



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

NOTICE TO BIDDERS

ST. TAMMANY PARISH

Sealed bids will be received by the Department of Procurement, until **2:00 p.m., Thursday, November 14, 2024**, and then opened and read publicly at that time by the Procurement Staff for the following project:

Bid # 24-57-2 – Sharp Rd, PH 2

Each paper bid must be submitted in a sealed envelope. The outside of the envelope shall show the Name and Address of the Bidder, the State Contractor's License Number of the Bidder (if the work is estimated at \$50k or more), the Bid Name and the Bid Number.

The project classification is:

Highway, Street and Bridge Construction

This bid package is available online at www.bidexpress.com or LaPAC <https://wwwcfprd.doa.louisiana.gov/osp/lapac/pubmain.cfm>. It is the Vendor's responsibility to check Bid Express, or LaPAC frequently for any possible addenda that may be issued. The Parish is not responsible for a Vendor's failure to download any addenda documents required to complete a submission.

Bids will be received at 21454 Koop Dr., Suite 2F, Mandeville, LA 70471 from each bidder or his agent and given a written receipt, by certified mail with return receipt requested, or electronically at www.bidexpress.com.

Procurement Department

BID PROPOSAL

ST. TAMMANY PARISH
GOVERNMENT



BID PACKAGE FOR
SHARP RD., PH 2

BID NO.: 24-57-2

October, 2024

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Instructions to Bidders

Bidders are urged to promptly review the requirements of this specification and submit questions for resolution as early as possible during the bid period. Questions or concerns must be submitted in writing to the Procurement Department no later than 2:00 CST seven (7) working days prior to the bid opening date. Otherwise, this will be construed as acceptance by the bidders that the intent of the specifications is clear and that competitive bids may be obtained as specified herein. Protests with regard to the specification documents will not be considered after bids are opened.

1. Bid security is required. Be sure that your bid includes such security as is necessary to meet Parish requirements and is properly signed. The bid must be fully completed. All applicable Louisiana license numbers must be affixed.
2. The Owner is the St. Tammany Parish Government (the "Parish").
3. The terms "he/his" and "it/its" may be used interchangeably.
4. The terms "Owner," the "Parish," and "St. Tammany Parish" may be used interchangeably.
5. The successful Bidder understands the limited contract time in the contract is **two hundred seventy days (270) calendar days**, and shall submit any request for an extension of time in accordance with the General and Supplementary Conditions. Said request will reflect the days requested and the reason for same. No extension request is guaranteed or absolute.
6. Bidder specifically understands that acknowledgment of the General Conditions is required. Bidder specifically understands that signature of receipt of the General Conditions is mandated. **The Bidder's signature on the "Louisiana Uniform Public Work Bid Form" will serve as acknowledgment of the Bidder's receipt and understanding of the General Conditions as well as any Supplementary Conditions.**
7. ***If any additional work is performed by the contractor without written approval by owner, the cost of the work will be borne by the contractor and will not be reimbursed by the Parish.***
8. **Only** the Louisiana Uniform Public Bid Form, the Unit Price Form (if necessary), the bid security, and written evidence of authority of person signing the bid shall be submitted on or before the bid opening time and date provided for in the Bid Documents. Necessary copies of the Louisiana Uniform Public Work Forms and Unit Price Forms (if necessary) will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
9. All other documents and information required are to be submitted by the low Bidder within ten (10) days after the opening of the bids, and at the same time of day and location as given for the opening of the bids in the Bid Documents.
10. Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and the Bid number. In the case of an electronic bid proposal, a contractor may submit an authentic digital signature on the electronic bid proposal accompanied by the contractor's license number, Project name and the Bid number.
11. The price quoted for the Work shall be stated in words and figures on the Bid Form, and in figures only on the Unit Price Form. The price in the Bid shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.

12. The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
13. Only a Contractor licensed by the State to do the type of Work as indicated on the Notice to Bidders can submit a Bid. The Bidder's signature on the Bid Form certifies that he holds an active license under the provisions of Chapter 24 of Louisiana Revised Statutes Title 37. Failure to be properly licensed constitutes authority for the Owner to reject the Bid.
14. Bidders shall not attach any conditions or provisions to the Bid. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid.
15. A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.
16. Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the execution of the Contract.
17. A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened. A bid withdrawn under the provisions of LSA-R.S. 38:2214(C) cannot be resubmitted.
18. Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
19. No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. Inquiries received within seven (7) days prior to the day fixed for opening of the Bids may not be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of the Owner to send or failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid as submitted without Modification. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O).

20. The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal, illegible, or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
21. Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.
22. Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.
23. It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.
24. Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.
25. Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred

to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not furnished by Contractor; or, iii) use of the product, material or service in other than the specified operating conditions and environment.

26. Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
27. Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form, instrument, Drawing or document or to visit the site and acquaint itself with existing conditions shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.
28. The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
29. When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or in conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
30. Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
31. In accordance with Louisiana Law, all Corporations (See LA R.S. 12:26.1) and Limited Liability Companies (See LA R.S. 12:1308.2) should be registered and in good standing with the Louisiana Secretary of State in order to hold a contract.
32. Sealed Bids shall be delivered to St. Tammany Parish Government at the office of **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and a receipt given, until the time and date denoted in Notice to Bidders, at which time and place the Bids shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38:2212(H), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Bids may also be mailed by certified mail to **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders. It is the responsibility of the Bidders to ensure that bids are delivered in a timely fashion. **Late bids, regardless of reason, will not be considered, and will be returned to bidder.**

33. Paper bids shall be placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these Instructions, and addressed:

**St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471**

34. See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.
35. The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.
36. The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility and qualifications of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.
37. At least three days prior to the execution of the Contract, the Contractor shall deliver to the Owner the required Bonds.
38. Failure of the successful Bidder to execute the Contract and deliver the required Bonds within ten (10) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited. Award may then be made to the next lowest responsible bidder.
39. In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and hold harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a Performance and Payment Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
40. No surety Company will be accepted as a bondsman which has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Service of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
41. In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of

the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

42. Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due, or to become due to Contractor.
43. The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
44. The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans, specifications, and other Contract Documents. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney's fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
45. The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of the Contract.
46. The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of the Work/Project by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
47. Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law. Contractor agrees to execute an excerpt or extract of this agreement for recordation purposes. If Contractor fails to execute such an excerpt, then the Parish shall file and record the entire Contract and all attachments at the expense of Contractor and Parish is hereby authorized to deduct all related costs from any proceeds due to the Contractor.
48. Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor,

his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.

49. The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
50. Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
51. Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
52. Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
53. Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

54. The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract shall be designated by a separate document issued by the Office of Risk Management.
55. It is the intent of these instructions that they are in conformance with State Bid Laws. Should there be any discrepancy or ambiguity in these provisions, the applicable State Bid Law shall apply.
56. The letting of any public contract in connection with funds that are granted or advanced by the United States of America shall be subject to the effect, if any, of related laws of said United States and valid rules and regulations of federal agencies in charge, or governing use and payment of such federal funds.
57. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE two (2) working days of the bid opening. Any other protest shall be filed no later than ten (10) calendar days after: the opening of the bid; the basis of the protest is known; or the basis of the protest should have been known (whichever is earlier).
58. It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:

The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;

A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;

Copies of relevant documents;

All information establishing that the protester is an interested party and that the protest is timely; and

A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to St. Tammany Parish Government Department of Procurement, P.O. Box 628, Covington, LA 70434

The protest review shall be conducted by the Parish Legal Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals, must be filed with and received by the Department of Procurement BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

59. The last day to submit questions to Procurement shall be no later than 2:00 pm CST, seven (7) working days prior to the opening of bids, and verification on comparable products will be no later than 2:00 pm CST, fourteen (14) working days prior to the opening date of the bid/proposal due date. Further, any questions or inquiries must be submitted via fax to 985-

898-5227, or via email to Procurement@stpgov.org. Any questions or inquiries received after the required deadline to submit questions or inquiries will not be answered.

Schedule of Events

	<u>Date</u>	<u>Time (CT)</u>
Bid Due Date	November 14, 2024	2:00 PM
Inquiry Deadline	November 1, 2024	2:00 PM
Addendum Deadline	November 8, 2024	2:00 PM

NOTE: The Parish reserves the right to revise this schedule. Any such revision will be formalized by the issuance of an addendum to the Bid Request.

