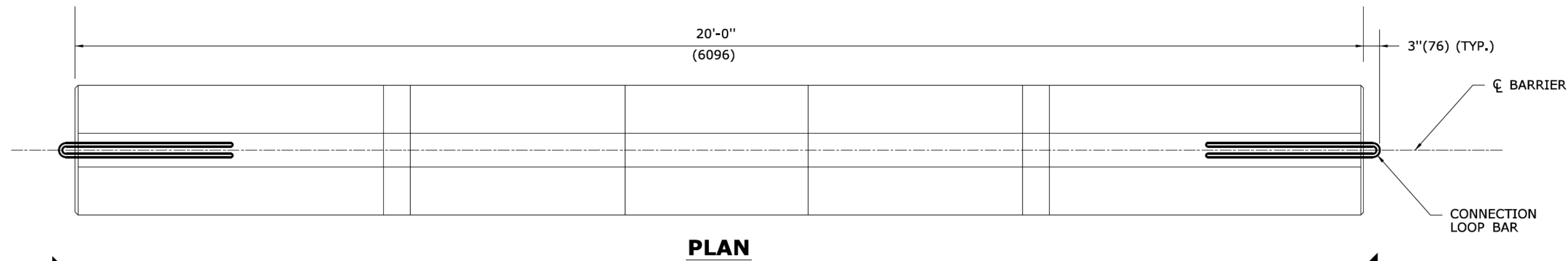
CONNECTICUT DEPARTMENT OF TRANSPORTATION

GUIDE RAIL PARTS MAINTENANCE CONTRACT DRAWINGS

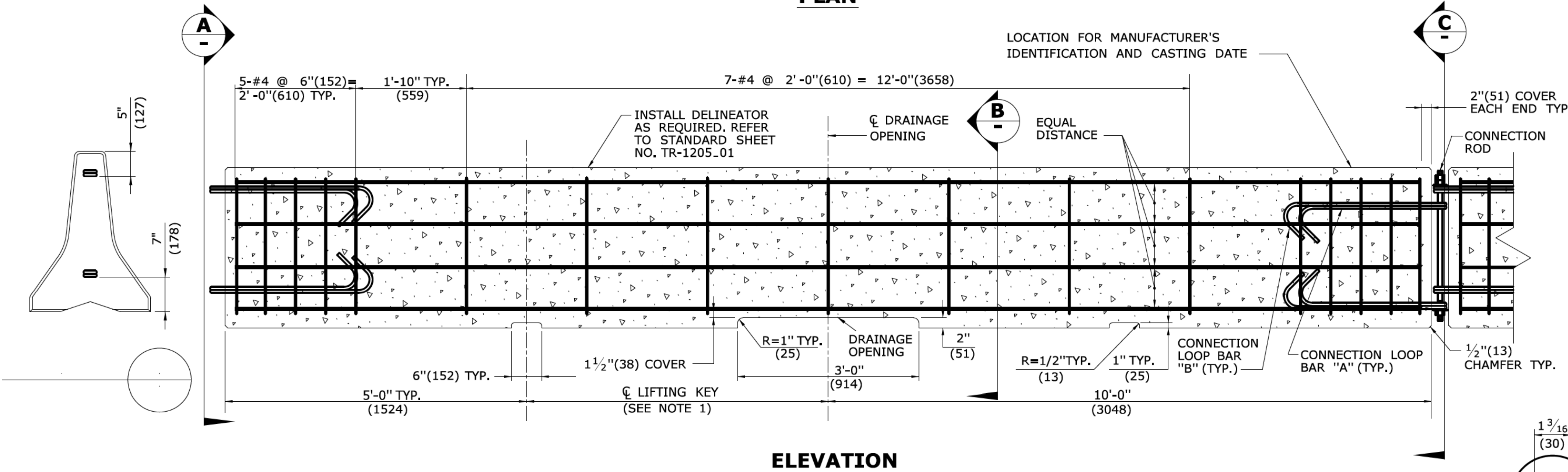
<p>HIGHWAY OPERATIONS</p>	<p>CONTRACT FOR: GUIDE RAIL PARTS</p>	<p> STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION </p>	<p>TITLE SHEET</p>	<p>CONTRACT NO.:</p>
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GENERAL NOTES:

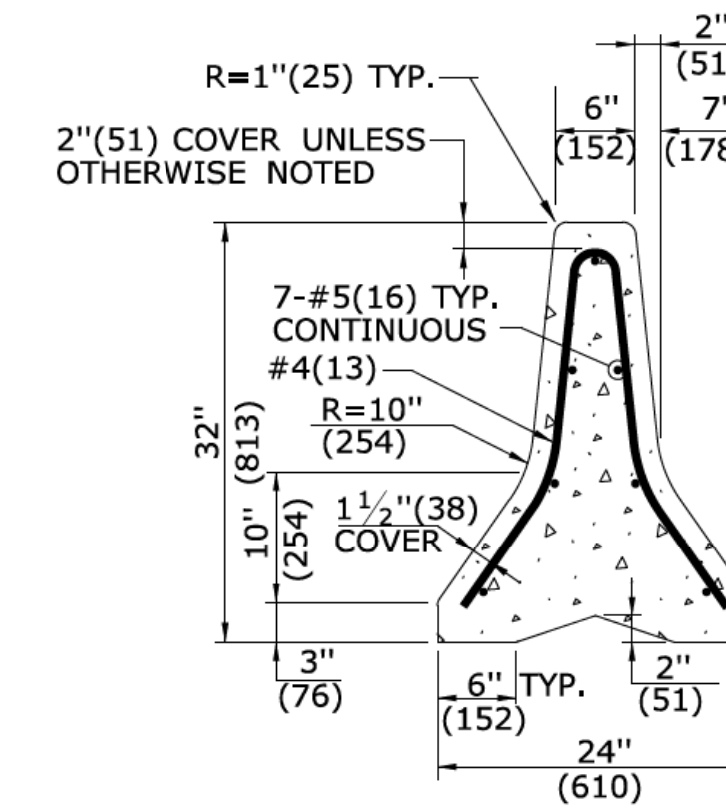
1. ALTERNATE DESIGNS FOR LIFTING KEYS, HOLES OR OTHER HANDLING DEVICES MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. EXPECTED PERMANENT DYNAMIC DEFLECTION IS 3'-6" (1148) BASED ON TL-3 CRASH TESTS WITH 240' (73152) OF TPCBC.



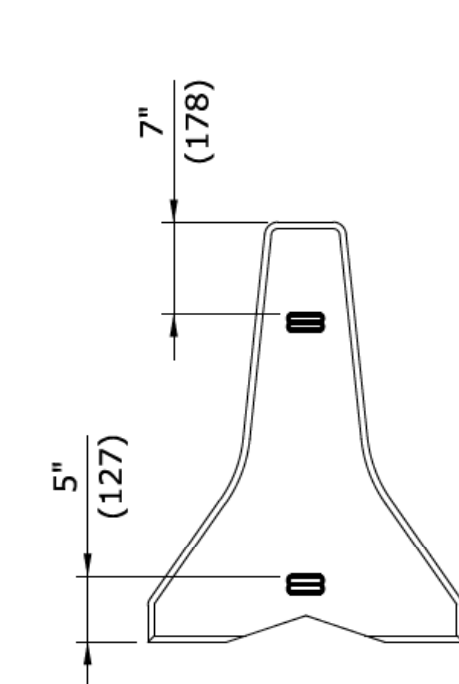
PLAN



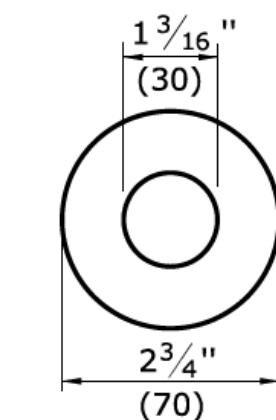
ELEVATION



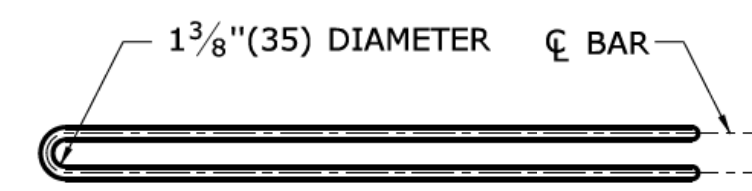
SECTION B



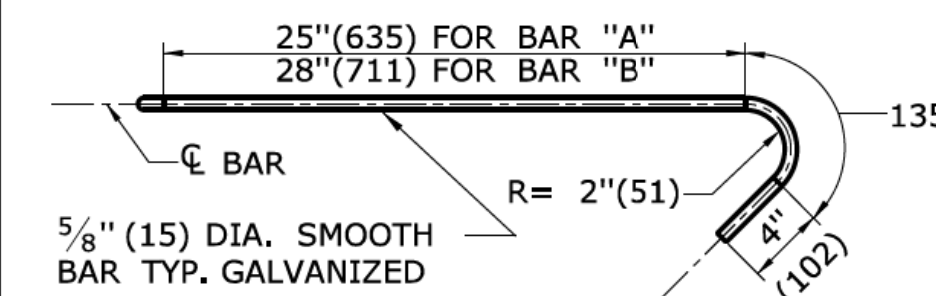
END VIEW C



WASHER DETAIL



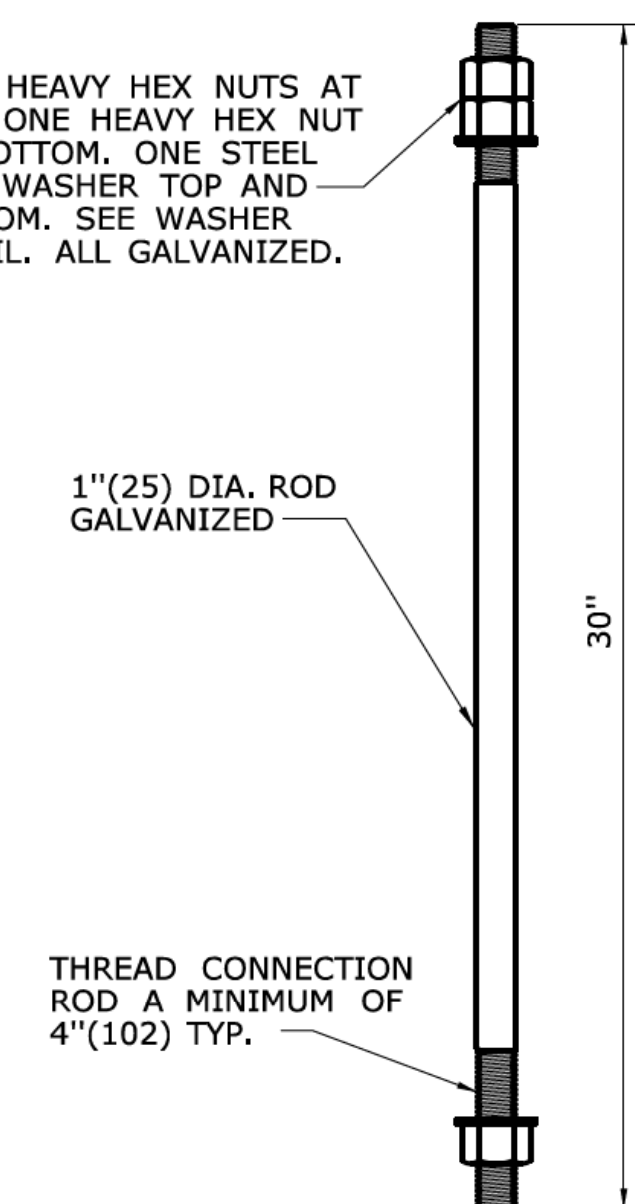
PLAN



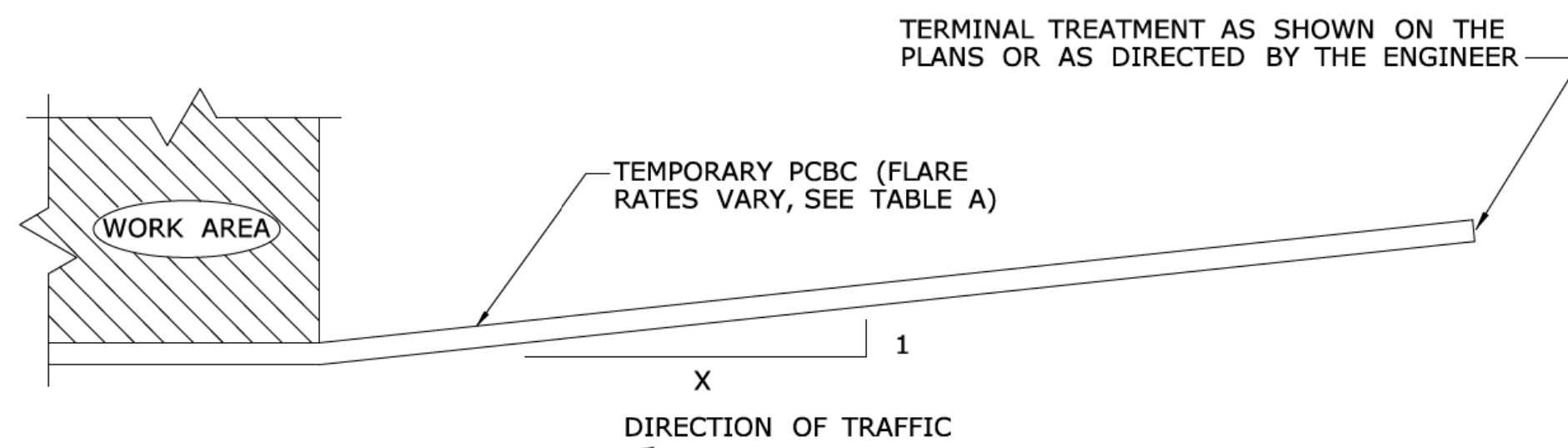
ELEVATION

CONNECTION LOOP BAR

TWO HEAVY HEX NUTS AT TOP. ONE HEAVY HEX NUT AT BOTTOM. ONE STEEL FLAT WASHER TOP AND BOTTOM. SEE WASHER DETAIL. ALL GALVANIZED.



CONNECTION ROD



PLAN - TYPICAL INSTALLATION

TABLE A	
FLARE RATES	
* SPEED	FLARE RATE (X : 1)
≤ 30MPH(48KPH)	4 : 1
> 30MPH(48KPH) < 45MPH(72KPH)	6 : 1
≥ 45MPH(72KPH) NON-LIMITED ACCESS HIGHWAYS	8 : 1
ALL LIMITED ACCESS HIGHWAYS	10 : 1

* DESIGN SPEED THROUGH THE WORK AREA.

1	3/12	REVISE SLOPE NOTE & DETAIL NOTE	-
2	7/13	ERRATA	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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



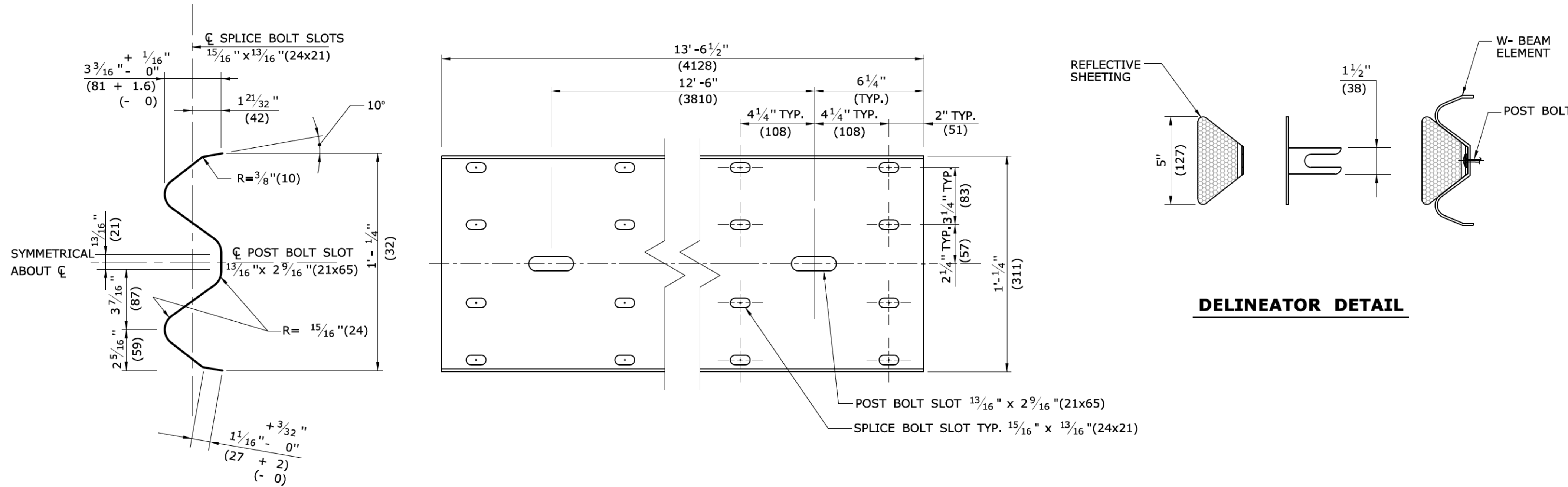
APPROVED BY: James H. Norman
2013.07.24 14:48:34-04'00'

CTDOT STANDARD SHEET
OFFICE OF ENGINEERING

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

TEMPORARY PRECAST CONCRETE BARRIER CURB

HW-822_01



GENERAL NOTES:

- NEW R-B 350 GUIDERAIL INCLUDING SYSTEMS, ANCHORS AND TRANSITIONS INSTALLED ON EXPRESSWAYS AND RAMPS SHALL USE CLASS B TYPE II (10 GAUGE) W-BEAM RAIL ELEMENTS.
- W6x9 (W150x14) POSTS MAY BE USED IN PLACE OF W6 x 8.5(W150x13) POSTS.
- W8x13 (W200x19) POSTS, 7'-6"(2286) LONG, ARE USED WITH TRANSITIONS TO VERTICAL OR SAFETY SHAPE PARAPETS (POSTS 1 AND 2) AND SYSTEM 6.
- W6x8.5 (W150x13) POSTS, 6'-0"(1829) LONG, ARE USED WITH TRANSITIONS TO VERTICAL OR SAFETY SHAPE PARAPETS (POSTS 3 THROUGH 6), MD-B 350, SYSTEM 5 & 5A, AND STANDARD R-B 350 GUIDERAIL.

DELINEATOR NOTES:

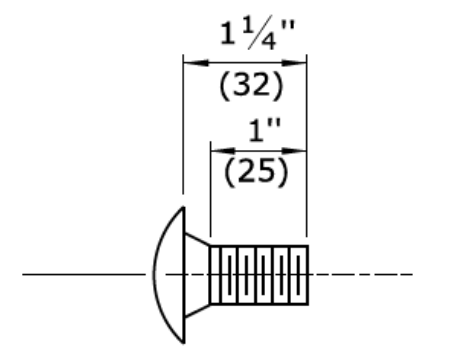
- DELINEATORS SHALL BE FORMED OF .080 POLY-CARBONATE OR .080 SHEET ALUMINUM IN ACCORDANCE WITH M.18.13.
- REFLECTIVE SHEETING SHALL CONFORM TO M.18.09.2.
- DELINEATORS SHALL BE INSTALLED ON THE POST CLOSEST TO THE DESIGNATED SPACING.
- REFLECTIVE SHEETING SHALL BE WHITE EXCEPT ON THE LEFT SIDE OF DIVIDED STREETS, HIGHWAYS, RAMPS, AND ONE WAY ROADS IN THE DIRECTION OF TRAVEL WHERE IT SHALL BE YELLOW.
- INSTALL DELINEATORS ON RAIL THAT IS PARALLEL TO AND NOT GREATER THAN 6'(1829) FROM THE EDGE OF THE ROADWAY. A MINIMUM OF THREE DELINEATORS MUST BE INSTALLED ON ANY RUN OF RAIL.

DELINEATOR SPACING:
RADIUS ≥ 300'(91440) - SPACE EVERY 50'(15.24m)
RADIUS < 300'(91440) - SPACE EVERY 25'(7.62m)

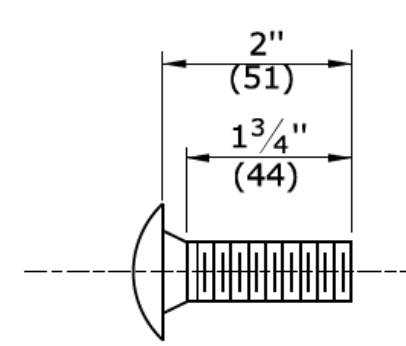
SELECTION THRU RAIL ELEMENT END VIEW

NOTE: ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES

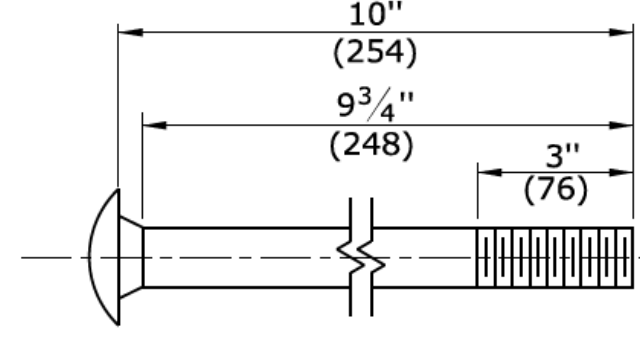
TYPICAL W-BEAM RAIL ELEMENT CLASS A, TYPE II



W-BEAM SPLICE BOLT DETAIL

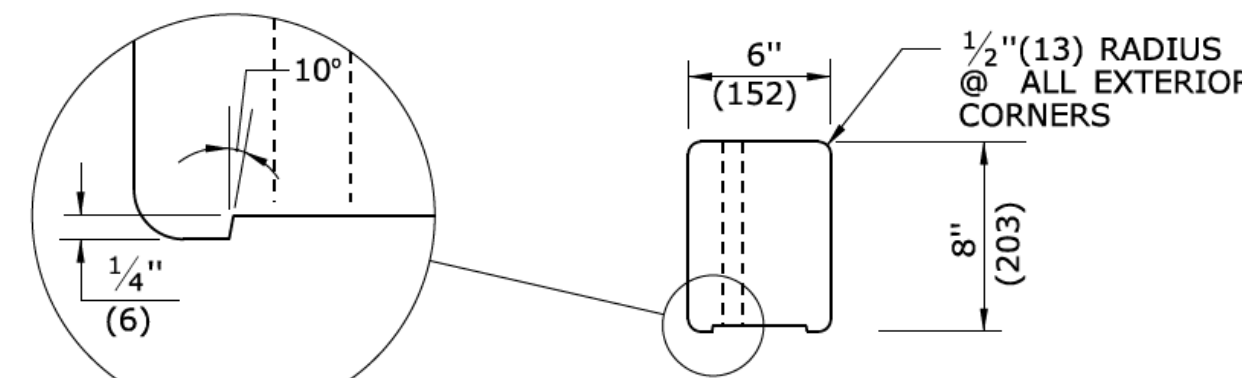


POST BOLT DETAIL FOR R-B 350 SYSTEM 6 RUBRAIL

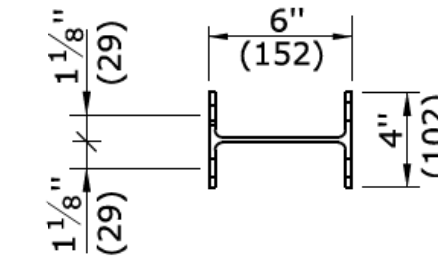


POST BOLT DETAIL FOR R-B 350 AND MD-B 350 GUIDERAIL

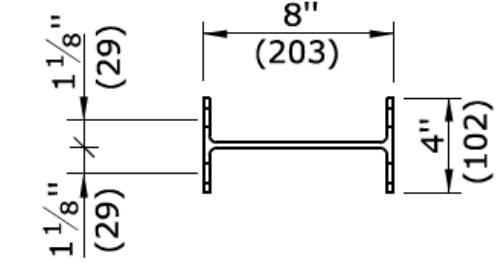
(UNTHREADED PORTION NOT TO EXCEED 6 3/4"(171))



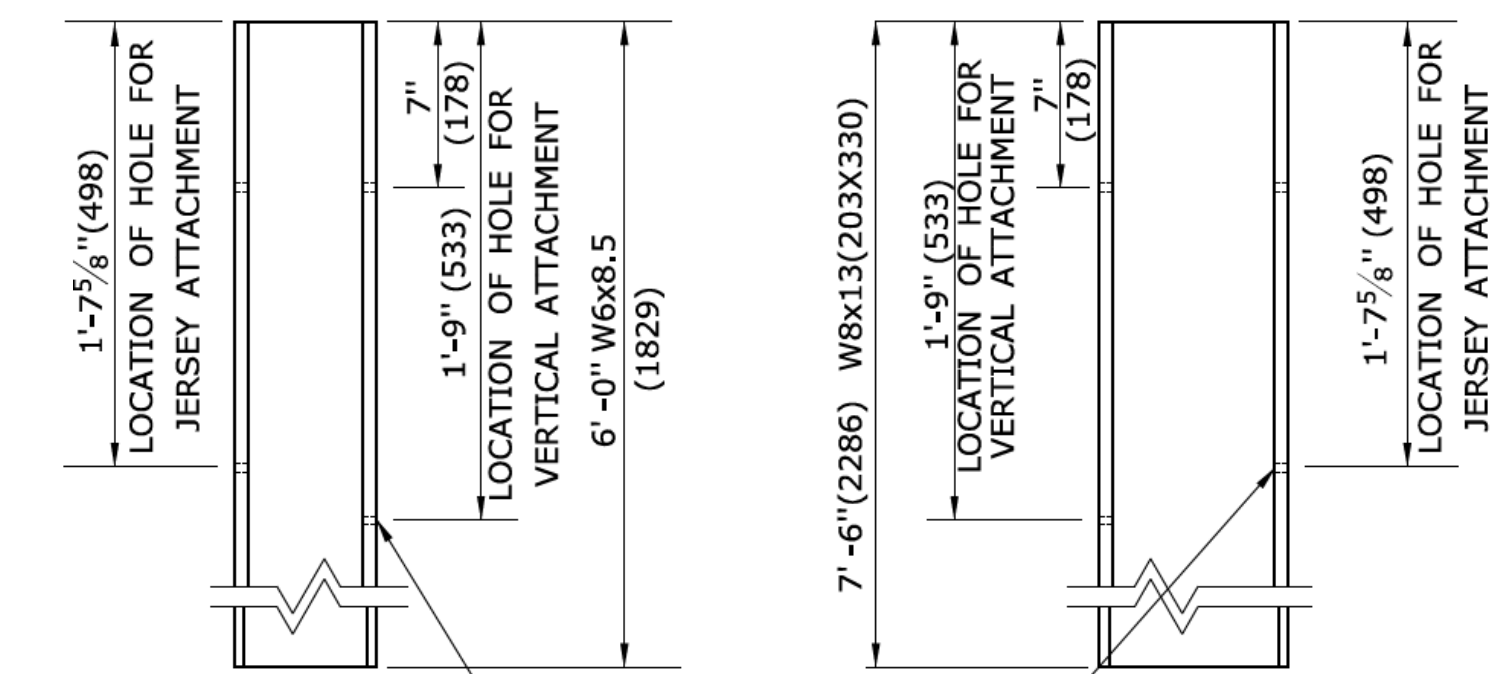
PLAN



W6x8.5 POST (W150x13) 6'-0"(1829) LONG

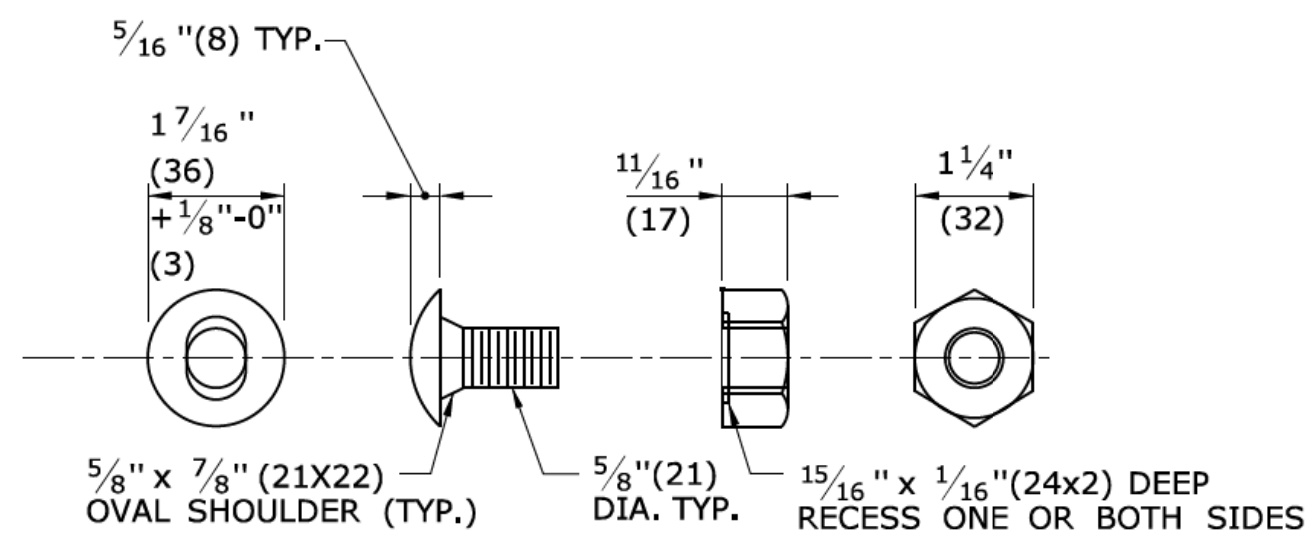


W8x13 POST (W200x19) 7'-6"(2286) LONG



BOLT HOLE LAYOUT FOR W8x13(W200x19) AND W6x8.5 (W150x13) UNIFORM POST

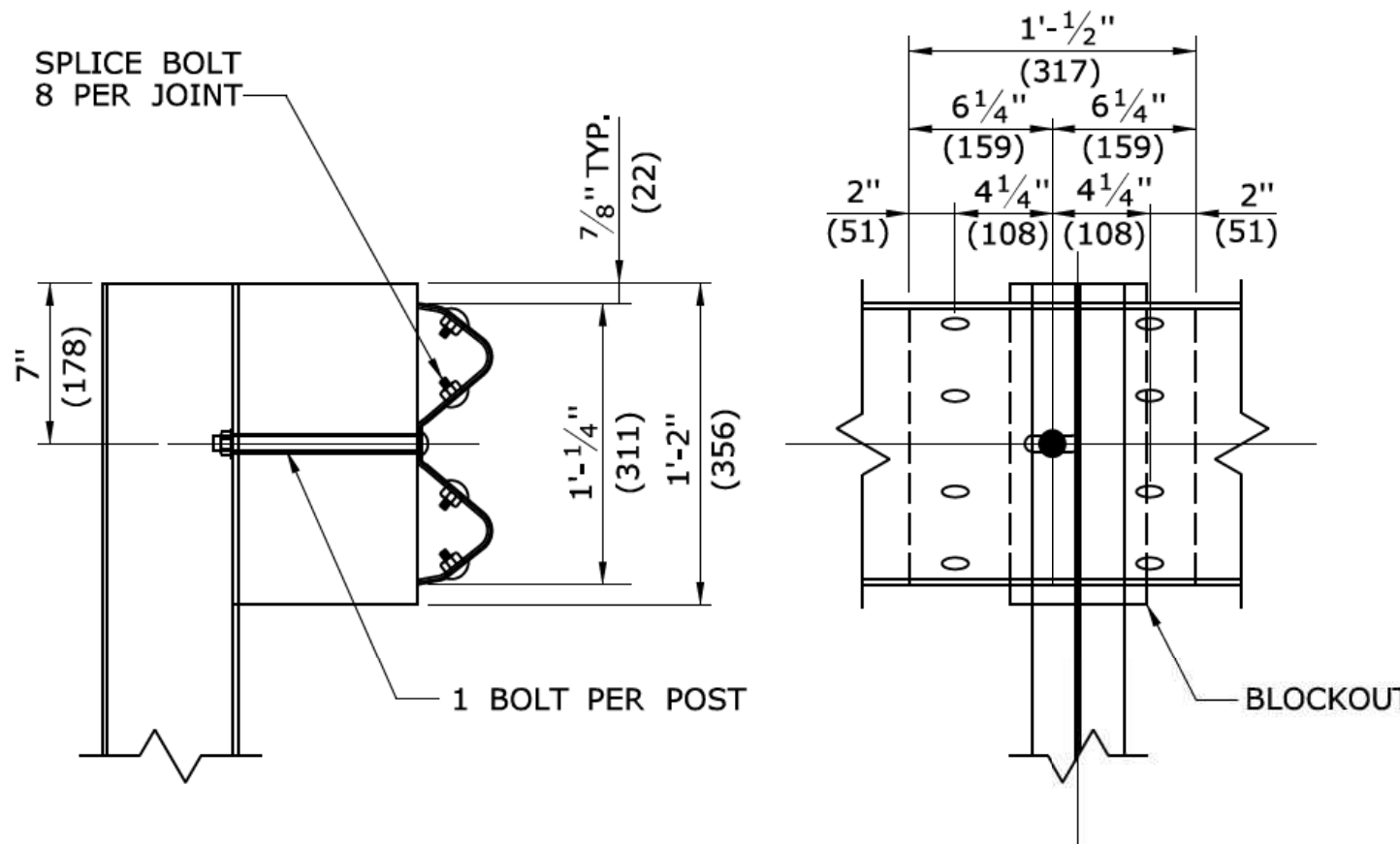
(REFER TO GENERAL NOTES)



BUTTONHEAD BOLT

HEX NUT

NOTE: AFTER GALVANIZING, THE NUT SHALL BE FREE RUNNING ON THE BOLT, DIAMETER SHOWN IS TYPICAL FOR ALL GUIDERAIL BOLTS. SEE DETAILS ABOVE FOR SPECIFIC LENGTHS.

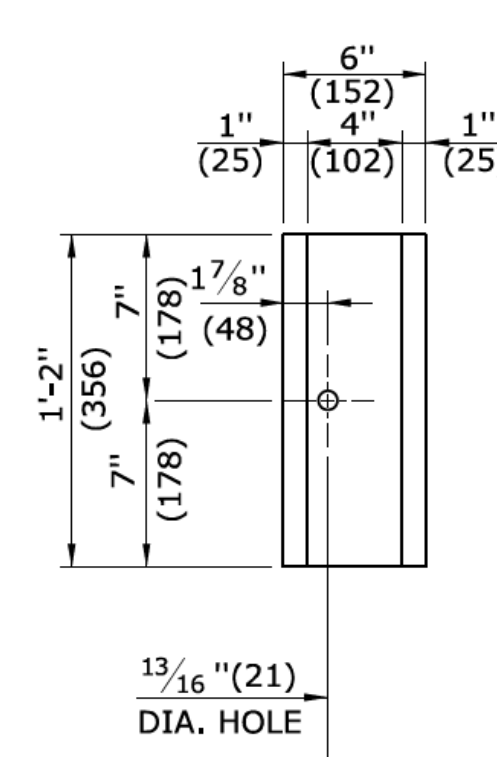


SECTION

ELEVATION

LAP DETAIL

NOTE: LAP RAIL SECTION IN DIRECTION OF TRAFFIC



R-B 350 PLASTIC BLOCKOUT DETAIL

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REMOVE WEATHERING STEEL NOTES
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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Plotted Date: 5/10/2011

NOT TO SCALE



Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 36-HW-910_01

SUBMITTED BY:	NAME/DATE/TIME:
[Signature]	[Name/Date/Time]
APPROVED BY:	NAME/DATE/TIME:
[Signature]	James H. Norman 2011.06.09 15:12:16 -04'00'

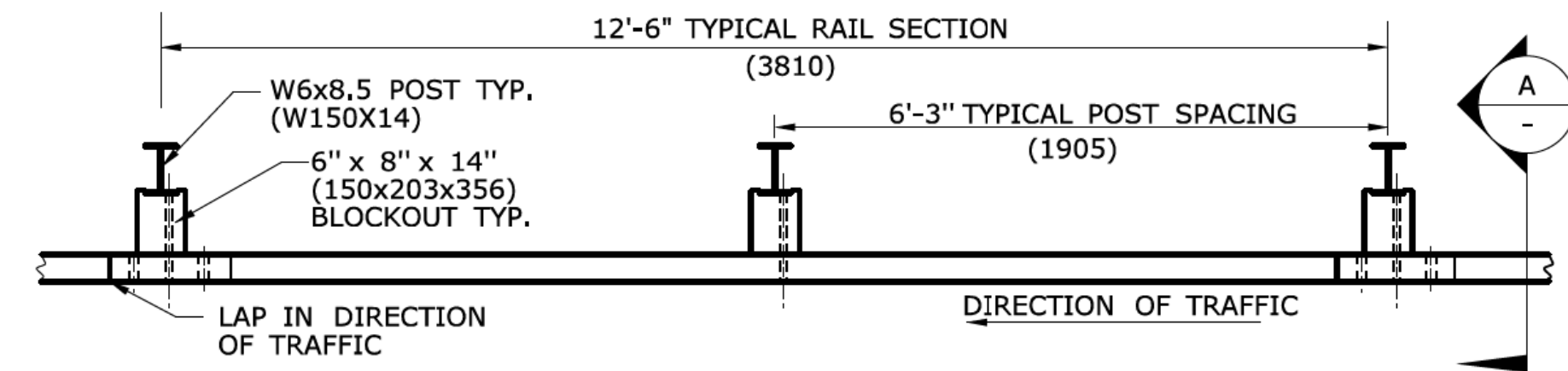
CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

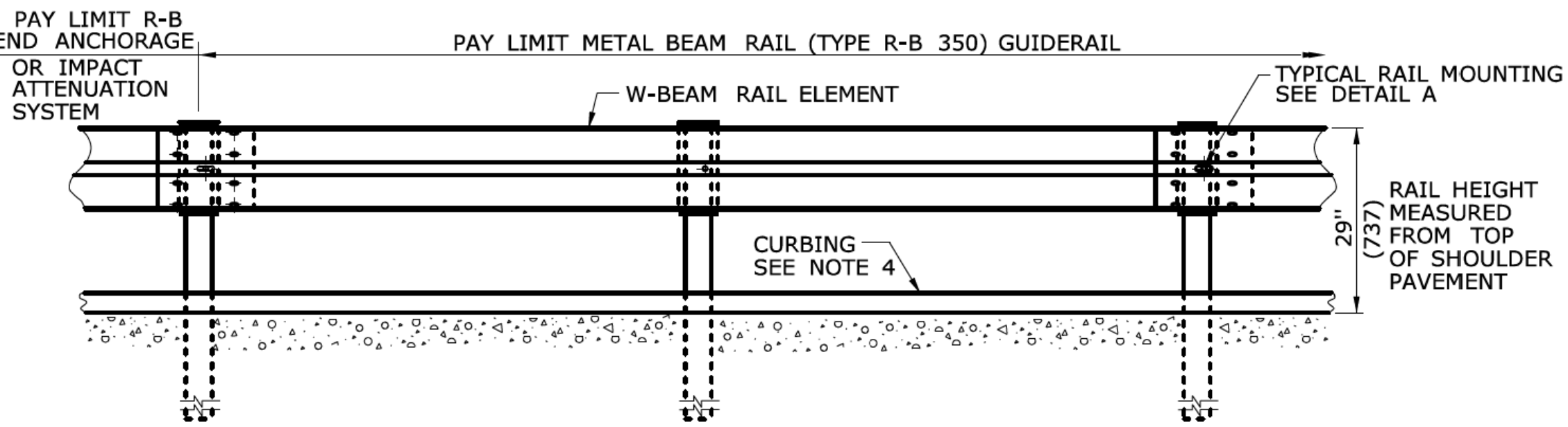
STANDARD SHEET TITLE:	STANDARD SHEET NO.:
W-BEAM METAL BEAM RAIL HARDWARE	HW-910_01

GENERAL NOTES:

- SEE SHEET HW-910.01 FOR HARDWARE AND DELINEATOR DETAILS.
- MAXIMUM DESIGN DEFLECTION FOR R-B 350 GUIDERAIL AT THE STANDARD POST SPACING OF 6'-3"(1905) IS 4'-3"(1295). DEFLECTION REQUIREMENT IS MEASURED FROM THE BACK OF POST TO THE FACE OF OBJECT.
- FOR CURVES WITH RADII OF 150'(45.7m) OR LESS, ALL RAIL ELEMENTS SHALL BE SHOP FABRICATED TO THE PROPER RADIUS AND GALVANIZED AFTER FABRICATION. RADIUS RAIL WHEN REQUIRED AND NOTED ON THE PLANS, IS INCLUDED IN THE PAY ITEM FOR GUIDERAIL.
- RAIL HEIGHT WITH CURBING SHALL BE MEASURED FROM THE TOP OF PAVEMENT. ON HIGH SPEED ROADWAYS (≥ 45 mph 72.4kph), 4"(102) CURBING MAY BE USED IN CONJUNCTION WITH GUIDERAIL AND THE RAIL ELEMENT SHALL BE PLACED FLUSH WITH THE FACE OF CURB. ON LOW SPEED ROADWAYS (< 45 mph 72.4kph), 6"(152) CURBING MAY BE USED IN CONJUNCTION WITH GUIDERAIL AND THE RAIL ELEMENT SHALL BE PLACED A MAXIMUM OF 9"(229) BEHIND THE FACE OF CURB.
- THREE BLOCKOUTS MAY BE USED FOR ONE POST ONLY. TWO BLOCKOUTS MAY BE USED FOR A SERIES OF POSTS. THE COST OF ADDITIONAL BLOCKOUTS AND LONGER BOLTS SHALL BE INCLUDED IN THE BID PRICE PER FOOT OF GUIDERAIL. EXTRA BLOCKOUTS AT TRANSITION TO BRIDGE PARAPETS SHOULD BE AVOIDED.
- W-BEAM GUIDERAIL MAY BE PLACED 1'(305) OR MORE FROM THE EDGE OF PAVEMENT ONLY ON SLOPES 10:1 OR FLATTER AND WITHOUT CURBING. IF THE RAIL IS INSTALLED WITHIN 2'(610) OF THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE SHOULDER SLOPE EXTENDED TO THE RAIL. IF THE RAIL IS INSTALLED BEYOND 2'(610) FROM THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE GROUND DIRECTLY BELOW THE RAIL.
- ALL R-B 350 GUIDERAIL TYPES INSTALLED ON EXPRESSWAYS AND RAMPS SHALL USE CLASS B, TYPE-II (10 GAUGE) W-BEAM RAIL ELEMENTS.
- 20" (507) DIA. EXCAVATED HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL, OR GRANULAR FILL COMPACTED IN 6" (150) LIFTS BEFORE DRIVING POST OR POSTS MAY BE SET IN EXCAVATED HOLE AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM). 8" (203) DIA. HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL.
- AS DIRECTED BY THE ENGINEER AND WHERE PAVEMENT FOR RAILING IS NOT BEING INSTALLED, A MIN. 6" DEPTH OF PROCESSED AGGREGATE SHALL BE INSTALLED FROM THE PAVEMENT EDGE OR BACK OF CURB TO A MINIMUM OF 2'(610) BEHIND THE GUIDERAIL POST AND COMPACTED IN 6" (150) LIFTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) \pm 1" (25).

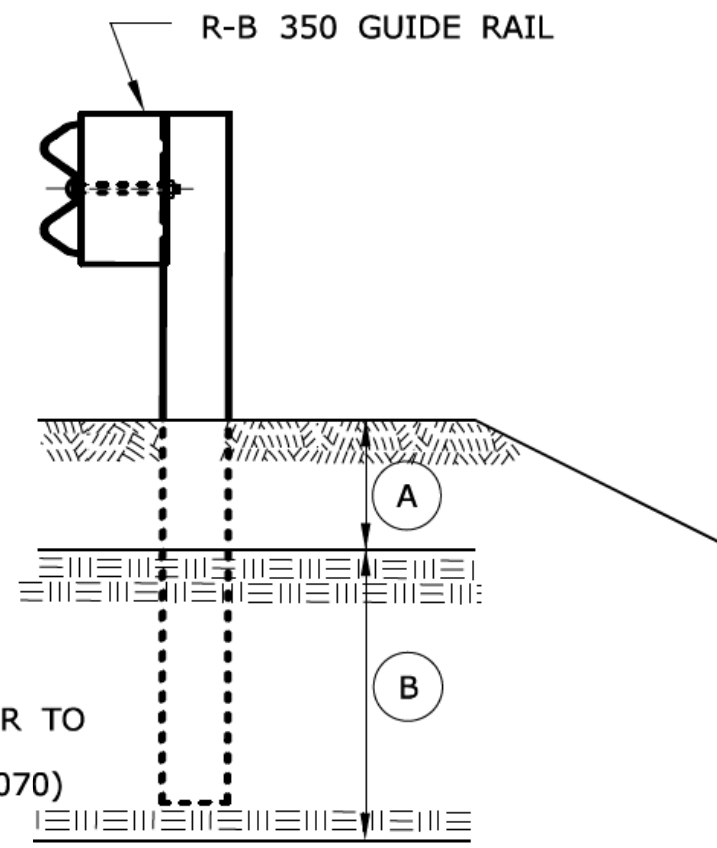


PLAN



ELEVATION

METAL BEAM RAIL (TYPE R-B 350)

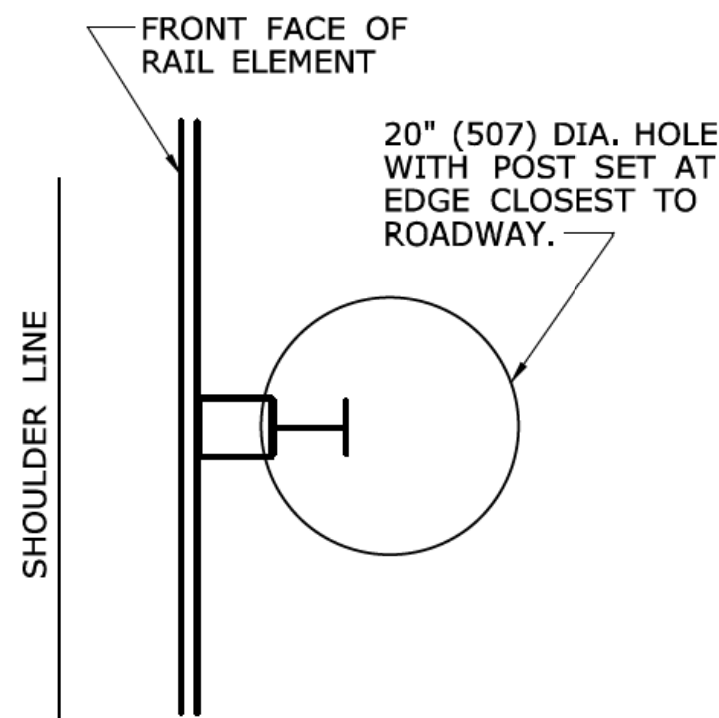


ELEVATION

(SEE NOTE 8)

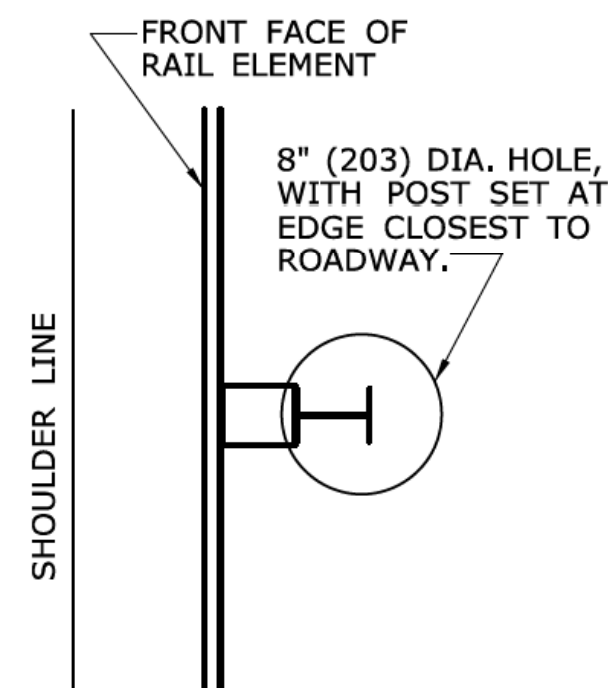
CONDITION 1 :
IF SOIL DEPTH IS $\leq 18"$ (457) DEEP (A) DRILL 20" (507) DIA. HOLE 24" (610) INTO LEDGE (B)

CONDITION 2 :
IF SOIL DEPTH IS $> 18"$ (457) DEEP (A) DRILL 8" (203) DIA. HOLE 1' (305) INTO LEDGE (B) OR TO THE DEPTH OF FULL EMBEDMENT OF 42 1/8" (1070) WHICHEVER IS LESS.



PLAN CONDITION 1

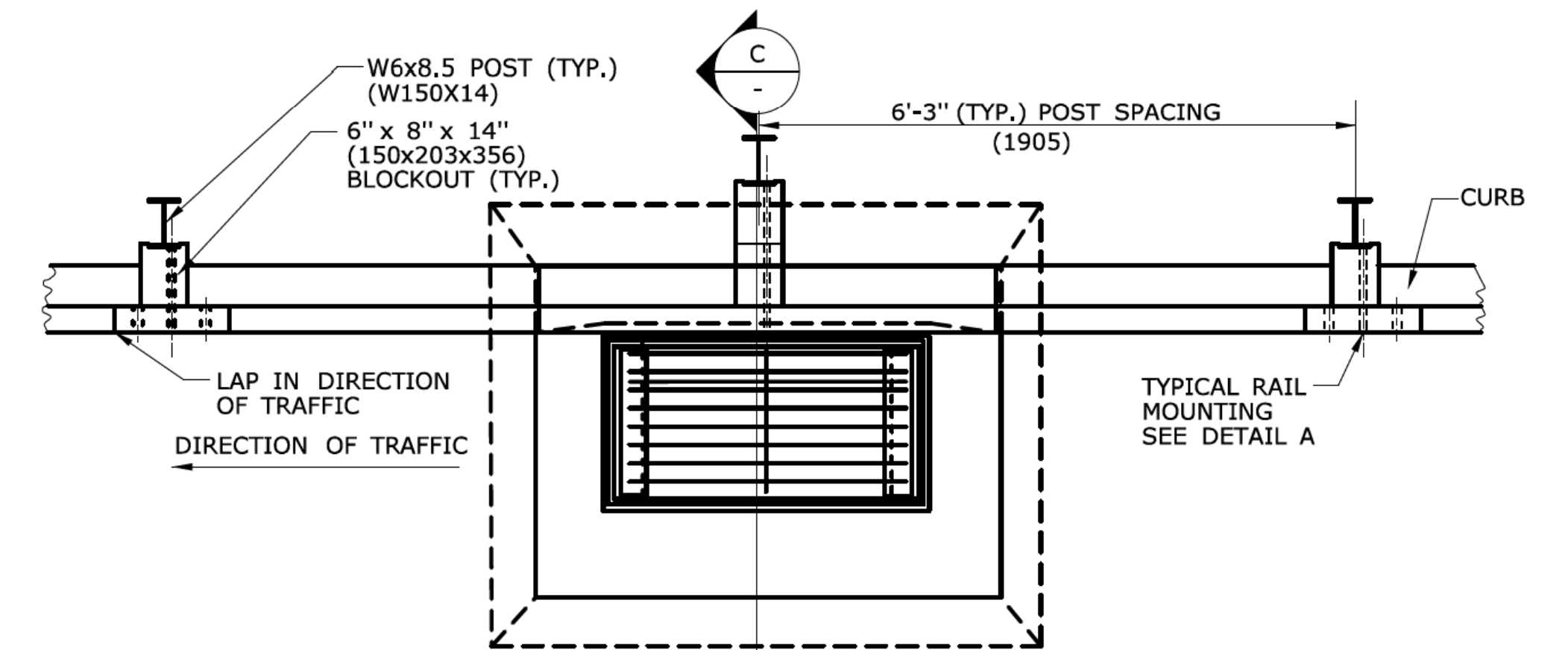
(SEE NOTE 8)



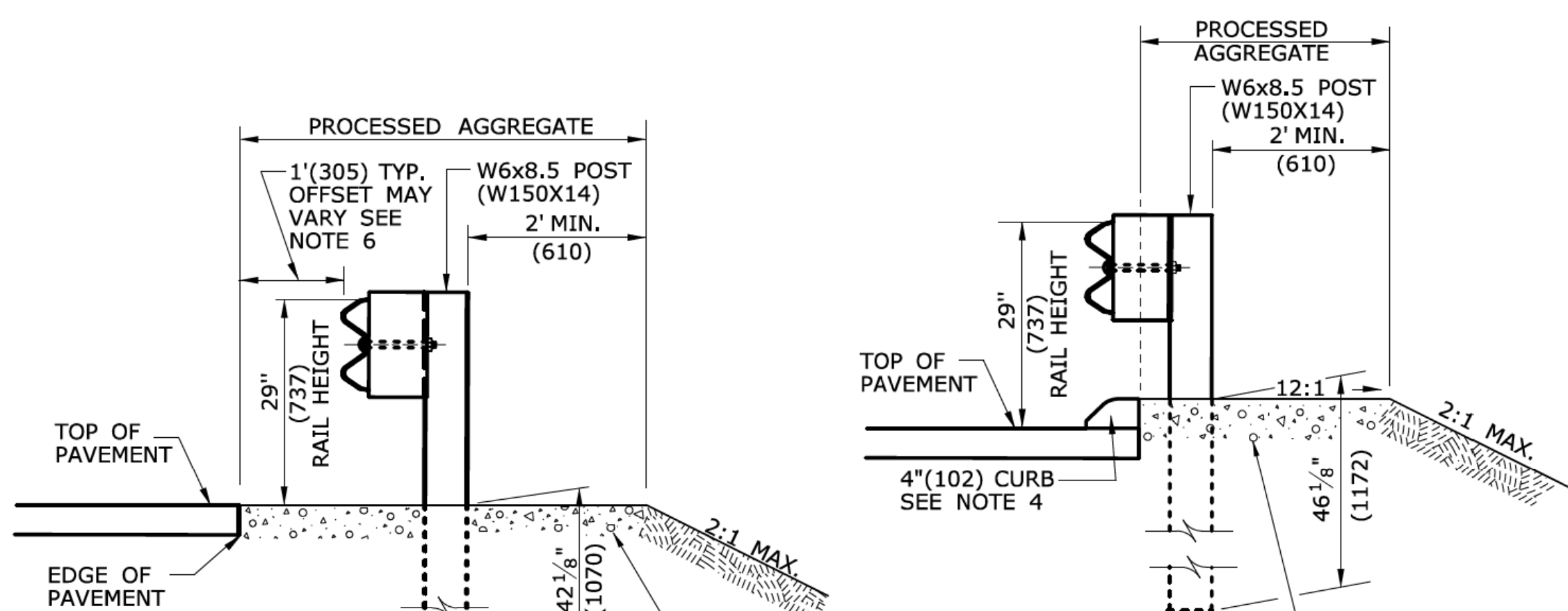
PLAN CONDITION 2

(SEE NOTE 8)

DRILLING IN ROCK FOR GUIDERAIL POSTS



PLAN

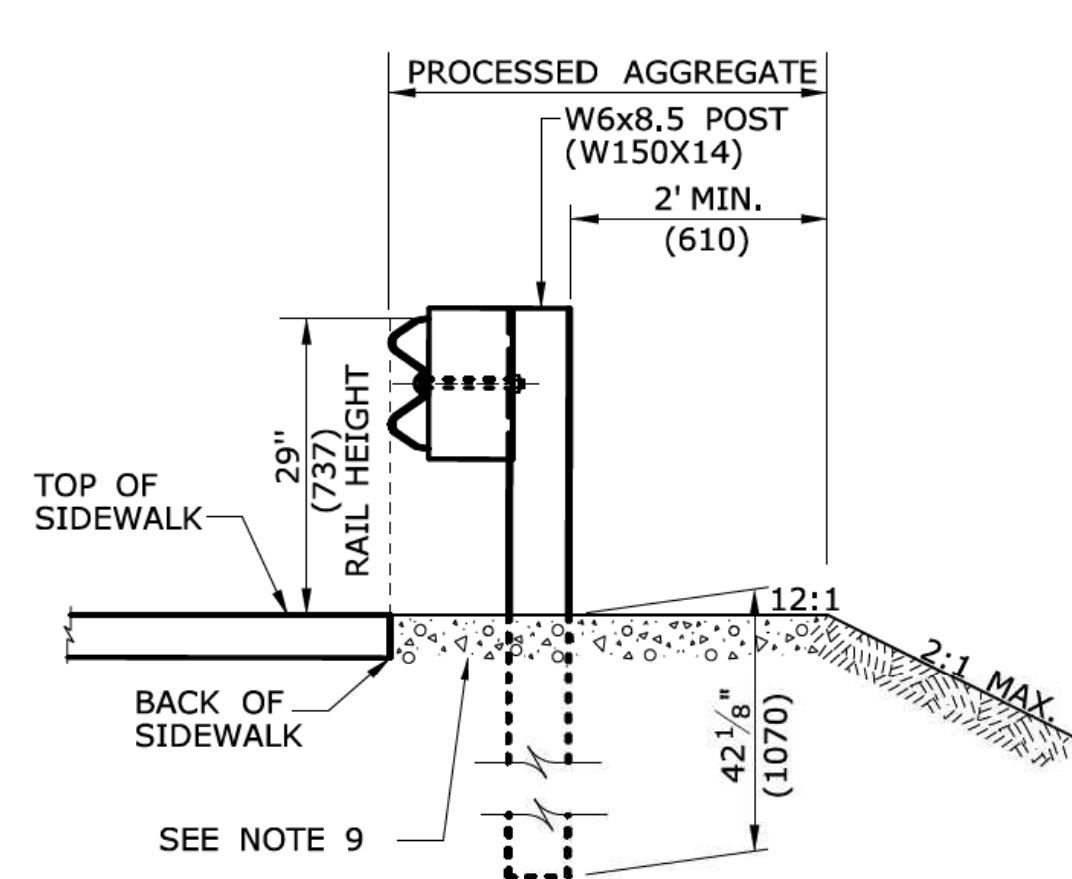


SECTION A

NO CURB APPLICATION

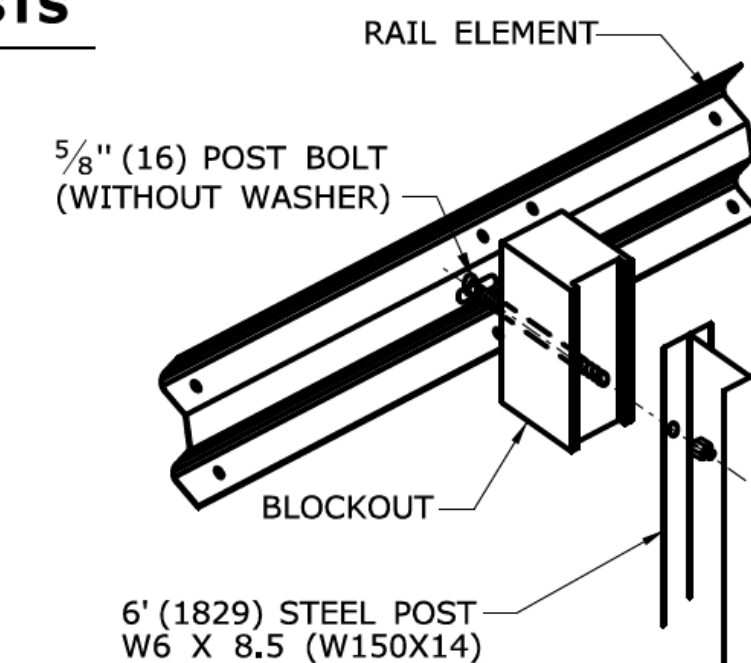
SECTION A

CURB APPLICATION

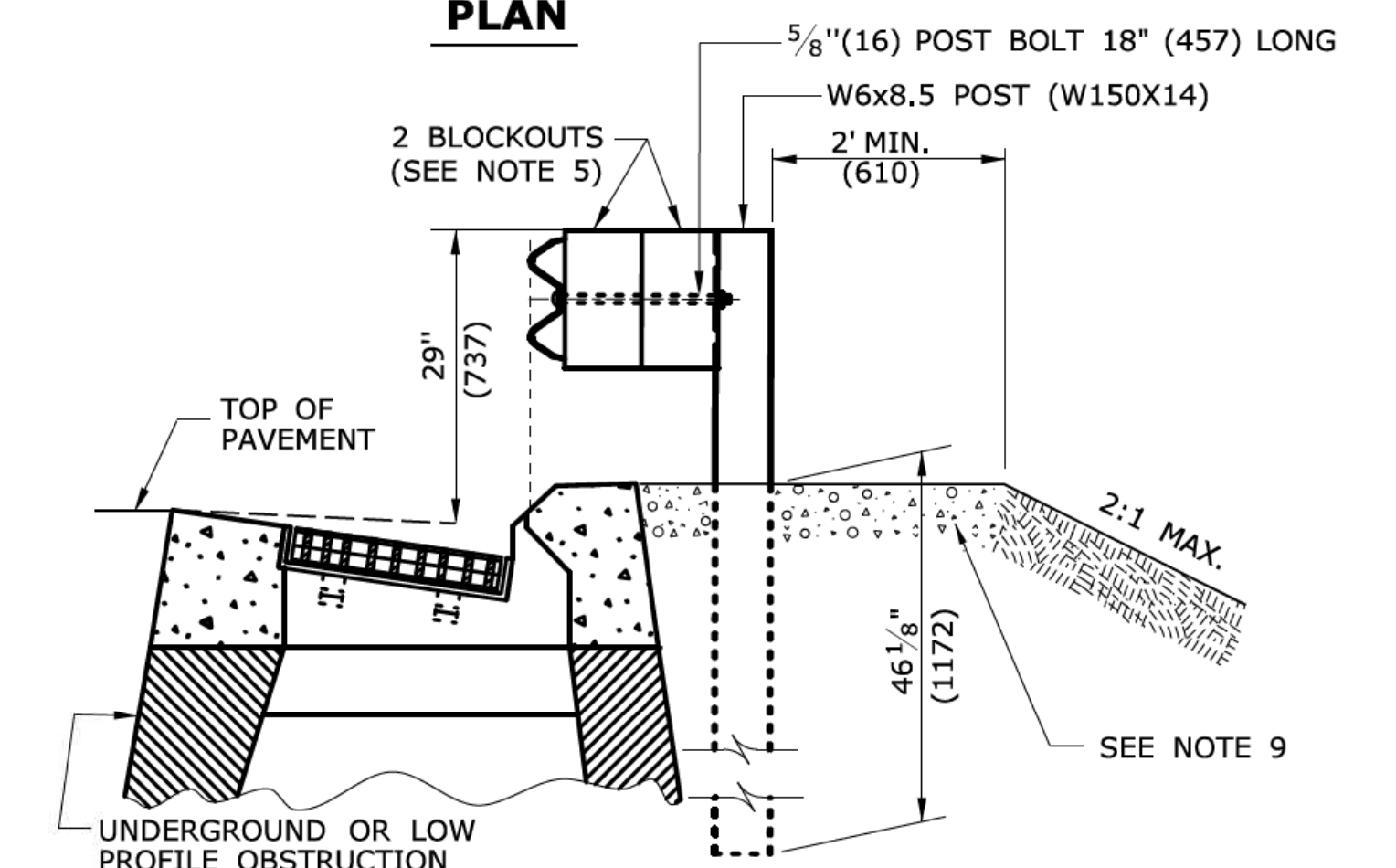


SECTION A

SIDEWALK APPLICATION



DETAIL A RAIL MOUNTING



SECTION C

MULTIPLE BLOCKOUT APPLICATION (MAY BE USED TO AVOID UNDERGROUND OR LOW PROFILE OBSTRUCTION)

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED. STANDARD SHEET TITLE: METAL BEAM RAIL (TYPE R-B 350) GUIDERAIL

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED NOTE 9 FOR USE OF PROCESSED AGGREGATE AND REMOVED NOTE 6 FOR WEATHERING STEEL
-	-	-
-	-	-
-	-	-
-	-	-

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

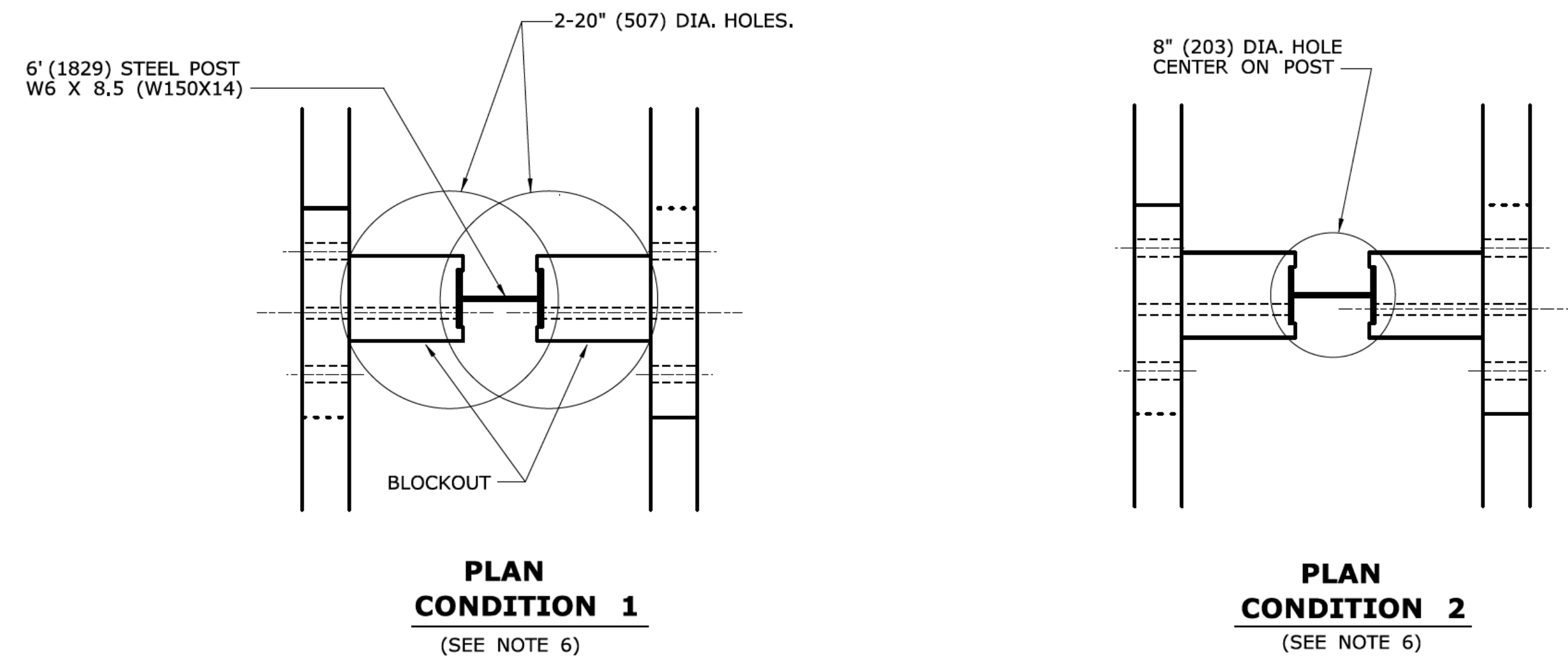


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APPROVED BY: NAME/DATE/TIME:
James H. Norman
2011.06.09 15:12:46 -04'00

CTDOT STANDARD SHEET
OFFICE OF ENGINEERING

METAL BEAM RAIL (TYPE R-B 350) GUIDERAIL

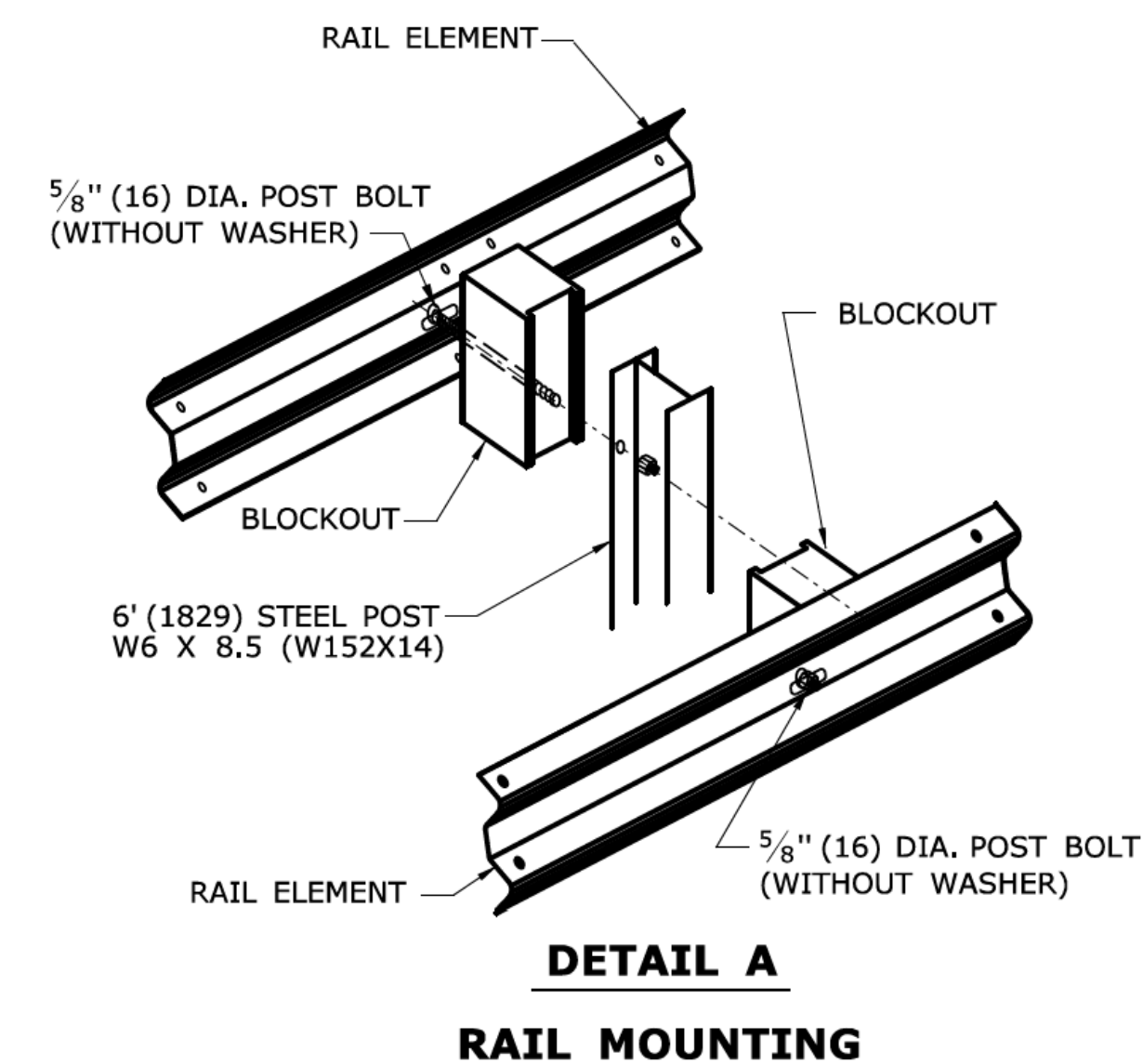
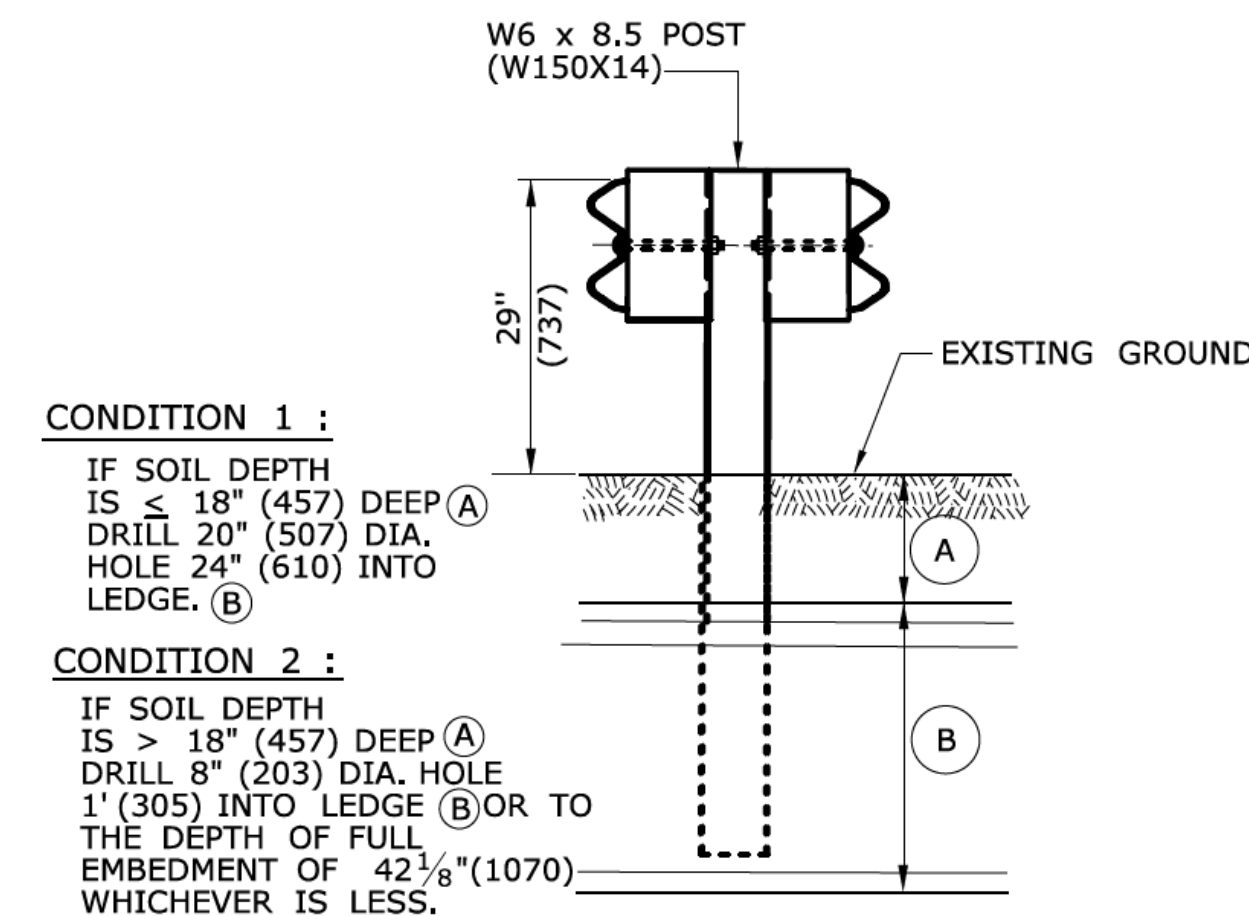
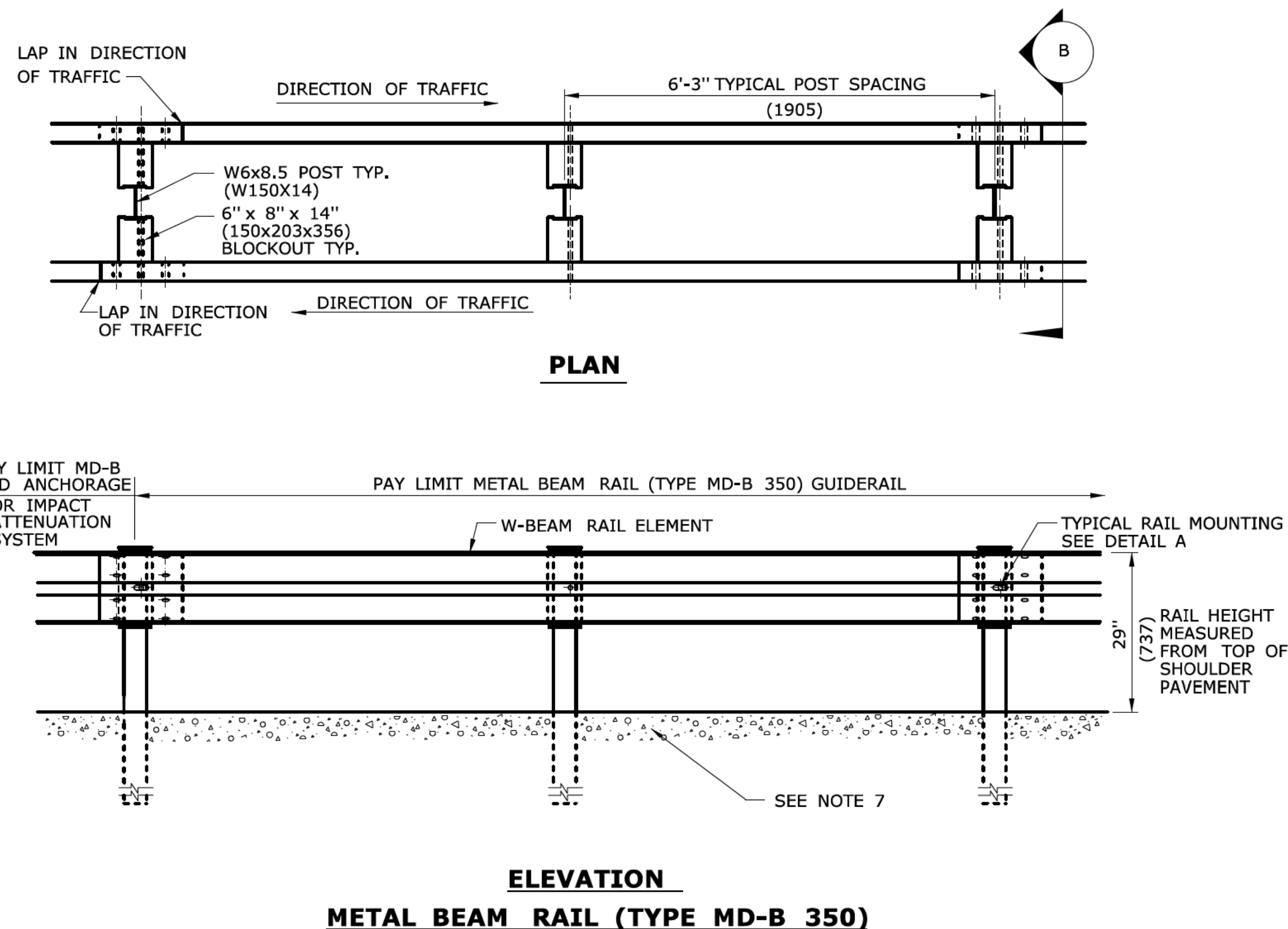
HW-910_02



GENERAL NOTES:

1. SEE SHEET HW-910.01 FOR HARDWARE AND DELINEATOR DETAILS.
2. MAXIMUM DESIGN DEFLECTION FOR MD-B 350 GUIDERAIL AT THE STANDARD POST SPACING OF 6'-3"(1905) IS 2'(610). DEFLECTION REQUIREMENT IS MEASURED FROM THE BACK OF POST TO THE FACE OF OBJECT.
3. FOR CURVES WITH RADII OF 150'(45.7m) OR LESS, ALL RAIL ELEMENTS SHALL BE SHOP FABRICATED TO THE PROPER RADIUS AND GALVANIZED AFTER FABRICATION. RADIUS RAIL WHEN REQUIRED AND NOTED ON THE PLANS, IS INCLUDED IN THE PAY ITEM FOR GUIDERAIL.
4. W-BEAM GUIDERAIL MAY BE PLACED 1'(305) OR MORE FROM THE EDGE OF PAVEMENT ONLY ON SLOPES 10:1 OR FLATTER AND WITHOUT CURBING. IF THE RAIL IS INSTALLED WITHIN 2'(610) OF THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE SHOULDER SLOPE EXTENDED TO THE RAIL. IF THE RAIL IS INSTALLED BEYOND 2'(610) FROM THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE GROUND DIRECTLY BELOW THE RAIL.
5. MD-B 350 DOES NOT REQUIRE 10 GAUGE RAIL ELEMENTS.
6. 2-20" (507) DIA. EXCAVATED HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL, OR GRANULAR FILL COMPACTED IN 6" (150) LIFTS BEFORE DRIVING POST OR POSTS MAY BE SET IN EXCAVATED HOLE AND BACK FILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM). 8" (203) DIA. HOLE SHALL BE BACK FILLED WITH SUITABLE MATERIAL.
7. AS DIRECTED BY THE ENGINEER AND WHERE PAVEMENT FOR RAILING IS NOT BEING INSTALLED, A 6" MIN. DEPTH OF PROCESSED AGGREGATE SHALL BE INSTALLED A MINIMUM OF 2'(610) WIDE UNDER GUIDERAIL CENTERED ON THE POST AND COMPACTED IN 6" (150) LIFTS.
8. MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) ± 1" (25).

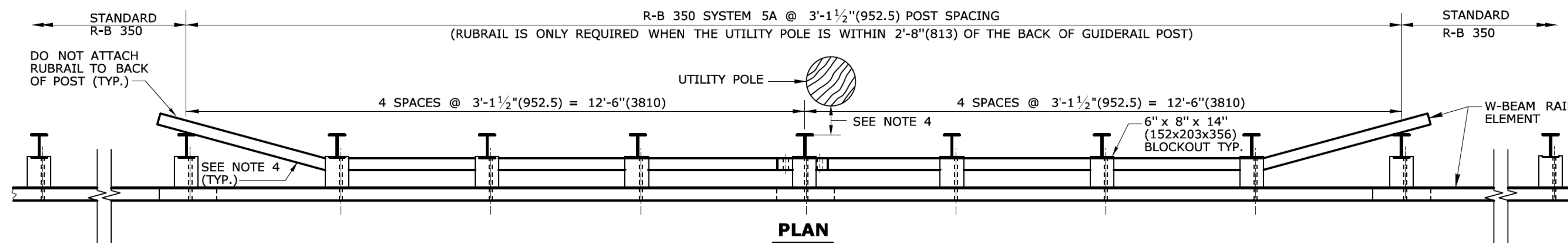
DRILLING IN ROCK FOR GUIDERAIL POSTS



NOTE: REFER TO DESIGN PLANS FOR LOCATION OF GUIDERAIL IN THE MEDIAN WITH OR WITHOUT CURBING.

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

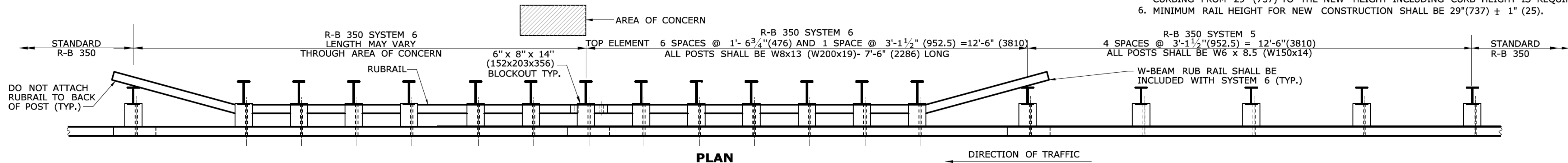
1	6/11	REVISED NOTE 7 FOR USE OF PROCESSED AGGREGATE AND REMOVED NOTE 4 USE OF WEATHERING STEEL	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	NOT TO SCALE	SUBMITTED BY: [Signature] NAME/DATE/TIME: [Blank] APPROVED BY: [Signature] NAME/DATE/TIME: James H. Norman 2011.06.09 15:13:11 -04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: METAL BEAM RAIL (TYPE MD-B 350) STANDARD SHEET NO.: HW-910_03
REV. DATE	REVISION DESCRIPTION	Plotted Date: 5/10/2011	Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 38- HW-910_03				



TREATMENT OF METAL BEAM RAIL R-B 350 AT UTILITY POLES ON UNDIVIDED BI-DIRECTIONAL ROADWAYS

GENERAL NOTES:

- SEE SHEET HW-910.01 FOR HARDWARE AND DELINEATOR DETAILS.
- RAIL HEIGHT WITH CURBING SHALL BE MEASURED FROM THE TOP OF PAVEMENT. ON HIGH SPEED ROADWAYS (≥ 45 mph(72.4kph)), 4"(102) CURBING SHALL BE USED IN-CONJUNCTION WITH GUIDERAIL AND THE RAIL FACE SHALL BE INSTALLED FLUSH WITH THE FACE OF CURBING. ON LOW SPEED ROADWAYS (< 45 mph(72.4kph)), 6"(152) CURBING MAY BE USED IN-CONJUNCTION WITH GUIDERAIL AND THE RAIL FACE SHALL BE INSTALLED A MAX. OF 9"(229) BEHIND THE FACE OF CURBING. W-BEAM GUIDERAIL MAY ONLY BE INSTALLED ON SLOPES FLATTER THAN 10:1.
- ALL R-B 350 GUIDERAIL TYPES INSTALLED ON LIMITED ACCESS HIGHWAYS AND RAMP SHALL USE CLASS B TYPE - II (10 GAUGE) W-BEAM RAIL ELEMENTS.
- WHEN A WARRANT EXISTS FOR RAILING AND THERE IS A UTILITY POLE THAT CAN NOT BE RELOCATED AND IT IS WITHIN THE DEFLECTION DISTANCE FOR STANDARD R-B 350 GUIDERAIL, R-B 350 SYSTEM 5 IS REQUIRED. THE LENGTH OF R-B 350 SYSTEM 5 SHALL BE 25'(7620) CENTERED ON THE UTILITY POLE. WHEN THE UTILITY POLE IS WITHIN 2'-8"(813) OF THE BACK OF THE POST, A 25'(7620) W-BEAM RUBRAIL CENTERED ON THE UTILITY POLE SHALL BE ADDED AND PAID FOR UNDER THE CONTRACT UNIT PRICE FOR R-B 350 SYSTEM 5A. THE RUBRAIL FLARED SECTION SHALL BE SHOP BENT AND GALVANIZED AFTER FABRICATION.
- IF CURBING IS USED IN CONJUNCTION WITH R-B 350 SYSTEM 6 THE RAIL HEIGHT SHALL BE 29" (737) PLUS THE CURB HEIGHT. A 25'(7620) LONG HEIGHT TRANSITION PRIOR TO THE CURBING FROM 29" (737) TO THE NEW HEIGHT INCLUDING CURB HEIGHT IS REQUIRED.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29"(737) \pm 1" (25).



TREATMENT OF METAL BEAM RAIL R-B 350 SYSTEM 6 AT FIXED OBJECTS ON UNDIVIDED BI-DIRECTIONAL ROADWAYS

(FOR ADDITIONAL INFORMATION SEE TABLE 1)

"D"	"X"	R-B 350 SYSTEM 6	R-B 350 SYSTEM 5	STANDARD R-B 350	"L"
MAXIMUM DESIGN DEFLECTION	AREA OF CONCERN PLUS TWO POSTS FOR:	W8x13(W200x19) POSTS SPACED AT 1'-6 3/4" (476) WITH RUBRAIL	W6x8.5 (W150x14) POSTS SPACED AT 3'-1 1/2" (952.5)	W6x8.5 (W150x14) POSTS SPACED AT 6'-3" (1905)	MINIMUM LENGTH NEEDED
1'-10"(559)	SYSTEM 6	12'-6"(3810)	12'-6"(3810)	LON	25'(7620)
2'-8"(813)	SYSTEM 5		25'(7620)	LON	25'(7620)
4'-3"(1295)	R-B 350			LON	LON

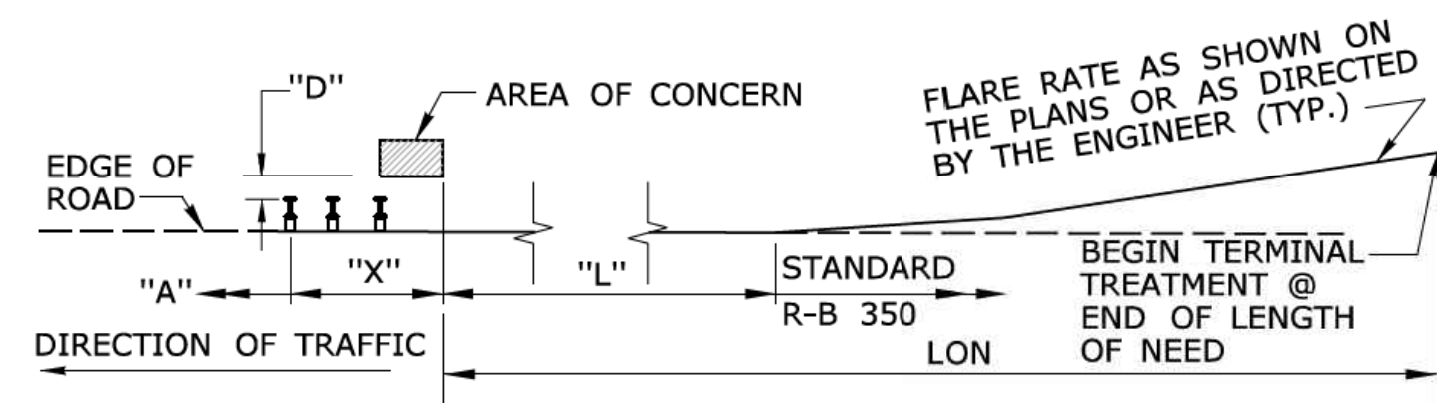
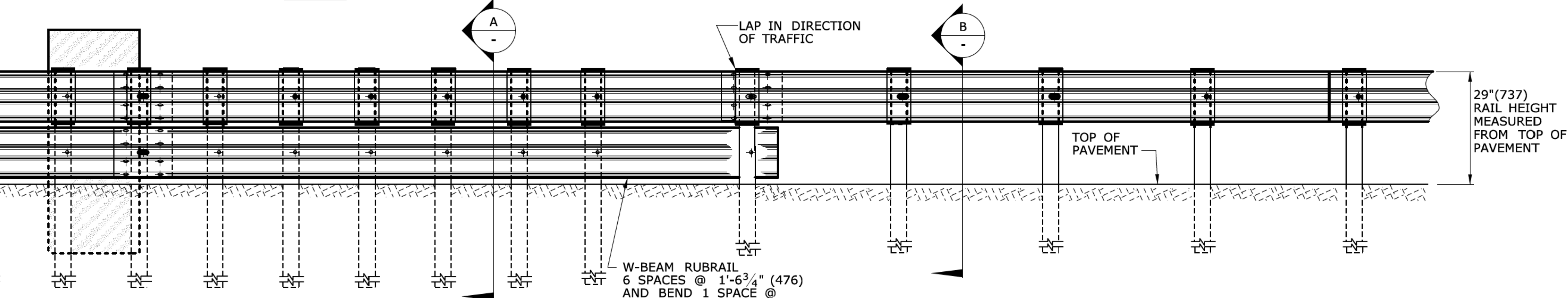
L = MINIMUM LENGTH OF GUIDE RAIL STRENGTH TRANSITION NEEDED IN FEET PRIOR TO THE AREA OF CONCERN. NOTE: WHEN DESIGNING STRENGTH TRANSITIONS ON EXPRESSWAYS AND RAMP FOR ZONE OF INTRUSION 100'(30.5m) PRIOR TO THE AREA OF CONCERN SHALL BE PROVIDED.

X = MINIMUM LENGTH THROUGH AREA OF CONCERN PLUS TWO POST SPACES FOR A SINGLE DIRECTION ROADWAY. "X" WILL VARY DEPENDING ON LENGTH OF AREA OF CONCERN.

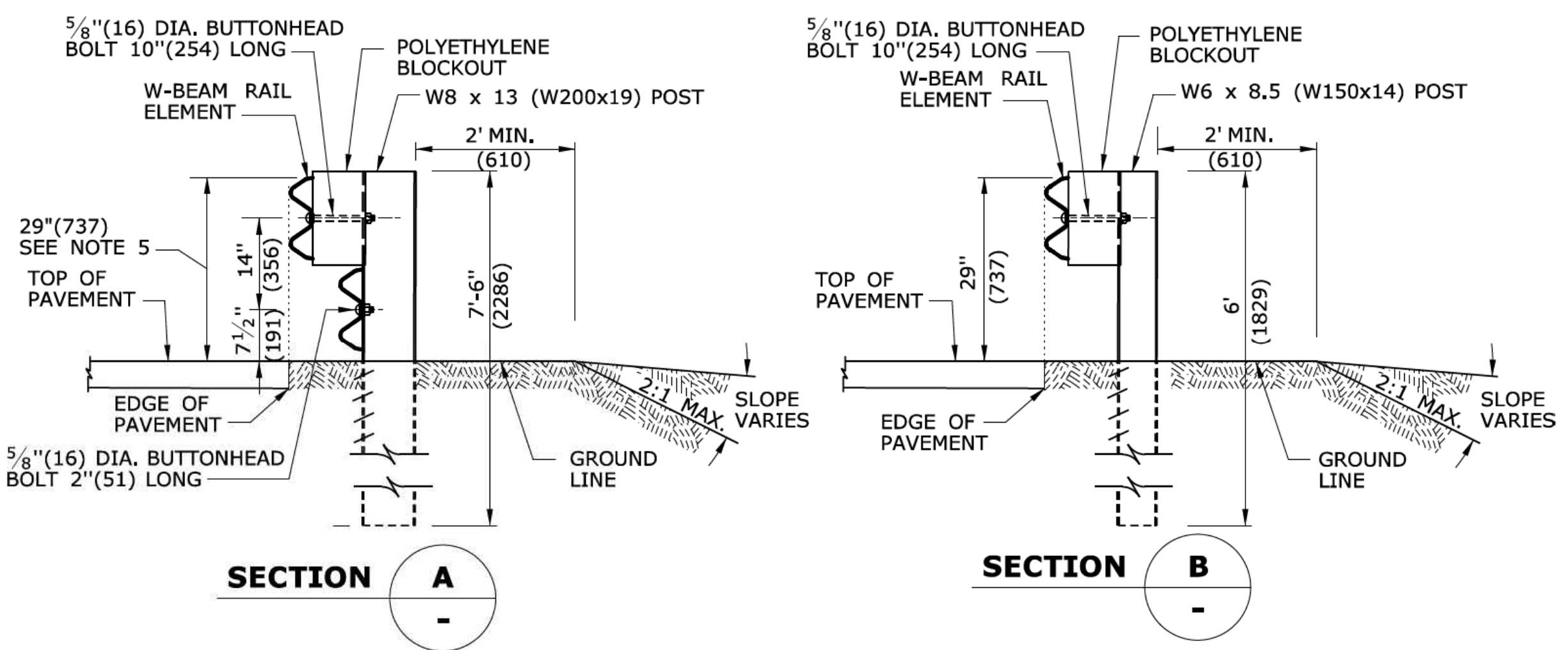
D = MAXIMUM DESIGN DEFLECTION MEASURED FROM THE BACK OF POST TO THE FACE OF AREA OF CONCERN.

LON = LENGTH OF NEED FOR EACH SITE SHALL BE BASED ON CTDOT HIGHWAY DESIGN MANUAL AND AS SHOWN ON THE PLANS.

A = IF AREA OF CONCERN IS PROTECTED WITH SYSTEM 5 OR 6 ON A SINGLE DIRECTION ROADWAY, CONTINUE WITH STANDARD R-B 350 GUIDERAIL.