60. St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time, St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
61. Any action by the Parish to disqualify any Bidder on the grounds that they are not a responsible Bidder shall be conducted in accordance with LSA-R.S. 38:2212(X).
62. Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.
63. If any part of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

Section 03

Summary of Work

I. Work to Include:

This project includes the construction of subsurface drainage, a reinforced concrete box culvert with headwalls, asphalt pavement, base course, subgrade, pavement striping, and concrete, asphalt, and gravel drives.

II. Location of Work:

The work is located in St. Tammany Parish, Mandeville, LA., along Sharp Rd., starts approximately 60 feet East of Asbury Drive, and ends approximately 55 feet East of the De Val Drive.

III. Documents: Bid Documents dated October 2024, and entitled:

Sharp Rd., PH 2

BID No, 24-57-2

IV. OTHER REQUIREMENTS (as applicable)

When not otherwise specified herein, all work and materials shall conform to the requirements of the Louisiana Department of Transportation and Development hereafter called LDOTD (2016 Edition of Louisiana Standard Specifications for Roads and Bridges), and Supplementary Specifications, attached as Section 12 of this document.

Table 3.1

Liquidated Damages	
Original Contract Amount	Daily Charge
Dollars	Dollars
0 - 250,000	500
250,000 – 1 Million	1,000
> 1 Million – 5 Million	1,500
> 5 Million – 10 Million	2,000
> 10 Million	3,000

- Parish reserves the right to increase the Daily charge rate due to additional provisions required in order to complete the project as described in the specifications

Section 04

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: St. Tammany Parish Government
21454 Koop Dr., Suite 2F
Mandeville, La 70471

(Owner to provide name and address of owner)

BID FOR: Sharp Rd., PH 2

BID No. 24-57-2

(Owner to provide name of project and other identifying information.)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: _____
G.E.C., Inc. and dated: October 2024.

(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars (\$ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars (\$ _____)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars (\$ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM UNIT PRICE FORM

TO:

St. Tammany Parish Government
 21454 Koop Drive, Suite 2F
 Mandeville, LA. 70471
(OWNER TO PROVIDE NAME AND ADDRESS OF OWNER)

BID FOR:

Sharp Rd., PH 2
 BID No. 24-57-2
(OWNER TO PROVIDE PROJECT NAME & OTHER IDENTIFYING INFO)

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #		
				Clearing and Grubbing	
REF NO.:	QUANTITY		UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
201-01-00100	7		ACRE		
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Removal of Structures and Obstructions	
REF NO.:	QUANTITY		UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
202-01-00100	1		LUMP		
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Removal of Asphalt Drives	
REF NO.:	QUANTITY		UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
202-02-02000	1,100		SQYD		
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Removal of Asphalt Pavement	
REF NO.:	QUANTITY		UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
202-02-02020	24,330.7		SQYD		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Removal of Concrete Walks and Drives				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
202-02-06100	1,258.4	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Removal of Portland Cement Concrete Pavement				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
202-02-32500	1,113.0	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Excavation and Embankment				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
203-05-00100	1	LUMP		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Temporary Hay Bales				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
204-02-00100	975	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Temporary Silt Fencing				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
204-06-00100	1,000	LNFT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Class II Base Course (8"Thick)(Crushed Stone or Recycled Portland Cement Concrete)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
302-02-08070	27,047.7	SQYD		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Subgrade Layer (12" Thick) (Sand)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
305-01-04000	13,523.9	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Aggregate Surface Course (Adjusted Vehicular Measurement)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
401-02-00100	217.1	CUYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Traffic Maintenance Surfacing (Aggregate) (Vehicular Measurement)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
402-01-00101	200.0	CUYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Asphalt Concrete				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
502-01-00100	8,402.4	TON		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Asphalt Concrete, Drives, Turnouts and Miscellaneous				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
502-01-00200	434.4	TON		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Pavement Patching (6" Minimum Thickness)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
510-01-00100	200	SQYD		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Portland Cement Concrete Pavement (6" Thick)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
601-01-00100	1,113.0	SQYD			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Cross Drain Pipe Arch (30" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-02-01020	158	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Cross Drain Pipe Arch (36" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-02-01040	185	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Cross Drain Pipe Arch (42" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-02-01060	105	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe (15" RCP/RPVCP)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-03-01002	28	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe Arch (15" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-04-01000	2,737	LNFT			

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe Arch (18" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-04-01020	4,566	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe Arch (24" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-04-01040	5,401	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe Arch (30" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-04-01060	2,764	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Storm Drain Pipe Arch (36" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-04-01080	1,453	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Side Drain Pipe Arch (18" Equiv. RCPA)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-06-00020	952	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Concrete Collar	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
701-15-00100	3	EACH			

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Junction Boxes [MH-14XOPEN]				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
702-01-00100	6	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Manholes (MH-06)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
702-02-00100	21	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Catch Basins (CB-01)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
702-03-00100	163	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Catch Basins (CB-02)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
702-03-00200	14	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Catch Basins (CB-SD02)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
702-03-01100	18	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Blocked Out Guard Rail - 31", (6'-3" Post Spacing)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
704-03-00200	225.0	LNFT		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Guard Rail End Treatment, MASH, (TL-3 Tangent)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
704-10-00205	4	EACH		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Concrete Drive (6" Thick)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
706-02-00200	1,258.4	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Incidental Concrete Paving (4" Thick)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
706-03-00100	171.2	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Incidental Concrete Paving (6" Thick)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
706-03-00300	680	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Concrete Curb				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
707-01-00100	507	LNFT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Flowable Fill				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
710-01-00100	38	CUYD		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Temporary Signs and Barricades				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
713-01-00100	1	LUMP		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Temporary Pavement Markings (Solid Line) (4"Width) (Type 1 Removable)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
713-04-01020	8.216	MILE		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Erosion Control System, Flexible (Channel Liner) (Type F)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
720-01-02060	208	SQYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Bedding Material				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
726-01-00100	2,033.2	CUYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Mobilization				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
727-01-00100	1	LUMP		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Object Marker Assembly (Type 3)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
729-16-00300	4	EACH		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Reflectorized Raised Pavement Markers	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
731-02-00100	733	EACH			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Plastic Pavement Striping (24" Width) (Thermoplastic 125 mil)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
732-01-02080	50	LNFT			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
732-02-02000	8.216	MILE			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Plastic Pavement Striping (Solid Line) (8" Width) (Thermoplastic 90 mil)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
732-02-02040	0.054	MILE			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Plastic Pavement Striping (Dotted Line)(8" W)(2' L)(Thermo 90 mil)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
732-03-02030	0.02	MILE			
Description:	<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
732-04-01080	1	EACH			

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Hydro-Seeding				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
739-01-00100	6.54	ACRE		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Construction Layout				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
740-01-00100	1	LUMP		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Utility Oversight and Coordination				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
740-02-00100	1	LUMP		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Class A1 Concrete (Headwalls)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
805-01-01000	16.87	CUYD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Reinforced Concrete Box Culverts (Cast-In-Place or Precast) (4' x 4')				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
805-13-00100	120	LNFT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # Deformed Reinforcing Steel				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
806-01-00100	1,543	LB		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	Saw Cutting Asphalt Concrete Pavement	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
NS-500-00340	484	INLF				

Section 05

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2224 and 38:2227
FOR BIDDERS FOR PUBLIC WORKS CONTRACTS**

STATE OF _____

PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of _____, who is seeking a public contract with St. Tammany Parish Government.
2. That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and
3. That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.
4. If affiant is a sole proprietor, that after July 2, 2010, he/she has not been convicted of, or has not entered a plea of guilty or *nolo contendere* to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).
5. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no individual partner, incorporator, director, manager, officer, organizer, or member, who has a minimum of a ten percent ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or *nolo contendere* to any

of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).

6. If affiant is a sole proprietor, that neither affiant, nor his/her immediate family is a public servant of St. Tammany Parish Government or the Contract is not under the supervision or jurisdiction of the public servant's agency.

7. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no public servant of St. Tammany Parish Government, or his/her immediate family, either individually or collectively, has more than a 25% ownership interest in the entity seeking the Contract with St. Tammany Parish Government if the Contract will be under the supervision or jurisdiction of the public servant's agency.

Printed Name: _____
Title: _____
Entity name: _____

THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, DAY OF _____, 202__.

Notary Public
Print Name: _____
Notary I.D./Bar No.: _____
My commission expires: _____

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2212.10 CONFIRMING
REGISTRATION AND PARTICIPATION IN A STATUS VERIFICATION
SYSTEM**

STATE OF _____

PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of _____, a private employer seeking a bid or a contract with St. Tammany Parish Government for the physical performance of services within the State of Louisiana.

2. That affiant is registered and participates in a status verification system to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens; and

3. That affiant shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

4. That affiant shall require all subcontractors to submit to the affiant a sworn affidavit verifying compliance with this law.

Printed Name: _____

Title: _____

Name of Entity: _____

**THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, DAY OF _____, 202__.**

Notary Public

Print Name: _____

Notary I.D./Bar No.: _____

My commission expires: _____



Section 06

INSURANCE REQUIREMENTS*

Construction Project: Sharp Rd. Ph 2 _____

Project/Quote/Bid#: 24-57-2 _____

*****IMPORTANT – PLEASE READ*****

Prior to submitting your quote or bid, it is recommended that you review these insurance requirements with your insurance broker/agent.

These requirements modify portions of the insurance language found in the General Conditions and/or Supplementary General Conditions; however, there is no intention to remove all sections pertaining to insurance requirements and limits set forth in the General Conditions and/or Supplementary General Conditions, only to amend and specify those items particular for this Project.

- A. The Provider shall secure and maintain at its expense such insurance that will protect it and St. Tammany Parish Government (the "Parish") from claims for bodily injury, death or property damage as well as from claims under the Workers' Compensation Acts that may arise from the performance of services under this agreement. All certificates of insurance shall be furnished to the Parish and provide thirty (30) days prior notice of cancellation to the Parish, in writing, on all of the required coverage.
- B. All policies shall provide for and certificates of insurance shall indicate the following:
1. Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.
 2. Additional Insured: St. Tammany Parish Government shall be named as Additional Insured with respect to general liability, automobile liability and excess liability coverages, as well as marine liability and pollution/environmental liability, when those coverages are required or necessary.
 3. Payment of Premiums: The insurance companies issuing the policy or policies will have no recourse against St. Tammany Parish Government for payment of any premiums or for assessments under any form of policy.
 4. Project Reference: The project(s) and location(s) shall be referenced in the Comment or Description of Operations section of the Certificate of Insurance (Project ##-###, or Bid # if applicable, Type of Work, Location).
- C. Coverage must be issued by insurance companies authorized to do business in the State of Louisiana. Companies must have an A.M. Best rating of no less than A-, Category VII. St. Tammany Parish Risk Management Department may waive this requirement only for Workers Compensation coverage at their discretion.

Provider shall secure and present proof of insurance on forms acceptable to St. Tammany Parish Government, Office of Risk Management no later than the time of submission of the Contract to the Parish. However, should any work performed under this Contract by or on behalf of Provider include exposures that are not covered by those insurance coverages, Provider is not relieved of its obligation to maintain appropriate levels and types of insurance necessary to protect itself, its agents and employees, its subcontractors, St. Tammany Parish Government (Owner), and all other interested third parties, from any and all claims for damage or injury in connection with the services performed or provided throughout the duration of this Project, as well as for any subsequent periods required under this Contract.

The insurance coverages checked (✓) below are those required for this Contract.

- 1. **Commercial General Liability*** insurance – **Occurrence Form** - with a Combined Single Limit for bodily injury and property damage of at least \$2,000,000 per Occurrence / \$4,000,000 General Aggregate and \$4,000,000 Products-Completed Operations. Contracts over \$1,000,000 may require higher limits. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
 - a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal/Advertising Injury;
 - e) Broad form property damage (for Projects involving work on Parish property);
 - f) Explosion, Collapse and Damage to underground property.
 - g) Additional Insured forms CG 2010 and CG 2037 in most current edition are required.

- 2. **Business Automobile Liability*** insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
 - a) Any auto;
 - or**
 - b) Owned autos; **and**
 - c) Hired autos; **and**
 - d) Non-owned autos.

- 3. **Workers' Compensation/Employers Liability insurance*** - Workers' Compensation coverage as required by State law. Employers' liability limits shall be a minimum of \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate. When water activities are expected to be performed in connection with this project, coverage under the USL&H Act, Jones Act and/or Maritime Employers Liability (MEL) must be included. **Coverage for owners, officers and/or partners in any way engaged in the Project shall be included in the policy.** The names of any excluded individual must be shown in the Description of Operations/Comments section of the Certificate.

- 4. **Pollution Liability and Environmental Liability*** insurance in the minimum amount of \$1,000,000 per occurrence / \$2,000,000 aggregate including full contractual liability and third party claims for bodily injury and/or property damage, for all such hazardous waste, pollutants and/or environmental exposures that may be affected by this project stemming from pollution/environmental incidents as a result of Contractor's operations.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

5. **Contractor's Professional Liability/Errors and Omissions*** insurance in the sum of at least \$1,000,000 per claim / \$2,000,000 aggregate is required when work performed by Contractor or on behalf of Contractor includes professional or technical services including, but not limited to, construction administration and/or management, engineering services such as design, surveying, and/or inspection, technical services such as testing and laboratory analysis, and/or environmental assessments. An occurrence basis policy is preferred.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

6. **Marine Liability/Protection and Indemnity*** insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence / \$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability

***Excess/Umbrella Liability** insurance may be provided to meet the limit requirements for any Liability coverage. For example: if the General Liability requirement is \$3,000,000 per occurrence, but the policy is only \$1,000,000 per occurrence, then the excess policy should be at least \$2,000,000 per occurrence thereby providing a combined per occurrence limit of \$3,000,000.)

7. **Owners Protective Liability (OPL)** shall be furnished by the Contractor and shall provide coverage in the minimum amount of \$3,000,000 CSL each occurrence / \$3,000,000 aggregate. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**

8. **Builder's Risk Insurance** written as an "all-risk" policy providing coverage in an amount at or greater than one hundred percent (100%) of the completed value of the contracted project. Any contract modifications increasing the contract cost will require an increase in the limit of the Builder's Risk policy. Deductibles should not exceed \$5,000 and Contractor shall be responsible for all policy deductibles. This insurance shall cover materials at the site, stored off the site, and in transit. The Builder's Risk Insurance shall include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**

9. **Installation Floater Insurance**, on an "all-risk" form, shall be furnished by Contractor and carried for the full value of the materials, machinery, equipment and labor for each location. The Contractor shall be responsible for all policy deductibles. The Installation Floater Insurance shall provide coverage for property owned by others and include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**

- D. All policies of insurance shall meet the requirements of the Parish prior to the commencing of any work. The Parish has the right, but not the duty, to approve all insurance coverages prior to commencement of work. If any of the required policies are or become unsatisfactory to the Parish as to form or substance; or if a company issuing any policy is or becomes unsatisfactory to the Parish, the Provider shall promptly obtain a new policy, timely submit same to the Parish for approval, and submit a certificate thereof as provided above. The Parish agrees not to unreasonably withhold approval of any insurance carrier selected by Provider. In the event that Parish cannot agree or otherwise authorize a carrier, Provider shall have the option of selecting and submitting a new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Provider and thereafter deduct from Provider's fee the cost of such insurance.
- E. Upon failure of Provider to furnish, deliver and/or maintain such insurance as above provided, this contract, at the election of the Parish, may be declared suspended, discontinued or terminated. Failure of the Provider to maintain insurance shall not relieve the Provider from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Provider concerning indemnification.
- F. Provider shall maintain a current copy of all annual insurance policies and agrees to provide a certificate of insurance to the Parish on an annual basis or as may be reasonably requested for the term of the contract or any required Extended Reporting Period. Provider further shall ensure that all insurance policies are maintained in full force and effect throughout the duration of the Project and shall provide the Parish with annual renewal certificates of insurance evidencing continued coverage, without any prompting by the Parish.
- G. It shall be the responsibility of Provider to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Provider. Provider shall further ensure the Parish is named as an additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project.
- H. Certificates of Insurance shall be issued as follows:

**St. Tammany Parish Government
Attn: Risk Management
P O Box 628
Covington, LA 70434**

To avoid contract processing delays, be certain the project name/number is included on all correspondence including Certificates of Insurance.

***NOTICE: St. Tammany Parish Government reserves the rights to remove, replace, make additions to and/or modify any and all of the insurance requirements at any time.**

Any inquiry regarding these insurance requirements should be addressed to:

**St. Tammany Parish Government
Office of Risk Management
P O Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

Section 07

Project Signs

1. General

- a. Work to include providing and installing project sign(s) at the beginning of the project. Some projects may require multiple signs. Should more than one sign be required, it will be reflected in the bidding documents.

2. Materials

- a. The printed project sign(s) shall be 3/8" primed Medium Density Overlay (MDO) **OR** 3-millimeter corrugated plastic secured to exterior plywood (4' x 4').
- b. Contractor shall not use previously provided templates and/or fonts.

3. Execution

- a. The sign(s) shall be printed on a project-by-project basis in black and white, using the template and font provided to the Contractor by the St. Tammany Parish Government Project Manager.
- b. All signage proofed and approved by State Tammany Parish Government before project sign(s) are to be produced by the Contractor.
- c. Exact placement of the project sign(s) must be coordinated with, and approved by, the St. Tammany Parish Government Project Manager prior to sign installation.
- d. The sign(s) is to be installed such that the bottom of the sign is a minimum of 5' above the existing ground elevation.
- e. Sign(s) is to be maintained throughout the period of construction. If sign(s) is damaged or destroyed, repair and/or replacement of sign(s) will be at Contractor's expense.
- f. Contractor is responsible for the removal of all project signs upon issuance of final acceptance by the St. Tammany Parish Government Project Manager at no direct pay.
- g. Cost to be included in "Temporary Signs and Barricades

Blank Template of Parish Project Sign:

PROGRESS



MICHAEL B. COOPER
Parish President

Councilmember Name
Council District X

\$XXX,XXX.XX

Total Dollar \$
amount specified here

Project Name


Description of
Project Work

Name of Street, Bridge,
Subdivision, etc. stated here

Short Description of Project stated here
(if deemed applicable by the Parish)

Example of a Completed Parish Project Sign:

PROGRESS



MICHAEL B. COOPER
Parish President

RYKERT O. TOLEDANO, JR
Council District 5

\$514,444.40

**Dove Park
Subdivision Drainage**
Drainage Improvements along
Swallow St., Sparrow St.,
Partridge St. and Egret St.

Section 08

General Conditions for St. Tammany Parish Government

This index is for illustrative purposes only and is not intended to be complete nor exhaustive.

All bidders/contractors are presumed to have read and understood the entire document. Some information contained in these conditions may not be applicable to all projects.

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01.00 DEFINITIONS OF TERMS

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

- 01.01 A.A.S.H.T.O American Association of State Highway and Transportation Officials. When A.A.S.H.T.O. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this association and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.02 A.C.I American Concrete Institute. When A.C.I. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this institute and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.03 Addenda Written or graphic instruments issued prior to the opening of bids which clarify, correct, modify or change the bidding or Contract Documents.
- 01.04 Advertisement The written instrument issued by the Owner at the request of the Owner used to notify the prospective bidder of the nature of the Work. It becomes part of the Contract Documents.
- 01.05 Agreement The written agreement or contract between the Owner and the Contractor covering the Work to be performed and the price that the Owner will pay. Other documents, including the Proposal, Addenda, Specifications, plans, surety, insurance, etc., are made a part thereof.
- 01.06 Application for Payment The form furnished by the Owner which is to be used by the Contractor in requesting incremental (progress) payments and which is to include information required by Section 28.01 and an affidavit of the Contractor. The affidavit shall stipulate that progress payments theretofore received from the Owner on account of the Work have been applied by Contractor to discharge in full of all Contractor's obligations reflected in prior applications for payment.
- 01.07 A.S.T.M. American Society of Testing Materials. When A.S.T.M. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this society and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.08 Bid The offer or Proposal of the Bidder submitted on the prescribed form setting forth all the prices for the Work to be performed.
- 01.09 Bidder Any person, partnership, firm or corporation submitting a Bid for the Work.
- 01.10 Bonds Bid, performance and payment bonds and other instruments of security, furnished by the Contractor and its surety in accordance with the Contract Documents and Louisiana law.
- 01.11 Change Order A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time after execution of the Agreement.
- 01.12 Contract Documents The Agreement, Addenda, Contractor's Bid and any documentation accompanying or post-bid documentation when attached as an exhibit, the Bonds, these General Conditions, the Advertisement for Bid, Notice to Contractor, all supplementary conditions, the Specifications, the Drawings, together with all Modifications issued after the execution of the Agreement.
- 01.13 Contract Price The total monies payable to the Contractor under the Contract Documents.

- 01.14 Contract Time The number of consecutive calendar days stated in the Agreement for the completion of the Work.
- 01.15 Contractor The person, firm, corporation or Contractor with whom the Owner has executed the Agreement.
- 01.16 Defective Work When work which is unsatisfactory, faulty or deficient for any reason whatsoever, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Owner's recommendation or acceptance.
- 01.17 Drawings The Drawings and plans which show the character and scope of the Work to be performed and which have been prepared or approved by the Owner and are referred to in the Contract Documents.
- 01.18 Field Order A written order issued by the Owner or his agent which clarifies or interprets the Contract Documents.
- 01.19 Modification (a) A written amendment of the Contract Documents signed by both parties, (b) A Change Order, (c) A written clarification or interpretation issued by the Owner or his agent. Modification may only be issued after execution of the Agreement.
- 01.20 Notice of Award The written notice by Owner to the lowest responsible Bidder stating that upon compliance of the conditions enumerated in the Notice of Award, or enumerated in the Bid documents, the Owner will deliver the Contract Documents for signature. The time for the delivery of the Contract Documents can be extended in conformance with Louisiana Law.
- 01.21 Notice to Contractor Instructions, written or oral given by Owner to Contractor and deemed served if given to the Contractor's superintendent, foreman or mailed to Contractor at his last known place of business.
- 01.22 Notice to Proceed A written notice given by the Owner fixing the date on which the Contract Time will commence, and on which date the Contractor shall start to perform his obligation under the Contract Documents. Upon mutual consent by both parties, the Notice to Proceed may be extended.
- 01.23 Owner St. Tammany Parish Government, acting herein through its duly constituted and authorized representative, including but not limited to the Office of the Parish President or its designee, its Chief Administrative Officer, and/or Legal Counsel. St. Tammany Parish Government (hereinafter, the "Parish") and Owner may be used interchangeably.
- 01.24 Project The entire construction to be performed as provided in the Contract Documents.
- 01.25 Project Representative The authorized representative of the Owner who is assigned to the Project or any parts thereof.
- 01.26 Proposal The Bid submitted by the Bidder to the Owner on the Proposal form setting forth the Work to be done and the price for which the Bidder agrees to perform the Work.
- 01.27 Shop Drawings All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, Subcontractor, Manufacturer, Supplier or Distributor and which illustrate the equipment, material or some portion of the Work.
- 01.28 Specifications The Instructions to Bidders, these General Conditions, the Special Conditions and the Technical Provisions. All of the documents listed in the "Table of Contents."
- 01.29 Subcontractor An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Project Work.
- 01.30 Substantial Completion The date as certified by the Owner or its agent when the construction of the Project or a specified part thereof is sufficiently complete in accordance with the Contract Documents so that the Project or specified part can be utilized for the

purposes for which it was intended; or if there is no such certification, the date when final payment is due in accordance with Section 28.

- 01.31 Superintendent Contractor's site representative. The person on the site who is in full and complete charge of the Work.
- 01.32 Time Unless specifically stated otherwise, all time delays shall be calculated in calendar days.
- 01.33 Work Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, usually including the furnishing of all labor, materials, equipment and other incidentals.
- 01.34 The terms "he/himself" may be used interchangeably with "it/itself."