LENGTH OF NEED DIAGRAM (LON)
(SEE TABLE 1 FOR LEGEND)



ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION	Plotted Date: 6/9/2011
1	6/11	REVISED NOTE 4, ERRATA	
-	-	-	
-	-	-	
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 39- HW-910_04

SUBMITTED BY: NAME/DATE/TIME:

APPROVED BY: NAME/DATE/TIME:

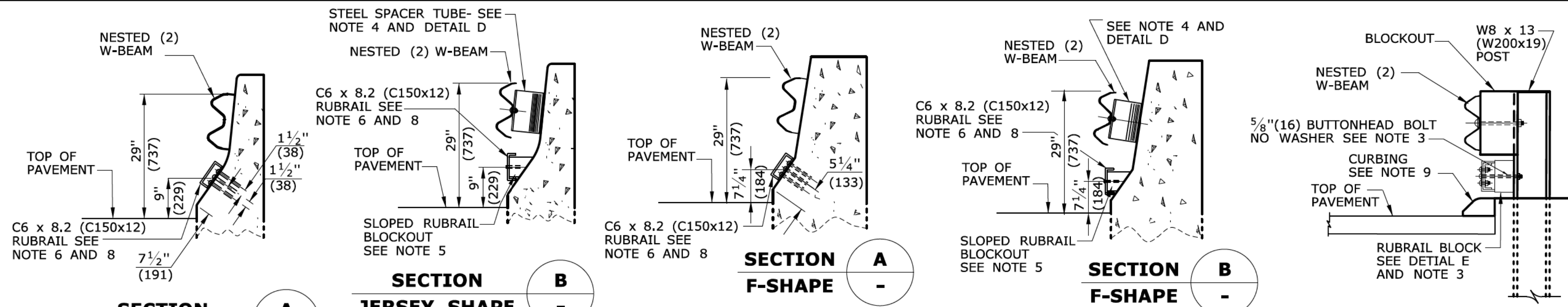
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CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

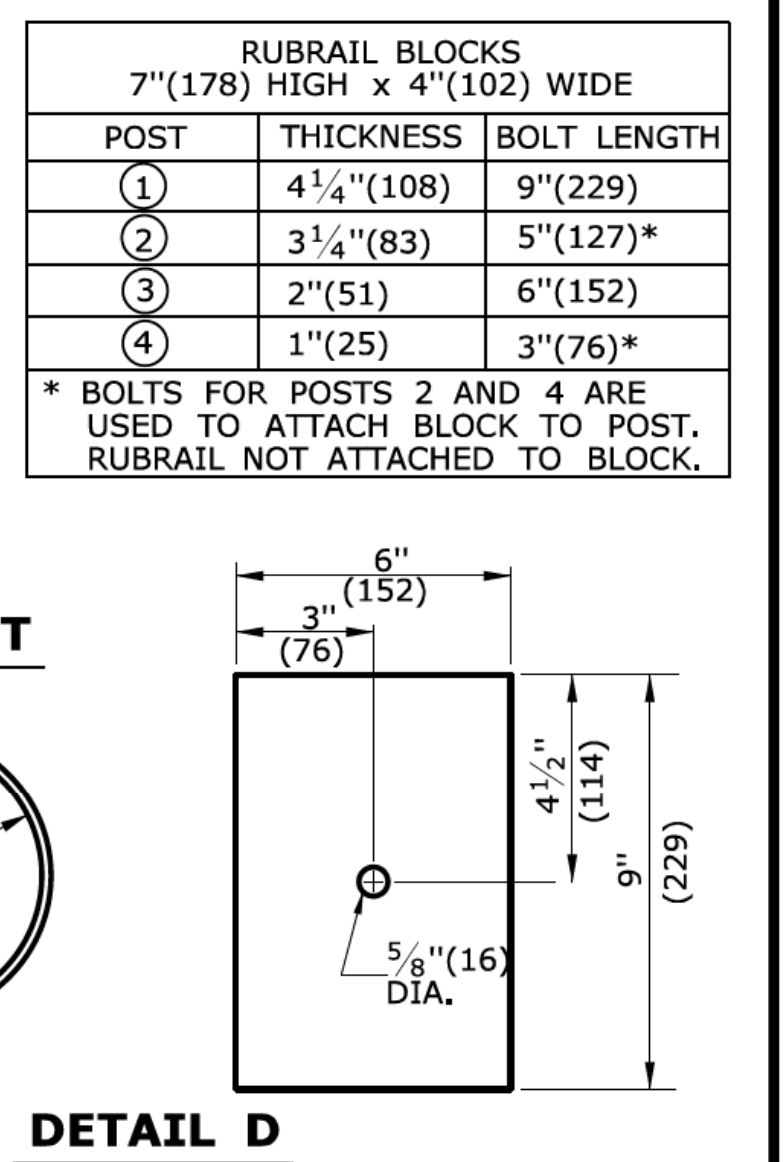
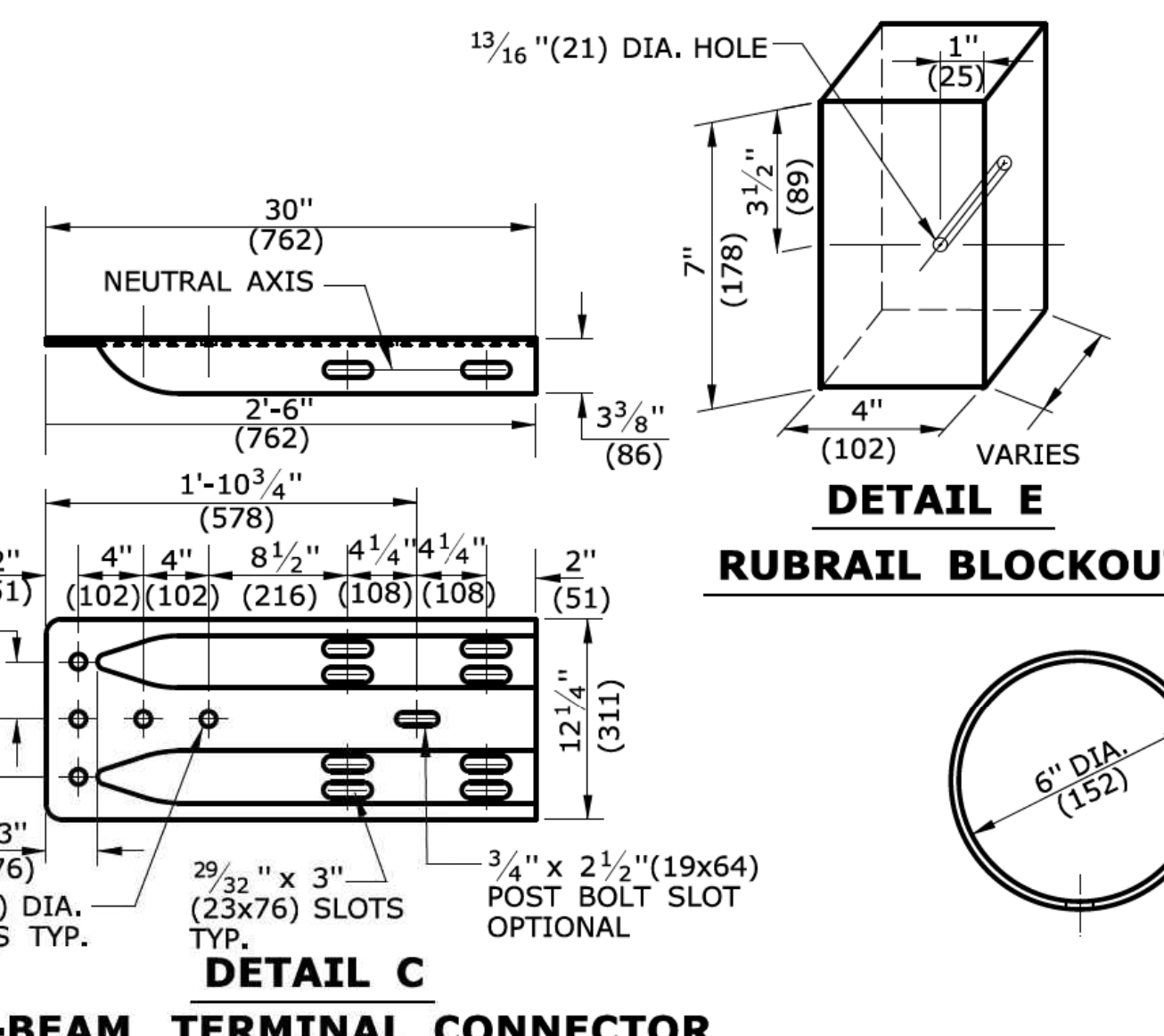
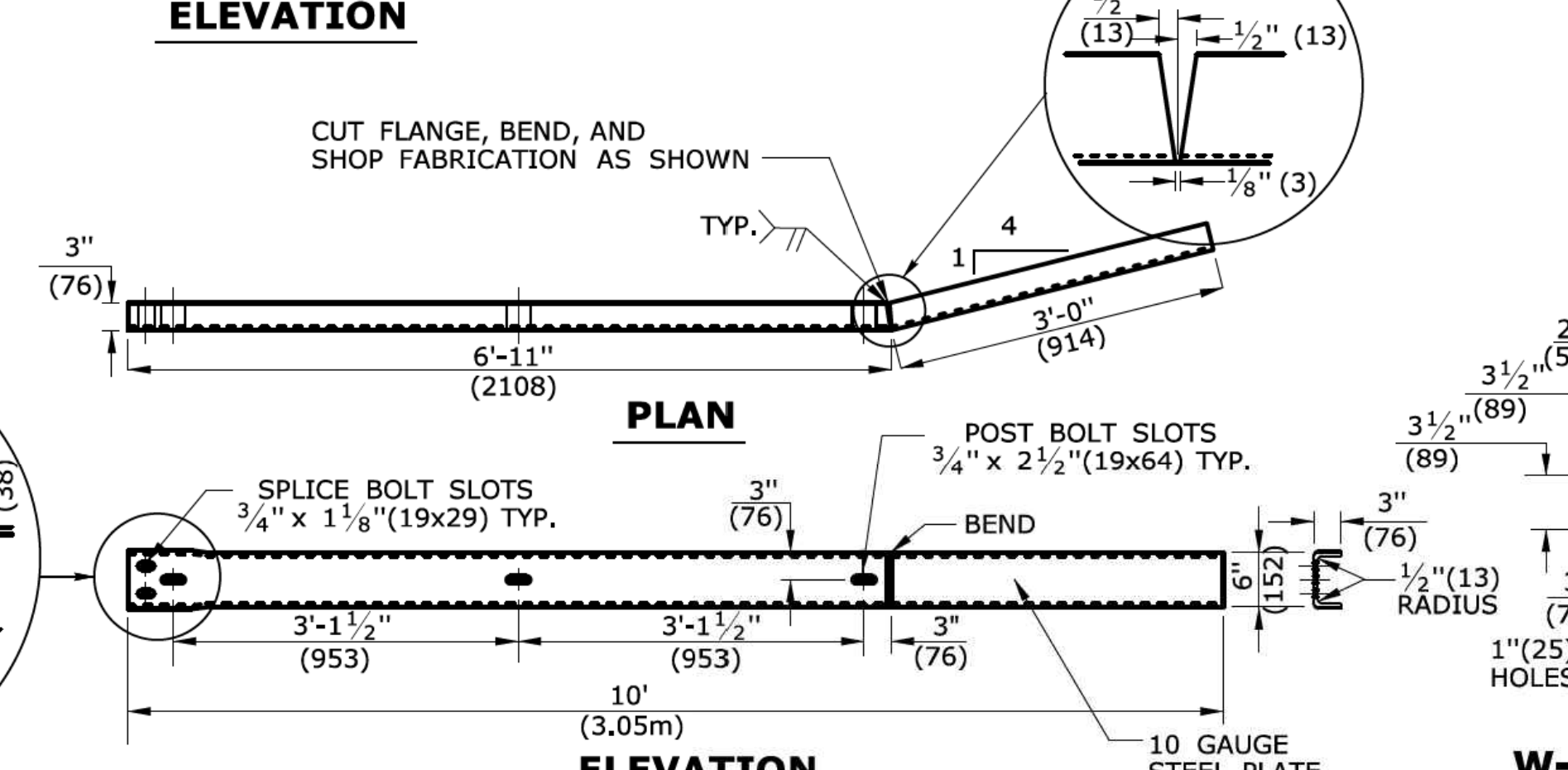
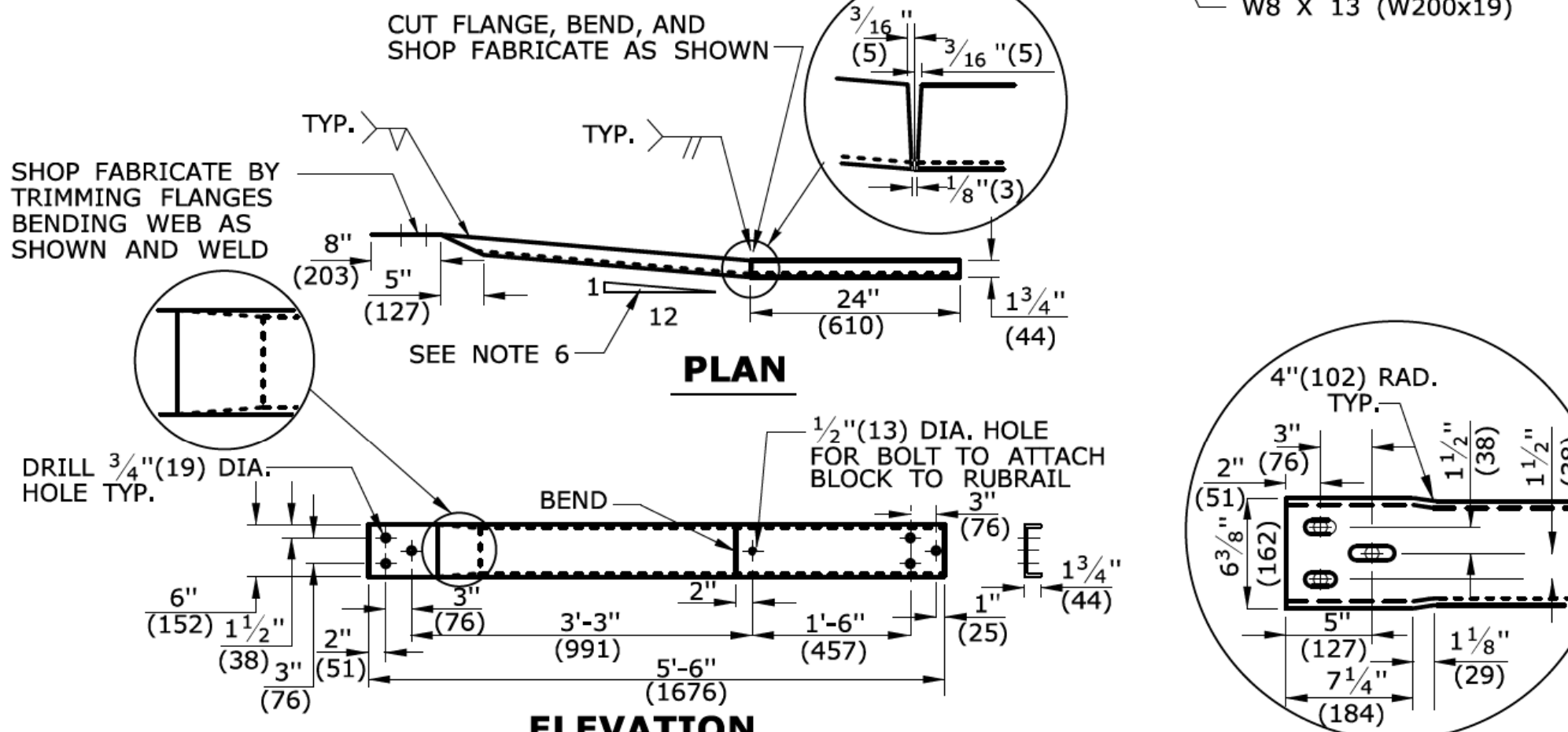
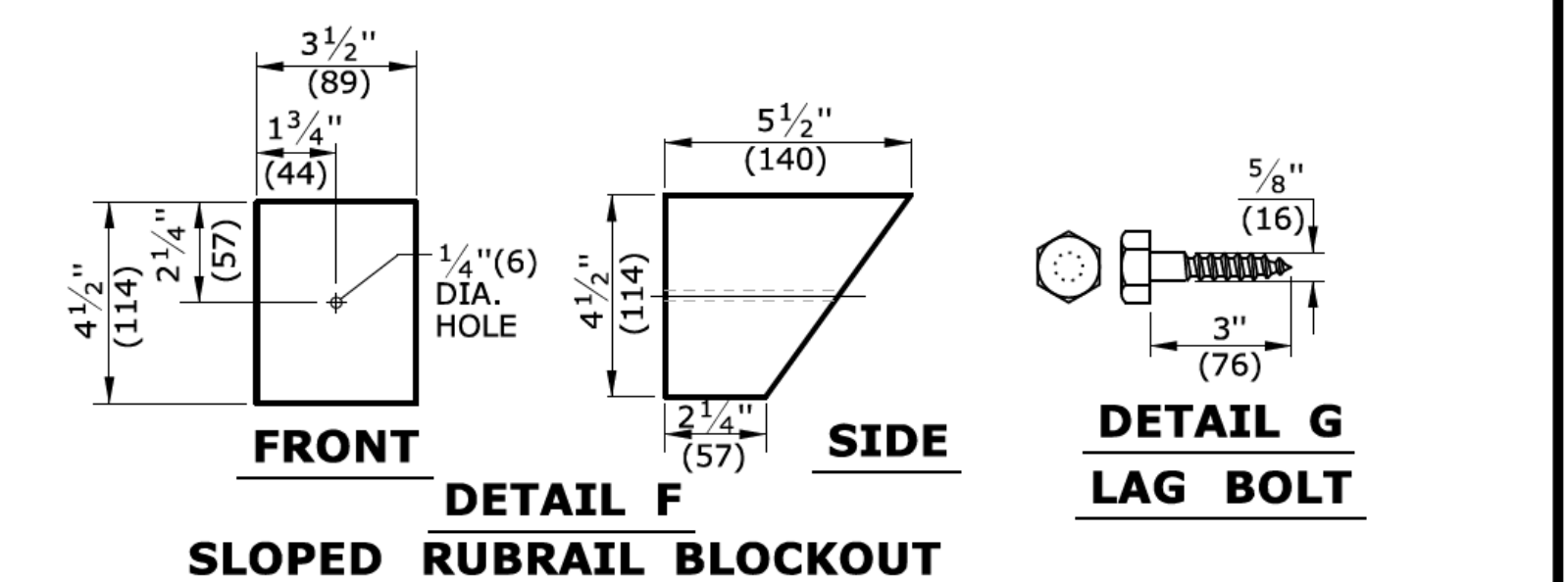
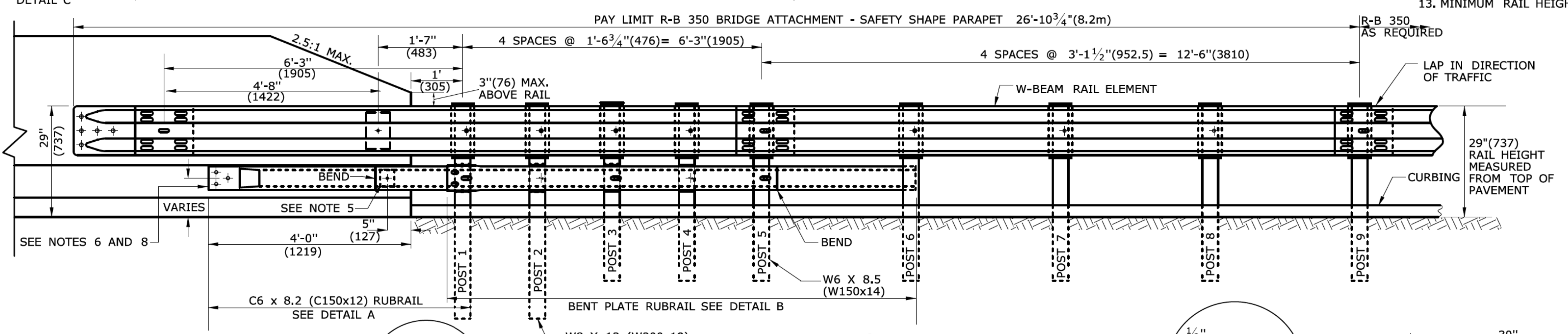
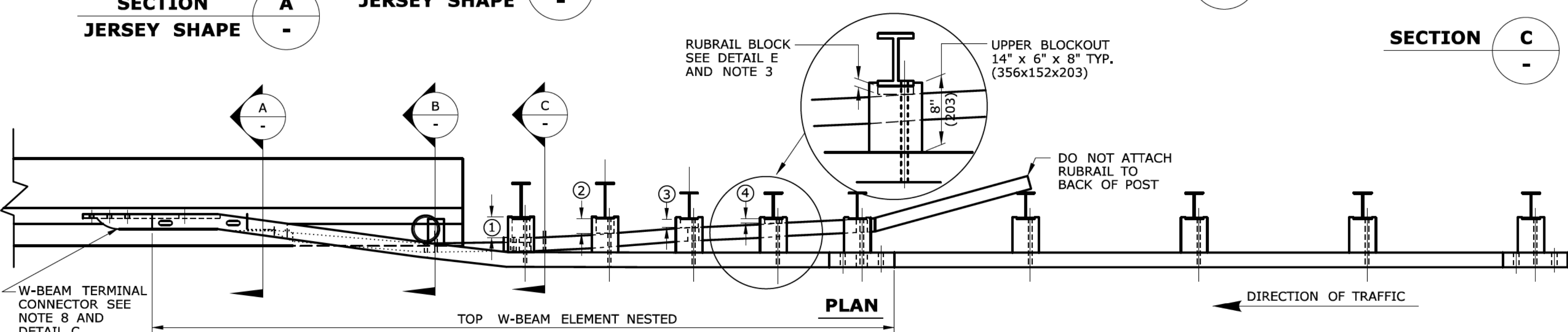
METAL BEAM RAIL TYPE R-B 350
SYSTEMS 5, 5A, & 6

HW-910_04



GENERAL NOTES:

- THIS R-B 350 GUIDERAIL TRANSITION IS APPROPRIATE FOR CONNECTION AT THE FOLLOWING LOCATIONS:
 - JERSEY SHAPE OR F-SHAPE PARAPET OR BARRIER WITH NO ELECTRICAL JUNCTION BOX WITHIN THE LIMITS OF THE ATTACHMENT (APPROXIMATELY 8'(2.44m)).
 - BRIDGE PARAPETS RETROFITTED FROM SAFETY WALK TO MODIFIED SAFETY SHAPE WITH NO ELECTRICAL JUNCTION BOX WITHIN THE LIMITS OF THE ATTACHMENT (APPROXIMATELY 8'(2.44m)).
 - LEADING AND TRAILING ENDS ON DUAL DIRECTION ROADWAYS.
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
- RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8"(16) BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" (16x114) BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
- STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6"(152) INSIDE DIAMETER x 9"(229) LONG. ATTACH TUBE TO RAIL ONLY WITH 5/8" x 1 1/4" (16x32) LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER. TUBE IS NOT ATTACHED TO PARAPET.
- SEE DETAIL F FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3"(10x76) LAG BOLT WITH FLAT WASHER.
- SHOP FABRICATE THE C6 x 8.2 (C150x12) RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE OR F-SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE PARAPET OR BARRIER.
- USE CLASS B TYPE II W-BEAM RAIL ELEMENTS (10 GAUGE) FOR INSTALLATIONS ON EXPRESSWAYS AND RAMPS.
- ANCHORAGE:
 - AT EXISTING PARAPETS OR BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" x 6"(16x152) CHEMICALLY ANCHORED BOLTS WITH WASHERS OR AS DETAILED ON STRUCTURE SHEETS. MAXIMUM BOLT PROJECTION BEYOND THE NUT SHALL BE 1/2"(13).
 - AT EXISTING PARAPETS OR BARRIERS, THE W-BEAM TERMINAL CONNECTOR SHALL BE ANCHORED USING FIVE 7/8" x 12"(22x305) CHEMICALLY ANCHORED BOLTS WITH WASHERS, OR AS DETAILED ON THE STRUCTURE SHEETS. MAXIMUM BOLT PROJECTION BEYOND THE NUT SHALL BE 1/2"(13). THE 12"(305) MINIMUM LENGTH OF CHEMICALLY ANCHORED BOLTS SHALL INCLUDE A MINIMUM EMBEDMENT DEPTH OF 10"(254) INTO SUITABLY REINFORCED CONCRETE, OR AS RECOMMENDED BY MANUFACTURER OF BONDING MATERIAL.
 - NEW PARAPETS OR BARRIERS, THE W-BEAM TERMINAL CONNECTOR AND RUBRAIL SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE PLANS.
- FOR NEW CONSTRUCTION WHERE CURBING IS NEEDED, USE EITHER 4"(102) BITUMINOUS CONCRETE PARK CURBING OR PRECAST CONCRETE TRANSITION CURBING SET WITH A 4"(102) REVEAL. IF EXISTING CURBING IS GRANITE STONE TRANSITION CURBING, RESET CURB TO A 4"(102) REVEAL OR REMOVE IT AND REPLACE IT WITH 4"(102) CURBING.
- POSTS 1 AND 2 ARE W8 x 13 (W200x19), 7'-6"(2286) LONG. ALL OTHER POSTS IN TRANSITION ARE W6 x 8.5 (W150x14), 6'(1829) LONG.
- ADDITIONAL BLOCKOUTS WITH POSTS 1 THROUGH 6 SHOULD BE AVOIDED.
- FOR SINGLE DIRECTION ROADWAY:
 - INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
 - FOR DUAL DIRECTION ROADWAY FOR APPROACHING TRAFFIC:
 - INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
 - FOR TRAILING END:
 - INSTALL W-BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUIDERAIL ELEMENTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) + 1" (25).



RUBRAIL BLOCKS 7"(178) HIGH x 4"(102) WIDE		
POST	THICKNESS	BOLT LENGTH
①	4 1/4"(108)	9"(229)
②	3 1/4"(83)	5"(127)*
③	2"(51)	6"(152)
④	1"(25)	3"(76)*

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

DETAIL A - C6 x 8.2 (C150x12) RUBRAIL

DETAIL B BENT PLATE RUBRAIL

DETAIL C W-BEAM TERMINAL CONNECTOR CLASS B TYPE II

DETAIL D STEEL SPACER TUBE

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED NOTE 8 FOR USE OF CHEMICAL ANCHORS AND PAY ITEM CHANGED TO SAFETY SHAPE.
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

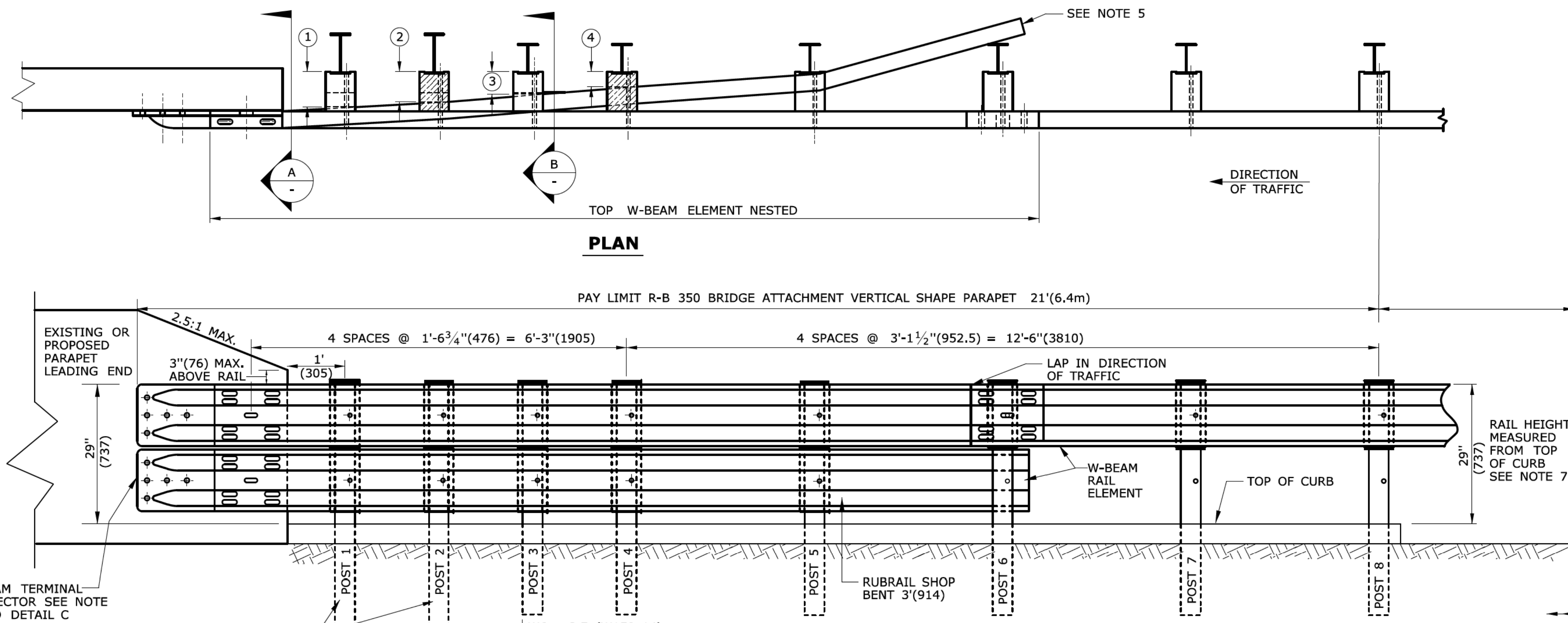
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DEPARTMENT OF TRANSPORTATION

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APPROVED BY: [Signature]
NAME/DATE/TIME: James H. Norman
2011.06.09 15:14:22 -04'00'

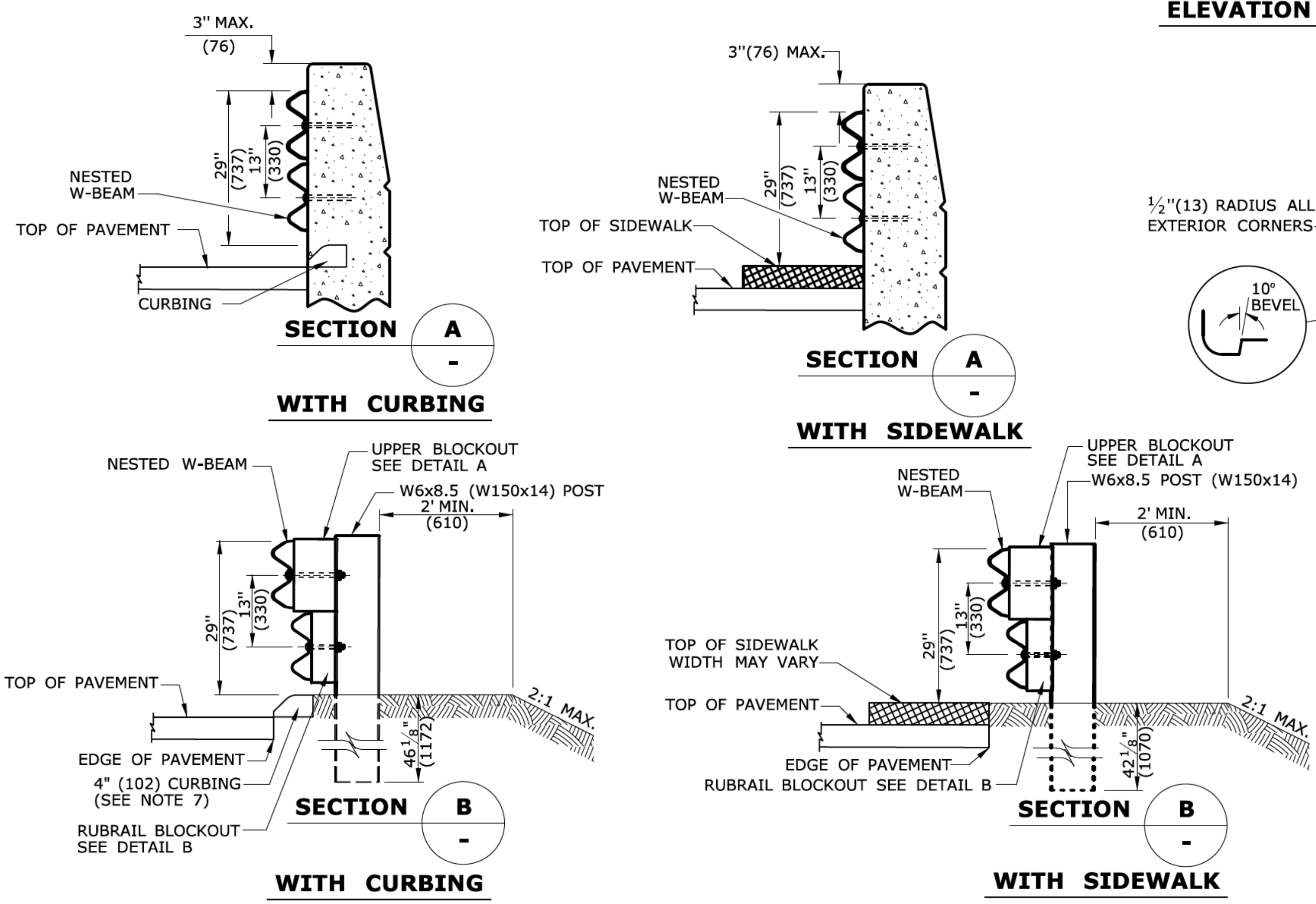
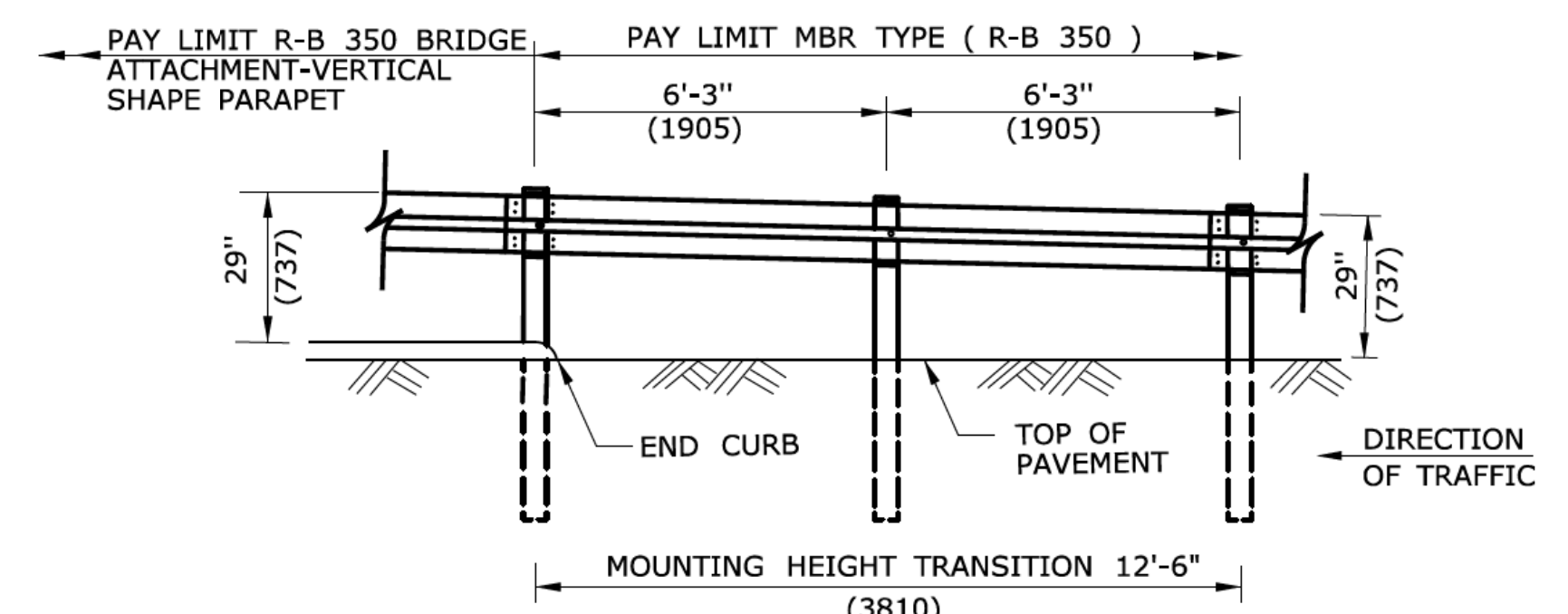
CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE: R-B 350 BRIDGE ATTACHMENT TO SAFETY SHAPE PARAPET
STANDARD SHEET NO.: HW-910_06

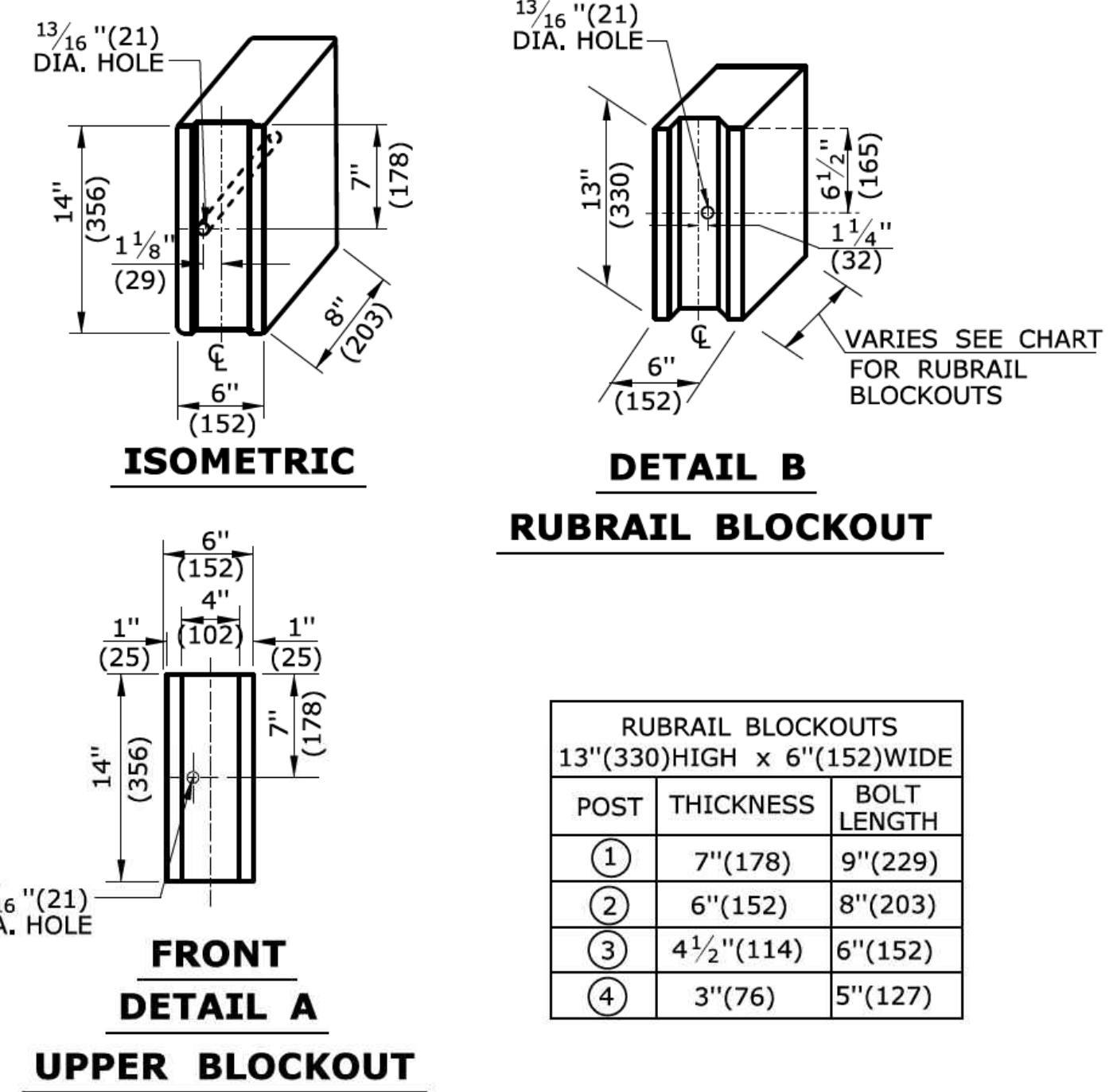


GENERAL NOTES:

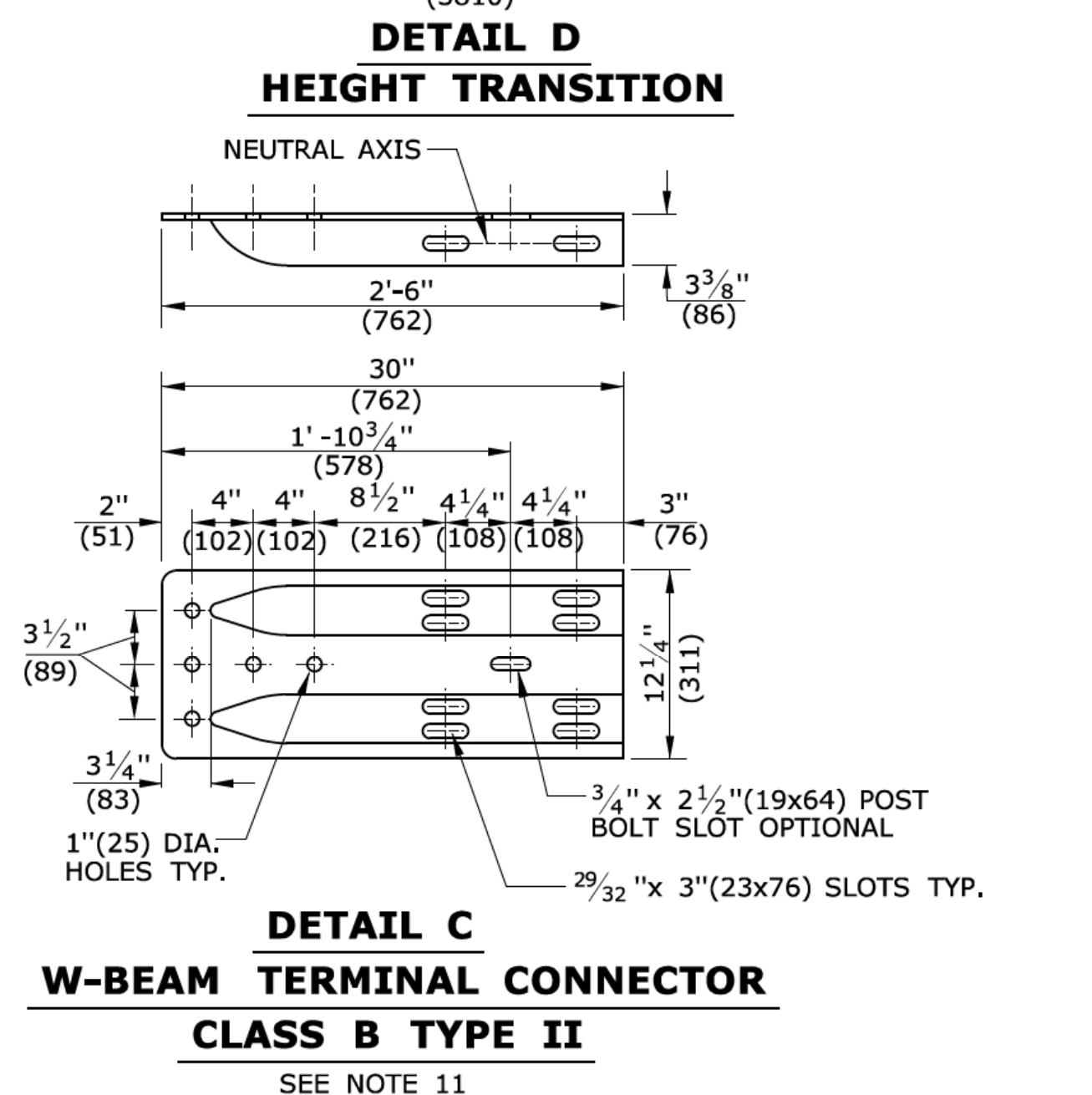
- THIS R-B 350 GUIDERAIL TRANSITION IS APPROPRIATE FOR CONNECTION AT THE FOLLOWING LOCATIONS:
 - WHEN ANY SAFETY SHAPE (F-SHAPED OR JERSEY SHAPE) PARAPET HAS AN ELECTRICAL JUNCTION BOX WITHIN 8' (2438) OF THE END OF THE PARAPET, THE END OF THE PARAPET SHALL BE MODIFIED OR TRANSFORMED TO A VERTICAL SHAPE PRIOR TO GUIDERAIL ATTACHMENT.
 - VERTICAL WALL OR ABUTMENT FACE.
 - VERTICAL CONCRETE PARAPET WITH SIDEWALK.
 - VERTICAL FACE FOR LEADING AND TRAILING ENDS ON DUAL DIRECTION ROADWAYS.
- POSTS 1 AND 2 ARE W8 x 13(W200x19), 7'-6" (2286) LONG. ALL OTHER POSTS IN TRANSITION ARE W6 x 8.5(W150x14), 6' (1829) LONG.
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR LOWER RUBRAIL.
- RUBRAIL BLOCKOUTS FOR POSTS 1 THROUGH 4 ARE ATTACHED TO POST AND RAIL WITH A 3/8" (16) BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTH). RUBRAIL ONLY IS ATTACHED TO POST 5 WITH A 3/8" x 1/4" (16 x 32) BUTTONHEAD BOLT.
- THE RUBRAIL MAY BE SHOP BENT IN THE LAST 3' (914) TO FACILITATE INSTALLATION. DO NOT ATTACH RUBRAIL TO BACK OF POST 6.
- USE CLASS B (10 GAUGE) TYPE II W-BEAM RAIL ELEMENTS FOR INSTALLATIONS ON EXPRESSWAYS AND RAMP.
- FOR THIS APPLICATION WHEN CURBING IS USED, R-B 350 RAIL HEIGHT MUST BE MEASURED FROM THE TOP OF CURBING TO THE TOP OF RAIL. SEE DETAIL D FOR HEIGHT TRANSITION.
- FOR NEW CONSTRUCTION WHERE CURBING IS NEEDED, USE EITHER 4" (102) BITUMINOUS CONCRETE PARK CURBING OR PRECAST CONCRETE TRANSITION CURBING SET WITH A 4" (102) REVEAL. THE PREFERRED CURBING FOR HIGH SPEED ROADWAYS (>45 MPH (72kph)) IS 4" (102). HOWEVER, ON LOW SPEED ROADWAYS (<45 MPH (72kph)) A 6" (152) CURBING MAY BE USED. ADJUST RAIL HEIGHT AS REQUIRED.
- ANCHORAGE:
 - AT EXISTING PARAPETS EACH W-BEAM TERMINAL CONNECTOR SHALL BE ANCHORED USING FOUR 7/8" x 12" (22 x 305) CHEMICALLY ANCHORED BOLTS WITH WASHERS OR AS DETAILED ON STRUCTURE SHEETS. MAXIMUM BOLT PROJECTION BEYOND THE NUT SHALL BE 1/2" (13). THE 12" (305) MINIMUM LENGTH OF CHEMICALLY ANCHORED BOLTS SHALL INCLUDE A MINIMUM EMBEDMENT DEPTH OF 10" (254) INTO SUITABLY REINFORCED CONCRETE OR AS RECOMMENDED BY THE MANUFACTURER OF BONDING MATERIAL.
 - FOR NEW PARAPETS OR BARRIERS, THE W-BEAM TERMINAL CONNECTORS SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE SHEETS.
- ADDITIONAL BLOCKOUTS WITH POSTS 1 THROUGH 6 SHOULD BE AVOIDED.
- FOR SINGLE DIRECTION ROADWAY:
 - INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
- FOR DUAL DIRECTION ROADWAY FOR APPROACHING TRAFFIC:
 - INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
- FOR TRAILING END:
 - INSTALL W-BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUIDERAIL ELEMENTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) ± 1" (25).



ELEVATION



RUBRAIL BLOCKOUTS 13"(330)HIGH x 6"(152)WIDE		
POST	THICKNESS	BOLT LENGTH
①	7"(178)	9"(229)
②	6"(152)	8"(203)
③	4 1/2"(114)	6"(152)
④	3"(76)	5"(127)



SEE NOTE 11
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED NOTE 9 FOR USE OF CHEMICAL ANCHORS
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

Plotted Date: 5/10/2011

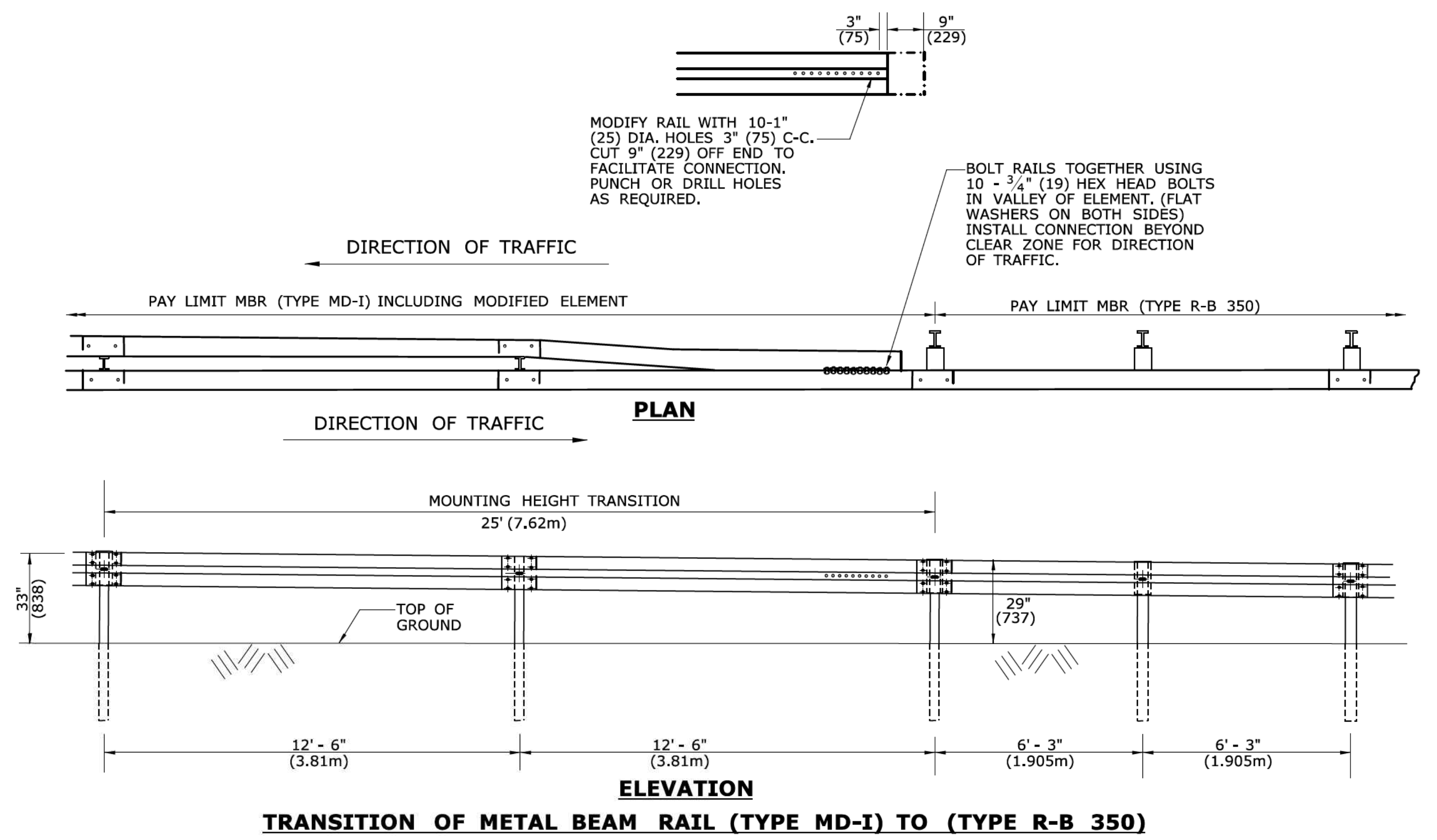
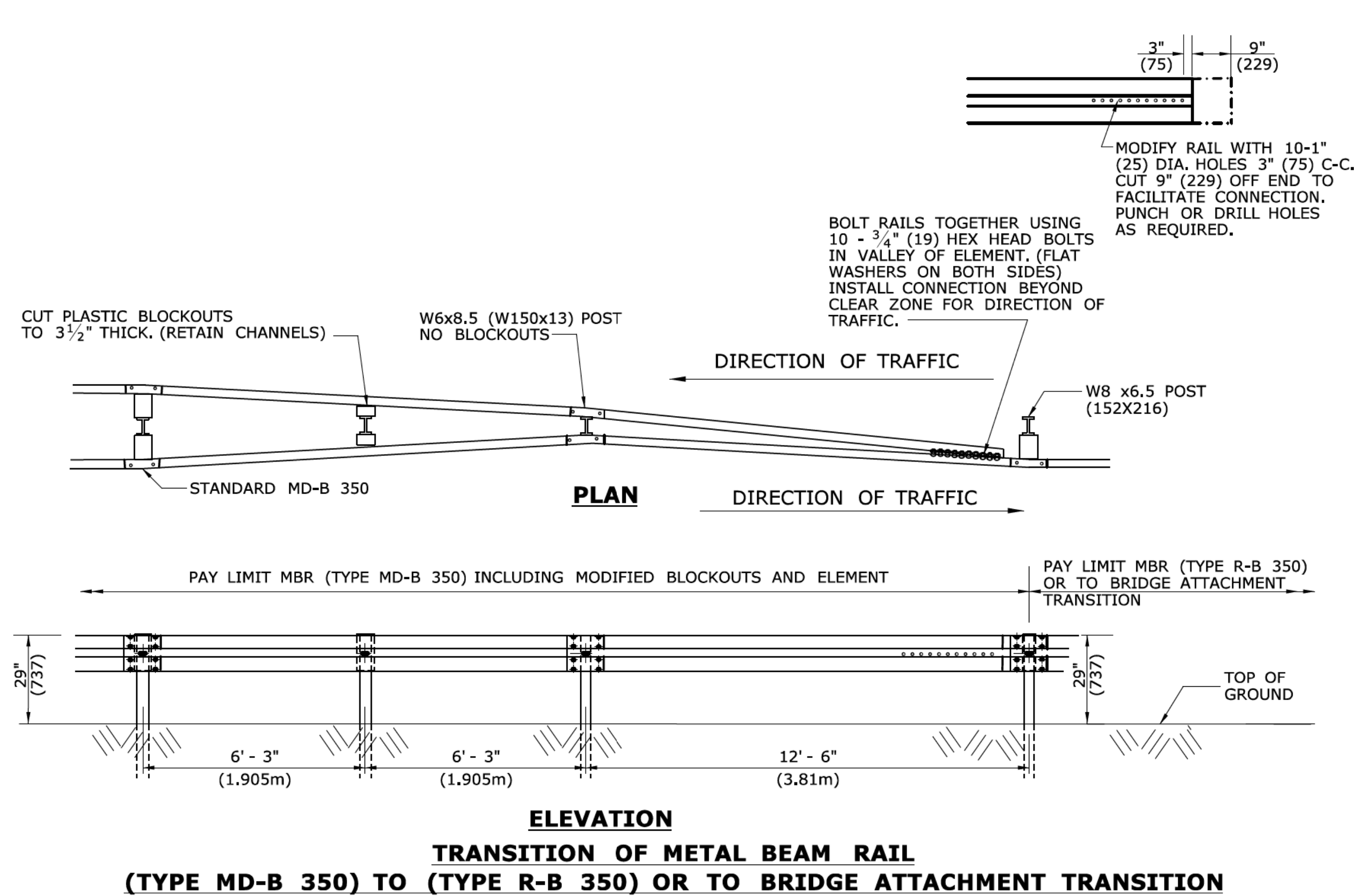
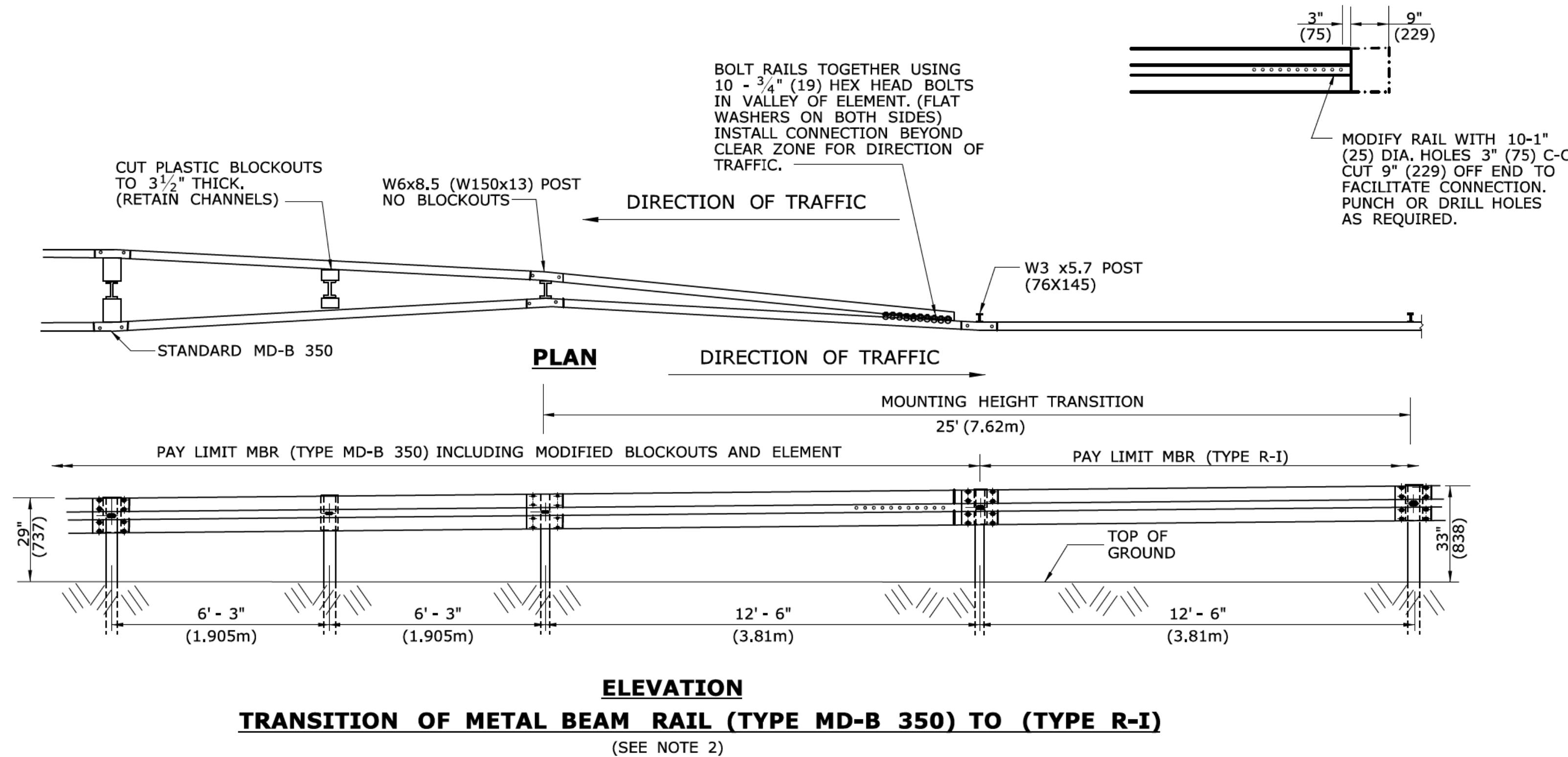
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 42 - HW-910_07

SUBMITTED BY: NAME/DATE/TIME:
APPROVED BY: NAME/DATE/TIME:
James H. Norman
2011.06.09 15:14:46 -04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
**R-B 350 BRIDGE ATTACHMENT
VERTICAL SHAPE PARAPET**
STANDARD SHEET NO.: HW-910_07

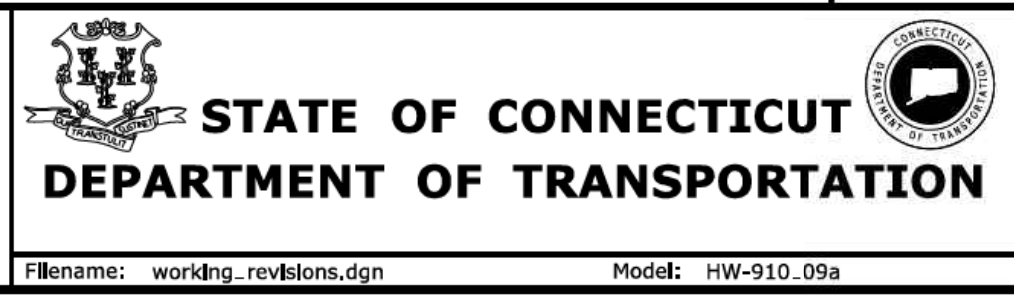


ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	9/6/11	ADD NOTE 2, REVISE TRANSITION NOTE & RESIZE NOTE -
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Plotted Date: 11/16/2011

NOT TO SCALE



SUBMITTED BY:	NAME/DATE/TIME:
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APPROVED BY:	NAME/DATE/TIME:
<i>James H. Norman</i>	James H. Norman 2012.01.26 15:29:59 -05'00'

**CTDOT
STANDARD SHEET**

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

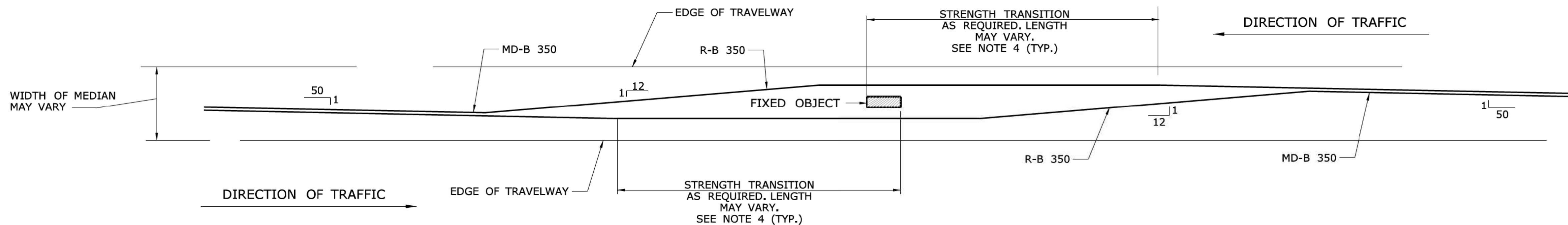
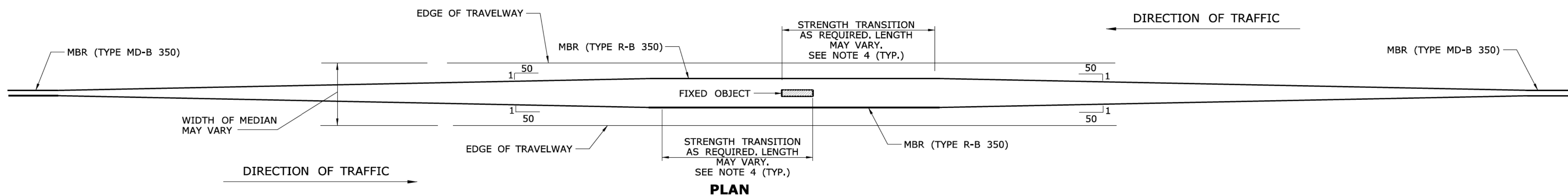
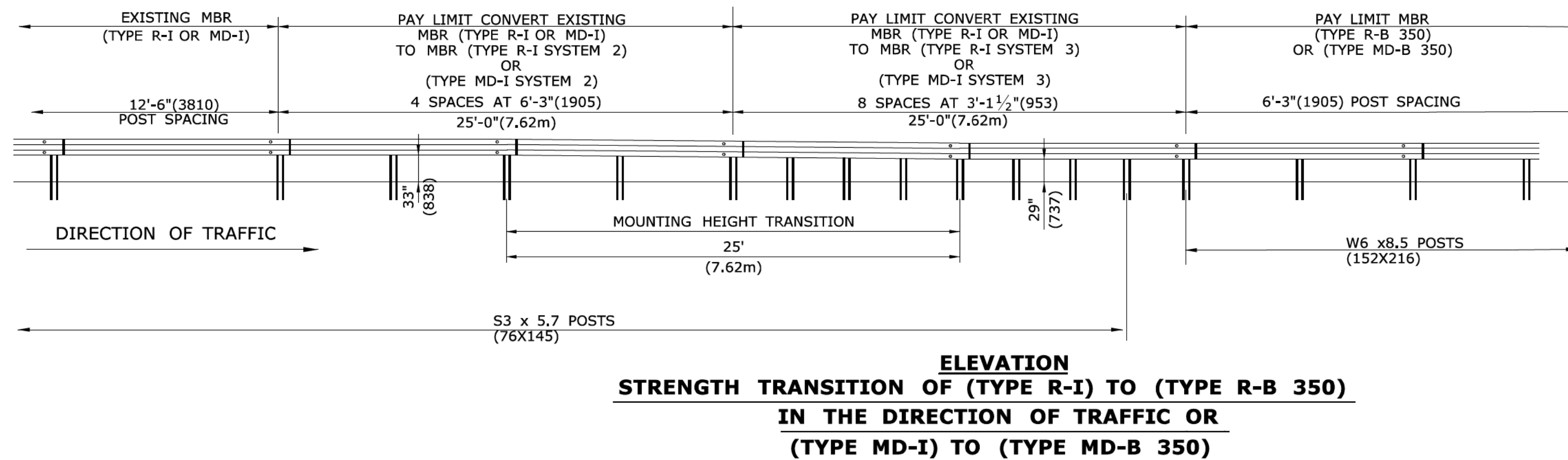
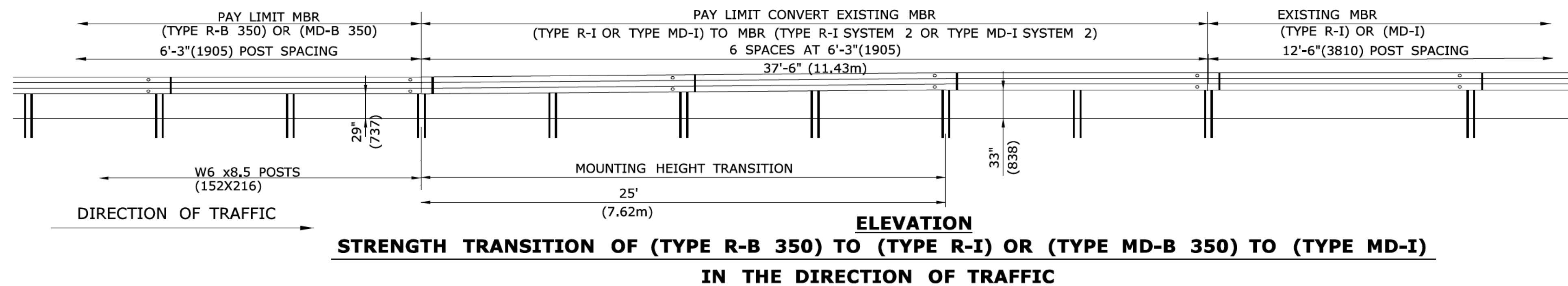
**MISCELLANEOUS
GUIDERAIL TRANSITIONS**

STANDARD SHEET NO.:

HW-910_09a

GENERAL NOTES:

1. POST PLACEMENT WITHIN THE LIMITS OF THE TRANSITION SHOULD BE ADJUSTED TO ACCOMMODATE THE INTRODUCTION OF THE BLOCKOUT WHILE MAINTAINING A SMOOTH RAIL LINE.
2. LATERAL PLACEMENT OF RAIL IN MEDIAN SHALL BE AS SHOWN ON THE PLANS.
3. CROSS SECTION GRADE IN MEDIAN THRU TRANSITION AREA SHALL NOT EXCEED 10:1. AVOID PLACEMENT OF RAIL ON CROSS SLOPES STEEPER THAN 6:1. ADJUST RAIL HEIGHT WHEN RAIL IS GREATER THAN 2' FROM EDGE OF ROAD.
4. PLACEMENT OF R-B 350 OR APPROPRIATE SYSTEMS ARE BASED ON DEFLECTION REQUIREMENTS FOR FIXED OBJECT. SEE STANDARD SHEET HW-910-04.



TYPICAL MEDIAN GUIDERAIL TRANSITIONS FOR FIXED OBJECT

ALL METRIC DEMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

1	1/12	ADD NOTE 4 . REVISE TITLE	-
2	7/12	ERRATA	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 7/18/2012

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT-HIGHWAY-STD.dgn Model: 51 - HW-910-09b

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APPROVED BY: [Signature] NAME/DATE/TIME: James H. Norman 2012.07.25 12:46:27 -04'00'

CTDOT
STANDARD SHEET

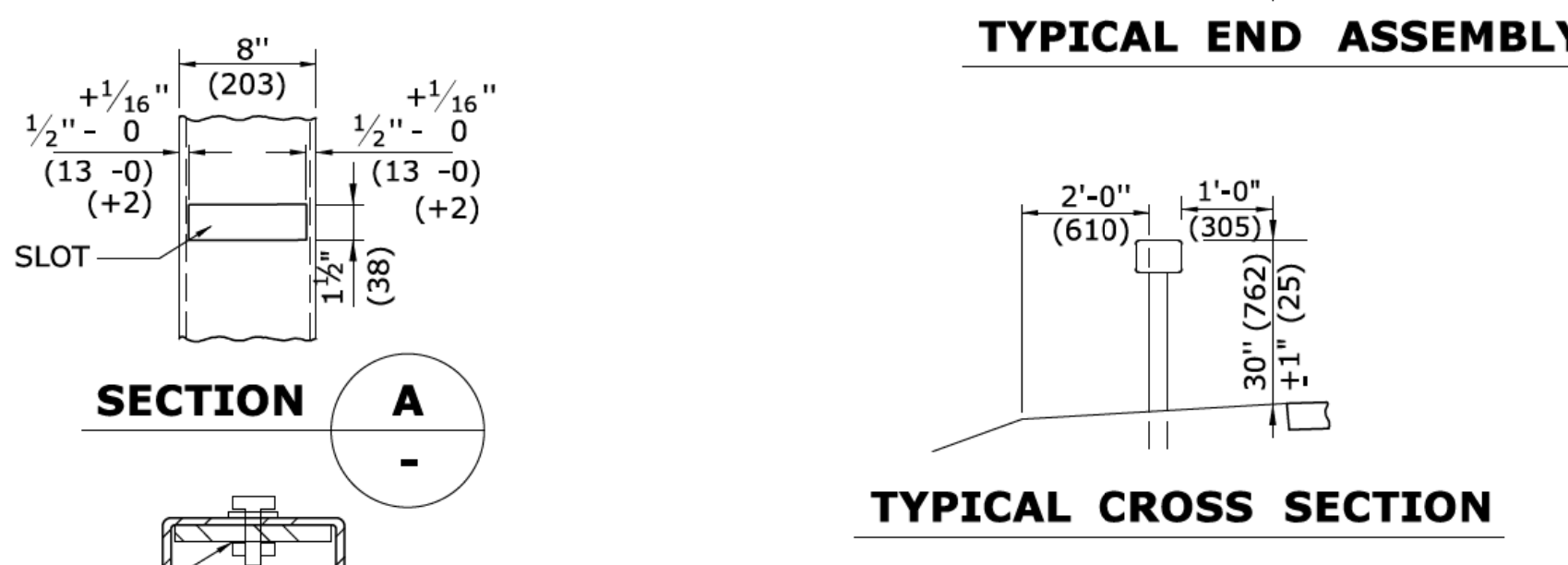
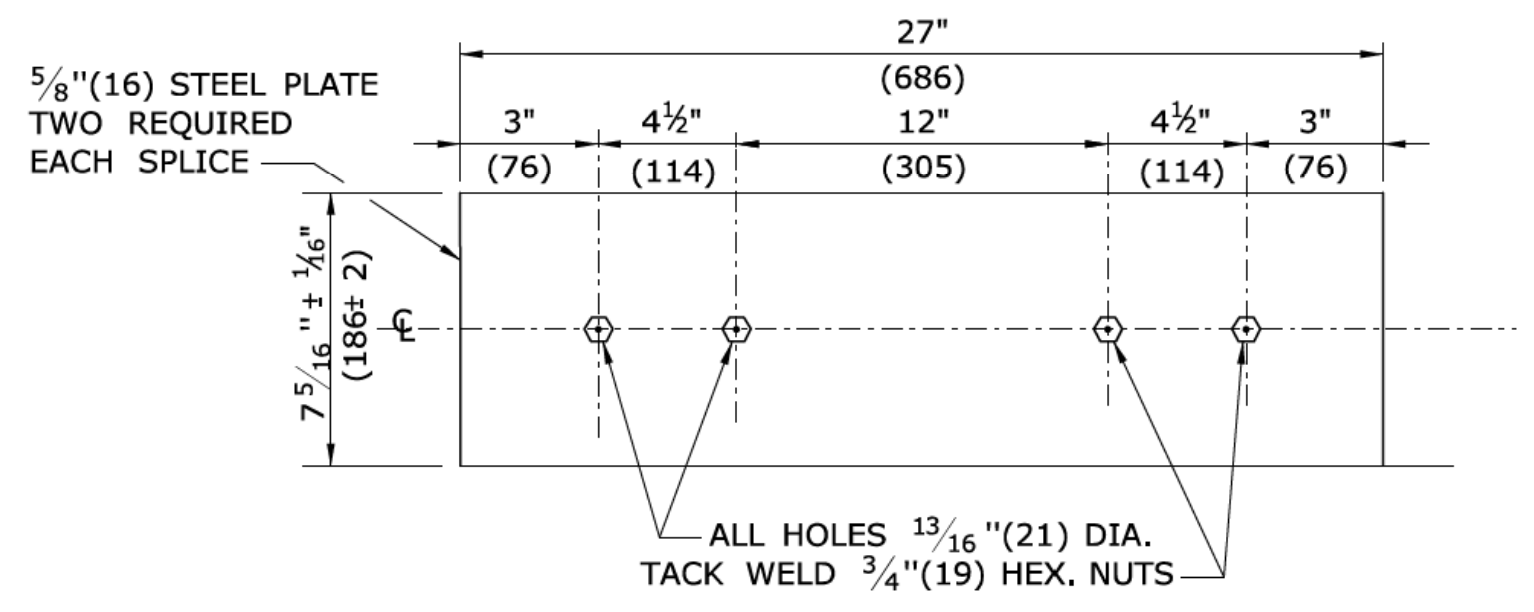
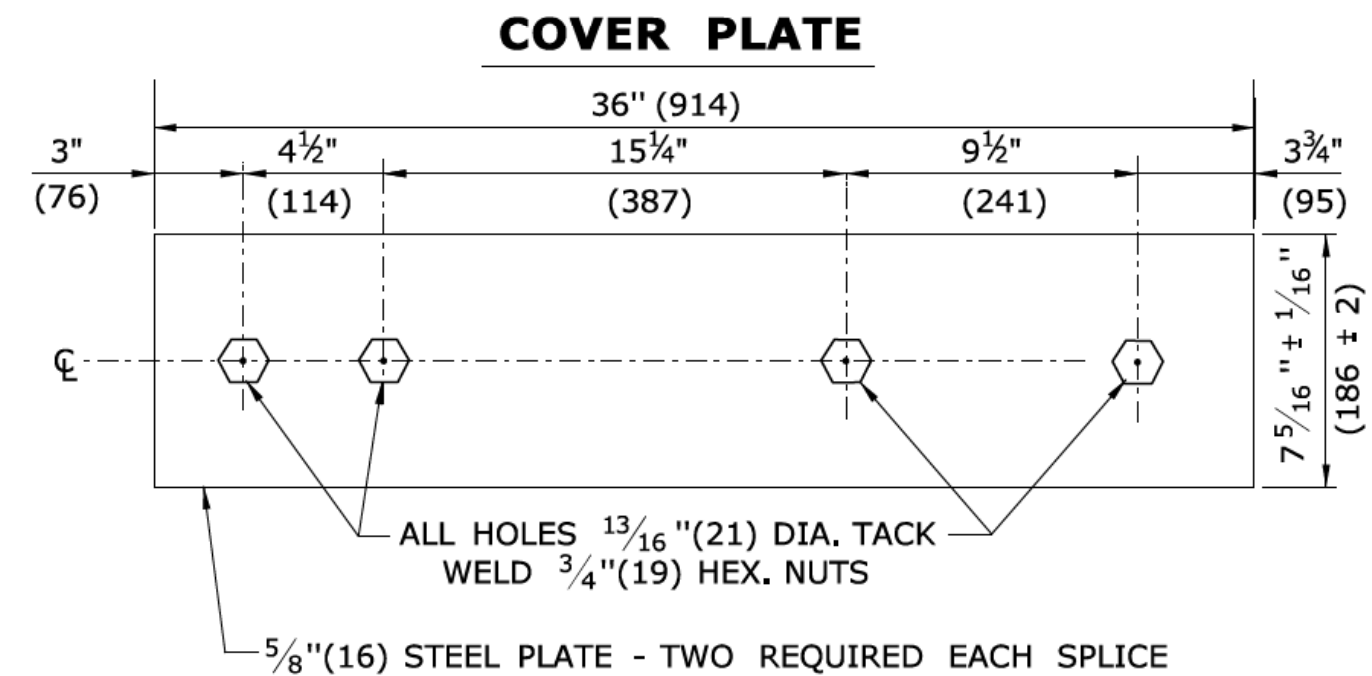
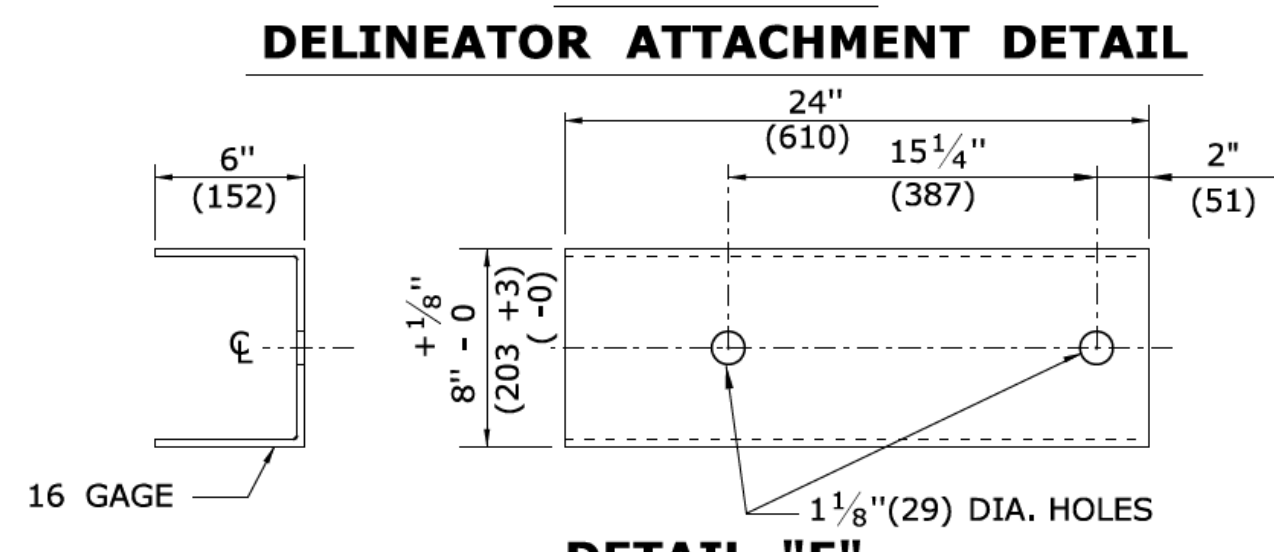
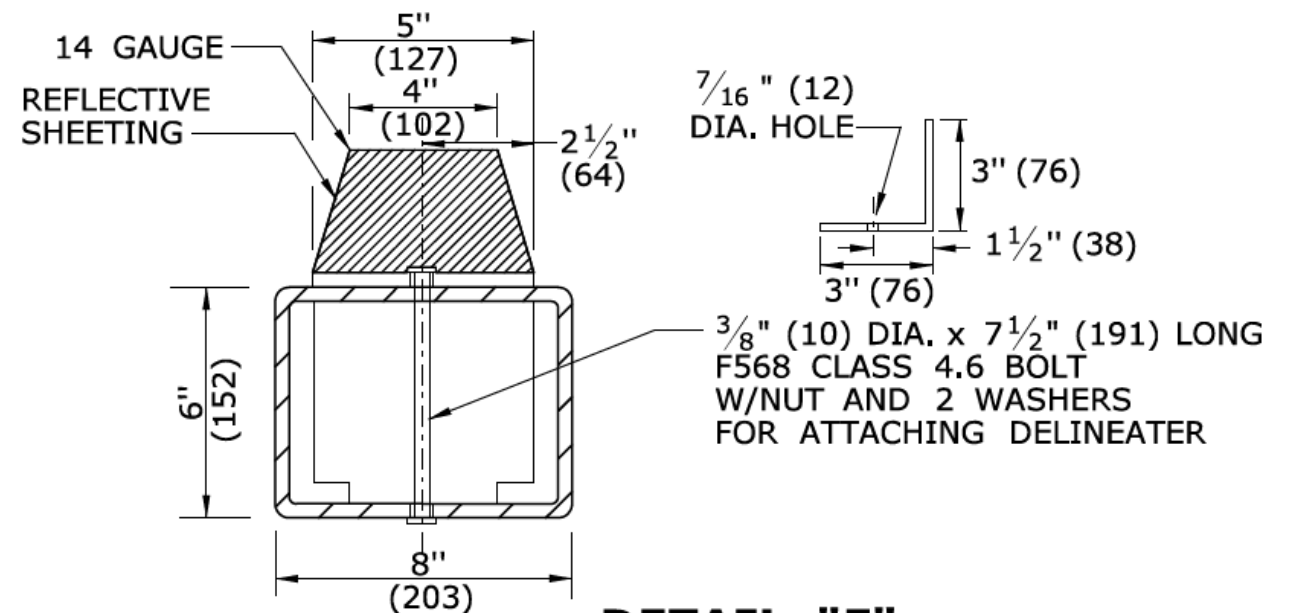
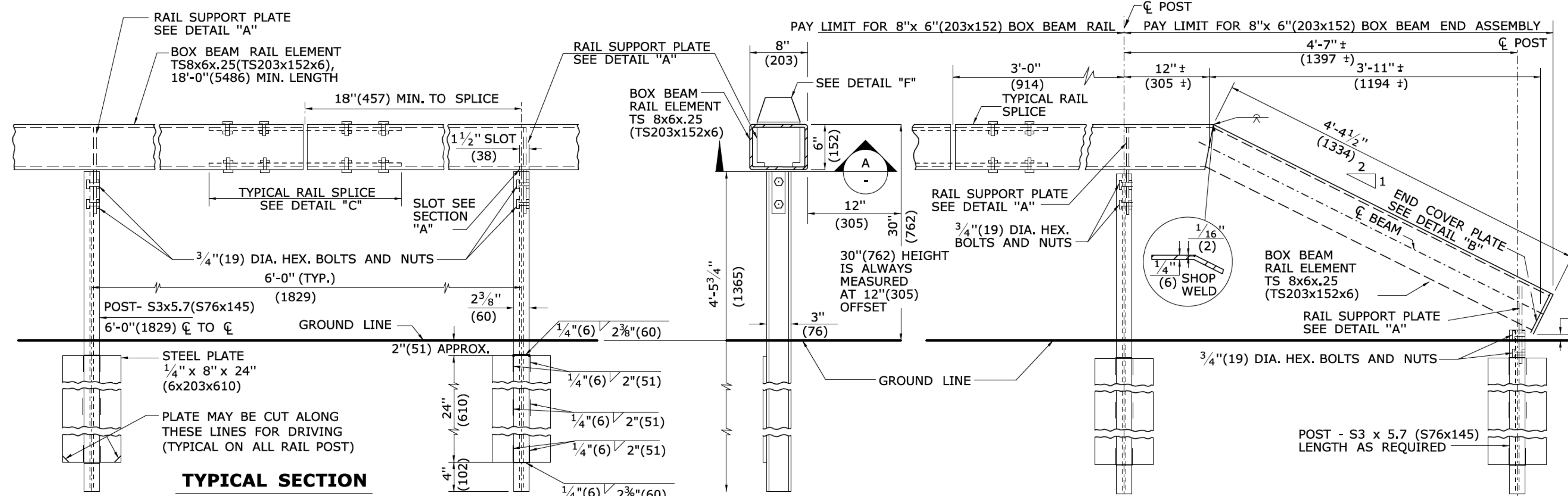
OFFICE OF ENGINEERING

STANDARD SHEET TITLE: **MISCELLANEOUS GUIDERAIL TRANSITIONS SHEET 2**

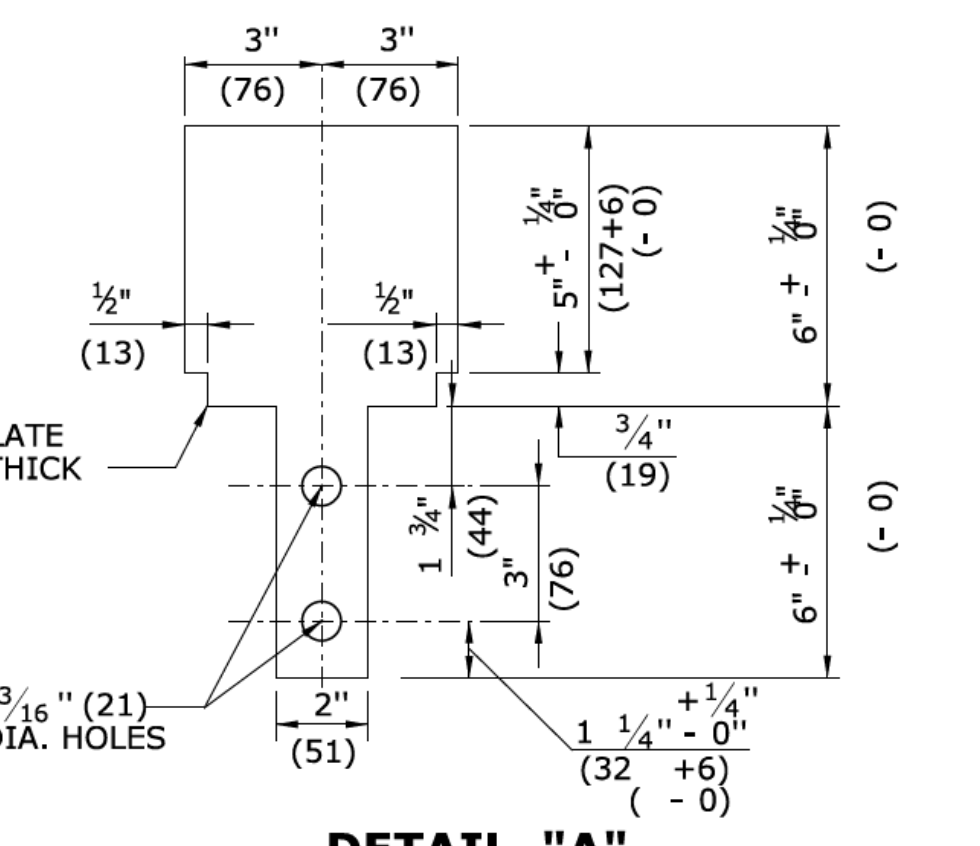
STANDARD SHEET NO.: **HW-910_09b**

GENERAL NOTES:

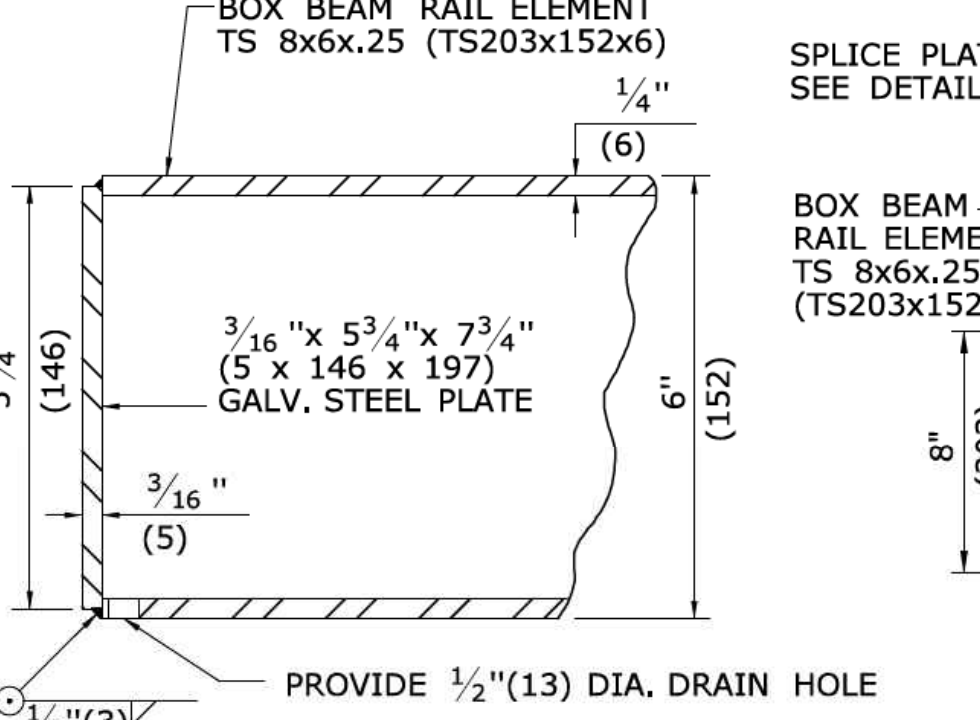
- 1. FOR CURVES WITH R < 1525' (464.8m), 8"(203) x 6"(152) BOX BEAM ELEMENT SHALL BE SHOP FABRICATED. PAYMENT FOR SHOP FABRICATION SHALL BE INCLUDED WITH THE ITEM 8"(203) x 6"(152) BOX BEAM GUIDERAIL.
- 2. TO DEVELOPE PROPER TENSION FOR DEFLECTION MIN. LENGTH = 125' (38.1m)



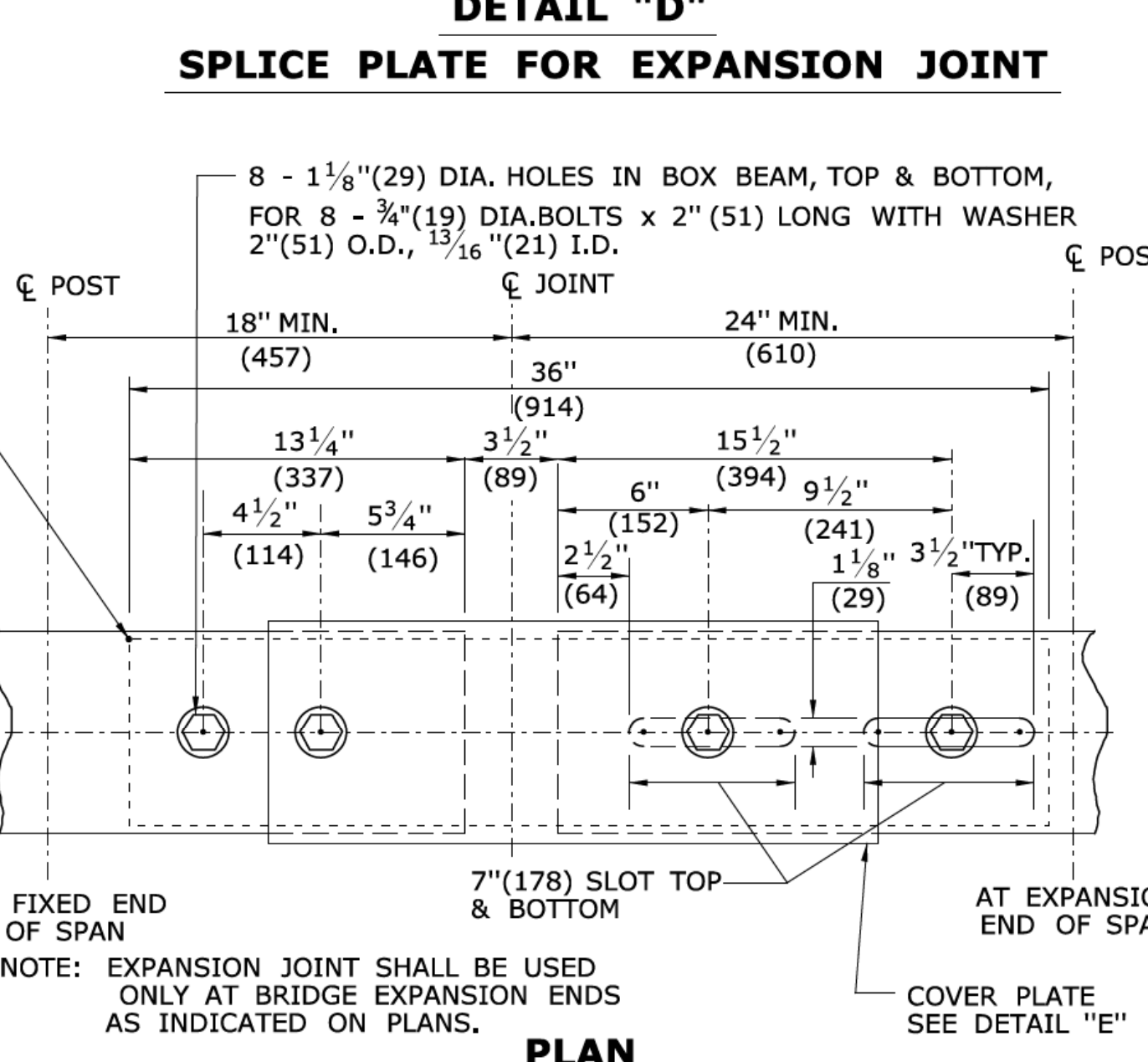
TYPICAL CROSS SECTION



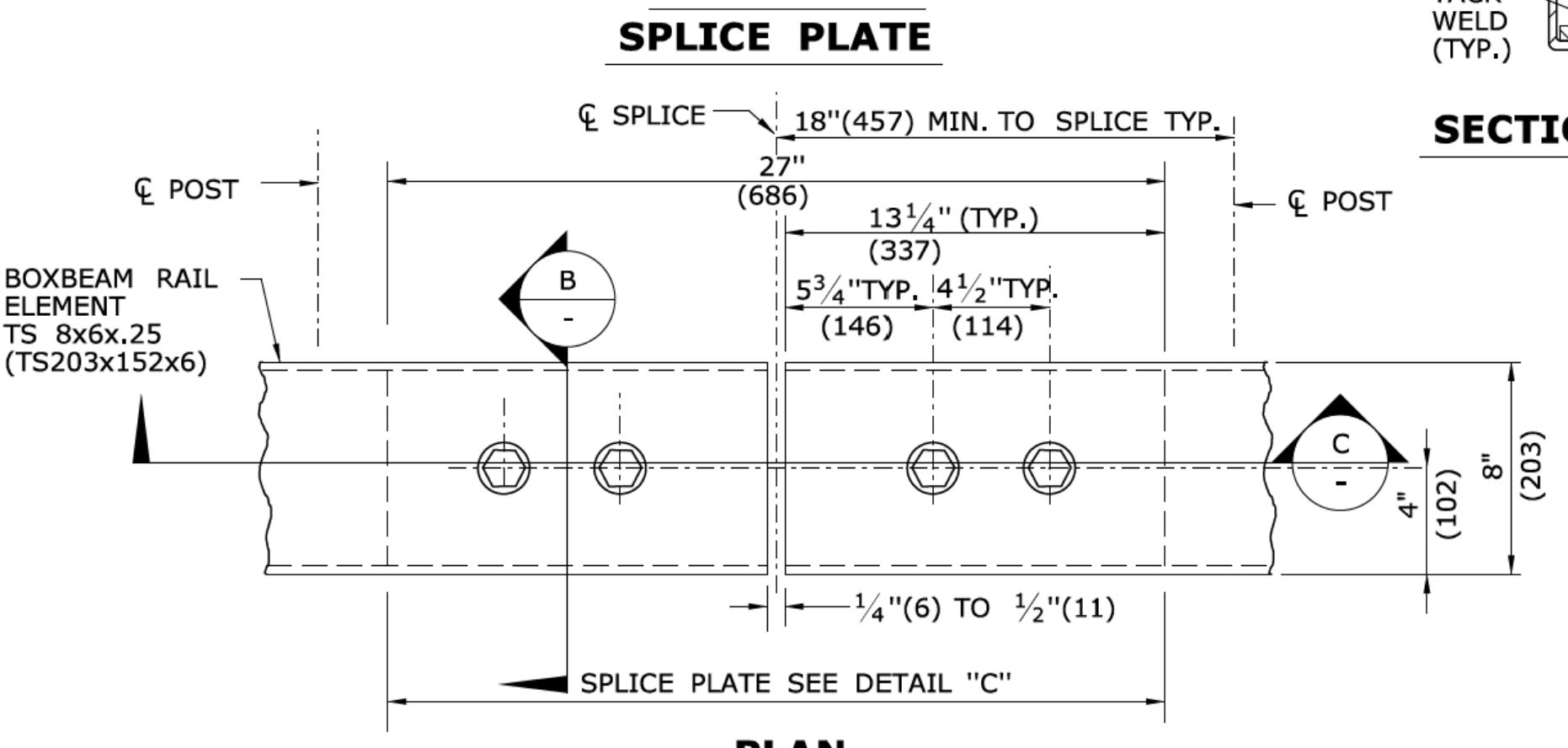
DETAIL "A" RAIL SUPPORT PLATE



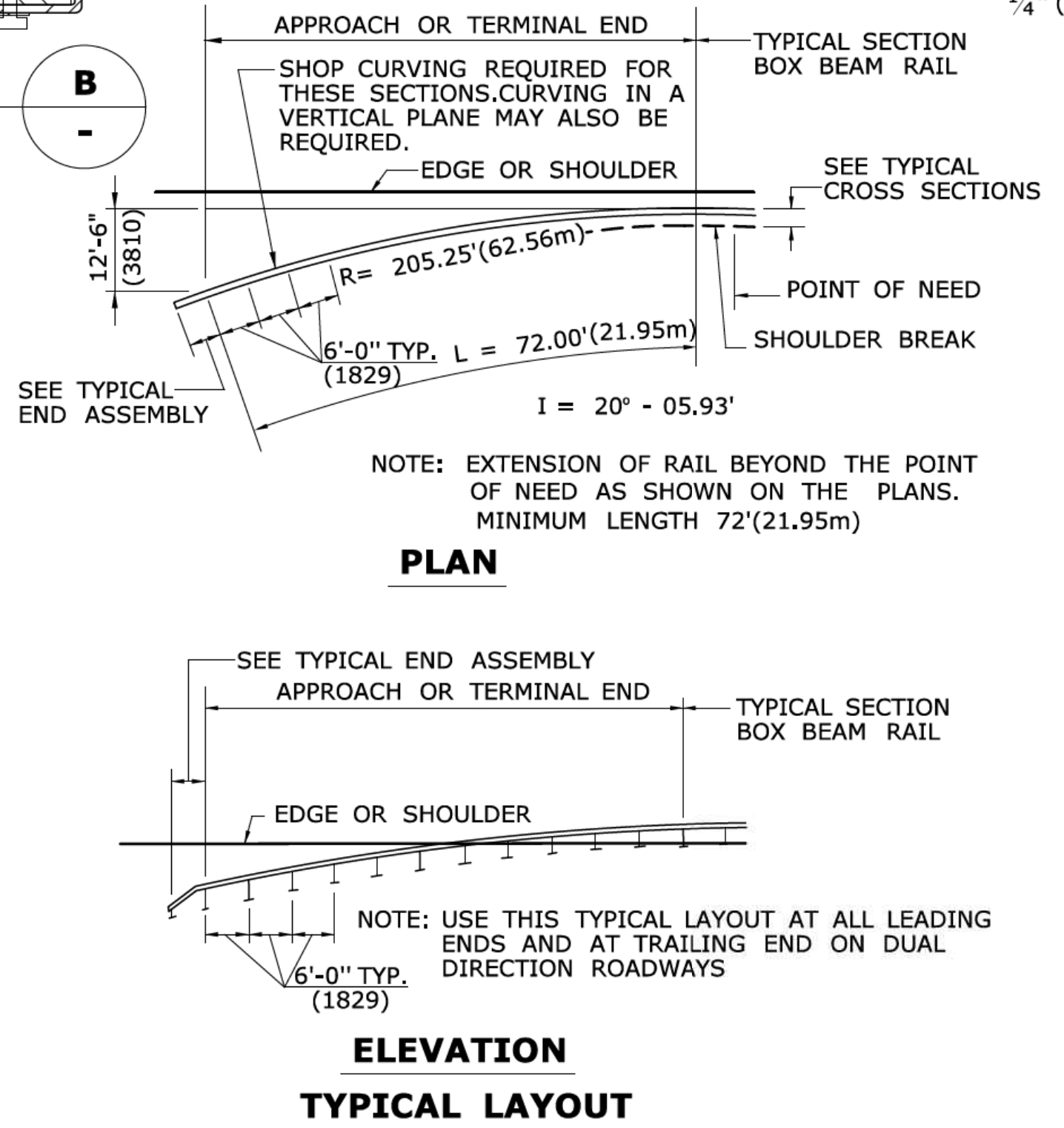
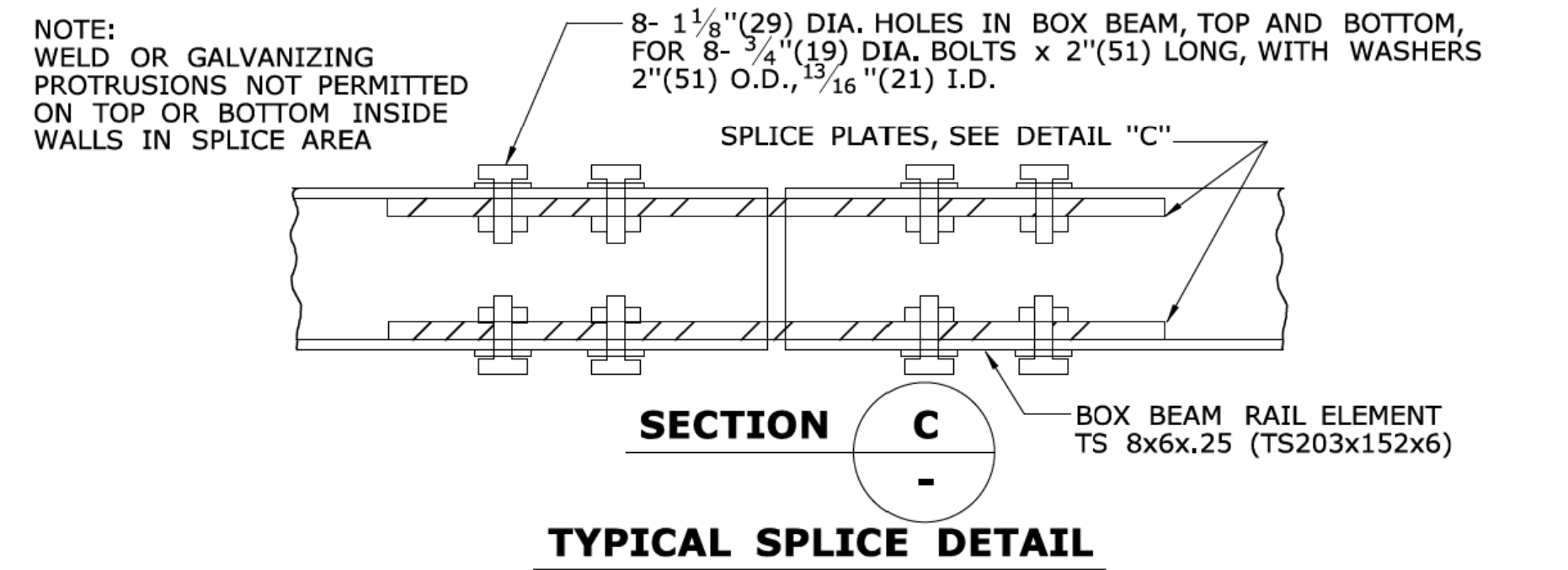
DETAIL "B" END COVER PLATE



TYPICAL EXPANSION JOINT DETAIL



TYPICAL SPLICE DETAIL



ELEVATION TYPICAL LAYOUT

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

1	7/12	ADD NOTE 2 TO GENERAL NOTES
2	7/13	ADD DIMENSION ± 1"
-	-	-
-	-	-
-	-	-
-	-	-
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

Plotted Date: 3/28/2013

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION

FILENAME: CTDOT_HIGHWAY_STD2013.dgn Model: 53- HW-910_10

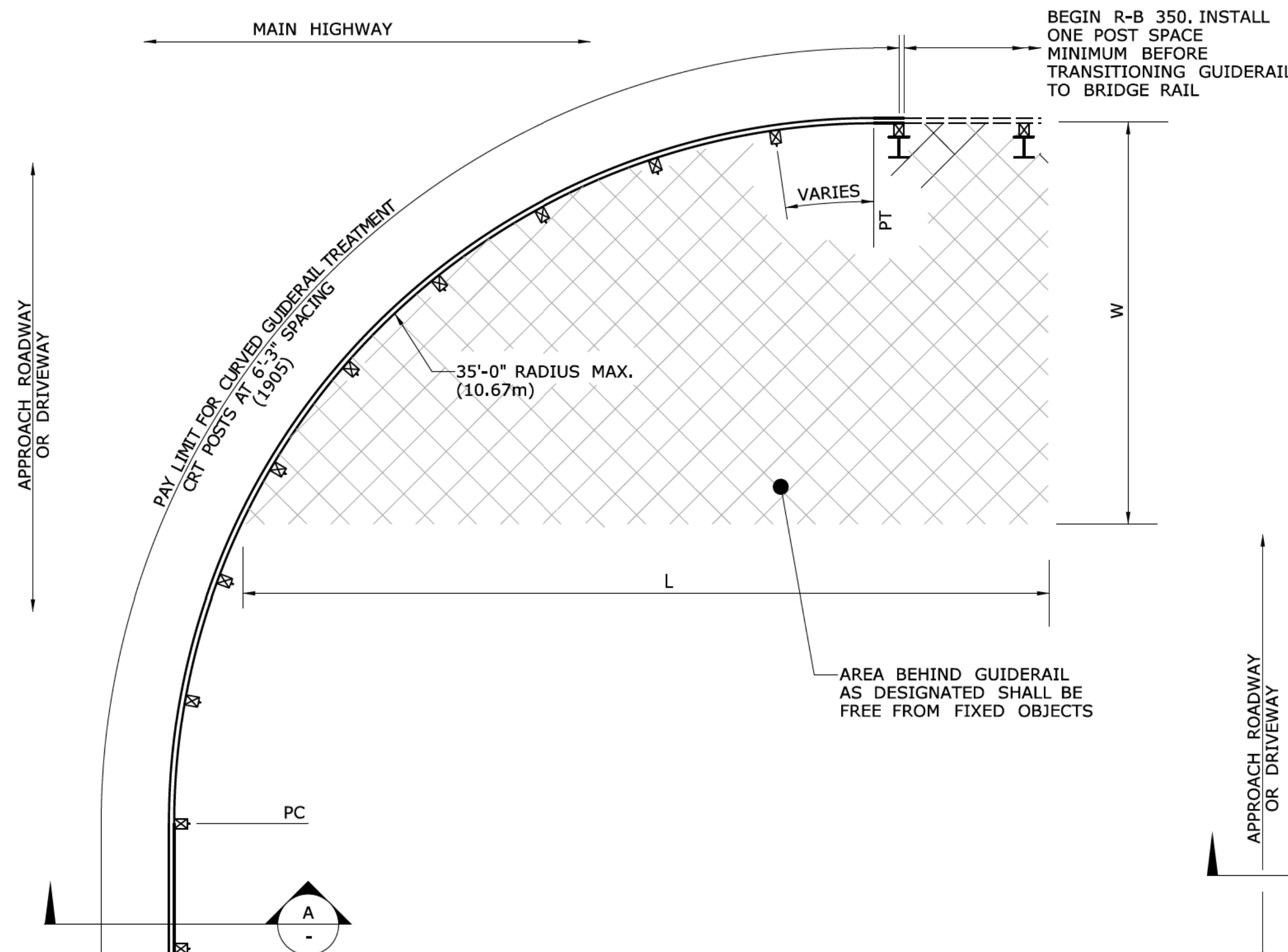
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 Digitally signed by Leo L. Fontaine
 Date: 2013.07.24 10:59:53-04'00'

APPROVED BY: NAME/DATE/TIME:
 James H. Norman
 2013.07.24 14:49:40-04'00'

CTDOT
 STANDARD SHEET
 OFFICE OF ENGINEERING

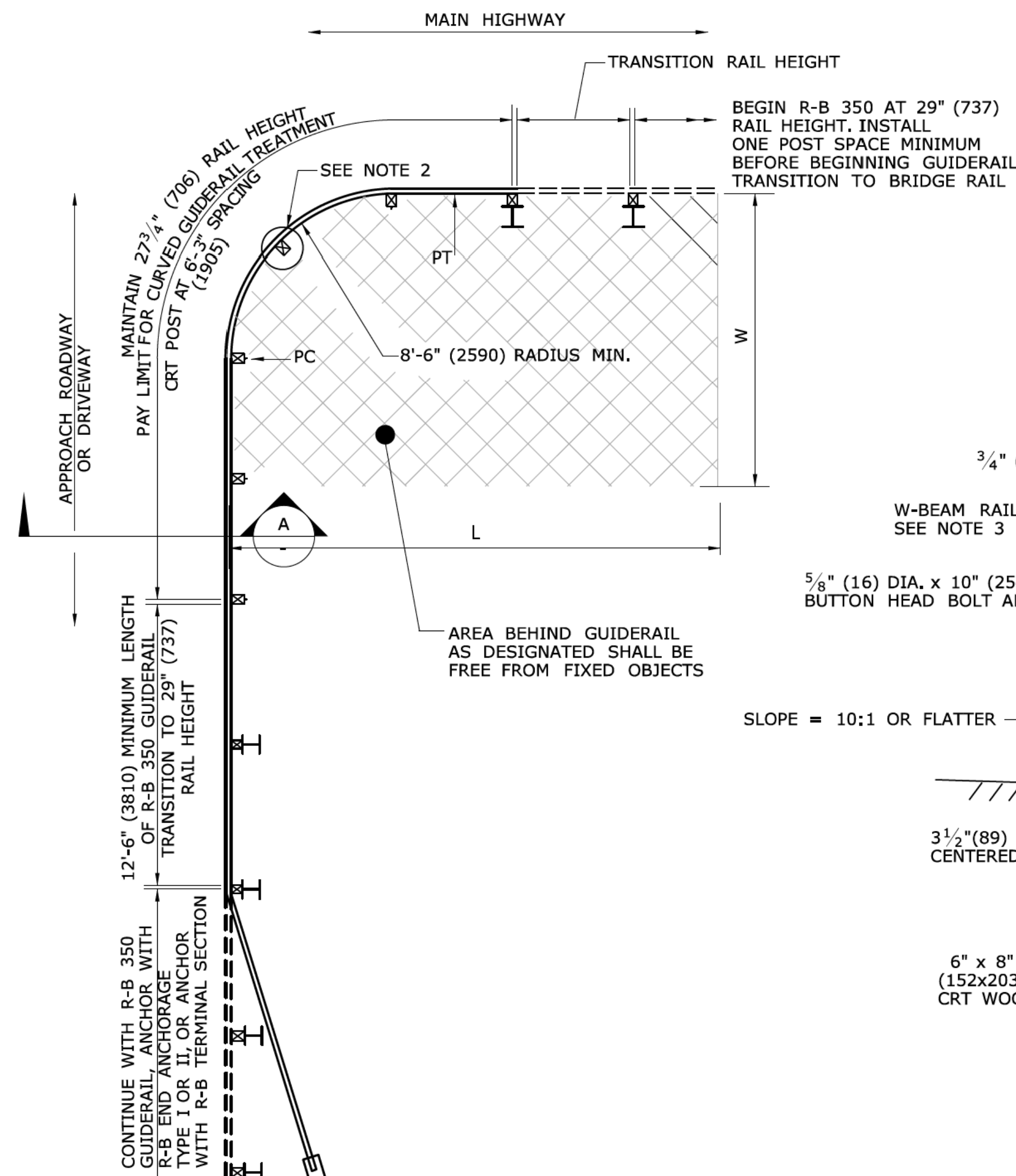
STANDARD SHEET TITLE:
METAL BEAM RAIL 8" (203) X 6" (152) BOX BEAM

STANDARD SHEET NO.:
HW-910_10



RADIUS	NO. OF CRT POSTS	REQUIRED AREA FREE OF FIXED OBJECTS	
		L	W
8'-6" (2591)	5	25' (7.62m)	15' (4.57m)
17'-0" (5182)	6	30' (9.14)	15' (4.57m)
25'-6" (777m)	8	40' (12.19m)	20' (6.10m)
35'-0" (10.67m)	11	50' (15.24m)	20' (6.10)

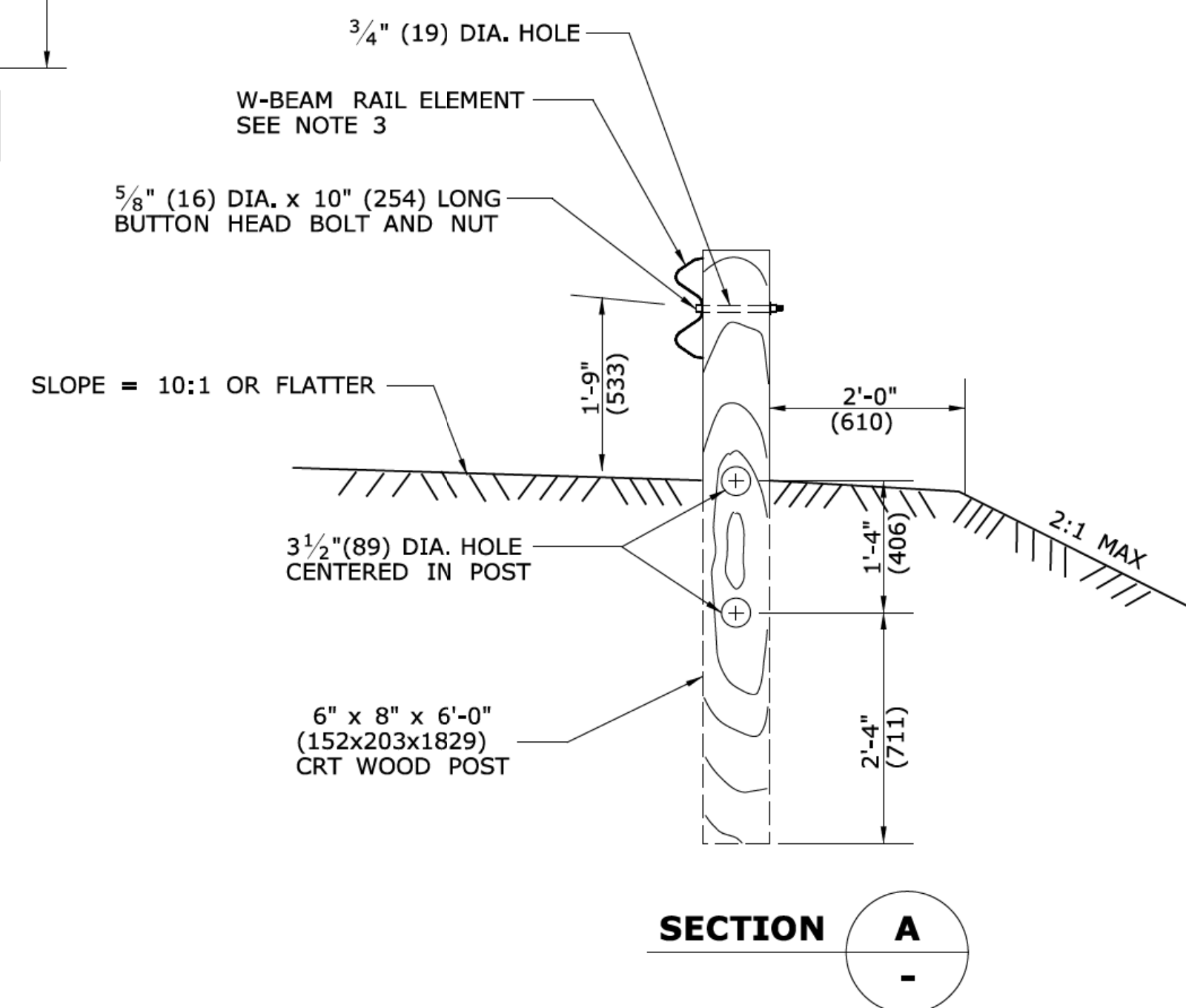
**CURVED GUIDERAIL DETAIL
(35'-0" (10.67m) RADIUS MAX.)**



**CURVED GUIDERAIL DETAIL
(8'-6" (2590) RADIUS MIN.)**

GENERAL NOTES:

1. NO WASHERS ARE USED ON THE 5/8" (16) DIA. BUTTON HEAD BOLTS CONNECTING THE RAIL TO THE CONTROLLED RELEASING TERMINAL (CRT) POSTS.
2. THE RAIL IS NOT BOLTED TO THE CRT POST AT THE CENTER OF THE NOSE AS SHOWN FOR THE 8'-6" (2590) RADIUS CURVED GUIDERAIL TREATMENT ONLY.
3. THE CURVED GUIDERAIL SECTION SHALL BE SHOP BENT.
4. THE SLOPE FROM THE EDGE OF THE SHOULDER TO THE FACE OF THE RAIL SHALL BE 10:1 OR FLATTER. NO CURBING SHALL BE INSTALLED WITHIN THE PAY LIMIT OF THE CURVED GUIDERAIL TREATMENT.
5. THIS SYSTEM SHALL BE USED ONLY ON ROADS WITH DESIGN SPEEDS ≤ 50 mph (80 kph).
6. MAINTAIN MINIMUM 27 3/4" (706) RAIL HEIGHT THROUGH RADIUS.



SECTION A

ALL METRIC DEMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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Plotted Date: 9/6/2011

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

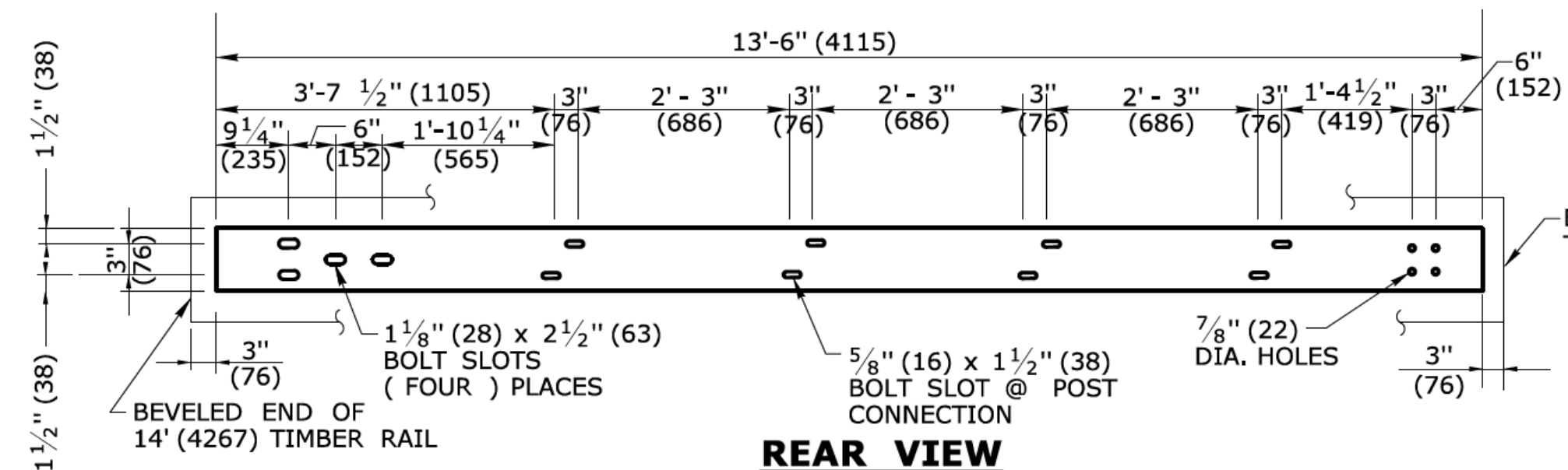
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APPROVED BY: NAME/DATE/TIME:
James H. Norman
2012.07.25 12:47:32 -04'00'

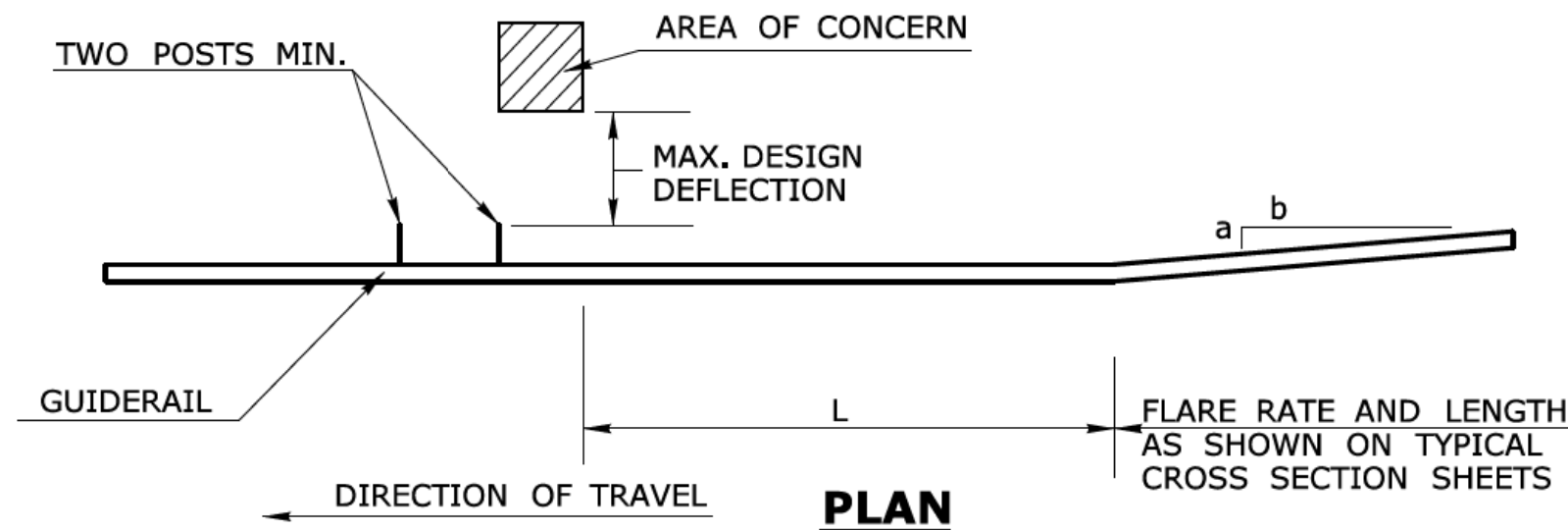
CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
CURVED GUIDERAIL TREATMENT DETAIL

STANDARD SHEET NO.:
HW-910_11



STEEL TRANSITION RAIL
6" x 3/8" x 13'-6" (152x9x4115)
FOR LEADING END ATTACHMENT



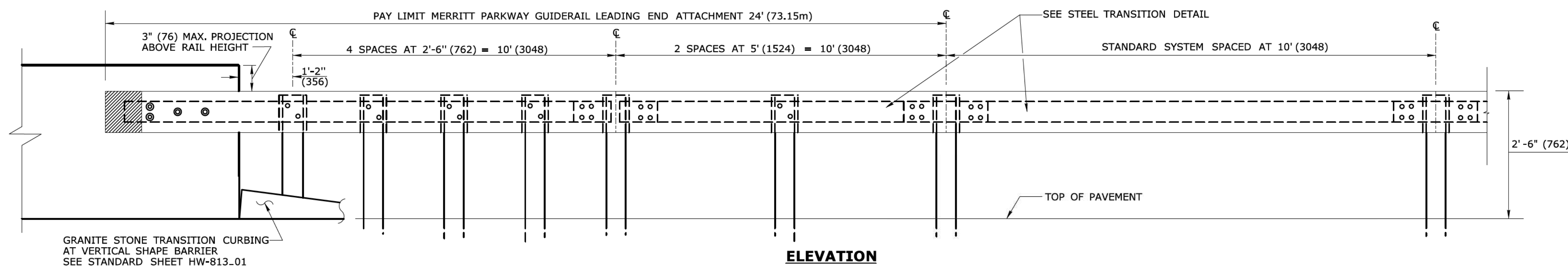
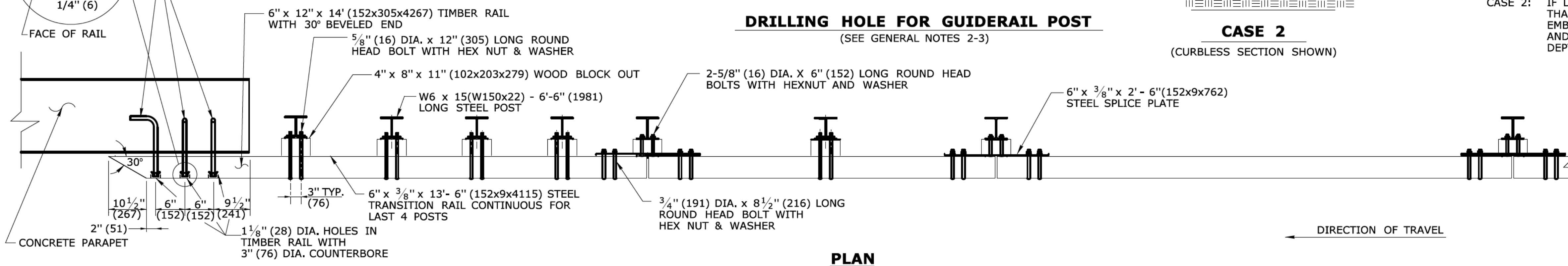
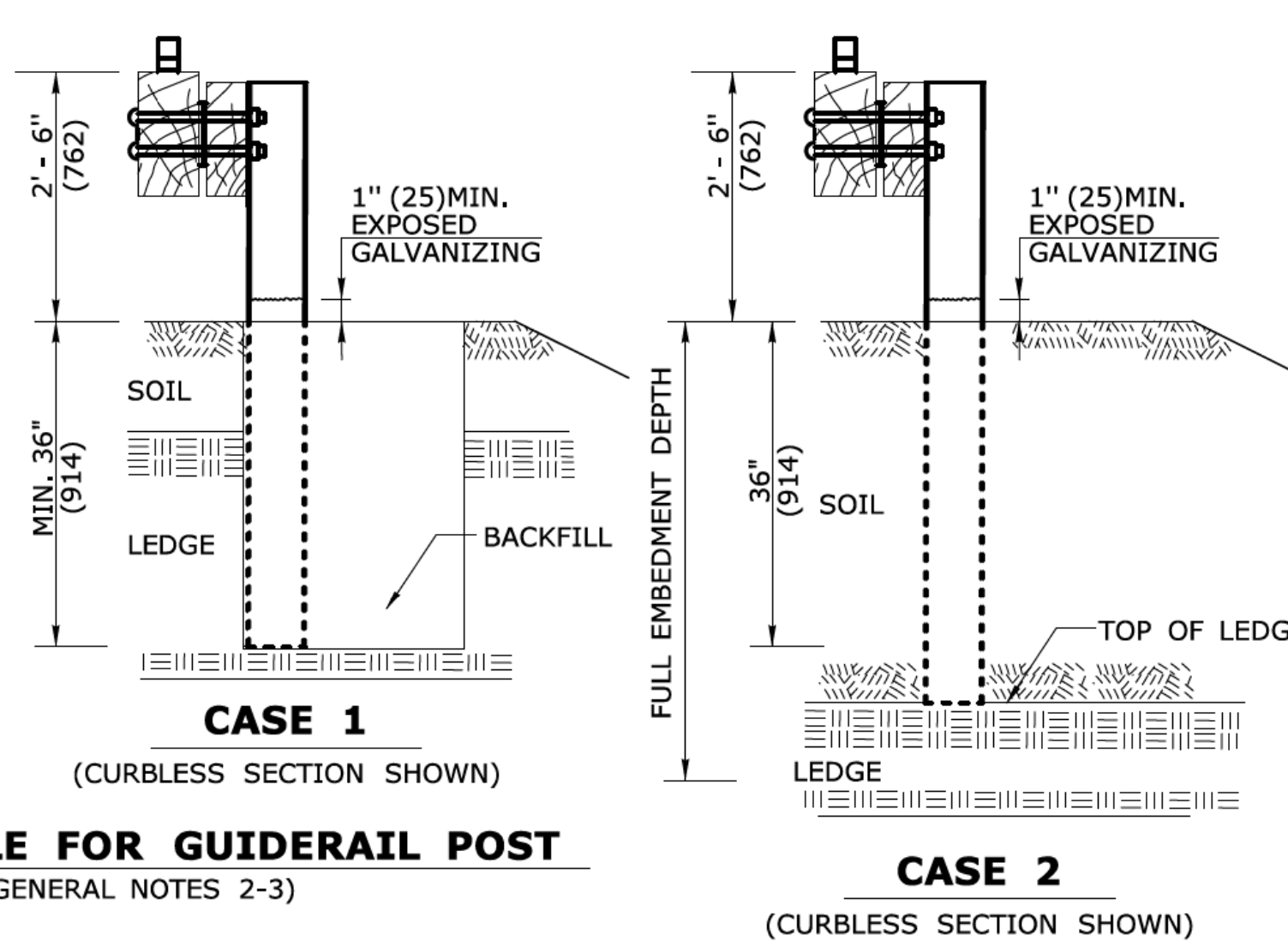
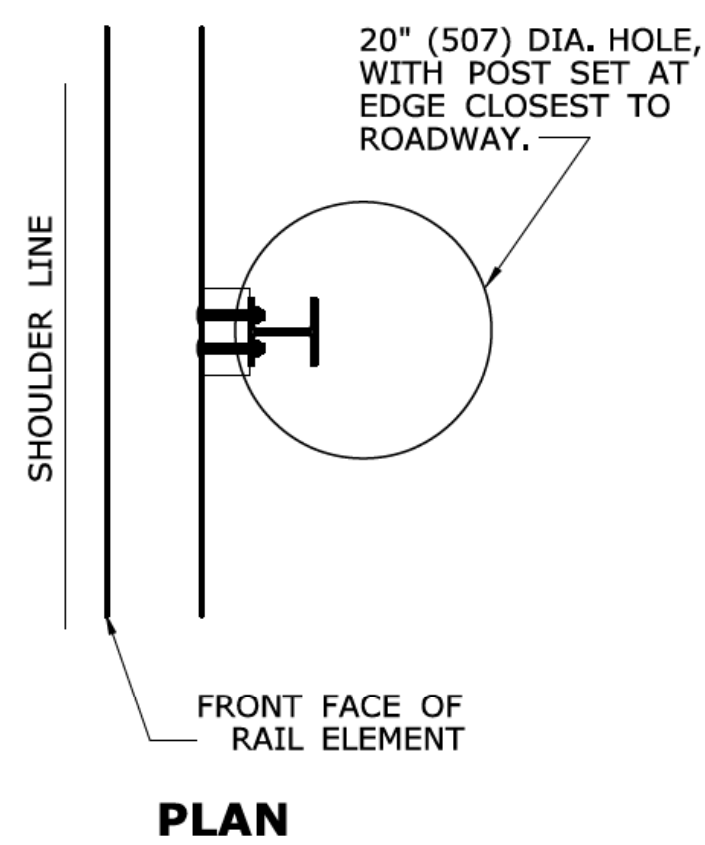
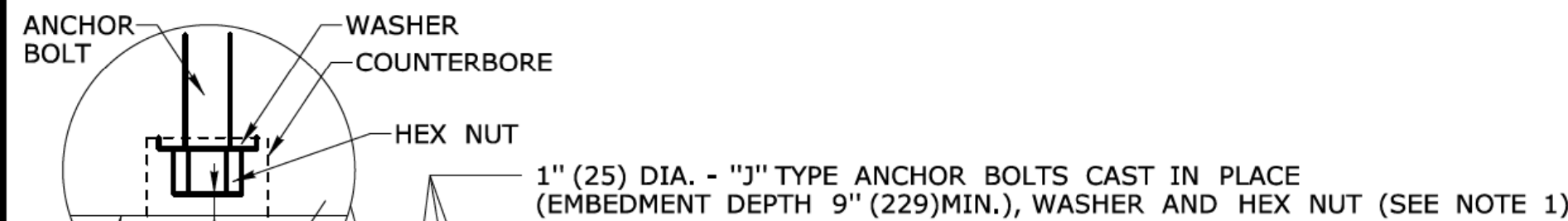
GENERAL NOTES:

- THIS DRAWING SHOWS LEADING END ATTACHMENT TO PROPOSED BARRIER/PARAPET. AT EXISTING PARAPETS ATTACH GUIDERAIL USING D.O.T. APPROVED CHEMICAL ANCHORS.
- PRIOR TO GUIDERAIL POST INSTALLATION THE CONTRACTOR SHALL INVESTIGATE POST LOCATIONS FOR THE PRESENCE AND DEPTH OF LEDGE.
- 20" (507) DIA. EXCAVATED HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL, OR GRANULAR FILL COMPACTED IN 6" (150) LIFTS BEFORE DRIVING POST OR POSTS MAY BE SET IN EXCAVATED HOLE AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM).

Maximum Design Deflection (ft) (mm)	Area Of Concern Plus 2 Posts (see sketch)	SYSTEM 3 W6x15 (W150x22) Posts Spaced at 2'-6" (762)	SYSTEM 2 W6x15 (W150x22) Posts Spaced at 5' (1524)	Standard System W6x15 (W150x22) Posts Spaced at 10' (3048)	L Min. Length Needed
1' (305)	System 3	10' (3048)	10' (3048)	50' (16.40m)	70' (21.34m)
2' - 6" (762)	System 2	-	10' (3048)	60' (19.68m)	70' (21.34m)
4' (1219)	Standard System	-	-	70' (21.34m)	70' (21.34m)

MERRITT PARKWAY GUIDERAIL DESIGN DEFLECTION CHART

- CASE 1:** IF LEDGE IS LOCATED WITHIN 36" (914) OF THE FINISHED GRADE AT THE POST LOCATION A 20" (507) DIAMETER HOLE SHALL BE DRILLED IN THE LEDGE TO THE MINIMUM EMBEDMENT DEPTH OF 36" (914) AND THE POST SHALL BE CUT AND DRIVEN TO ACHIEVE THIS DEPTH.
- CASE 2:** IF LEDGE IS LOCATED AT A DEPTH GREATER THAN 36" (914) BUT LESS THAN THE FULL EMBEDMENT DEPTH THE POST SHALL BE CUT AND DRIVEN TO ACHIEVE EMBEDMENT TO THE DEPTH OF THE TOP OF LEDGE.



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

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED ELEVATION VIEW OF ATTACHMENT
2	7/13	REVISED POST IN LEDGE & ADDED COUNTERBORE DETAIL
-	-	-
-	-	-
-	-	-
-	-	-

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: 6/14/2013

NOT TO SCALE

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION

Filename: CTDOT-HIGHWAY-STD2013.dgn Model: 55 - HW-910_12a

SUBMITTED BY: NAME/DATE/TIME:
 Digitally signed by Leo L. Fontaine
 Date: 2013.07.24 10:59:18-0400'

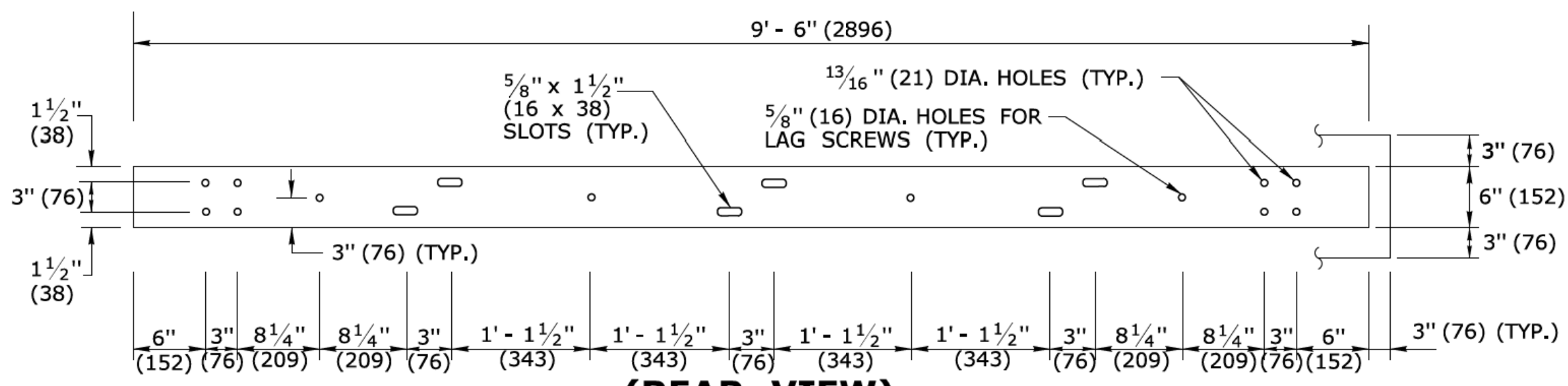
APPROVED BY: NAME/DATE/TIME:
 James H. Norman
 2013.07.24 14:50:14-04'00'

CTDOT
 STANDARD SHEET
 OFFICE OF ENGINEERING

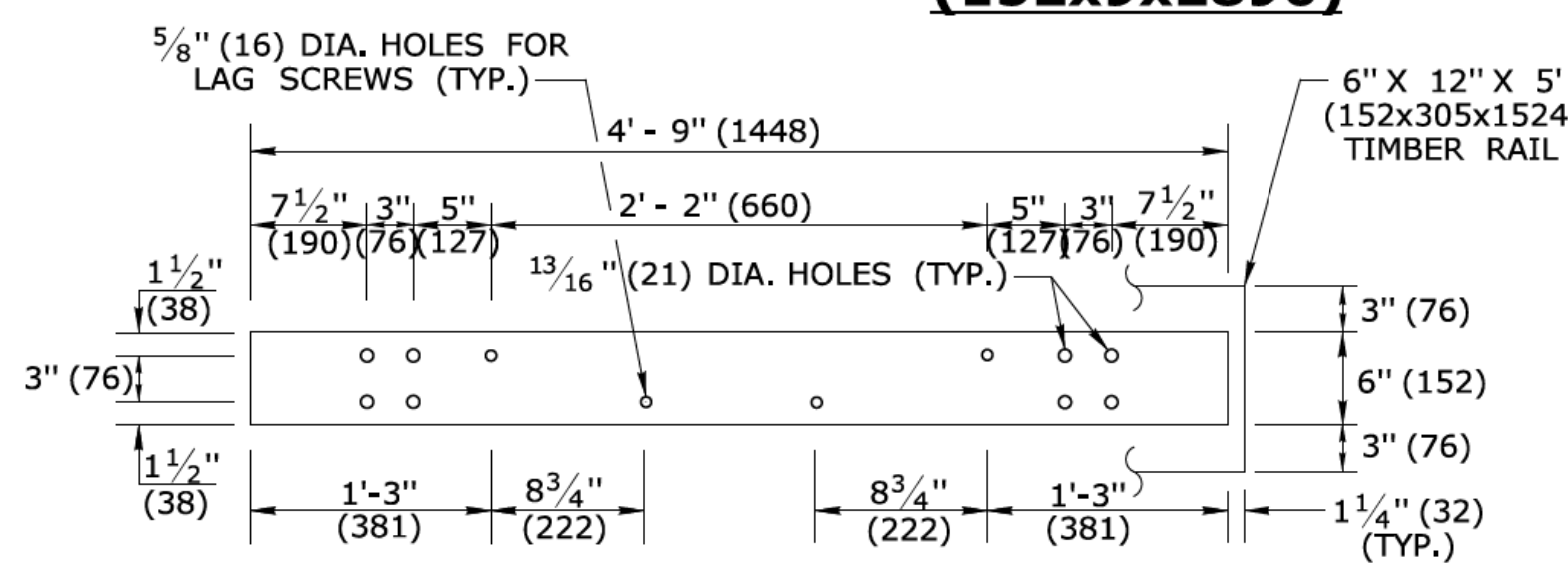
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MERRITT PARKWAY GUIDERAIL LEADING END ATTACHMENT AND SYSTEMS 2 & 3

STANDARD SHEET NO.:
HW-910_12a

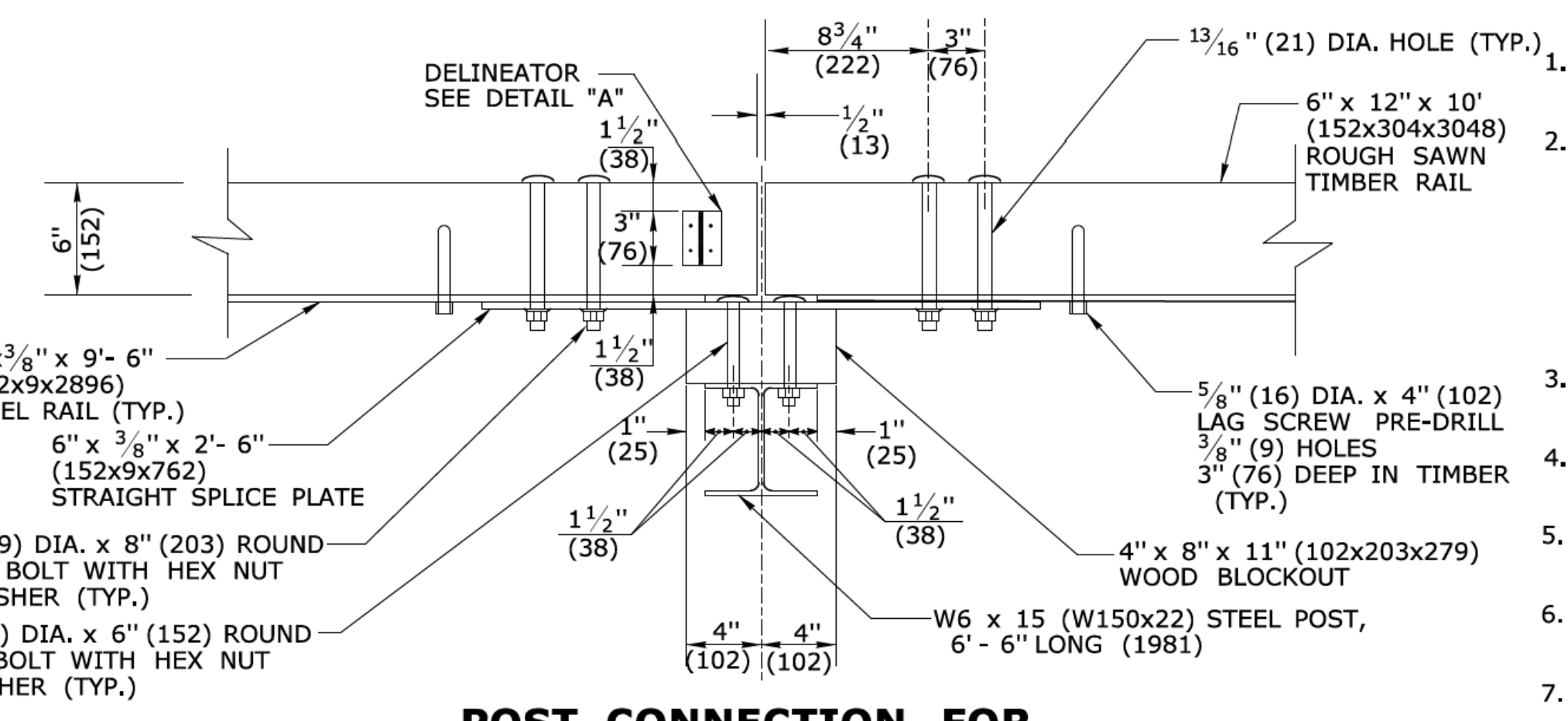
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.



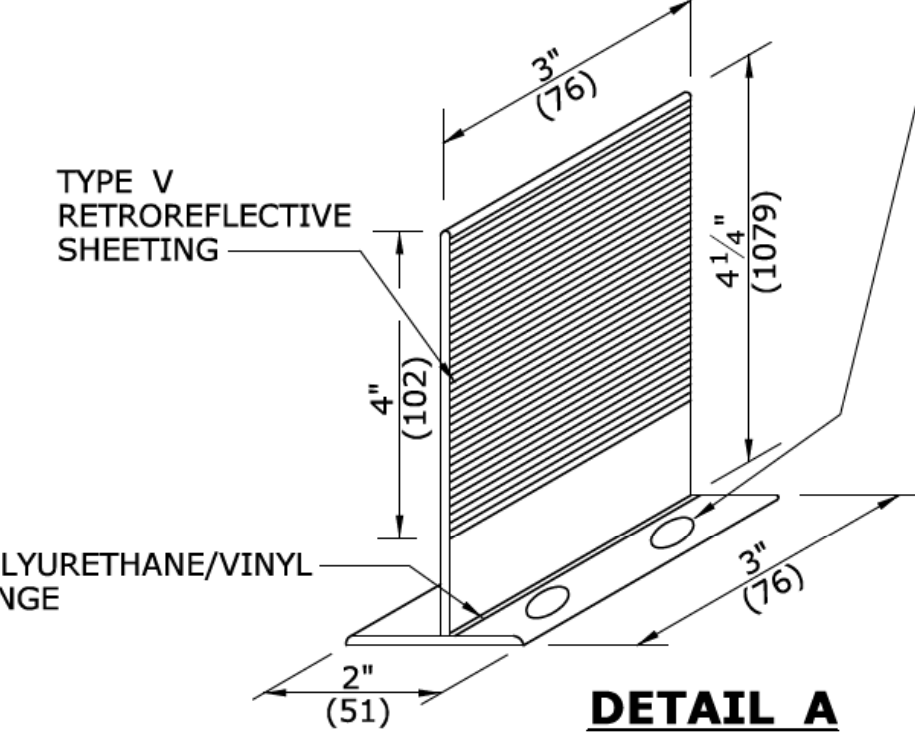
**REAR VIEW
STANDARD STEEL RAIL DETAIL
6" x 3/8" x 9'-6"
(152x9x2896)**



**STEEL RAIL DETAIL
6" x 3/8" x 4'-9"
(1829 x 9 x 1448)
FOR CURVES WITH R < 70' (21.3m)**

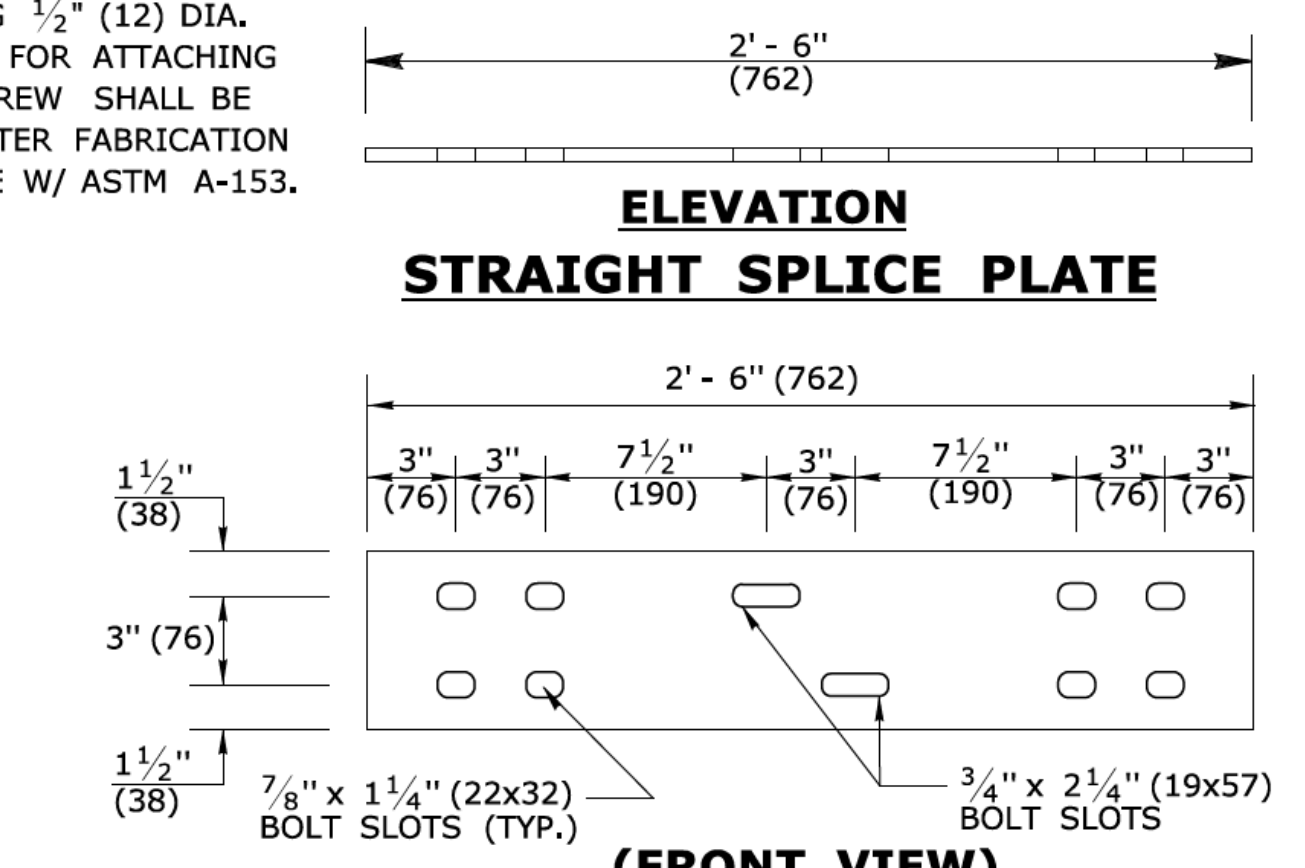


**POST CONNECTION FOR
STRAIGHT SECTIONS**

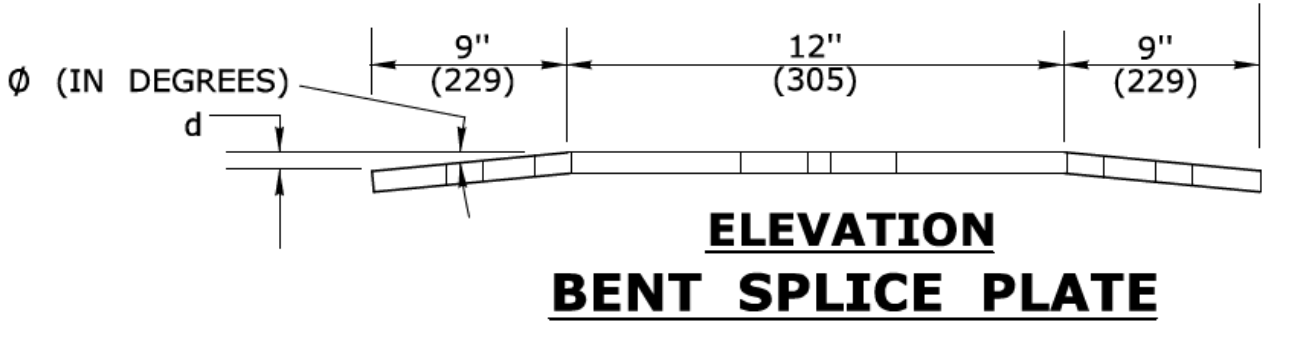


**DETAIL A
DELINEATOR**

1/4" x 1/2" (6x12) SLOT USE (4) 1" (25) LONG 1/2" (12) DIA. WOOD SCREWS FOR ATTACHING DELINEATOR. SCREW SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE W/ ASTM A-153.

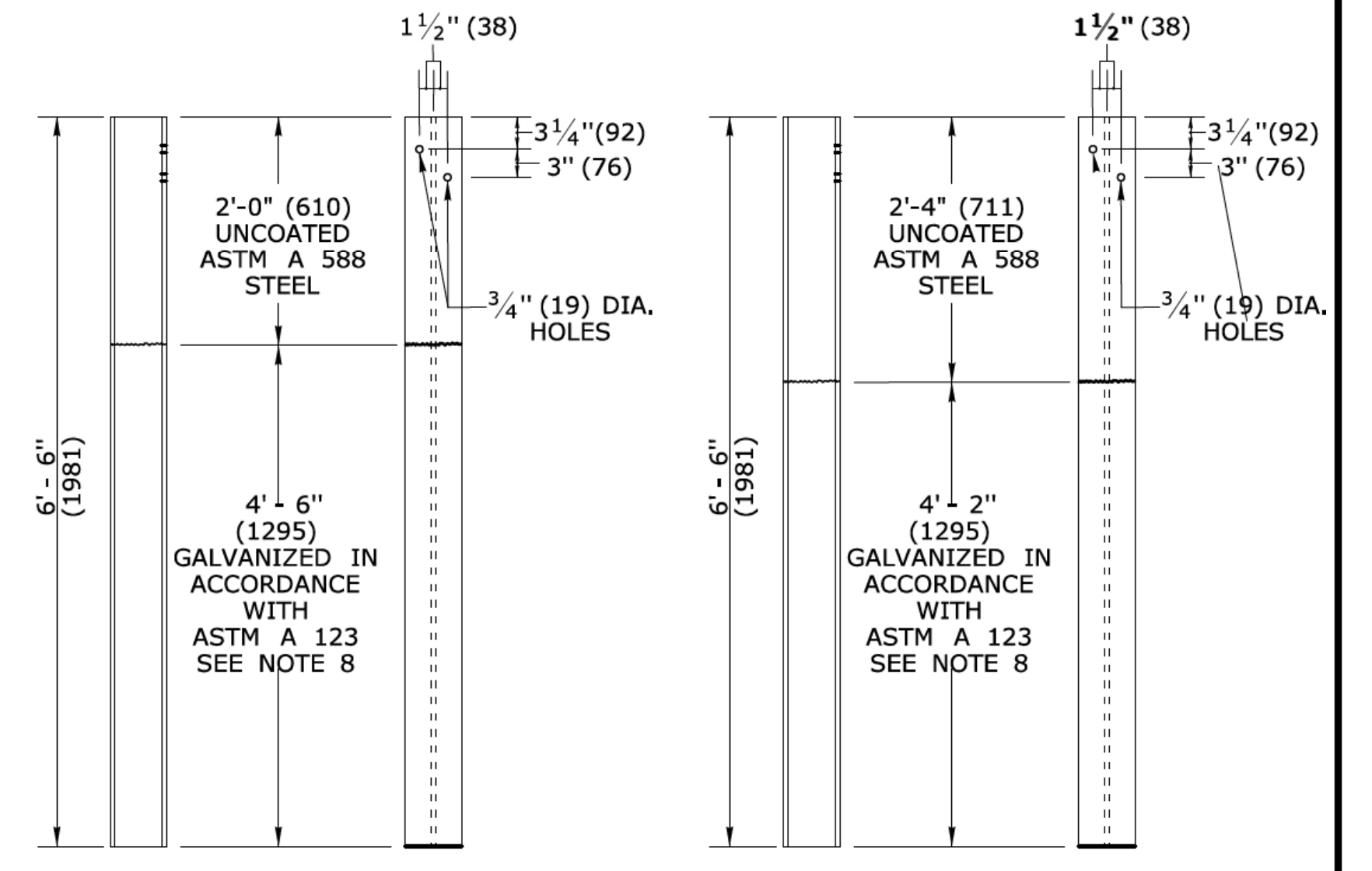


**(FRONT VIEW)
STEEL SPLICE PLATE DETAIL
6" x 3/8" x 2'-6"
(152x9x762)**



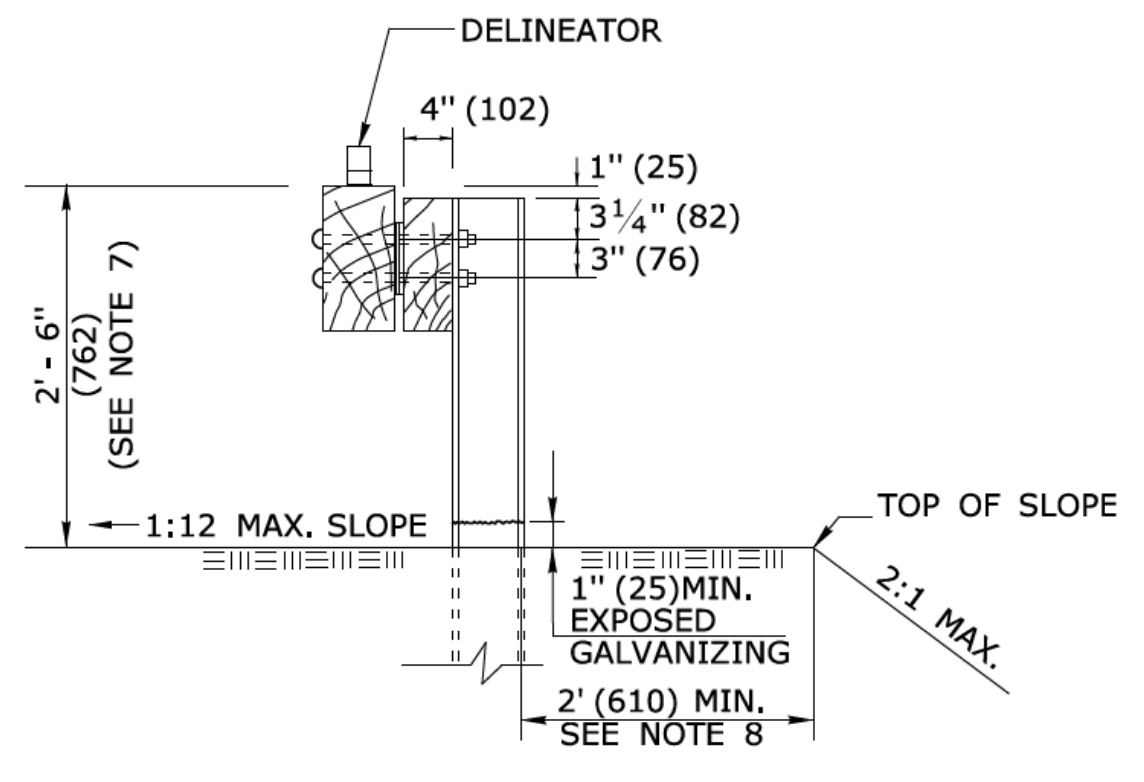
**ELEVATION
BENT SPLICE PLATE**

- GENERAL NOTES:**
- MATERIALS AND CONSTRUCTION OF THE MERRITT PARKWAY GUIDERAIL SHALL CONFORM TO SPECIAL PROVISION PROVIDED WITH THE PROJECT.
 - DELINEATORS SHALL BE PLASTIC INVERTED T-SECTIONS IN ACCORDANCE WITH DETAIL "A". REFLECTORS SHALL BE SPACED IN ACCORDANCE WITH TABLE 1, AND POSITIONED PERPENDICULAR TO THE ADJACENT EDGE OF LANE. DO NOT ATTACH REFLECTORS ON FLARE OR TERMINAL SECTIONS. REFLECTIVE SHEETING SHALL BE SILVER-WHITE ON ALL RAIL SECTIONS ADJACENT TO THE RIGHT SHOULDER, AND YELLOW ON RAIL SECTIONS ADJACENT TO THE LEFT SHOULDER OF TRAVEL LANES. DELINEATORS SHALL BE INCLUDED IN THE COST FOR "MERRITT PARKWAY GUIDERAIL."
 - TWO ADDITIONAL 5/8" (16) DIA. X 4"(102) LONG LAG SCREWS AND WASHERS SHALL BE INSTALLED AT ALL MID-SPAN POINTS FOR STANDARD SYSTEMS.
 - ALL CONNECTION HARDWARE SHALL BE SUFFICIENTLY TIGHTENED TO ACCOMMODATE FOR SHRINKAGE OF THE WOOD ELEMENTS.
 - WHEN FURNISHING THE SHOP BENT SPLICE PLATES, USE THE MINIMUM BEND ANGLE AS SHOWN IN TABLE 2.
 - FOR RAILING SET ON A CURVE WITH RADII < 70' (21.3m) SPACE POSTS AT 5' (1524).
 - GUIDERAIL HEIGHT MAY VARY UP TO 2" (51) PLUS OR MINUS THE HEIGHT SHOWN IN THE DETAILS TO ACHIEVE A SMOOTH AND CONTINUOUS GUIDERAIL PROFILE.
 - 7'-6" (2286) LONG POSTS MAY BE USED IN LOCATIONS WHERE 2' (610) MIN SHELF IS NOT ATTAINABLE. GALVANIZED COATING LIMITS SHALL BE INCREASED BY 1" (305). PAYMENT FOR EXTRA LONG POSTS SHALL BE INCLUDED WITH THE ITEM FOR MERRITT PARKWAY GUIDERAIL.

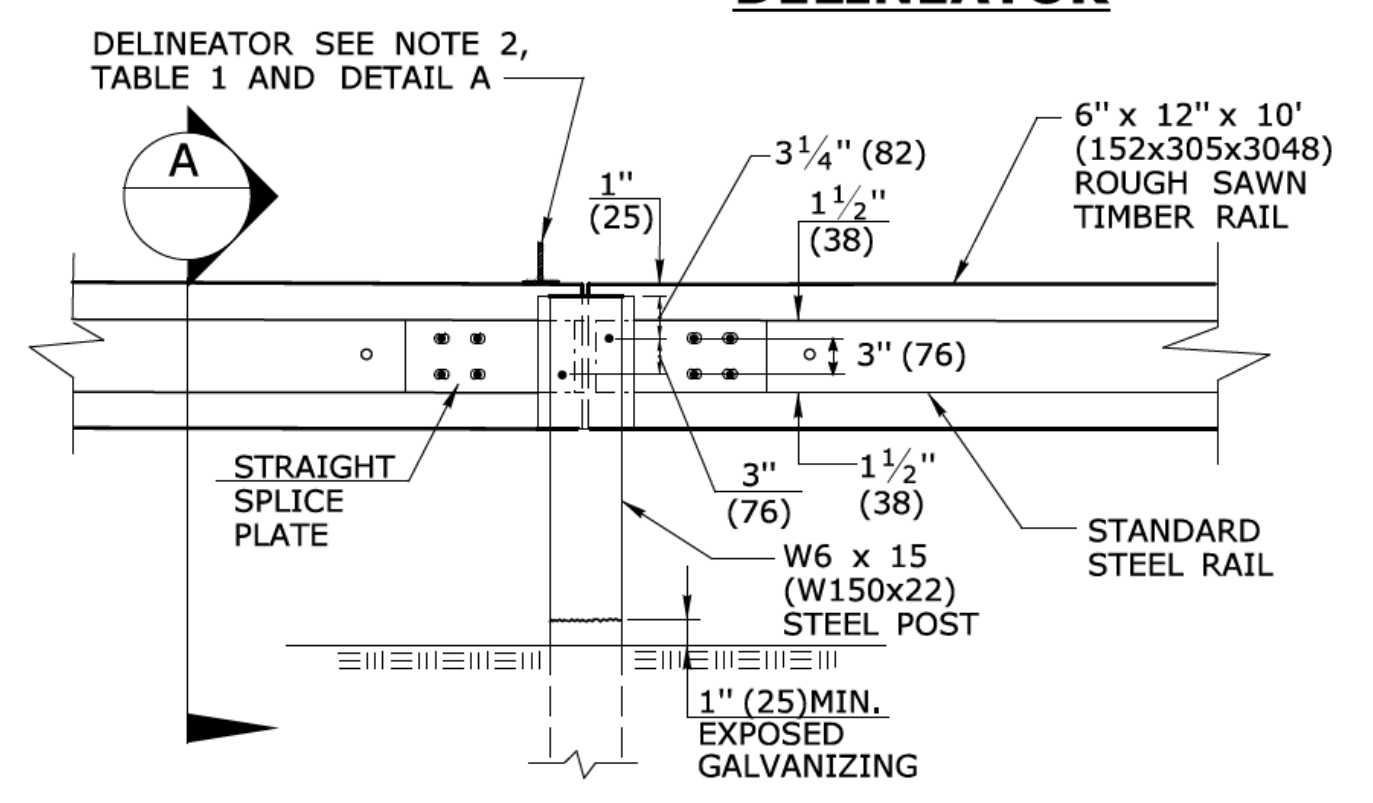


**SIDE VIEW FRONT VIEW
POST DETAIL
W6 X 15
(W150x22)
WITH CURBING**

**SIDE VIEW FRONT VIEW
POST DETAIL
W6 X 15
(W150x22)
NO CURBING**



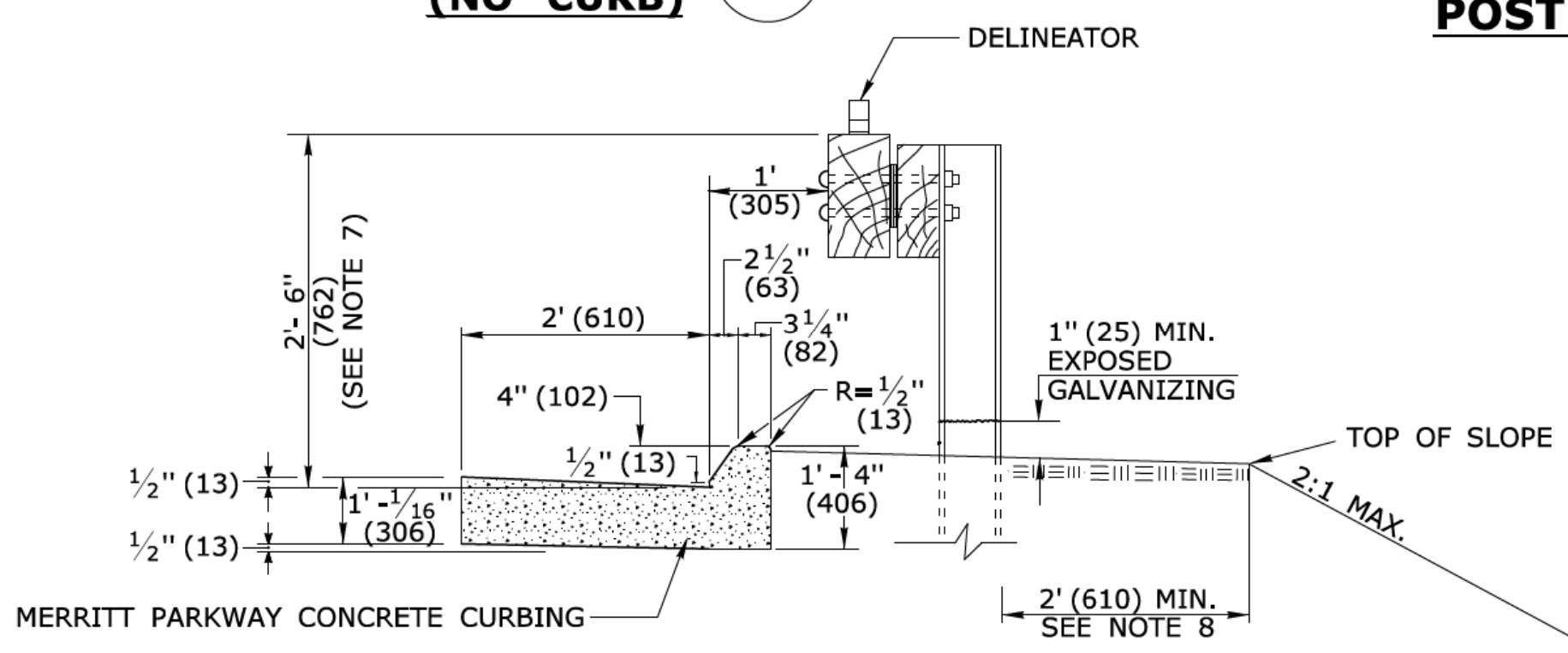
**SECTION
(NO CURB)**



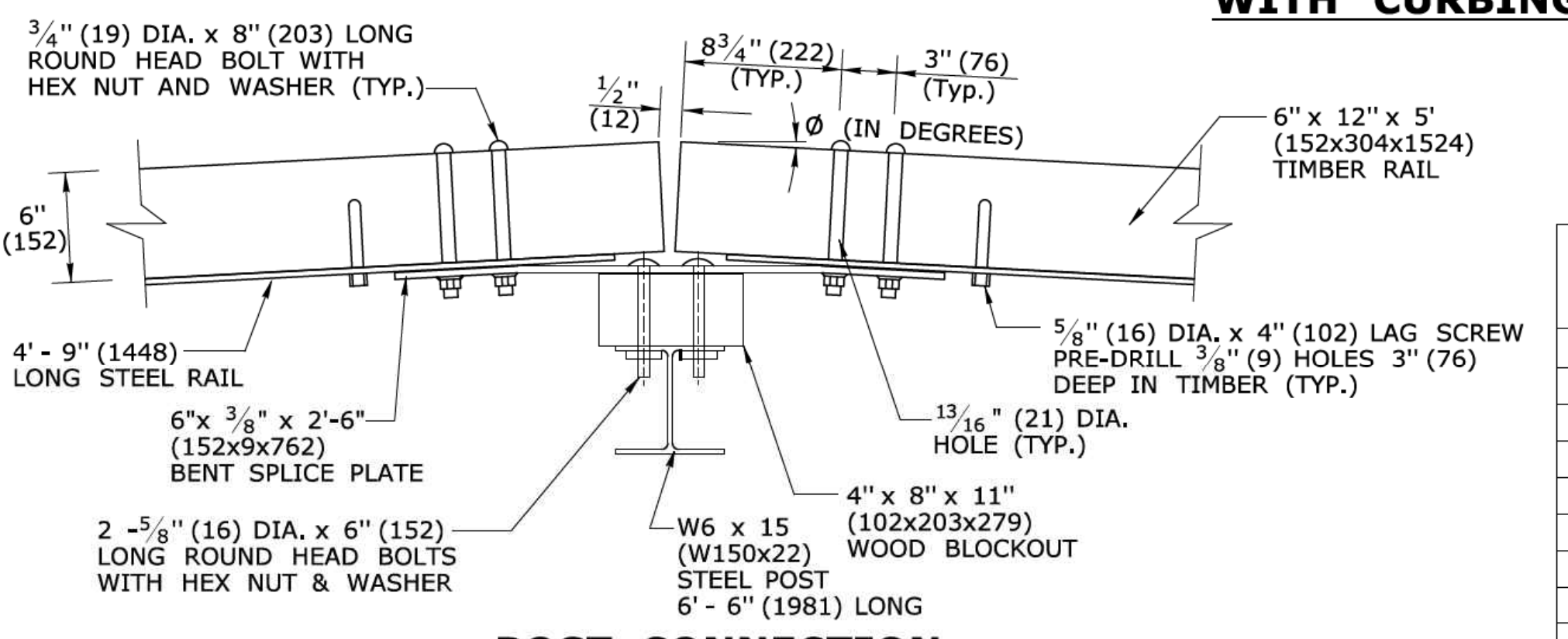
**REAR VIEW ELEVATION
POST CONNECTION**

TABLE 1

DELINEATOR SPACING	
CURVE RADIUS	SPACE
< 300' (91.4m)	20' (6.10m)
≥ 300' (91.4m)	50' (15.2m)



MERRITT PARKWAY CONCRETE CURBING WITH MERRITT PARKWAY GUIDERAIL



**POST CONNECTION
FOR CURVES WITH R < 70' (21.3m)**

TABLE 2

Radius R (ft.)(m)	Ø (Degrees)	d (in.)(mm)
35 (10.7)Min.	4.10	5/8(16)
40 (12.2)	3.58	9/16(14)
45 (13.7)	3.18	1/2(13)
50 (15.2)	2.86	7/16(11)
55 (16.8)	2.60	7/16(11)
60 (18.3)	2.40	3/8(9)
65 (19.8)	2.20	3/8(9)
70 (21.3)	2.05	5/16(8)
Over 70 (21.3)	Flat	0

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED STEEL RAIL REAR VIEW
2	7/13	ADDED NOTE 8 AND REVISED GALVANIZE DIMENSION
-	-	-
-	-	-
-	-	-
-	-	-

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

Plotted Date: 6/14/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD2013.dgn Model: 56 - HW-910-12b

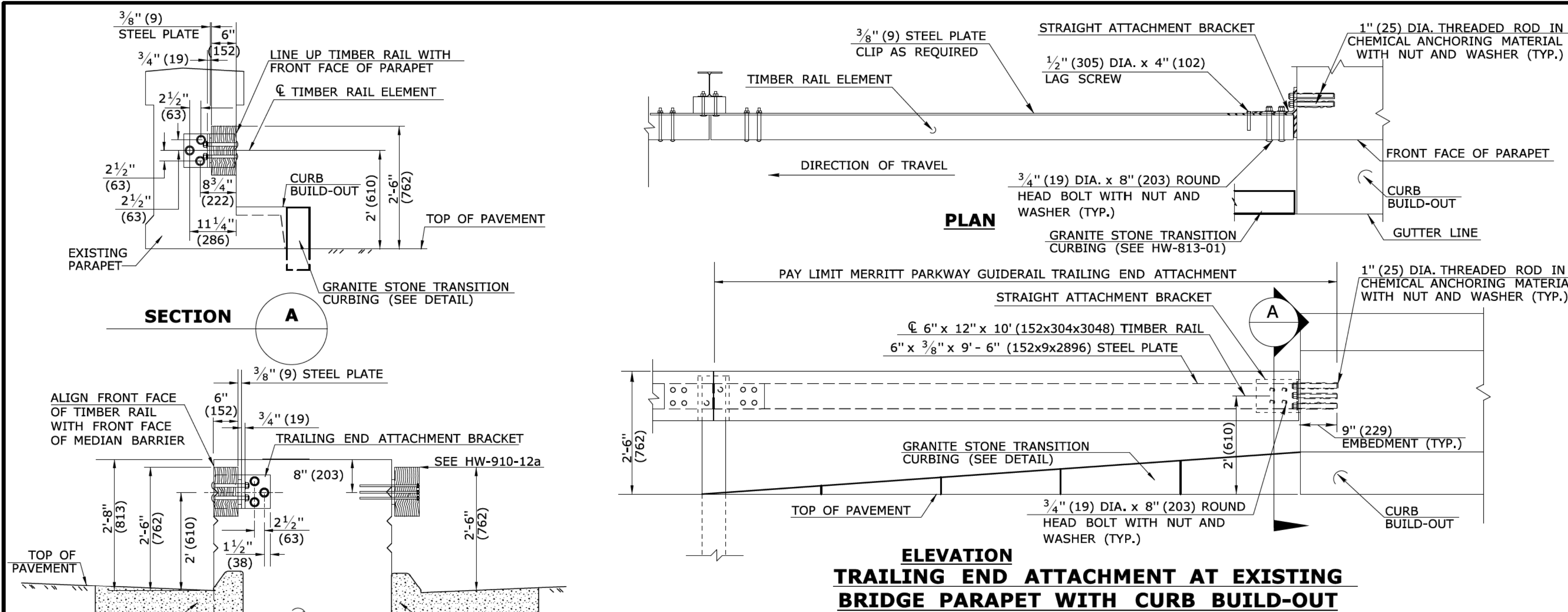
SUBMITTED BY: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:50:49-04'00'

APPROVED BY: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:50:49-04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

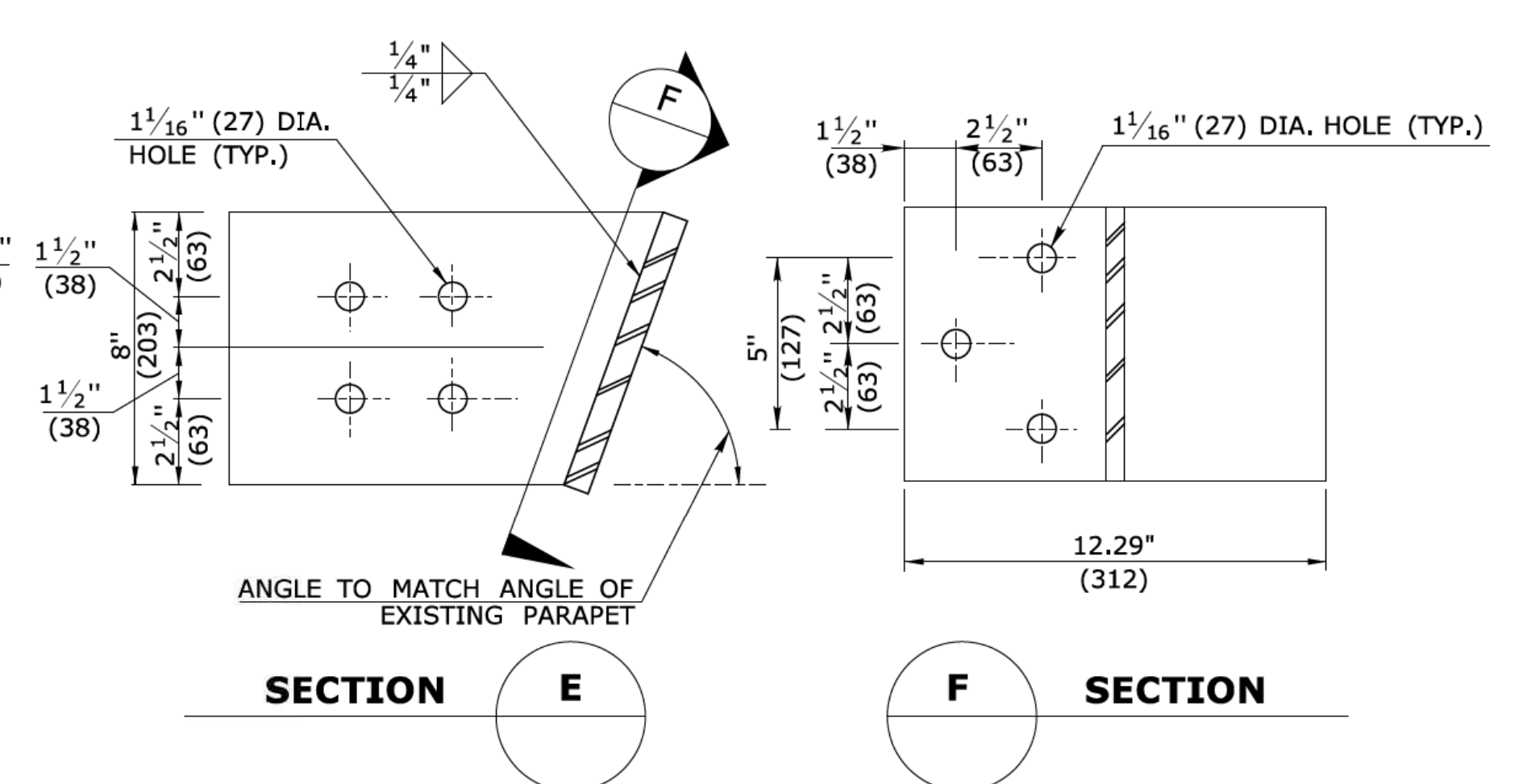
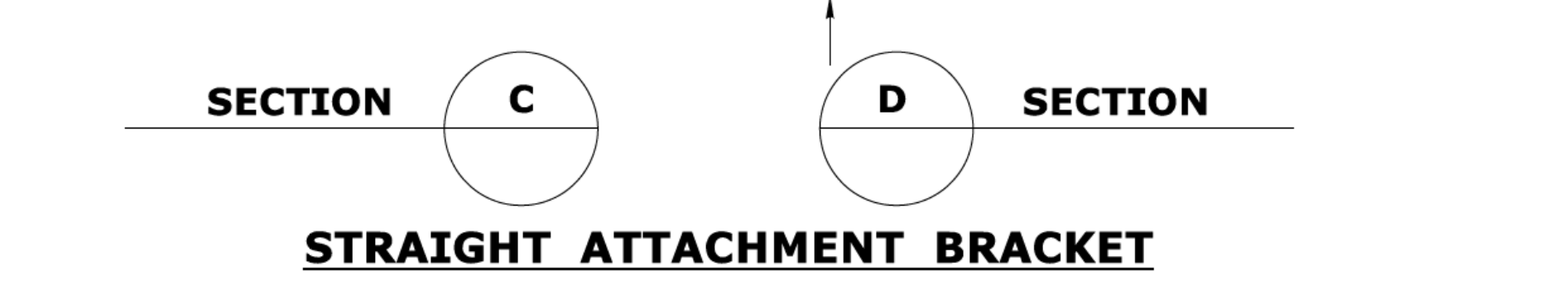
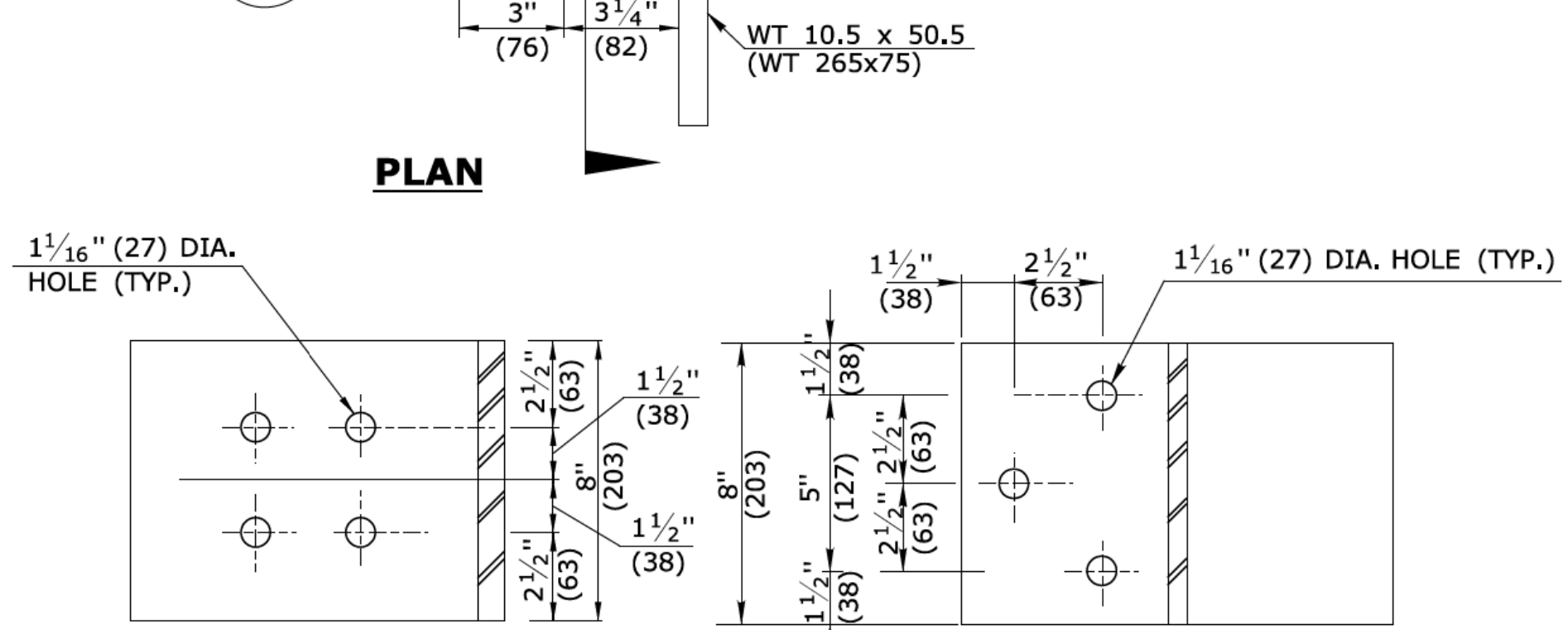
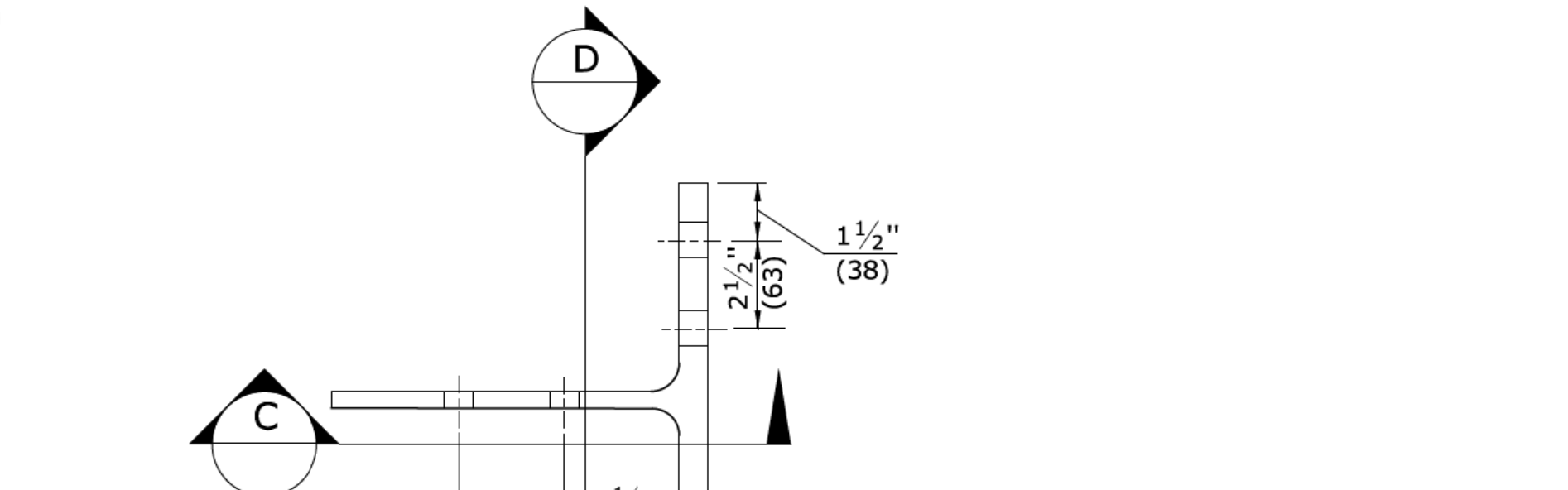
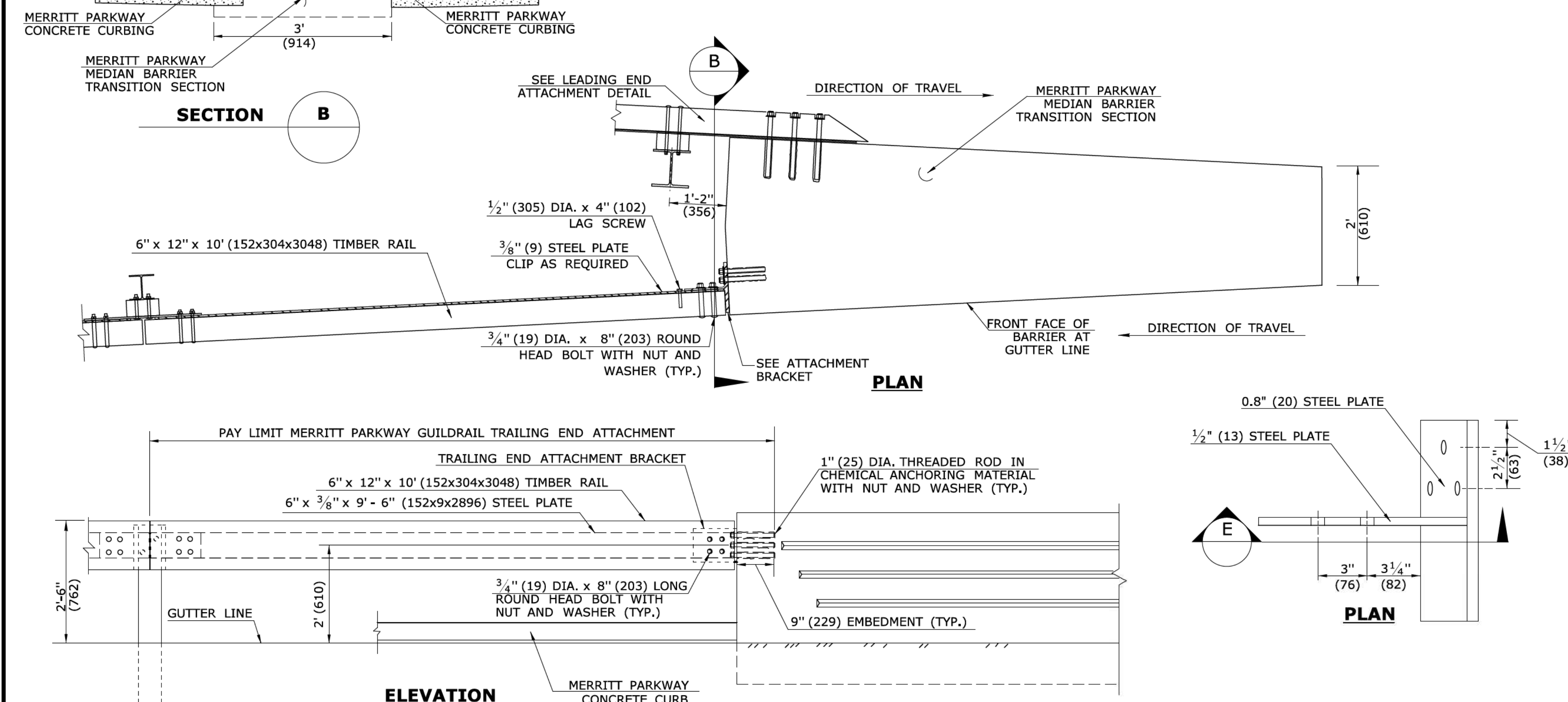
STANDARD SHEET TITLE:
**MERRITT PARKWAY GUIDERAIL
HARDWARE DETAILS**

STANDARD SHEET NO.:
HW-910_12b



GENERAL NOTES:

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



ANGLED ATTACHMENT BRACKET FOR TRAILING END ATTACHMENT

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISE DETAILS TO IMPROVE CLARITY
2	7/13	ADD MEDIAN BARRIER TRANSITION SECTION
-	-	-
-	-	-
-	-	-
-	-	-

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

Plotted Date: 6/21/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILENAME: CTDOT_HIGHWAY_STD2013.dgn Model: 57 - HW-910_12c

SUBMITTED BY: NAME/DATE/TIME:
APPROVED BY: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:51:26-04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
MERRITT PARKWAY GUIDERAIL TRAILING END ATTACHMENTS

STANDARD SHEET NO.:
HW-910_12c

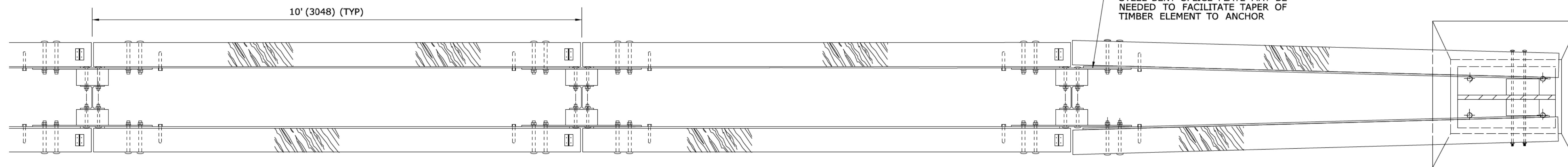
DELINEATORS SHALL BE PLASTIC INVERTED T-SECTIONS IN ACCORDANCE WITH DETAIL "A". REFLECTORS SHALL BE SPACED IN ACCORDANCE WITH TABLE 1, AND POSITIONED PERPENDICULAR TO ADJACENT EDGE OF LANE, DO NOT ATTACH REFLECTORS ON FLARE OR TERMINAL SECTIONS. REFLECTIVE SHEETING SHALL BE SILVER-WHITE ON ALL RAIL SECTIONS ADJACENT TO THE RIGHT SHOULDER, AND YELLOW ON RAIL SECTIONS ADJACENT TO LEFT SHOULDER OF TRAVEL LANES.

TABLE 1

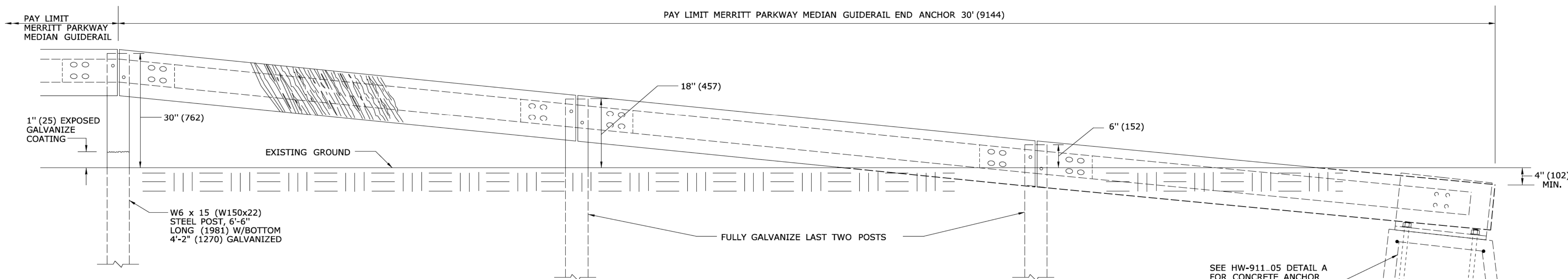
DELINEATOR SPACING	
CURVE RADIUS	SPACE
< 300' (91.4m)	20' (6.10m)
≥ 300' (91.4m)	50' (15.2m)

GENERAL NOTES:

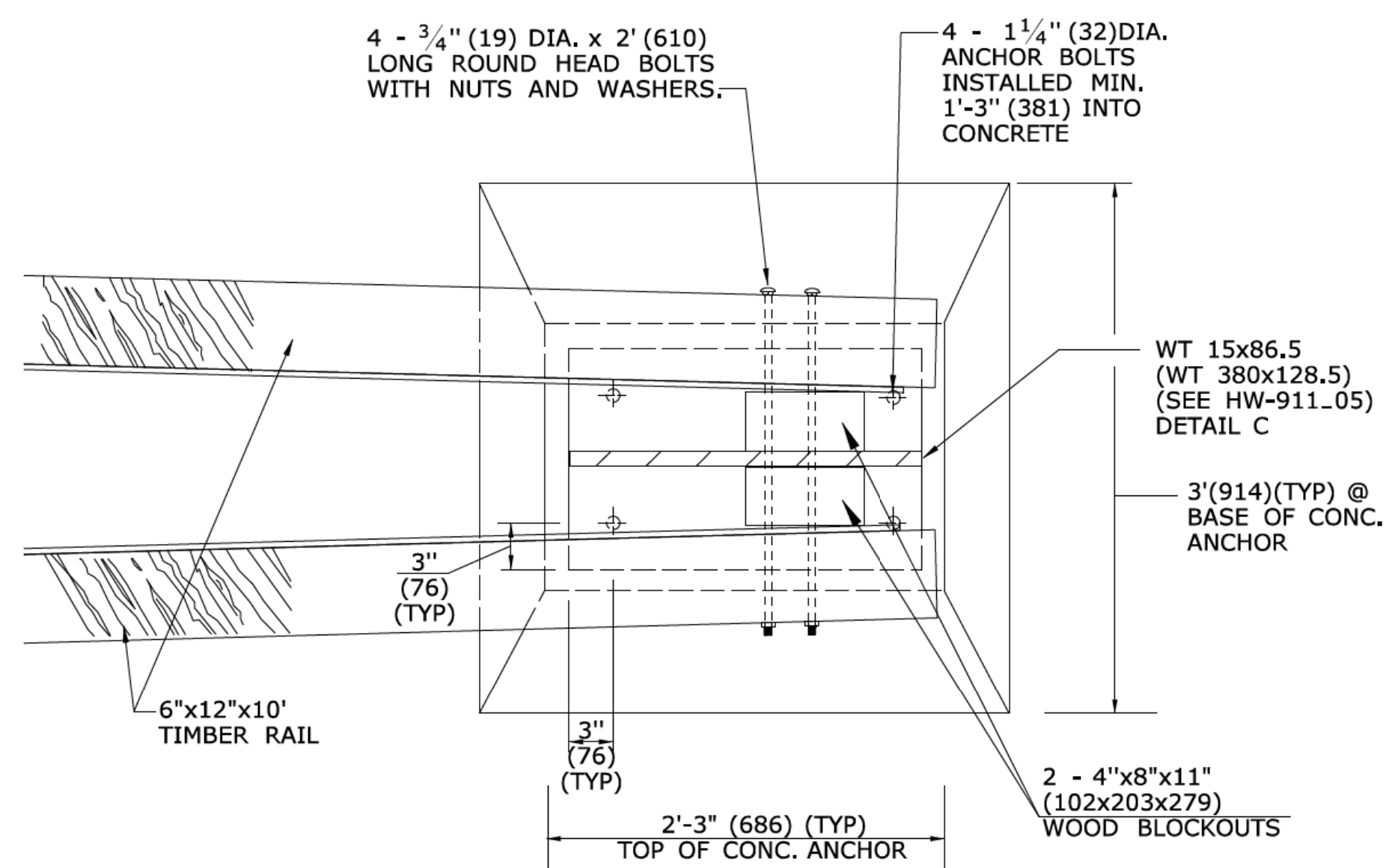
1. SEE HW-910.12a THRU 12c FOR STANDARD GUIDERAIL PARTS.
2. IF RAIL IS PLACED GREATER THAN 2'(610) FROM EDGE OF ROAD, RAIL HEIGHT IS MEASURED FROM GROUND BENEATH RAIL.
3. IF RAIL IS PLACED GREATER THAN 2'(610) FROM EDGE OF ROAD, RAIL HEIGHT IS MEASURED FROM GROUND BENEATH RAIL.