02.00 PROPOSAL

- 02.01 All papers bound with or attached to the Proposal Form are a necessary part thereof and must not be detached.
- 02.02 For submitting Bids, the only forms allowed shall be the "Louisiana Uniform Public Work Bid Form", "Louisiana Uniform Public Works Bid Form Unit Price Form" (if necessary), the Bid Bond, and written evidence of authority of person signing the bid. Necessary copies of the Louisiana Uniform Public Work Forms will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
- 02.03 Proposal forms must be printed in ink or typed, unless submitted electronically. Illegibility or ambiguity therein may constitute justification for rejection of the Bid.
- 02.04 Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and number for which the Bid is submitted, along with the Bid number.
- 02.05 The price quoted for the Work shall be stated in words and figures on the Bid Form, and in numbers only on the Unit Price Form. The price in the Proposal shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
- 02.06 The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
- 02.07 Only the Contractors licensed by the State to do the type of Work involved can submit a Proposal for the Work. The envelope containing the Proposal shall have the Contractor's license number on it. Failure to be properly licensed constitutes authority by the Owner for rejection of Bid.
- 02.08 Bidders shall not attach any conditions or provisions to the Proposal. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid or Proposal.
- 02.09 A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish

of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide, or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.

- 02.10 Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids as permitted by Public Bid Law. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the Execution of the Contract.
- 02.11 A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened.
- 02.12 Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
- 02.13 No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. No inquiry received within seven (7) days prior to the day fixed for opening of the Bids shall be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O)(2)(a) and (b).
- 02.14 The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
- 02.15 The Contractor shall indemnify and hold harmless the Owner from any and all suits, costs, penalties or claims for infringement by reason of use or installation of any patented design, device, material or process, or any trademark and copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify and hold harmless the Owner for any costs, expenses and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after completion of the Work.
- 02.16 Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
- 02.17 Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this

Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form instrument, Drawing or document or to visit the site and acquaint itself with existing conditions, shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.

- 02.18 The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
- 02.19 When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or into conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
- 02.20 Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
- 02.21 Sealed Proposals (Bid) shall be received by St. Tammany Parish Government at the office of St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, until the time and date denoted in Notice to Bidders, at which time and place the Proposals (Bids), shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38-2212(A)(3)(c)(i), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Proposals (Bids) may also be mailed by certified mail to St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders.
- 02.22 Proposals (Bids) shall be executed on Forms furnished and placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these General Conditions, and addressed:

St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471

- 02.23 See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.
- 02.24 The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.

03.00 AWARD, EXECUTION OF DOCUMENTS, BONDS, ETC.

- 03.01 The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility, qualifications and financial ability and stability of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. The Owner reserves the right to reject the Bid of any Bidder in accordance with the Public Bid Law, LSA-R.S. 38:2214. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after

the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.

- 03.02 At least three counterparts of the Agreement and of such other Contract Documents as practicable shall be signed by the Owner and the Contractor. The Owner shall identify those portions of the Contract Documents not so signed and such identification shall be binding on both parties. The Owner and the Contractor shall each receive an executed counterpart of the Contract Documents.
- 03.03 Prior to the execution of the Agreement, the Contractor shall deliver to the Owner the required Bonds.
- 03.04 Failure of the successful Bidder to execute the Agreement and deliver the required Bonds within twenty (20) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited.
- 03.05 In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and save harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a surety Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
- 03.06 No surety Company will be accepted as a bondsman who has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Services of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
- 03.07 In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

- 03.08 Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails

or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due or to become due Contractor.

- 03.09 The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
- 03.10 The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans and Specifications. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
- 03.11 The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of Section 03.00.
- 03.12 The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of this Contract by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
- 03.13 Contractor shall pay for the cost of recording the Contract and Bond and the cost of canceling same. Contractor shall also secure and pay for all Clear Lien and Privilege Certificates (together with any updates) which will be required before any final payment is made, and that may be required before any payment, at the request of the Owner, its representative, agent, architect, engineer and the like. All recordation and Clear Lien and Privilege Certificate requirements shall be in accordance with those requirements noted herein before in contract Specifications.

04.00 SUBCONTRACTS

- 04.01 Contractor shall be fully responsible for all acts and omissions of its Subcontractors and of persons and organizations for whose acts any of them may be liable to the same extent that it is responsible for the acts and omissions of persons directly employed by it. Nothing in the Contract Documents shall create any contractual relationship between Owner and any Subcontractor or other person or organization having a direct Contract with Contractor, nor shall it create any obligation on the part of the Owner to pay or to see to the payment of any monies due any Subcontractor.
- 04.02 Nothing in the Contract Documents shall be construed to control the Contractor in dividing the Work among approved Subcontractors or delineating the Work to be performed by any trade.
- 04.03 The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents prior to commencing Work. Every Subcontractor, by undertaking to perform any of the Work, shall thereby automatically be deemed bound by such terms and conditions.
- 04.04 The Contractor shall indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses including Attorney's fees arising out of or resulting from the Contractor's failure to bind every Subcontractor and Contractor's surety to all of the applicable terms and conditions of the Contract Documents.

05.00 ASSIGNMENT

05.01 Neither party to this Contract shall assign or sublet its interest in this Contract without prior written consent of the other, nor shall the Contractor assign any monies due or to become due to it under this Contract without previous written consent of the Owner, nor without the consent of the surety unless the surety has waived its right to notice of assignment.

06.00 CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS.

06.01 It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Agreement between Owner and Contractor. Alterations, modifications and amendments shall only be in writing between these parties.

06.02 The Contract Documents are intended to be complimentary and to be read *in pari materii*, and what is called for by one is as binding as if called for by all. If Contractor finds a conflict, error or discrepancy in the Contract Documents, it shall call it to the Owner's attention, in writing, at once and before proceeding with the Work affected thereby; however, it shall be liable to Owner for its failure to discover any conflict, error or discrepancy in the Specifications or Drawings. In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order: Agreement, Modifications, Addenda, Special Conditions, General Conditions, Construction Specifications and Drawings. The general notes on the plans shall be considered special provisions. Figure dimensions on Drawings shall govern over scale dimensions and detail Drawings shall govern over general Drawings. Where sewer connections are shown to fall on a lot line between two lots, the Contractor shall determine this location by measurement not by scale. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described herein which so applied to this Project are covered by a well-known technical meaning or specification shall be deemed to be governed by such recognized standards unless specifically excluded.

06.03 Unless otherwise provided in the Contract Documents, the Owner will furnish to the Contractor (free of charge not to exceed ten (10) copies) Drawings and Specifications for the execution of Work. The Drawings and Specifications are the property of the Owner and are to be returned to it when the purpose for which they are intended have been served. The Contractor shall keep one copy of all Drawings and Specifications, including revisions, Addenda, details, Shop Drawings, etc. on the Work in good order and available to the Owner or the regulatory agency of the governmental body having jurisdiction in the area of the Work.

07.00 SHOP DRAWINGS, BROCHURES AND SAMPLES

07.01 After checking and verifying all field measurements, Contractor shall submit to Owner for approval, five copies (or at Owner's option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of Contractor and identified as Owner may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable Owner to review the information as required.

07.02 Contractor shall also submit to Owner, for review with such promptness as to cause no delay in Work, all samples as required by the Contract Documents. All samples will have been checked by and stamped with the approval of Contractor identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. At the time of each submission, Contractor shall in writing call Owner's attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

07.03 Owner will review with reasonable promptness Shop Drawings and samples, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make any corrections required by Owner and shall return the required number of

corrected copies of Shop Drawings and resubmit new samples for review. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by Owner on previous submissions. Contractor's stamp of approval on any Shop Drawing or sample shall constitute a representation to Owner that Contractor has determined and verified all quantities, dimensions, field construction criteria, materials catalog numbers and similar data and thereafter assumes full responsibility for doing so, and that it has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.

07.04 Where a Shop Drawing or sample submission is required by the Specifications, no related Work shall be commenced until the submission has been reviewed by Owner. A copy of each reviewed shop Drawing and each inspected sample shall be kept in good order by Contractor at the site and shall be available to Owner.

07.05 Owner's review of Shop Drawings or samples shall not relieve Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called Owner's attention to such deviation at the time of submission and Owner has given written approval to the specific deviation, nor shall any review by Owner relieve Contractor from responsibility for errors or omissions in the Shop Drawings. The mere submittal of shop drawings which contain deviations from the requirements of plans, specifications and/or previous submittals in itself does not satisfy this requirement.