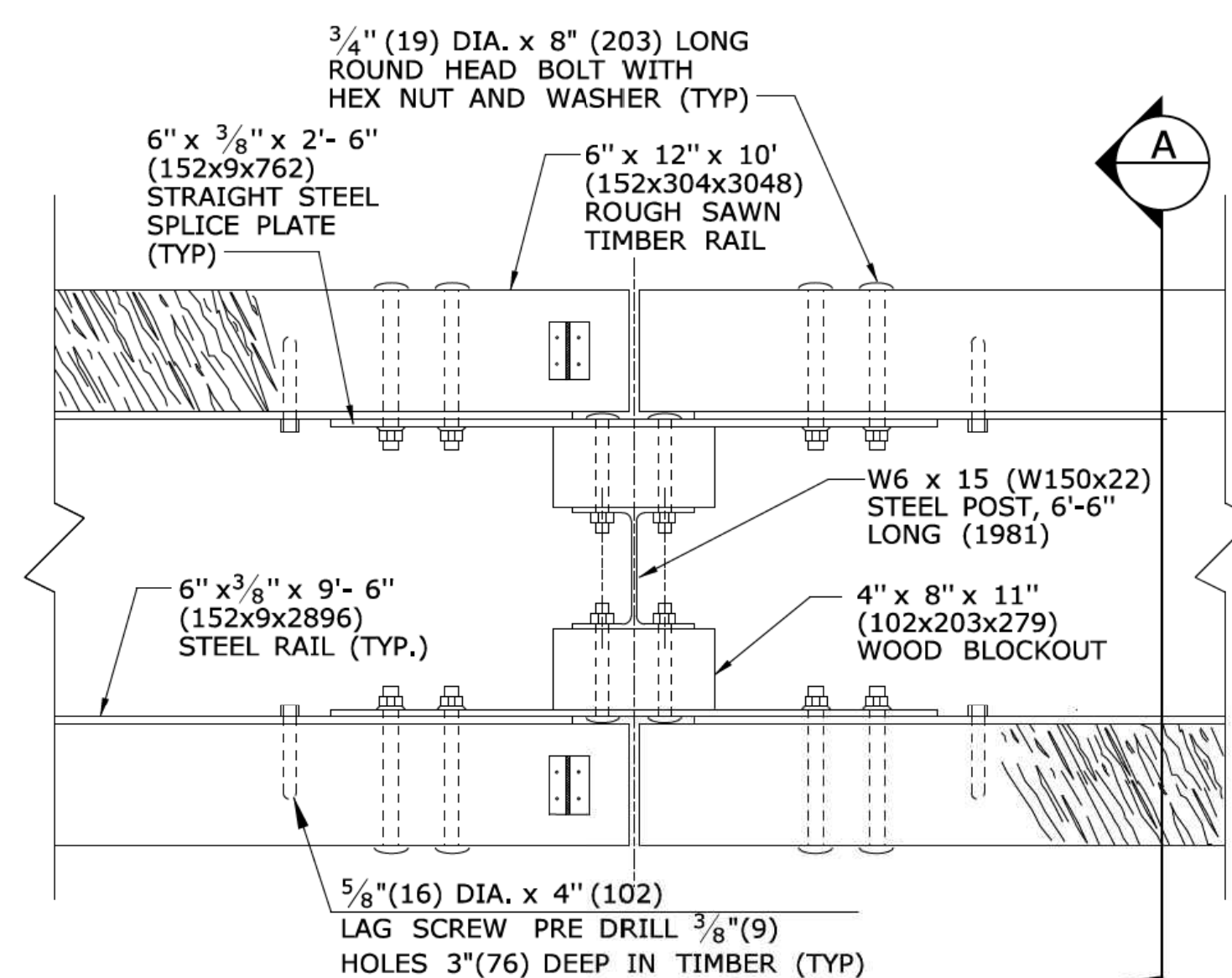
PLAN



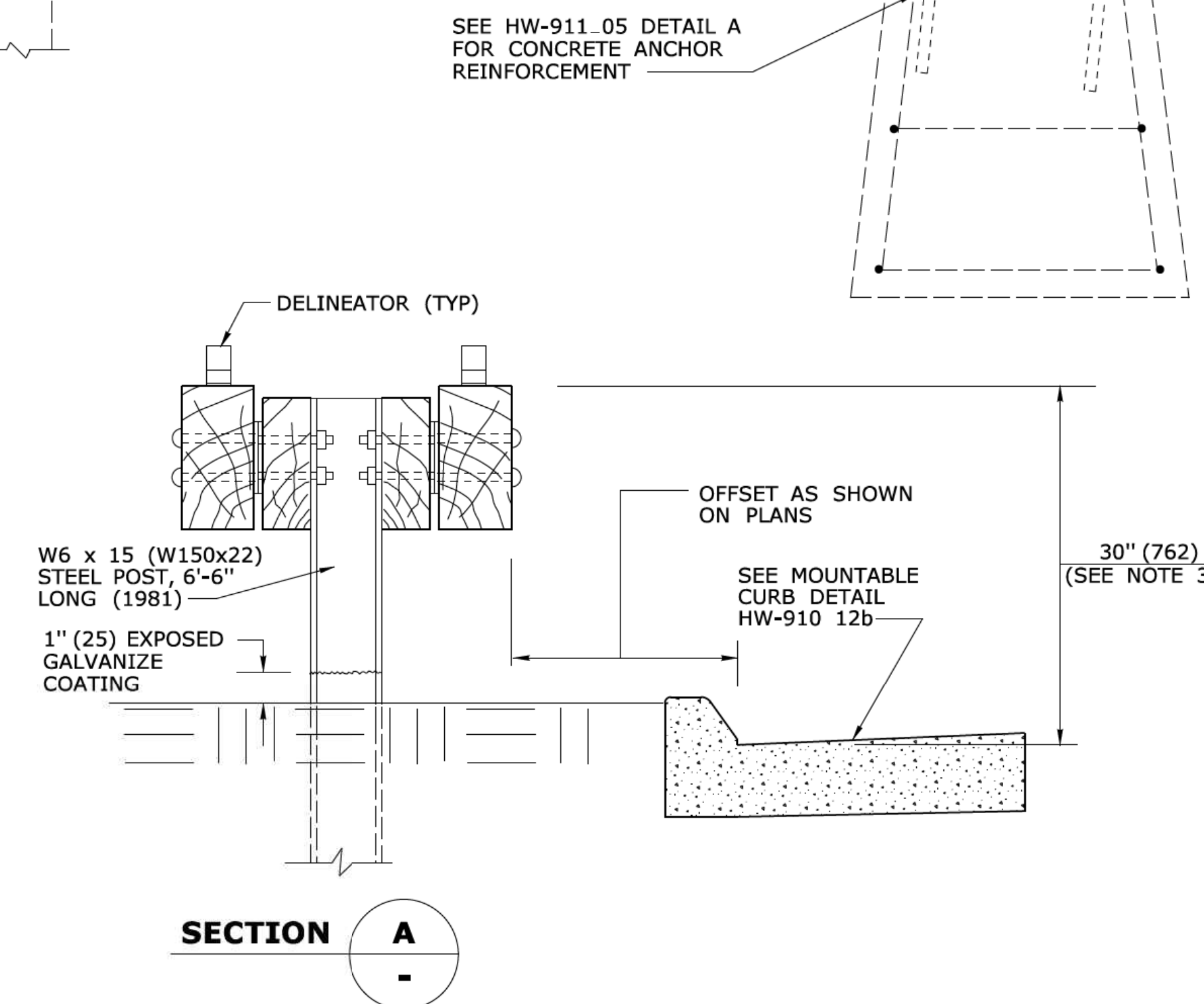
ELEVATION



**PLAN
MERRITT PARKWAY MEDIAN GUIDERAIL
END ANCHOR
DETAIL A**



**PLAN
MERRITT PARKWAY MEDIAN GUIDERAIL**



SECTION A

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION
-	6/11	ADDED NEW SHEET FOR MEDIAN RAIL
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

Plotted Date: 5/13/2011

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

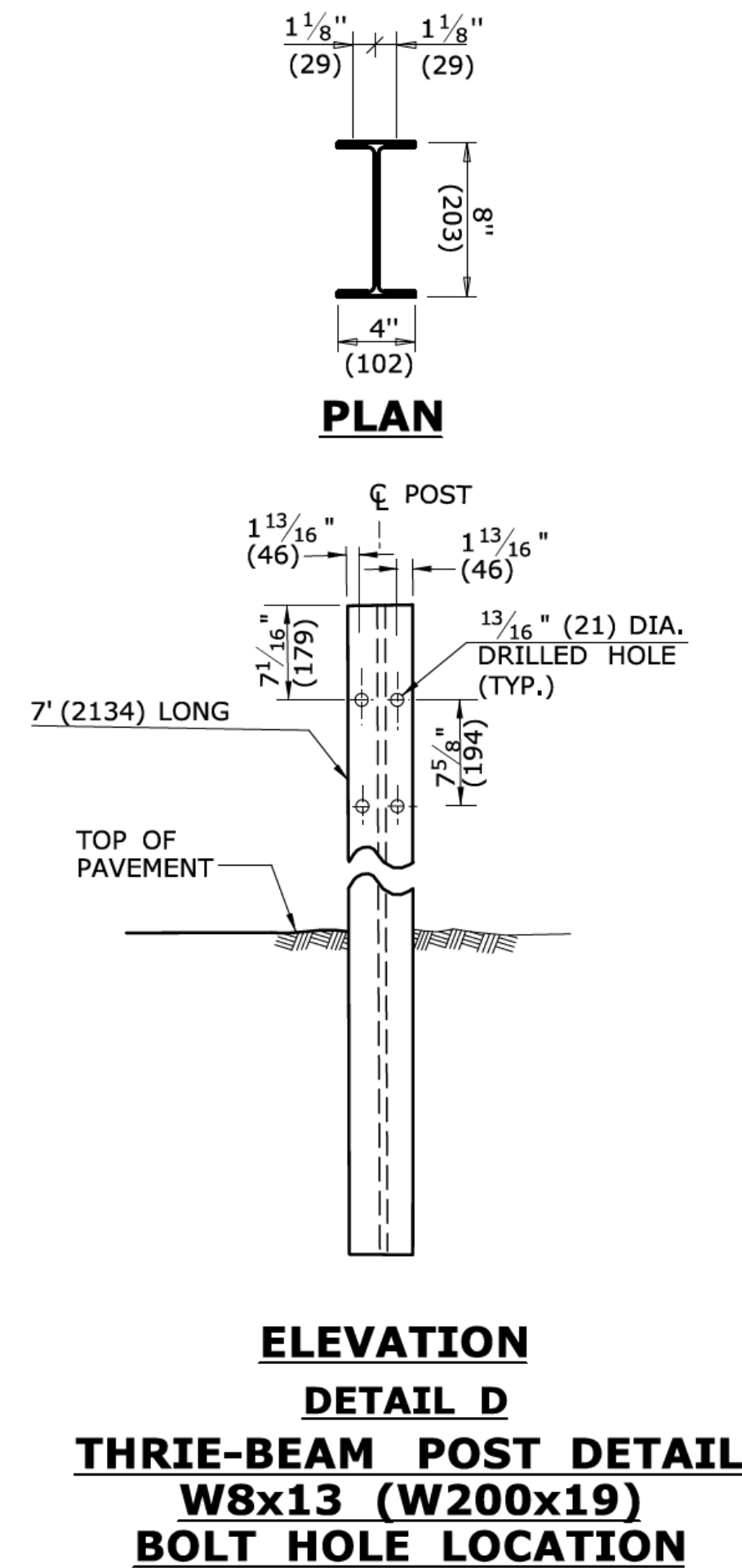
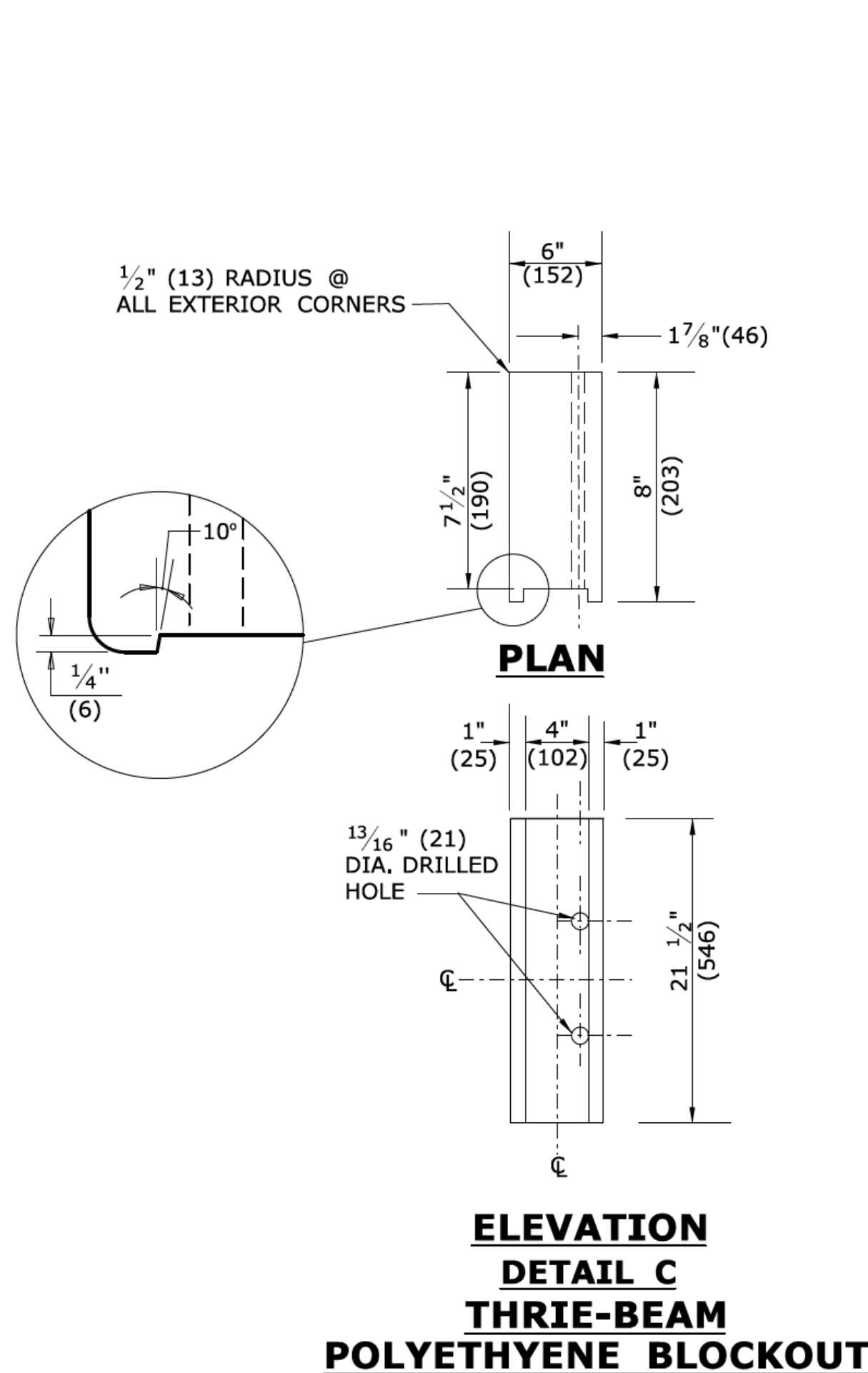
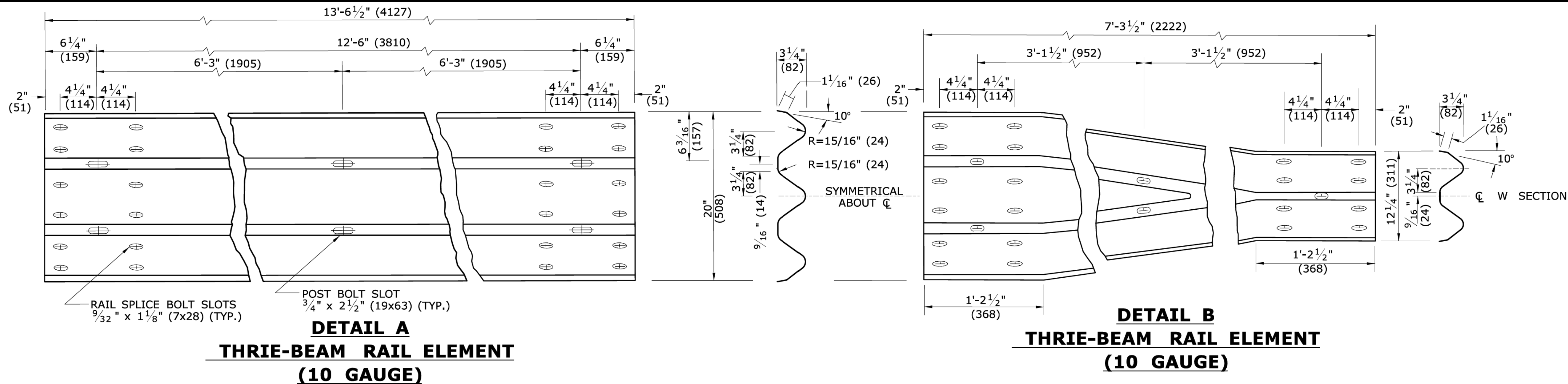
FILENAME: CTDOT-HIGHWAY-STD-JUNE2011.dgn Model: 50 - HW-910.12d

SUBMITTED BY: NAME/DATE/TIME:
APPROVED BY: NAME/DATE/TIME:
James H. Norman
2011.06.09 15:31:37 -04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
MERRITT PARKWAY MEDIAN GUIDERAIL AND END ANCHOR

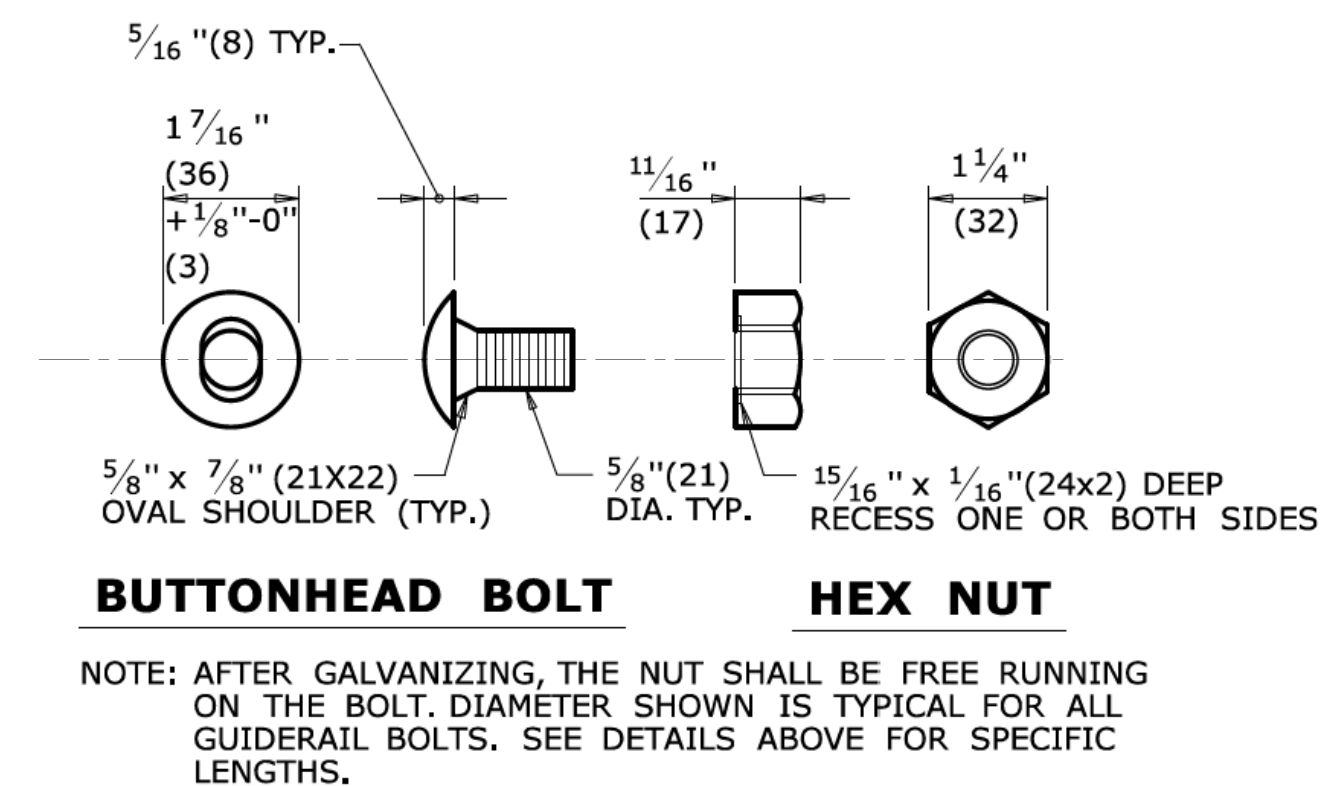
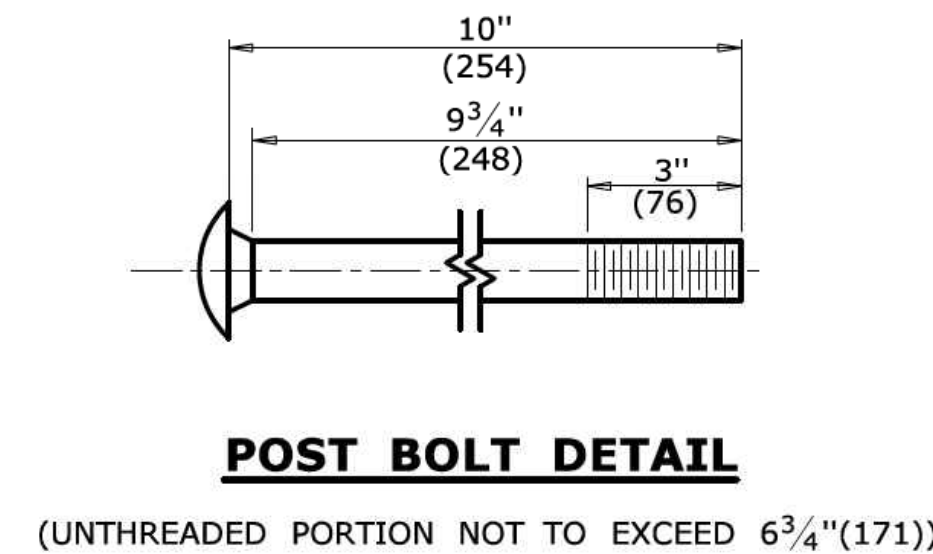
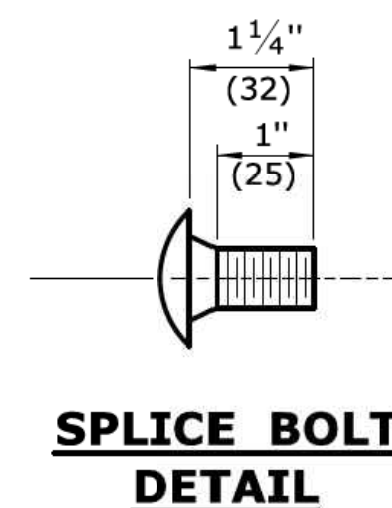
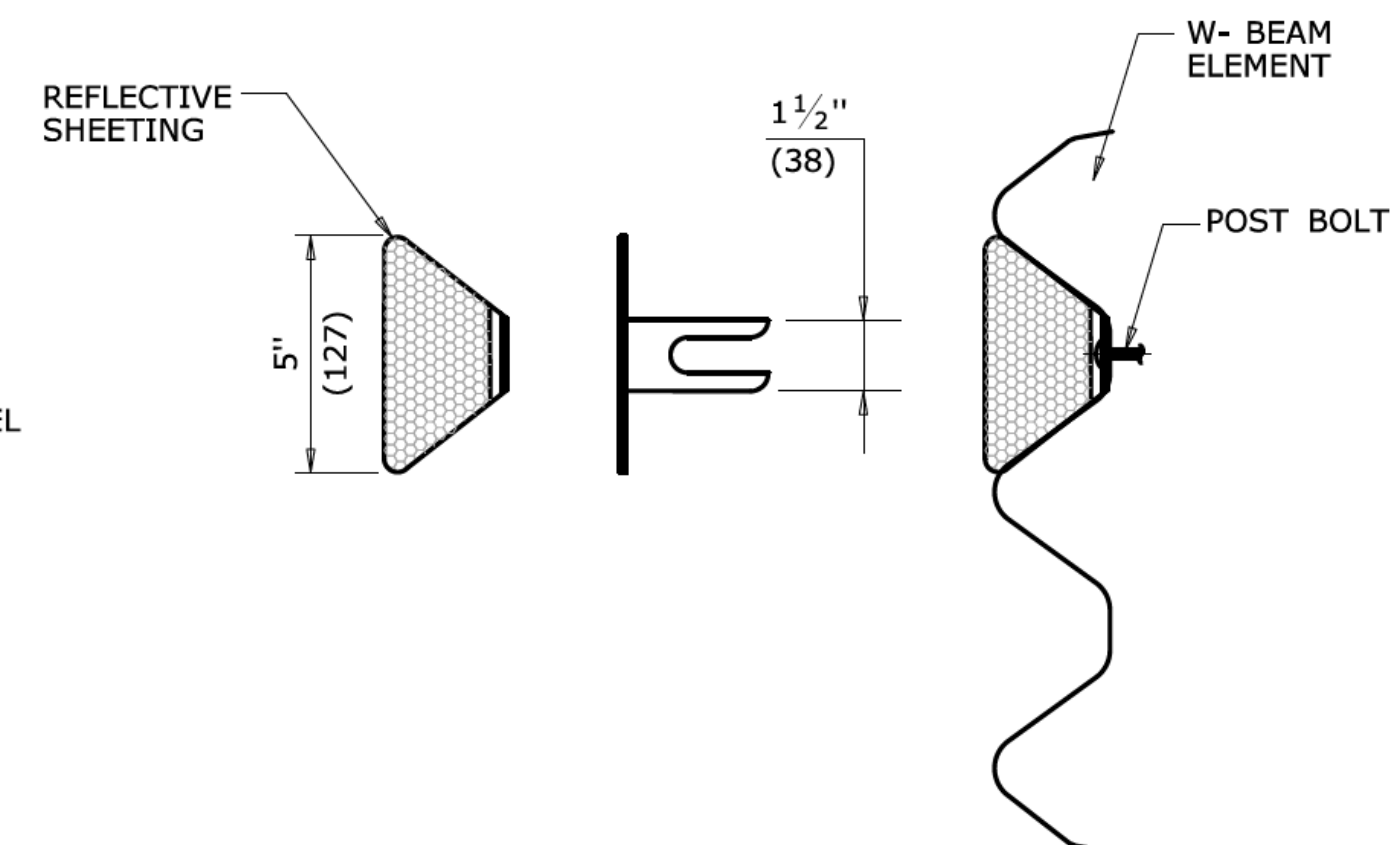
STANDARD SHEET NO.:
HW-910.12d



DELINEATOR NOTES:

1. DELINEATORS SHALL BE FORMED OF .080 POLY-CARBONATE OR .080 SHEET ALUMINUM IN ACCORDANCE WITH M.18.13.
2. REFLECTIVE SHEETING SHALL CONFORM TO M.18.09.2.
3. DELINEATORS SHALL BE INSTALLED ON THE POST CLOSEST TO THE DESIGNATED SPACING.
4. REFLECTIVE SHEETING SHALL BE WHITE EXCEPT ON THE LEFT SIDE OF DIVIDED STREETS, HIGHWAYS, RAMP, AND ONE WAY ROADS IN THE DIRECTION OF TRAVEL WHERE IT SHALL BE YELLOW.
5. INSTALL DELINEATORS ON RAIL THAT IS PARALLEL TO AND NOT GREATER THAN 6'(1829) FROM THE EDGE OF THE ROADWAY. A MINIMUM OF THREE DELINEATORS MUST BE INSTALLED ON ANY RUN OF RAIL.

DELINEATOR SPACING:
RADIUS \geq 300'(91440) - SPACE EVERY 50'(15.24m)
RADIUS $<$ 300'(91440) - SPACE EVERY 25'(7.62m)



ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION	Plotted Date: 3/21/2013
1	6/11	CREATED THRIE BEAM HARDWARE SHEET	
2	7/13	DIMENSION REVISED	
-	-	-	
-	-	-	
-	-	-	
-	-	-	

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: June2013.dgn Model: HW-910_13a

SUBMITTED BY: NAME/DATE/TIME:

APPROVED BY: NAME/DATE/TIME:

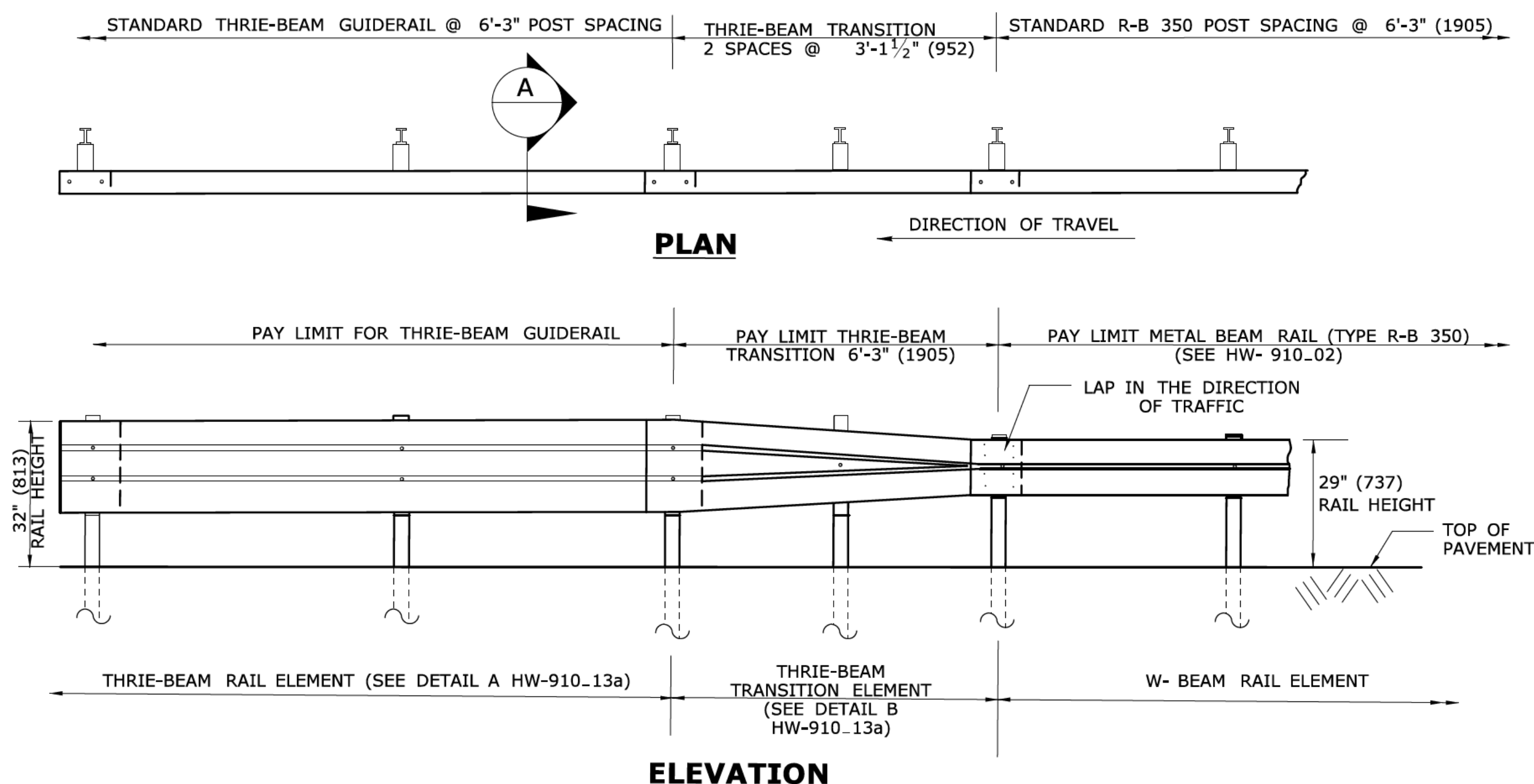
James H. Norman
2013.07.24 10:58:35-0400

CTDOT
STANDARD SHEET

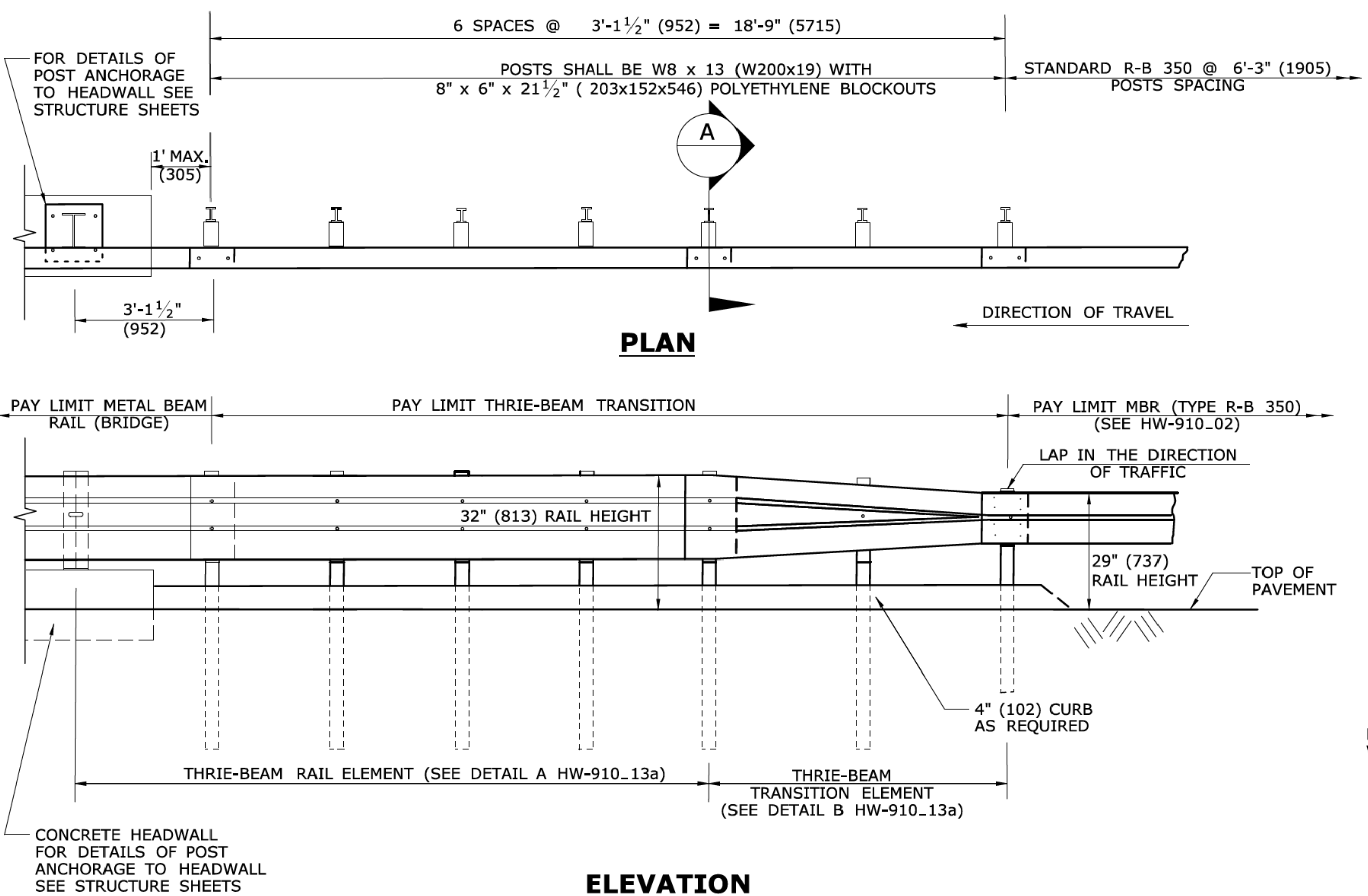
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
**THRIE BEAM METAL BEAM
RAIL HARDWARE**

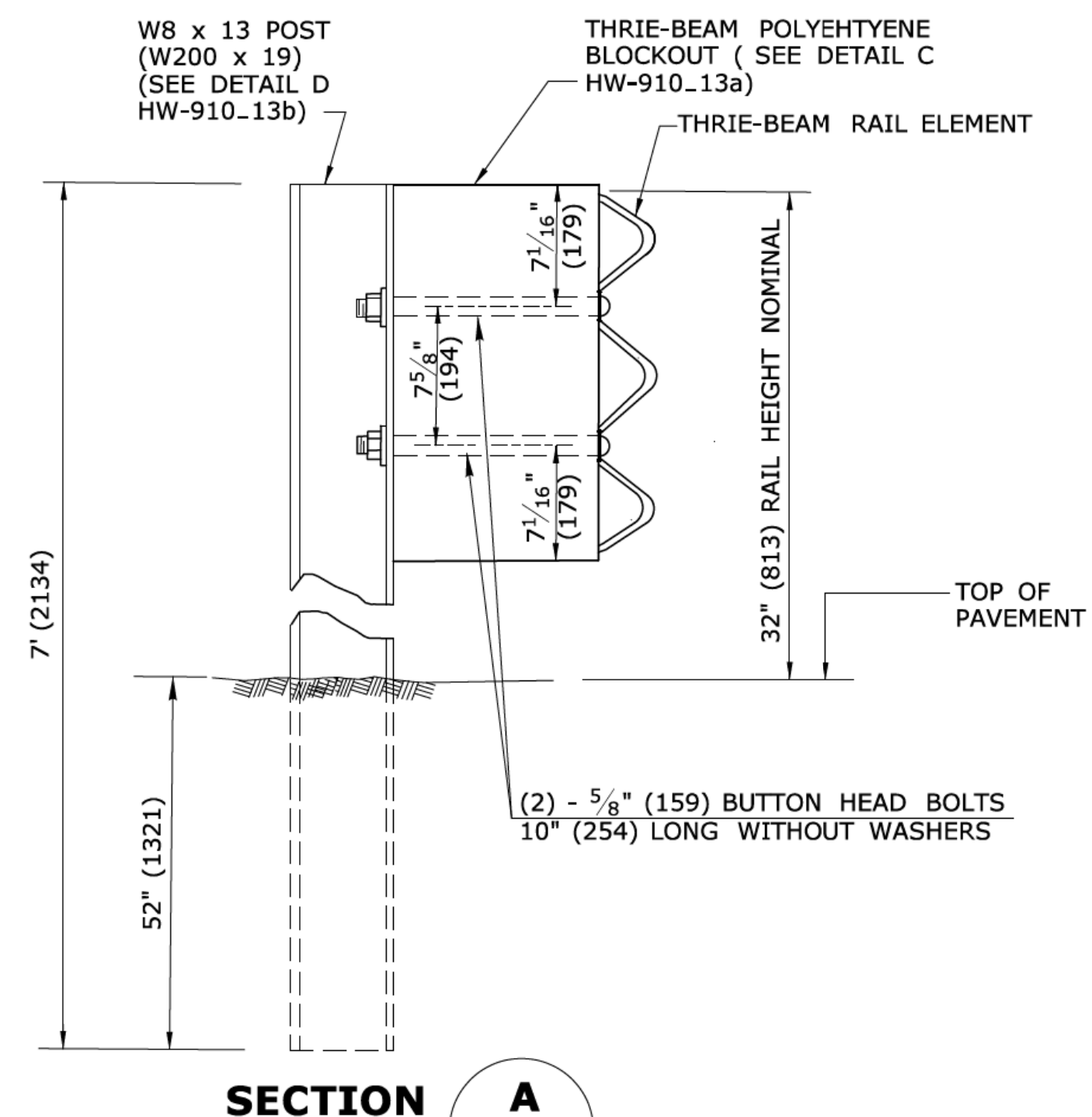
STANDARD SHEET NO.:
HW-910_13a



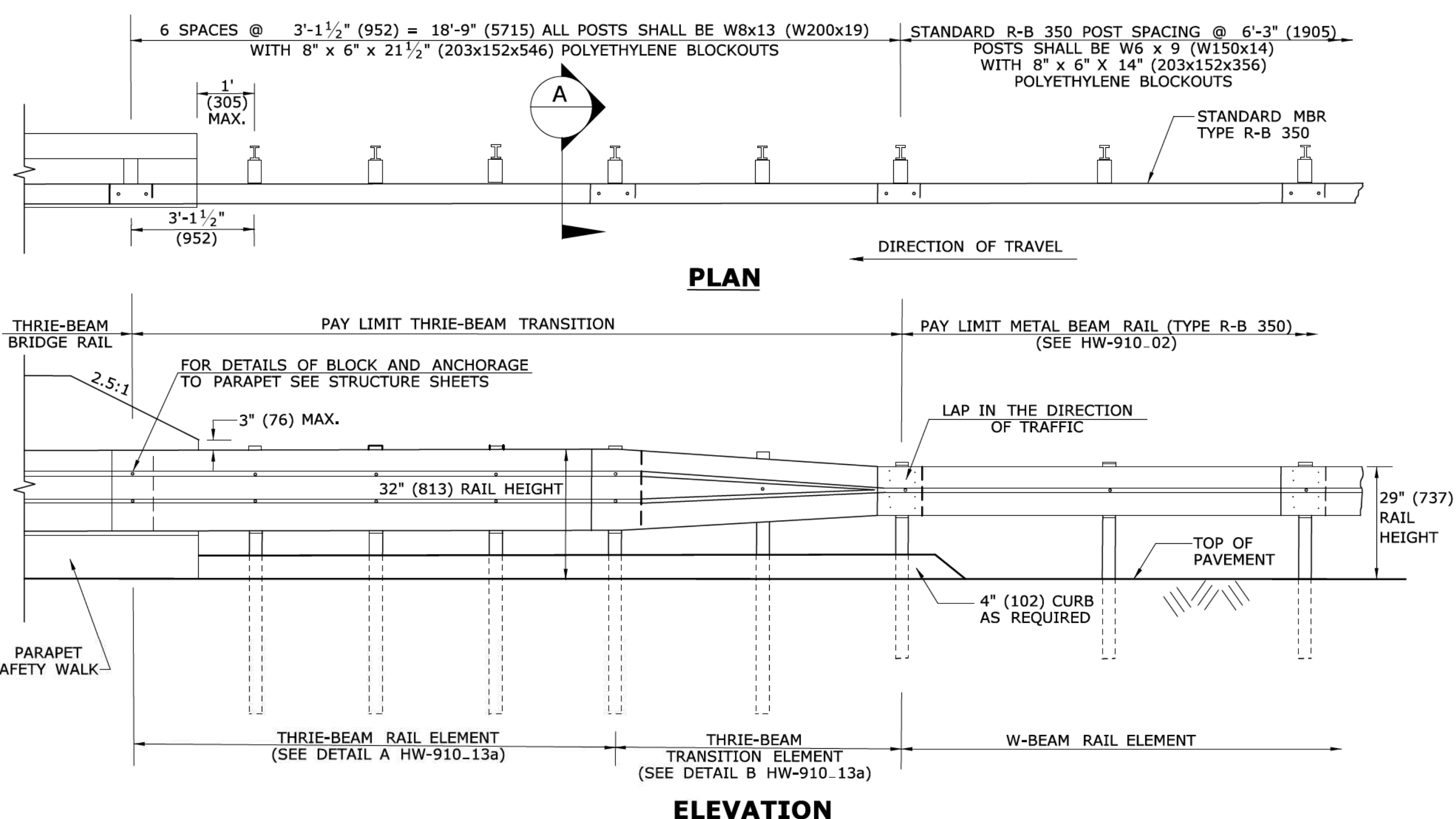
THRIE-BEAM GUIDERAIL TRANSITION TO W-BEAM GUIDERAIL



R-B 350 TRANSITION TO THRIE-BEAM PEDESTAL POST MOUNTED TO HEADWALL



W8x13 (W200x19) THRIE-BEAM POST CONNECTION DETAIL



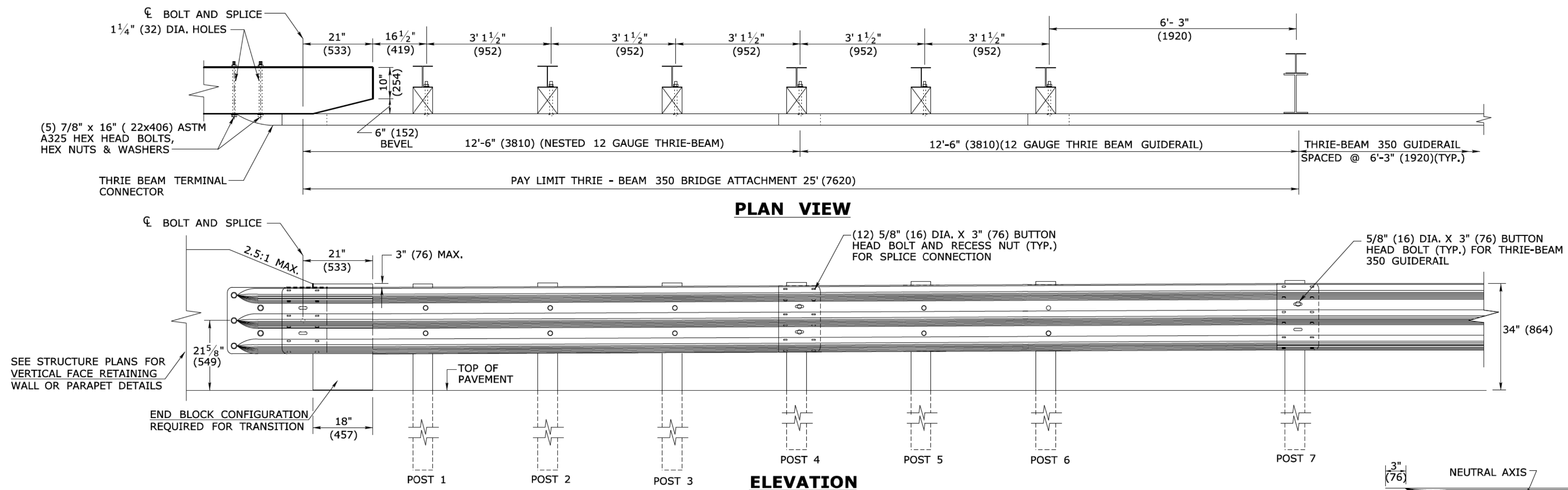
THRIE-BEAM TRANSITION TO BRIDGE PARAPET WITH SAFETY WALK

GENERAL NOTES:

1. THRIE-BEAM RAIL ELEMENTS AND THRIE-BEAM TRANSITION ELEMENTS SHALL BE 10 GAUGE.
2. MATERIAL FOR "M.B.R. TYPE R-B 350" SHALL CONFORM TO THE SPECIFICATIONS FOR "M.B.R. TYPE R-B 350" AND AS NOTED ON THE PLANS.
3. MATERIAL FOR "THRIE-BEAM TRANSITION" SHALL CONFORM TO THE SPECIFICATIONS FOR "THRIE-BEAM TRANSITION" AND AS NOTED ON THE PLANS.
4. MINIMUM RAIL HEIGHT OF R-B 350 GUIDERAIL FOR NEW CONSTRUCTION SHALL BE 29" (237) + 1" (25).
5. SEE HW-910.01 FOR W-BEAM METAL BEAM HARDWARE.

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

1	6/11	CREATED TRANSITION SHEET	-	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: James H. Norman 2013.07.24 14:52:36-04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: THRIE-BEAM TRANSITIONS	STANDARD SHEET NO.: HW-910_13b
2	7/13	DIMENSION REVISED	-							
-	-	-	-							
-	-	-	-							
-	-	-	-							
REV. DATE		REVISION DESCRIPTION		Plotted Date: 3/21/2013	Filename: June2013.dgn	Model: HW-910_13b				



GENERAL NOTES:

FOR SINGLE DIRECTION ROADWAY:

- INSTALL THRIE - BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.

FOR DUAL DIRECTION ROADWAY:

FOR APPROACHING TRAFFIC

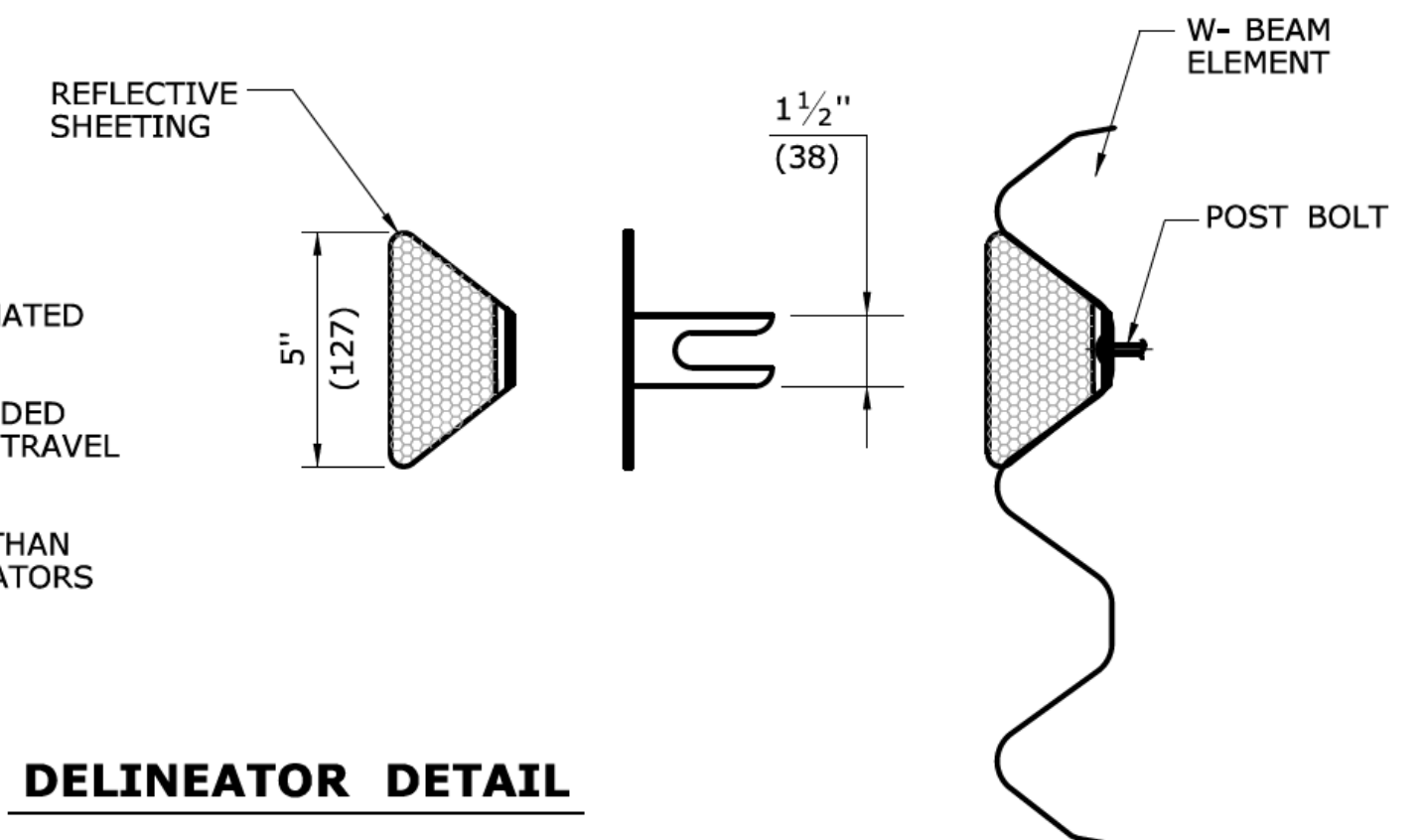
- INSTALL THRIE-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.

FOR TRAILING END:

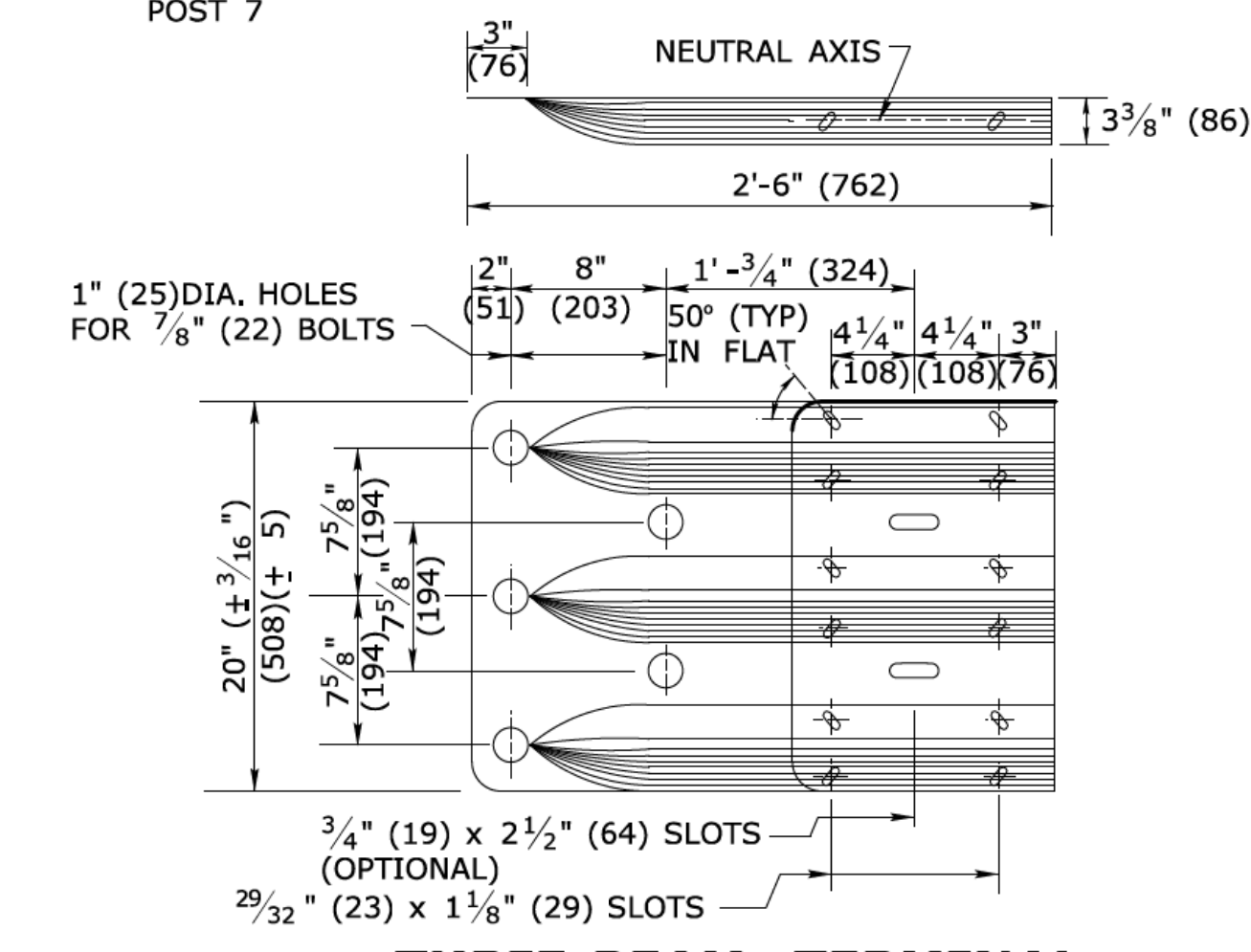
- INSTALL THRIE-BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUIDERAIL ELEMENTS.

- LEGEND**
- W6 x 25 x 8.5' OR W8 x 21 x 8.5' POST (W150x37x259) OR (W200x31x259) POST
 - W6 x 20 x 7' OR W8 x 18 x 7' POST (W150x30x2134) OR (W200x27x2134)
 - 6' x 8' x 18" TREATED TIMBER OFFSET BLOCK (152x203x457) (OR APPROVED EQUAL)
 - W14x 22 STEEL OFFSET BLOCK (W360x33)
 - W6 x 9 x 7' POST (W152x230x2134)

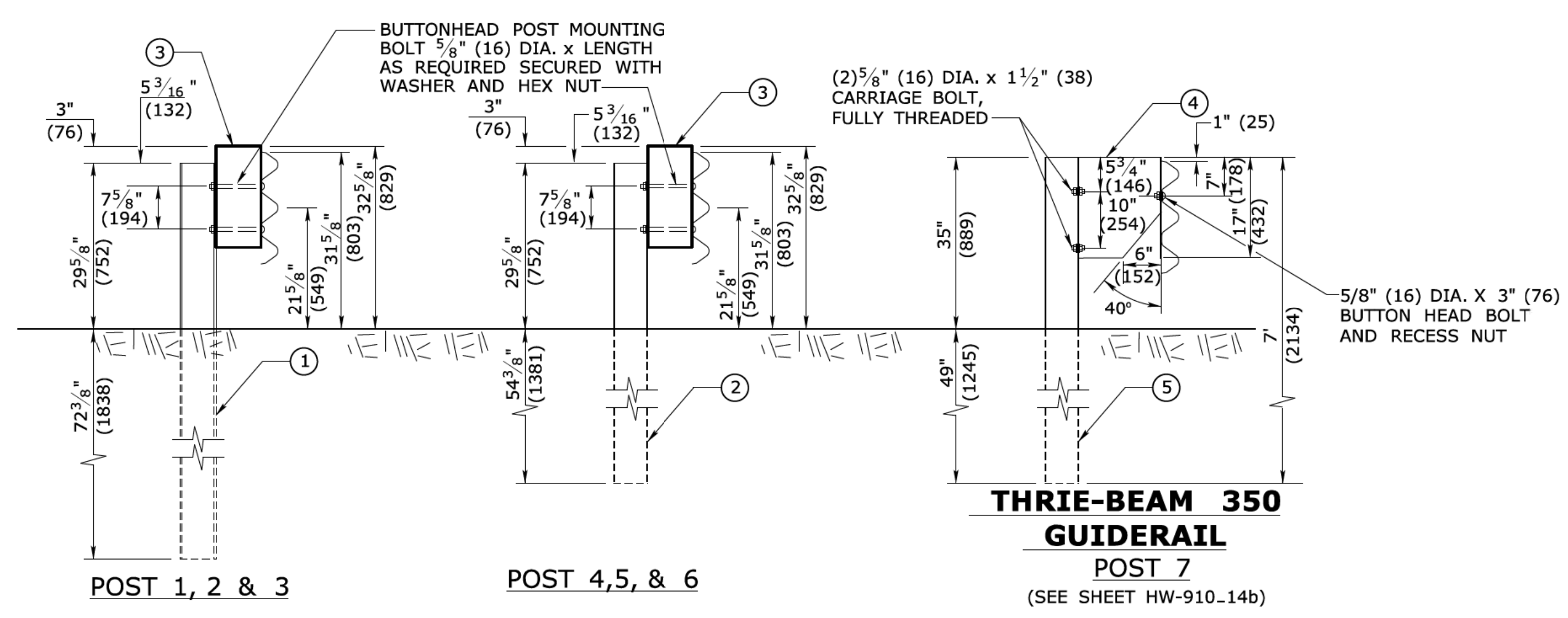
- DELINEATOR NOTES:**
- DELINEATORS SHALL BE FORMED OF .080 POLY-CARBONATE OR .080 SHEET ALUMINUM IN ACCORDANCE WITH M.18.13.
 - REFLECTIVE SHEETING SHALL CONFORM TO M.18.09.2.
 - DELINEATORS SHALL BE INSTALLED ON THE POST CLOSEST TO THE DESIGNATED SPACING.
 - REFLECTIVE SHEETING SHALL BE WHITE EXCEPT ON THE LEFT SIDE OF DIVIDED STREETS, HIGHWAYS, RAMP, AND ONE WAY ROADS IN THE DIRECTION OF TRAVEL WHERE IT SHALL BE YELLOW.
 - INSTALL DELINEATORS ON RAIL THAT IS PARALLEL TO AND NOT GREATER THAN 6'(1829) FROM THE EDGE OF THE ROADWAY. A MINIMUM OF THREE DELINEATORS MUST BE INSTALLED ON ANY RUN OF RAIL.



DELINEATOR SPACING:
 RADIUS > 300'(91440) - SPACE EVERY 50'(15.24m)
 RADIUS < 300'(91440) - SPACE EVERY 25'(7.62m)



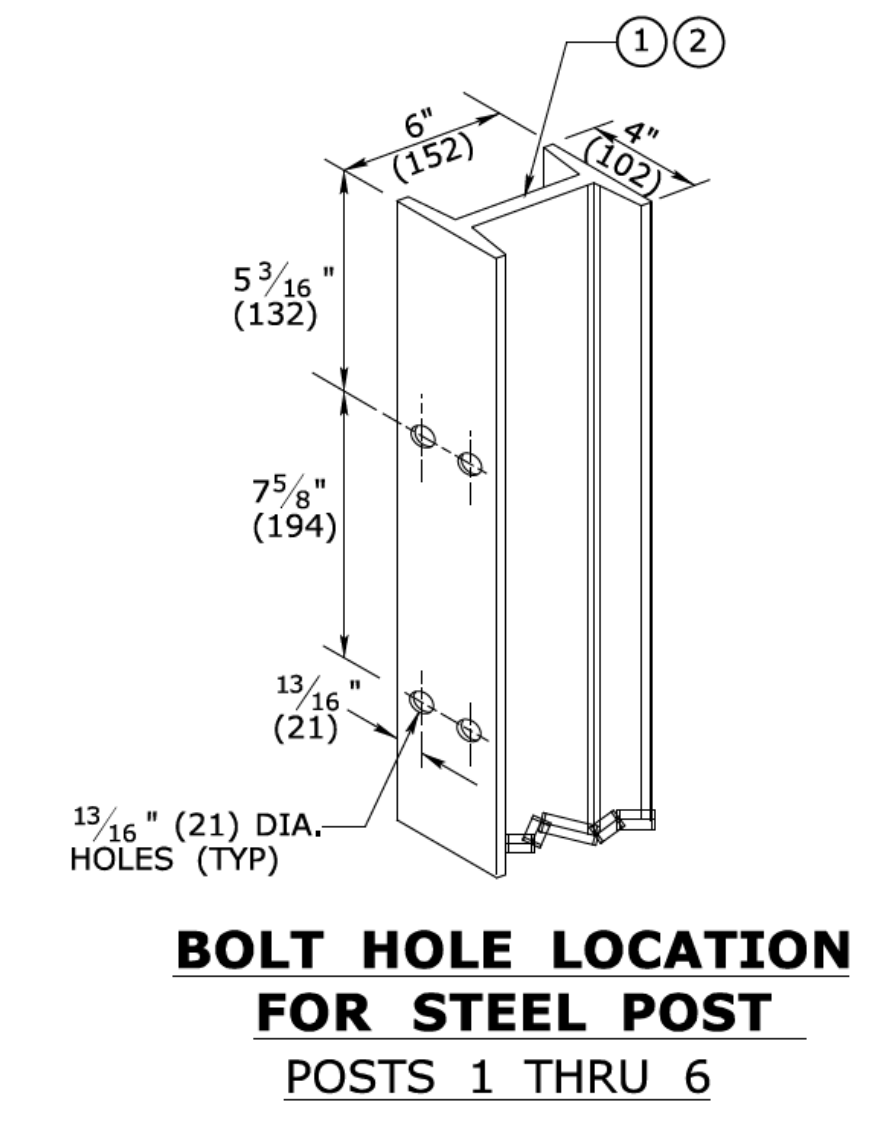
THRIE-BEAM TERMINAL CONNECTOR
(10 GAUGE)



SPLICE DIAGRAM @ POST 4



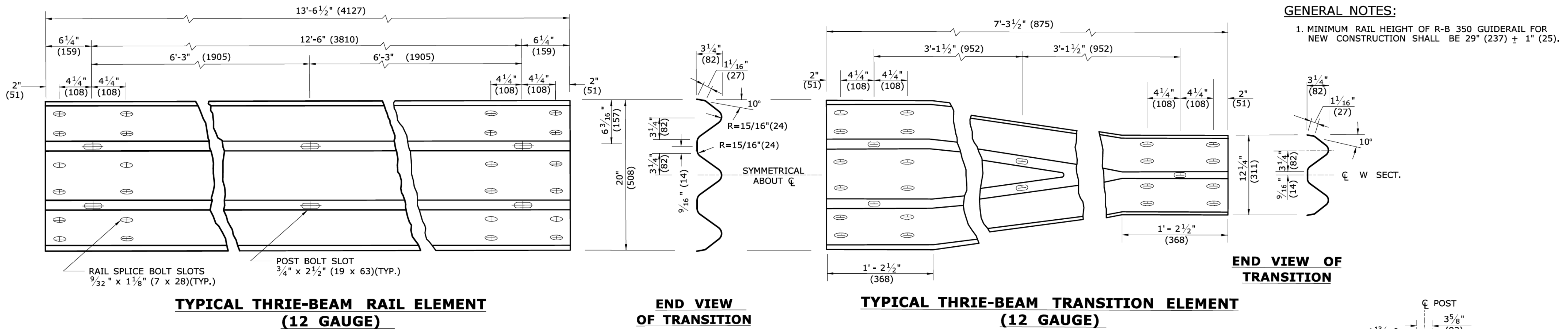
TREATED TIMBER BLOCK OUT DETAIL
POSTS 1 THRU 6
(OR APPROVED EQUAL)



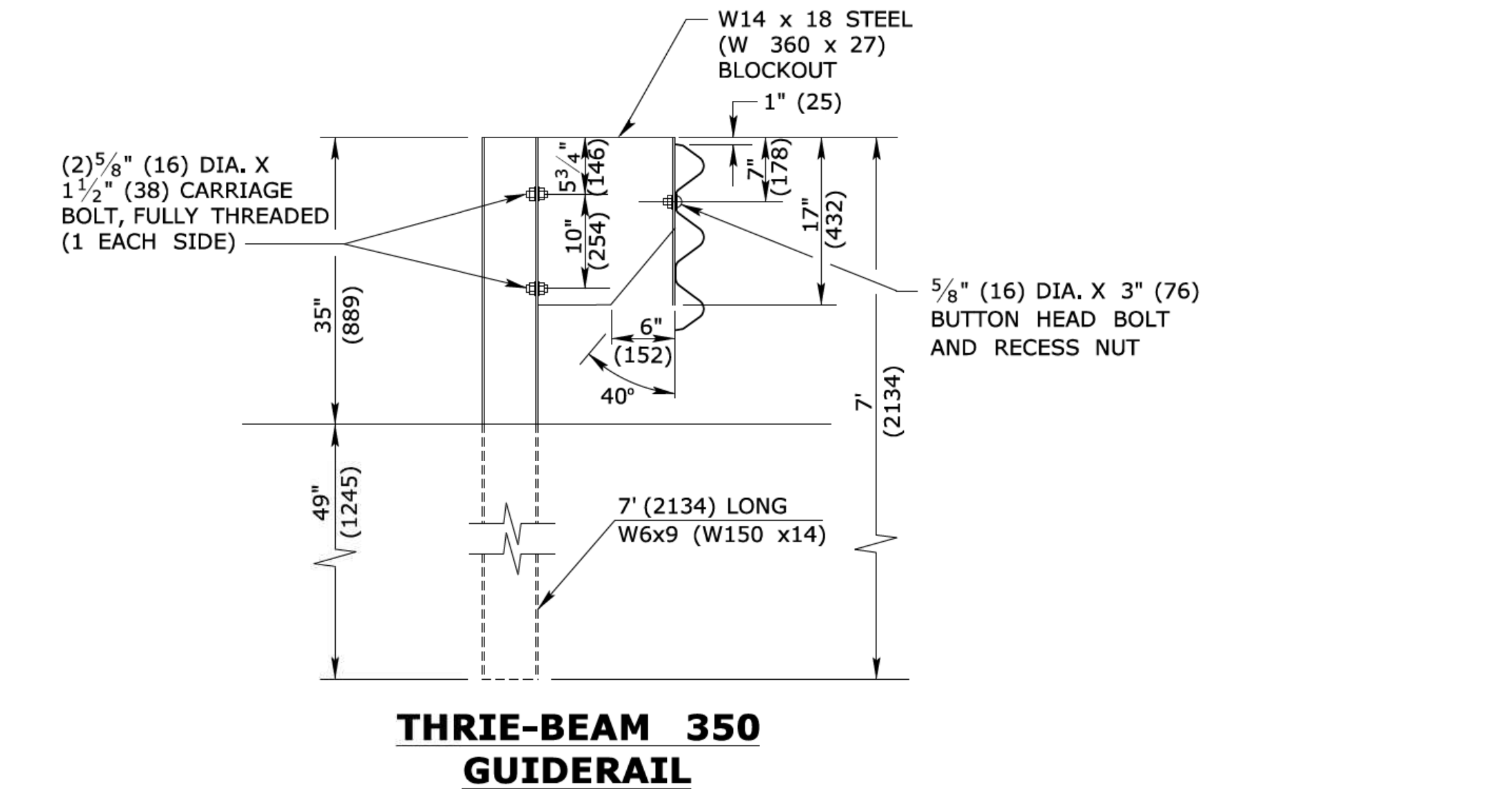
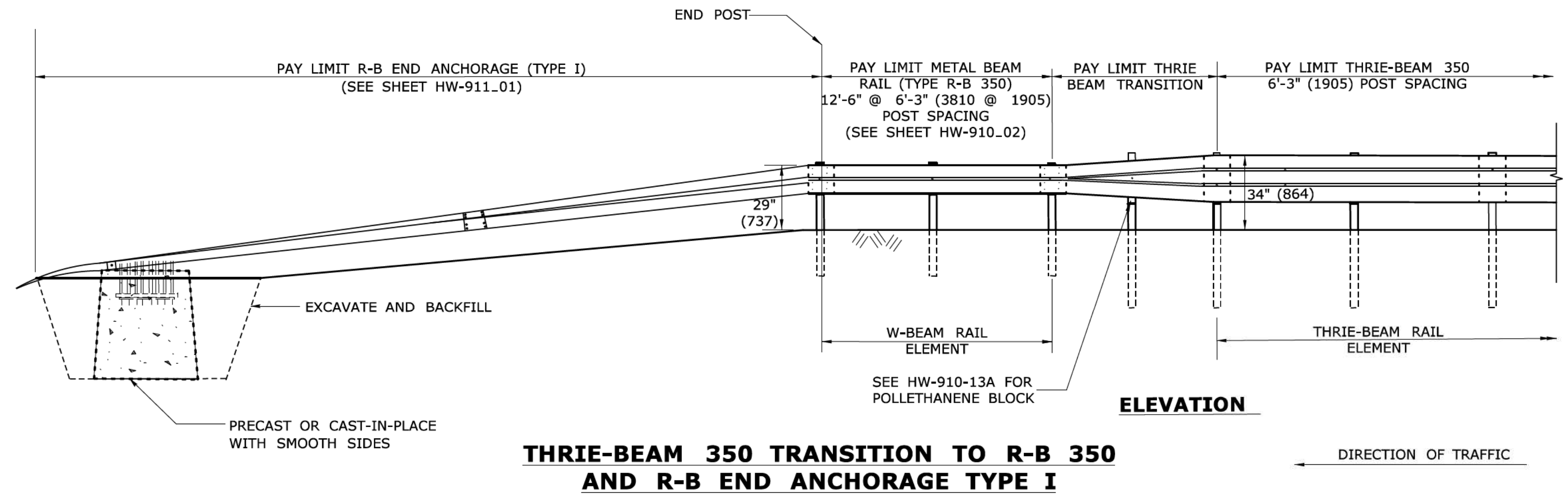
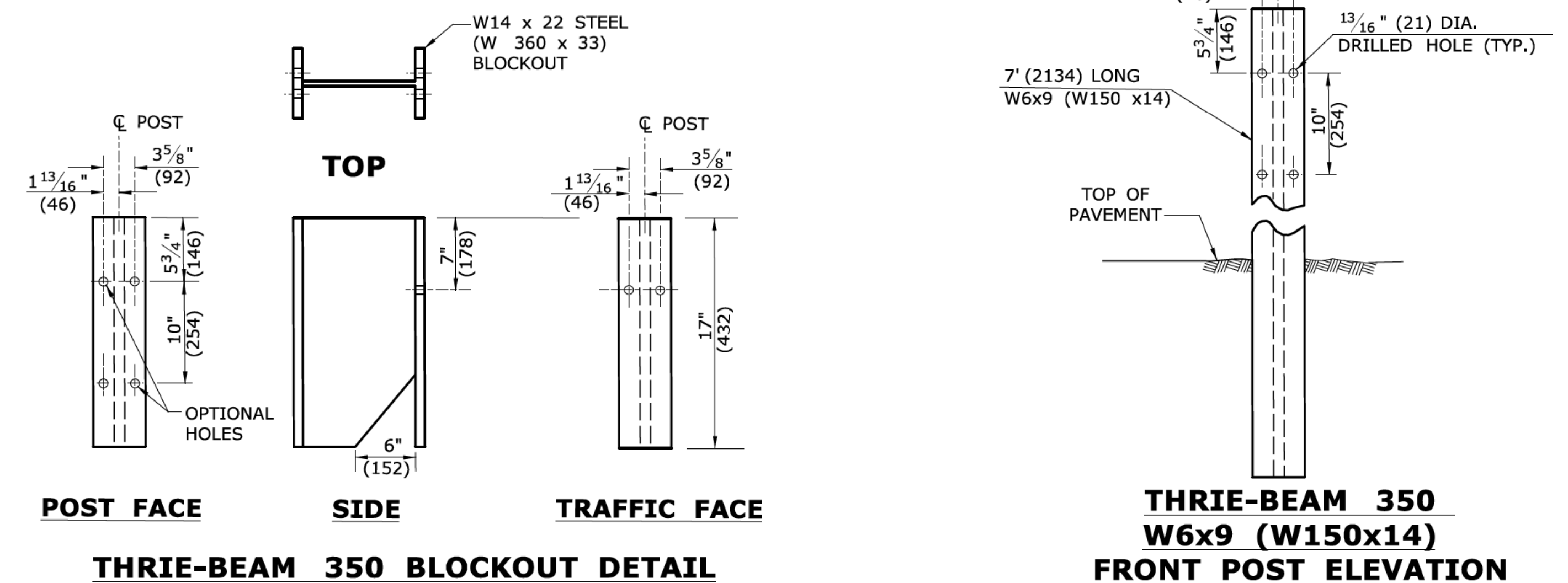
BOLT HOLE LOCATION FOR STEEL POST
POSTS 1 THRU 6

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

1	6/11	REVISE AND ADD DIMENSIONS TO TERMINAL CONNECTOR AND REVISE BLOCKOUT DESIGNATION	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	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SUBMITTED BY: [Signature] NAME/DATE/TIME: [Name/Date/Time] APPROVED BY: [Signature] NAME/DATE/TIME: James H. Norman 2011.06.09 15:32:46 -04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: THRIE-BEAM 350 BRIDGE ATTACHMENT	STANDARD SHEET NO.: HW-910_14a
REV. DATE		REVISION DESCRIPTION	Plotted Date: 6/1/2011	Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 54 - HW-910_14a					

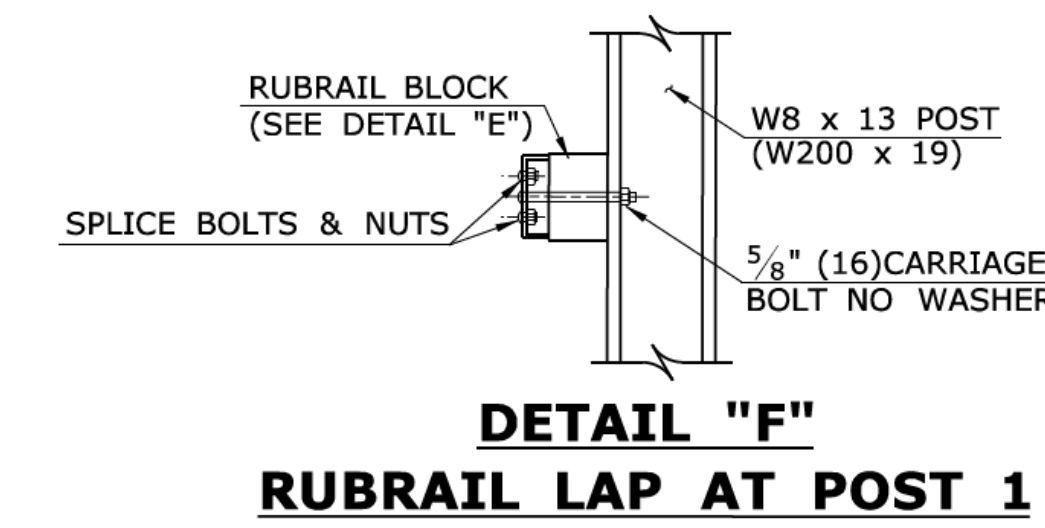
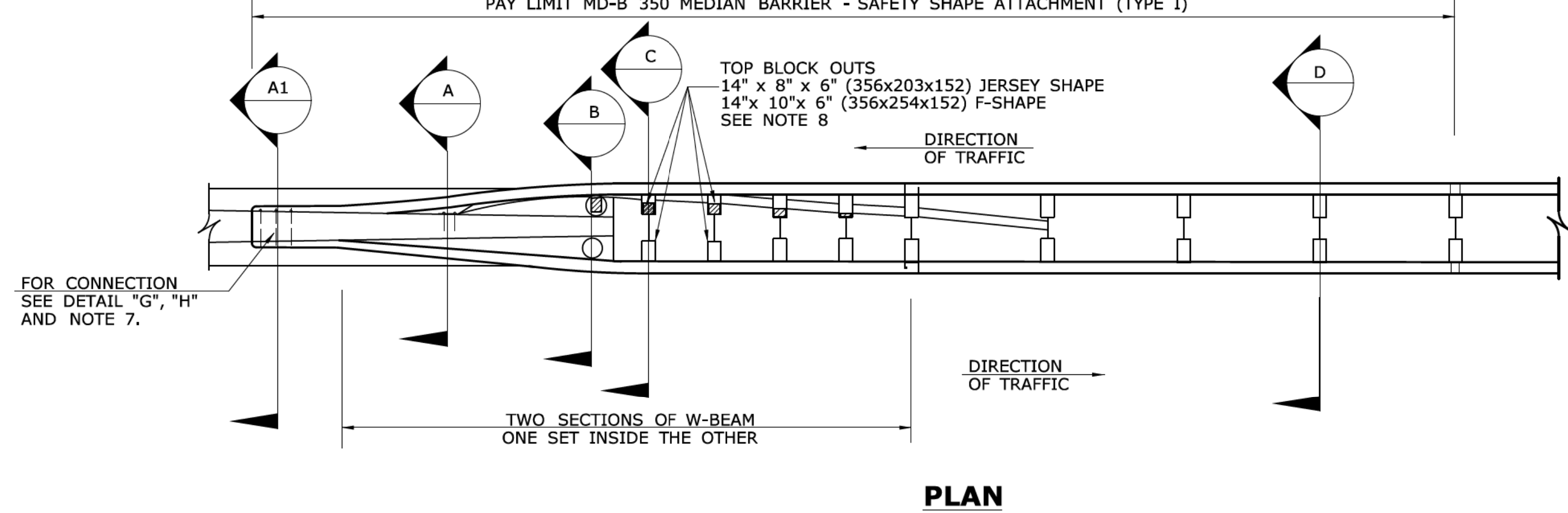
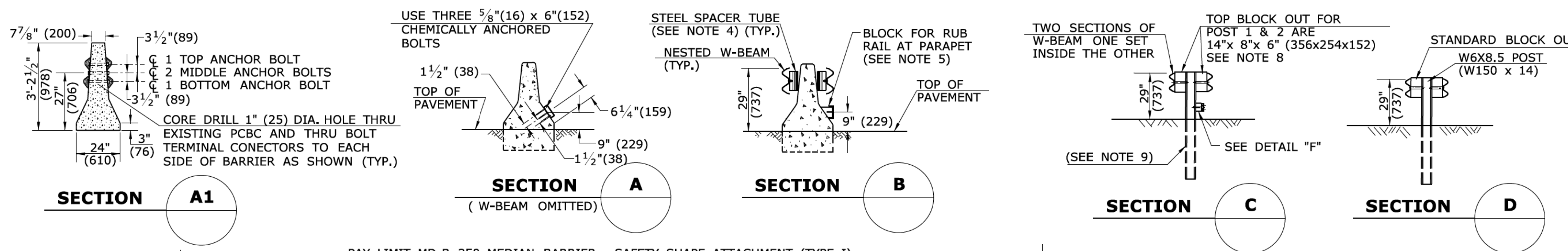


GENERAL NOTES:
 1. MINIMUM RAIL HEIGHT OF R-B 350 GUIDERAIL FOR NEW CONSTRUCTION SHALL BE 29" (237) ± 1" (25).



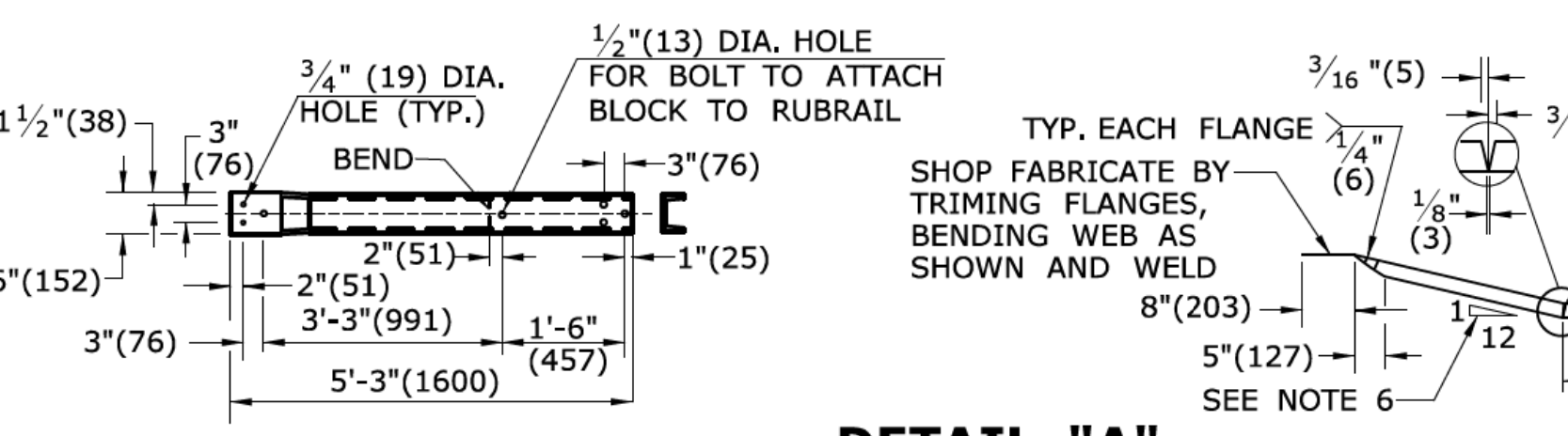
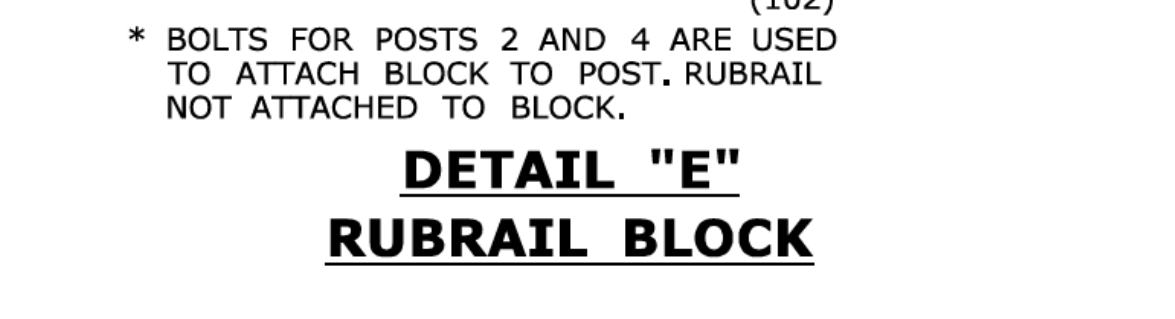
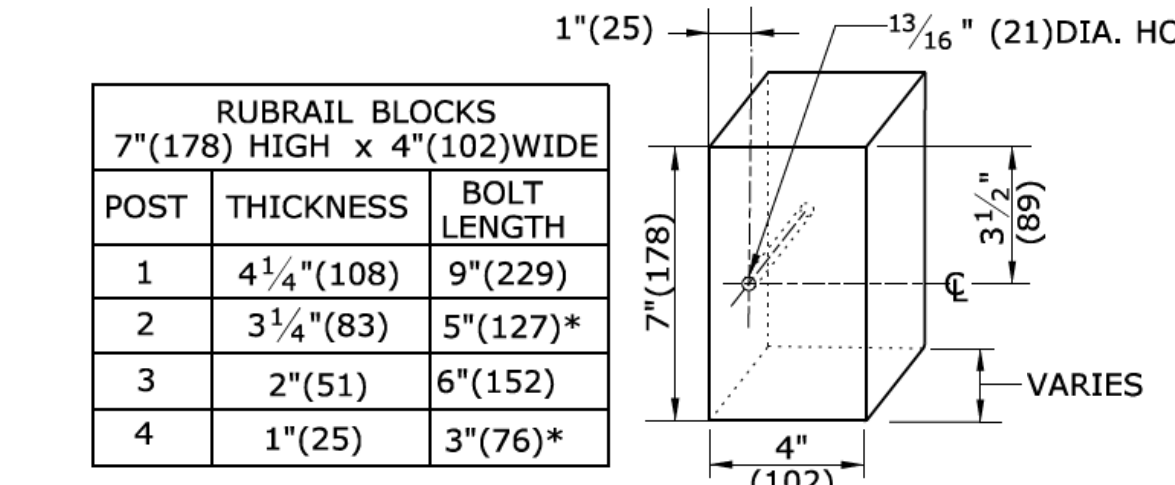
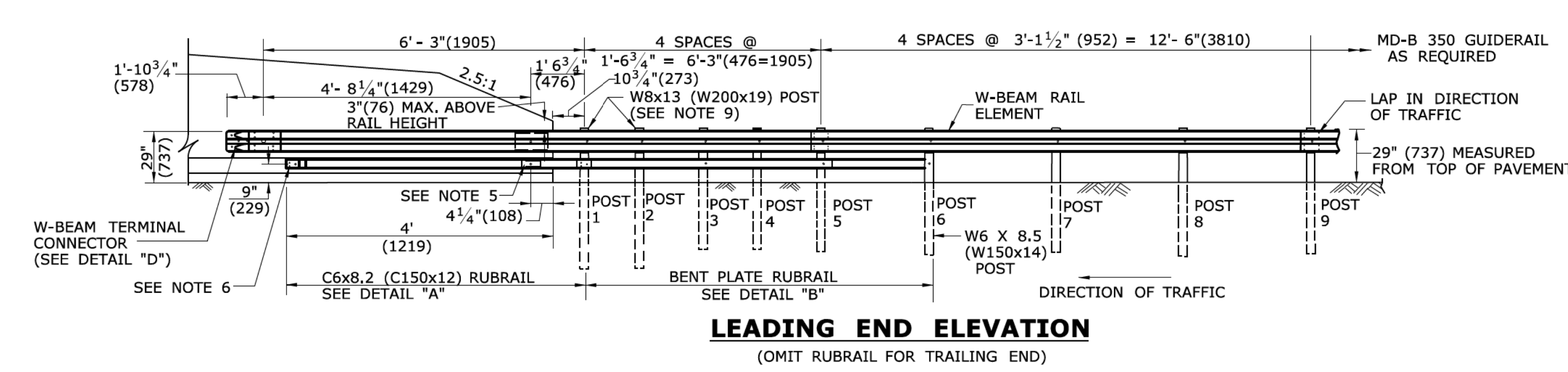
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> </tr> <tr> <td>1</td> <td>6/11</td> <td>REVISE BLOCKOUT DESIGNATION</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> </table>	REV.	DATE	REVISION DESCRIPTION	1	6/11	REVISE BLOCKOUT DESIGNATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<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>Plotted Date: 6/1/2011</p>	<p>NOT TO SCALE</p> <p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p> <p>Filename: CTDOT-HIGHWAY_STD_JUNE2011.dgn Model: 55- HW-910_14b</p>	<p>SUBMITTED BY: [Signature]</p> <p>NAME/DATE/TIME: [Signature] 2011.06.09 15:33:08 -04'00'</p> <p>APPROVED BY: [Signature]</p> <p>NAME/DATE/TIME: James H. Norman 2011.06.09 15:33:08 -04'00'</p>	<p>CTDOT STANDARD SHEET</p> <p>OFFICE OF ENGINEERING</p>	<p>STANDARD SHEET TITLE: THRIE-BEAM 350 GUIDERAIL TRANSITION TO R-B 350 GUIDERAIL</p>	<p>STANDARD SHEET NO.: HW-910_14b</p>
REV.	DATE	REVISION DESCRIPTION																									
1	6/11	REVISE BLOCKOUT DESIGNATION																									
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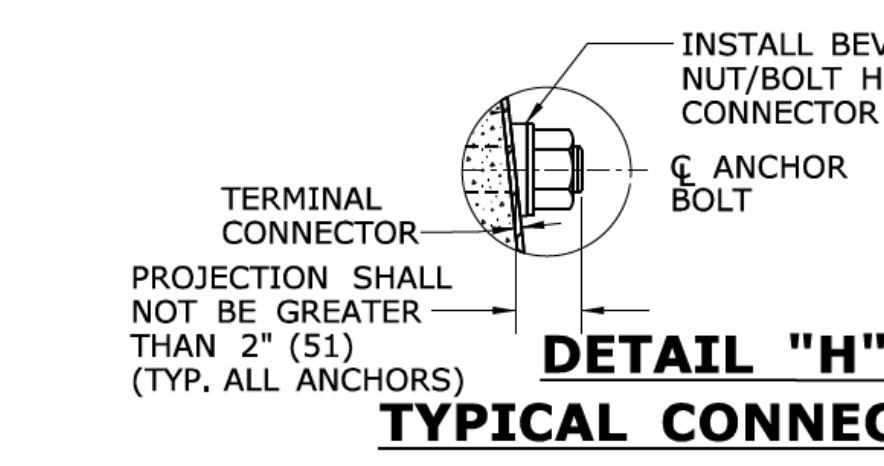
GENERAL NOTES:

- THIS MD-B 350 MEDIAN BARRIER - SAFETY SHAPE ATTACHMENT IS APPROPRIATE FOR CONNECTION AT THE FOLLOWING LOCATION:
a) JERSEY SHAPED OR F-SHAPED BARRIER WITH NO ELECTRICAL JUNCTION BOX WITHIN THE LIMITS OF THE ATTACHMENT (APPROXIMATELY 8' (2438)). SEE NOTE 8.
- POSTS 1-5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKS AND/OR RUBRAIL.
- RUBRAIL BLOCKS LOCATED ON POSTS 1-4 ARE OFFSET, DRILLED AND SECURED WITH 5/8" (16) CARRIAGE BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE RUBRAIL ONLY TO POSTS 2 AND 4. SECURE RUBRAIL WITH 5/8" (16) x 4 1/2" (114) LONG BUTTON HEAD BOLT. FLARE RUBRAIL TO THE WEB OF POST 6.
- STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" (152) INSIDE DIAMETER x 9" (229) LONG. ATTACH TUBE TO RAIL ELEMENT ONLY WITH A 5/8" (16) x 1 1/4" (32) LONG BUTTON HEAD BOLT AND RECTANGULAR PLATE WASHER. TUBE IS NOT ATTACHED TO BARRIER.
- SEE DETAIL "C" FOR SLOPED RUBRAIL BLOCK AT BARRIER. BLOCK IS ATTACHED TO RAIL ELEMENT ONLY. USE A 3/8" (10) x 3" (76) LAG BOLT WITH FLAT WASHER.
- SHOP FABRICATE THE C6x8.2 (C150x12) RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE SAFETY SHAPE AND ATTACH FLUSH WITH SLOPED TOE OF THE BARRIER. RUBRAIL SHALL BE ANCHORED USING THREE 5/8" (16) x 6" (152) CHEMICALLY ANCHORED BOLTS. RUBRAIL MUST BE TWISTED 35° BETWEEN SECTION A AND B. RIGHT AND LEFT HAND TWISTS WILL BE REQUIRED.
- THE W-BEAM TERMINAL CONNECTOR SHALL BE ANCHORED USING FOUR (4) 7/8" (22) DIA. ANCHOR BOLTS AND BEVELED WASHERS. MAXIMUM PROJECTION OF BOLTS SHALL BE 1/2" (13).
- THIS DETAIL AS SHOWN, IS FOR ATTACHMENT TO JERSEY SHAPE PCBC WITH 24" (610) BASE. WHEN ATTACHING TO AN F-SHAPE PCBC WITH 30" BASE, TOP BLOCK OUTS FOR FIRST TWO POSTS SHALL BE 14" x 10" x 6" (356x254x152).
- POSTS 1 & 2 ARE W8 x 13 (W200 x 19). ALL OTHERS ARE W6 x 8.5 (W150 x 14).
- FOR SINGLE DIRECTION ROADWAY:
INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
FOR DUAL DIRECTION ROADWAY FOR APPROACHING TRAFFIC:
INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
FOR TRAILING END:
INSTALL W-BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUIDERAIL ELEMENTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (237) ± 1" (25).

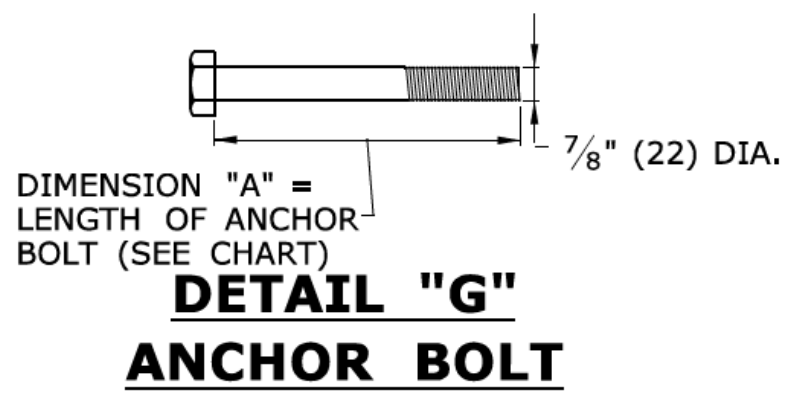


C6x8.2 (150 x 12) RUBRAIL
(SEE NOTE 6)

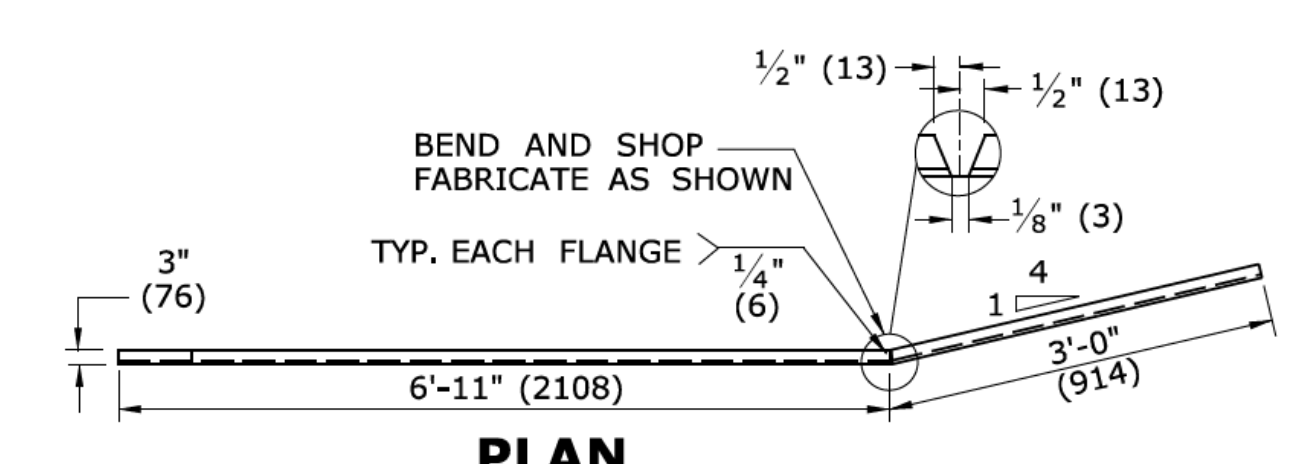
ANCHOR BOLT	DIMENSION "A"
TOP	11 1/2" (292)
MIDDLE	1'-1/4" (311)
BOTTOM	1'-1" (330)



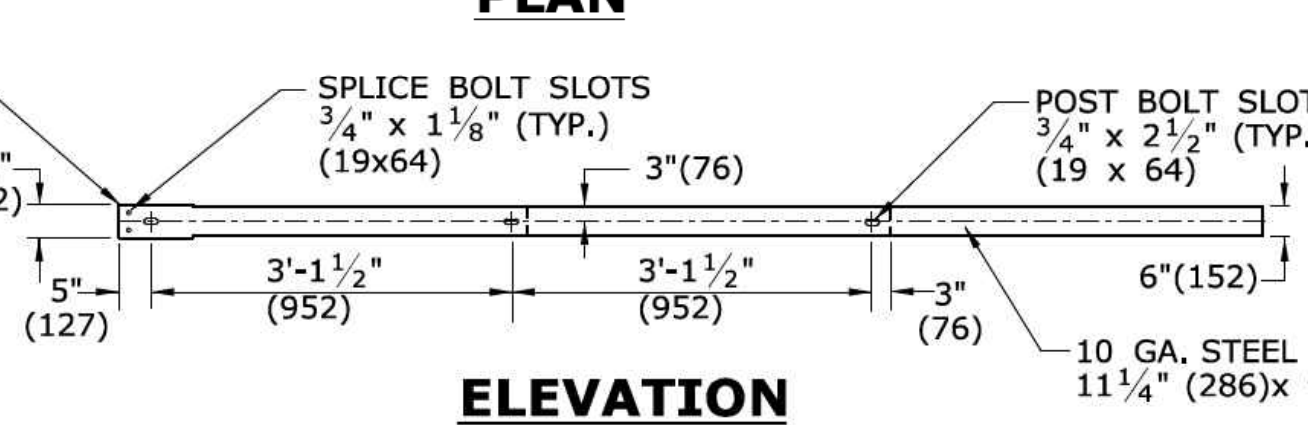
DETAIL "H" TYPICAL CONNECTION



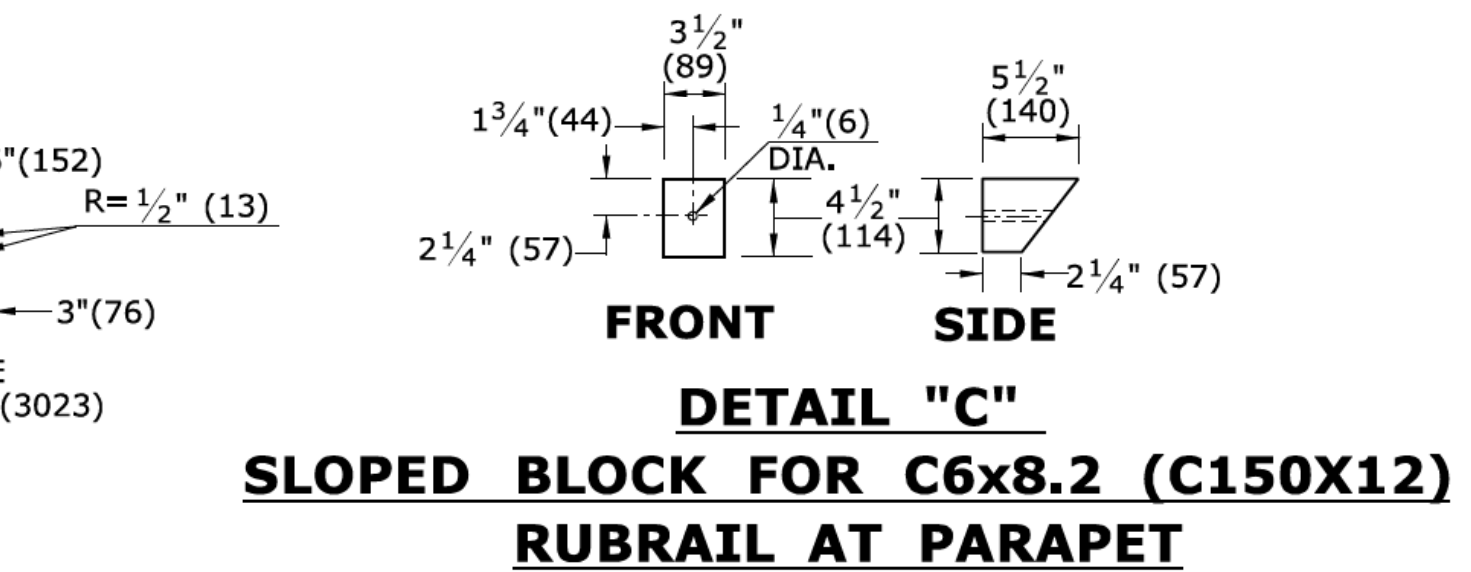
DETAIL "G" ANCHOR BOLT



W-BEAM TERMINAL CONNECTOR (10 GA.)
SEE NOTE 10



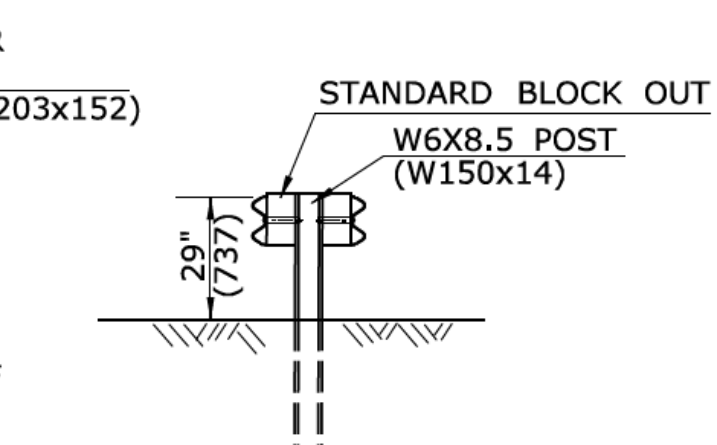
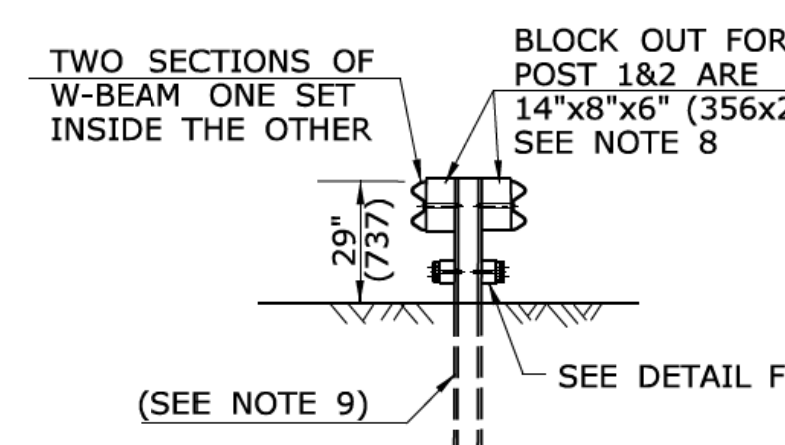
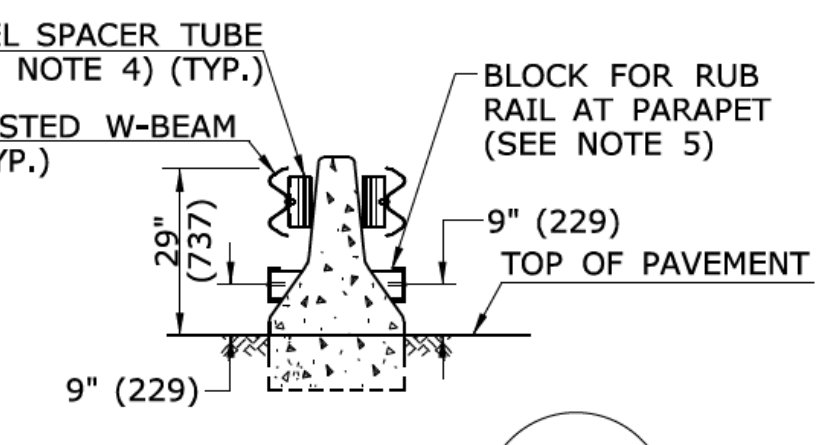
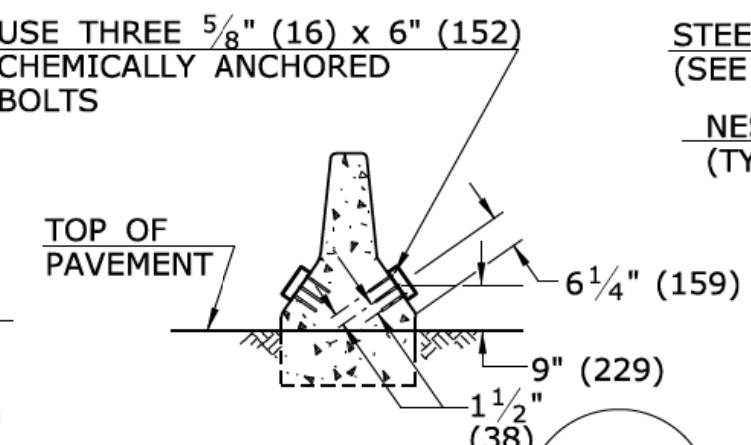
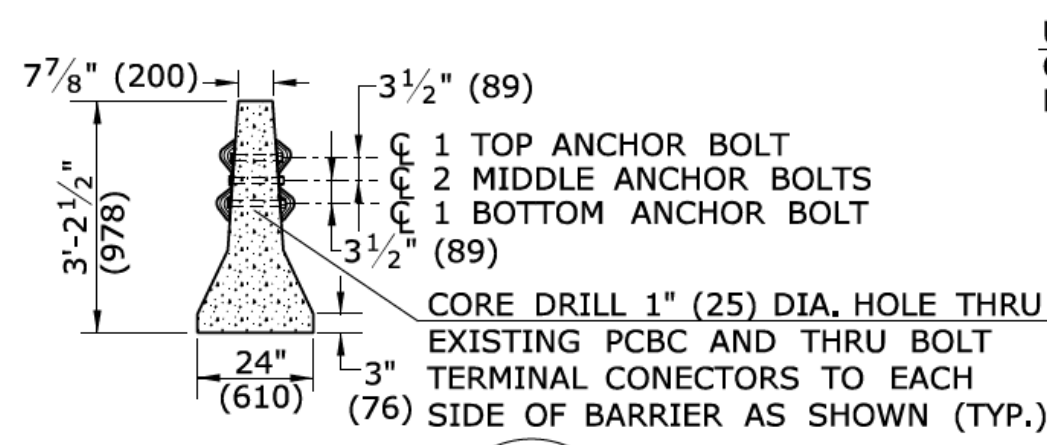
DETAIL "B" BENT PLATE RUBRAIL



DETAIL "C" SLOPED BLOCK FOR C6x8.2 (C150x12) RUBRAIL AT PARAPET

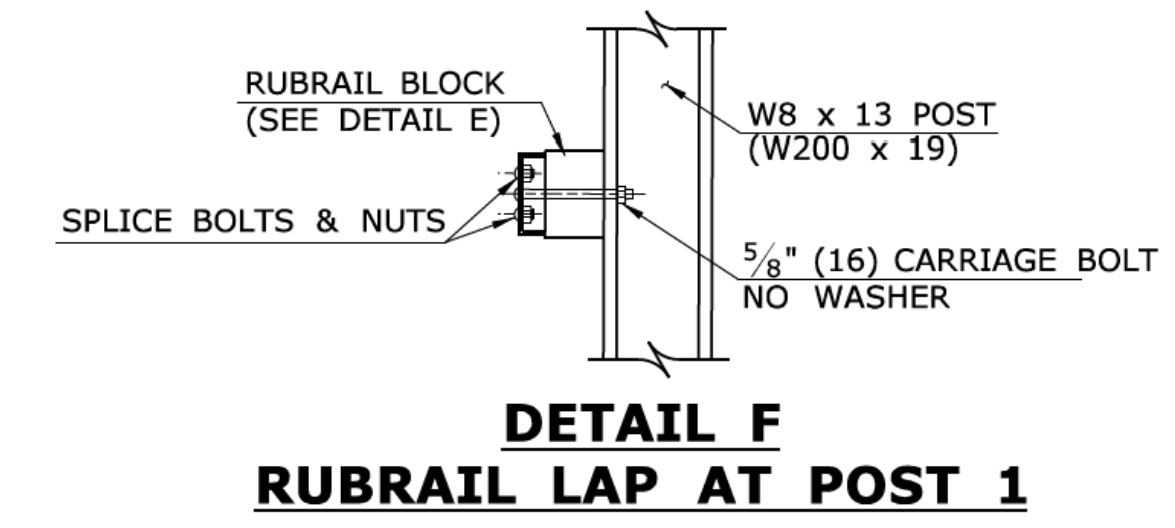
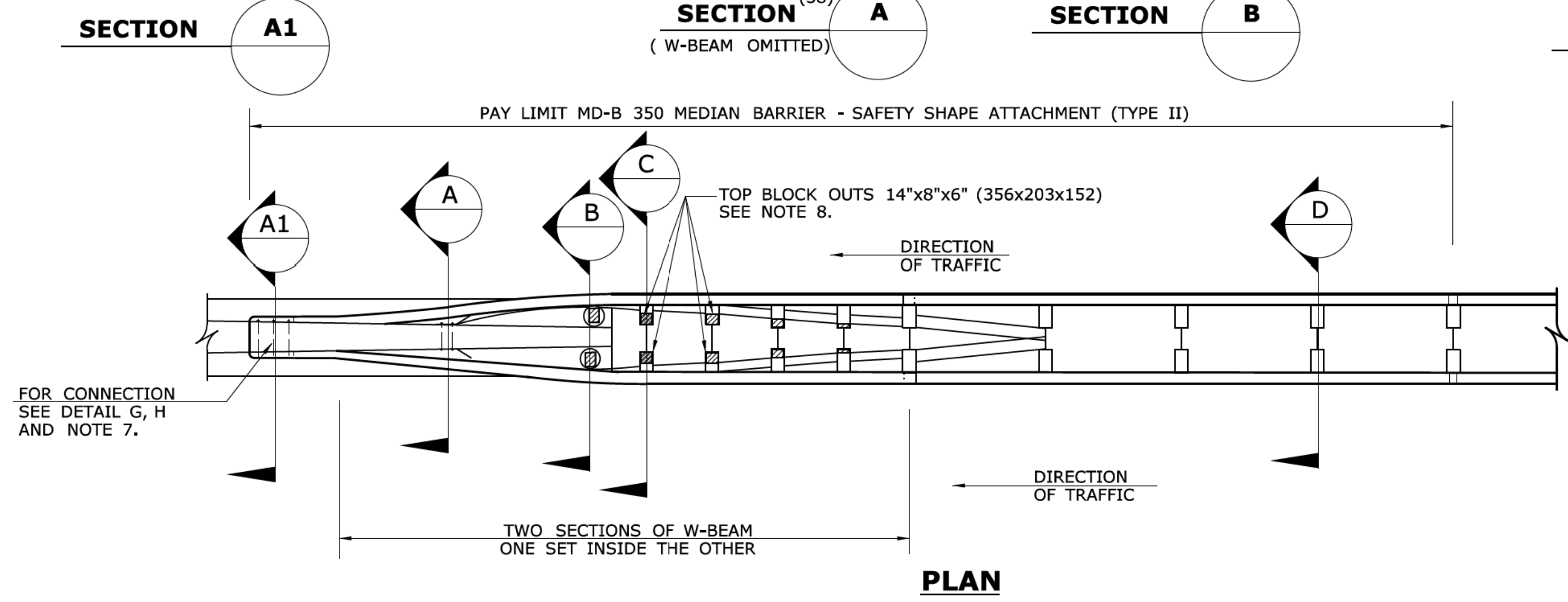
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

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REV.	DATE	REVISION DESCRIPTION																														
1	6/11	CHANGE NAME																														
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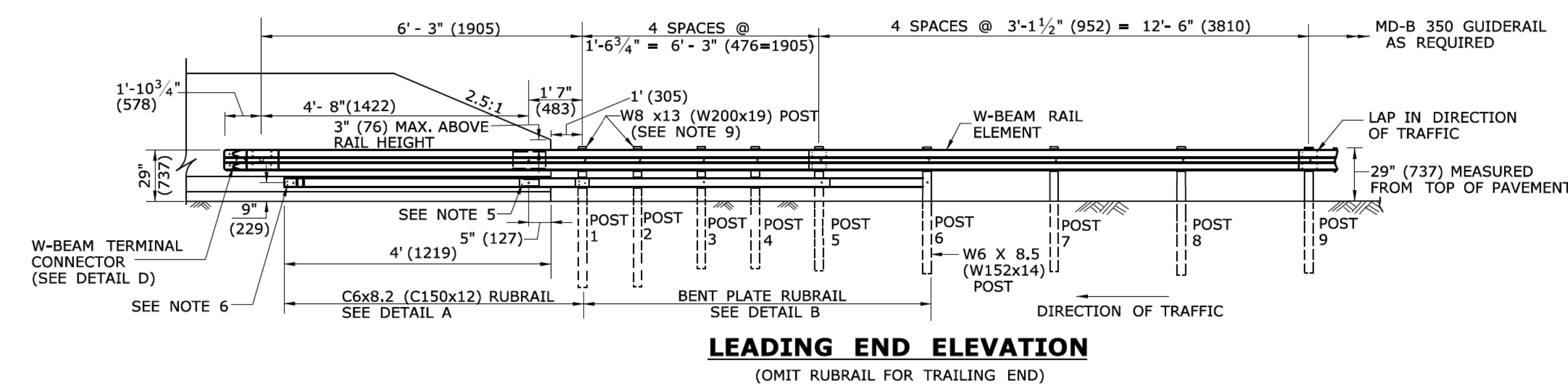


GENERAL NOTES:

- THIS MD-B 350 MEDIAN BARRIER - SAFETY SHAPE ATTACHMENT IS APPROPRIATE FOR CONNECTION AT THE FOLLOWING LOCATION:
a) JERSEY SHAPED OR F-SHAPED BARRIER WITH NO ELECTRICAL JUNCTION BOX WITHIN THE LIMITS OF THE ATTACHMENT (APPROXIMATELY 8'(2438)). SEE NOTE 8.
- POSTS 1-5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKS AND/OR RUBRAIL.
- RUBRAIL BLOCKS LOCATED ON POSTS 1-4 ARE OFFSET, DRILLED AND SECURED WITH 5/8\" (16) CARRIAGE BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL WITH 5/8\" (16) x 4 1/2\" (114) LONG BUTTON HEAD BOLT . FLARE RUBRAIL TO THE WEB OF POST 6.
- STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6\" (152) INSIDE DIAMETER x 9\" (229) LONG. ATTACH TUBE TO RAIL ELEMENT ONLY WITH A 5/8\" (16) x 1 1/4\" (32) LONG BUTTON HEAD BOLT AND RECTANGULAR PLATE WASHER. TUBE IS NOT ATTACHED TO BARRIER.
- SEE DETAIL "C" FOR SLOPED RUBRAIL BLOCK AT BARRIER. BLOCK IS ATTACHED TO RAIL ELEMENT ONLY. USE A 3/8\" (10) x 3\" (76) LAG BOLT WITH FLAT WASHER.
- SHOP FABRICATE THE C6x8.2 (C150x12) RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE SAFETY SHAPE AND ATTACH FLUSH WITH SLOPED TOE OF THE BARRIER. RUBRAIL SHALL BE ANCHORED USING THREE 5/8\" (16) x 6\" (152) CHEMICALLY ANCHORED BOLTS. RUBRAIL MUST BE TWISTED 35° BETWEEN SECTION A AND B. RIGHT AND LEFT HAND TWISTS WILL BE REQUIRED.
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- THIS DETAIL AS SHOWN, IS FOR ATTACHMENT TO A JERSEY SHAPE PCBC WITH 24\" (610) BASE. WHEN ATTACHING TO AN F-SHAPE PCBC WITH 30\" BASE, TOP BLOCK OUTS FOR FIRST TWO POSTS SHALL BE 14\" x 10\" x 6\" (356 x 254 x 152).
- POSTS 1 & 2 ARE W8 x 13 (W200 x 19). ALL OTHERS ARE W6 x 8.5 (W150 x 14).
- FOR SINGLE DIRECTION ROADWAY:
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FOR DUAL DIRECTION APPROACHING TRAFFIC:
INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDERAIL ELEMENTS.
FOR TRAILING END:
INSTALL W-BEAM TERMINAL CONNECTOR OUTSIDE OF NESTED GUIDERAIL ELEMENTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29\" (237) ± 1\" (25).



**DETAIL F
RUBRAIL LAP AT POST 1**

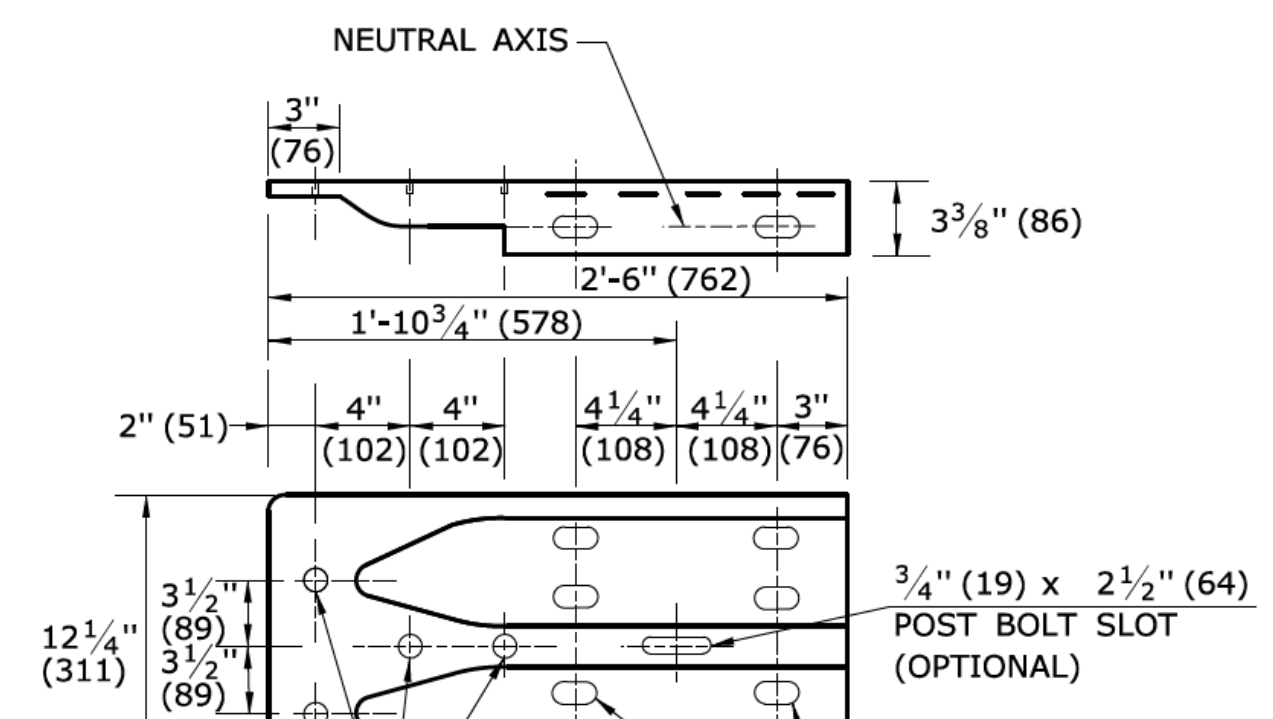
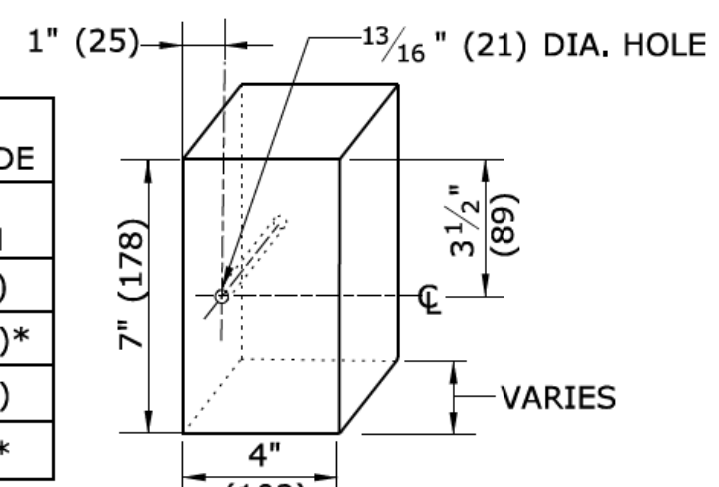


**LEADING END ELEVATION
(OMIT RUBRAIL FOR TRAILING END)**

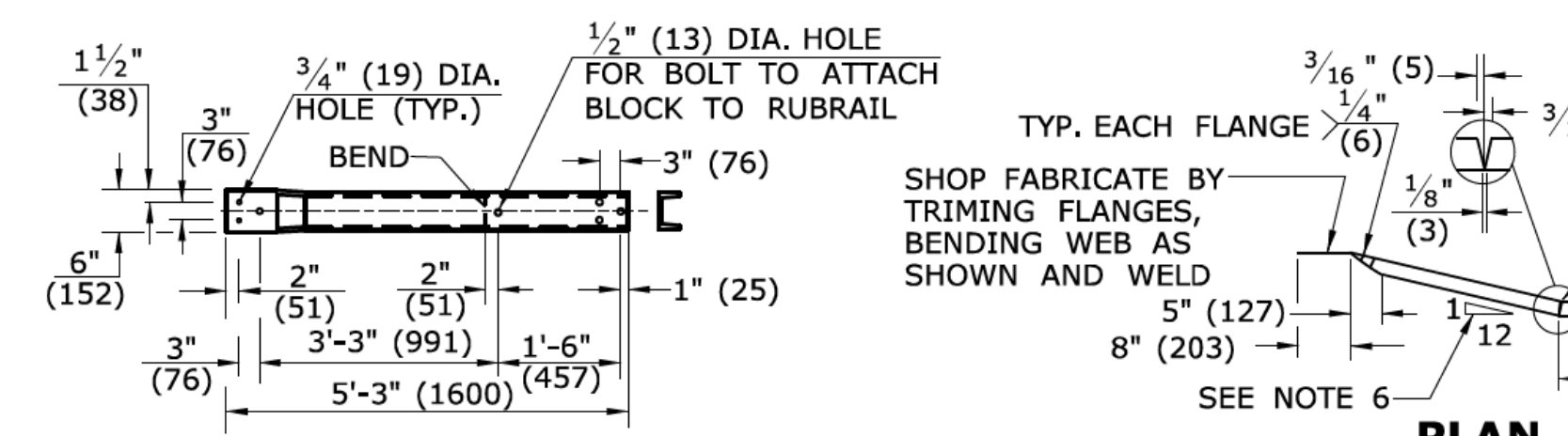
POST	THICKNESS	BOLT LENGTH
1	4 1/4\" (108)	9\" (229)
2	3 1/4\" (83)	5\" (127)*
3	2\" (51)	6\" (152)
4	1\" (25)	3\" (76)*

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

**DETAIL E
RUBRAIL BLOCK**

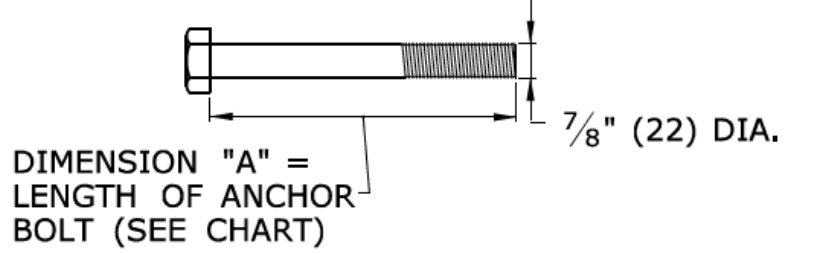


**DETAIL D
W-BEAM TERMINAL CONNECTOR (10 GA.)**

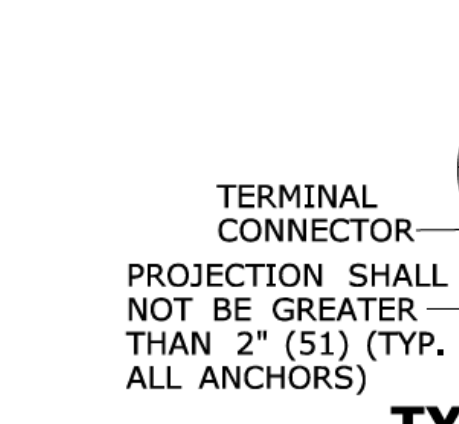


**DETAIL A
C6x8.2 (C150x12) RUBRAIL**
(SEE NOTE 6)

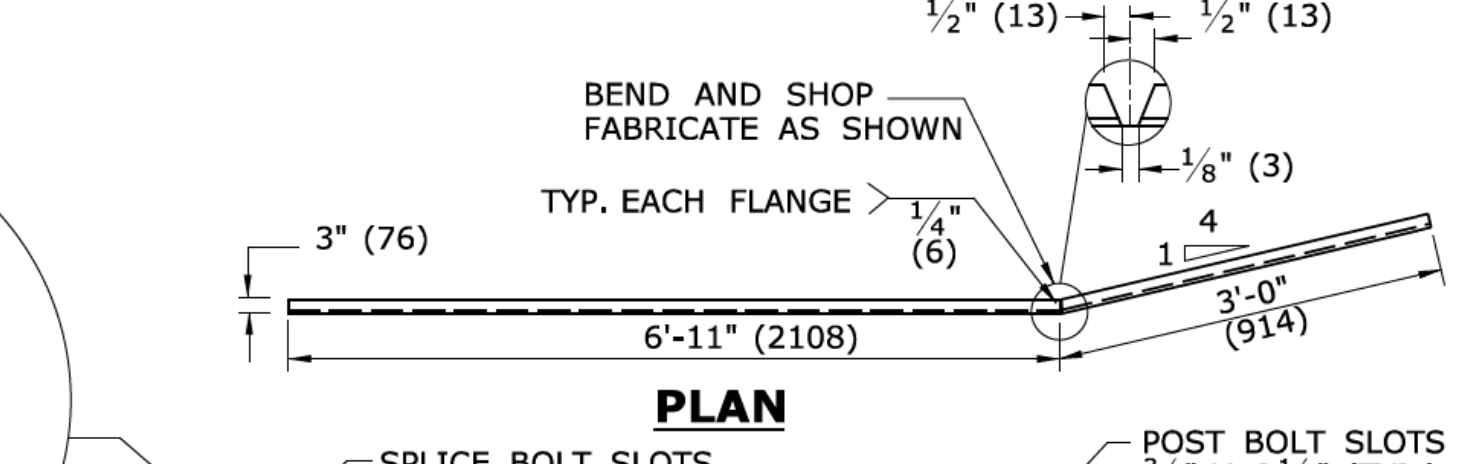
ANCHOR BOLT	DIMENSION "A"
TOP	11 1/2\" (292)
MIDDLE	1'-1/4\" (311)
BOTTOM	1'-1\" (330)



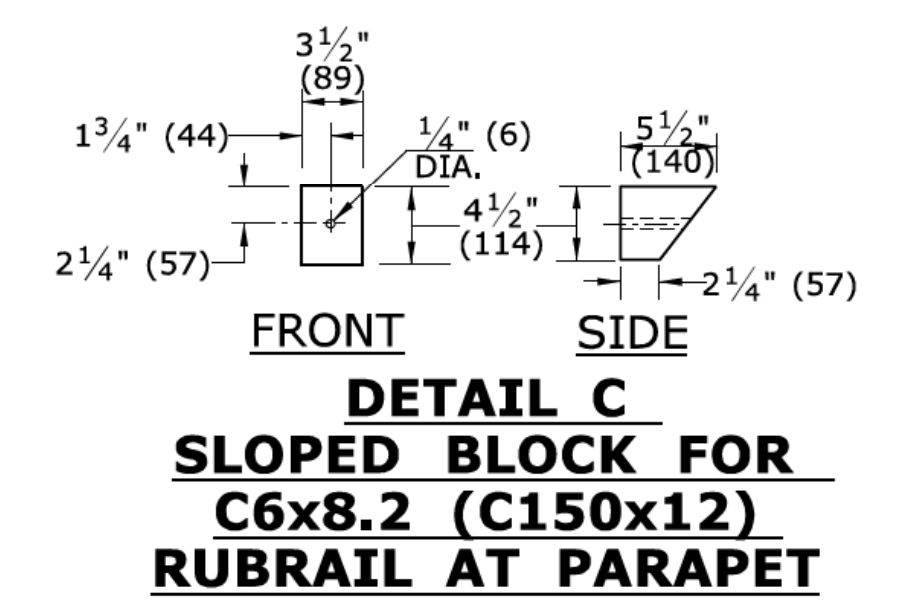
**DETAIL G
ANCHOR BOLT**



**DETAIL H
TYPICAL CONNECTION**



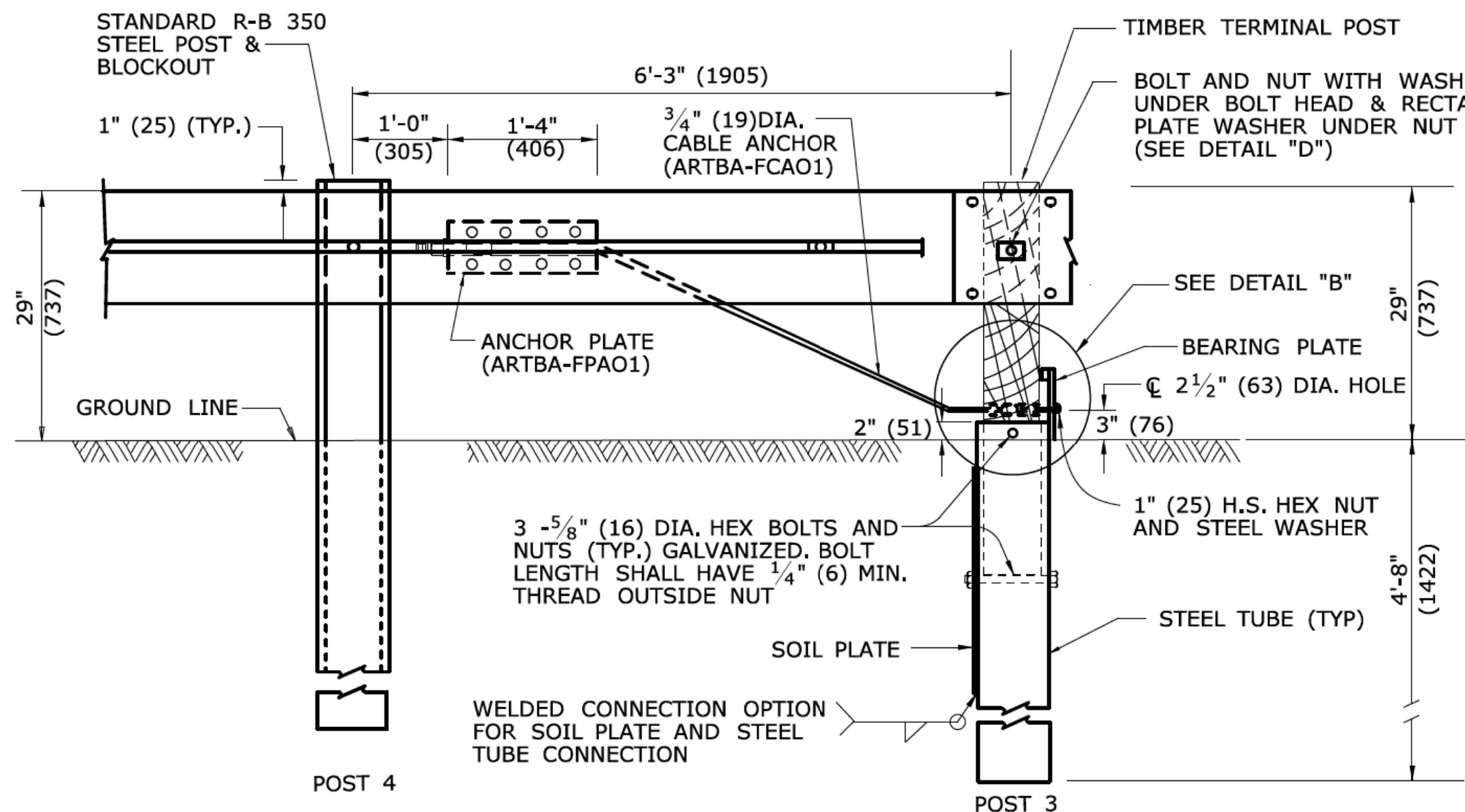
**DETAIL B
BENT PLATE RUBRAIL**



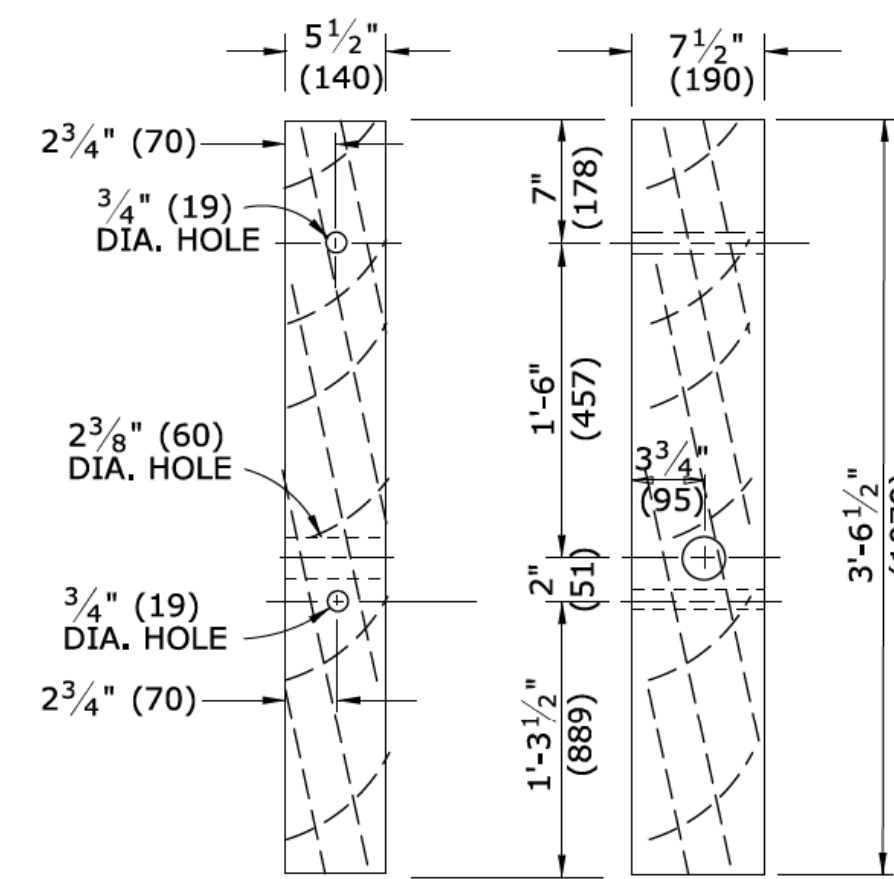
**DETAIL C
SLOPED BLOCK FOR
RUBRAIL AT PARAPET**

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

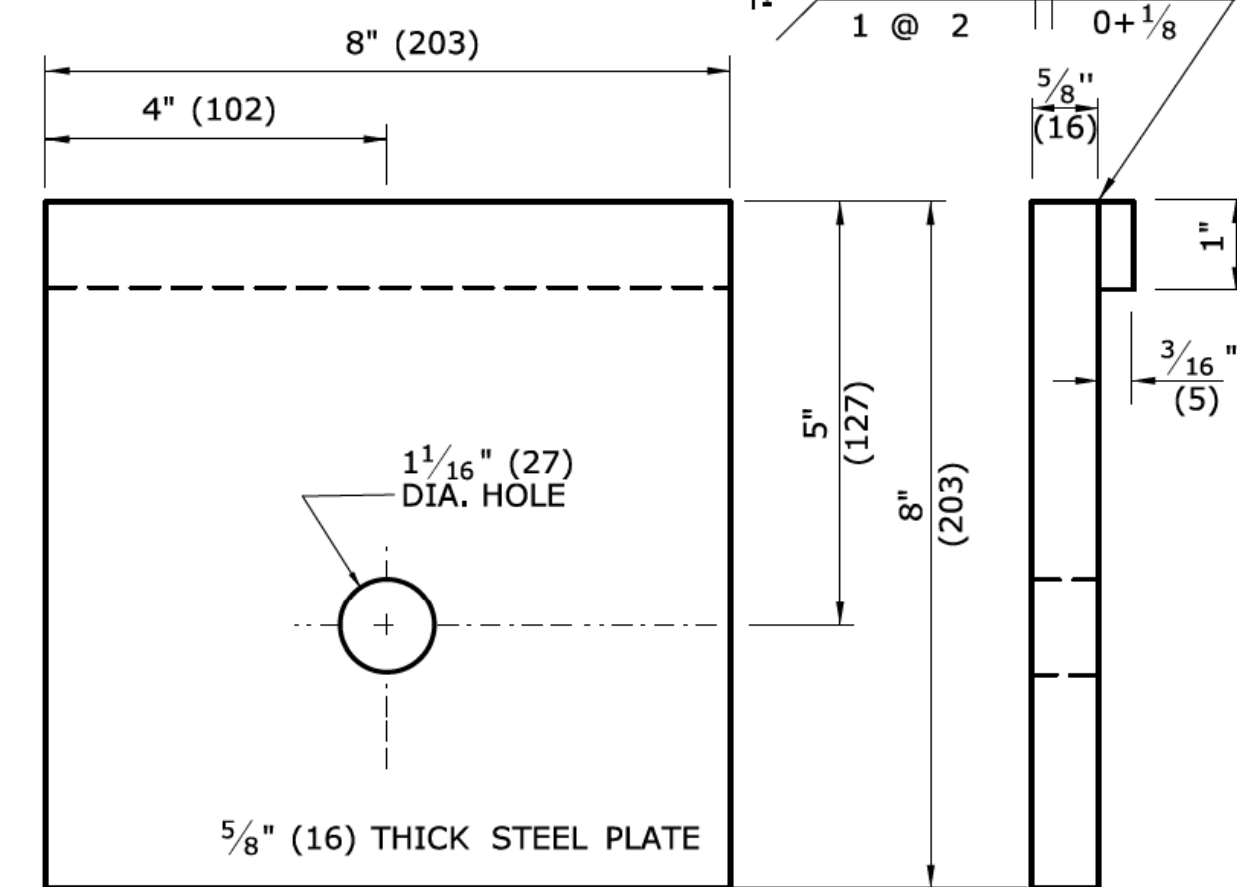
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REV.	DATE	REVISION DESCRIPTION									
1	6/11	CHANGE NAME									



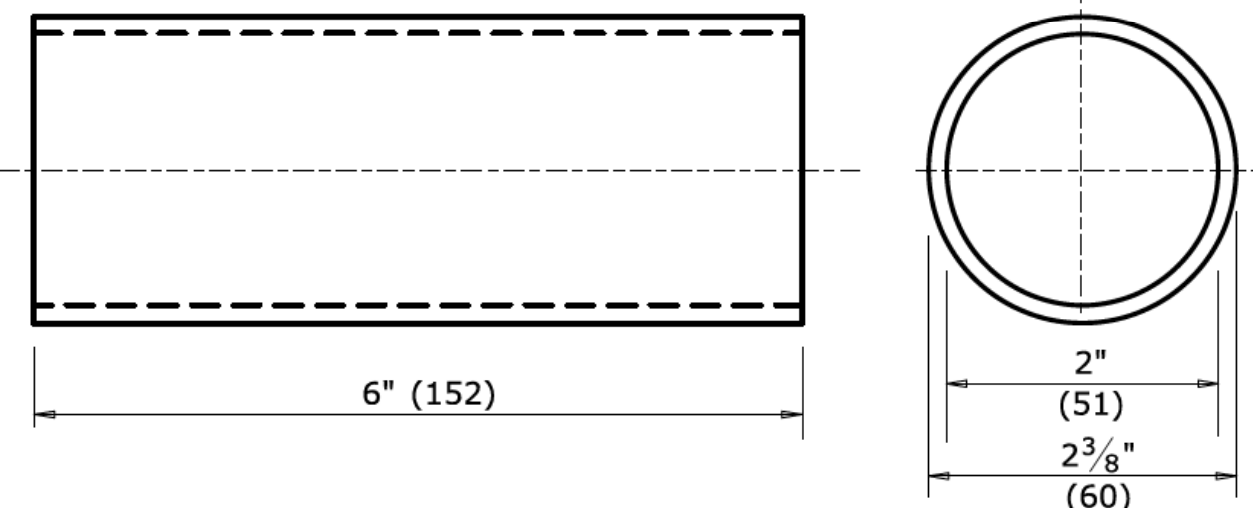
DETAIL A
CABLE ANCHORAGE ASSEMBLY



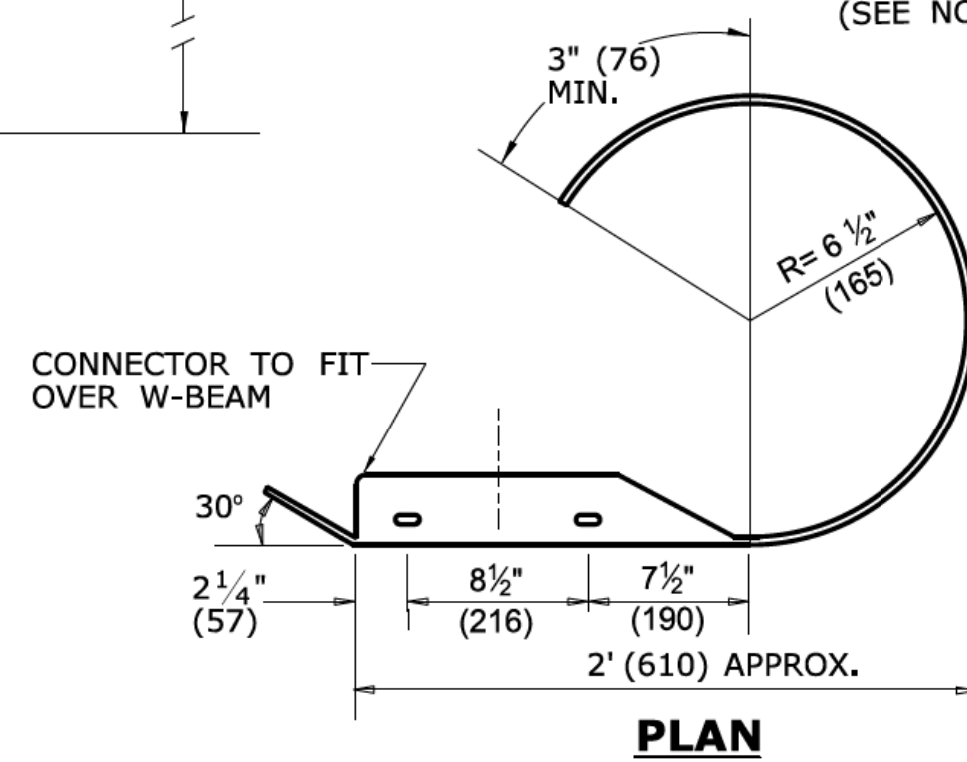
DETAIL C
TIMBER TERMINAL POST
(ARTBA-PDF01)
(SEE NOTE 2)



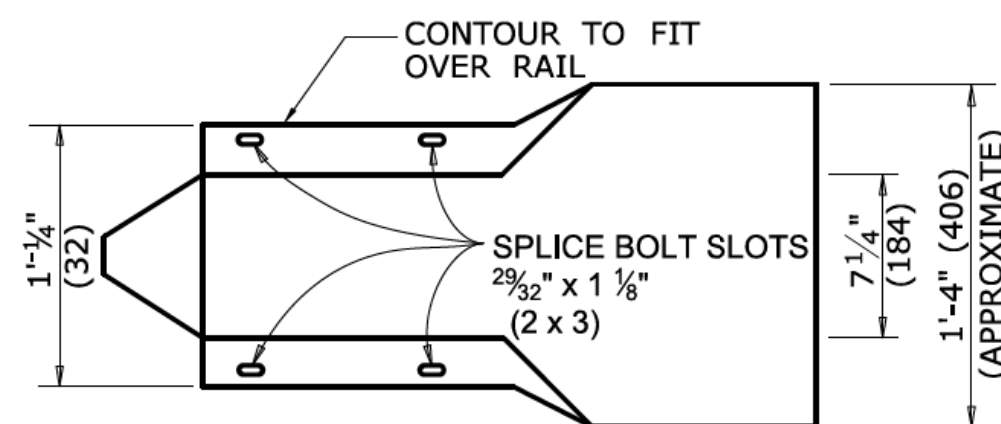
BEARING PLATE
(ARTBA-FPBO1)



BREAKAWAY TERMINAL POST SLEEVE
(ARTBA-FMMO2)

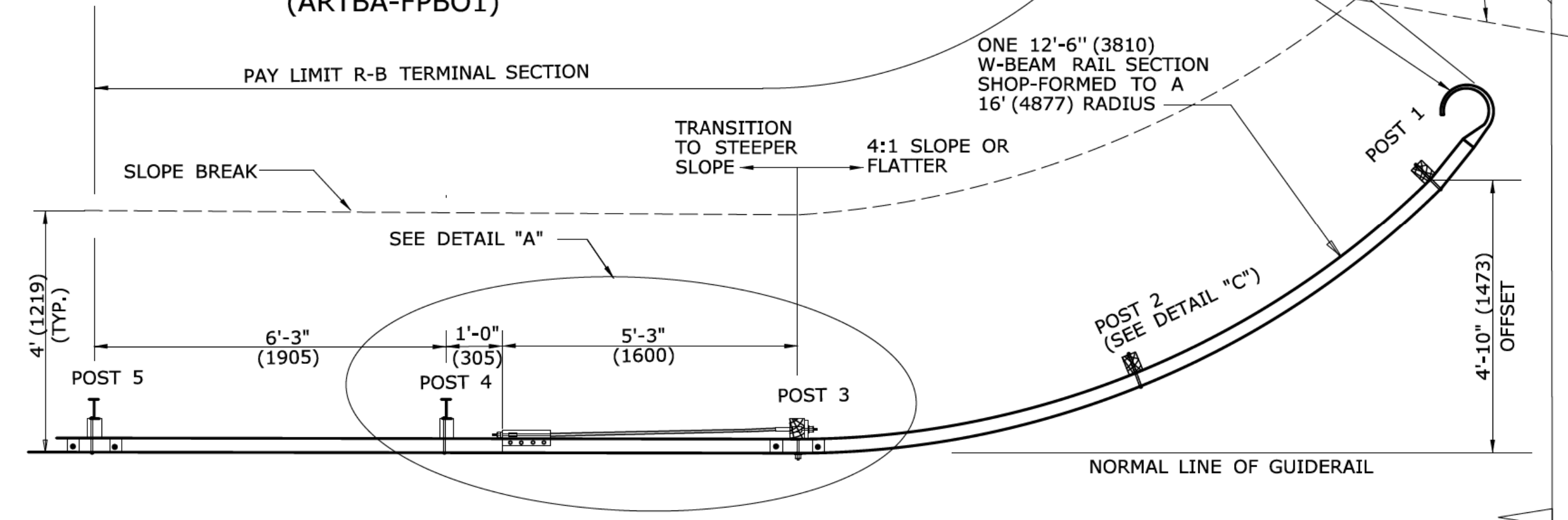


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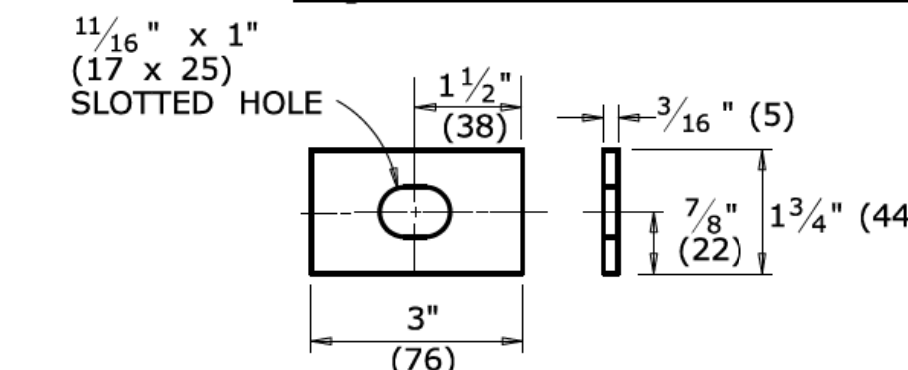


ELEVATION

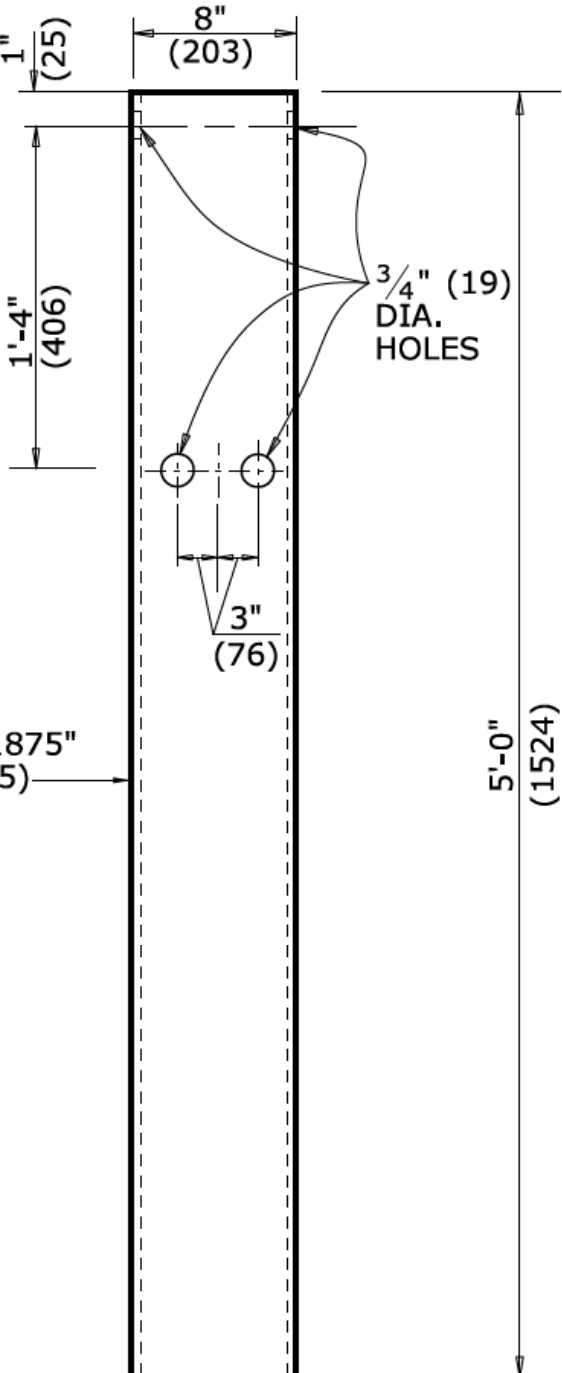
ROUNDED W-BEAM END SECTION



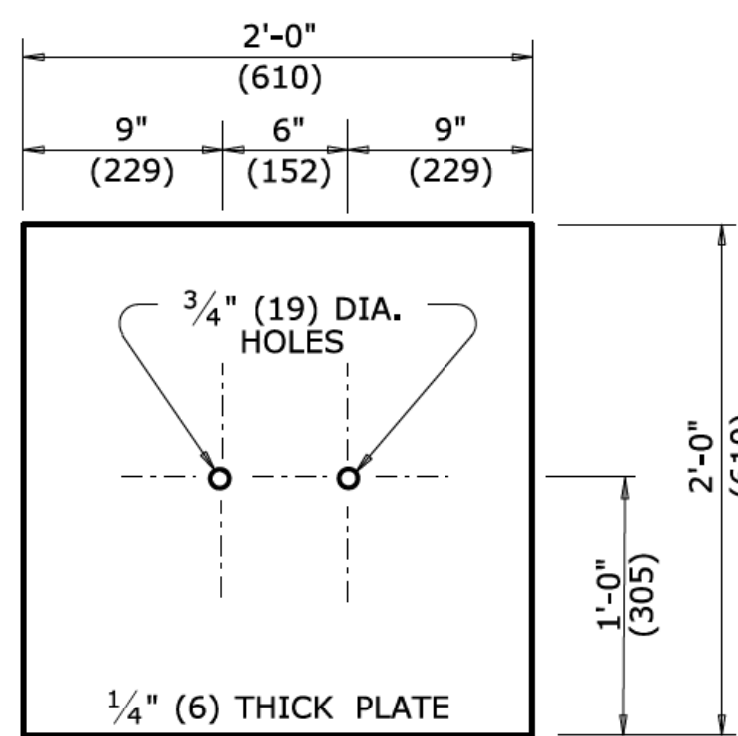
APPROACH END
(TRAILING END NOT SHOWN)



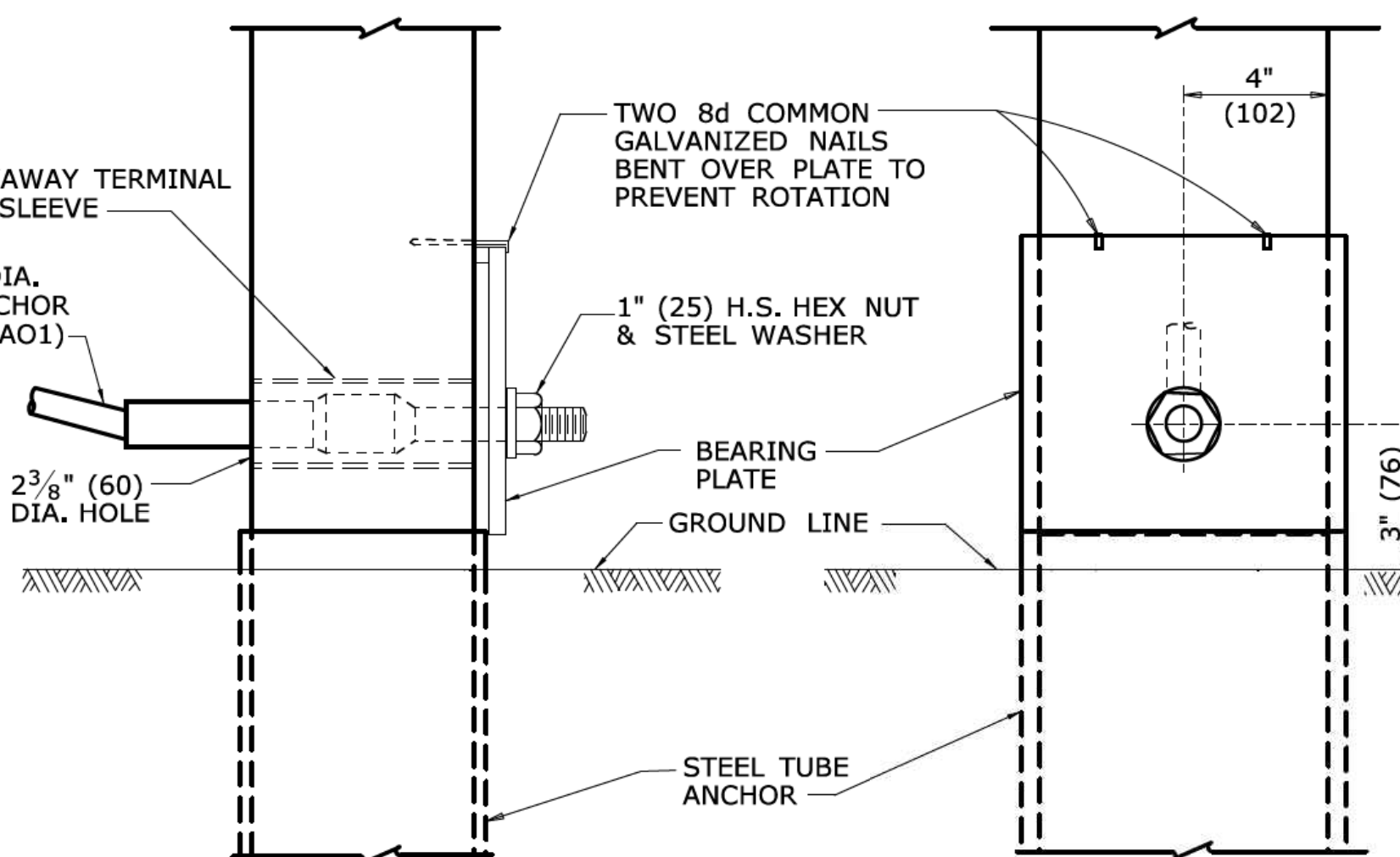
DETAIL D
RECTANGULAR PLATE WASHER



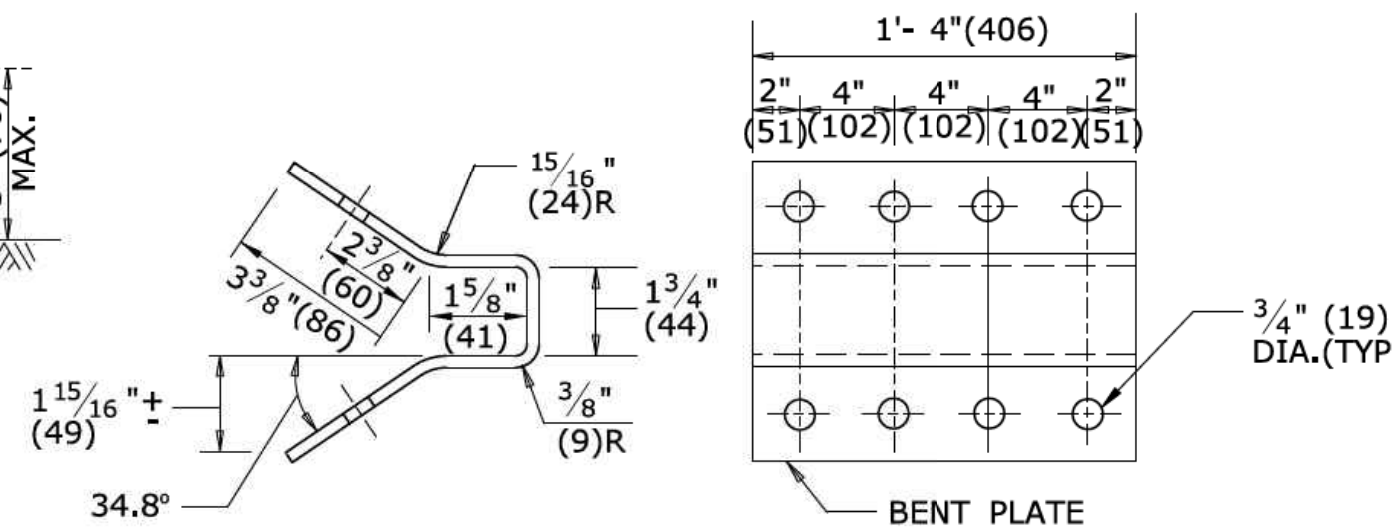
STEEL TUBE



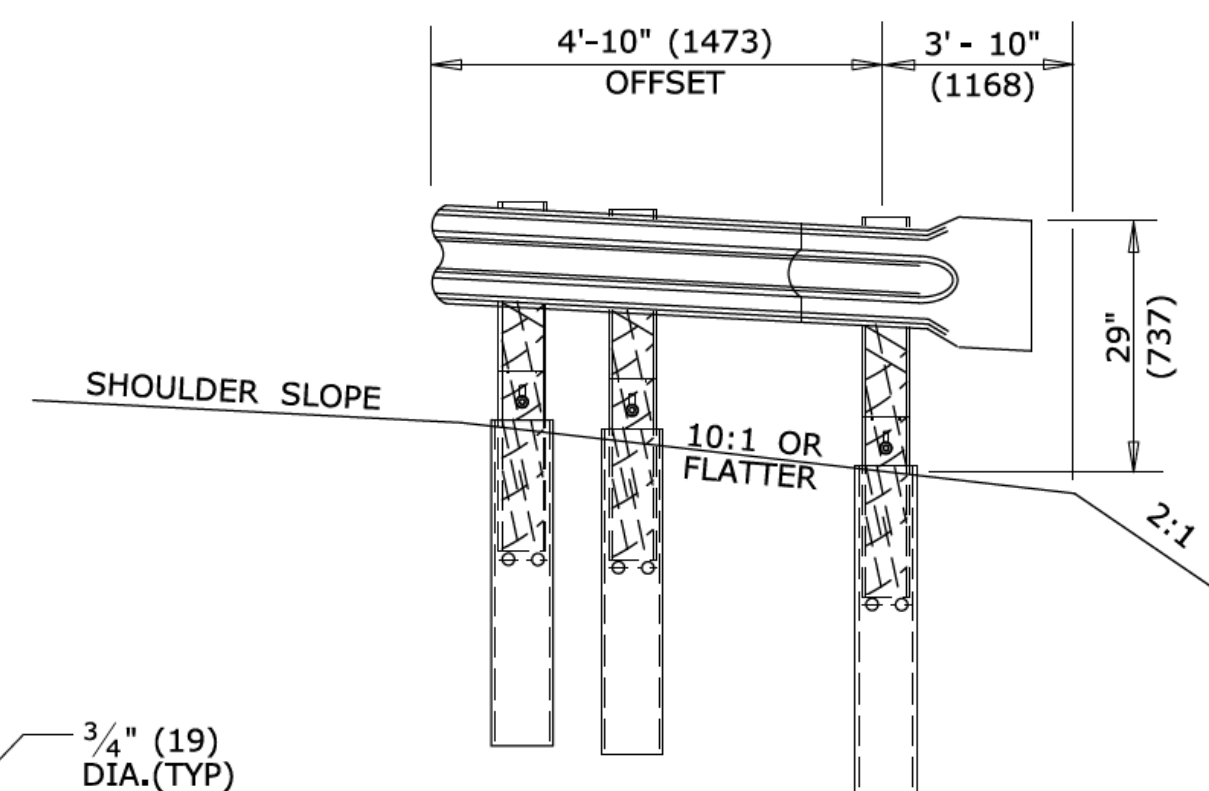
SOIL PLATE (2 Req'd)



DETAIL B



ANCHOR PLATE
(ARTBA-FPAO1)



SECTION A

GENERAL NOTES:

1. APPROACH END R-B TERMINAL SECTION SHALL ONLY BE USED ON LOW SPEED (<45 MPH) ROADWAYS.
2. POSTS 1, 2 AND 3 ARE TIMBER TERMINAL POSTS (DETAIL "C") WITH STEEL TUBES, POSTS 4 AND 5 ARE STANDARD R-B 350 STEEL POSTS WITH BLOCKOUTS.
3. REFER TO CTDOT STANDARD SPECIFICATIONS FOR MATERIAL AND GENERAL CONSTRUCTION METHODS.
4. MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) + 1" (25).

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISE NOTE 1
2	7/13	SHOW SPLICE ON APPROACH END
-	-	-
-	-	-
-	-	-
-	-	-

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NOT TO SCALE

Plotted Date: 6/13/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Submitted By: NAME/DATE/TIME:
Approved By: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:53:17-04'00'

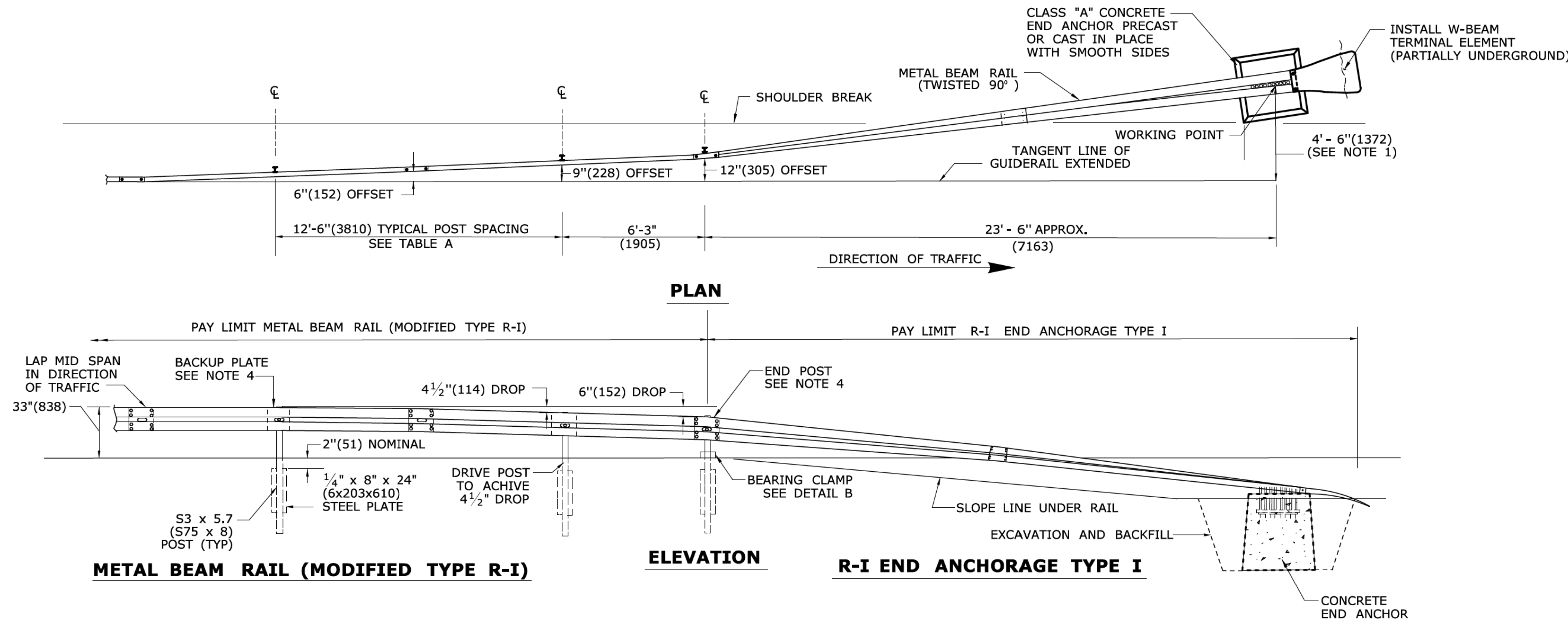
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CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

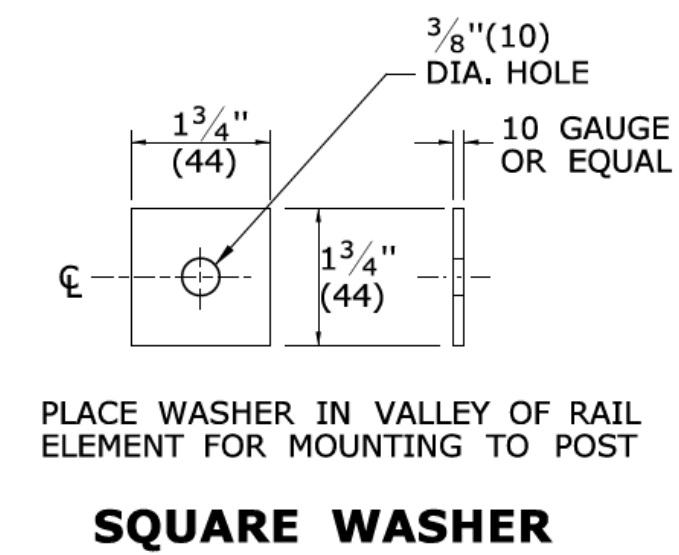
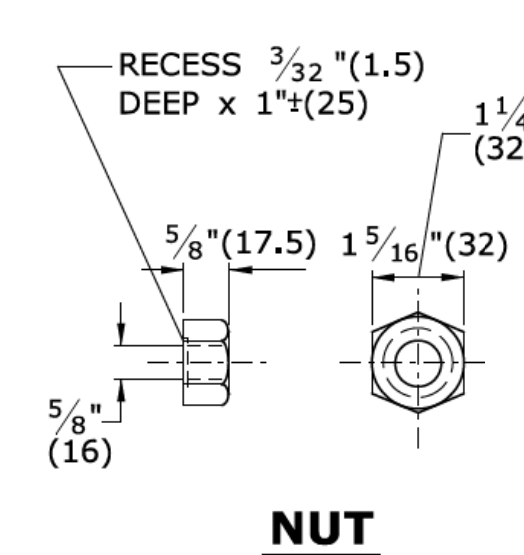
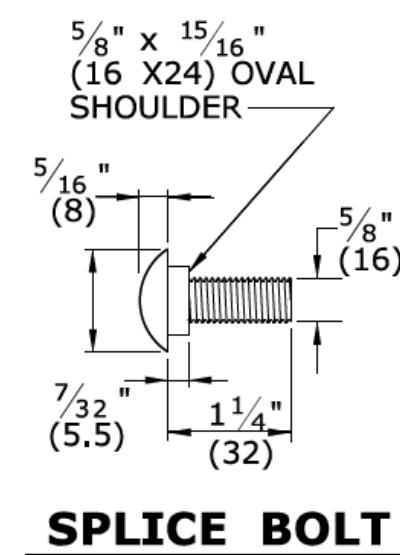
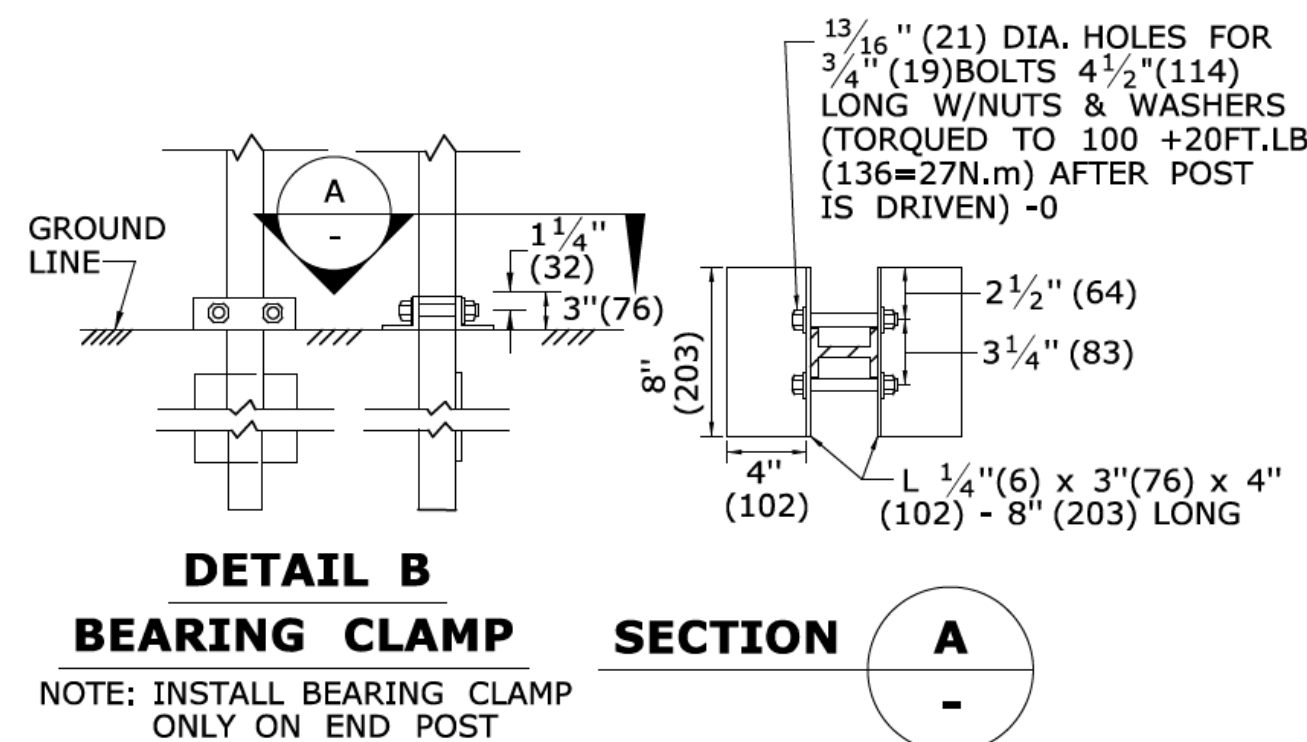
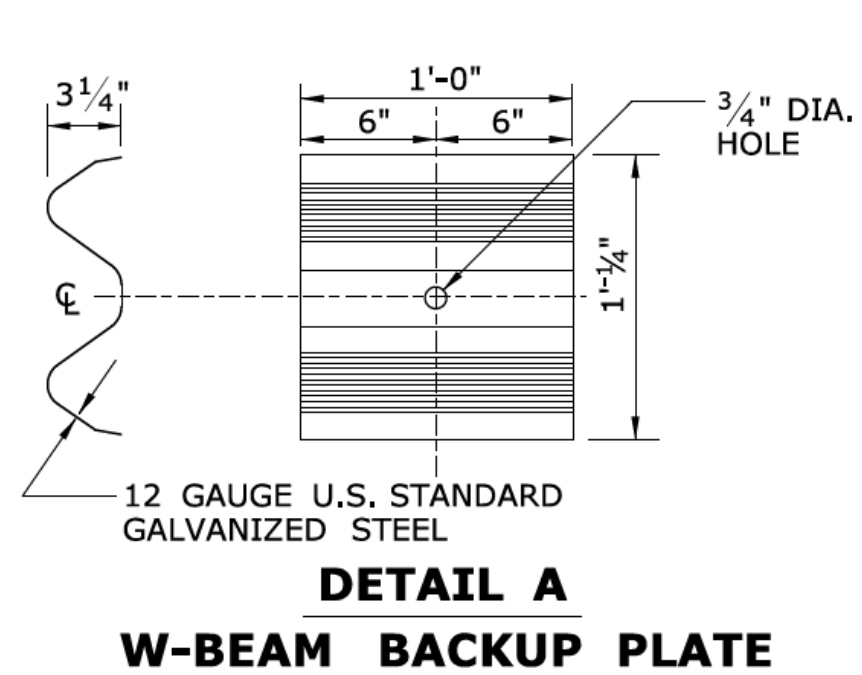
STANDARD SHEET TITLE:
R-B TERMINAL SECTION

STANDARD SHEET NO.:
HW-910_17

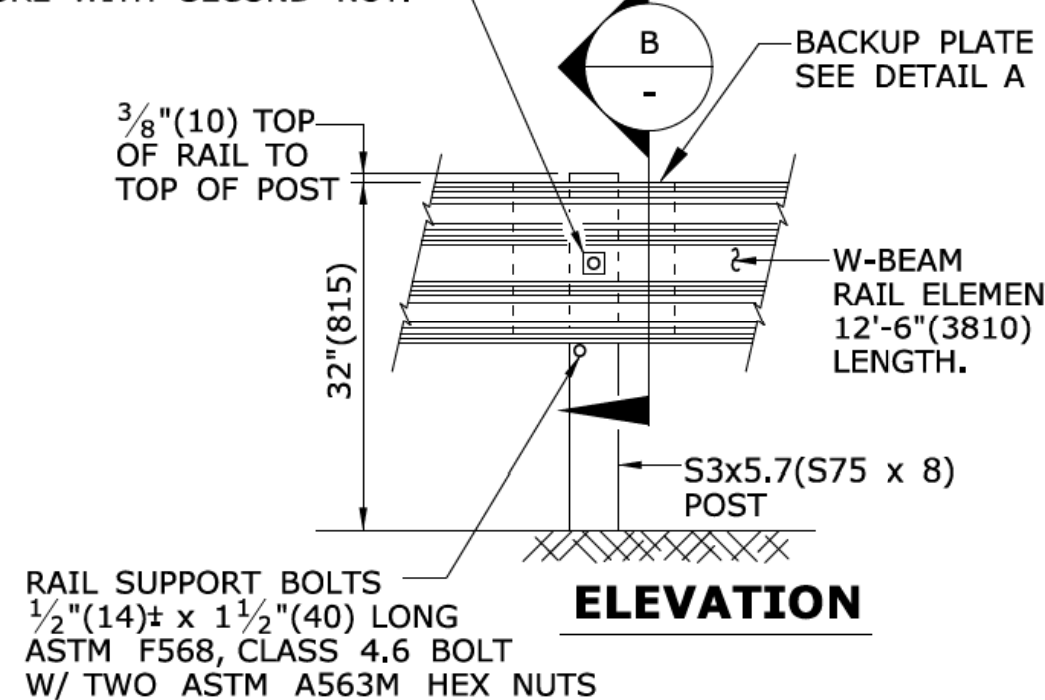


GENERAL NOTES:

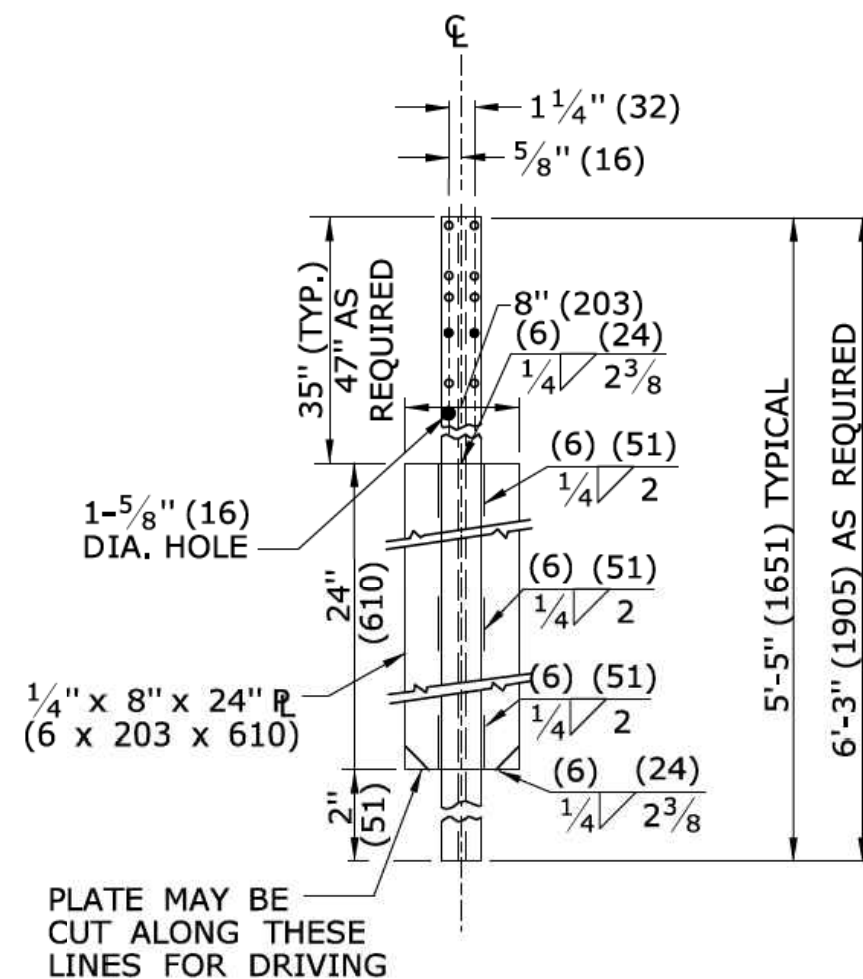
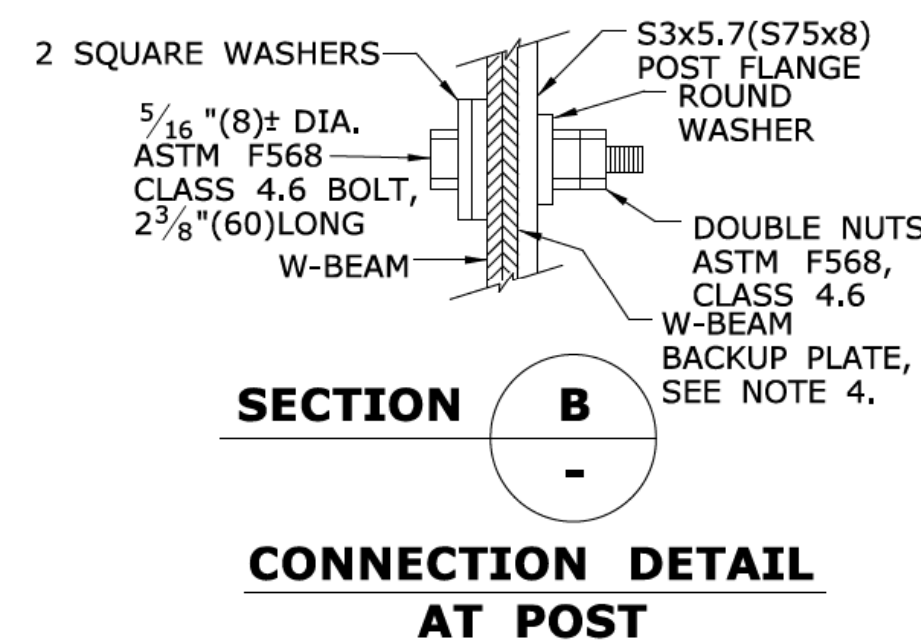
1. OFFSET DIMENSIONS AS SHOWN FOR R-I END ANCHORAGE TYPE I APPLY TO TRAILING END. LOCATION OF LEADING END ANCHORAGE SHALL BE AS SHOWN ON THE PLANS INCLUDING THE OFFSET DIMENSION SHOWN HERE. SEE SHEET HW-911.04.
2. EIGHT (8) ADDITIONAL 3/8" (10) DIA. HOLES (AS REQUIRED FOR 3 CABLE GUIDERAIL) ARE ACCEPTABLE IN POSTS.
3. ATTACH W-BEAM RAIL ELEMENT TO EACH POST. SPLICE ONLY AT MID-SPAN AND LAP IN THE DIRECTION OF TRAFFIC.
4. USE 12 GAUGE W-BEAM BACKUP PLATES FOR ALL POSTS EXCEPT END POST. SEE DETAIL A.
5. NEW MODIFIED R-I GUIDERAIL INCLUDING SYSTEMS ANCHORS AND TRANSITIONS INSTALLED ON EXPRESSWAYS AND RAMPS SHALL USE CLASS B TYPE II (10 GAUGE) W-BEAM RAIL ELEMENTS.
6. CURVES WITH RADII OF 150' (45m) OR LESS SHALL HAVE THE ELEMENT SHOP FABRICATED TO THE PROPER RADIUS. PAYMENT FOR RADIUS RAIL SHALL BE INCLUDED WITH THE ITEM METAL BEAM RAIL (MODIFIED TYPE R-I).
7. WHEN A LEADING END TURN DOWN END ANCHORAGE CANNOT BE INSTALLED OUTSIDE THE CLEAR ZONE THE FOLLOWING WILL APPLY:
 - A. INSTALL ANCHORAGE IN A CUT OR ROCK SLOPE. (SEE HW-911.03).
 - B. TRANSITION TO R-B 350 GUIDERAIL (SEE HW-910.09c FOR TRANSITION LENGTH) AND ANCHOR WITH A TYPE B IMPACT ATTENUATION SYSTEM (TANGENTIAL SEE HW-1800.03) OR (FLARED SEE HW-1800.01).
8. A TYPE II 12' - 6" (3810) END ANCHOR MAY ALSO BE USED. SEE HW-910.19b.
9. MAXIMUM DESIGN DEFLECTION FOR MODIFIED R-I GUIDERAIL AT STANDARD POST SPACING OF 12'-6" (3810) IS 8' (2.44m). SEE HW-910.19c FOR STRENGTHENING SYSTEMS.



5/16" (8)± POST BOLT AND NUT, ASTM F568, CLASS 4.6. 2 3/8" (60) LONG FULLY THREADED DOUBLE NUTS, TWO SQUARE WASHERS AND ONE ROUND WASHER. NUTS SHALL BE PUT ON FINGER TIGHT, ENGAGE TOP AND BOTTOM EDGES OF BACKUP PLATE WITH THE POST AND THEN TIGHTENED AT LEAST ONE FULL TURN WITH A WRENCH, THEN SECURE WITH SECOND NUT.



TYPICAL RAIL MOUNTING AT POST



S3x5.7 (S75x8) UNIVERSAL POST
SEE NOTE 2

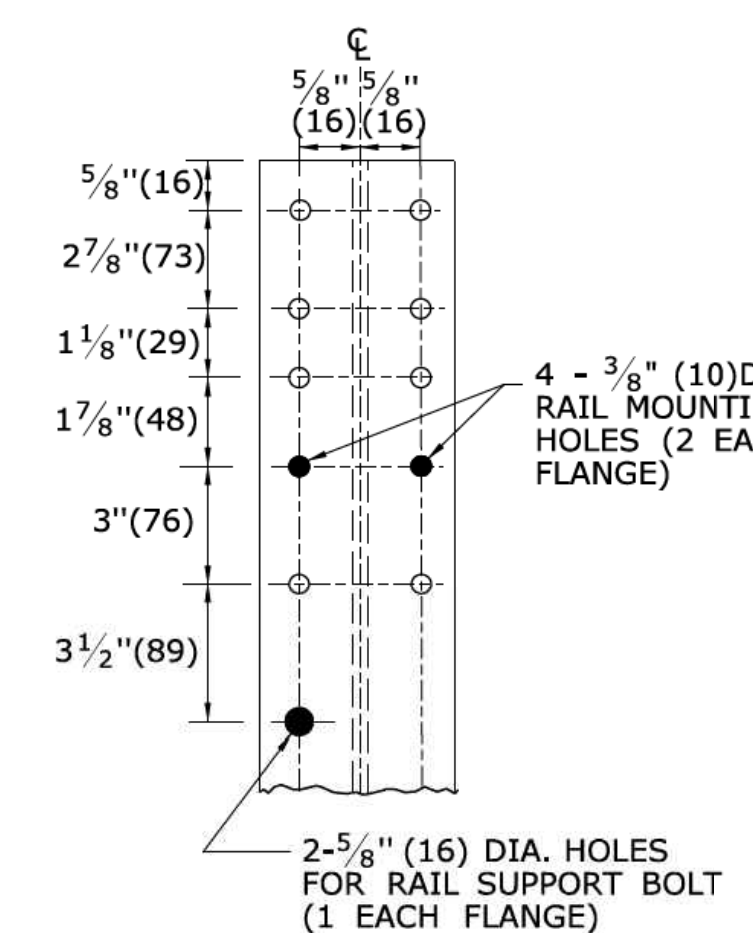


TABLE A	
CURVATURE (DEGREE OR RADIUS)	POST SPACING
R > 220' (67m)	12' - 6" (3810)
R = 219' (67m) TO 111' (34m)	6' - 3" (1905)
R = 110' (34m) TO 76' (23m)	4' - 2" (1270)
R = 75' (23m) TO 50' (15m)	3' - 1 1/2" (952.5)
R = LESS THAN 50' (15m)	DO NOT INSTALL

W-BEAM ELEMENTS ON A RADIUS LESS THAN OR EQUAL TO 150' (45.72m) SHALL BE SHOP FABRICATED TO THE REQUIRED CURVATURE AND PAYMENT FOR SUCH CURVED LENGTH SHALL BE INCLUDED WITH THE PAY ITEM FOR MODIFIED R-I TYPE GUIDERAIL.

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
1	7/13	ADD NOTE 9 AND DIMENSION 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.

NOT TO SCALE

Plotted Date: 6/13/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILENAME: CTDOT_HIGHWAY_STD2013.dgn Model: 67 - HW-910_19a

SUBMITTED BY: NAME-DATE/TIME

APPROVED BY: NAME-DATE/TIME

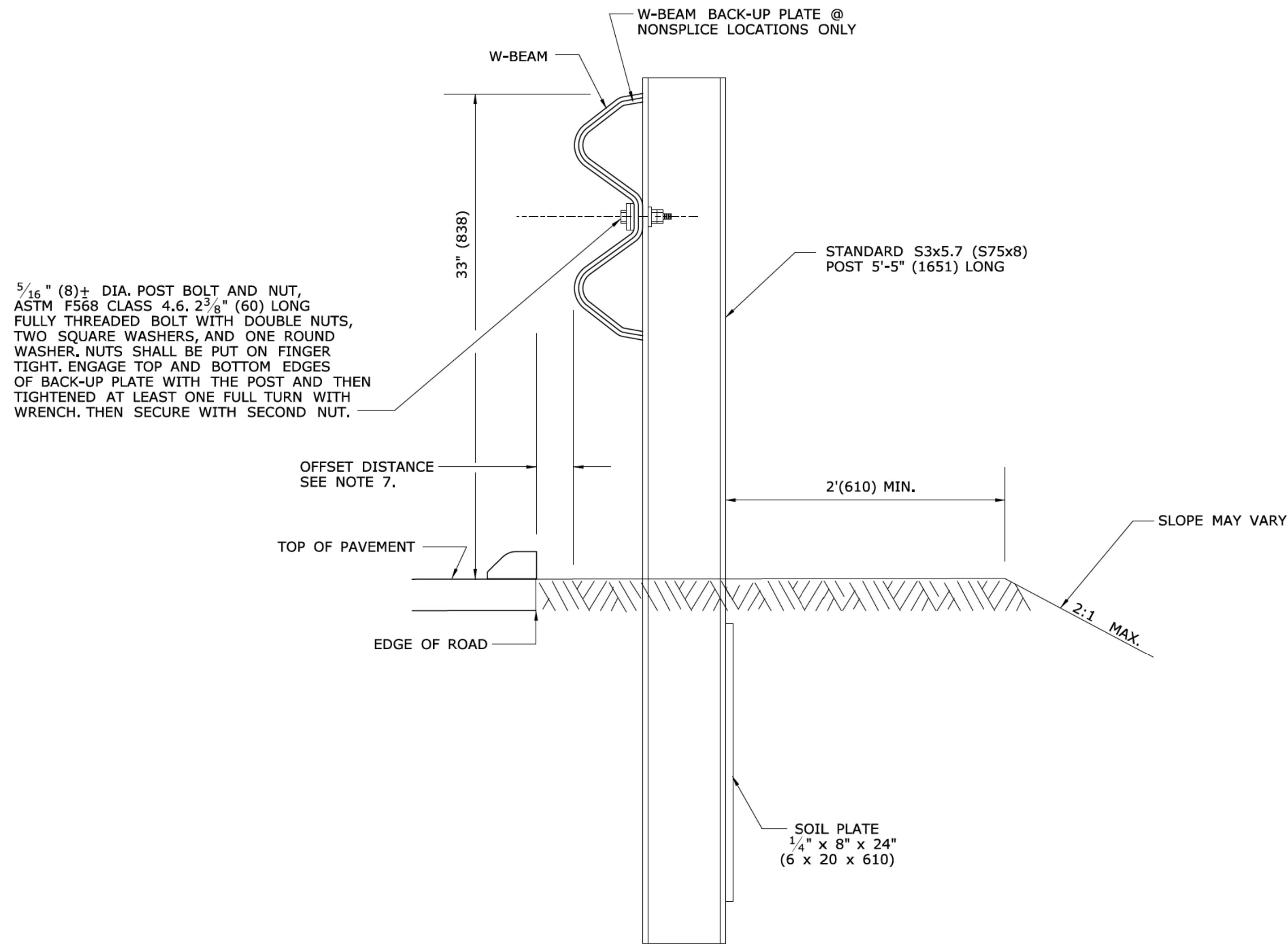
James H. Norman
2013.07.24 14:53:50-04'00'

CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

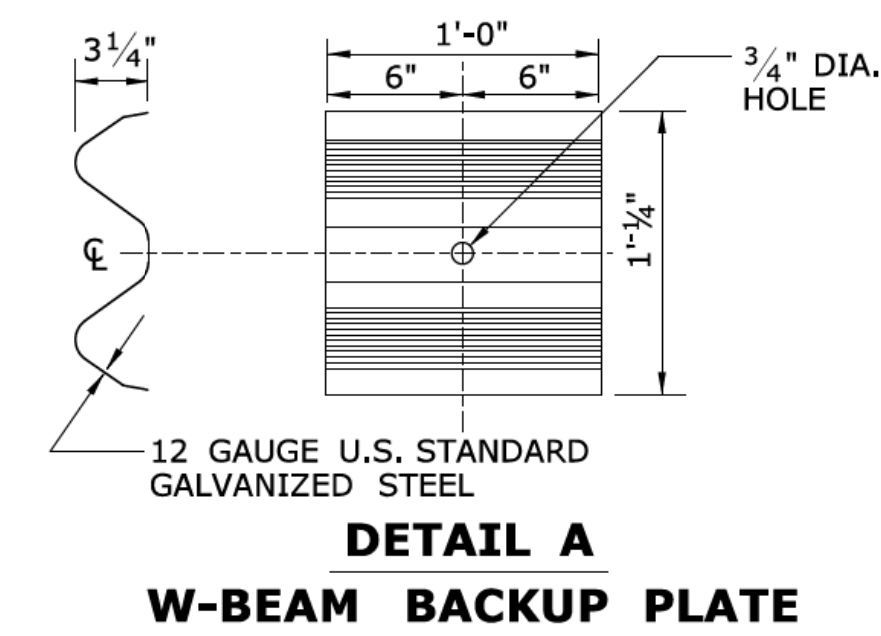
STANDARD SHEET TITLE:
METAL BEAM RAIL (MODIFIED TYPE R-I) AND END ANCHORAGE TYPE I

STANDARD SHEET NO.:
HW-910_19a

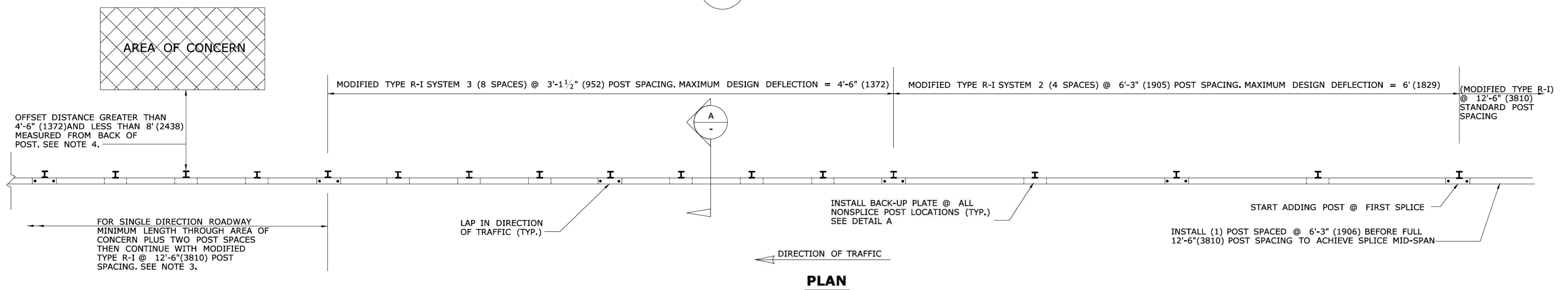


GENERAL NOTES:

1. FASTEN ALL POSTS TO RAIL ELEMENT.
2. DO NOT INSTALL BACK UP PLATE @ SPLICE POST LOCATIONS.
3. FOR DUAL DIRECTION ROADWAYS, STRENGTH TRANSITION SHALL BE THE SAME BEFORE AND AFTER AREA OF CONCERN.
4. IF OFFSET DISTANCE IS LESS THAN 4'-6" (1397) SEE HW-910.04 FOR R-B 350 GUIDERAIL AND SYSTEMS.
5. REFER TO STANDARD SHEET HW-910.19a FOR MODIFIED R-I HARDWARE DETAILS.
6. INSTALLATIONS ON EXPRESSWAYS AND RAMPs SHALL USE CLASS B TYPE II (10 GAUGE) W-BEAM RAIL ELEMENTS.
7. INSTALL RAIL FACE 6" (127) OFF EDGE OF ROAD. IF CURB IS PRESENT, SET FACE OF RAIL AT BACK OF CURB.



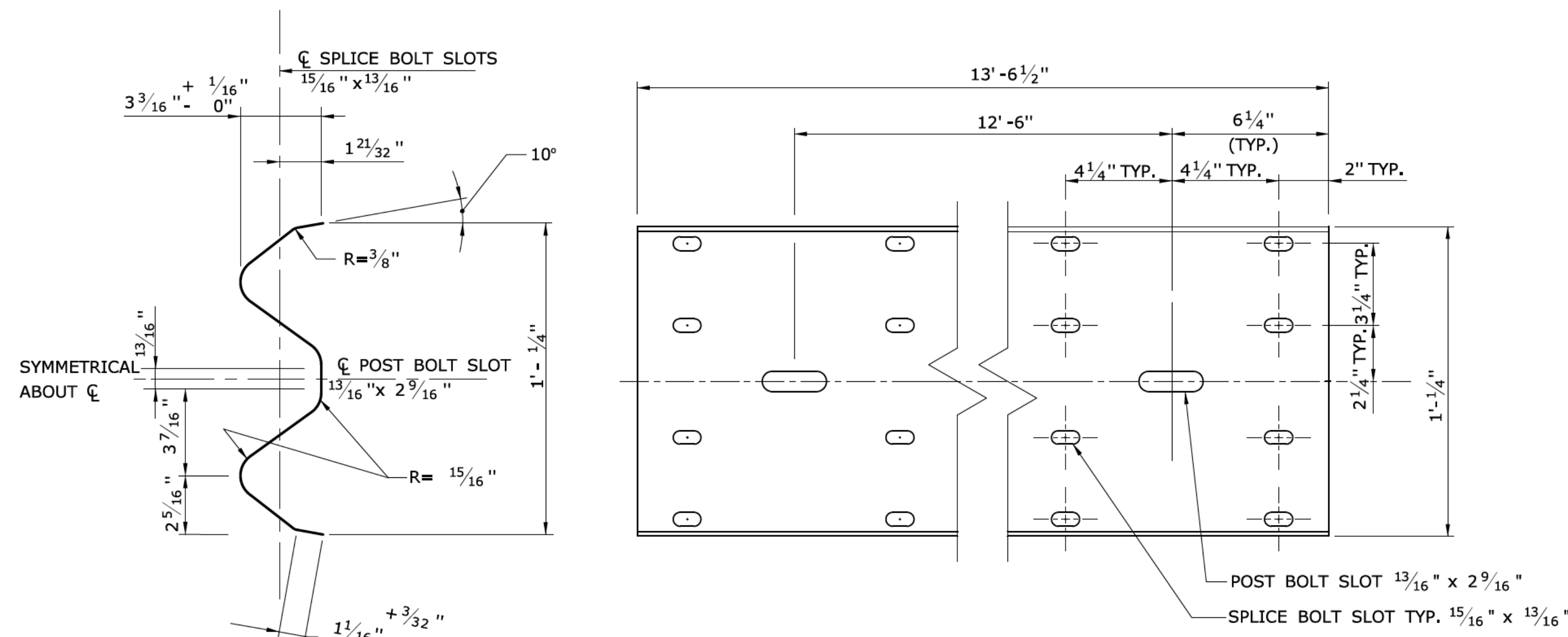
SECTION A



METAL BEAM RAIL (MODIFIED TYPE R-I) SYSTEMS 2 & 3

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

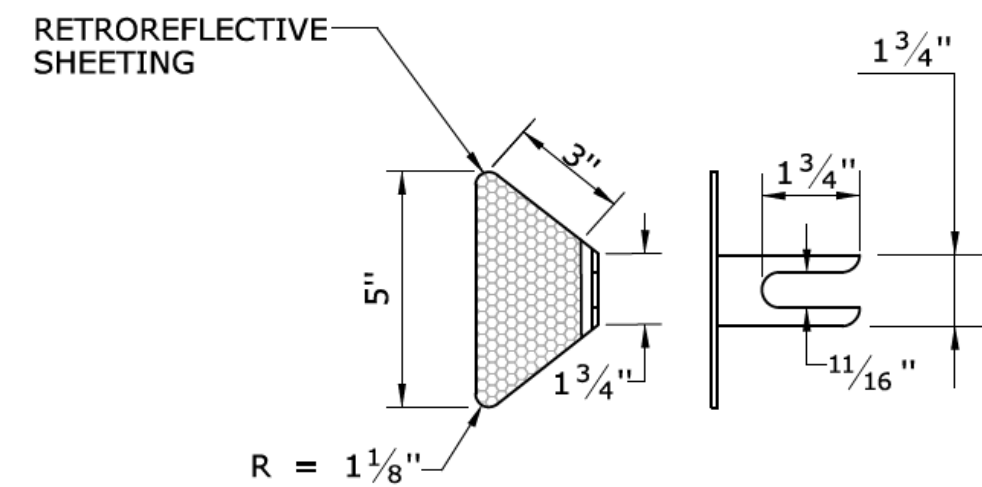
REV. DATE	REVISION DESCRIPTION	Plotted Date: 6/21/2013	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SUBMITTED BY: _____ NAME/DATE/TIME: _____ APPROVED BY: _____ NAME/DATE/TIME: _____ James H. Norman 2013.07.24 14:55:04-04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: MBR (MODIFIED TYPE R-I) SYSTEMS 2 & 3	STANDARD SHEET NO.: HW-910_19c
				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.			



SECTION VIEW

ELEVATION VIEW

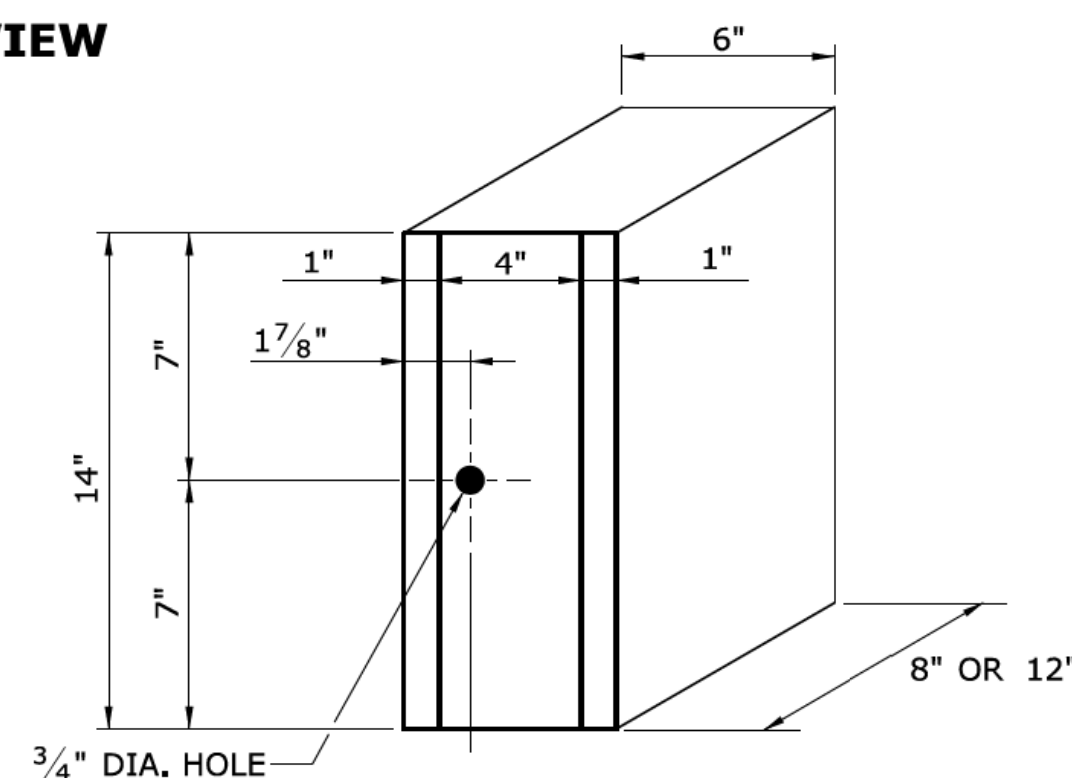
TYPICAL W-BEAM RAIL ELEMENT



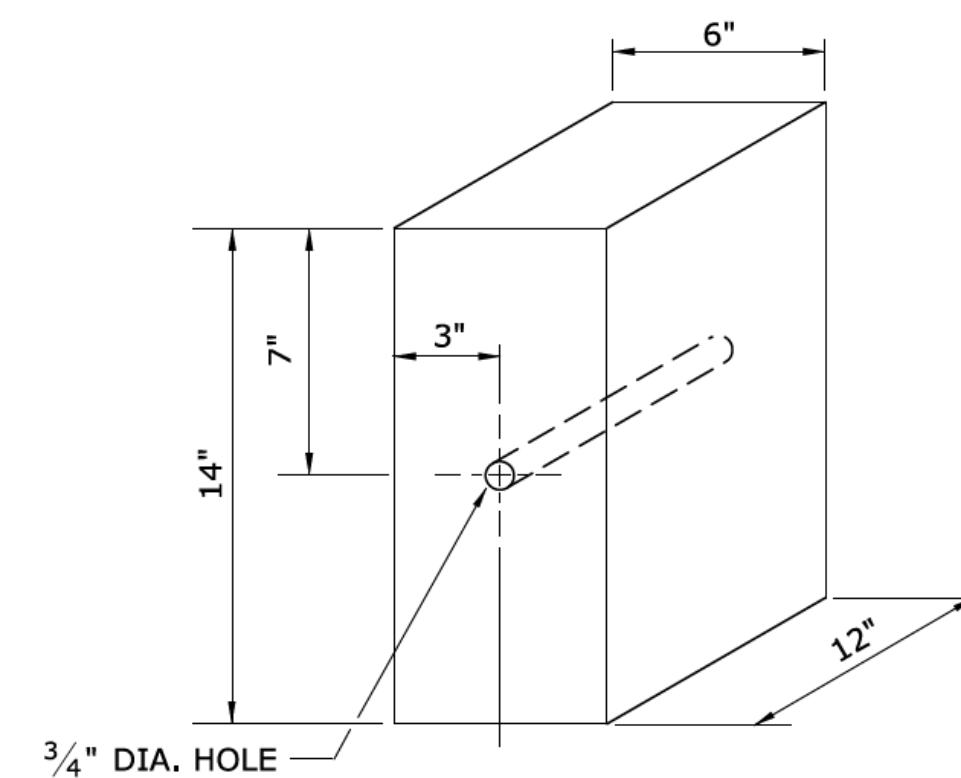
W-BEAM DELINEATOR

GENERAL NOTES:

1. W6 x 9 POSTS MAY BE USED IN PLACE OF W6 x 8.5 POSTS.
2. W-BEAM GUIDERAIL SHALL USE CLASS A (12 GAUGE), TYPE II W-BEAM RAIL ELEMENTS.
3. SEVEN FOOT LONG STEEL POSTS (W6 X 8.5) ARE TO BE INSTALLED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES



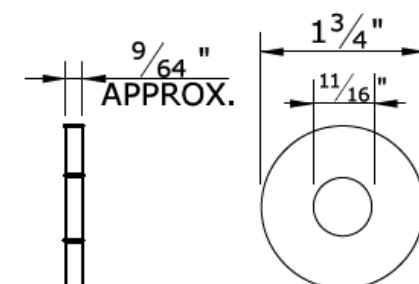
8" or 12" PLASTIC BLOCKOUT
NOMINAL DIMENSIONS



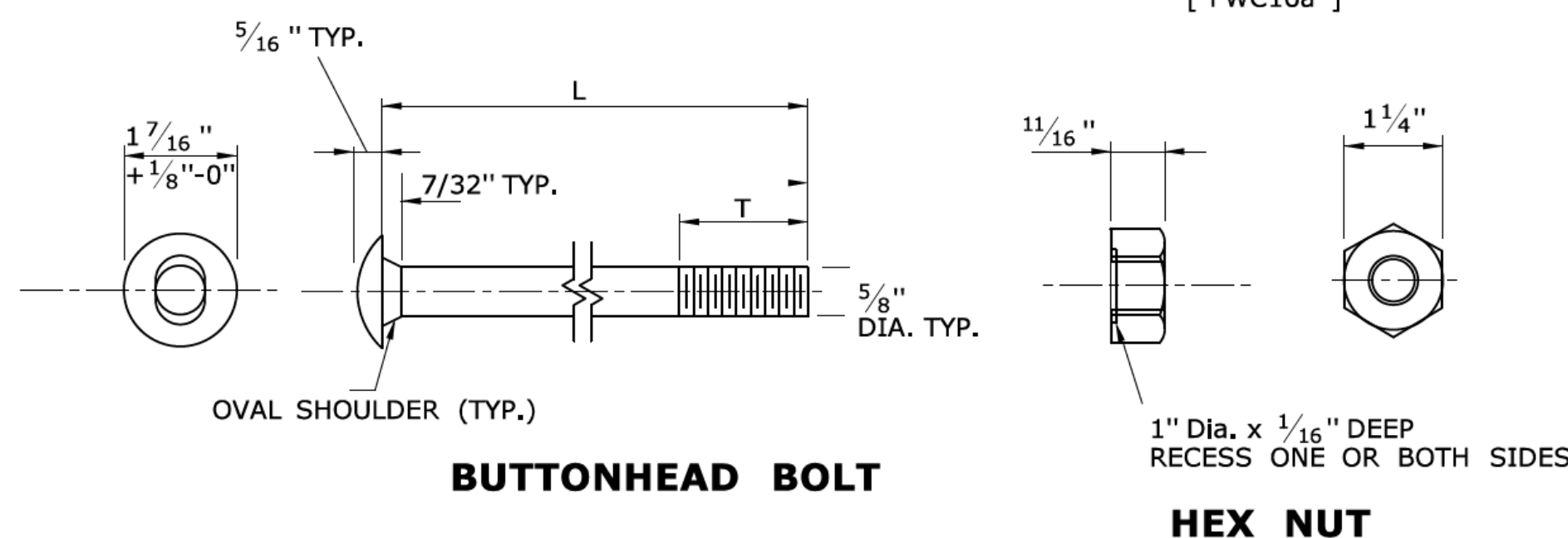
12" WOOD BLOCKOUT

W-BEAM DELINEATOR INSTALLATION NOTES:

1. INSTALL W-BEAM DELINEATORS ON RAIL THAT IS PARALLEL TO AND NOT GREATER THAN 8' FROM THE EDGE OF THE ROADWAY. A MINIMUM OF THREE W-BEAM DELINEATORS SHALL BE INSTALLED ON ANY LENGTH OF GUIDERAIL.
2. THE SPACING OF W-BEAM DELINEATORS IS 50 FEET, INSTALLED AT RAIL SPLICE LOCATIONS. SPACING IS 25 FEET ON RADII LESS THAN 300 FEET.
3. NO W-BEAM DELINEATORS ARE PERMITTED WITHIN 75 FEET OF THE IMPACT HEAD OF ANY TANGENTIAL OR FLARED IMPACT ATTENUATION SYSTEM.
4. RETROREFLECTIVE SHEETING SHALL BE WHITE EXCEPT ON THE LEFT SIDE OF DIVIDED STREETS, HIGHWAYS, RAMPS, AND ONE WAY ROADS IN THE DIRECTION OF TRAVEL WHERE IT SHALL BE YELLOW.