08.00 RECORD DRAWINGS

08.01 The Contractor shall keep an accurate record in a manner approved by the Owner of all changes in the Contract Documents during construction. In Work concerning underground utilities, the Contractor shall keep an accurate record in a manner approved by the Owner of all valves, fittings, etc. Before the Work is accepted by the Owner, and said acceptance is recorded, the Contractor shall furnish the Owner a copy of this record.

08.02 Contractor shall keep an accurate drawing measured in the field to the nearest 0.1' of the location of all sewer house connections. The location shown shall be the end of the connection at the property line measured along the main line of pipe from a manhole.

08.03 Contractor shall keep an accurate drawing of the storm water drainage collection system. Inverts to the nearest 0.01' and top of castings shall be shown as well as location of all structures to the nearest 0.1'. Upon completion of the Work, the plan will be given to the Owner.

09.00 PROGRESS OF WORK

09.01 Contractor shall conduct the Work in such a professional manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time limit specified.

09.02 The Owner shall issue a Notice to Proceed to the Contractor within twenty (20) calendar days from the date of execution of the Contract. Upon mutual consent by both parties, the Notice to Proceed may be extended. The Contractor is to commence Work under the Contract within ten (10) calendar days from the date the Notice to Proceed is issued by the Owner.

09.03 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's approval an estimated progress schedule for the work to be performed, as well as a construction signing layout for all roads within the project area. The Contractor shall not start work or request partial payment until the work schedule has been submitted to the Owner for approval.

09.04 Revisions to the original schedule will be made based on extension of days granted for inclement weather or change orders issued under the contract. No other revision shall be made which affects the original completion or updated completion date, whichever is applicable.

09.05 Failure of the Contractor to submit an estimated progress schedule or to complete timely and on schedule the Work shown on the progress schedule negates any and all causes or claims by the Contractor for accelerated completion damages. These accelerated damage claims shall be deemed forfeited.

09.06 Meetings will be held as often as necessary to expedite the progress of the job. Meetings will be held during normal working hours at the jobsite and shall be mandatory for the Contractor and all Sub-Contractors working on the project. Meetings may be requested by the Owner at any time and at the discretion of the Owner.

10.00 OWNER'S RIGHT TO PROCEED WITH PORTIONS OF THE WORK

10.01 Upon failure of the Contractor to comply with any notice given in accordance with the provisions hereof, the Owner shall have the alternative right, instead of assuming charge of the entire Work, to place additional forces, tools, equipment and materials on parts of the Work. The cost incurred by the Owner in carrying on such parts of the Work shall be payable by the Contractor. Such Work shall be deemed to be carried on by the Owner on account of the Contractor. The Owner may retain all amounts of the cost of such Work from any sum due Contractor or those funds that may become due to Contractor under this Agreement.

10.02 Owner may perform additional Work related to the Project by itself or it may let any other direct contract which may contain similar General Conditions. Contractor shall afford the other contractors who are parties to such different contracts (or Owner, if it is performing the additional Work itself) reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with the subsequent work.

10.03 If any part of Contractor's Work depends upon proper execution or results upon the Work of any such other contractor (or Owner), Contractor shall inspect and promptly report to Owner in writing any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. Failure to so report shall constitute an acceptance of the other Work as fit and proper for the relationship of its Work except as to defects and deficiencies which may appear in the other Work after the execution of its Work.

10.04 Whatever Work is being done by the Owner, other Contractors or by this Contractor, the parties shall respect the various interests of the other parties at all times. The Owner may, at its sole discretion, establish additional rules and regulations concerning such orderly respect of the rights of various interests.

10.05 Contractor shall do all cutting, fitting and patching of its Work that may be required to integrate its several parts properly and fit to receive or be received by such other Work. Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering Work and will only alter Work with the written consent of Owner and of the other contractors whose Work will be affected.

10.06 If the performance of additional Work by other contractors or Owner is not noted in the Contract Documents, written notice thereof shall be given to Contractor prior to starting any such additional Work. If Contractor believes that the performance of such additional Work by Owner or others may cause additional expense or entitles an extension of the Contract Time, the Contractor may make a claim therefor. The claim must be in writing to the Owner within thirty (30) calendar days of receipt of notice from the Owner of the planned additional Work by others.

11.00 TIME OF COMPLETION

11.01 The Notice to Proceed will stipulate the date on which the Contractor shall begin work. That date shall be the beginning of the Contract Time charges.

11.02 Contractor shall notify the Owner through its duly authorized representative, in advance, of where Contractor's work shall commence each day. A daily log shall be maintained by Contractor to establish dates, times, persons contacted, and location of work. Specific notice shall be made to the Owner if the Contractor plans to work on Saturday, Sunday, or

a Parish approved holiday. If notice is not received, no consideration will be given for inclement weather and same shall be considered a valid work day.

11.03 The Work covered by the Plans, Specifications and Contract Documents must be completed sufficiently for acceptance within the number of calendar days specified in the Proposal and/or the Contract, commencing from the date specified in the Notice to Proceed. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time of completion is an essential condition of this Contract, and it is further mutually understood and agreed that if the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as partial consideration for the awarding of this Contract, to pay the Owner based on **Table 3.1** as specified in the Contract, not as a penalty, but as liquidated damages for such breach of contract for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work. It is specifically understood that the Owner shall also be entitled to receive a reasonable attorney fee and all costs in the event that Contractor fails to adhere to this agreement and this contract is referred to counsel for any reason whatsoever. Reasonable attorney fees shall be the prevailing hourly rate of the private sector, and in no event shall the hourly rate be less than \$175.00 per hour. All attorney fees shall be paid to the operating budget of the Office of the Parish President.

11.04 Prior to final payment, the Contractor may, in writing to the Owner, certify that the entire Project is substantially complete and request that the Owner or its agent issue a certificate of Substantial Completion. See Section 29.00.

11.05 The Owner may grant an extension(s) of time to the Contractor for unusual circumstances which are beyond the control of the Contractor and could not reasonably be foreseen by the Contractor prior to Bidding. Any such request must be made in writing to the Owner within seven (7) calendar days following the event occasioning the delay. The Owner shall have the exclusive and unilateral authority to determine, grant, and/or deny the validity of any such claim.

11.06 Extensions of time for inclement weather shall be processed as follows:

Commencing on the start date of each job, the Parish Inspector assigned to same shall keep a weekly log, indicating on each day whether inclement weather has prohibited the Contractor from working on any project within the specific job, based upon the following:

1. Should the Contractor prepare to begin work on any day in which inclement weather, or the conditions resulting from the weather, prevent work from beginning at the usual starting time, and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for work.
2. If weather conditions on the previous day prevent Contractor from performing work scheduled, provided that no other work can be performed on any project within the package. The Parish Inspector shall determine if it is financially reasonable to require the Contractor to deviate from the schedule and relocate to another location.
3. If the Contractor is unable to work at least 60% of the normal work day due to inclement weather, provided that a normal working force is engaged on the job.

Any dispute of weather conditions as related to a specific job shall be settled by records of the National Weather Service.

11.07 Extensions of time for change orders

When a change order is issued, the Owner and Contractor will agree on a reasonable time extension, if any, to implement such change. Consideration shall be given for, but not limited to, the following:

1. If material has to be ordered;
2. Remobilization and or relocation of equipment to perform task; and
3. Reasonable time frame to complete additional work.

Time extensions for change orders shall be reflected on the official document signed by the Owner and Contractor.

- 11.08 At the end of each month, the Owner or its agent will furnish to the Contractor a monthly statement which reflects the number of approved days added to the contract. The Contractor will be allowed fourteen (14) calendar days in which to file a written protest setting forth in what respect the monthly statement is incorrect; otherwise, the statement shall be considered accepted by the Contractor as correct.
- 11.09 Apart from extension of time for unavoidable delays, no payment or allowance of any kind shall be made to the Contractor as compensation for damages because of hindrance or delay for any cause in the progress of the Work, whether such delay be avoidable or unavoidable.