WASHER
[FWC16a]



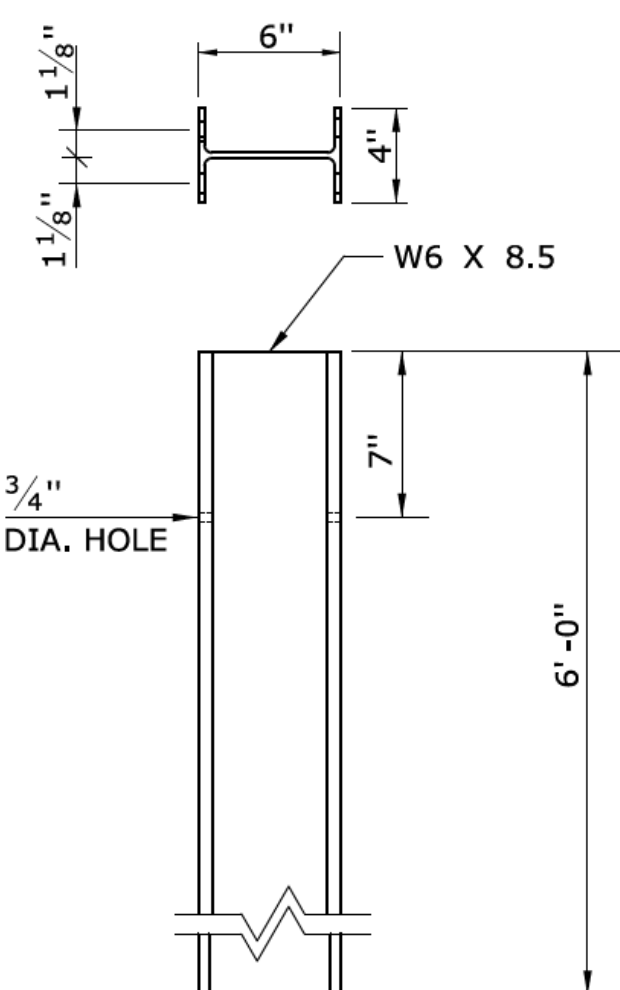
5/8" BUTTON HEAD BOLT

HEX NUT

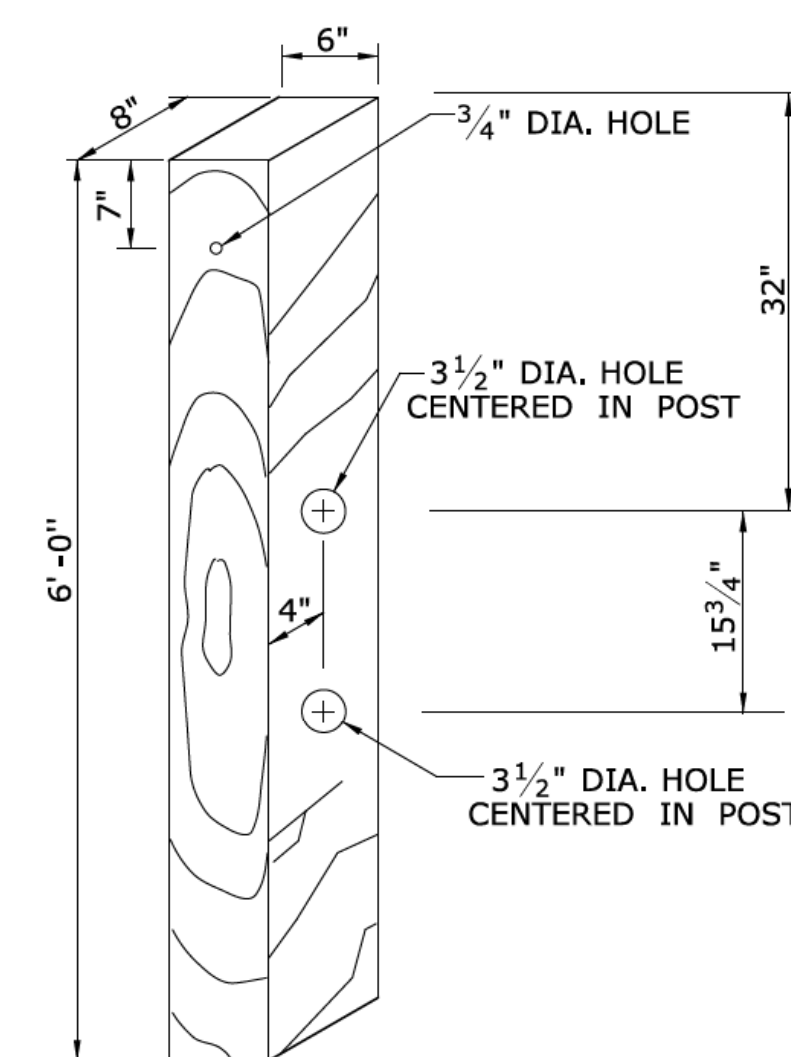
DESIGNATOR	L	T	INTENDED USE
FBB01	1-1/4"	1-1/8"	RAIL SPLICE BOLTS
FBB02	2"	1-3/4"	RUB RAIL BOLTS
FBB03	10"	4"	POST BOLTS (8" BLOCK OUTS)
	14"	4"	POST BOLT (12" BLOCK OUTS)
FBB04	18"	4"	POST BOLTS (2- 8" BLOCK OUTS)
	22"	4"	POST BOLT (CRT WOOD POST SYSTEM)

5/8" BUTTON HEAD BOLT(S) AND RECESSED NUT(S)

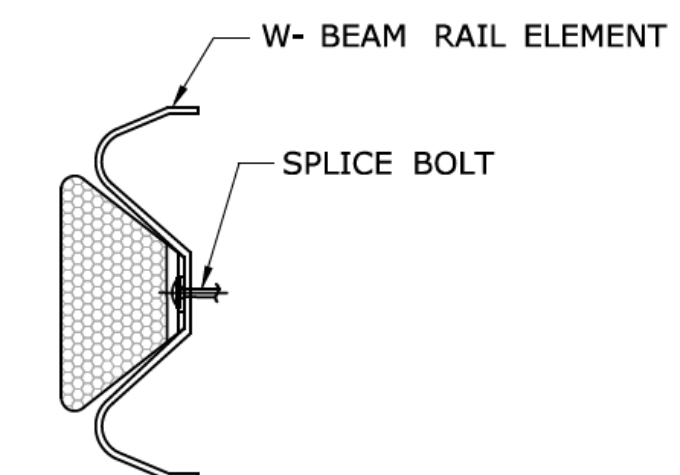
NOTE: AFTER GALVANIZING, THE NUT SHALL BE FREE RUNNING ON THE BOLT. DIAMETER SHOWN IS TYPICAL FOR ALL GUIDERAIL BOLTS. SEE DETAILS ABOVE FOR SPECIFIC LENGTHS.



STEEL POST
6'-0" LONG

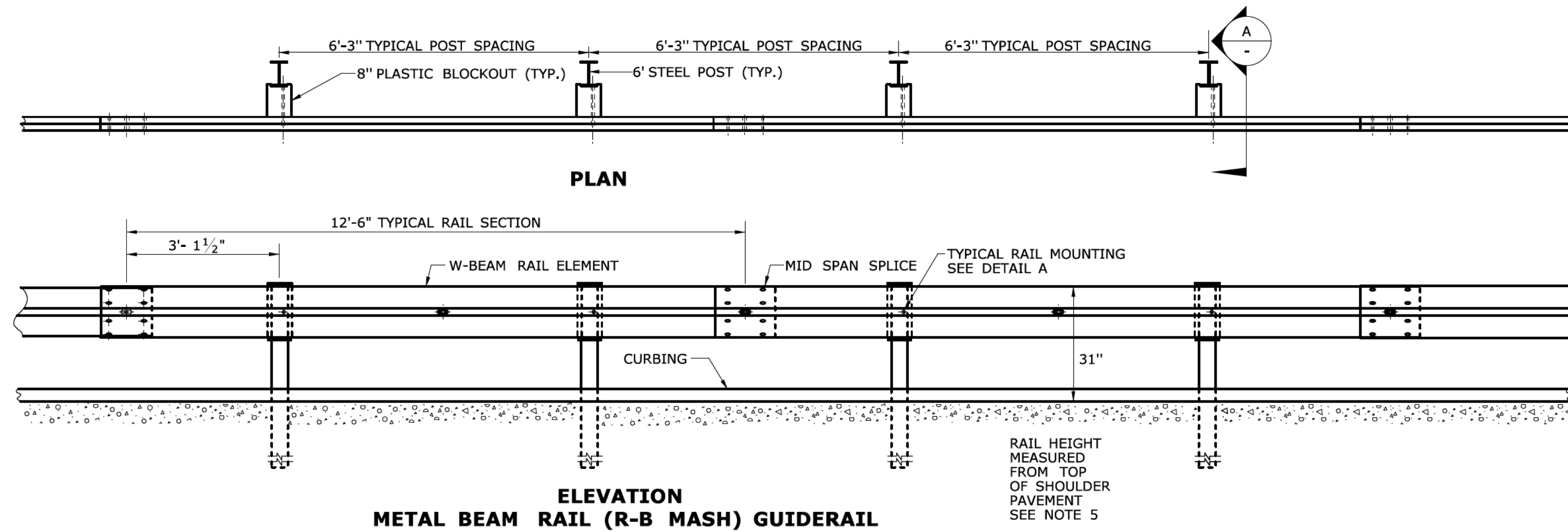


CONTROL RELEASE TIMBER (CRT) POST
6' - 0" LONG



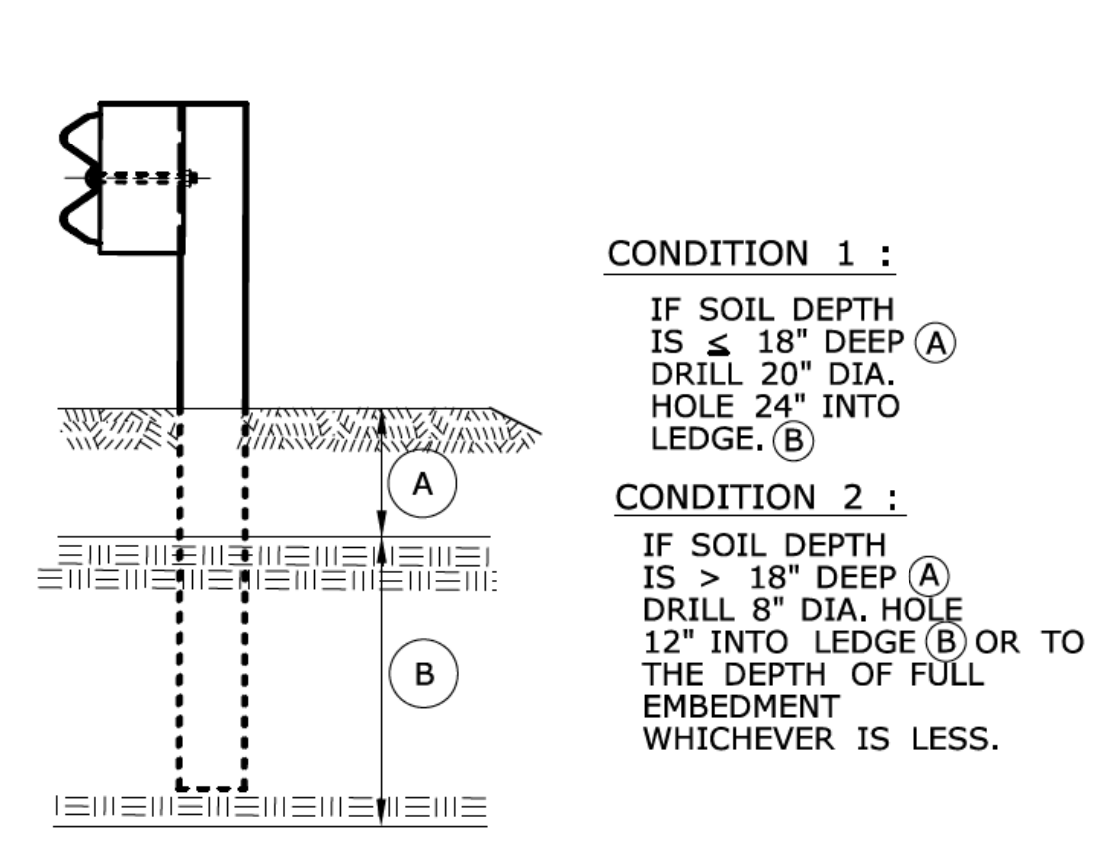
W-BEAM DELINEATOR
INSTALLATION

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. Plotted Date: 1/3/2018	NOT TO SCALE	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SUBMITTED BY: NAME/DATE/TIME: Leo Fontaine, P.E. 2018.01.05 11:03:47-05'00'	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: MASH W-BEAM HARDWARE	STANDARD SHEET NO.: HW-910_20
				APPROVED BY: NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2018.01.05 11:16:55-05'00'			

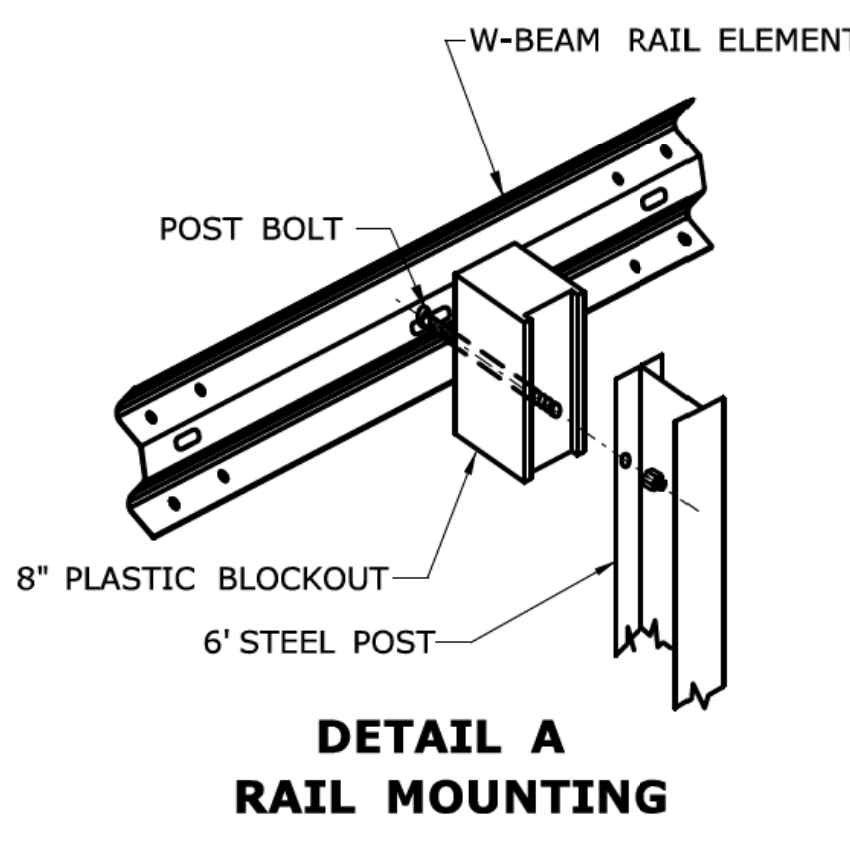


GENERAL NOTES:

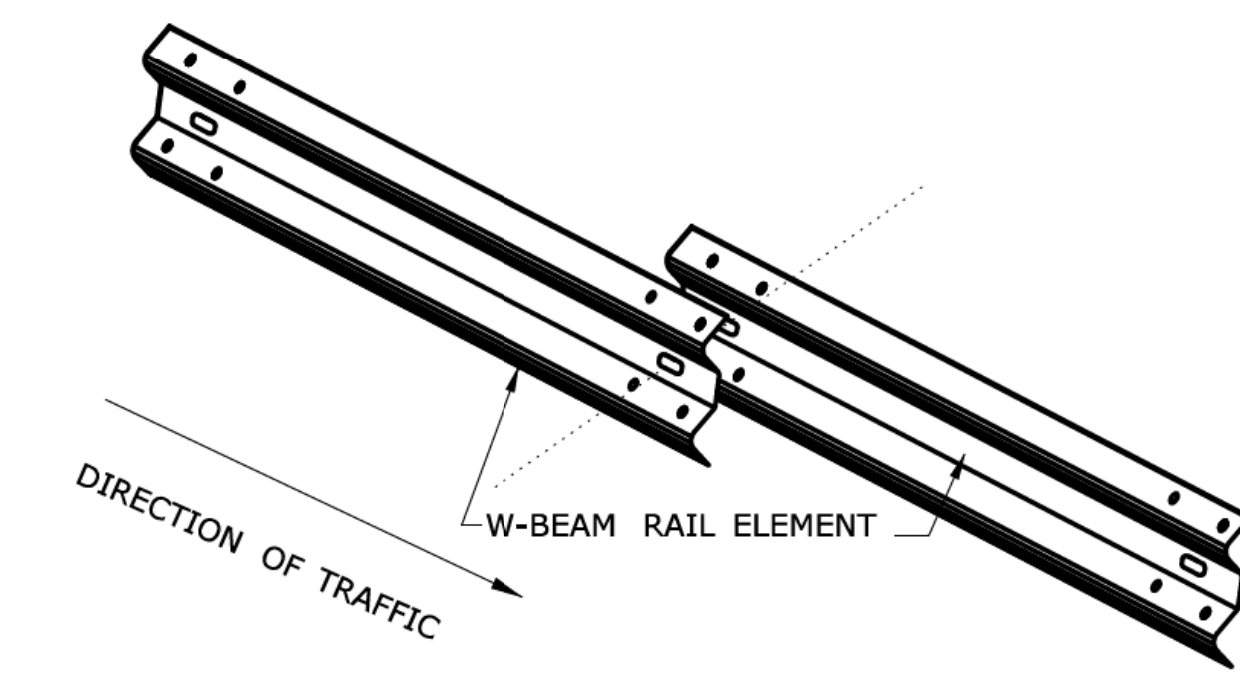
1. SEE SHEET HW-910.20 FOR MASH W-BEAM HARDWARE AND W-BEAM DELINEATOR DETAILS.
2. THREE BLOCKOUTS MAY BE USED FOR ONE POST ONLY. TWO BLOCKOUTS MAY BE USED FOR A SERIES OF POSTS. THE COST OF ADDITIONAL BLOCKOUTS AND LONGER BOLTS SHALL BE INCLUDED IN THE PRICE PER FOOT OF GUIDERAIL. EXTRA BLOCKOUTS AT TRANSITIONS TO BRIDGE PARAPETS SHOULD BE AVOIDED. DO NOT USE ADDITIONAL BLOCKS IF IT CAUSES THE POST TO BE DRIVEN BEYOND AN EMBANKMENT HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.
3. IF BLOCKOUTS DO NOT AVOID POST FROM OBSTRUCTION, ONE POST MAY BE OMITTED IF 50 FEET OF GUIDERAIL EXISTS ON BOTH SIDES OF LOCATION. USE METAL BEAM RAIL SPAN SECTION TYPE II OR III FOR MORE THAN ONE CONSECUTIVE OMITTED POST, SEE SHEET HW-910.24.
4. W-BEAM GUIDERAIL MAY BE PLACED 1' OR MORE FROM THE EDGE OF PAVEMENT ONLY ON SLOPES 10:1 OR FLATTER AND WITHOUT CURBING.
5. IF THE RAIL IS INSTALLED WITHIN 2' OF THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE SHOULDER SLOPE EXTENDED TO THE RAIL. IF THE RAIL IS INSTALLED BEYOND 2' FROM THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE GROUND DIRECTLY BELOW THE RAIL.
6. RAIL HEIGHT CONSTRUCTION TOLERANCE IS +/- 1 INCH.



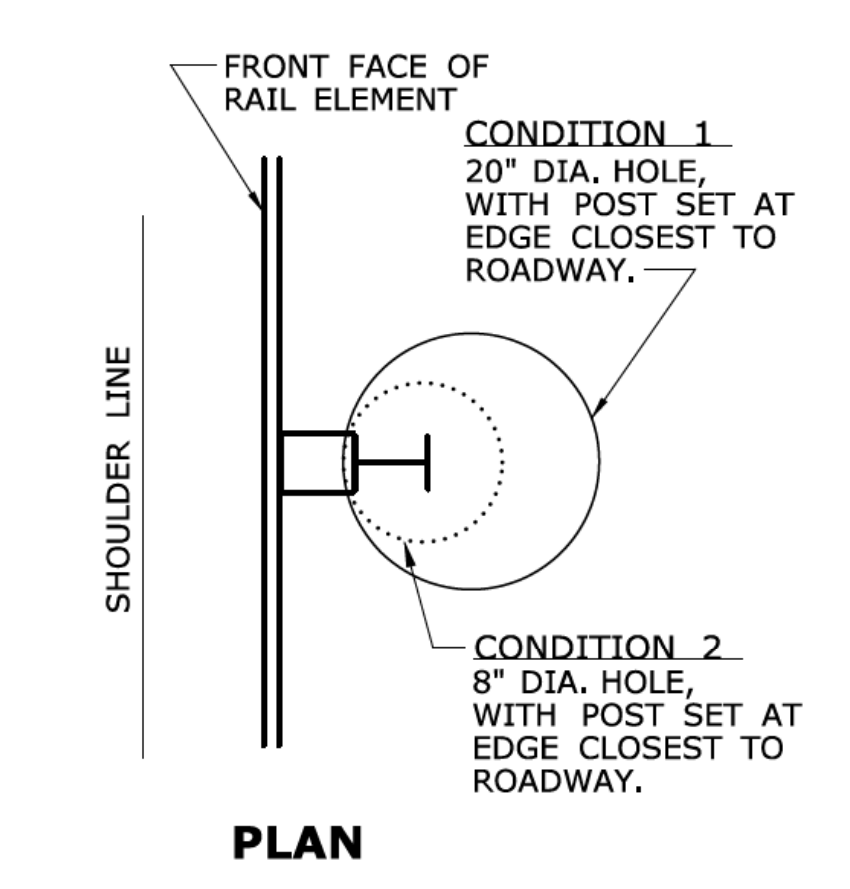
ELEVATION



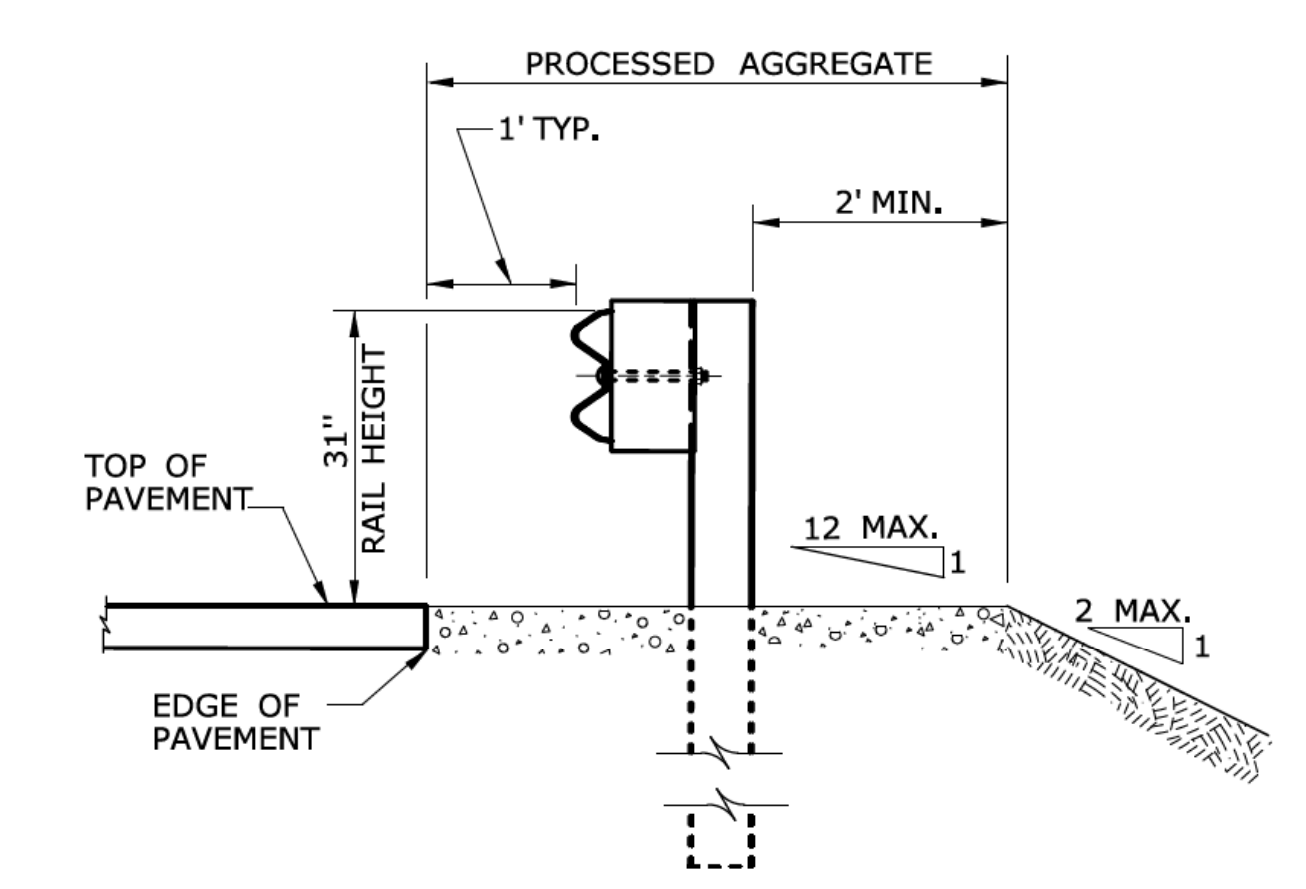
**DETAIL A
RAIL MOUNTING**



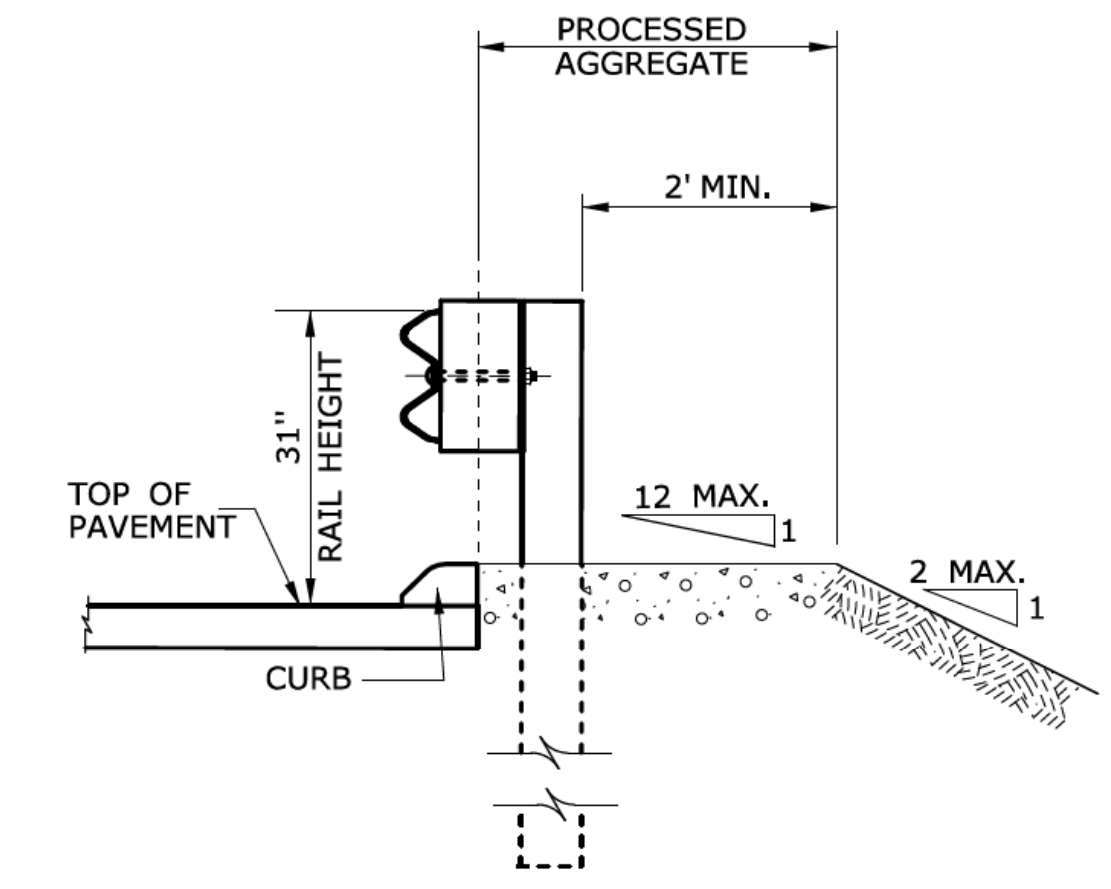
LAP W-BEAM RAIL SECTIONS
NOTE: EIGHT (8) SPLICE BOLTS PER JOINT



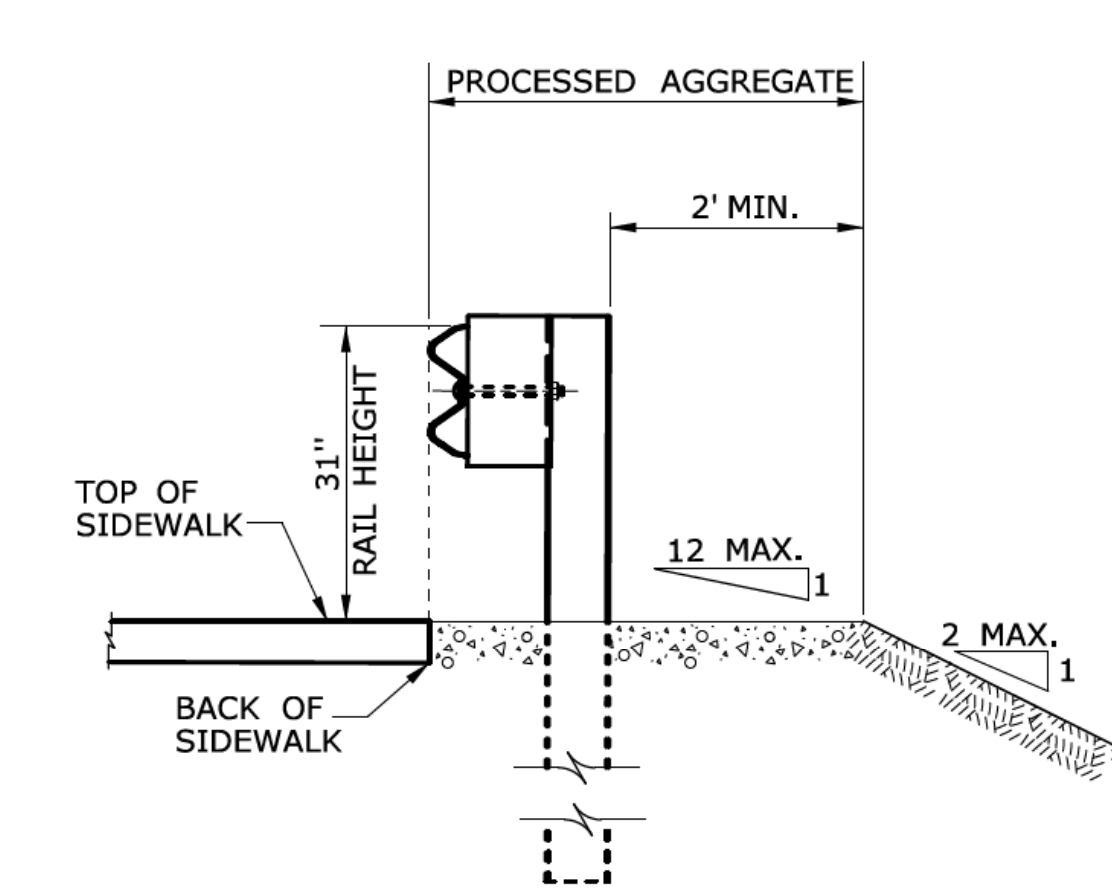
GUIDERAIL POSTS IN ROCK



**SECTION A
NO CURB APPLICATION**

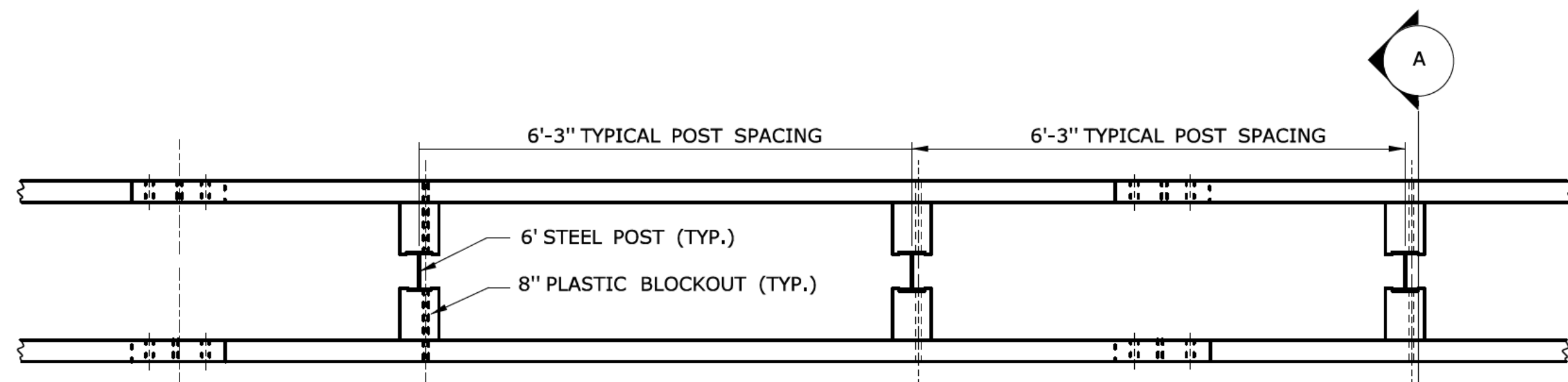


**SECTION A
CURB APPLICATION**

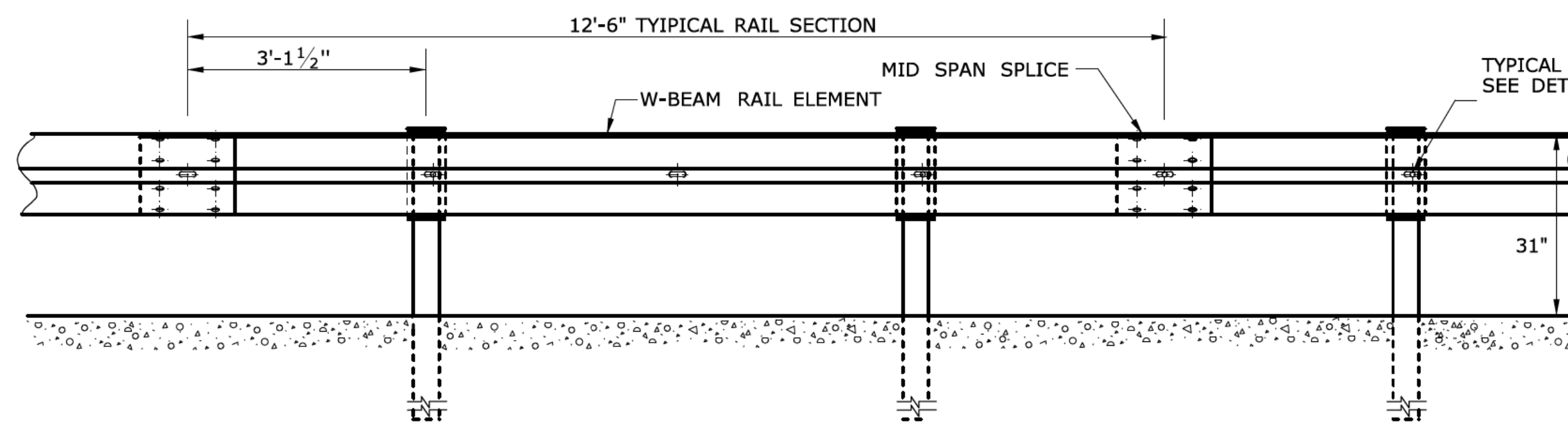


**SECTION A
SIDEWALK APPLICATION**

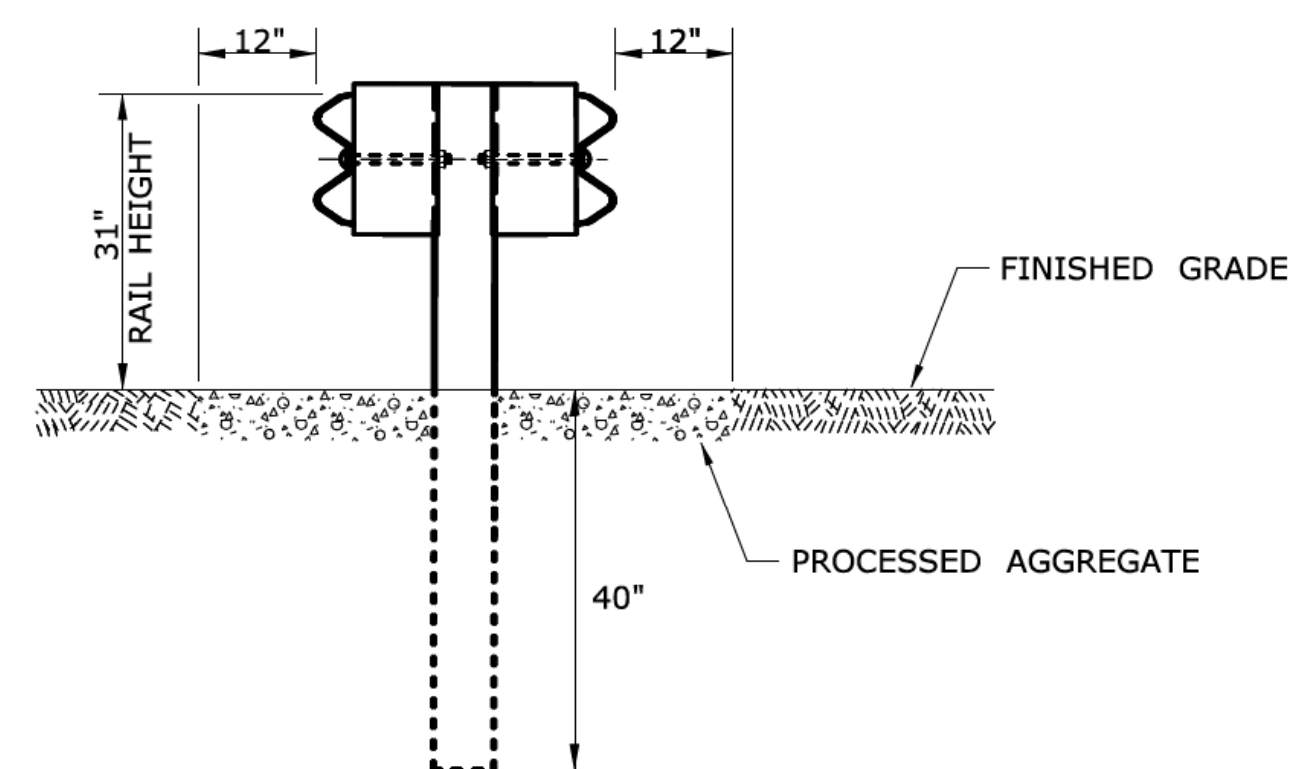
<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV.	DATE	REVISION DESCRIPTION				THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. Plotted Date: 1/3/2018	NOT TO SCALE		SUBMITTED BY: NAME/DATE/TIME: Leo Fontaine, P.E. 2018.01.05 11:03:40-05'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: METAL BEAM RAIL (R-B MASH) GUIDERAIL	STANDARD SHEET NO.: HW-910_21
	REV.	DATE	REVISION DESCRIPTION										
APPROVED BY: NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2018.01.05 11:17:28-05'00'	FILENAME: CTDOT_HIGHWAY_STD.dgn MODEL: 274 - HW-910_21												



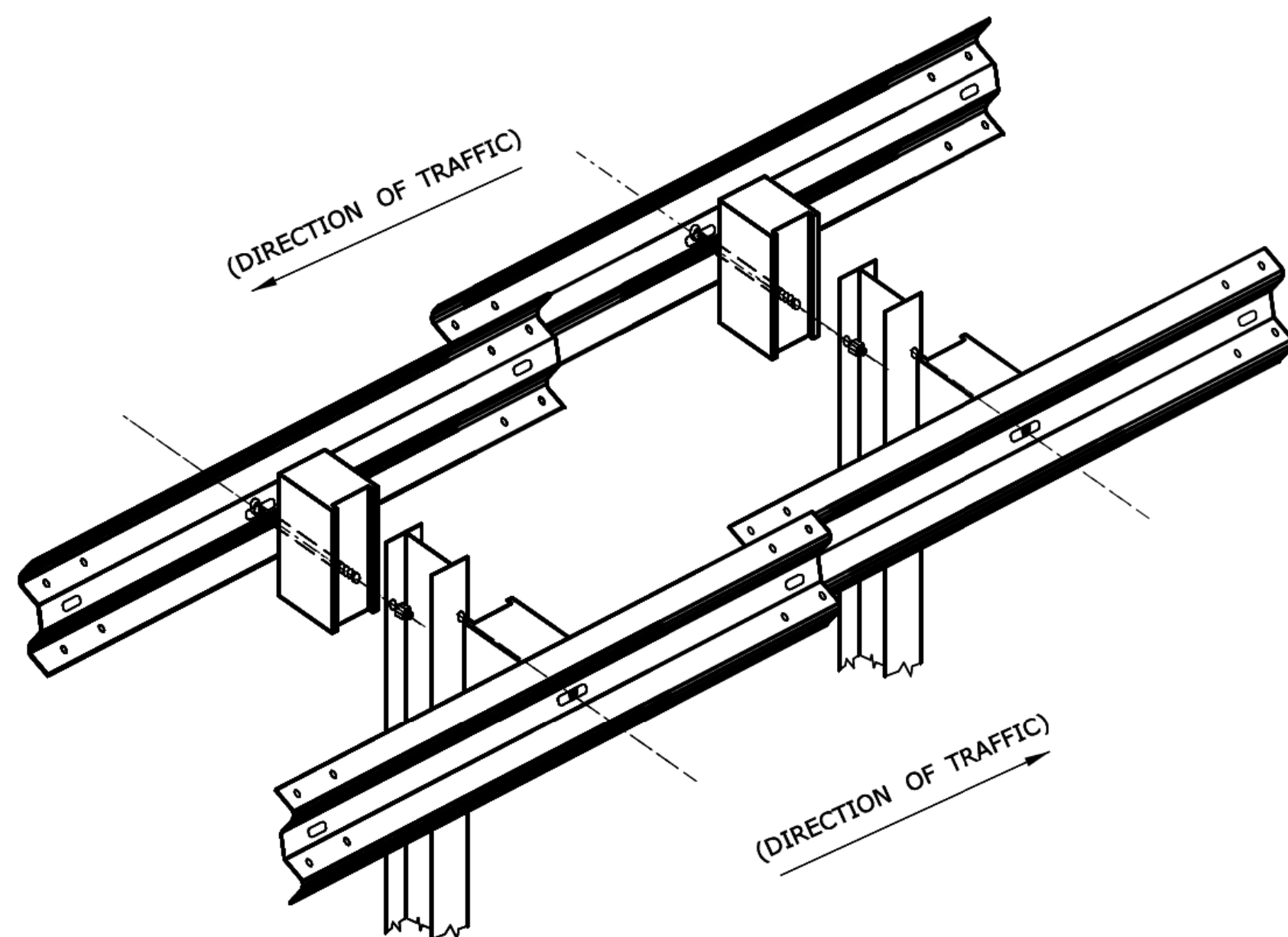
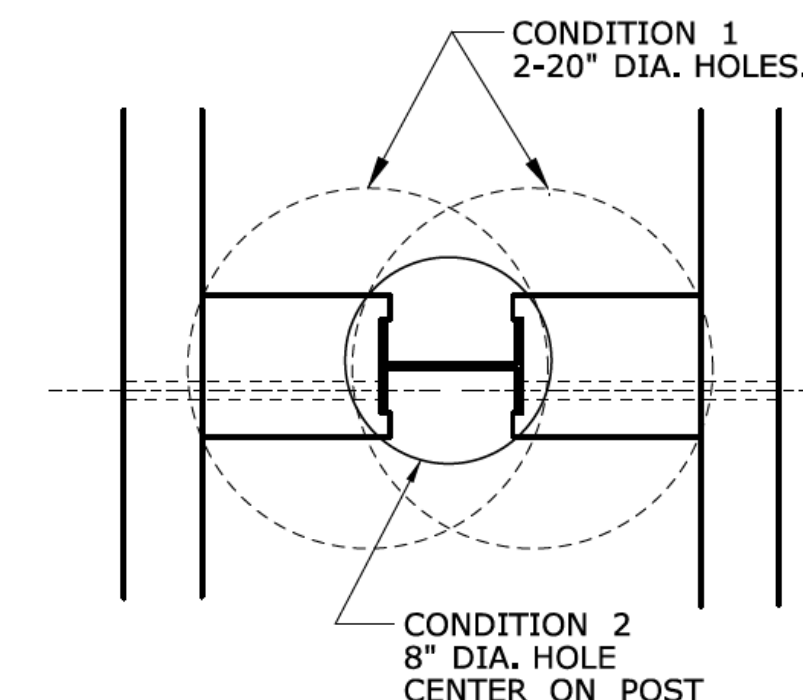
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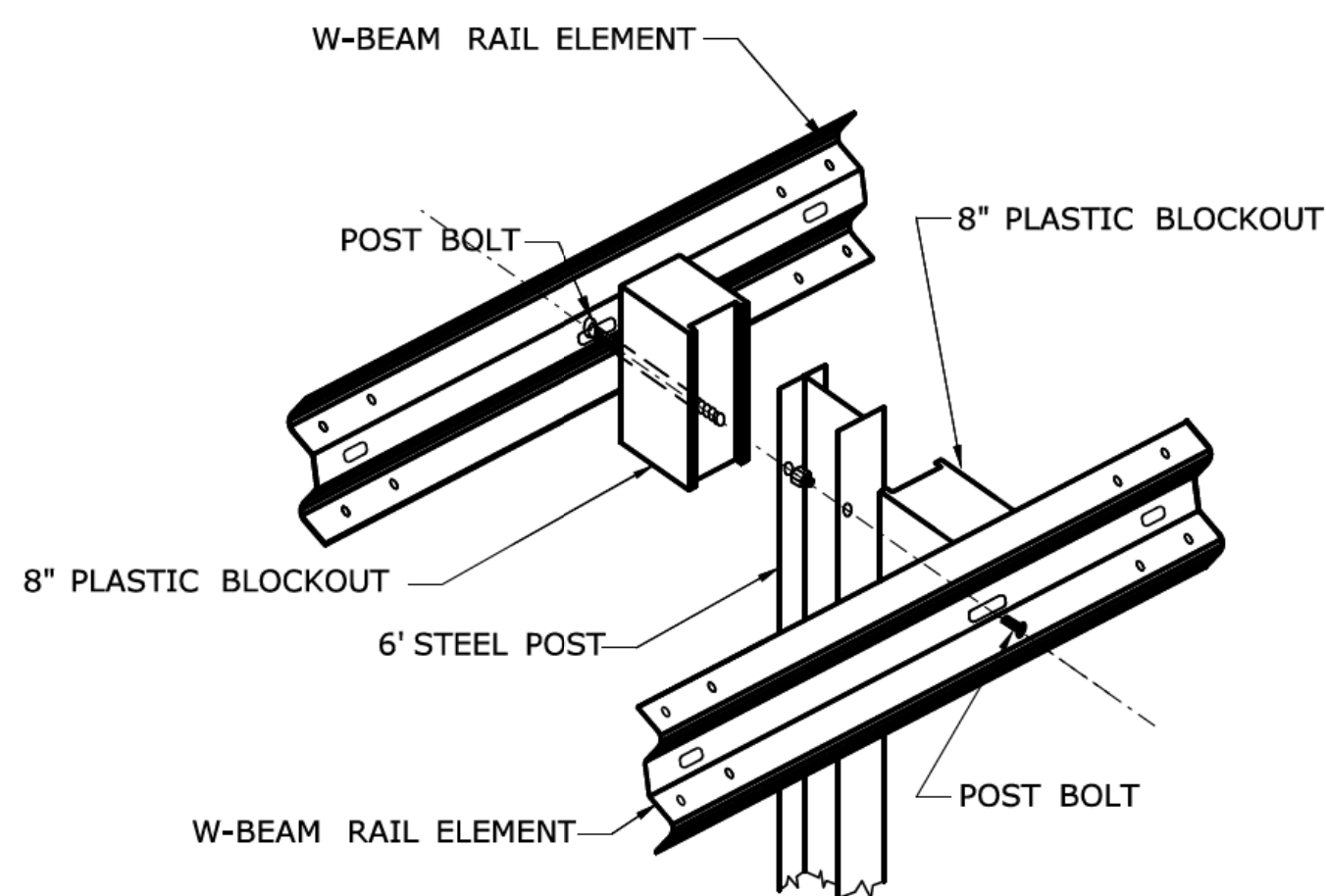
ELEVATION
METAL BEAM RAIL (MD-B MASH) GUIDERAIL



SECTION A



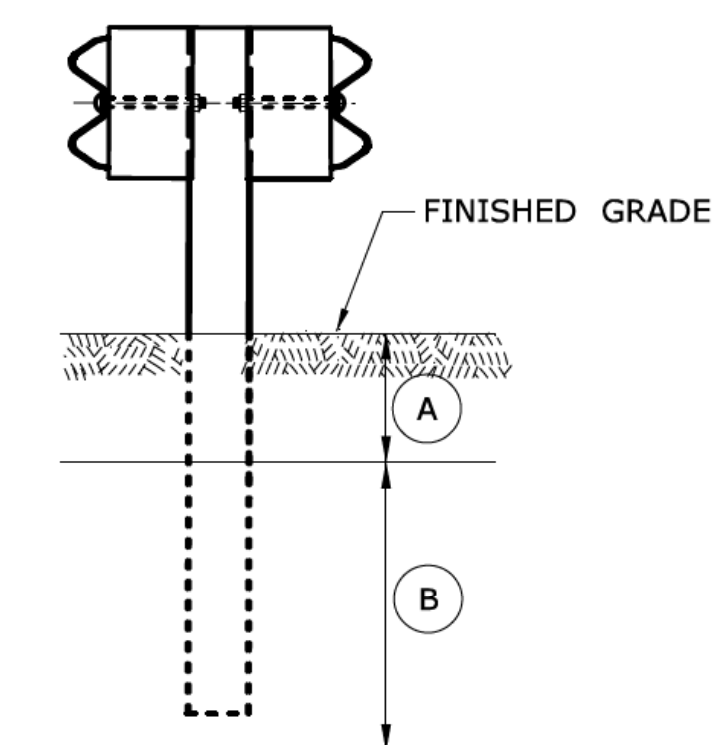
LAP W-BEAM RAIL SECTIONS



DETAIL A
RAIL MOUNTING

CONDITION 1 :
IF SOIL DEPTH (A)
IS ≤ 18" DEEP
DRILL 2 - 20" DIA.
HOLES 24" INTO
LEDGE (B)

CONDITION 2 :
IF SOIL DEPTH
IS > 18" DEEP (A)
DRILL 8" DIA. HOLE
1' INTO LEDGE (B) OR TO
THE DEPTH OF FULL
EMBEDMENT
WHICHEVER IS LESS.



SECTION A

DRILLING IN ROCK FOR GUIDERAIL POSTS

GENERAL NOTES:

1. SEE SHEET HW-910.20 FOR MASH HARDWARE AND W-BEAM DELINEATOR DETAILS.
2. W-BEAM GUIDERAIL MAY BE PLACED 1' OR MORE FROM THE EDGE OF PAVEMENT ONLY ON SLOPES 10:1 OR FLATTER AND WITHOUT CURBING.
3. IF THE RAIL IS INSTALLED WITHIN 2' OF THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE SHOULDER SLOPE EXTENDED TO THE RAIL. IF THE RAIL IS INSTALLED BEYOND 2' FROM THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE GROUND DIRECTLY BELOW THE RAIL.
4. RAIL HEIGHT CONSTRUCTION TOLERANCE IS +/- 1 INCH.

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.

Plotted Date: 1/3/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD.dgn Model: 275 - HW-910.22

SUBMITTED BY: NAME/DATE/TIME:
 Leo Fontaine, P.E.
 2018.01.05 11:03:34-05'00'

APPROVED BY: NAME/DATE/TIME:
 Gregory M. Dorosh, P.E.
 2018.01.05 11:17:59-05'00'

CTDOT
STANDARD SHEET

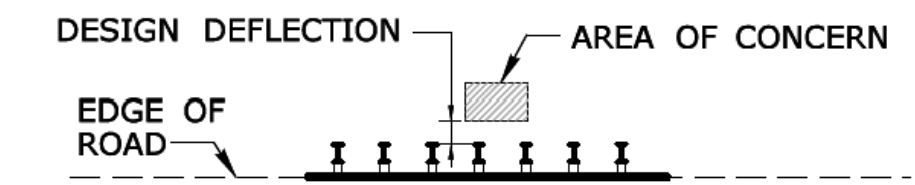
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
METAL BEAM RAIL
(MD-B MASH) GUIDERAIL

STANDARD SHEET NO.:
HW-910_22

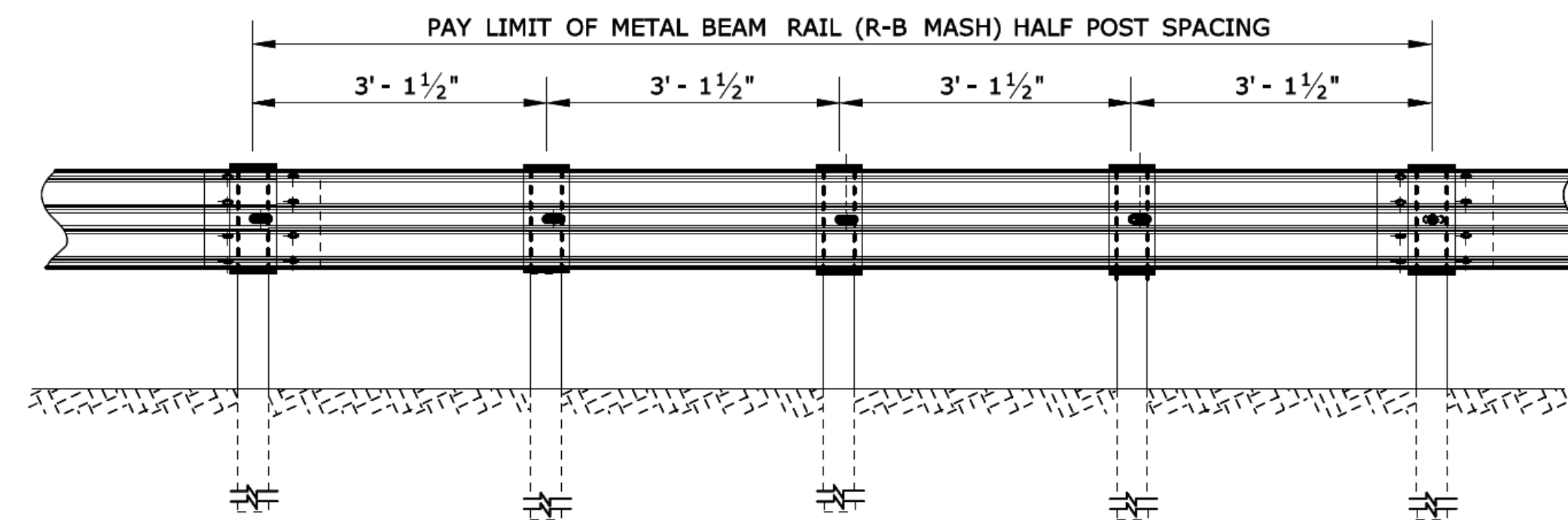
GENERAL NOTES:

1. SEE SHEET HW-910_20 FOR HARDWARE AND W-BEAM DELINEATOR DETAILS.
2. W-BEAM DELINEATOR MAY BE INSTALLED AT POST BOLT CONNECTION TO MAINTAIN APPROPRIATE DELINEATOR SPACING.

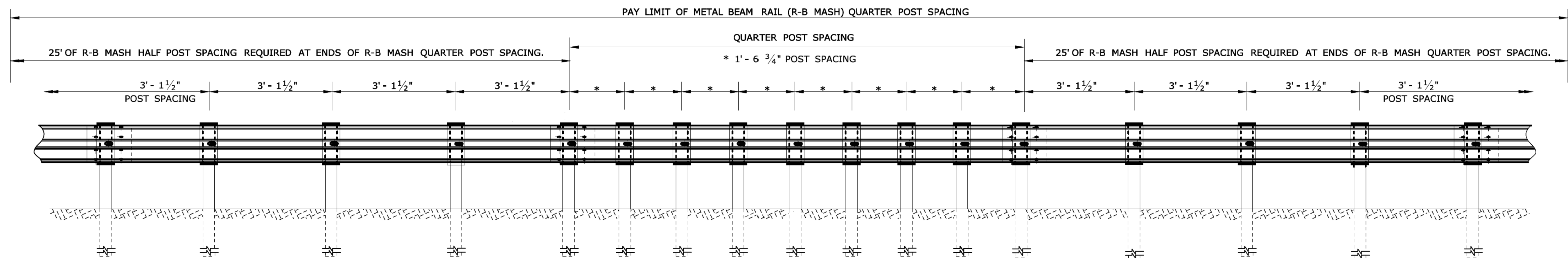


POST SPACING	DESIGN DEFLECTION
STANDARD (6' - 3")	4' - 3"
HALF POST (3' - 1 1/2")	2' - 8"
QUARTER POST (1' - 6 3/4")	1' - 10"

TABLE 1

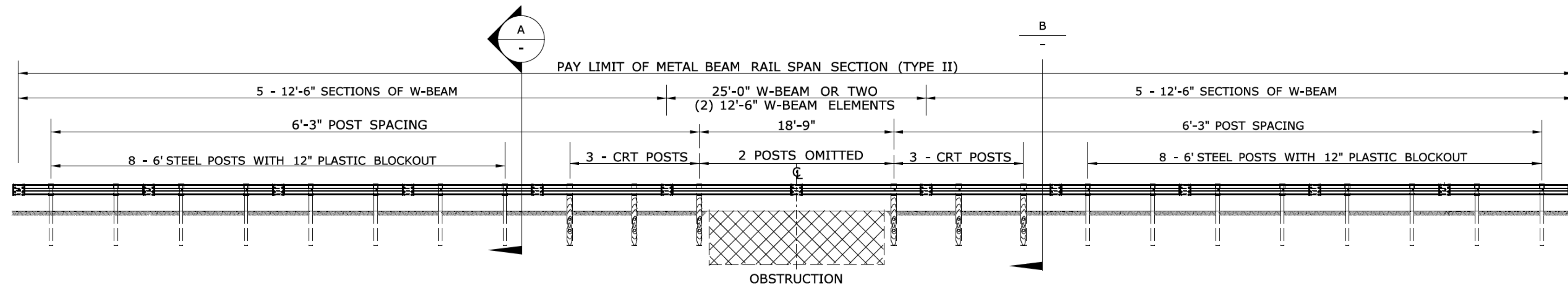


METAL BEAM RAIL (R-B MASH) HALF POST SPACING



METAL BEAM RAIL (R-B MASH) QUARTER POST SPACING

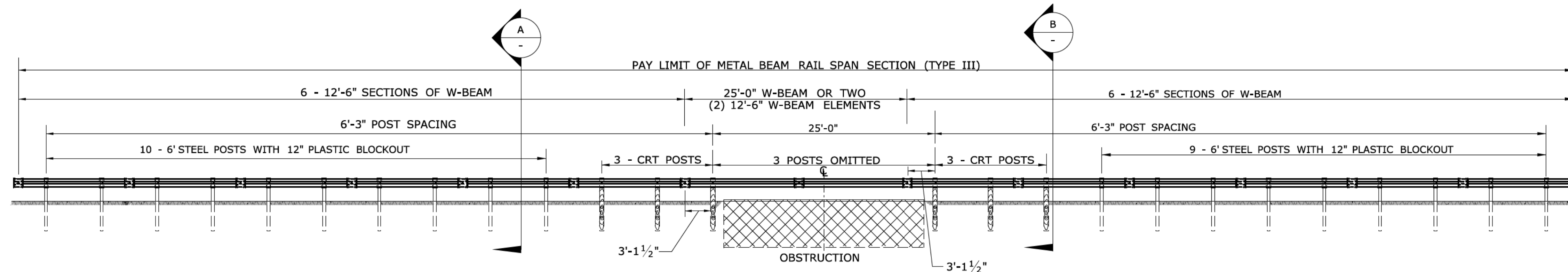
	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	NOT TO SCALE	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SUBMITTED BY: <i>Leo Fontaine</i> NAME/DATE/TIME: Leo Fontaine, P.E. 2018.01.05 11:03:27-05'00' APPROVED BY: <i>Gregory M. Dorosh</i> NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2018.01.05 11:18:30-05'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: METAL BEAM RAIL (R-B MASH) HALF AND QUARTER POST SPACING	STANDARD SHEET NO.: HW-910_23
REV. DATE REVISION DESCRIPTION	Plotted Date: 1/3/2018		Filename: CTDOT_HIGHWAY_STD.dgn Model: 276 - HW-910_23				



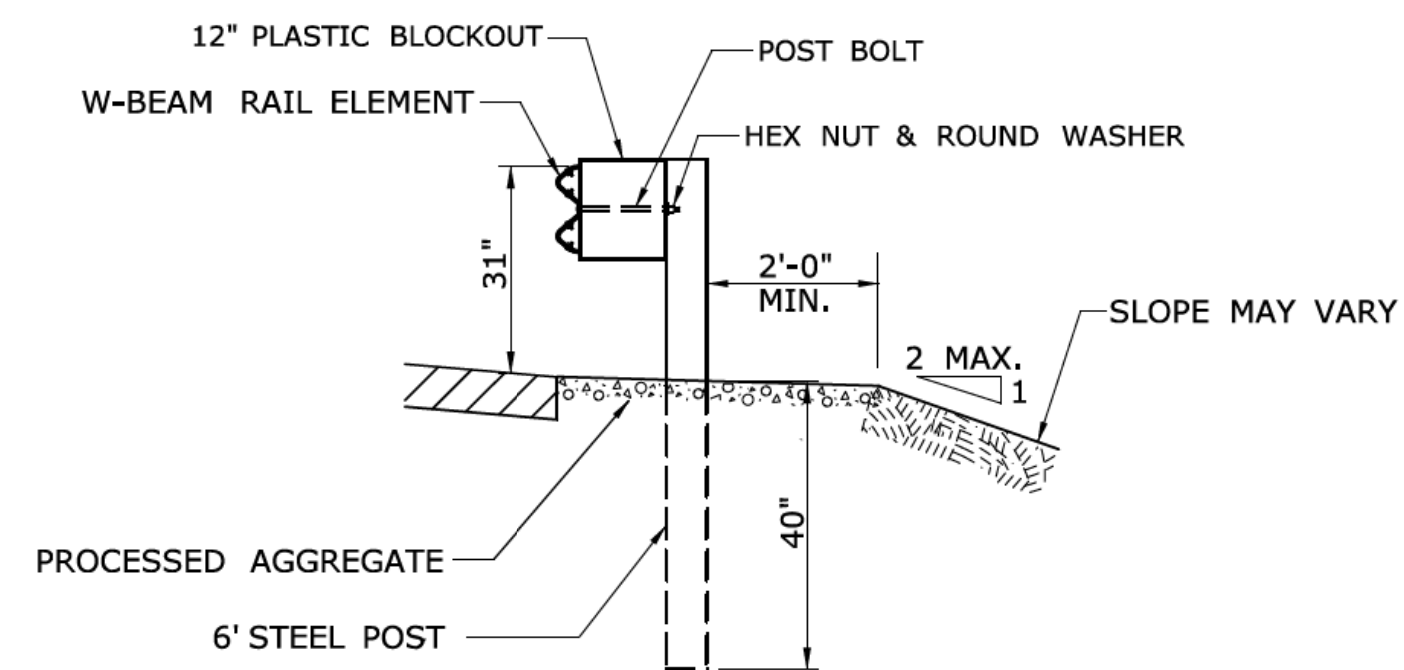
METAL BEAM RAIL SPAN SECTION TYPE II

GENERAL NOTES:

1. THIS SYSTEM IS NOT FOR USE IN-CONJUNCTION WITH ANY CURB TYPE.
2. INSTALL SYSTEM TANGENTIALLY.
3. FINISHED GRADE TO BE WITHIN 2" FROM THE TOP OF THE HEADWALL.
4. LAP W-BEAM RAIL SECTIONS IN ACCORDANCE WITH HW-910-21.

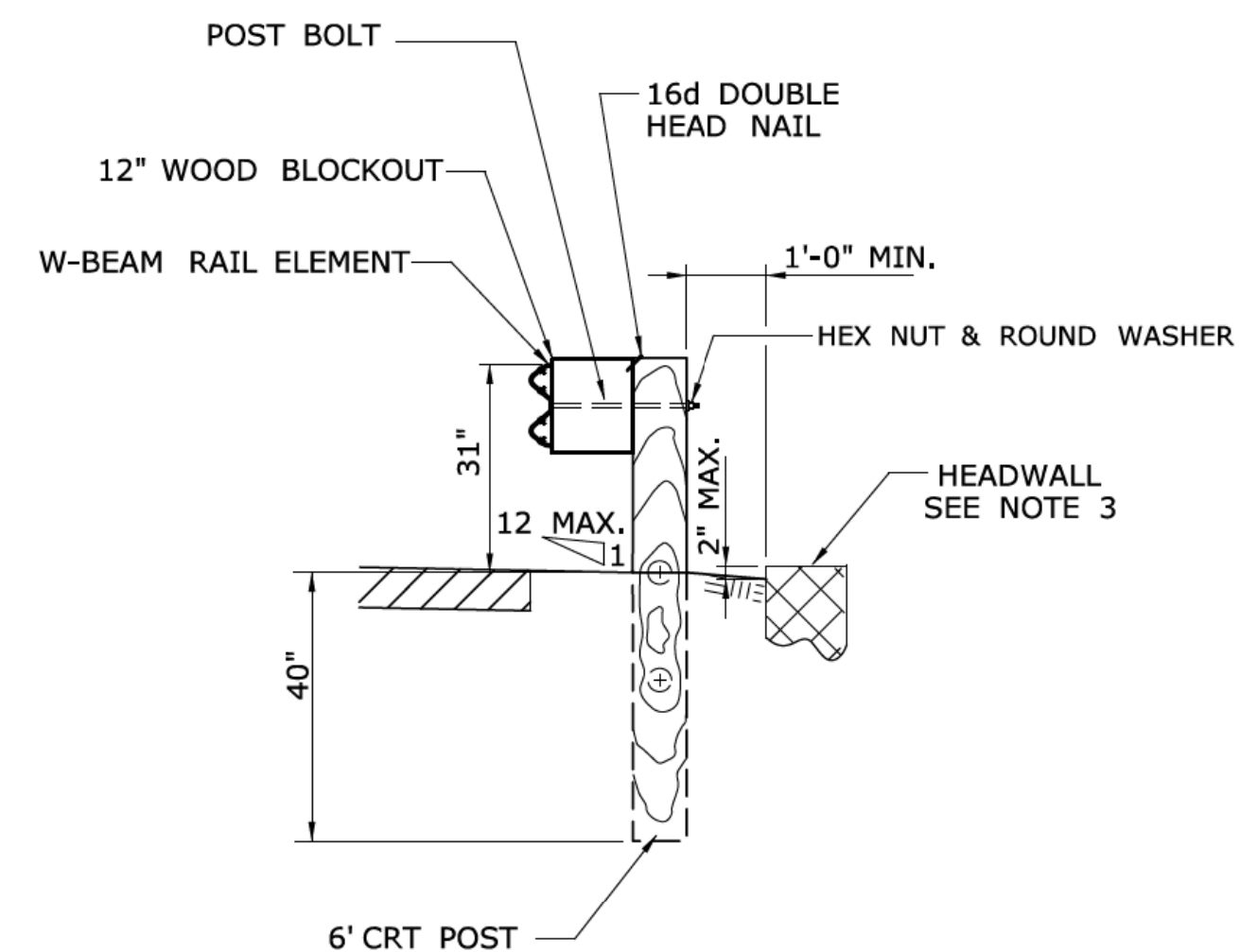


METAL BEAM RAIL SPAN SECTION TYPE III



**STEEL POST W/
12" PLASTIC BLOCKOUT**

SECTION **A**



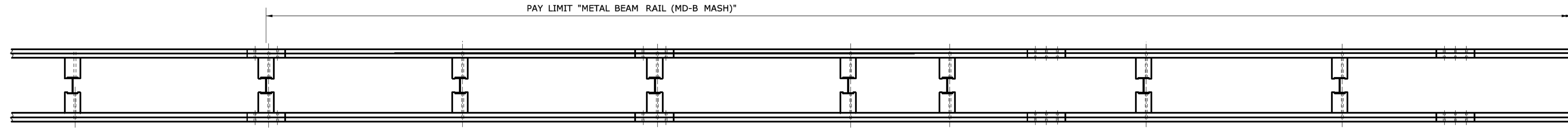
CONTROL RELEASE TIMBER (CRT) POST

SECTION **B**

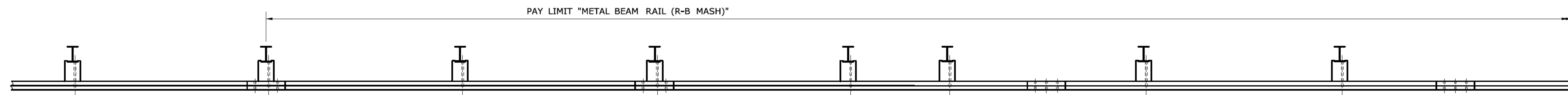
REV. DATE	REVISION DESCRIPTION	Plotted Date: 1/3/2018	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SUBMITTED BY: Leo Fontaine, P.E. NAME/DATE/TIME: 2018.01.05 11:03:20-05'00'	<p>CTDOT STANDARD SHEET</p> <p>OFFICE OF ENGINEERING</p>	STANDARD SHEET TITLE: <p>METAL BEAM RAIL SPAN SECTION TYPES II AND III</p>	STANDARD SHEET NO.: <p>HW-910_24</p>
				APPROVED BY: Gregory M. Dorosh, P.E. NAME/DATE/TIME: 2018.01.05 11:18:59-05'00'			

GENERAL NOTES:

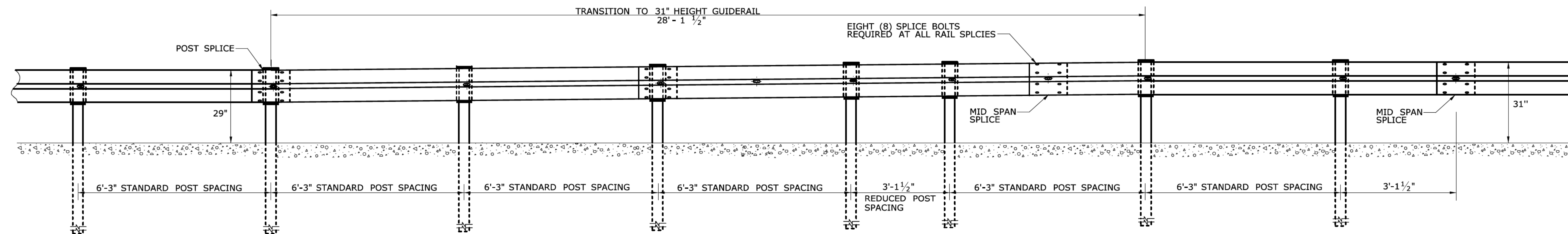
1. SEE SHEET HW-910.20 FOR HARDWARE AND W-BEAM DELINEATOR DETAILS.
2. NO POST(S) SHALL BE OMITTED WITHIN THE LENGTH OF GUIDERAIL TRANSITION.



PLAN
METAL BEAM RAIL MD-B 350 TRANSITION TO METAL BEAM RAIL MD-B MASH



PLAN
METAL BEAM RAIL R-B 350 TRANSITION TO METAL BEAM RAIL R-B MASH

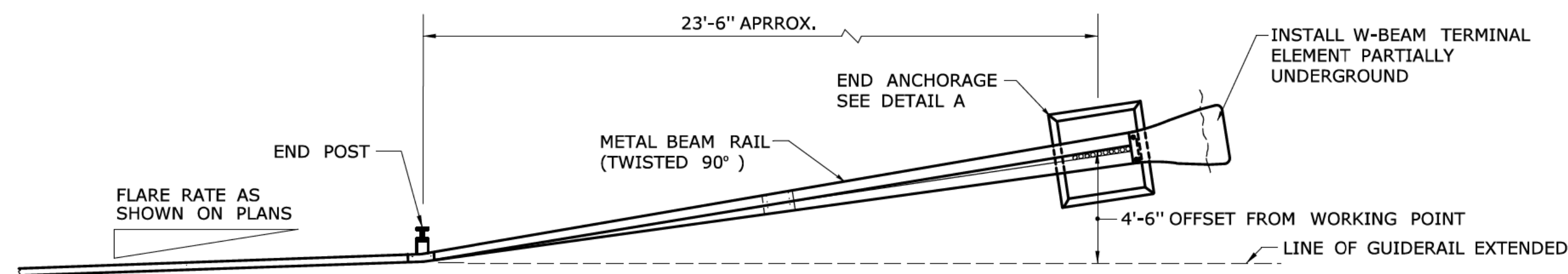


ELEVATION

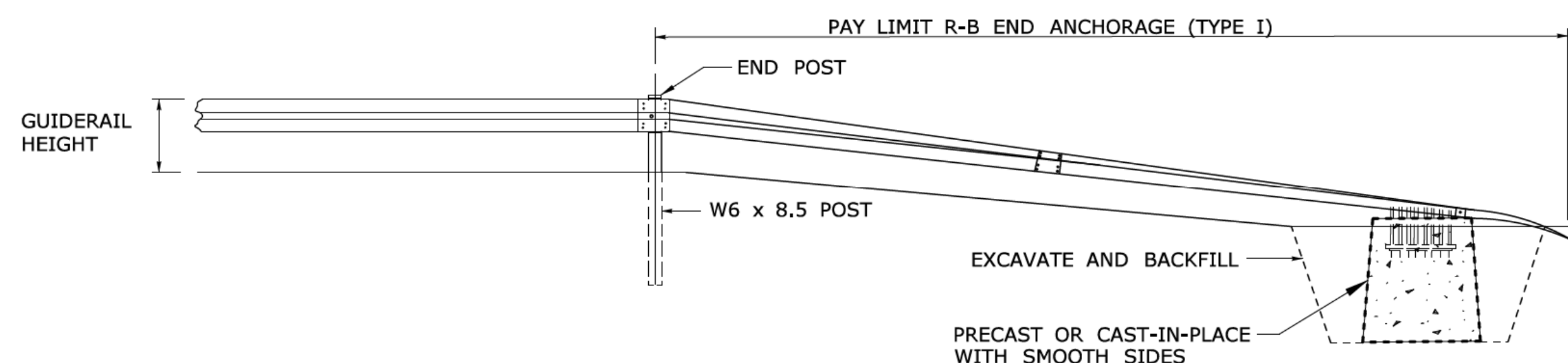
	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. Plotted Date: 1/3/2018	NOT TO SCALE	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SUBMITTED BY: <i>Leo Fontaine</i> NAME/DATE/TIME: Leo Fontaine, P.E. 2018.01.05 11:03:13-05'00' APPROVED BY: <i>Gregory M. Dorosh</i> NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2018.01.05 11:19:31-05'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: METAL BEAM RAIL TRANSITION 350 TO MASH	STANDARD SHEET NO.: HW-910_25
REV. DATE	REVISION DESCRIPTION		Filename: CTDOT.HIGHWAY.STD.dgn Model: 278 - HW-910.25				

GENERAL NOTES:

1. SEE SHEET HW-911-04 FOR TYPICAL END ANCHOR GRADING PLAN.
2. J-HOOK BOLTS MAY BE SUBSTITUTED FOR BOTTOM PLATE ANCHORAGE IN CONCRETE END ANCHORS USING THE SAME SIZE, STRENGTH, AND LENGTH AS NOTED ON THE PLANS.
3. INSTALLATION OF RADII DIFFERENT THAN WHAT IS SHOWN IN DETAIL "C" FOR R-B END ANCHORAGE TYPE II MUST BE APPROVED BY THE ENGINEER.

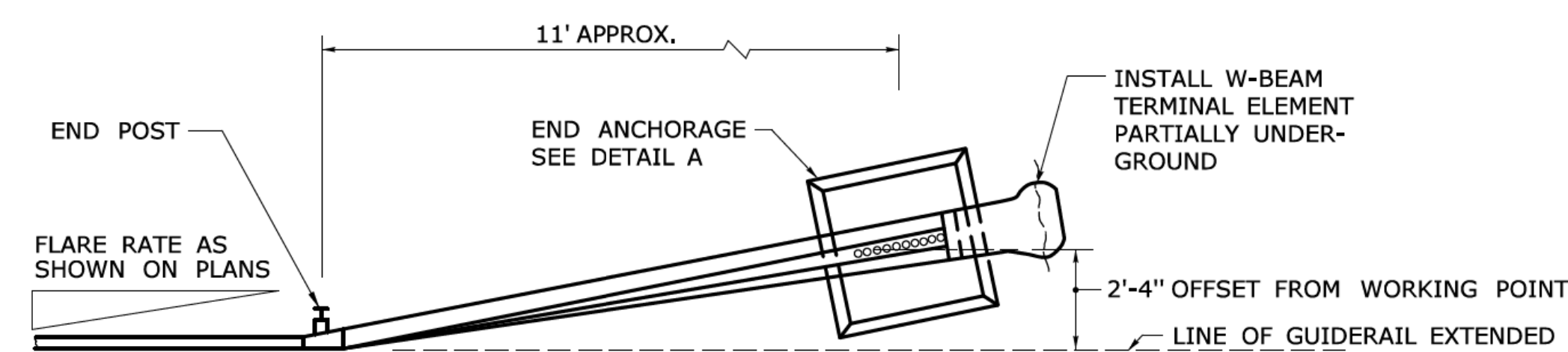


PLAN

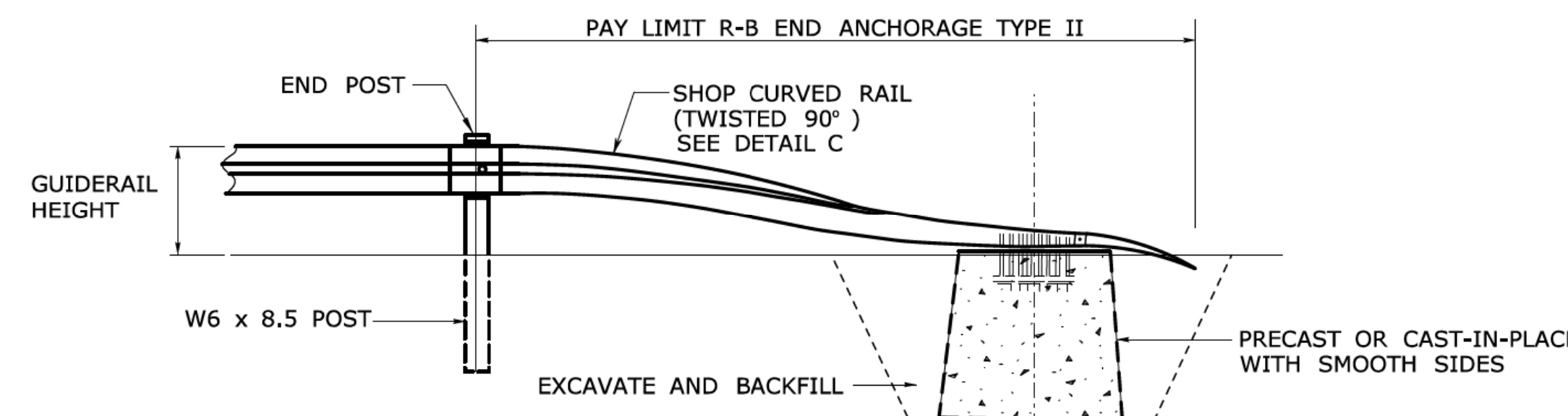


ELEVATION

R-B END ANCHORAGE TYPE I

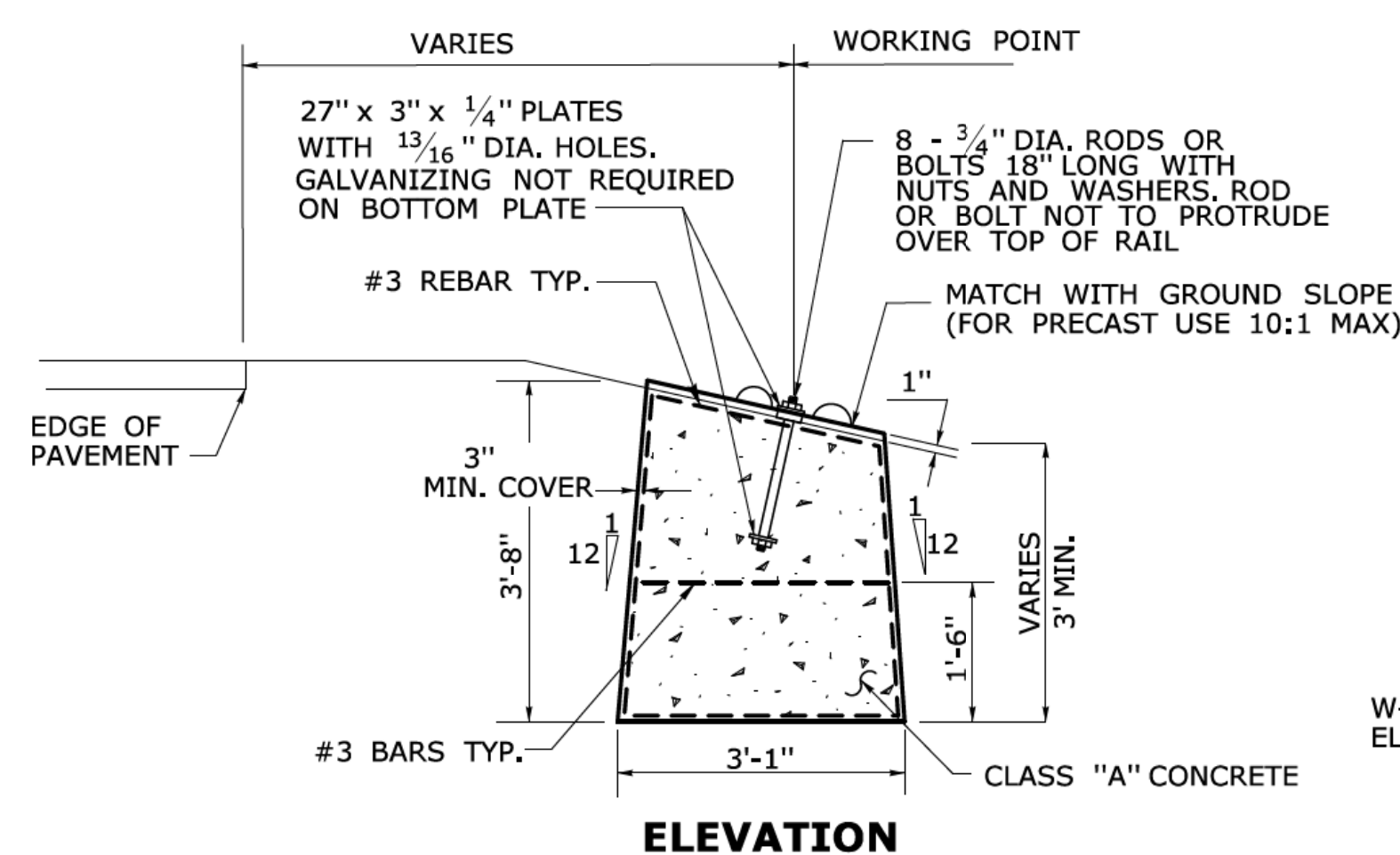


PLAN

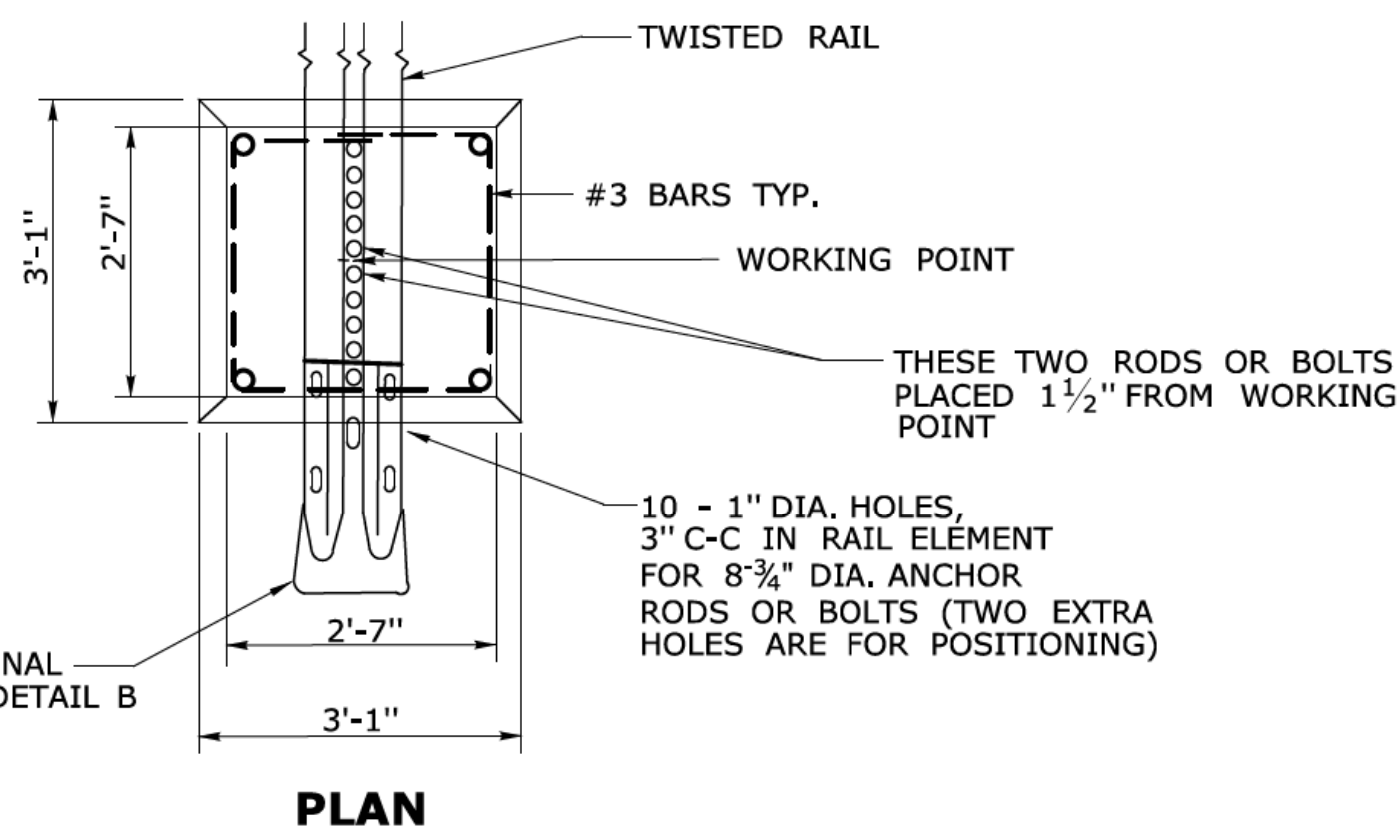


ELEVATION

R-B END ANCHORAGE TYPE II



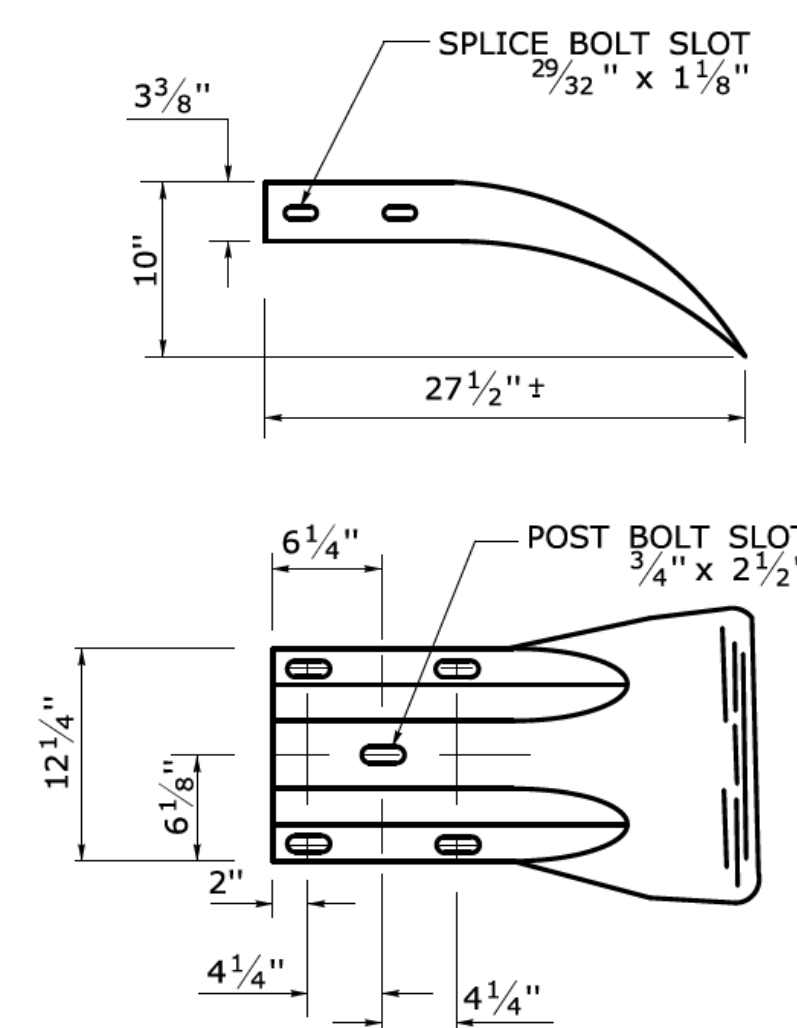
ELEVATION



PLAN

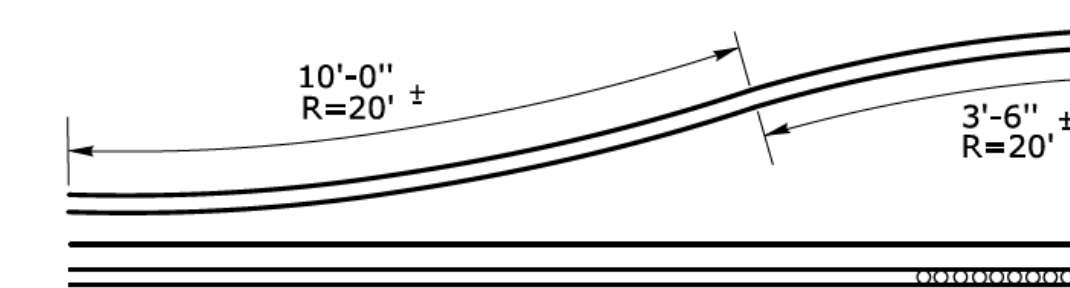
**DETAIL A
ROADSIDE CONCRETE END ANCHOR**

SEE NOTE 2



DETAIL B

W-BEAM TERMINAL ELEMENT



**DETAIL C
SHOP CURVED RAIL**
SEE NOTE 3

REV.	DATE	REVISION DESCRIPTION
1	6/11	REVISED TYPE I AND II ANCHOR FOR CLEAR ZONE PLACEMENT
2	7/13	ADD POST OFFSET DISTANCE
3	9/17	REVISED TYPE I AND II FOR R-B MASH OR R-B 350 RAIL

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

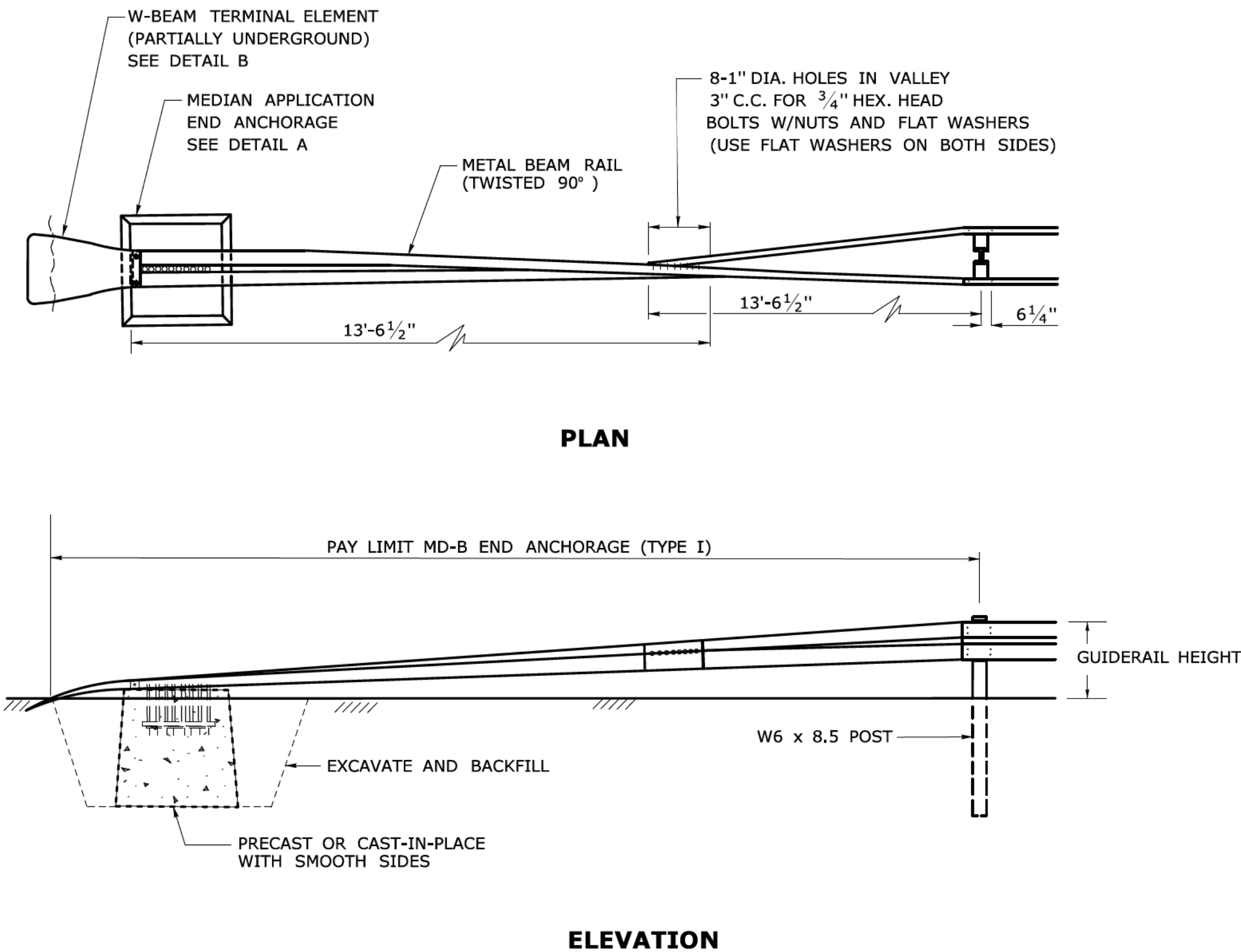
SUBMITTED BY: NAME/DATE/TIME:
Leo Fontaine, P.E.
2018.01.05 11:03:02-05'00'

APPROVED BY: NAME/DATE/TIME:
Gregory M. Dorosh, P.E.
2018.01.05 11:15:51-05'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

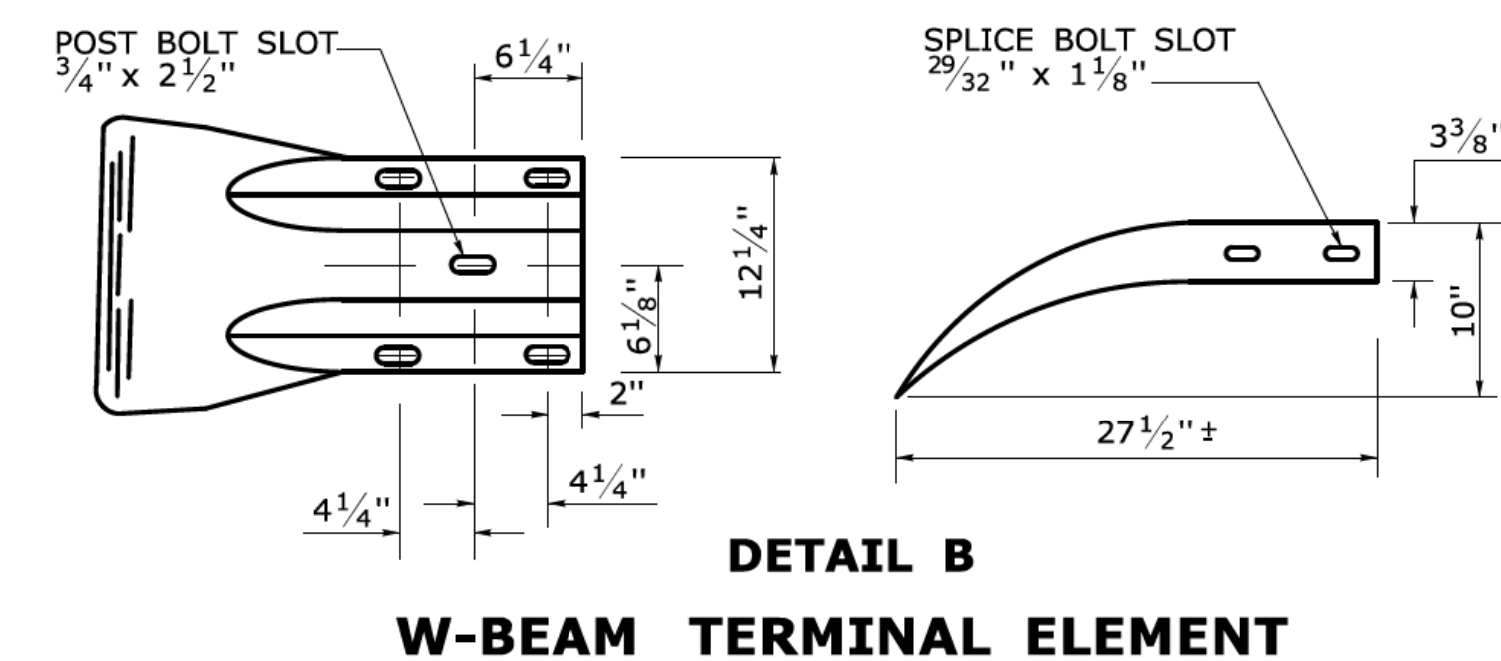
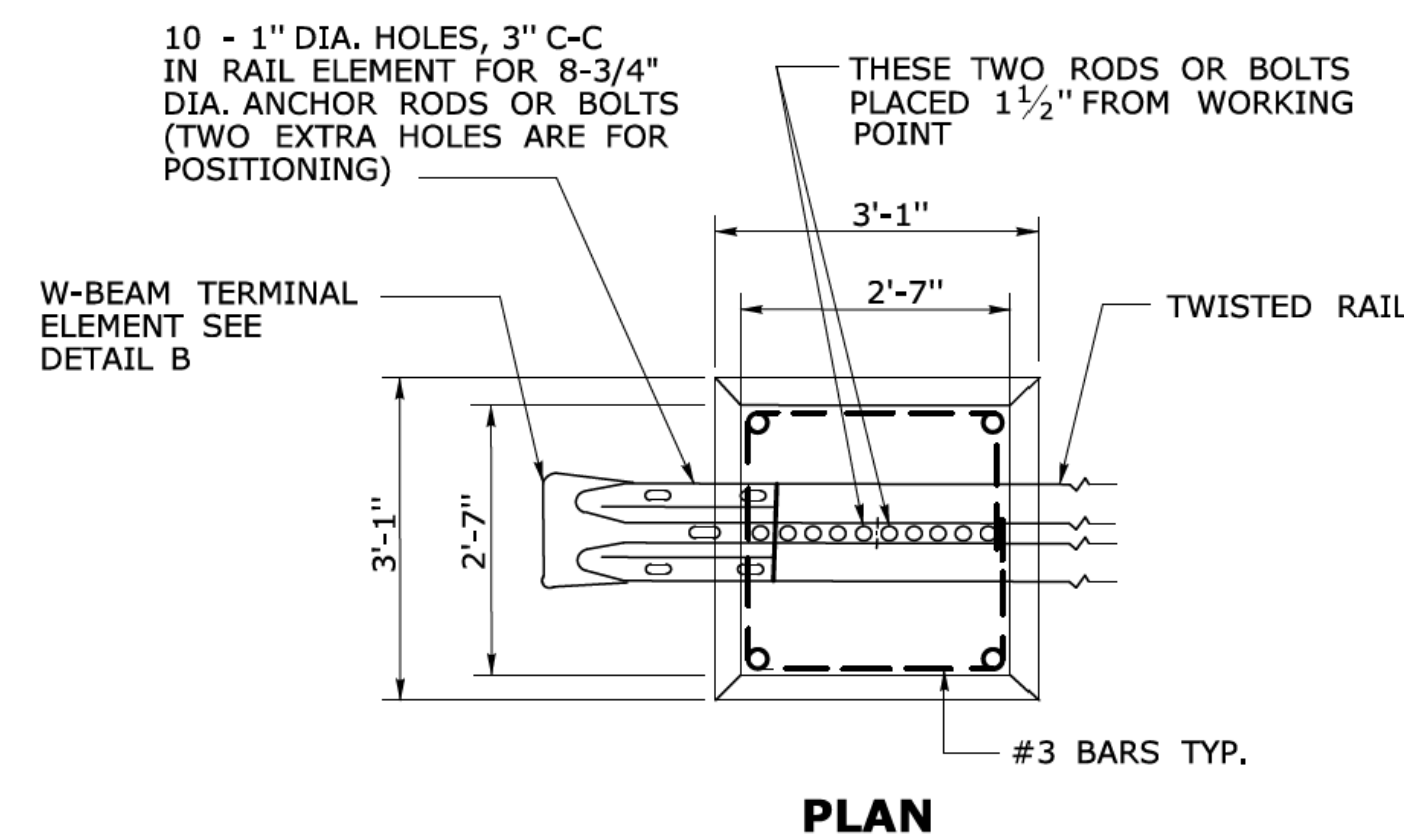
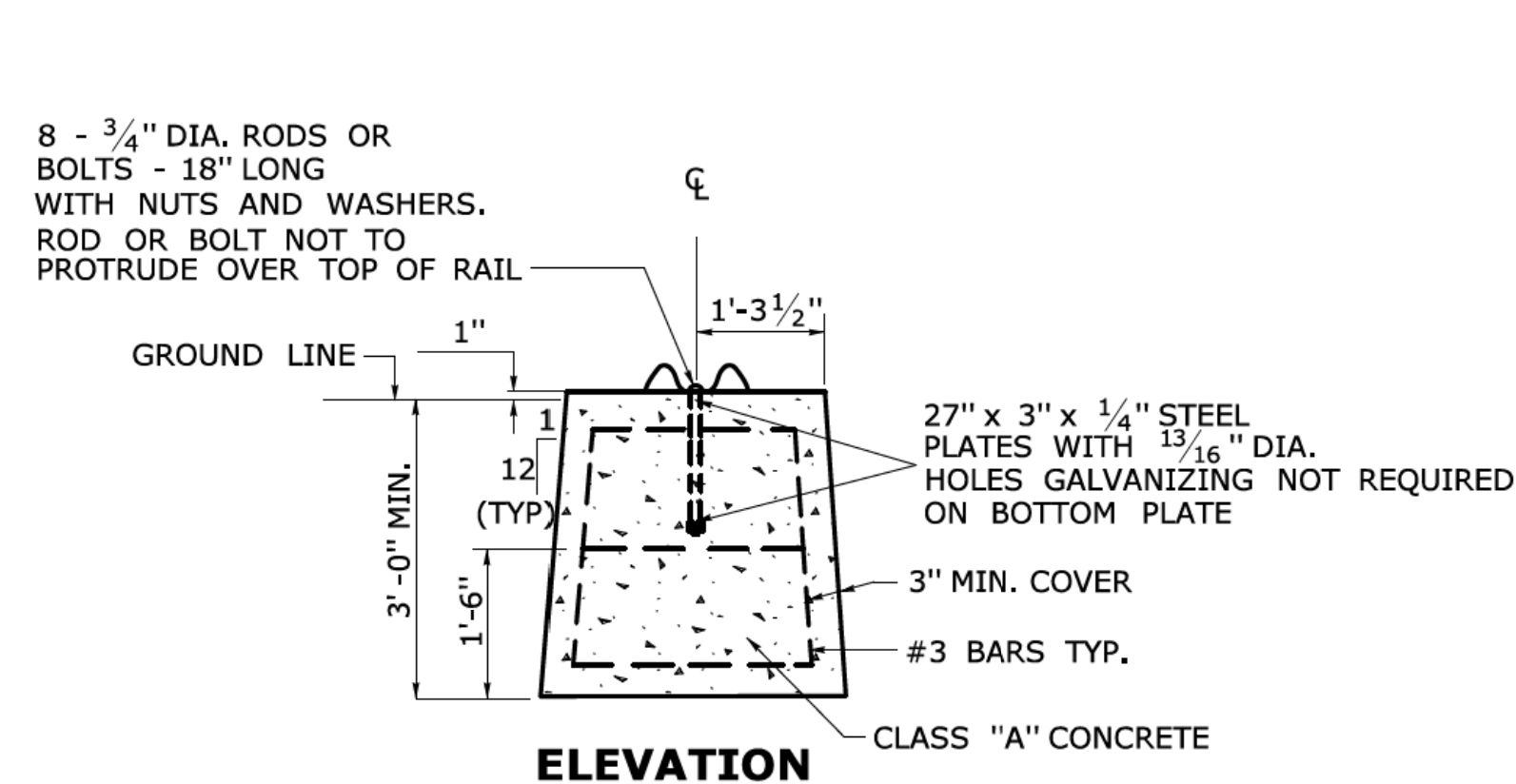
STANDARD SHEET TITLE:
**R-B END ANCHORAGE
TYPE I AND II**

STANDARD SHEET NO.:
HW-911_01



GENERAL NOTE:
 1. J-HOOK BOLTS MAY BE SUBSTITUTED FOR BOTTOM PLATE ANCHORAGE IN CONCRETE END ANCHORS HOUSING THE SAME SIZE, STRENGTH, AND LENGTH AS NOTED ON THE PLANS.

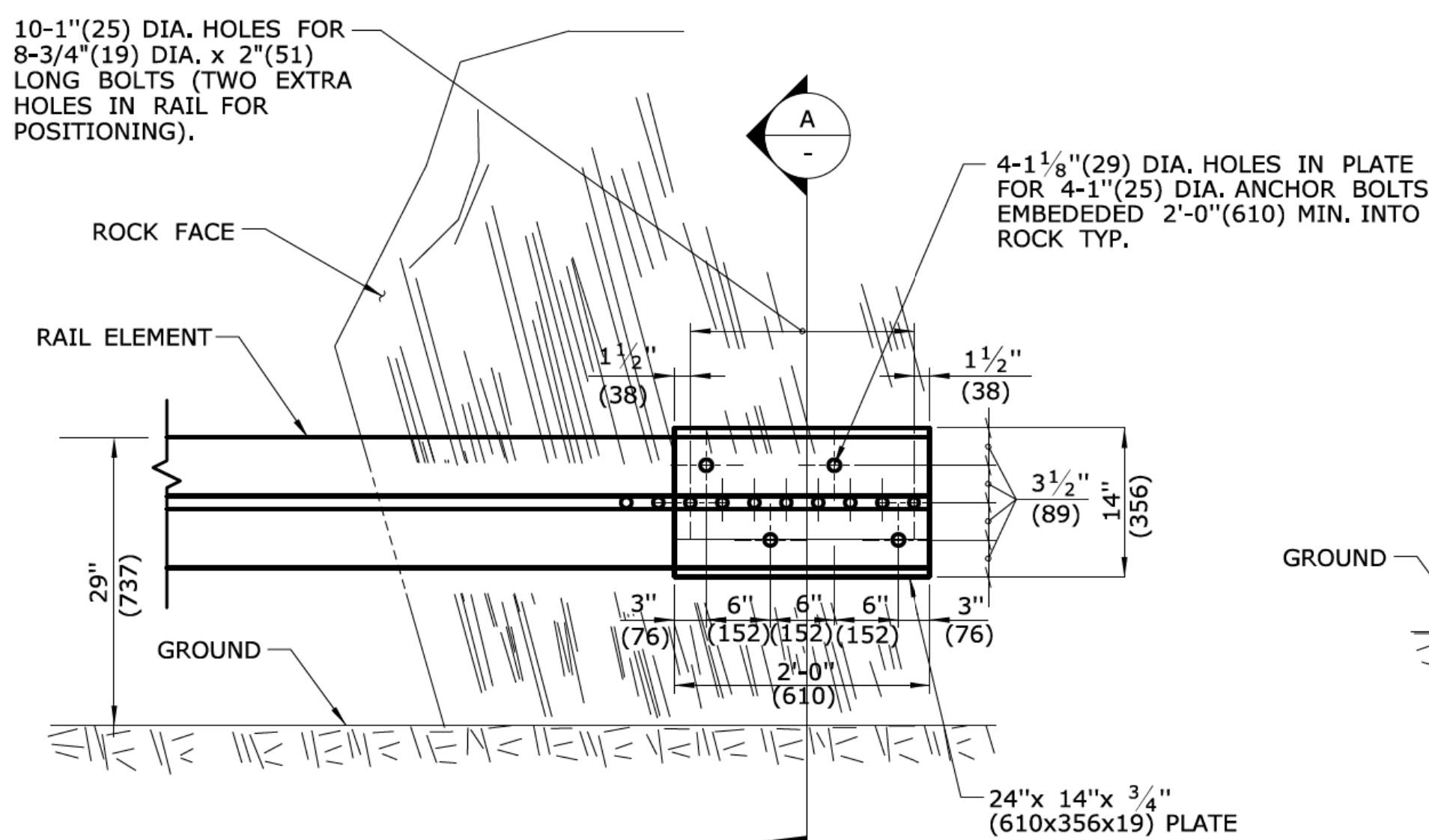
MD-B END ANCHORAGE TYPE I



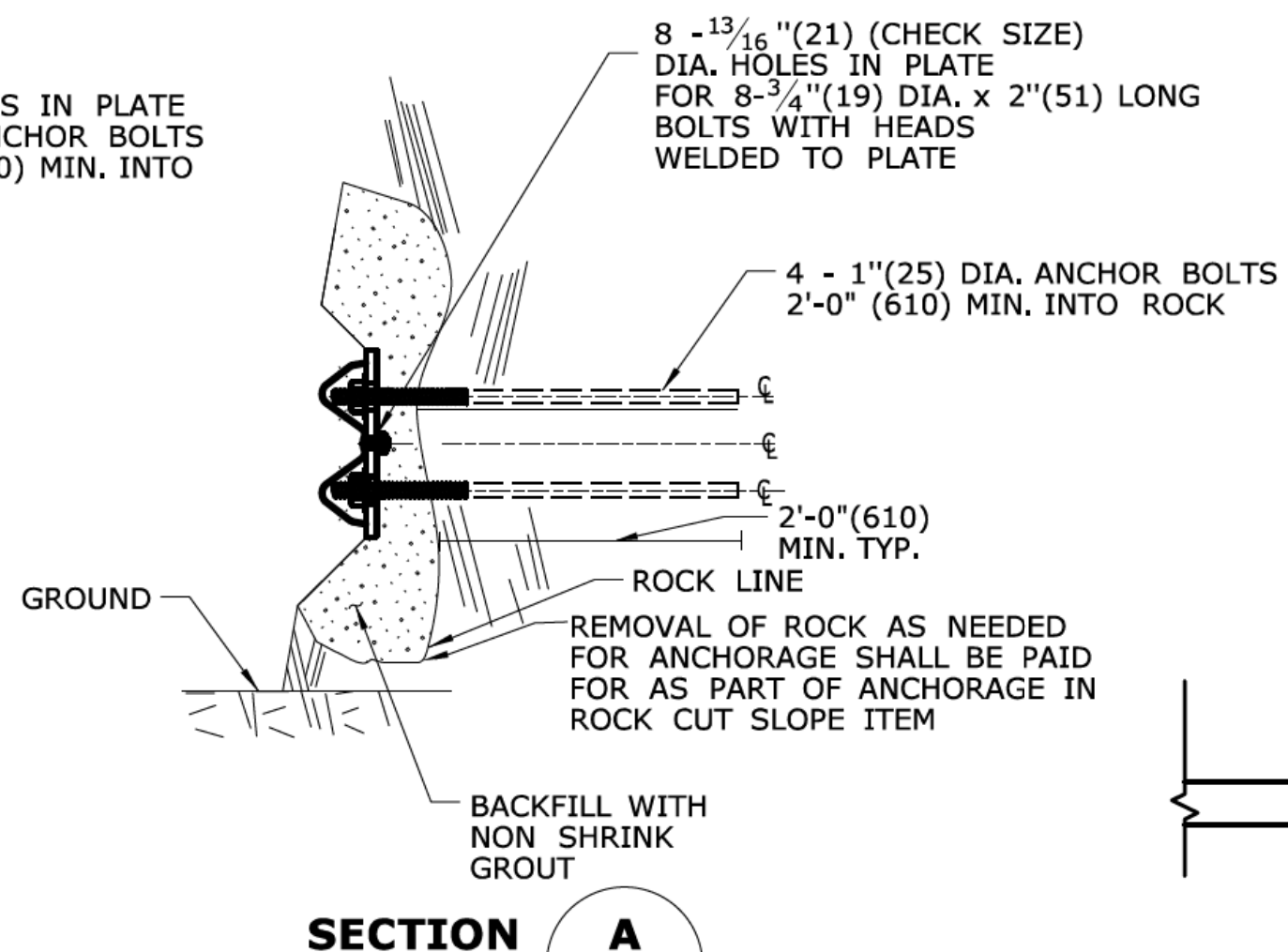
**DETAIL A
 CONCRETE END ANCHOR
 FOR MEDIAN RAIL**

**DETAIL B
 W-BEAM TERMINAL ELEMENT**

1	9/17	REVISED TYPE I FOR MASH OR R-B 350 RAIL	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: Leo Fontaine, P.E. 2018.01.05 11:02:50-05'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: MD-B END ANCHORAGE TYPE I	STANDARD SHEET NO.: HW-911_02
REV. DATE	REVISION DESCRIPTION	Plotted Date: 1/3/2018				APPROVED BY: NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2018.01.05 11:16:20-05'00'			

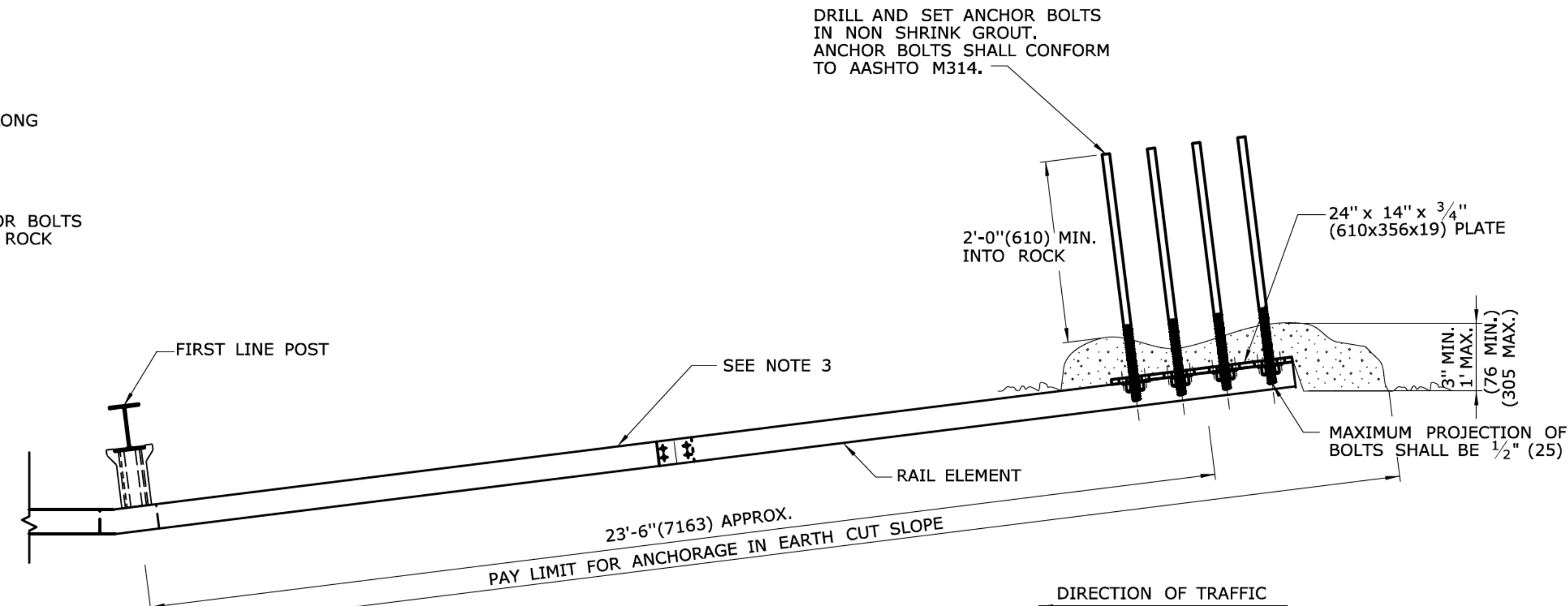


ELEVATION

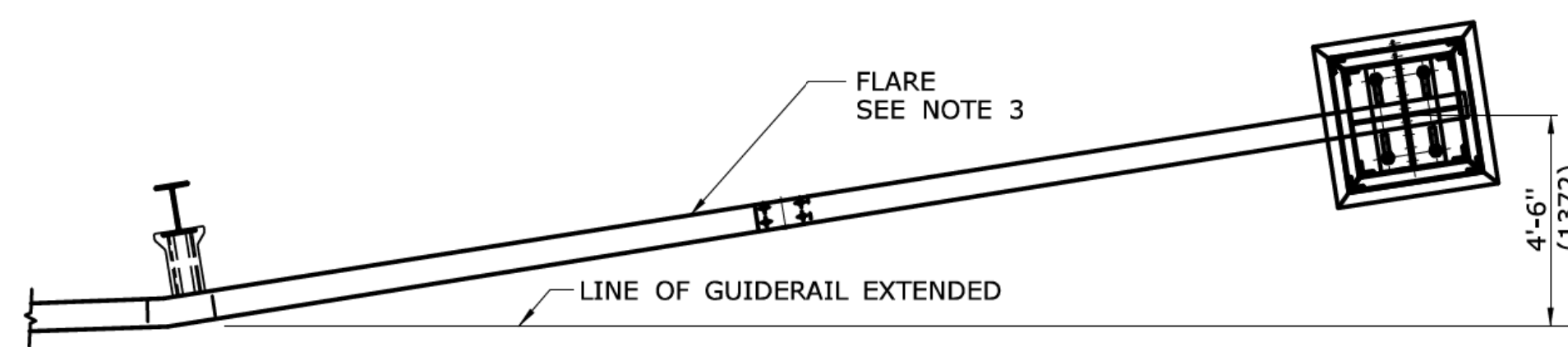


SECTION A

DETAILS OF ANCHORAGE IN ROCK CUT SLOPE

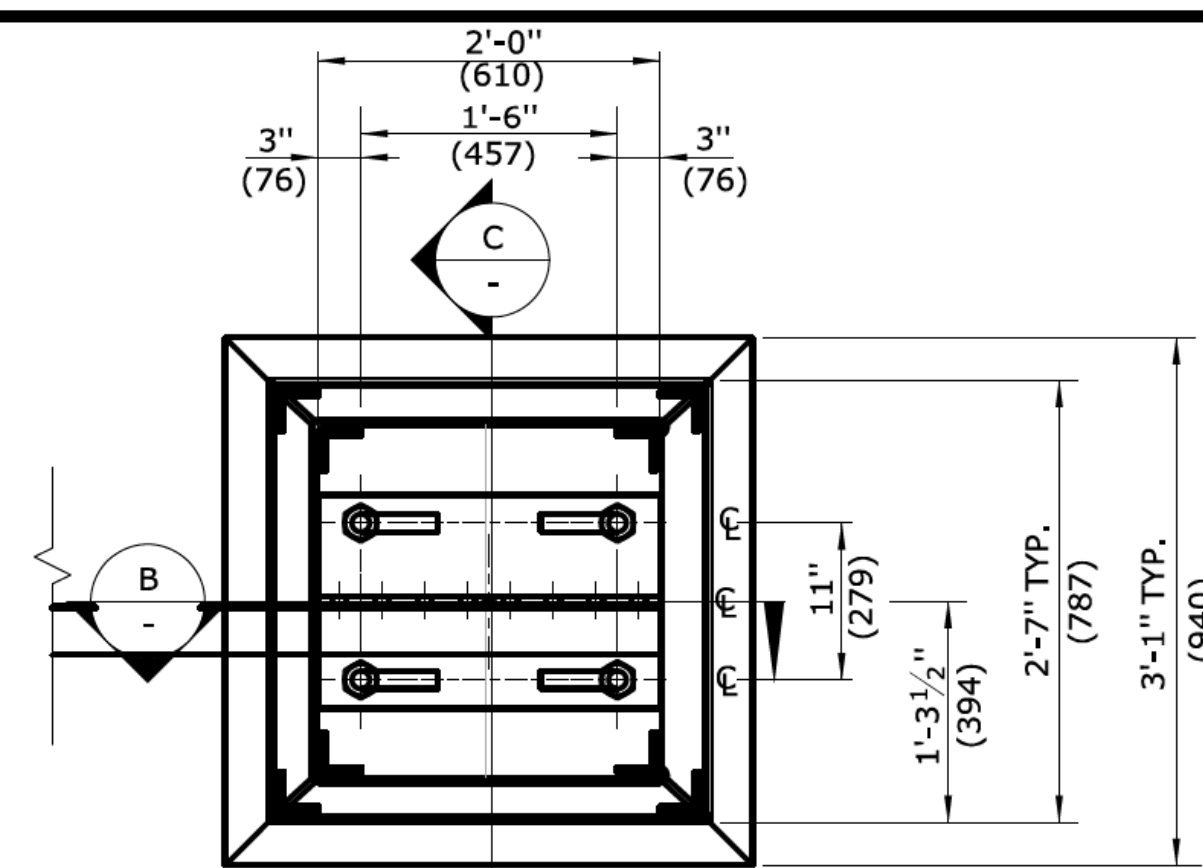


PLAN



PLAN

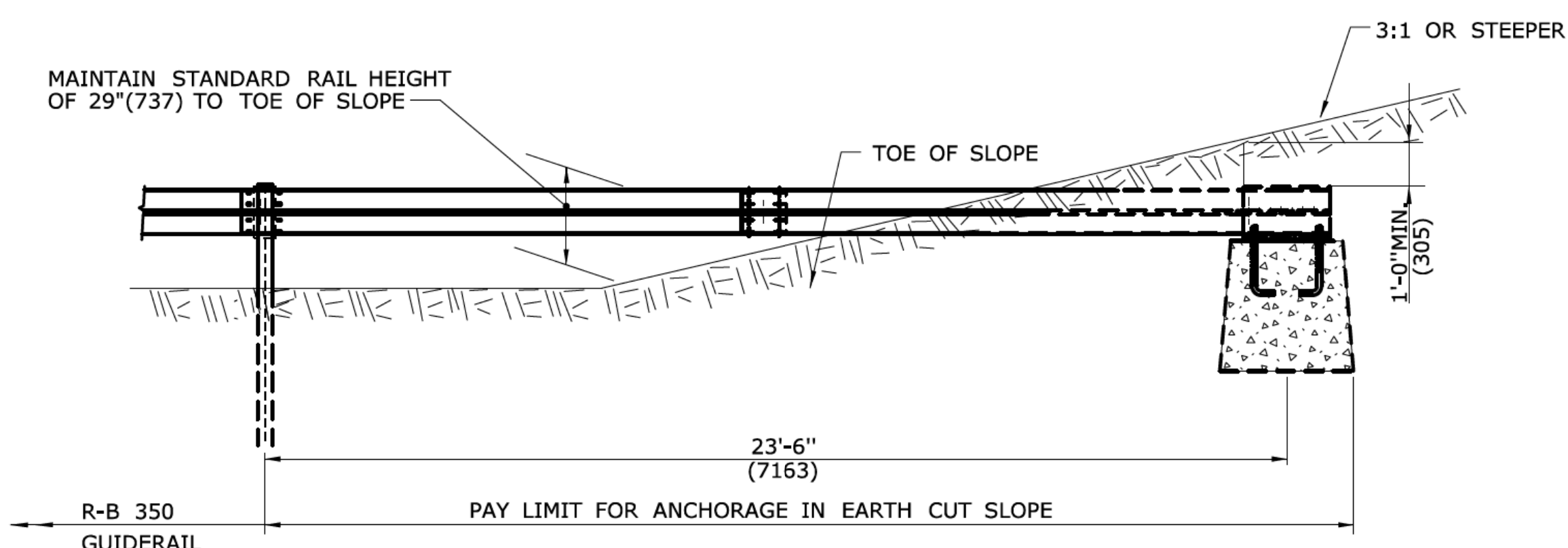
DIRECTION OF TRAFFIC



SECTION B

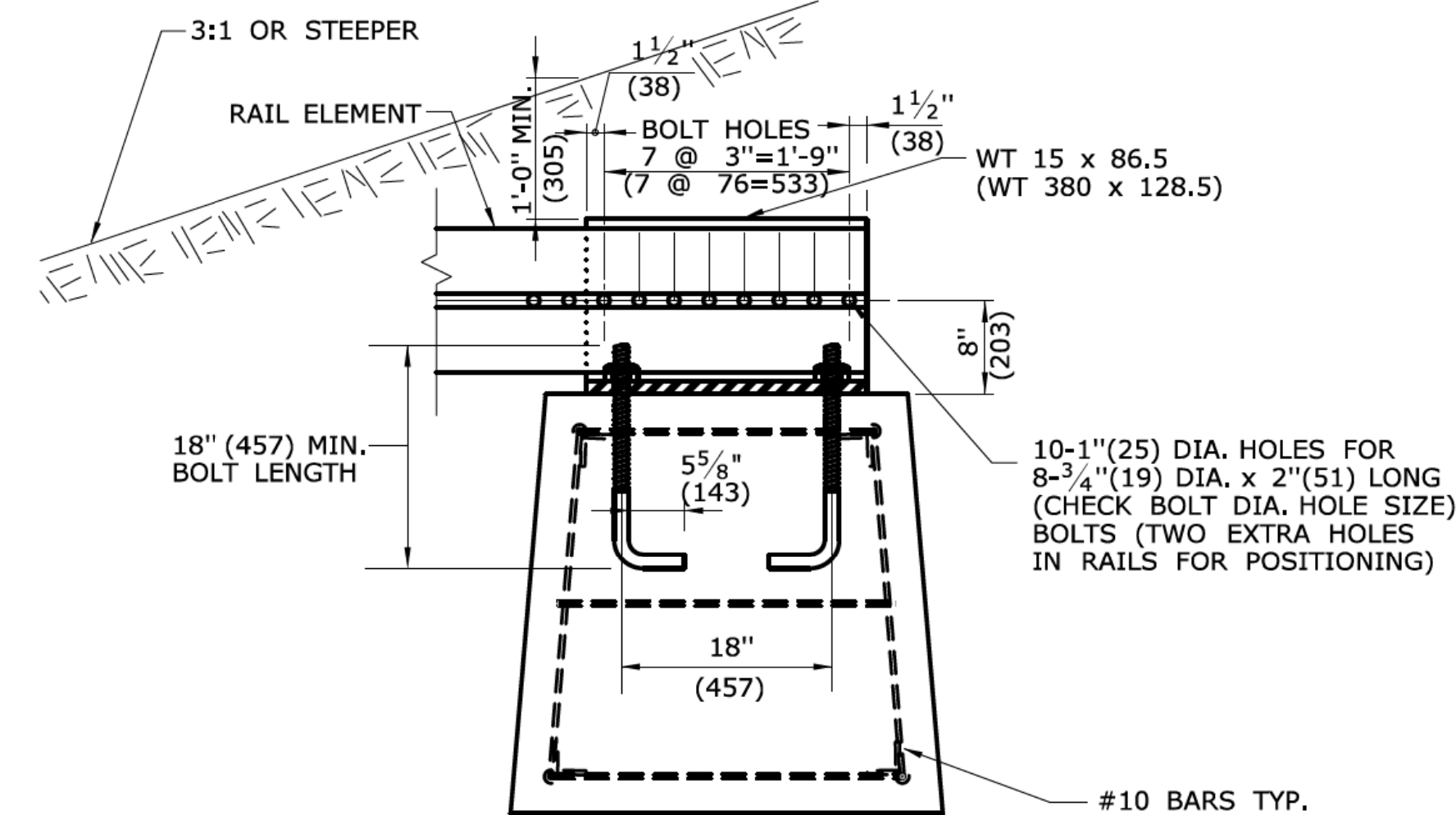
GENERAL NOTES:

1. ANCHORAGE IN AN EARTH CUT SLOPE SHALL BE IN A CUT SLOPE 3:1 OR STEEPER, FULL RAIL HEIGHT MUST BE MAINTAINED TO TOE OF SLOPE AND A MINIMUM 1'(305) COVER SHALL BE PROVIDED OVER THE RAIL ELEMENT.
2. ANCHORAGE IN EARTH CUT SLOPE AND ROCK CUT SLOPE INSTALLED ON LIMITED ACCESS HIGHWAYS AND RAMPS SHALL USE CLASS B TYPE II (10 GAUGE) W-BEAM RAIL ELEMENTS.
3. THE MAXIMUM FLARE RATES FOR THESE TERMINAL TREATMENTS SHALL CONFORM TO THE SAME REQUIREMENTS AS STANDARD GUIDERAIL IN ACCORDANCE WITH THE CTDOT HIGHWAY DESIGN MANUAL.
4. MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) ± 1" (25).

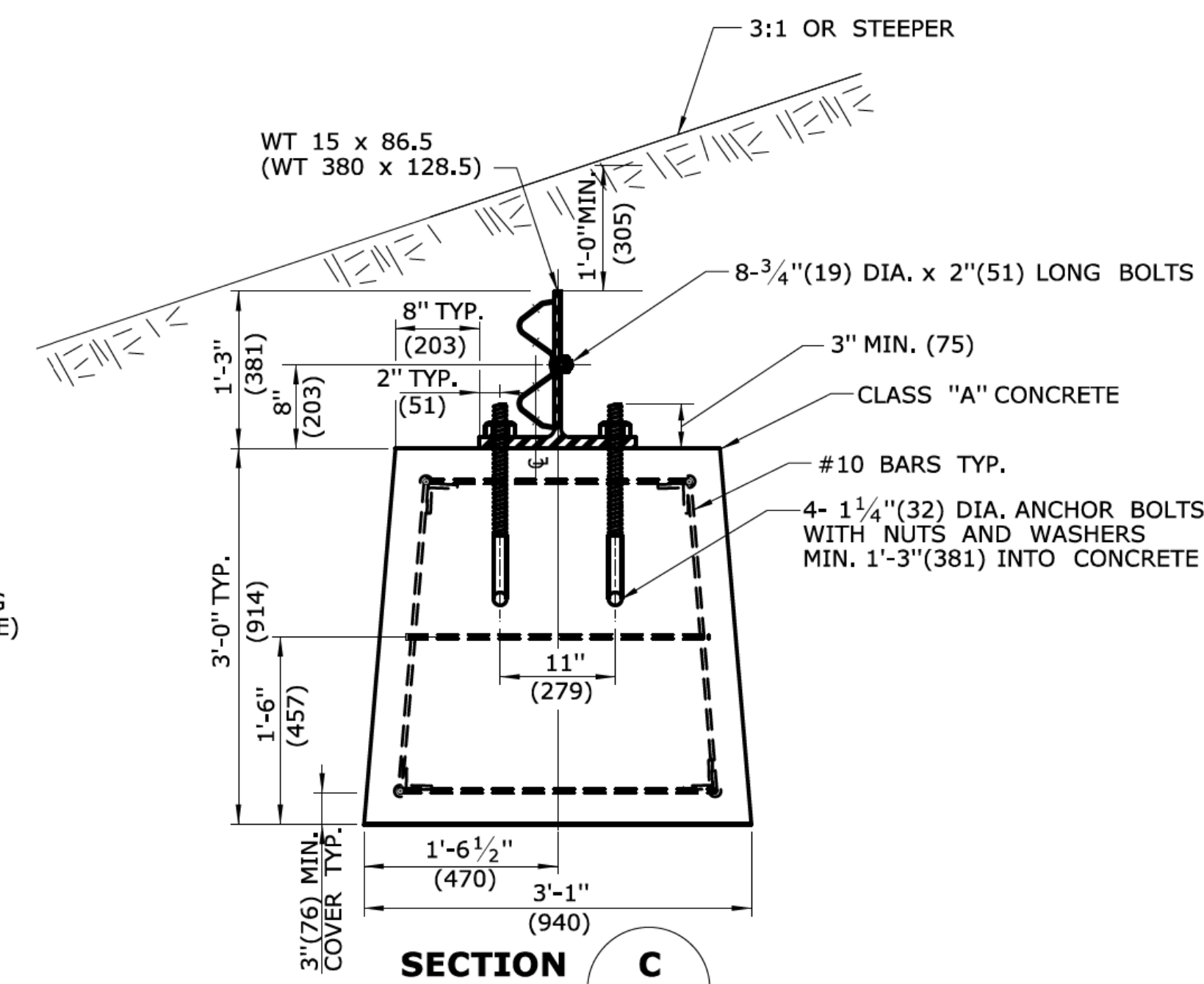


ELEVATION

DETAILS OF ANCHORAGE IN EARTH CUT SLOPE



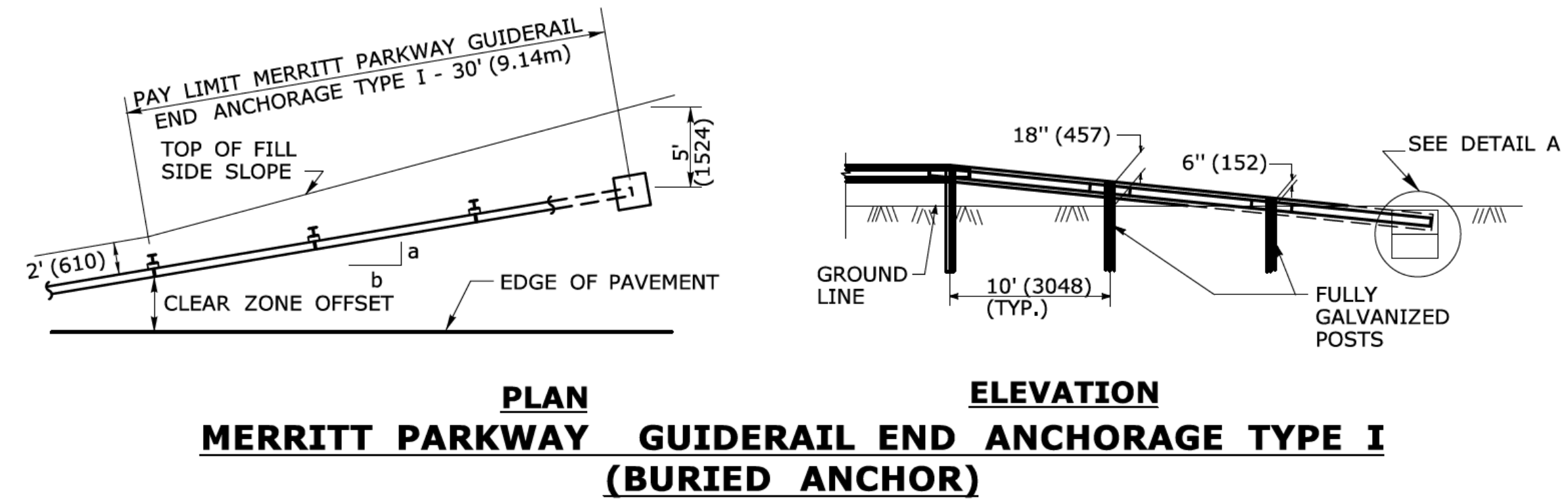
SECTION C



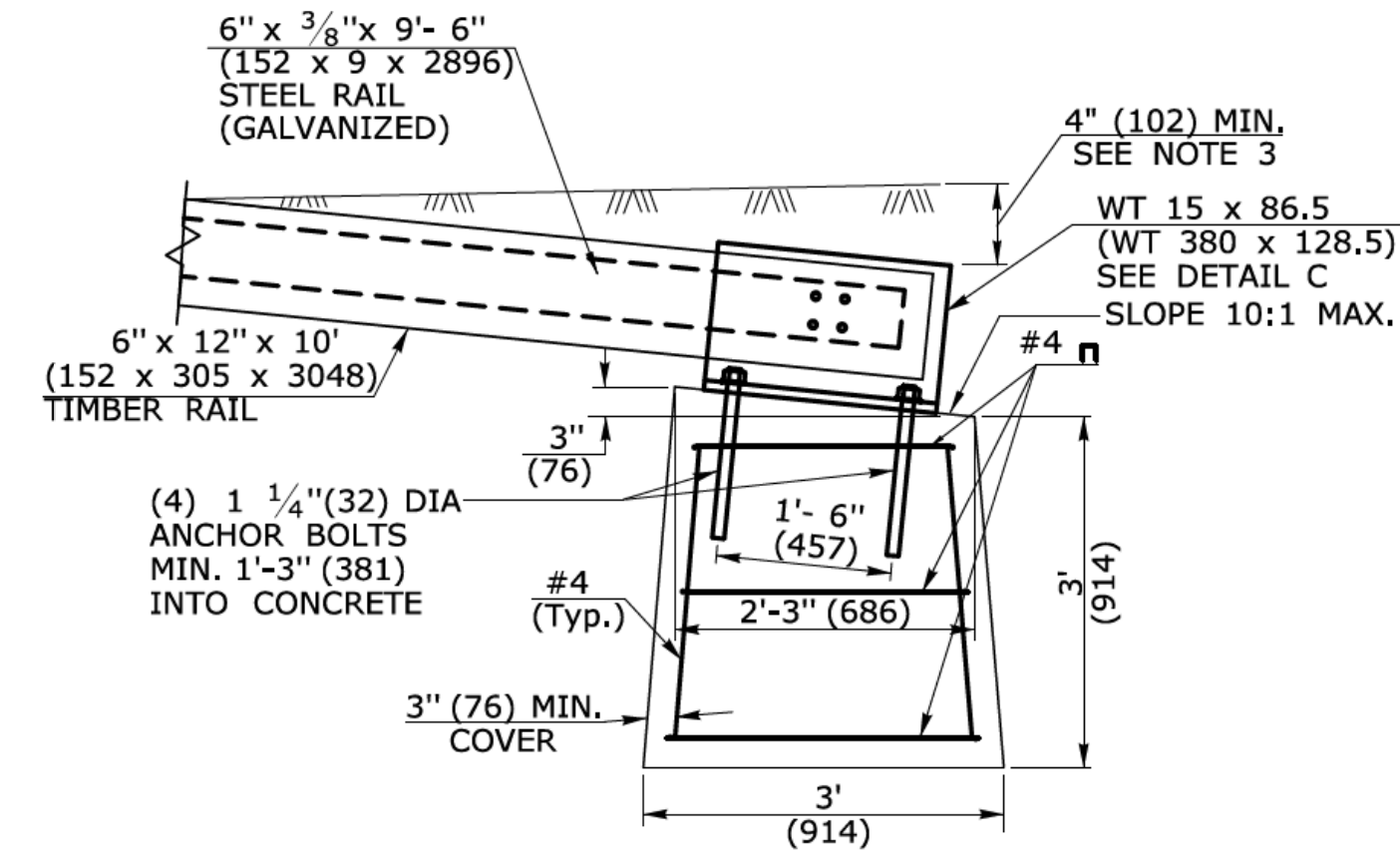
SECTION C

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

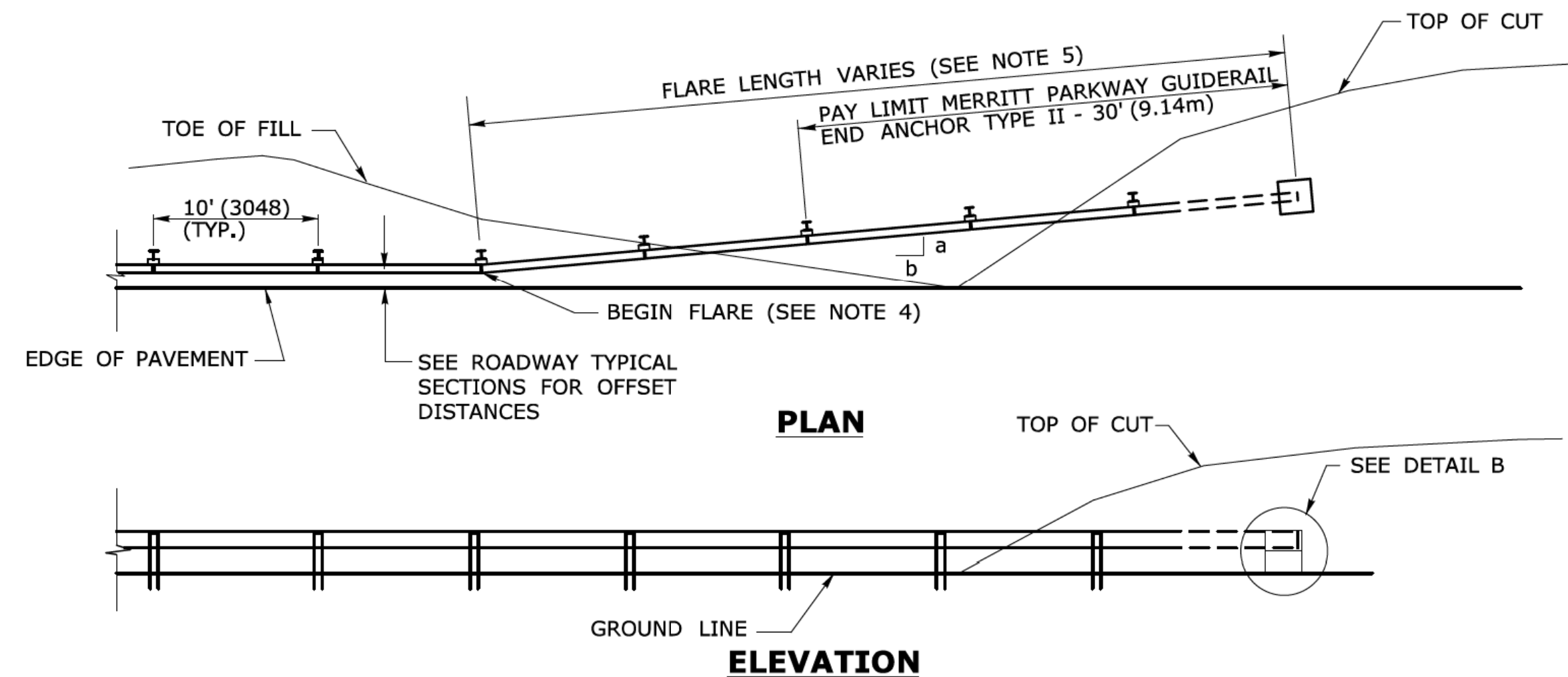
<p>THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.</p>		<p>NOT TO SCALE</p>	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	<p>SUBMITTED BY: NAME/DATE/TIME: James H. Norman</p> <p>APPROVED BY: NAME/DATE/TIME: James H. Norman</p>	<p>CTDOT STANDARD SHEET</p> <p>OFFICE OF ENGINEERING</p>	<p>STANDARD SHEET TITLE: ANCHOR IN EARTH CUT SLOPE ANCHOR IN ROCK CUT SLOPE</p>	<p>STANDARD SHEET NO.: HW-911_03</p>
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 9/30/2010	Filename: CTDOT_HIGHWAY_STD.dgn	Model: 61 - HW-911_03		



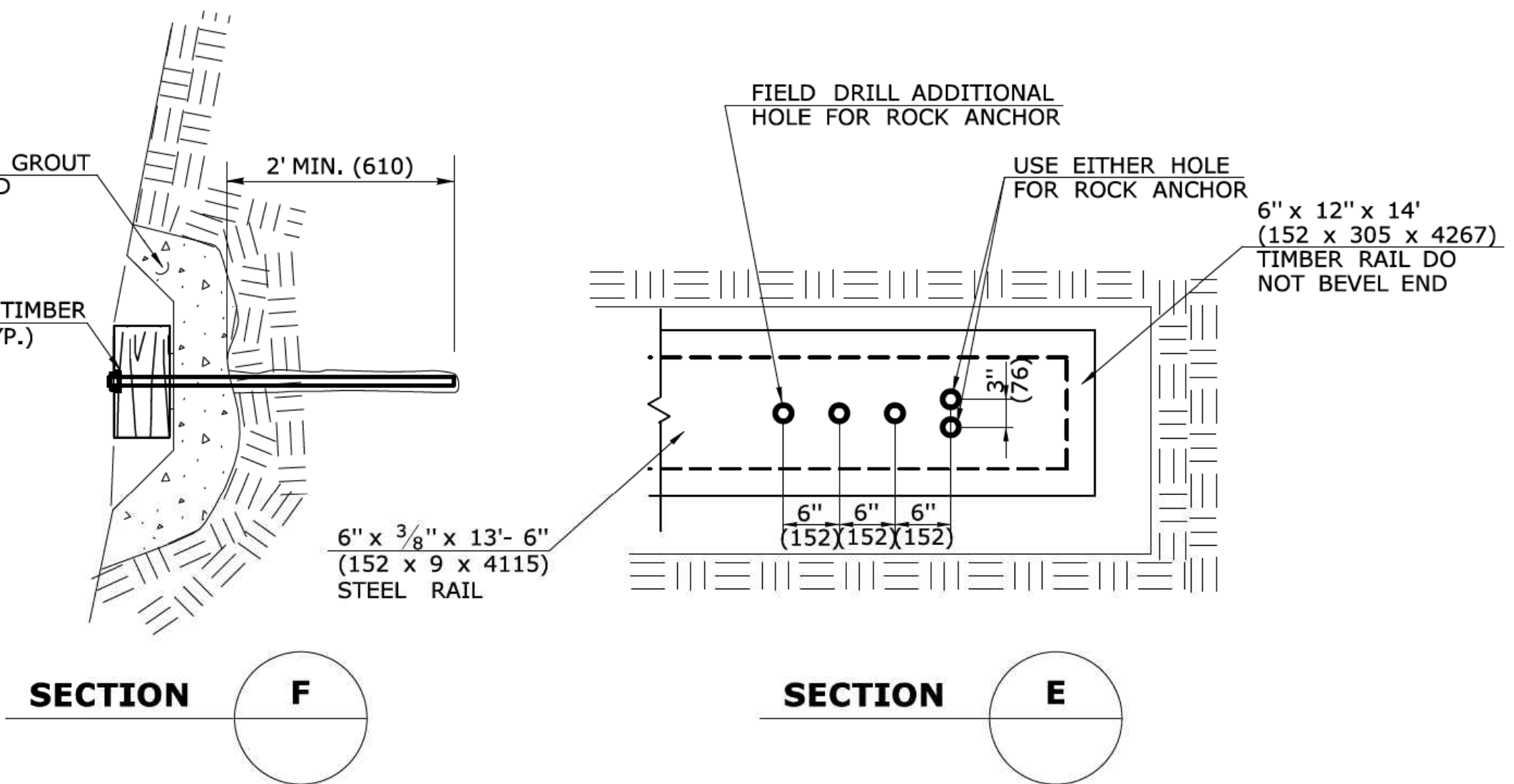
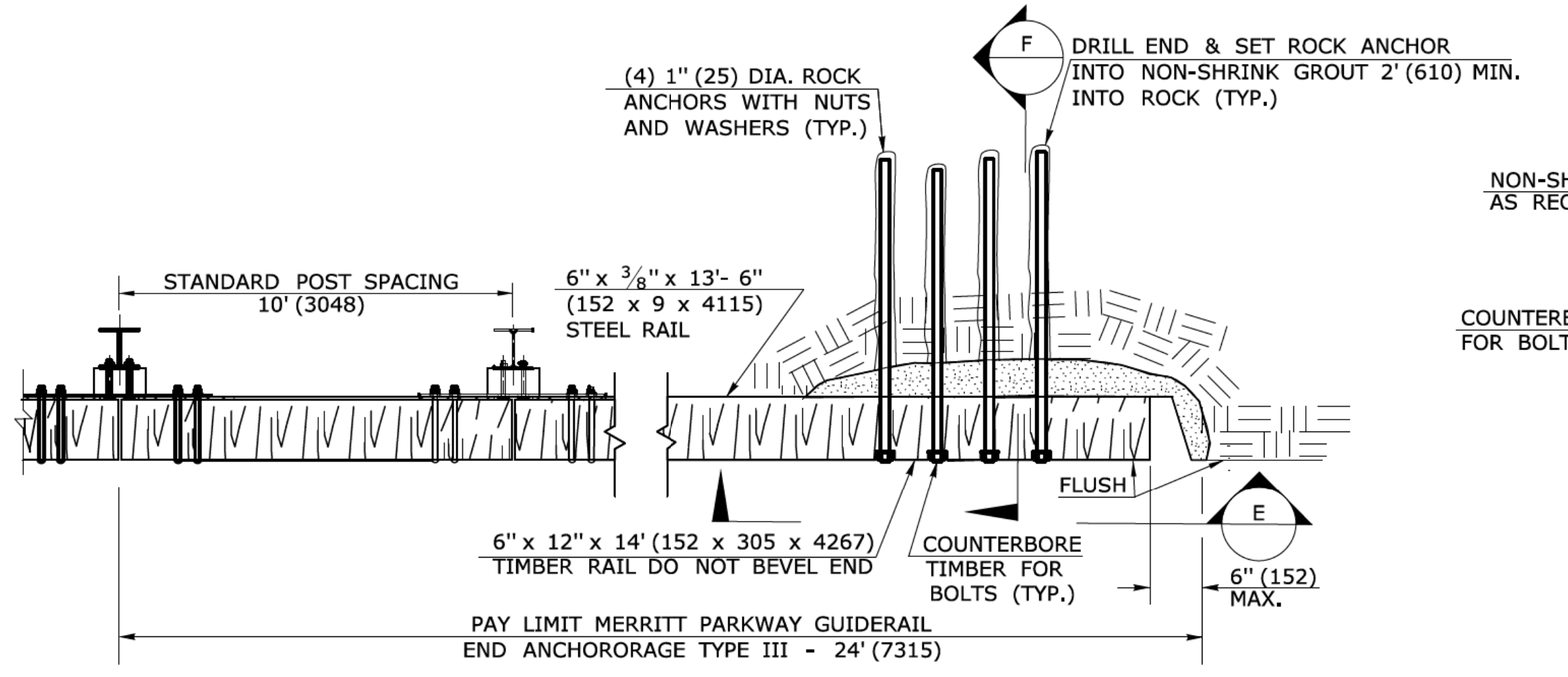
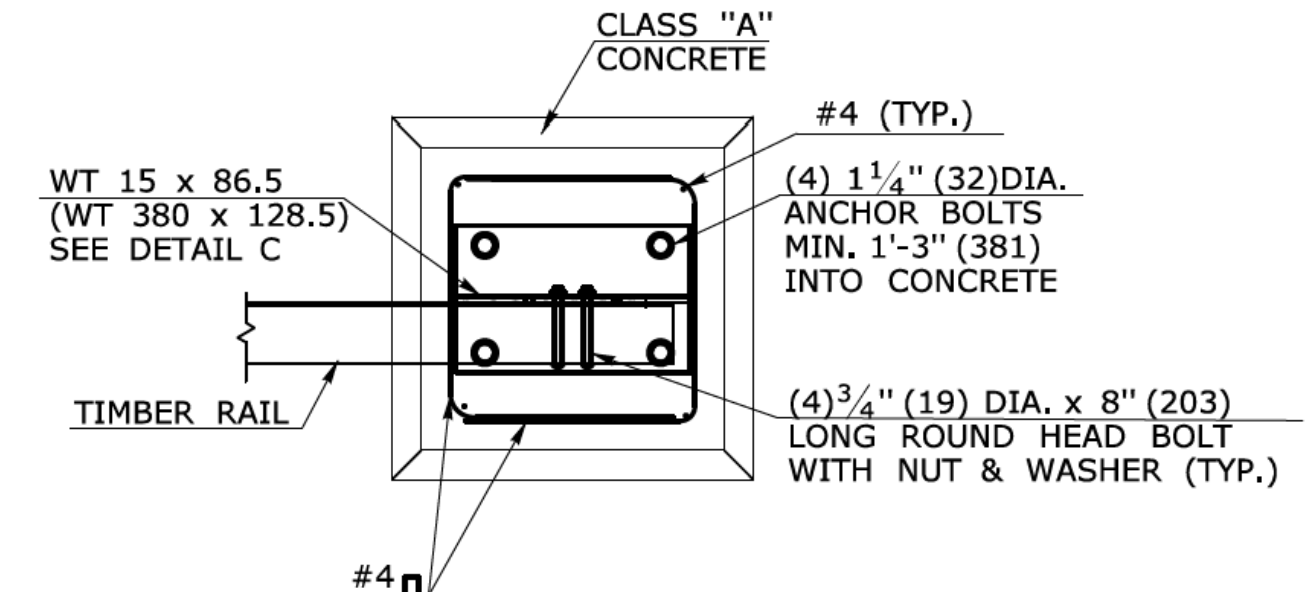
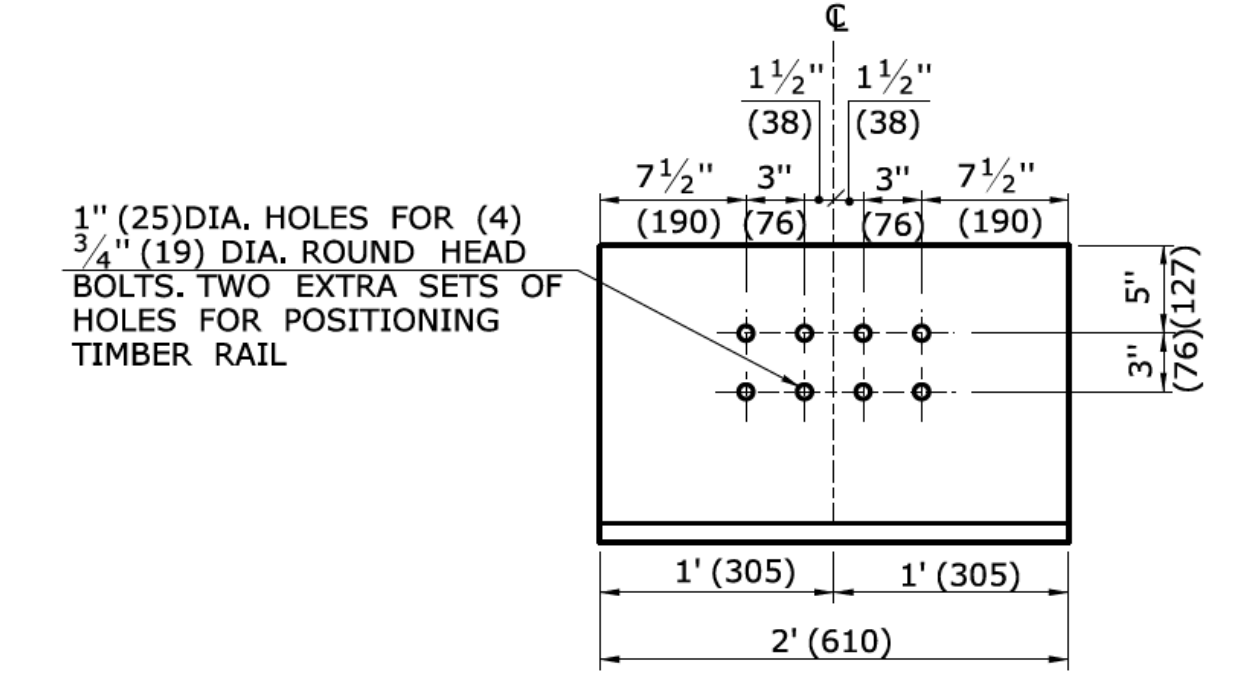
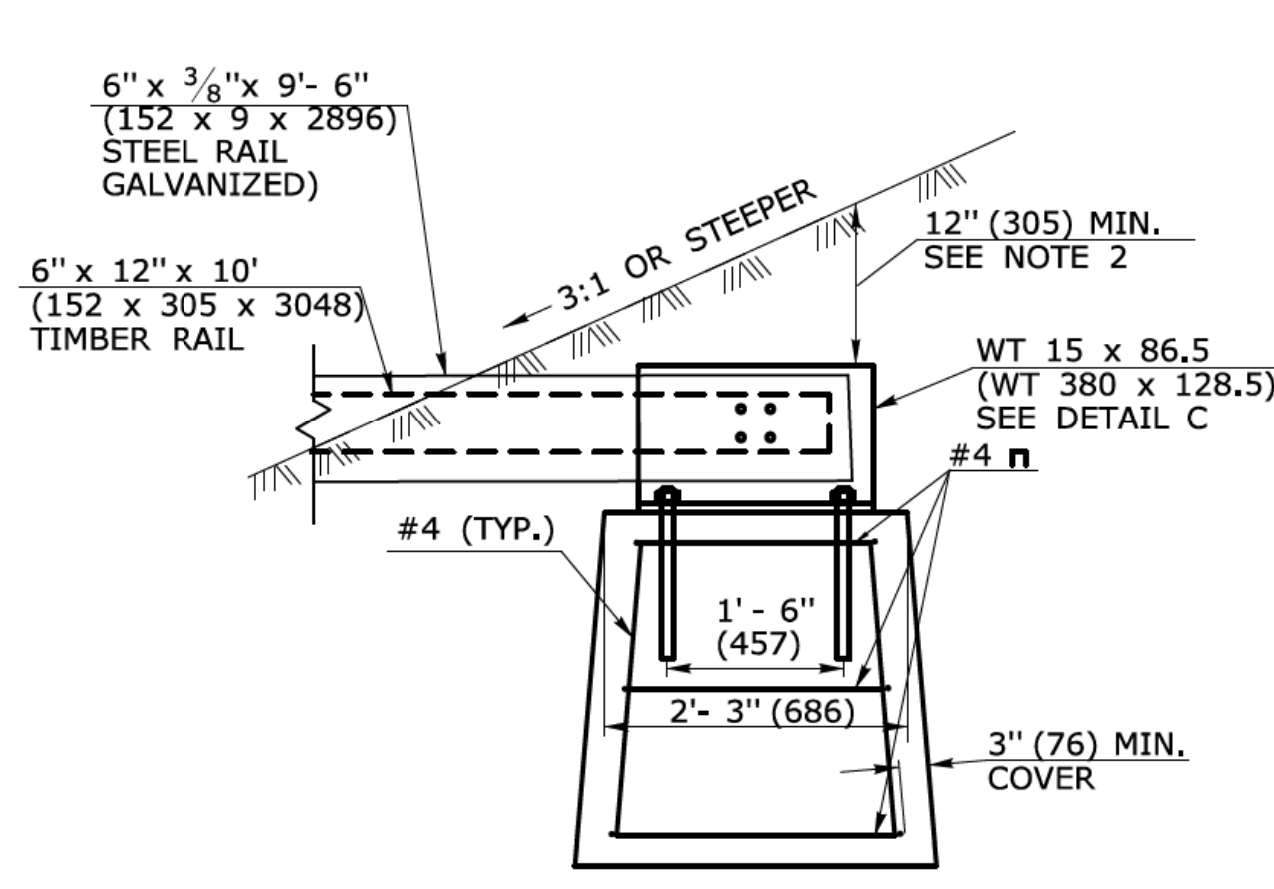
NOTE: SEE PLAN SHEETS FOR FLARE RATE a:b.



- GENERAL NOTES:**
1. MATERIALS AND CONSTRUCTION OF THE MERRITT PARKWAY GUIDERAIL END ANCHORS SHALL CONFORM TO THE SPECIAL PROVISIONS PROVIDED WITH THE PROJECT. ALL HARDWARE IN CONTACT WITH THE GROUND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIAL PROVISION.
 2. FOR THE END ANCHOR TYPE II, EXTEND THE FLARE INTO THE CUT SLOPE UNTIL A MINIMUM 12" (305) OF COVER IS OBTAINED OVER THE GUIDERAIL ELEMENT.
 3. FOR THE END ANCHOR TYPE I, EXTEND THE FLARE OUTSIDE THE CLEAR ZONE AND BURY THE GUIDERAIL ANCHOR AND ELEMENT TO OBTAIN A MINIMUM COVER OF 4" (102), SEE DETAIL A.
 4. BEGIN THE FLARE AT THE NEAREST POST TO A TRANSITION POINT BETWEEN FILL AND CUT AS DIRECTED BY THE ENGINEER.
 5. THE GUIDERAIL FLARE SHOWN ON THE PLAN SHEETS IS THE MINIMUM LENGTH AND RATE REQUIRED AS DIRECTED BY THE ENGINEER. FLARE THE GUIDERAIL SO THAT THE TERMINAL SECTION IS OUTSIDE THE CLEAR ZONE.

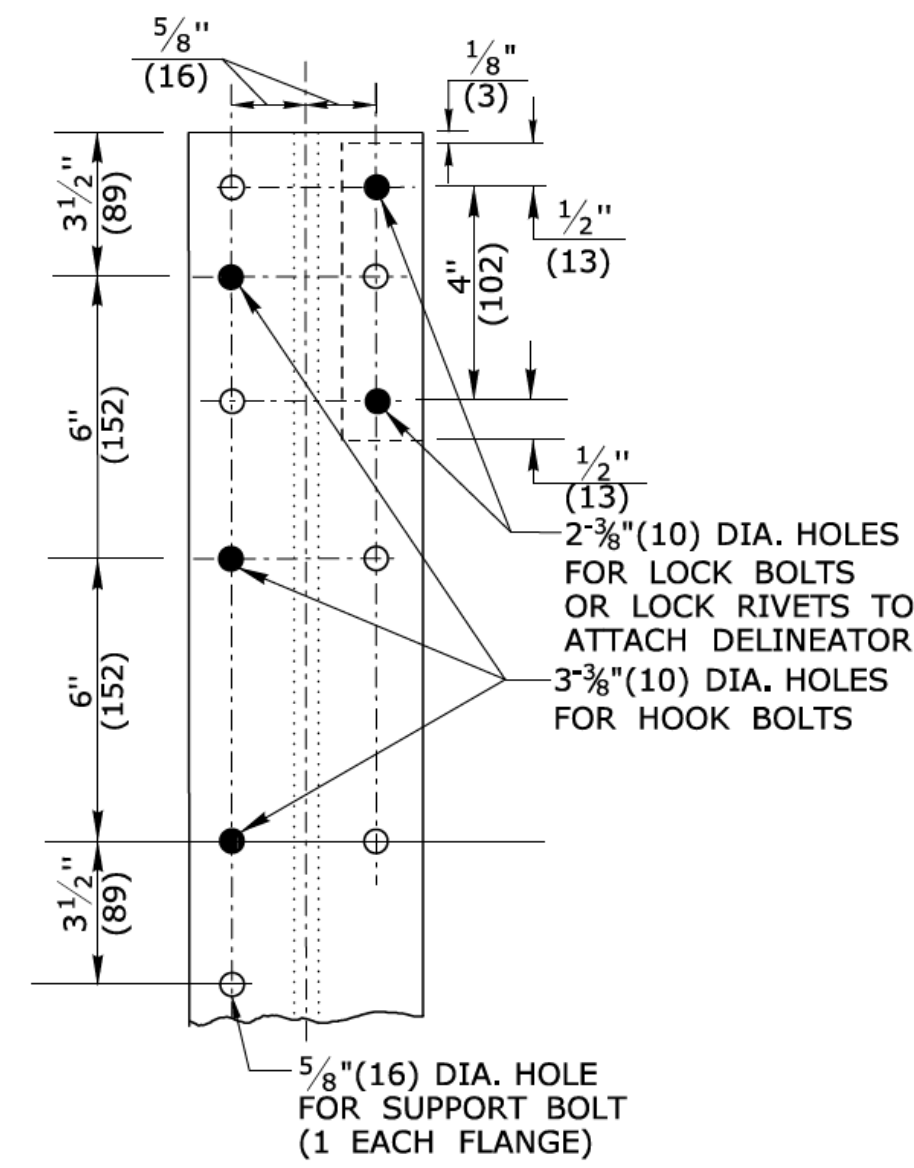


NOTE: SEE PLAN SHEETS FOR FLARE RATE a:b.

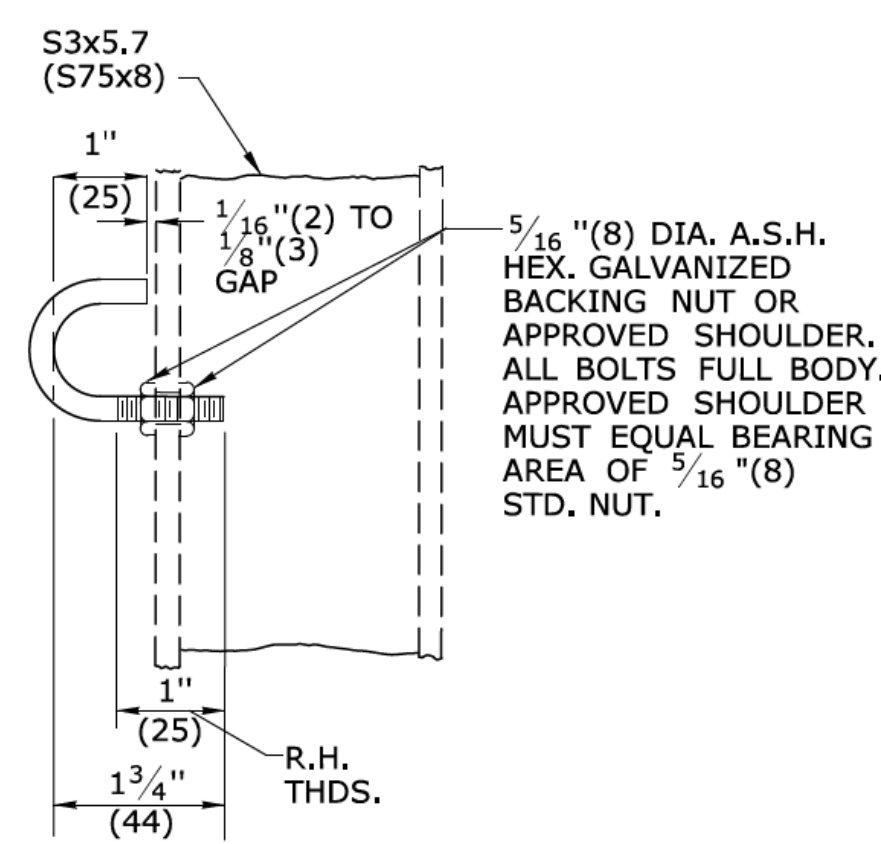


ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

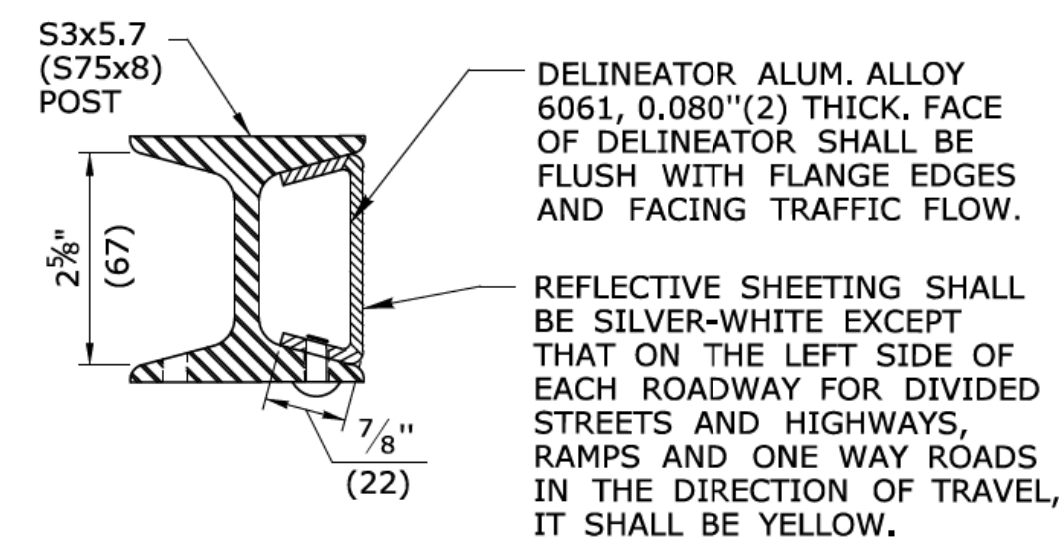
1	7/13	ERRATA	-	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	NOT TO SCALE	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SUBMITTED BY: NAME/DATE/TIME: APPROVED BY: NAME/DATE/TIME: James H. Norman 2013.07.24 14:56:06-04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: MERRITT PARKWAY GUIDERAIL END ANCHORS	STANDARD SHEET NO.: HW-911_05
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 6/13/2013	Filename: CTDOT_HIGHWAY_STD2013.dgn Model: 74 - HW-911_05						



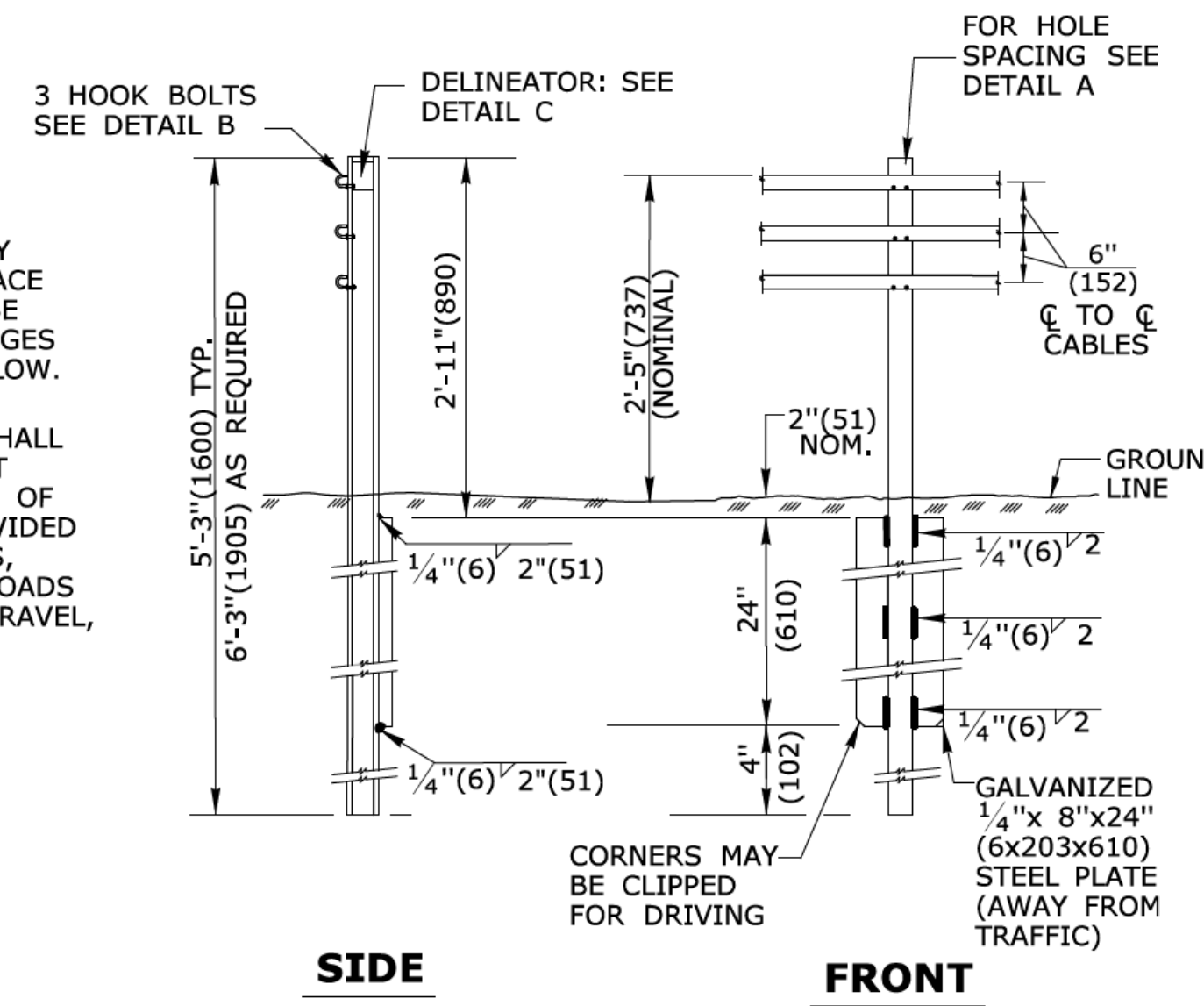
ELEVATION
DETAIL A
BOLT HOLE SPACING
FOR UNIVERSAL POST
(SEE NOTE 5)



DETAIL B
HOOK BOLT



PLAN
DETAIL C
DELINEATOR INSTALLATION DETAIL



DETAIL D
POST S3x5.7 (S75x8)

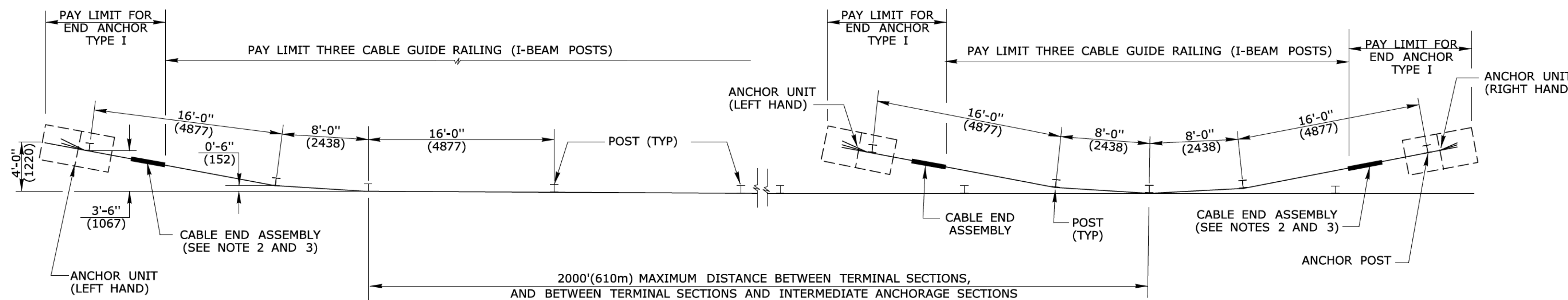
GENERAL NOTES:

- INSTALL DELINEATORS EVERY 32'(9.8m). SEE DETAIL C. DO NOT INSTALL A DELINEATOR ON POSTS THAT ARE GREATER THAN 12'(3.7m) FROM THE EDGE OF SHOULDER. IN INSTANCES WHERE THE POST SPACING DOES NOT COINCIDE WITH THE ABOVE DIMENSION, THE DELINEATORS SHOULD BE INSTALLED ON THE NEAREST POST. THE DELINEATOR SPACING SHALL REMAIN CONSISTENT THROUGHOUT THE RUN OF RAILING REGARDLESS OF CHANGES FROM ONE SYSTEM TO ANOTHER. DO NOT DELINEATE POSTS IN THE INTERMEDIATE ANCHORAGE SECTION, TYPICAL APPROACH OR TERMINAL SECTION.
- FOR ARRANGEMENT OF SPRING CABLE ASSEMBLIES (COMPENSATING DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES, THE FOLLOWING CRITERIA SHALL APPLY: (SEE STANDARD SHEET HW-918.01b FOR DETAILS)
 - LENGTH OF CABLE RUNS UP TO 1000'(305m) - USE COMPENSATING DEVICE (DETAIL F) ON ONE END, AND TURNBUCKLE CABLE END ASSEMBLY (DETAIL H) ON THE OTHER END OF EACH INDIVIDUAL CABLE.
 - LENGTH OF CABLE RUNS 1000'(305m) TO 2000'(610m) - USE COMPENSATING DEVICE (DETAIL F) ON THE ENDS OF EACH INDIVIDUAL CABLE.
 - LENGTH OF CABLE RUNS OVER 2000'(610m) - START NEW STRETCH BY INTERLACING AT LAST PARALLEL POST (SEE TYPICAL INTERMEDIATE SECTION DETAIL), PRIOR TO FINAL ACCEPTANCE BY THE STATE AND DEPENDING ON THE TEMPERATURE AT THE TIME OF ADJUSTMENTS, THE FOLLOWING TABLE SHALL BE USED TO TIGHTEN THE TURNBUCKLES:

TEMPERATURE (DEGREES FARENHEIT)					
120° TO 100°	79° TO 60°	59° TO 40°	39° TO 20°	19° TO 0°	1° TO -20°
1" (25)	1 1/2" (38)	2" (51)	2 1/2" (64)	3" (76)	4" (102)

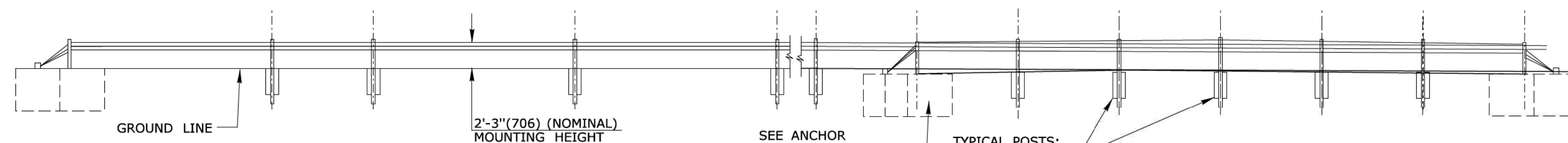
SPRING COMPRESSION FROM UNLOADED POSITION IN EACH SPRING = STANDARD SPRING LENGTH

- ALTERNATIVE DESIGNS FOR A COMBINATION OR SINGLE UNIT COMPENSATING DEVICE AND TURNBUCKLE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.
- AT ALL LOCATIONS WHERE THE CABLE IS CONNECTED TO A CABLE SOCKET WITH A WEDGE TYPE CONNECTION, ONE WIRE OF THE WIRE ROPE SHALL BE CRIMPED OVER THE BASE OF THE WEDGE TO HOLD IT FIRMLY IN PLACE.
- BOLT HOLES AS SHOWN IN DETAIL A ARE FOR USE AS FOLLOWS: 3-3/8" (10) DIA. HOLES FOR HOOK BOLTS AND 2-3/8" (10) DIA. DELINEATOR MOUNTING HOLES FOR EACH DIRECTION OF TRAFFIC. HOLES SHOWN SOLID ARE FOR INSTALLATIONS TO THE RIGHT OF TRAFFIC FLOW. ONE 5/8" (16) DIA. HOLE (AS REQUIRED FOR METAL BEAM RAIL) IS ACCEPTABLE.
- ON ROADWAYS WITH DESIGN SPEED ≥ 45 MPH (72kph) THE MINIMUM LENGTH OF THREE CABLE GUIDE RAILING, EXCLUDING ANCHOR SECTIONS IS 248'(75.6m). ON ROADWAYS WITH DESIGN SPEEDS < 45 MPH (72kph) THE MINIMUM LENGTH OF THREE CABLE GUIDERAIL EXCLUDING ANCHOR SECTIONS IS 156'(47.55) WITH AN 8' POST SPACING. WHEN SYSTEM 2 IS REQUIRED, EITHER THE ENTIRE RUN OF RAIL SHALL BE INSTALLED USING A SINGLE SYSTEM OR A 248'(75.6m) MINIMUM LENGTH OF THE SYSTEM SHALL BE PROVIDED.
- WHEN STAGGERING CABLE SPLICES, PROVIDE A MINIMUM OF 20'(6.1m) BETWEEN ANY PAIR. PROVIDE A MINIMUM OF 100'(30.5m) BETWEEN CABLE SPLICES ON THE SAME CABLE.



PLAN
TYPICAL APPROACH & TERMINAL SECTIONS
(SHOWING LEFT HAND ANCHOR UNIT)

PLAN
TYPICAL INTERMEDIATE SECTION



ELEVATION
TYPICAL APPROACH & TERMINAL SECTIONS
(SHOWING LEFT HAND ANCHOR UNIT)

ELEVATION
TYPICAL INTERMEDIATE SECTION

TABLE A	
RADIUS OF CURVE	POST SPACING
R > 720' (219m)	16'(4877)
R ≤ 720' (219m) BUT ≥ 440' (134m)	8'(2438)
R < 440' (134m)	DO NOT INSTALL

TABLE B		
TYPE OF SYSTEM	POST SPACING	DEFLECTION
STANDARD SYSTEM 2	16'(4877)	12'(3658)
	8'(2438)	8'(2438)

NOTE: DEFLECTION DISTANCE IS BASED ON IMPACT SPEEDS OF 63mph(101kph).

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	1/12	NEW END ANCHOR
2	7/13	REVISE CABLE SPACE, HEIGHT, AND CURVATURE POST SPACING
-	-	-
-	-	-
-	-	-
-	-	-

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: 7/12/2013

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

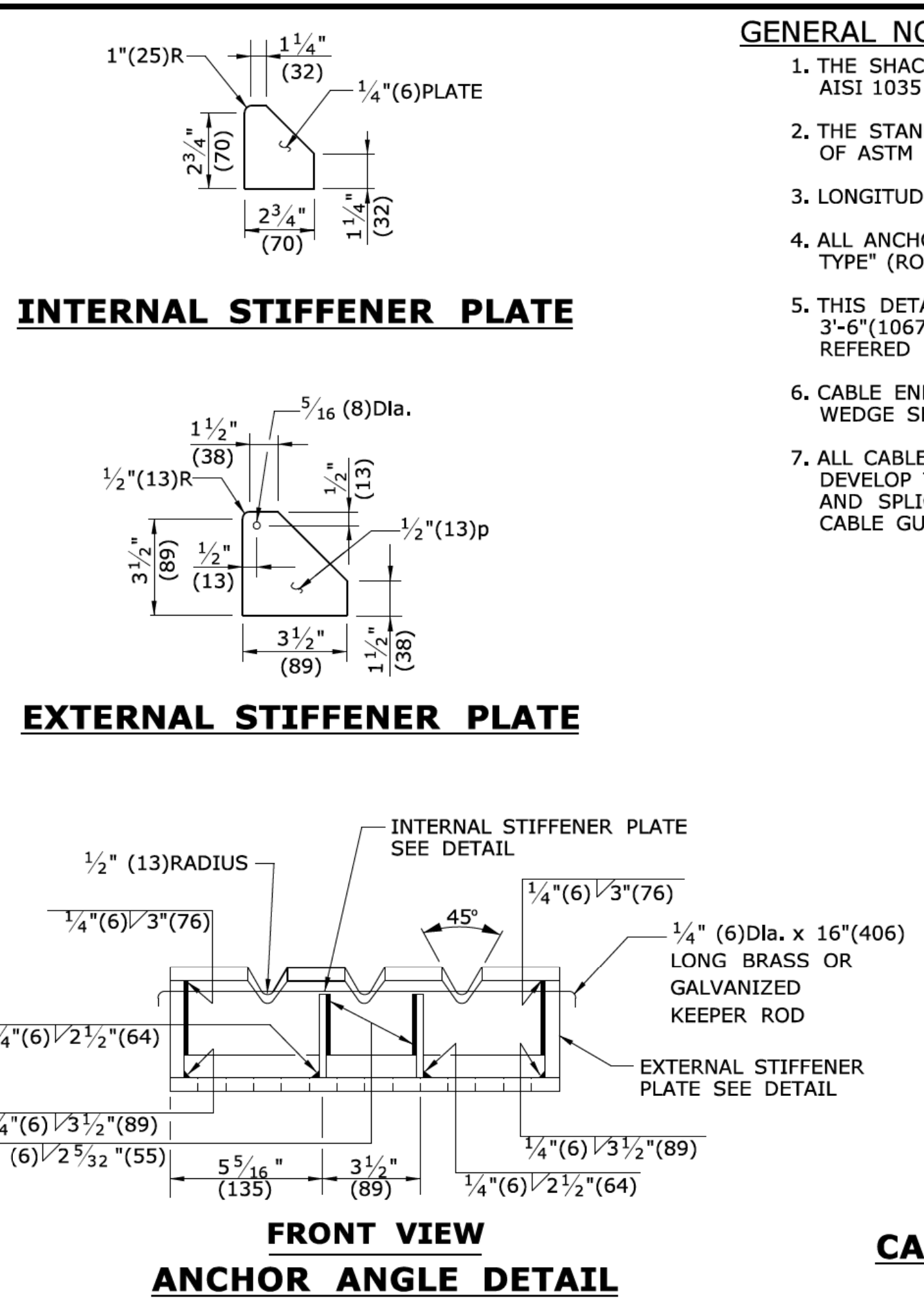
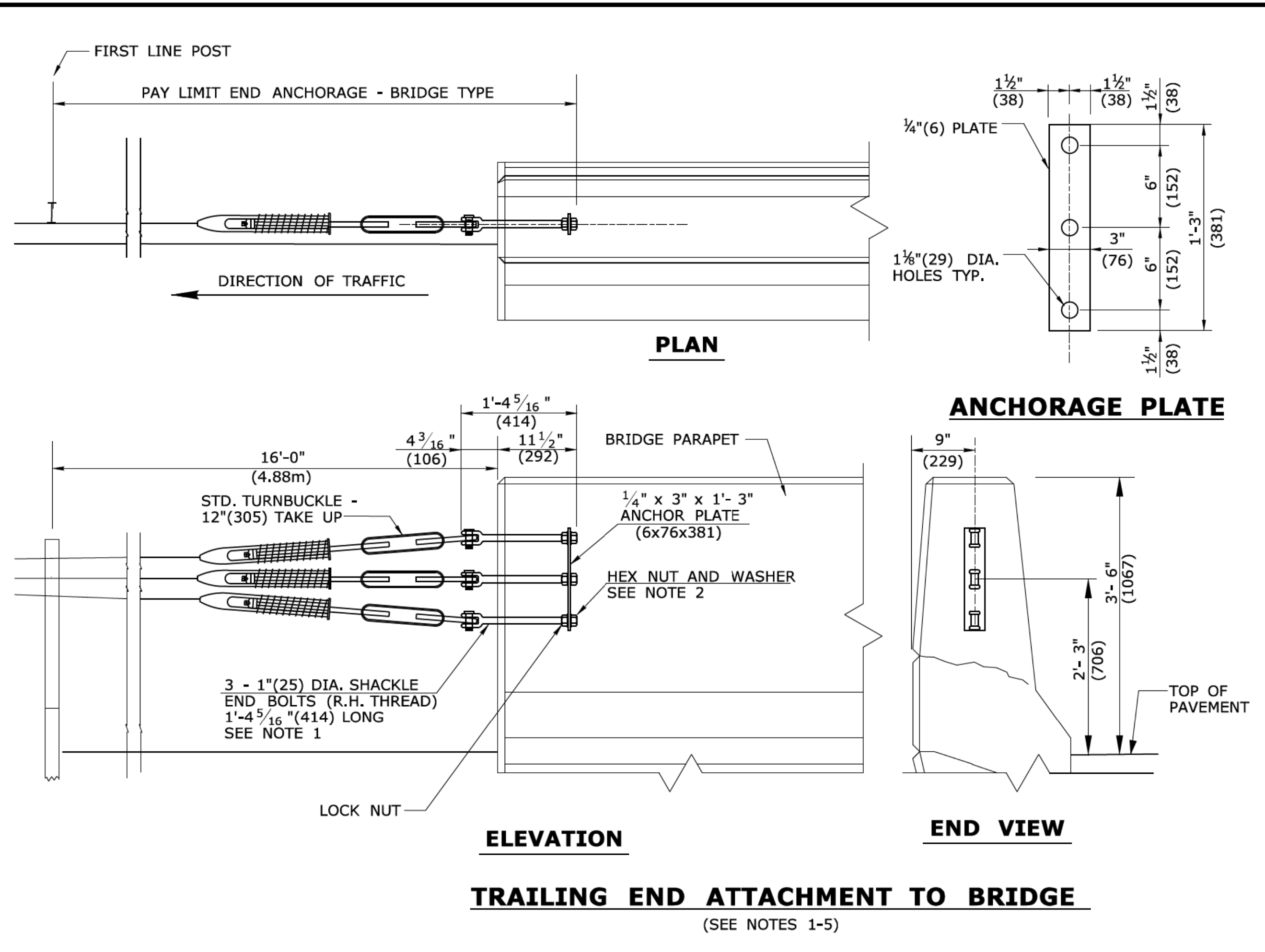
File name: CTDOT_HIGHWAY_STD2013.dgn Model: 76 - HW-918.01a

SUBMITTED BY: NAME/DATE/TIME:
APPROVED BY: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:56:38-04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

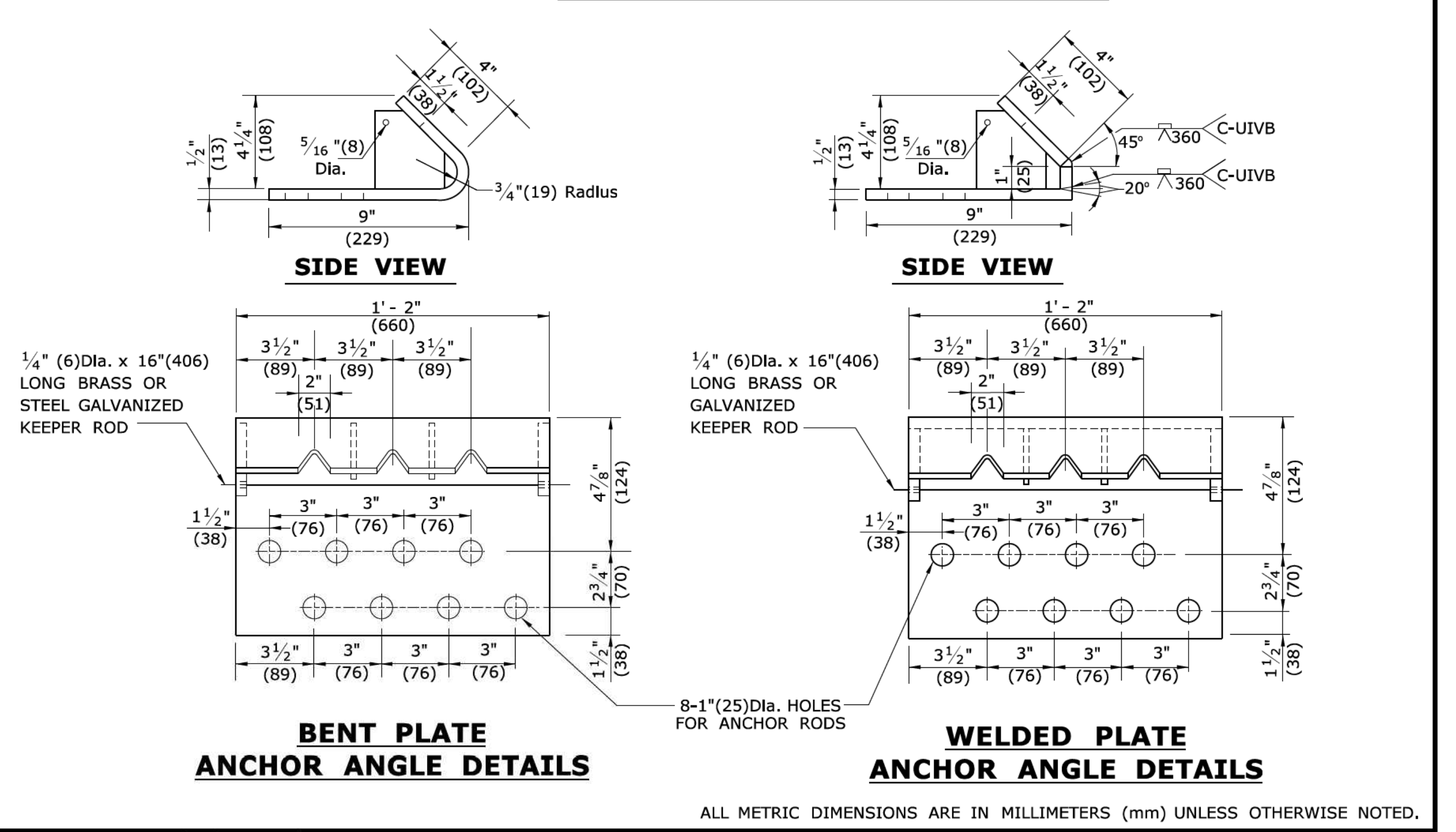
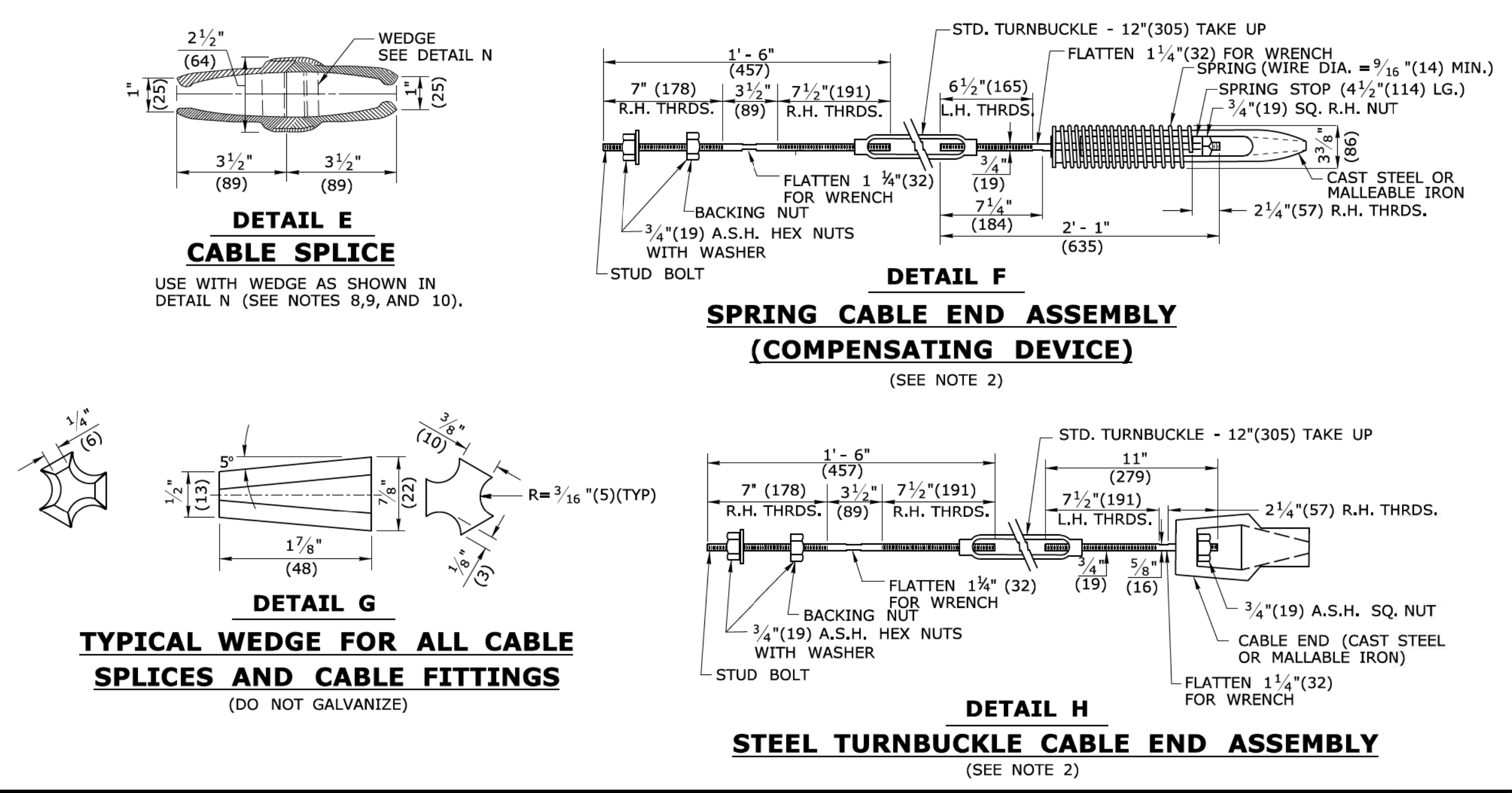
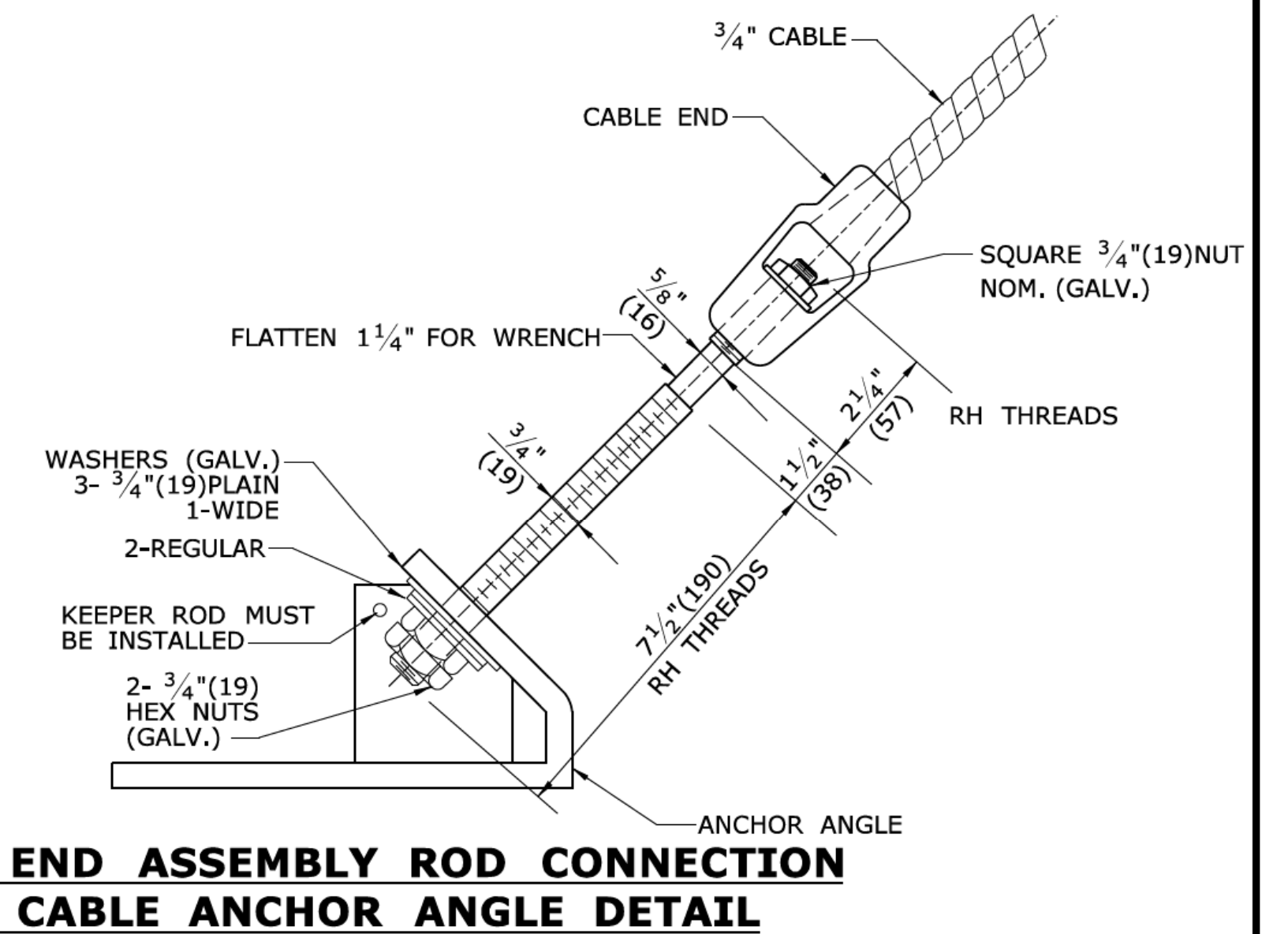
THREE CABLE GUIDERAIL
(I-BEAM POSTS) SHEET 1

STANDARD SHEET NO.:
HW-918_01a



GENERAL NOTES:

1. THE SHACKLE END BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A668 CLASS E OR AISI 1035 FORGED STEEL GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A153.
2. THE STANDARD HEX NUTS, ANCHOR PLATES AND LOCK NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-36.
3. LONGITUDINAL REINFORCEMENT IN THE PARAPET SHALL CLEAR ANCHOR PLATE.
4. ALL ANCHORAGE MATERIAL SHALL BE PAID FOR AS PART OF THE PAY ITEM "END ANCHORAGE - BRIDGE TYPE" (ROADWAY ITEM).
5. THIS DETAIL SHALL BE USED TO ANCHOR THREE-CABLE GUIDE RAILING AT THE TRAILING END OF 3'-6"(1067) HIGH PARAPETS ON ONE-WAY ROADS ONLY. PARAPET HEIGHTS LOWER THAN THIS SHALL BE REFERRED TO STRUCTURE DESIGN UNIT.
6. CABLE ENDS SHALL BE FABRICATED FROM MALLABLE IRON OR CAST STEEL THE CABLE SPlice AND WEDGE SHALL BE FABRICATED FROM MALLABLE IRON OR ASTM A536 DUCTILE IRON GRADE 65-45-122.
7. ALL CABLE ENDS AND SPLICES SHALL BE DESIGNED TO USE THE WEDGE SHOWN IN DETAIL G AND SHALL DEVELOP THE FULL STRENGTH OF THE 3/4"(19) ROUND CABLE 25,000 LBS (11,340 kg). THE CABLES, ENDS, AND SPLICES SHALL BE HOT DIPPED GALVANIZED AS INDICATED IN THE MATERIAL SPECIFICATIONS FOR CABLE GUIDERAILINGS. DO NOT GALVANIZE THE CABLE WEDGE SHOWN IN DETAIL G.



ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	1/12	NEW END ANCHOR
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

Plotted Date: 1/9/2012

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILENAME: Jan2012.dgn MODEL: HW-918-01b

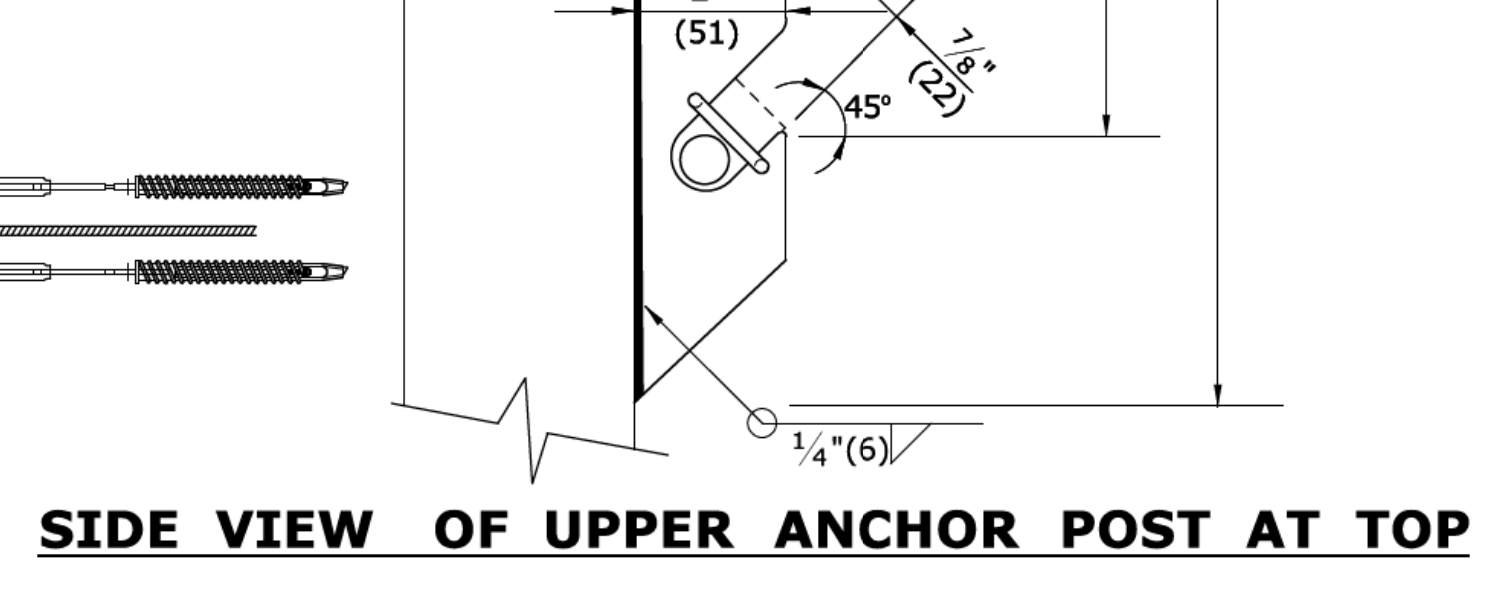
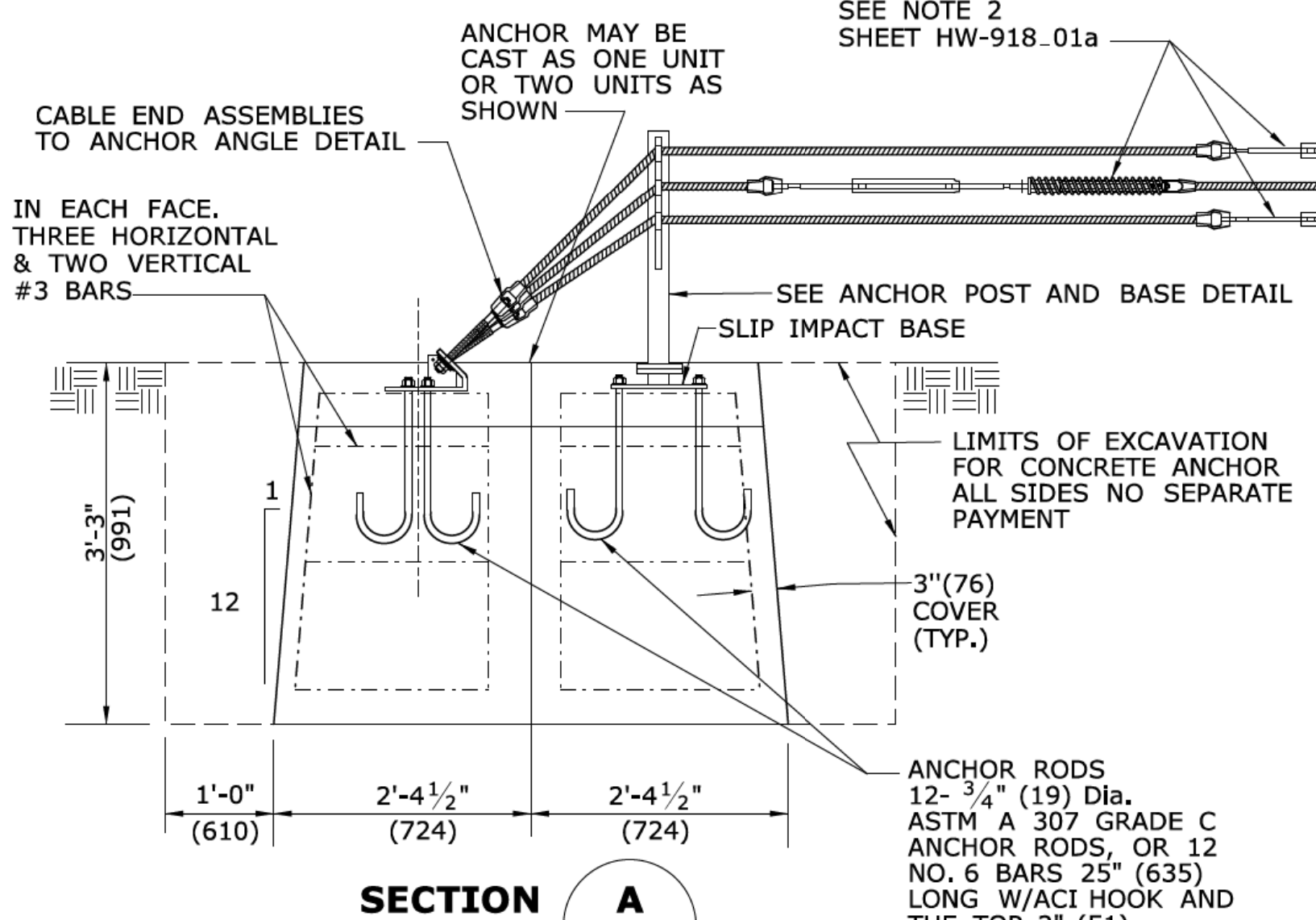
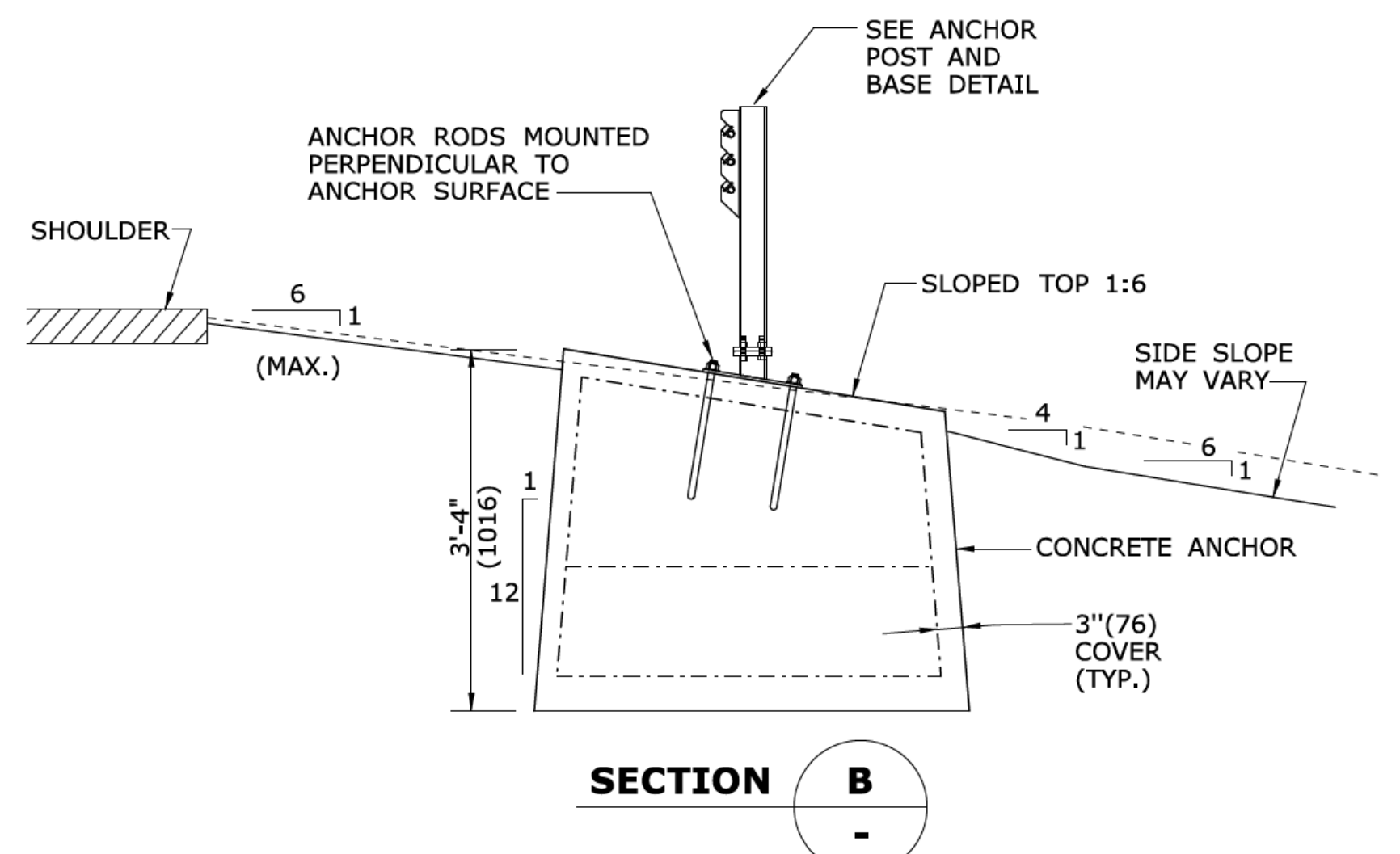
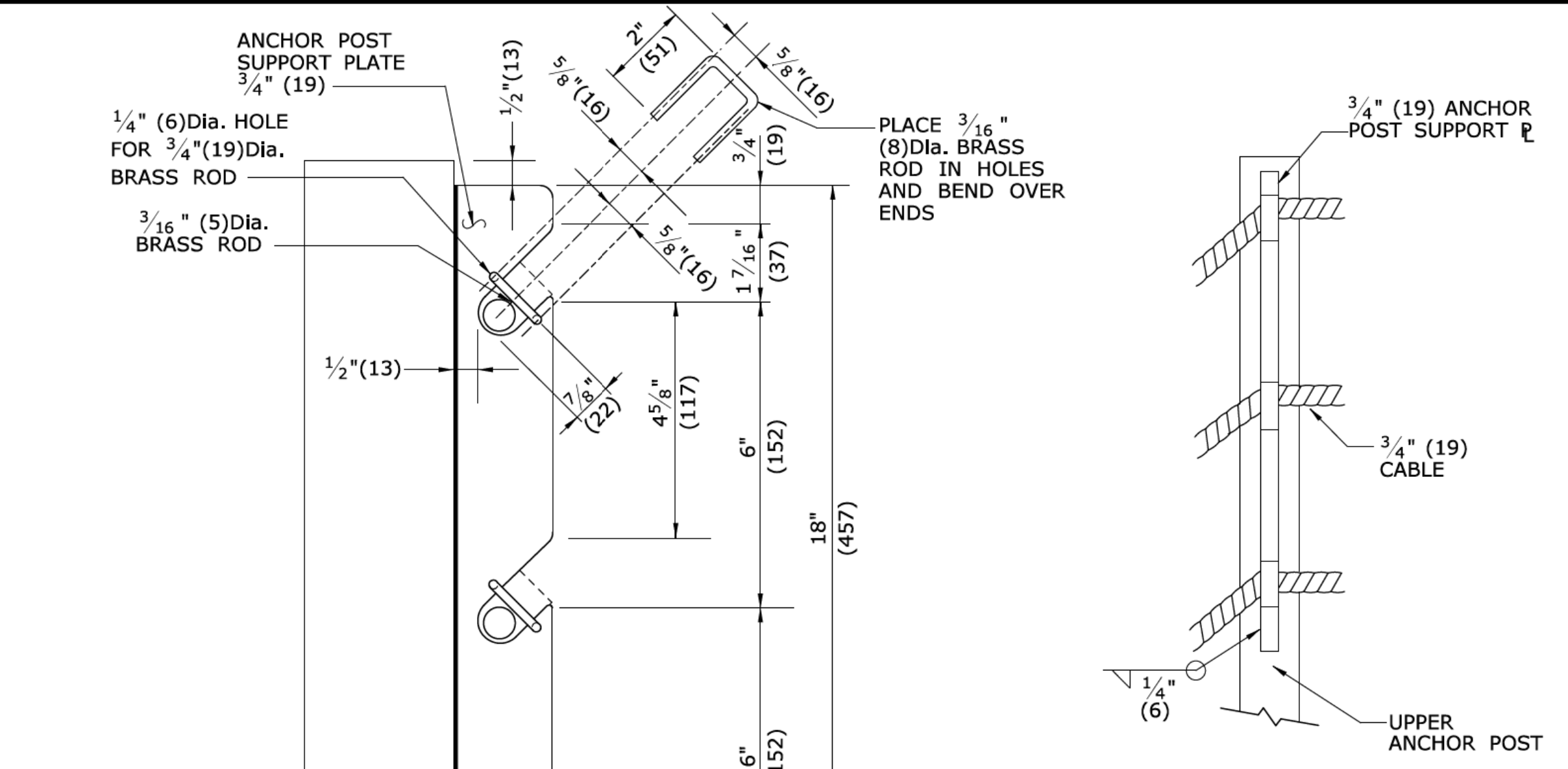
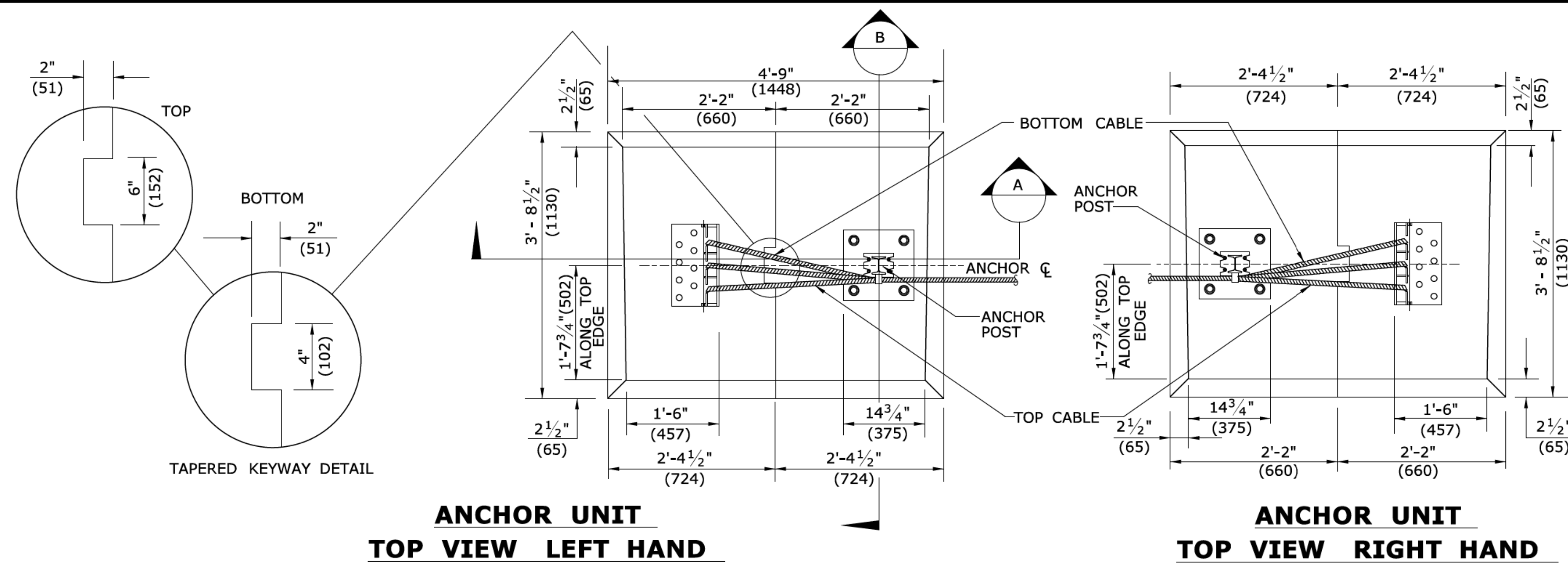
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Leo Fontaine
2012.01.13 13:15:38 -05'00'

APPROVED BY: NAME/DATE/TIME:
James H. Norman
2012.01.26 15:31:52 -05'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

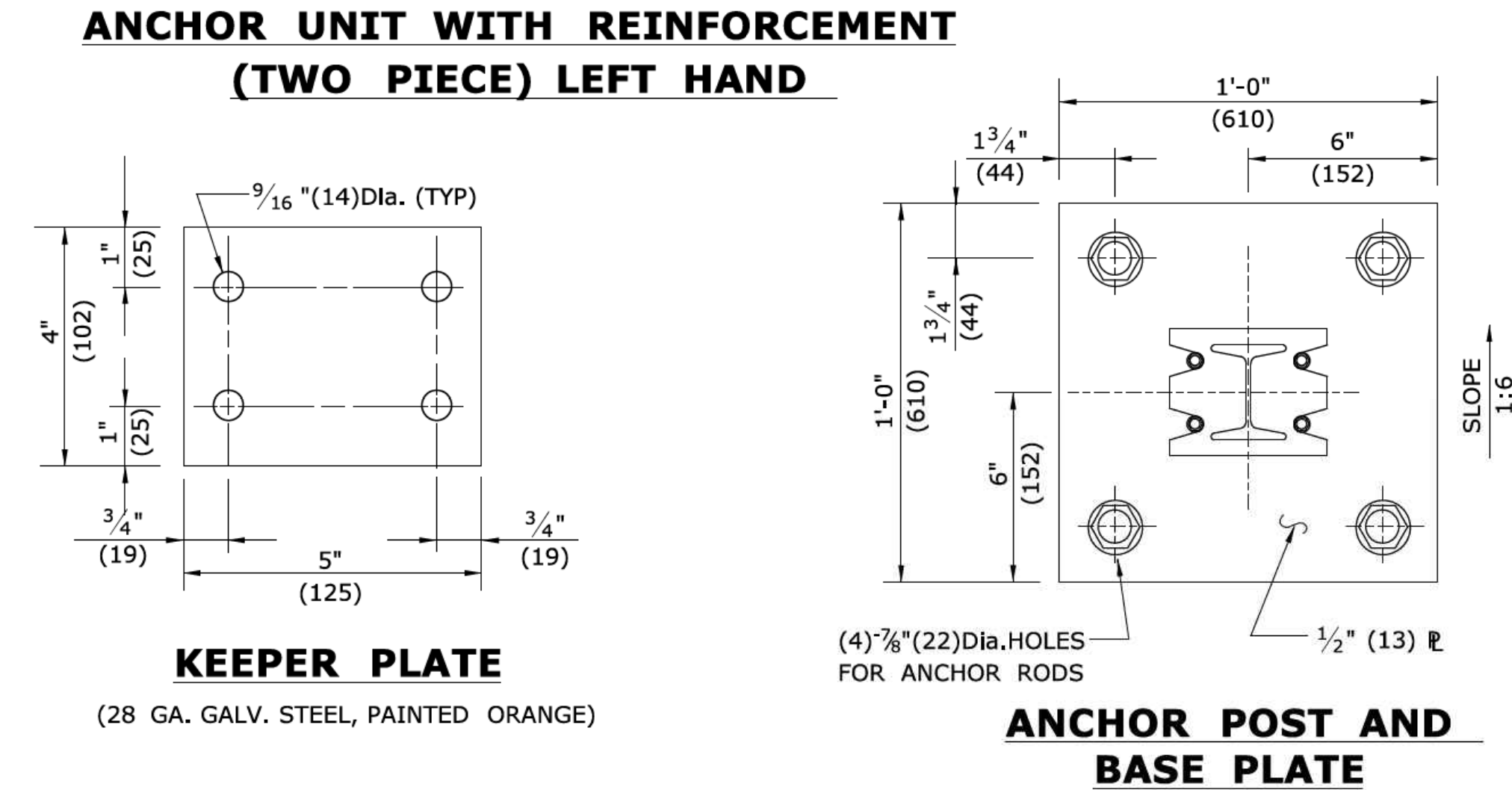
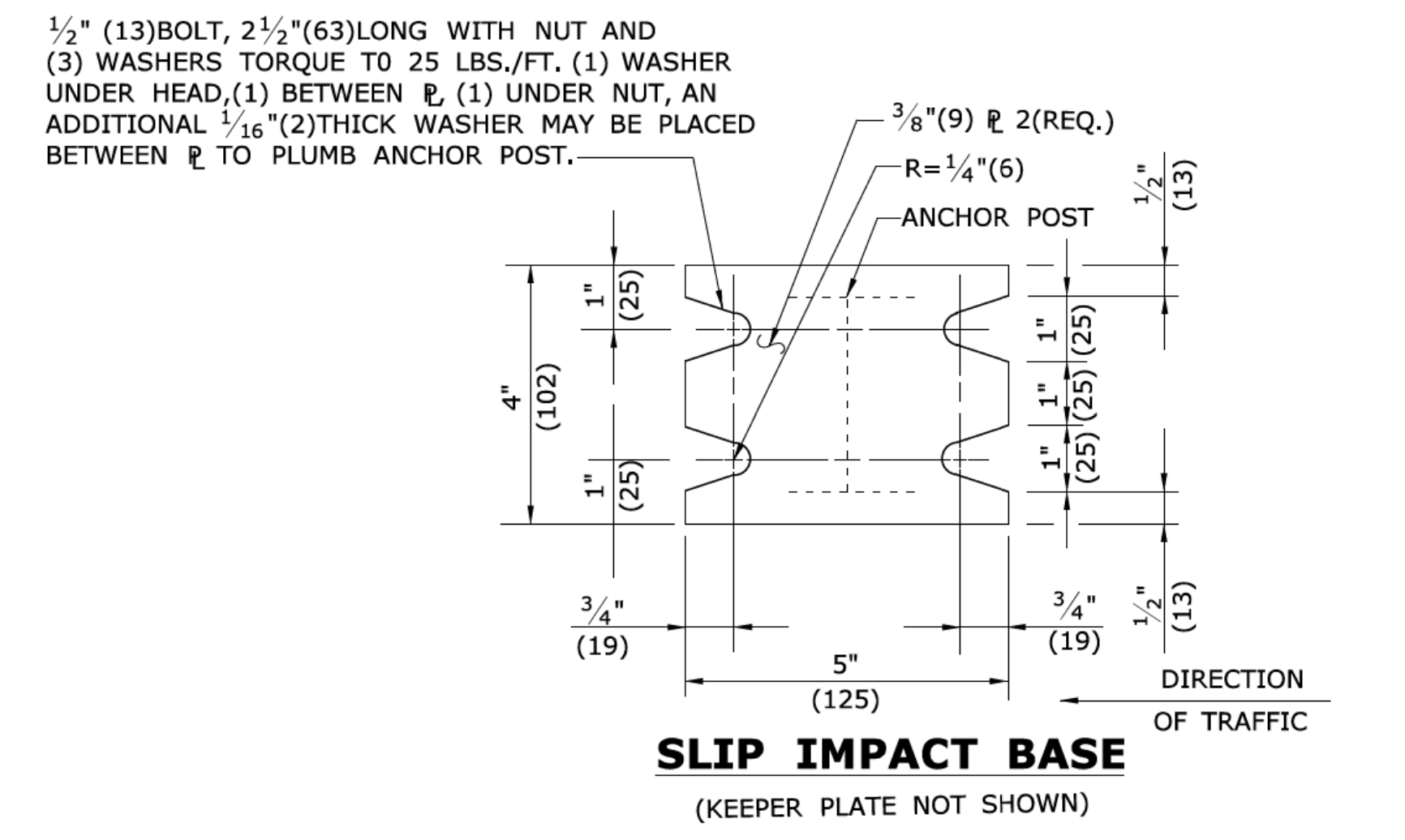
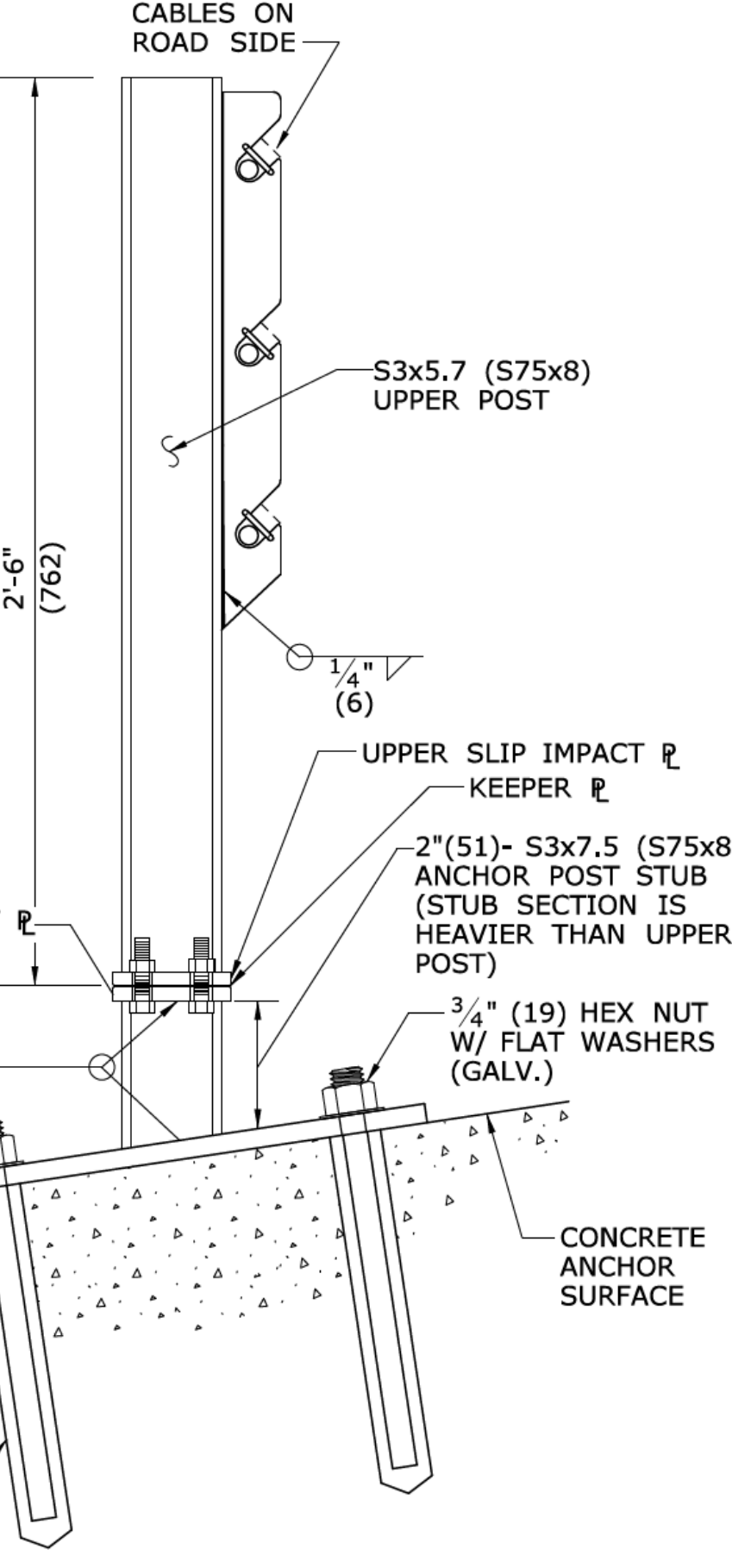
STANDARD SHEET TITLE:
THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 2

STANDARD SHEET NO.:
HW-918_01b



WASHER TABLE AND WASHER DETAIL

WASHER	WASHER SERIES	INSIDE DIAMETER "A"			OUTSIDE DIAMETER "B"			THICKNESS "C"		
		BASIC	TOLERANCE PLUS	TOLERANCE MINUS	BASIC	TOLERANCE PLUS	TOLERANCE MINUS	BASIC	MAX.	MIN.
3/4" (19)	REGULAR	0.812	0.030	0.007	1.469	0.030	0.007	0.134	0.160	0.108
	WIDE	0.812	0.030	0.007	2.000	0.030	0.007	0.165	0.192	0.136
1/2" (13)	NARROW	0.531	0.015	0.005	1.062	0.030	0.007	0.095	0.121	0.074



ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

REV.	DATE	REVISION DESCRIPTION
1	1/12	NEW END ANCHOR
2	7/13	REVISE CABLE SPACE @ ANCHOR POST
-	-	-
-	-	-
-	-	-
-	-	-

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: 7/12/2013

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

File name: CTDOT-HIGHWAY-STD2013.dgn Model: 78 - HW-918_01c

SUBMITTED BY: NAME/DATE/TIME:
APPROVED BY: NAME/DATE/TIME:
James H. Norman
2013.07.24 14:57:18-04'00'

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 3

STANDARD SHEET NO.:
HW-918_01c

DELINEATORS DE-1, DE-2, DE-3

INSTALLATION ON DELINEATOR POSTS

TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING

4" (TYP.)

3/4" R (TYP.)

3/8" DIA. HOLE IN CENTER (TYP.)

SIGN #51-5028 WHITE
SIGN #51-5029 YELLOW

COLORS: - YELLOW OR WHITE.

DELINEATORS - .063" THK. ALUMINUM ALLOY.

FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.

DELINEATORS SHALL BE FASTENED WITH 5/16" STAINLESS STEEL ASTM A-193 CLASS 1, GRADE B8 (TYPE 304) OR BETTER HEX HEAD BOLT (LENGTH AS REQUIRED), WASHER AND FIBER INSERT SELF LOCKING NUT, ON STANDARD METAL DELINEATOR POST.

INSTALLATION ON PERMANENT CONCRETE BARRIER, BRIDGE PARAPETS & RETAINING WALLS

RETROREFLECTIVE SHEETING 16 SQ. IN. MIN.

FLEXIBLE DELINEATOR DE-1, DE-2, OR DE-3 ATTACH TO CONCRETE PER MANUFACTURER'S INSTRUCTIONS

4' TO 4'-6"

PAVEMENT

DELINEATORS DE-1, DE-2, DE-3 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

DELINEATORS DE-4, DE-4A, DE-5 FOR INSTALLATION ON METAL BRIDGE RAIL

5/16" STAINLESS STEEL ASTM A-193, CLASS 1 GRADE B8 (TYPE 304) OR BETTER HEX HEAD BOLT, LENGTH AS REQ'D (TYP.)

USE STAINLESS STEEL ASTM A-194 GRADE 8 (TYPE 304) OR BETTER WASHER AND LOCKWASHER NUT (TYP.)

BACK TO BACK INSTALLATION, USE STAINLESS STEEL WASHER AND LOCKWASHER NUT (TYP.)

3/8" DIA. HOLE (TYP.)

4 SQ. IN. (TYP.)

3/4" R (TYP.)

1" (TYP.)

2" (TYP.)

DE-4

DE-4A

DE-5

2-3/8" x 5/8" STAINLESS STEEL HEX HEAD SELF TAPPING SCREWS

3/8" DIA. HOLE IN CENTER (TYP.)

COLORS: - YELLOW OR WHITE.

DELINEATORS - .063" THK. ALUMINUM ALLOY.

BRACKET - .125" THK. ALUMINUM ALLOY, AND SHALL CONFORM TO SPECIFICATION M.18.07-03 BRIDGE RAIL MOUNTING BRACKETS.

FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.

USE STAINLESS STEEL WASHERS ON FACE OF DELINEATORS, 5/8" O.D. X 3/8" I.D. X .032" THK. (TYP.)

DELINEATORS TYPE DE-4, DE-4A, AND DE-5 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

TYPICAL MAINLINE & INTERCHANGE DELINEATION

DELINEATOR SPACING NOTES:

- 1) AT LOCATIONS WHERE THE MEDIAN WIDTH (BETWEEN SHOULDERS) IS 12' OR LESS, AND MEDIAN BEAM RAIL IS PRESENT, TYPE DE-3 DELINEATORS SHALL BE MOUNTED WITHIN THE MEDIAN BEAM RAIL.
- 2) SPACING ON MAINLINE EXPRESSWAY TANGENTS SHALL BE 400'.
- 3) SPACING ON MAINLINE EXPRESSWAY CURVES SHALL BE AS SPECIFIED IN TABLE 3F-1 OF THE MUTCD.
- 4) ON ACCELERATION AND DECELERATION LANES AND ON-RAMP TANGENT SECTIONS, DELINEATOR SPACING SHALL BE 100'.
- 5) ON CURVED PORTIONS OF RAMPS, DELINEATOR SPACING SHALL BE IN ACCORDANCE WITH TABLE 3F-1 OF THE MUTCD, BUT NOT TO EXCEED 100'.

LEGEND:

- DE-1 DELINEATORS OR DE-4 DELINEATOR ASSEMBLY
- | DE-2 DELINEATORS OR DE-5 DELINEATOR ASSEMBLY
- X DE-3 DELINEATORS ASSEMBLY OR DE-4A DELINEATOR
- ⊕ D10-1, 2, 3, OR 4 ASSEMBLY TO BE INSTALLED WHERE SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

COLOR APPLICATION, FOR DE-1 THRU DE-5

LEFT SIDE OF ALL ROADWAYS AND RAMPS - YELLOW
RIGHT SIDE OF ALL ROADWAYS AND RAMPS - WHITE

**MUTCD TABLE 3F-1
APPROXIMATE SPACING FOR DELINEATORS
ON HORIZONTAL CURVES**

RADIUS (R) OF CURVE (feet)	APPROXIMATE SPACING (S) ON CURVE (feet)
50	20
115	25
180	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1,000	90

DISTANCE IN FEET WERE ROUNDED TO THE NEAREST 5 FEET. SPACING FOR SPECIFIC RADII MAY BE INTERPOLATED FROM TABLE. THE MINIMUM SPACING SHOULD BE 20 FEET. THE SPACING ON CURVES SHOULD NOT EXCEED 300 FEET. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST DELINEATOR IS 25, THE SECOND IS 35, AND THE THIRD 65 BUT NOT TO EXCEED 300 FEET.

S REFERS TO THE DELINEATOR SPACING FOR SPECIFIC RADII COMPUTED FROM THE FORMULA: $S=3\sqrt{R/50}$.

SECTION A-A

DELINEATOR PLACEMENT ON RAMPS ON TANGENT SECTIONS - RIGHT SIDE OF RAMP ON CURVED SECTIONS - BOTH SIDES OF CURVE

SECTION B-B

DELINEATOR PLACEMENT ON MAINLINE

DELINEATORS DE-7, DE-7A, DE-7B, DE-7C FOR INSTALLATION ON TEMPORARY PRECAST CONCRETE BARRIER CURB AND TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)

TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING

SPACING FOR TEMPORARY BARRIER CURB DELINEATORS:

ON THE LEADING TAPERED SECTION - EVERY 20', ON THE FIRST 100' OF THE PARALLEL SECTION - EVERY 20', ON THE REMAINING LENGTH - EVERY 100', MINIMUM OF 2' IF LESS THAN 100'.

ALTERNATING ONE-WAY TRAFFIC - EVERY 20', ALL OTHER ROADWAYS SHALL BE DELINEATED IN ACCORDANCE WITH MUTCD.

DE-7 ONE WAY WHITE
DE-7A ONE WAY YELLOW
DE-7B TWO WAY YELLOW
DE-7C WHITE/YELLOW BACK TO BACK

TEMPORARY PRECAST CONCRETE BARRIER DELINEATORS ARE TO BE FABRICATED OF ALUMINUM, STEEL, PLASTIC, OR OF A MATERIAL APPROVED BY THE ENGINEER AND MOUNTED IN THE CENTER OF EACH SECTION OF TEMPORARY BARRIER AS REQUIRED AND PER MANUFACTURER'S INSTRUCTIONS.

DELINEATORS DE-7, DE-7A, DE-7B, DE-7C TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

DELINEATORS D10-1, D10-2, D10-3, D10-4 INCIDENT MANAGEMENT AND MILE POST MARKER ASSEMBLY

D10-1 SIGN # 51-5303 INCIDENT MANAGEMENT MARKER, ONE DIGIT WITH DECIMAL

D10-2 SIGN # 51-5304 INCIDENT MANAGEMENT MARKER, TWO DIGITS WITH DECIMAL

D10-3 SIGN # 51-5305 INCIDENT MANAGEMENT MARKER, THREE DIGITS WITH DECIMAL

TYPE IV RETROREFLECTIVE SHEETING

3lb. METAL SIGN POST (TYP.) PENETRATION OF POST SHALL BE 38" MINIMUM BELOW FINISHED GRADE

D10-4 SIGN # 51-5307 MILE MARKER, VARIABLE CARDINAL DIRECTION, VARIABLE SHIELD, VARIABLE NUMERALS

TYPE IV RETROREFLECTIVE SHEETING

3lb. METAL SIGN POST (TYP.) PENETRATION OF POST SHALL BE 38" MINIMUM BELOW FINISHED GRADE

INCIDENT MANAGEMENT AND MILE POST MARKER ASSEMBLY TO BE PAID FOR UNDER SECTION 12.08 SIGN FACE SHEET ALUMINUM

ATTENUATOR REFLECTOR SIGN #50-5032

ATTENUATOR REFLECTOR TO BE PAID FOR UNDER SECTION 18.0 IMPACT ATTENUATOR

THIS SHEETING TO BE INSTALLED ON THE NOSE OF THE IMPACT ATTENUATOR WITH ADHESIVE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE SHEETING SHALL COVER THE NOSE OF THE IMPACT ATTENUATOR. ON A CURVED NOSE, THE WIDTH OF THE SHEETING SHALL EXTEND 1" BEYOND THE POINT OF CURVATURE ON EACH SIDE OF THE NOSE. THE HEIGHT AND WIDTH OF THE SHEETING VARIES DEPENDING ON THE SIZE OF THE NOSE OF THE IMPACT ATTENUATOR.

BLACK OPAQUE (TYP.)
YELLOW TYPE IV RETROREFLECTORIZED STRIPE (ANGLE DOWNWARD TOWARD ADJACENT PAVEMENT) (TYP.)

DELINEATOR DE-9 TYPE I OBJECT MARKER SIGN #51-5031

18" (TYP.)

18" (TYP.)

.080" THK. SHEET ALUMINUM BACKPLATE - BLACK OPAQUE

9 - 3 1/4" DIA. CIRCLES (EQUALLY SPACED) YELLOW TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING

3/8" DIA. MOUNTING HOLES (2 REQUIRED)

WHEN ERECTED AS A SEPARATE INSTALLATION A 3lb. METAL SIGN POST SHALL BE USED. THE BOTTOM OF THE DE-9 SHALL BE 4' ABOVE THE ADJACENT PAVEMENT AND THE PENETRATION OF THE POST SHALL BE 38" MINIMUM BELOW THE FINISHED GRADE.

DELINEATORS DE-9 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

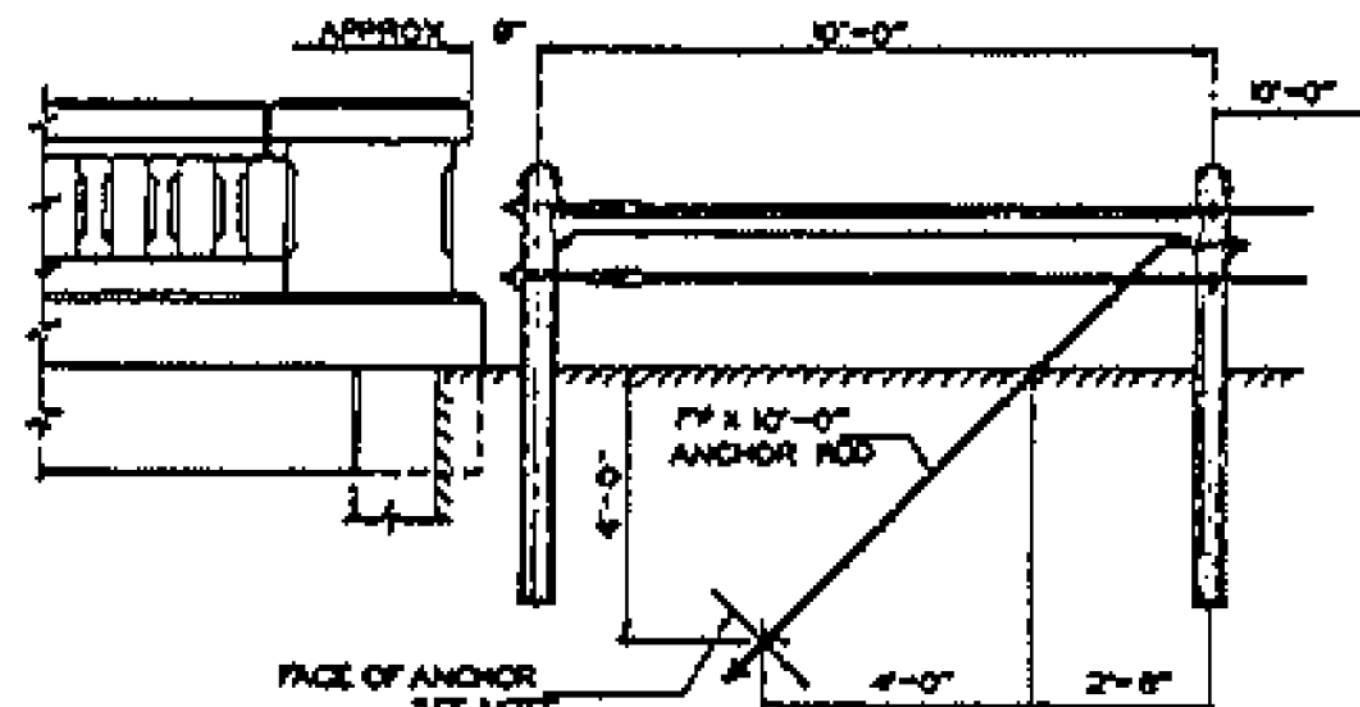
TYPE 3 OBJECT MARKERS SIGN #51-5023

TYPE 3 OBJECT MARKER TO BE PAID FOR UNDER SECTION 12.08 SIGN FACE SHEET ALUMINUM

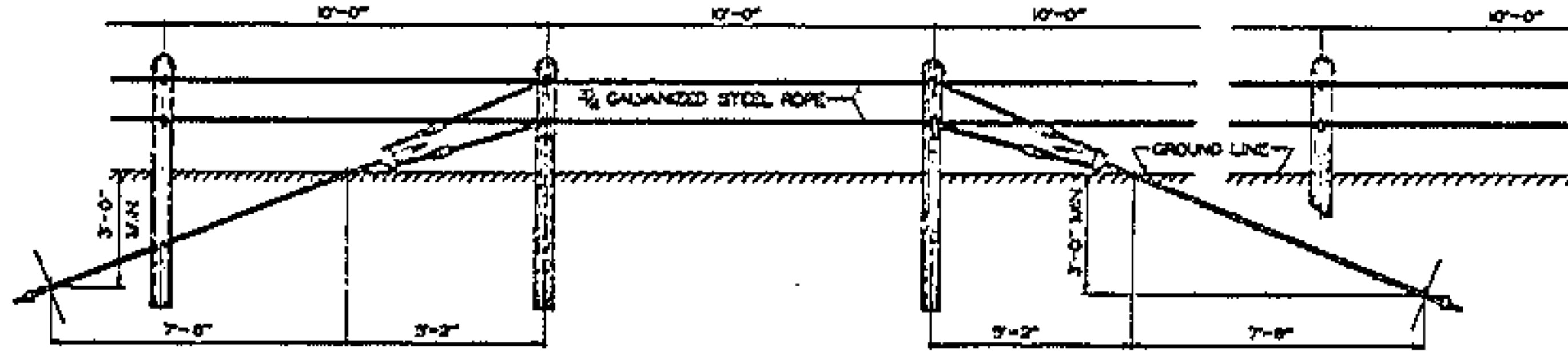
SIGN #51-5023 MARKER MOUNTED ON 3lb. METAL SIGN POST. BOTTOM OF SIGN #51-5023 TO BE 4' ABOVE ADJACENT EDGE OF PAVEMENT. FINAL LOCATIONS OF SIGN #51-5023 MARKERS WILL BE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

BLACK OPAQUE (TYP.)
YELLOW TYPE IV RETROREFLECTORIZED STRIPE (ANGLE DOWNWARD TOWARD ADJACENT PAVEMENT) (TYP.)

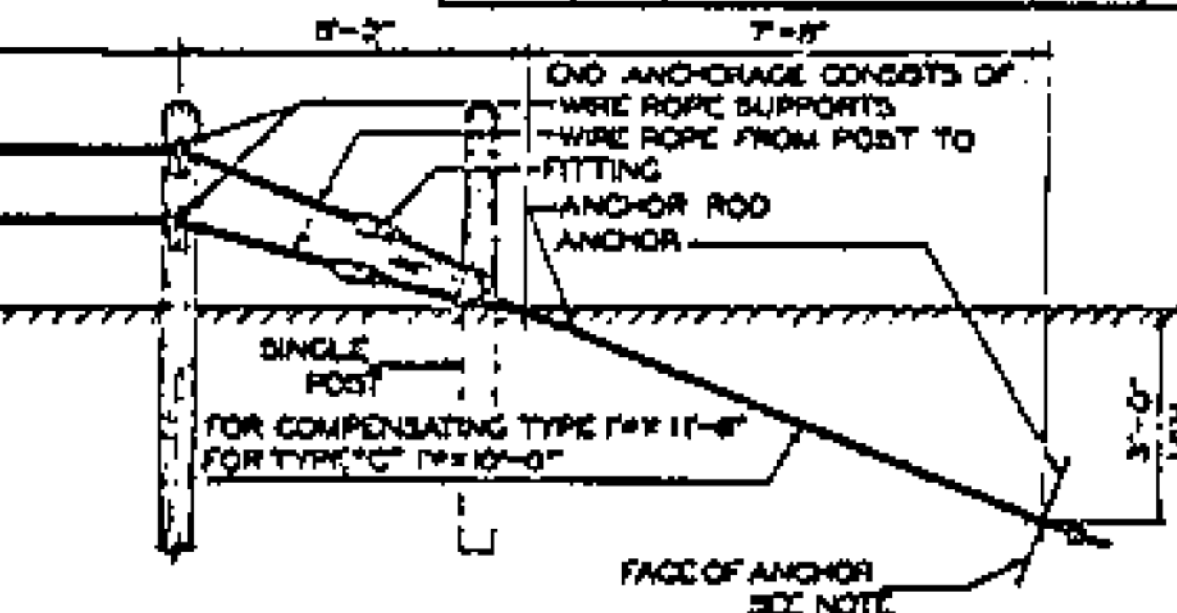
4 4-2017 REVISED ATTENUATOR REFLECTOR AND TYPE 3 OBJECT MARKERS. 3 8-2015 UPDATED PER MUTCD AND FORM 816 JAN 2015 REVISION. 2 2-2011 MINOR REVISIONS. 1 1-2010 INCLUDED DETAILS IN D10-1, D10-2, D10-3 DELINEATORS.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON 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	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p> <p style="font-size: 8px;">Filename: CTDOT_TRAFFIC_STD.DGN Model: TR-1205_01</p>	SUBMITTED BY: _____ NAME/DATE/TIME: _____ APPROVED BY: _____ NAME/DATE/TIME: _____	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: <p style="text-align: center; font-weight: bold; font-size: 12px;">DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS</p>	STANDARD SHEET NO.: <p style="text-align: center; font-weight: bold; font-size: 12px;">TR-1205_01</p>



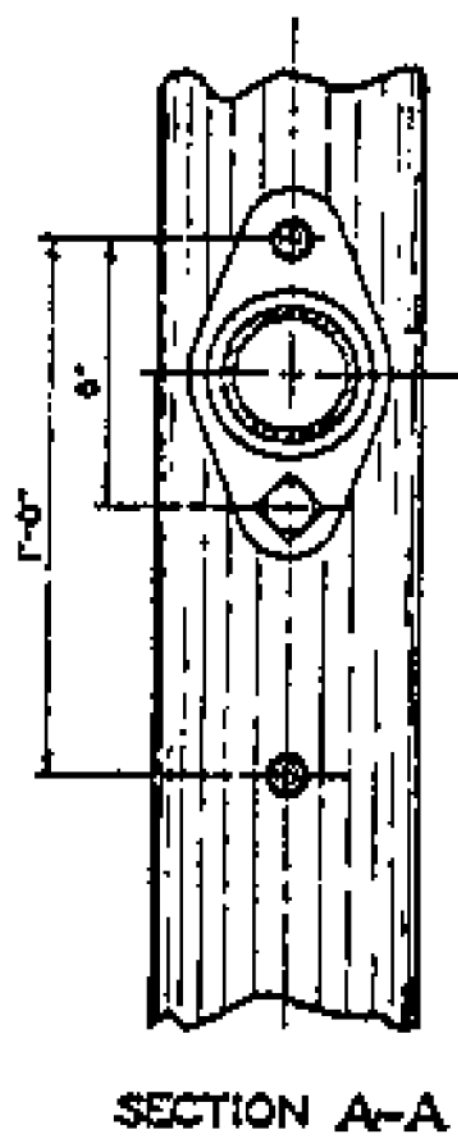
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SCALE 3/8" = 1'-0"



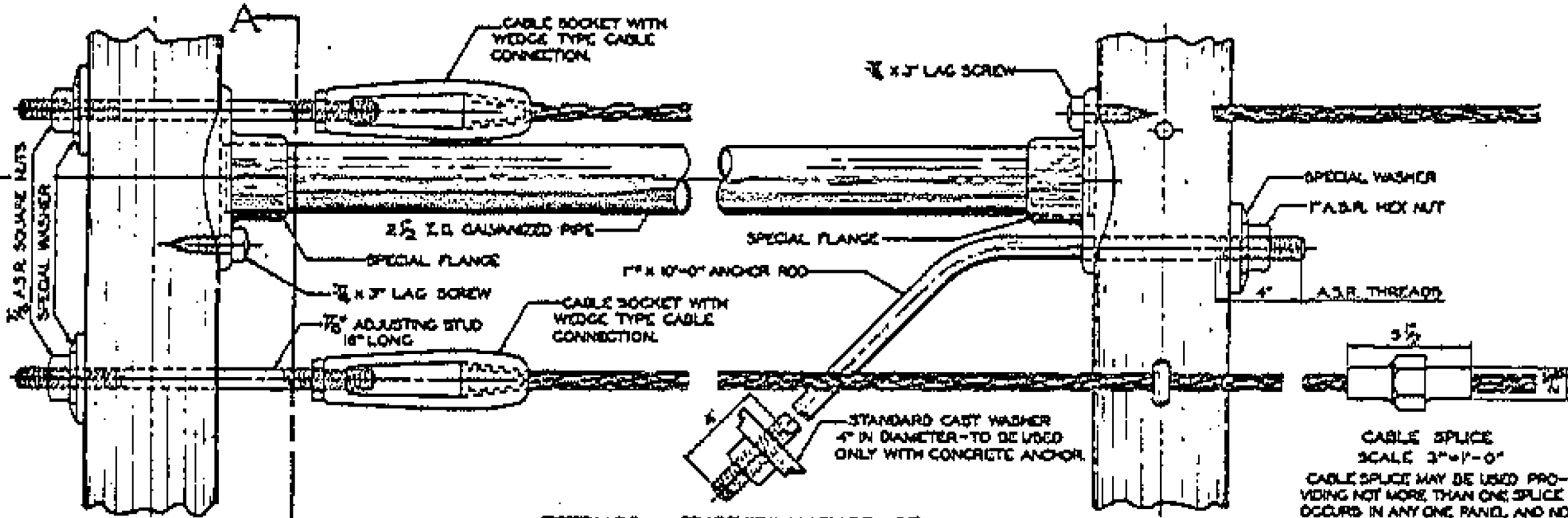
INTERMEDIATE ANCHORAGE
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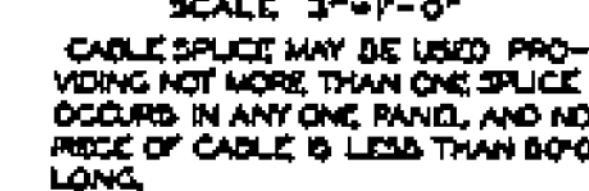
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SCALE 3/8" = 1'-0"



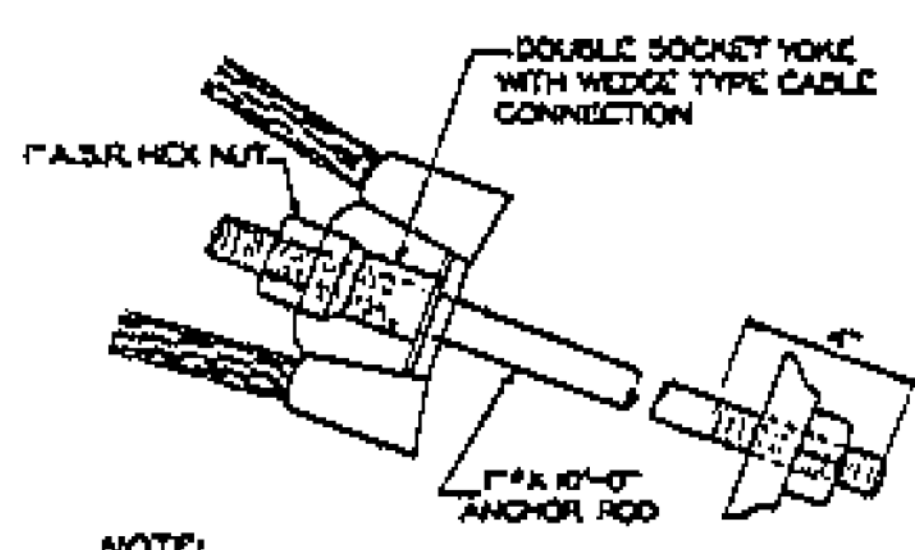
SECTION A-A



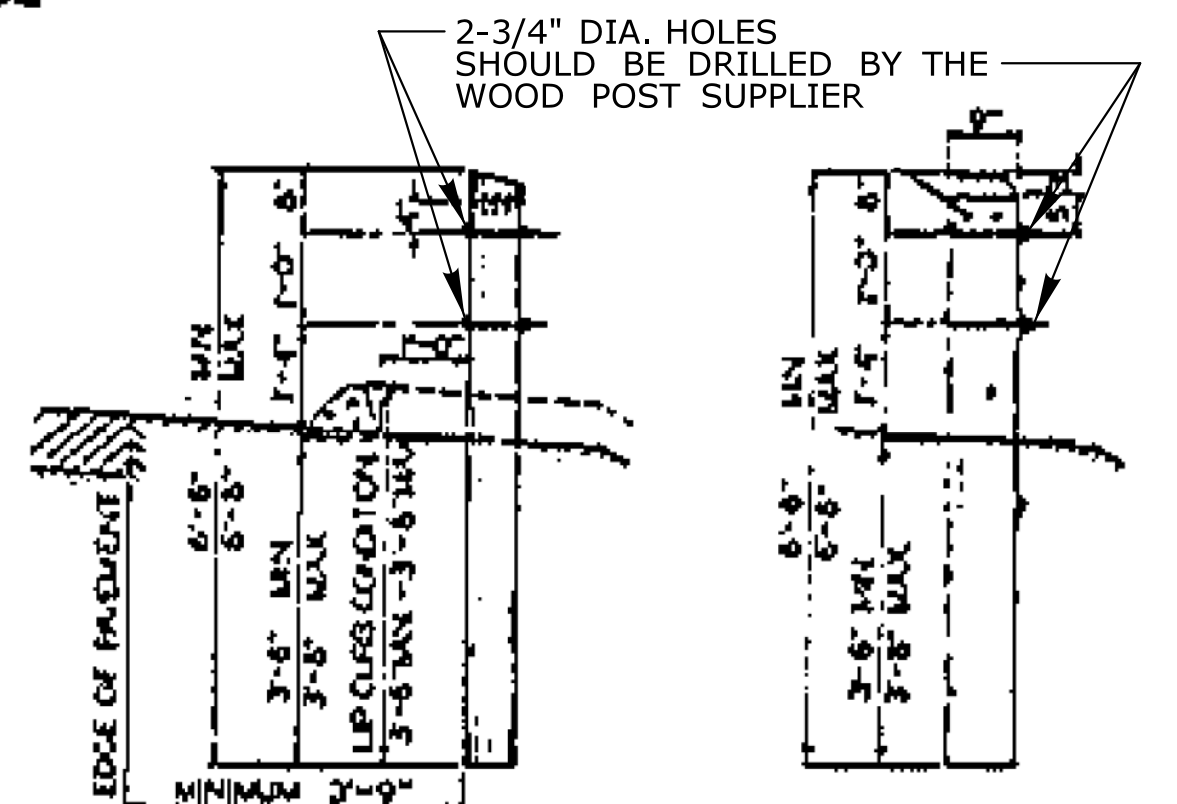
FITTINGS - TYPE "B" ANCHORAGE
SCALE 3" = 1'-0"



CABLE SPLICE
SCALE 3" = 1'-0"



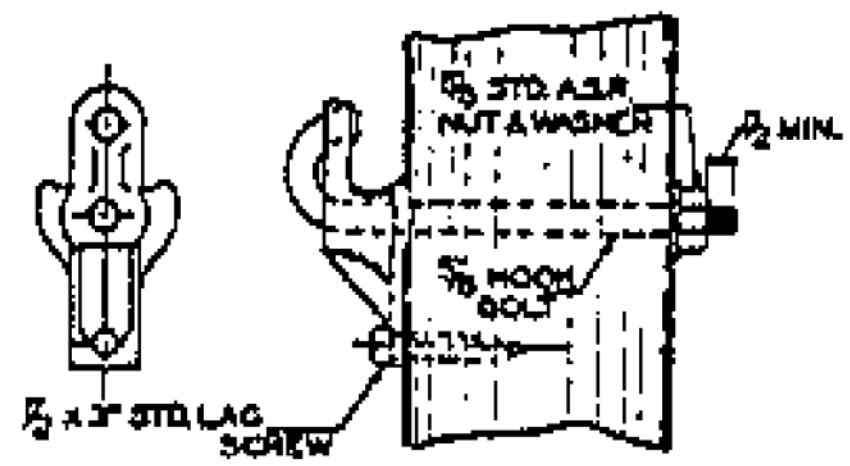
FITTING - TYPE "C" ANCHORAGE
SCALE 3" = 1'-0"



DETAIL OF STANDARD POST
SCALE 1/2" = 1'-0"

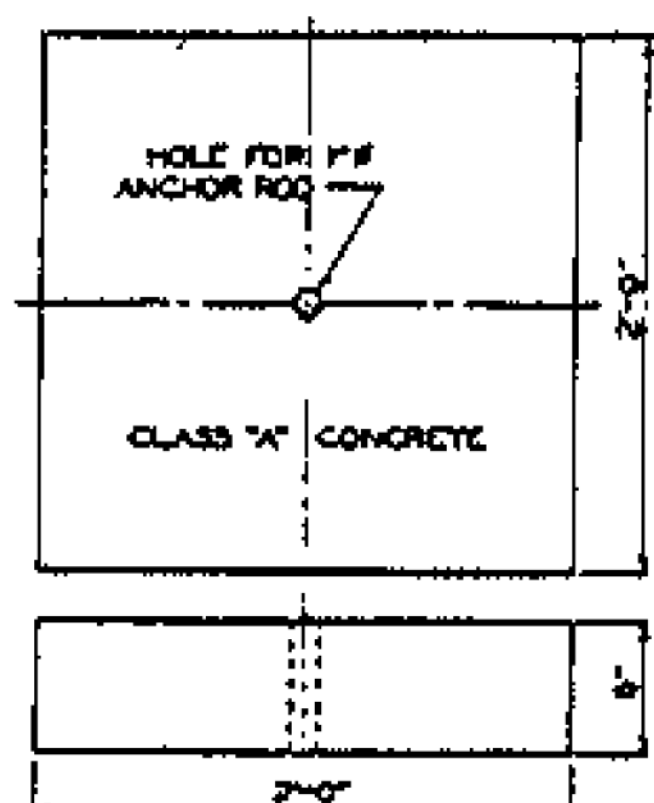
DETAIL OF DOMED POST
SCALE 1/2" = 1'-0"

NOTE: DEPTH OF POST SHALL BE MEASURED FROM THE EDGE OF SHOULDER WHERE NO CURB IS PLACED OR FROM THE TOP OF CURB WHERE CURB IS USED. A UNIFORM TRANSITION IN HEIGHT SHALL BE UTILIZED IN GOING FROM A SECTION OF RAILING UTILIZING CURB TO A SECTION WHERE NO CURB ARE INSTALLED.

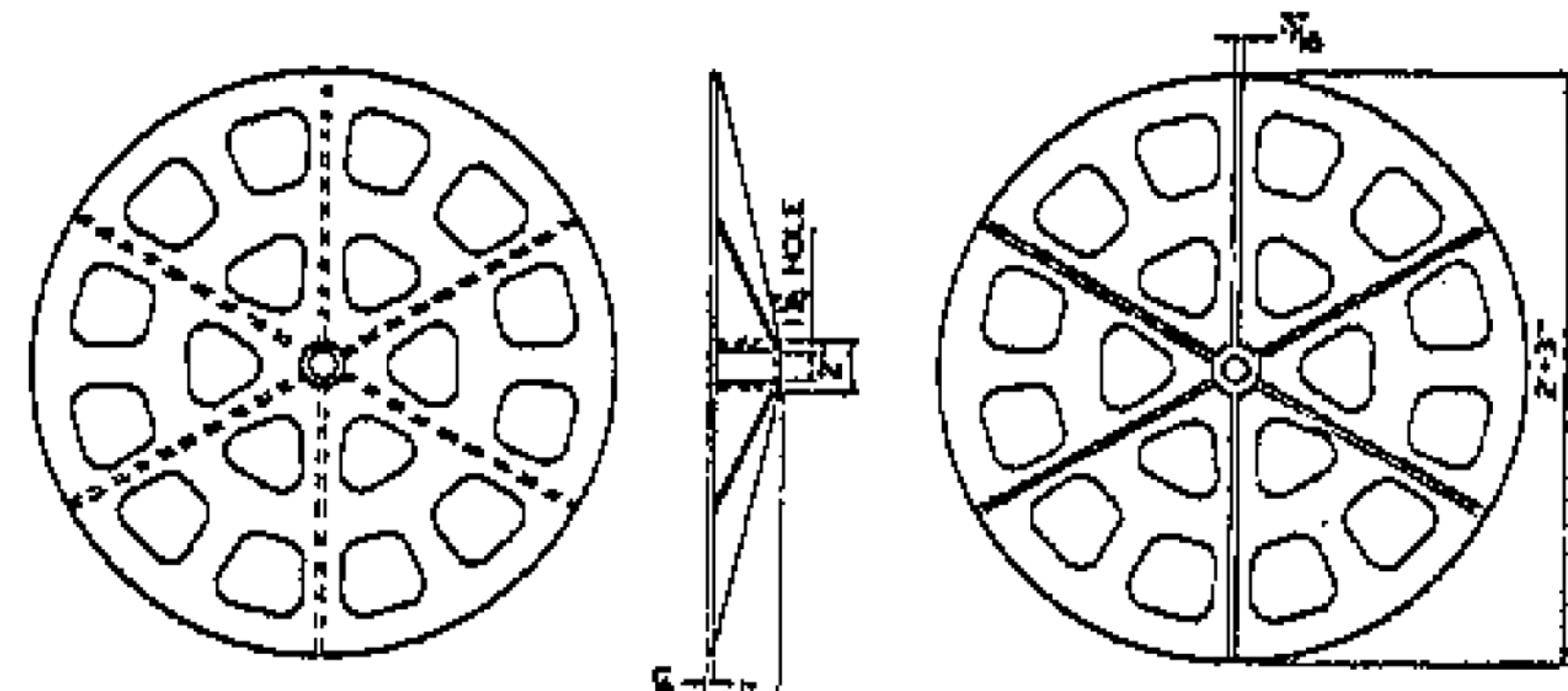


WIRE ROPE SUPPORT AT END ANCHORAGE
SCALE 3" = 1'-0"

NOTE: HOOK BOLTS 3/4" IN DIAMETER, WHERE FURNISHED WITH ROLLED THREADS, DIAMETER OF STOCK MAY BE IN ACCORDANCE WITH TRADE PRACTICE WHICH ALLOWS A BOLT TO BE APPROX. 1/8" LESS IN DIAMETER THAN WHERE CUT THREADS FOR THE SAME NUT ARE USED.



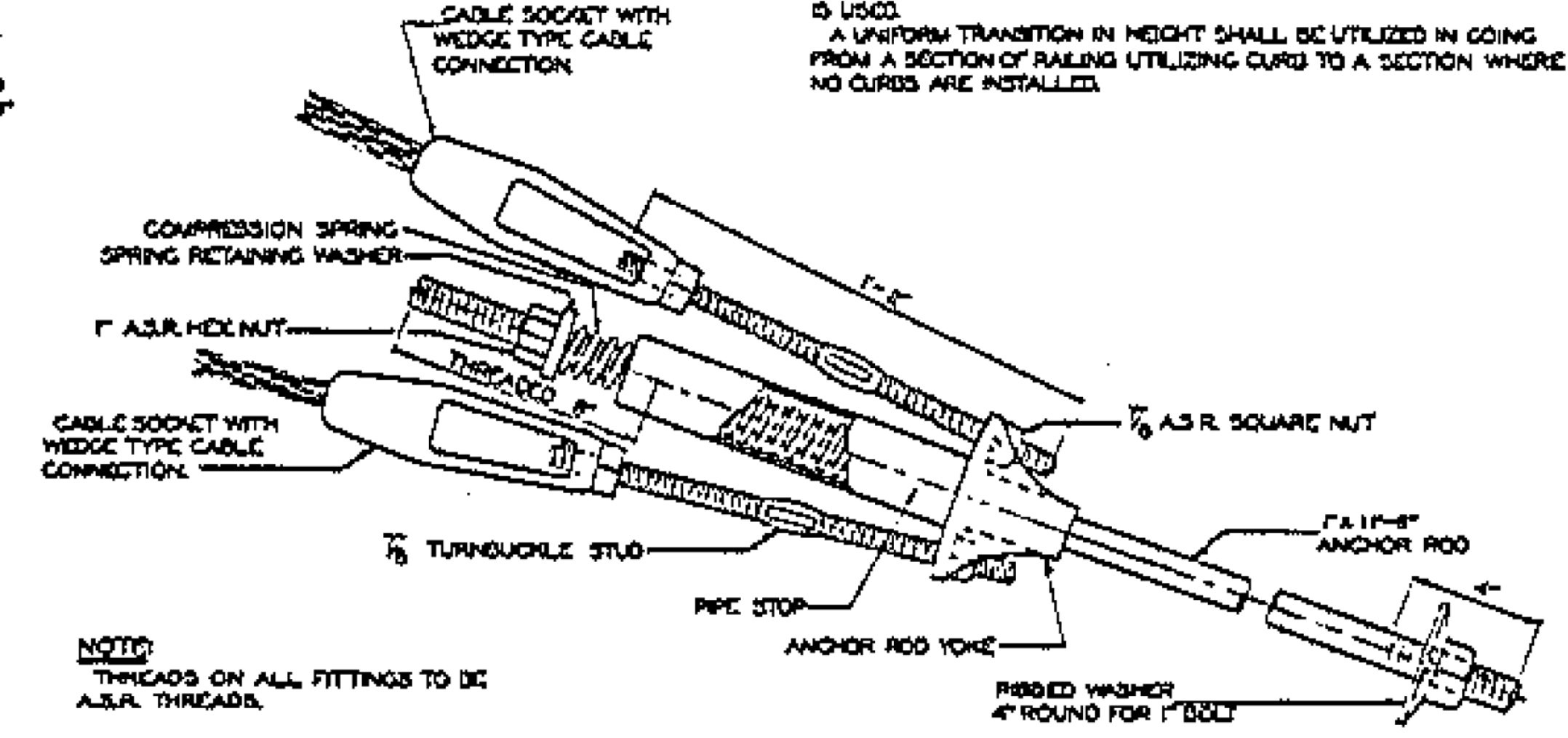
CONCRETE ANCHOR
SCALE 1 1/2" = 1'-0"



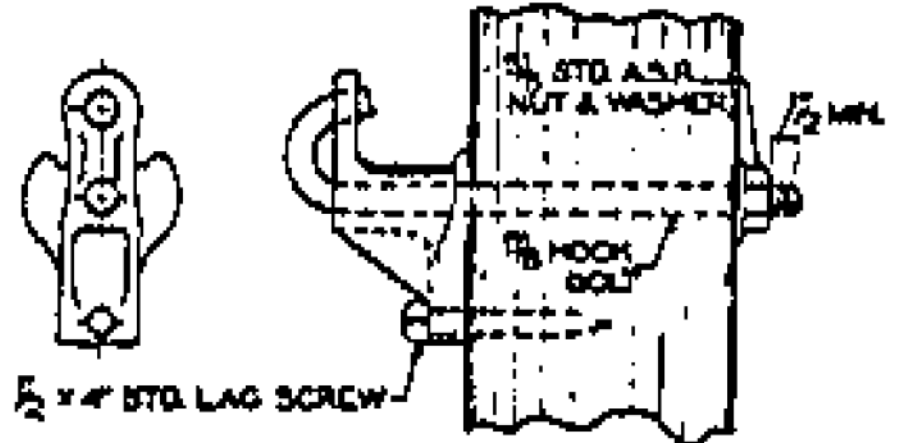
MALLEABLE IRON ANCHOR (ALTERNATE)
SCALE 1 1/2" = 1'-0"

NOTES:

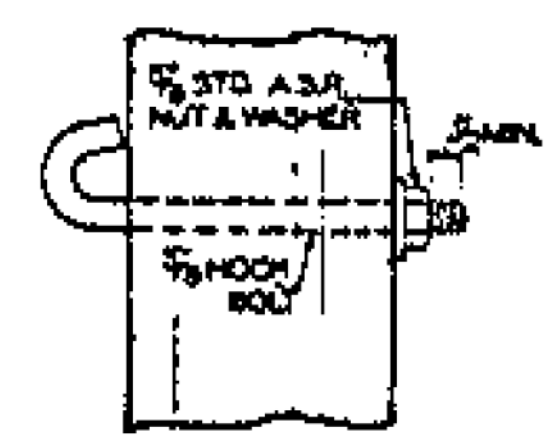
SPECIFICATIONS - CONNECTICUT STATE HIGHWAY DEPARTMENT
ALL FITTINGS TO BE IN ACCORDANCE WITH STANDARD COMMERCIAL SPECIFICATIONS AND SHALL BE GALVANIZED.
INTERMEDIATE ANCHORAGES SHALL BE PROVIDED ON CONTINUOUS SECTIONS OF 500 FT OR MORE IN LENGTH AT INTERVALS OF NOT OVER 500 FT.
ANCHORAGES WILL BE PAID FOR AT THE CONTRACT PRICE FOR COMPENSATING TYPE, TYPE "B" OR TYPE "C" ANCHORAGES. INTERMEDIATE ANCHORAGES SHALL CONSIST OF EITHER TWO COMPENSATING TYPE OR TWO TYPE "C" END ANCHORAGES AND WILL BE PAID FOR ACCORDINGLY.
ANCHORS (DEADEN) MAY BE EITHER CONCRETE OR MALLEABLE IRON AS DETAILED ON THIS SHEET. WHEN CONCRETE IS USED IT SHALL BE CLASS "A" CONCRETE WITH AN AREA OF NOT LESS THAN 4 SQ. FT. AND A MINIMUM THICKNESS OF 6"; ALSO A STANDARD CAST WASHER OF 4" DIAMETER AS SHOWN. WHEN MALLEABLE IRON IS USED IT SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR MALLEABLE CASTINGS, SERIAL DESIGNATION A47 OF THE A.S.T.M. AND SHALL BE NO SMALLER THAN SHOWN AND SUBJECT TO APPROVAL, BEFORE BEING USED. TWO COATS OF RED LEAD ARE REQUIRED.
ANCHOR RODS SHALL BE MADE OF MATERIAL SUFFICIENTLY STRONG TO DEVELOP THE FULL STRENGTH OF BOTH CABLES.
ALL FITTINGS SHALL BE MADE OF MATERIAL SUFFICIENTLY STRONG TO DEVELOP THE FULL STRENGTH OF THE CABLES.
POSTS TO BE TREATED WITH PRESERVATIVE ACCORDING TO SPECIFICATIONS.
AT ALL LOCATIONS WHERE THE CABLE IS CONNECTED TO A CABLE SOCKET WITH A WEDGE TYPE CONNECTION, ONE WIRE OF THE WIRE ROPE MUST BE CRIMPED OVER THE BASE OF THE WEDGE TO HOLD IT FIRMLY IN PLACE.



FITTING - COMPENSATING TYPE ANCHORAGE
SCALE 3" = 1'-0"



WIRE ROPE SUPPORT AT INTERMEDIATE ANCHORAGES
SCALE 3" = 1'-0"



INTERMEDIATE WIRE ROPE SUPPORT
SCALE 3" = 1'-0"

APPROVED BY BPR ON MAY 7, 1962

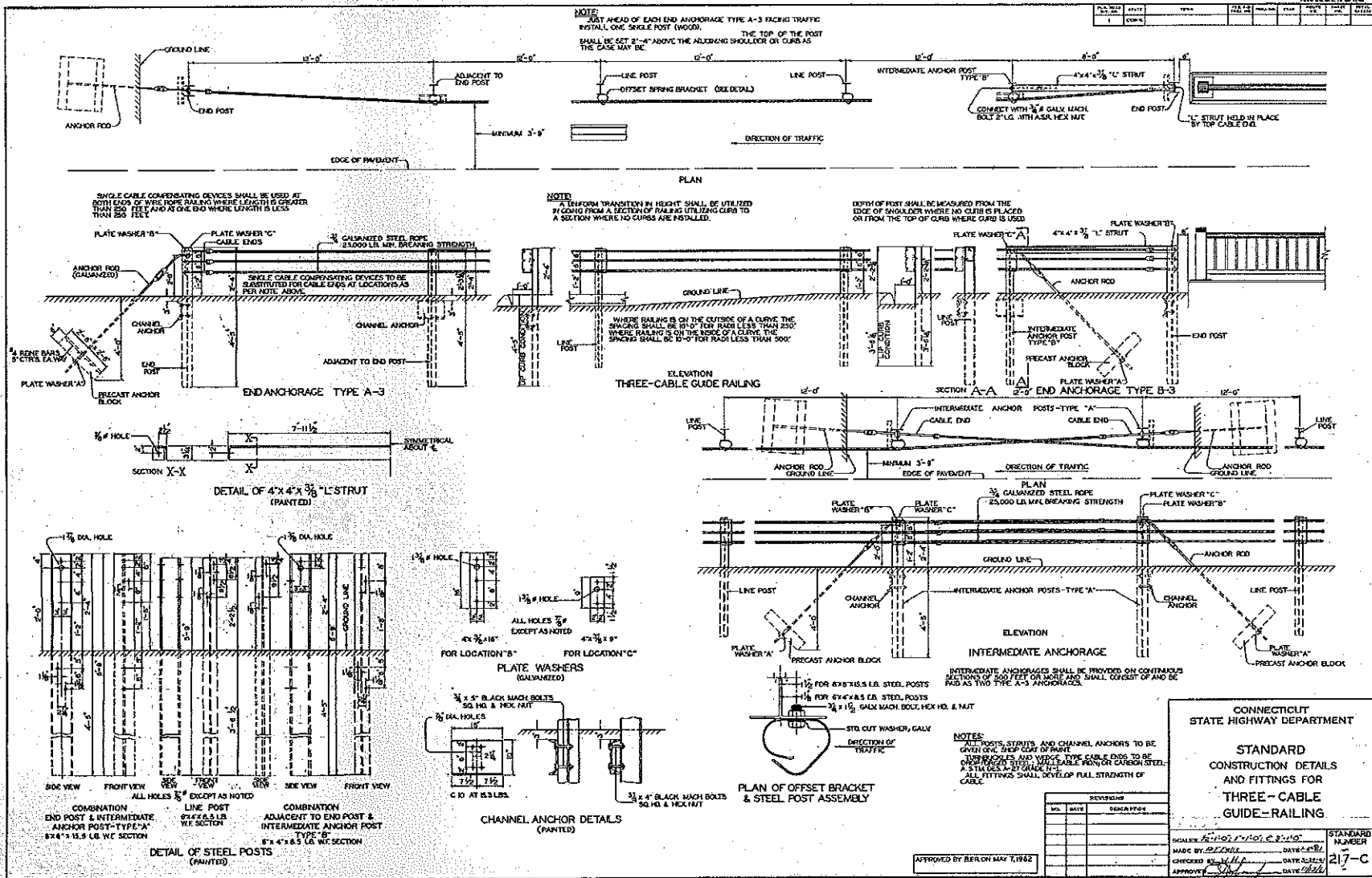
REVISIONS	
NO.	DATE

CONNECTICUT STATE HIGHWAY DEPARTMENT
STANDARD
CONSTRUCTION DETAILS AND FITTINGS FOR
TWO - CABLE GUIDE RAILING

MADE BY *R.F. Felt* DATE *9-2-61*
CHECKED BY *H.L. GARDNER* DATE *6-2-62*
APPROVED *[Signature]* DATE *1-1-62*

STANDARD NUMBER
217-9

THIS PRINT HAS BEEN REDUCED IN SIZE - SCALES SHOWN APPLY TO ORIGINAL SIZE PRINT ONLY



CONNECTICUT STATE HIGHWAY DEPARTMENT

STANDARD CONSTRUCTION DETAILS AND FITTINGS FOR THREE-CABLE GUIDE-RAILING

SCALE: 1/4" = 1'-0" (SEE NOTE 2)

MADE BY: [Signature] DATE: 6/81

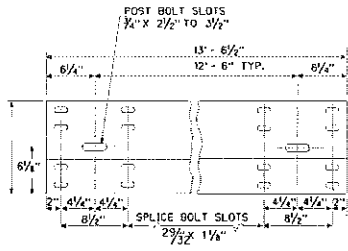
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APPROVED BY: [Signature] DATE: 6/81

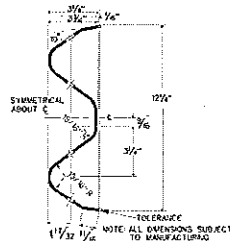
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APPROVED BY BER ON MAY 7, 1982

NO.	DATE	REVISION

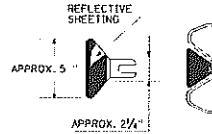


TYPICAL RAIL ELEMENT
CLASS A, TYPE 2



SECTION THRU RAIL ELEMENT

NOTE: REFLECTIVE SHEETING SHALL BE APPROX. 8 SQ. FT.



DELINEATOR

DELINEATORS MAY BE OF 12 GAUGE GALVANIZED STEEL, .030 POLY CARBONATE OR SHEET ALUMINUM IN ACCORDANCE WITH M.18.13. REFLECTIVE SHEETING SHALL CONFORM TO M.18.09 FOR TYPE II - REFLECTIVE SHEETING.

DELINEATOR SPACING	
RADIUS OF CURVE	SPACING ON CURVE
150'	25'
320'	50'
780'	75'
1020'	100'
2000'	150'
3000' OR FLATTER	200'

DELINEATOR TO BE INSTALLED ON POST CLOSEST TO DESIGNATED SPACING.

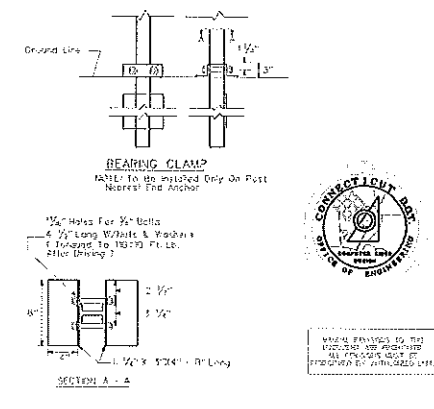
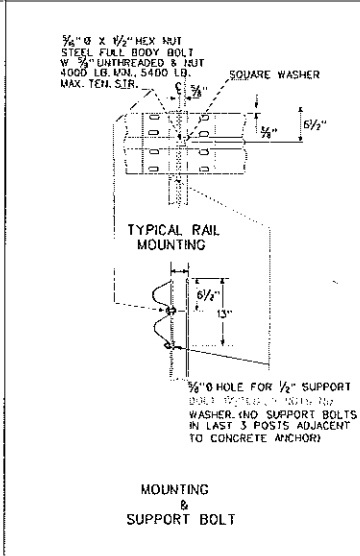
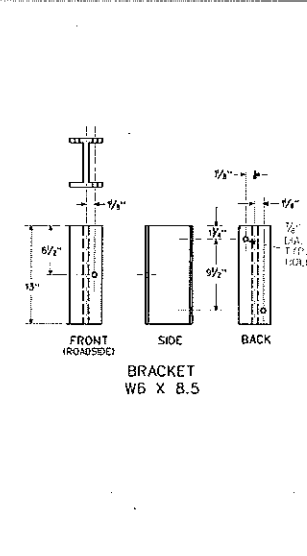
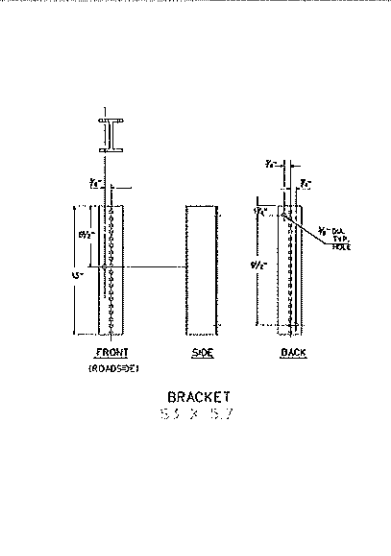
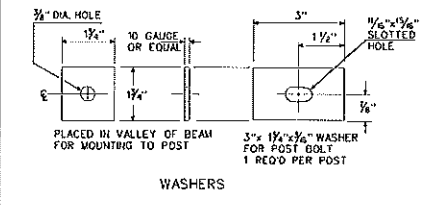
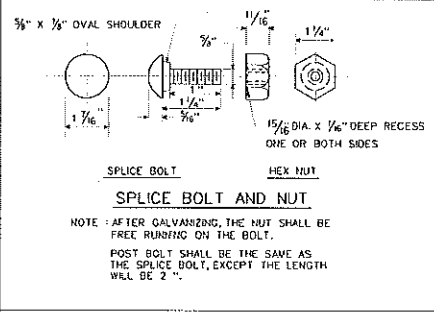
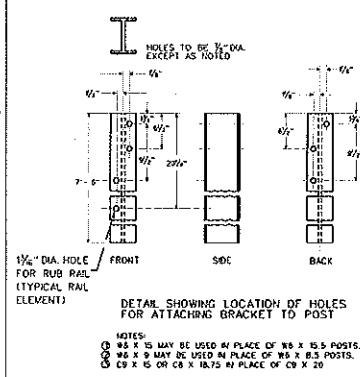
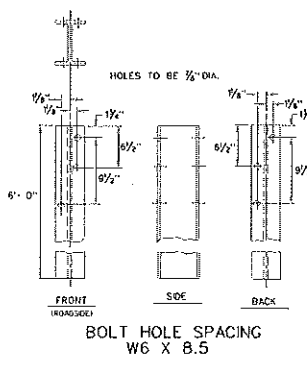
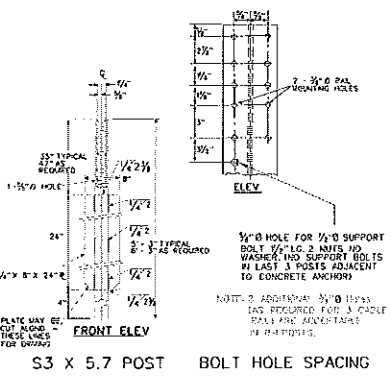
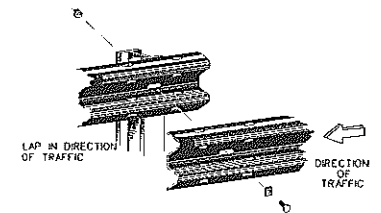
GENERAL NOTES

- 1) TERMINAL ELEMENT TO BE CLASS A (12 GA.)
- 2) BACK UP PIECES TO BE CLASS A (12 GA.) FOR ALL RAIL, AND TO BE PLACED BEHIND RAIL ELEMENTS AT NON-SPLICE POSTS.
- 3) FOR CURVES WITH RADIUS OF 150' OR LESS ALL RAIL MEMBERS SHALL BE SHOP FABRICATED TO THE PROPER RADIUS.
- 4) REFLECTIVE SHEETING TO BE WHITE, EXCEPT REFLECTIVE SHEETING ON STREETS, HIGHWAYS, RAMPS, AND ONEWAY ROADWAYS (IN THE DIRECTION OF TRAVEL) SHALL BE YELLOW. INSTALL DELINEATORS ONLY ON RAIL THAT IS PARALLEL TO AND NOT GREATER THAN 6' FROM THE EDGE OF SHOULDER. A MAXIMUM OF 3 DELINEATORS MUST BE INSTALLED ON ANY RUN OF RAIL.

GUIDE RAIL PLACEMENT

DESIGN SPEED (mph)	FACE OF RAIL TO FACE OF CURB
≤ 35	NO RESTRICTION ON PLACEMENT
40	DO NOT INSTALL BETWEEN 1' AND 8' FROM CURB
50	DO NOT INSTALL BETWEEN 1' AND 10' FROM CURB
60	DO NOT INSTALL BETWEEN 1' AND 12' FROM CURB
70	DO NOT INSTALL BETWEEN 1' AND 15' FROM CURB

NOTE: These ranges apply to all types of curbs, except the 4" x 2" Mountable Curb.



STANDARD SHEET
CONN. DEPT. OF TRANSPORTATION

METAL BEAM RAIL ELEMENTS

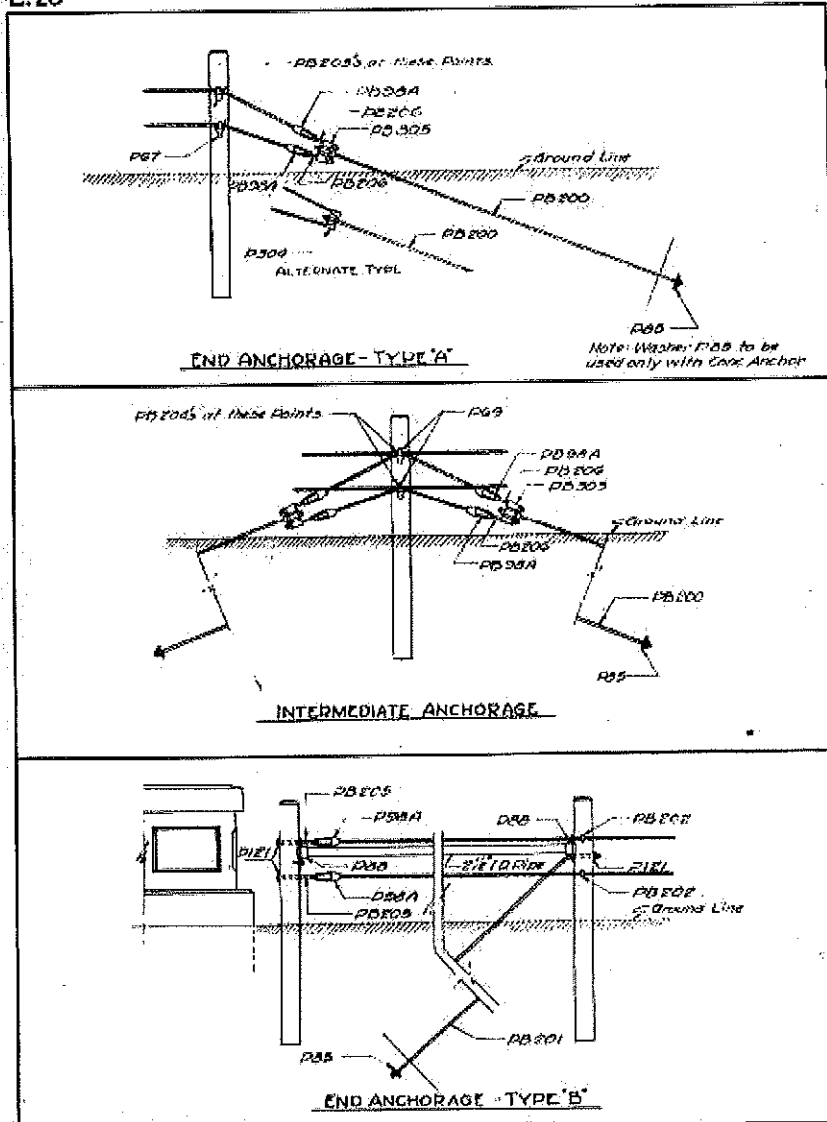
NO.	DATE	BY	CHKD.	APP'D.

NOT TO SCALE

910

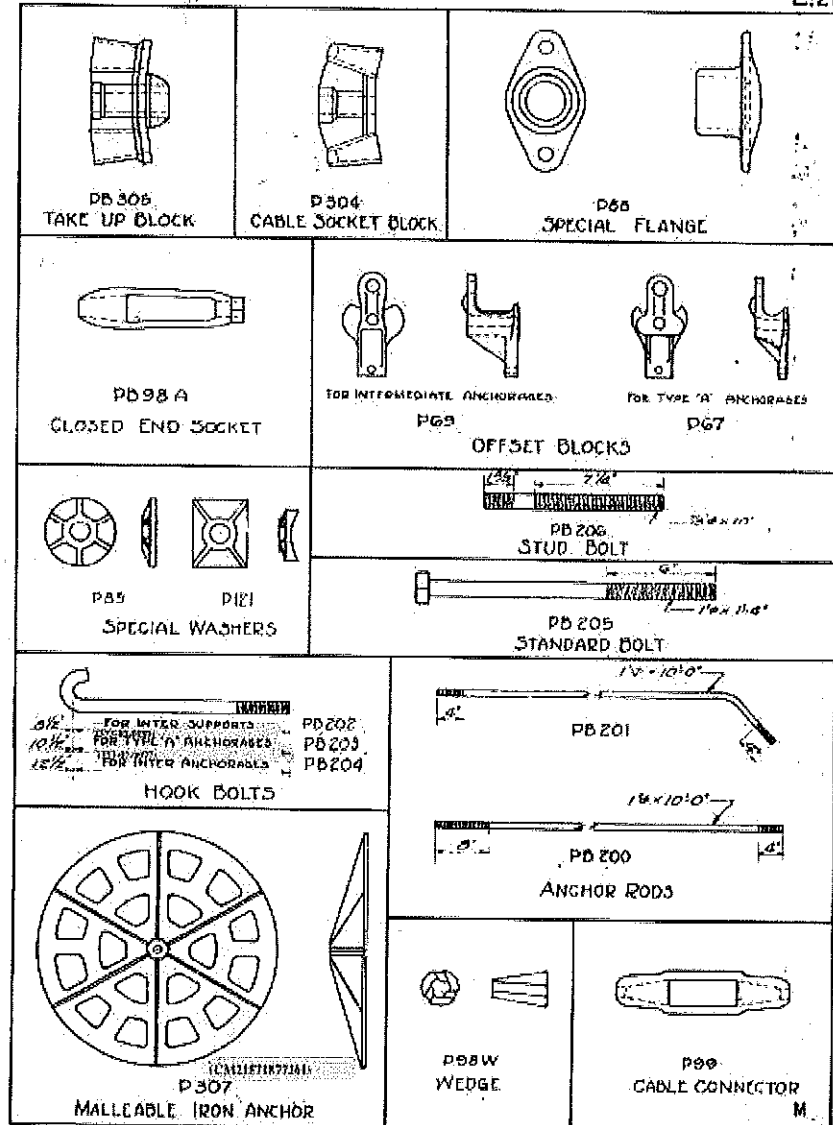
STANDARD WIRE ROPE RAILING
ASSEMBLY DRAWING

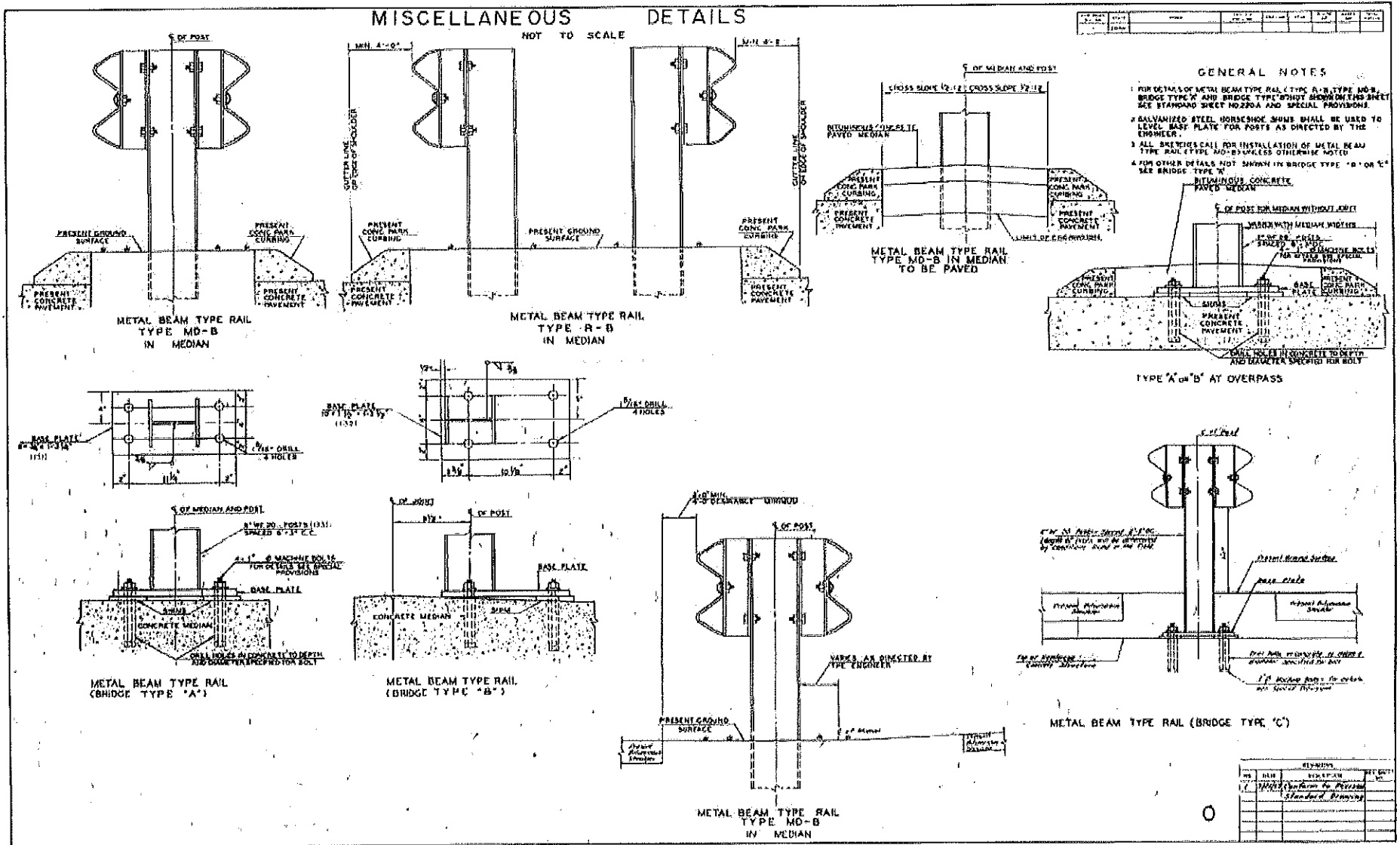
Z.20



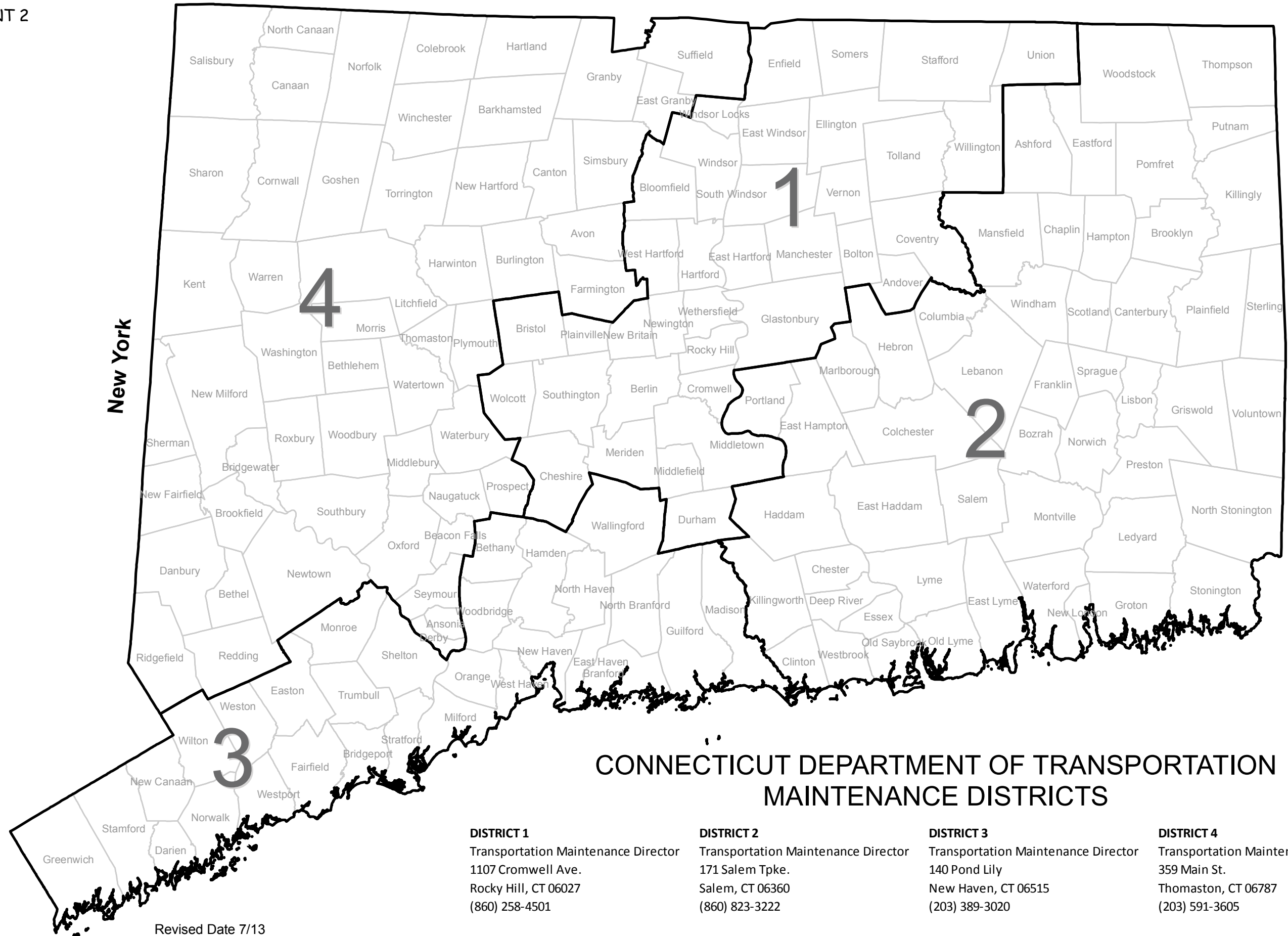
STANDARD WIRE ROPE RAILING
PART NUMBERS

Z.21





Massachusetts



CONNECTICUT DEPARTMENT OF TRANSPORTATION
MAINTENANCE DISTRICTS

DISTRICT 1
Transportation Maintenance Director
1107 Cromwell Ave.
Rocky Hill, CT 06027
(860) 258-4501

DISTRICT 2
Transportation Maintenance Director
171 Salem Tpke.
Salem, CT 06360
(860) 823-3222

DISTRICT 3
Transportation Maintenance Director
140 Pond Lily
New Haven, CT 06515
(203) 389-3020

DISTRICT 4
Transportation Maintenance Director
359 Main St.
Thomaston, CT 06787
(203) 591-3605

Revised Date 7/13



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 of 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 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.