12.00 LIQUIDATED DAMAGES

- 12.01 In case the Work is not completed in every respect within the time that may be extended, it is understood and agreed that per diem deductions per **Table 3.1** for liquidated damages, as stipulated in the Proposal and/or Contract, shall be made from the total Contract Price for each and every calendar day after and exclusive of the day on which completion was required, and up to the completion of the Work and acceptance thereof by the Owner. It is understood and agreed that time is of the essence to this Contract, and the above sum being specifically herein agreed upon in advance as the measure of damages to the Owner on account of such delay in the completion of the Work. It is further agreed that the expiration of the term herein assigned or as may be extended for performing the Work shall, *ipso facto*, constitute a putting in default, the Contractor hereby waiving any and all notice of default. The Contractor agrees and consents that the Contract Price, reduced by the aggregate of the entire damages so deducted, shall be accepted in full satisfaction of all Work executed under this Contract. It is further understood and agreed that Contractor shall be liable for a reasonable attorney fee and all costs associated with any breach of this agreement, including but not limited to this subsection. In the event that any dispute or breach herein causes referrals to counsel, then Contractor agrees to pay a reasonable attorney fee at the prevailing hourly rate of the private sector. In no event shall the hourly rate be less than \$175.00 per hour.

13.00 LABOR, MATERIALS, EQUIPMENT, SUPERVISION, PERMITS AND TAXES

- 13.01 The Contractor shall provide and pay for all labor, materials, equipment, supervision, subcontracting, transportation, tools, fuel, power, water, sanitary facilities and all incidentals necessary for the completion of the Work in substantial conformance with the Contract Documents.
- 13.02 The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. It shall at all times maintain good discipline and order at the site.
- 13.03 Unless otherwise specifically provided for in the Specifications, all workmanship, equipment, materials, and articles incorporated in the Work covered by this Contract are to be new and of the best grade of their respective kinds for the purpose intended. Samples of materials furnished under this Contract shall be submitted for approval to the Owner when and as directed.
- 13.04 Whenever a material or article required is specified or shown on the plans by using the name of a proprietary product or of a particular manufacturer or Contractor, any material or article which shall perform adequately the duties imposed by the general design will be considered equal, and satisfactory, providing the material or article so proposed is of equal substance and function and that all technical data concerning the proposed substitution be approved by the Owner prior to the Bidding. The Owner shall have the exclusive and unilateral discretion to determine quality and suitability in accordance with LSA-R.S. 38:2212(T)(2).

- 13.05 Materials shall be properly and securely stored so as to ensure the preservation of quality and fitness for the Work, and in a manner that leaves the material accessible to inspection. Materials or equipment may not be stored on the site in a manner such that it will interfere with the continued operation of streets and driveways or other contractors working on the site.
- 13.06 The Contractor, by entering into the Contract for this Work, sets itself forth as an expert in the field of construction and it shall supervise and direct the Work efficiently and with its best skill and attention. It shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.
- 13.07 Contractor shall keep on the Work, at all times during its progress, a competent resident Superintendent, who shall not be replaced without written Notice to Owner except under extraordinary circumstances. The Superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to the Contractor. Owner specifically reserves the right to approve and/or disapprove the retention of a new superintendent, all to not be unreasonably withheld.
- 13.08 Any foreman or workman employed on this Project who disregards orders or instructions, does not perform his Work in a proper and skillful manner, or is otherwise objectionable, shall, at the written request of the Owner, be removed from the Work and shall be replaced by a suitable foreman or workman.
- 13.09 The Contractor and/or its assigned representative shall personally ensure that all subcontracts and divisions of the Work are executed in a proper and workmanlike manner, on scheduled time, and with due and proper cooperation.
- 13.10 Failure of the Contractor to keep the necessary qualified personnel on the Work shall be considered cause for termination of the Contract by the Owner.
- 13.11 Only equipment in good working order and suitable for the type of Work involved shall be brought onto the job and used by the Contractor. The Contractor is solely responsible for the proper maintenance and use of its equipment and shall hold the Owner harmless from any damages or suits for damages arising out of the improper selection or use of equipment. No piece of equipment necessary for the completion of the Work shall be removed from the job site without approval of the Owner.
- 13.12 All Federal, State and local taxes due or payable during the time of Contract on materials, equipment, labor or transportation, in connection with this Work, must be included in the amount bid by the Contractor and shall be paid to proper authorities before acceptance. The Contractor shall furnish all necessary permits and certificates and comply with all laws and ordinances applicable to the locality of the Work. The cost of all inspection fees levied by any governmental entity whatsoever shall be paid for by the Contractor.
- 13.13 In accordance with St. Tammany Police Jury Resolution 86-2672, as amended, the Contractor must provide in a form suitable to the Owner an affidavit stating that all applicable sales taxes for materials used on this project have been paid.
- 13.14 During the period that this Contract is in force, neither party to the Contract shall solicit for employment or employ an employee of the other.
- 13.15 All materials or equipment shown on the Drawings or included in these specifications shall be furnished unless written approval of a substitute is obtained from the Designer, or Owner if no separate designer.
- 13.16 If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than fourteen working days prior to the opening of bids. Within ten days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted. The burden of proof of the equality of the proposed substitute is upon the proposer and only that information formally submitted shall be used by the Designer in making its decision.

13.17 The decision of the Designer/Owner shall be given in good faith and shall be final.

14.00 QUANTITIES OF ESTIMATE, CHANGES IN QUANTITIES, EXTRA WORK

14.01 Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Proposal, such are given for use in comparing Bids and the right is especially reserved, except as herein otherwise specifically limited, to increase or diminish same not to exceed twenty-five percent (25%) by the Owner to complete the Work contemplated by this Contract. Such increase or diminution shall in no way vitiate this Contract, nor shall such increase or diminution give cause for claims or liability for damages.

14.02 The Owner shall have the right to make alterations in the line, grade, plans, form or dimensions of the Work herein contemplated, provided such alterations do not change the total cost of the Project, based on the originally estimated quantities, and the unit prices bid by more than twenty-five percent (25%) and provided further that such alterations do not change the total cost of any major item, based on the originally estimated quantities and the unit price bid by more than twenty-five (25%). (A major item shall be construed to be any item, the total cost of which is equal to or greater than ten percent (10%) of the total Contract Price, computed on the basis of the Proposal quantity and the Contract unit price). Should it become necessary, for the best interest of the Owner, to make changes in excess of that herein specified, the same shall be covered by supplemental agreement either before or after the commencement of the Work and without notice to the sureties. If such alterations diminish the quantity of Work to be done, such shall not constitute a claim for damages for anticipated profits for the Work dispensed with, but when the reduction in amount is a material part of the Work contemplated, the Contractor shall be entitled to only reasonable compensation as determined by the Owner for overhead and equipment charges which it may have incurred in expectation of the quantity of Work originally estimated, unless specifically otherwise provided herein; if the alterations increase the amount of Work, the increase shall be paid according to the quantity of Work actually done and at the price established for such Work under this Contract except where, in the opinion of the Owner, the Contractor is clearly entitled to extra compensation.

14.03 Without invalidating the Contract, the Owner may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract sum being adjusted accordingly. The consent of the surety must first be obtained when necessary or desirable, all at the exclusive discretion of the Owner. All the Work of the kind bid upon shall be paid for at the price stipulated in the Proposal, and no claims for any Extra Work or material shall be allowed unless the Work is ordered in writing by the Owner.

14.04 Extra Work for which there is no price or quantity included in the Contract shall be paid for at a unit price or lump sum to be agreed upon in advance in writing by the Owner and Contractor. Where such price and sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Owner may, at its exclusive and unilateral discretion, order the Contractor to do such Work on a Force Account Basis.

14.05 In computing the price of Extra Work on a Force Account Basis, the Contractor shall be paid for all foremen and labor actually engaged on the specific Work at the current local rate of wage for each and every hour that said foremen and labor are engaged in such Work, plus ten percent (10%) of the total for superintendence, use of tools, overhead, direct & indirect costs/expenses, pro-rata applicable payroll taxes, pro-rata applicable workman compensation benefits, pro-rata insurance premiums and pro-rata reasonable profit. The Contractor shall furnish satisfactory evidence of the rate or rates of such insurance and tax. The Contractor will not be able to collect any contribution to any retirement plans or programs.

14.06 For all material used, the Contractor shall receive the actual cost of such material delivered at the site of the Work, as shown by original receipted bill, to which shall be added five percent (5%). There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.

14.07 For any equipment used that is owned by the Contractor, the Contractor shall be allowed a rental based upon the latest prevailing rental price, but not to exceed a rental price as determined by the Associated Equipment Distributors (A.E.D. Green Book).

- 14.08 The Contractor shall also be paid the actual costs of transportation for any equipment which it owns and which it has to transport to the Project for the Extra Work. There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.09 If the Contractor is required to rent equipment for Extra Work, but not required for Contract items, it will be paid the actual cost of rental and transportation of such equipment to which no percent shall be added. The basis upon which rental cost are to be charged shall be agreed upon in writing before the Work is started. Actual rental and transportation costs shall be obtained from receipted invoices and freight bills.
- 14.10 No compensation for expenses, fees or costs incurred in executing Extra Work, other than herein specifically mentioned herein above, will be allowed.
- 14.11 A record of Extra Work on Force Account basis shall be submitted to the Owner on the day following the execution of the Work, and no less than three copies of such record shall be made on suitable forms and signed by both the Owner or his representative on the Project and the Contractor. All bids for materials used on extra Work shall be submitted to the Owner by the Contractor upon certified statements to which will be attached original bills covering the costs of such materials.
- 14.12 Payment for Extra Work of any kind will not be allowed unless the same has been ordered in writing by the Owner.

15.00 STATUS OF THE ENGINEER (NOT APPLICABLE)

16.00 INJURIES TO PERSONS AND PROPERTY

- 16.01 The Contractor shall be held solely and exclusively responsible for all injuries to persons and for all damages to the property of the Owner or others caused by or resulting from the negligence of itself, its employees or its agents, during the progress of or in connection with the Work, whether within the limits of the Work or elsewhere under the Contract proper or as Extra Work. This requirement will apply continuously and not be limited to normal working hours or days. The Owner's construction review is for the purpose of checking the Work product produced and does not include review of the methods employed by the Contractor or to the Contractor's compliance with safety measures of any nature whatsoever. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 16.02 The Contractor must protect and support all utility infrastructures or other properties which are liable to be damaged during the execution of its Work. It shall take all reasonable and proper precautions to protect persons, animals and vehicles or the public from the injury, and wherever necessary, shall erect and maintain a fence or railing around any excavation, and place a sufficient number of lights about the Work and keep same burning from twilight until sunrise, and shall employ one or more watchmen as an additional security whenever needed. The Contractor understands and agrees that the Owner may request that security be placed on the premises to ensure and secure same. The Owner shall have exclusive authority to request placement of such security. Contractor agrees to retain and place security as requested, all at the sole expense of Contractor. Additional security shall not be considered a change order or reason for additional payment by the Owner. The Contractor must, as far as practicable and consistent with good construction, permit access to private and public property and leave fire hydrants, catch basins, streets, etc., free from encumbrances. The Contractor must restore at its own expense all injured or damaged property caused by any negligent act of omission or commission on its part or on the part of its employees or subcontractors, including, but not limited to, sidewalks, curbing, sodding, pipes conduits, sewers, buildings, fences, bridges, retaining walls, tanks, power lines, levees or any other building or property whatsoever to a like condition as existed prior to such damage or injury.

- 16.03 In case of failure on the part of the Contractor to restore such property or make good such damage, the Owner may upon forty-eight (48) hours' notice proceed to repair or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due under its Contract.
- 16.04 Contractor agrees to protect, defend, indemnify, save, and hold harmless St. Tammany Parish Government, its elected and appointed officials, departments, agencies, boards and commissions, their officers, agents servants, employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property to the extent caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors, or any and all costs, expense and/or attorney fees incurred by St. Tammany Parish Government as a result of any claim, demands, and/or causes of action that results from the negligent performance or non-performance by Contractor, its agents, servants, employees, and subcontractors of this contract. Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors.
- 16.05 As to any and all claims against Owner, its agents, assigns, representatives or employees by any employee of Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts as may be liable, the indemnification obligation under Paragraph 16.04 shall not be limited in any way or by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.
- 16.06 No road shall be closed by the Contractor to the public except by written permission of the Owner. If so closed, the Contractor shall maintain traffic over, through and around the Work included in his Contract, with the maximum practical convenience, for the full twenty-four hours of each day of the Contract, whether or not Work has ceased temporarily. The Contractor shall notify the Owner at the earliest possible date after the Contract has been executed and, in any case, before commencement of any construction that might in any way inconvenience or endanger traffic, in order that necessary and suitable arrangements may be determined. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.07 The convenience of the general public and residents along the Works shall be provided for in a reasonable, adequate and satisfactory manner. Where existing roads are not available as detours, and unless otherwise provided, all traffic shall be permitted to pass through the Work. In all such cases, the public shall have precedence over Contractor's vehicles insofar as the traveling public's vehicles shall not be unduly delayed for the convenience of the Contractor. In order that all unnecessary delay to the traveling public may be avoided, the Contractor shall provide and station competent flagmen whose sole duties shall consist of directing and controlling the movement of public traffic either through or around the Work. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.08 The Contractor shall arrange its Work so that no undue or prolonged blocking of business establishments will occur.
- 16.09 Material and equipment stored on the right of way or work site shall be so placed and the Work at times shall be so conducted as to ensure minimum danger and obstruction to the traveling public.
- 16.10 During grading operations when traffic is being permitted to pass through construction, the Contractor shall provide a smooth, even surface that will provide a satisfactory passageway

for use of traffic. The road bed shall be sprinkled with water if necessary to prevent a dust nuisance, provided the dust nuisance is a result of the Work.

- 16.11 Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by ordinances, rules or regulations or within fifteen (15) feet of a fire hydrant, in the absence of such ordinance, rules or regulations.
- 16.12 The Contractor shall not, without the written permission of the Owner, do Work for a resident or property owner abutting the Work at the time that this Work is in progress.
- 16.13 No Work of any character shall be commenced on railroad right-of-way until the Railroad Company has issued a permit to the Owner and has been duly notified by the Contractor in writing (with a copy forwarded to the Owner) of the date it proposes to begin Work, and until an authorized representative of the Railroad Company is present, unless the Railroad Company waives such requirements. All Work performed by the Contractor within the right-of-way limits of the railroad shall be subject to the inspection and approval of the chief engineer of the Railroad Company or its authorized representative. Any precautions considered necessary by said chief engineer to safeguard the property, equipment, employees and passengers of the Railroad Company shall be taken by the Contractor without extra compensation. The Contractor shall, without extra compensation, take such precautions and erect and maintain such tell-tale or warning devices as the Railroad Company considers necessary to safeguard the operation of its trains. The temporary vertical and horizontal clearance specified by the chief engineer of the Railroad Company in approving these shall be maintained at all times. No steel, brick, pipe or any loose material shall be left on the ground in the immediate vicinity of the railway track. Before any Work is done within Railroad right of way, the Contractor shall provide and pay all costs of any special insurance requirements of the Railroad.
- 16.14 The Contractor, shall, without extra compensation, provide, erect, paint and maintain all necessary barricades. Also, without extra compensation, the Contractor shall provide suitable and sufficient lights, torches, reflectors or other warning or danger signals and signs, provide a sufficient number of watchmen and flagmen and take all the necessary precautions for the protection of the Work and safety of the Public.
- 16.15 The Contractor shall erect warning signs beyond the limits of the Project, in advance of any place on the Project where operations interfere with the use of the road by traffic, including all intermediate points where the new Work crosses or coincides with the existing road. All barricades and obstructions shall be kept well painted and suitable warning signs shall be placed thereon. All barricades and obstructions shall be illuminated at night and all lights or devices for this purpose shall be kept burning from sunset to sunrise.
- 16.16 Whenever traffic is maintained through or over any part of the Project, the Contractor shall clearly mark all traffic hazards. No direct payment will be made for barricades, signs and illumination therefore or for watchmen or flagmen.
- 16.17 The Contractor will be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Owner to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, or near the construction site.

17.00 SANITARY PROVISIONS

- 17.01 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the rules and regulations of the State Health Agency or of the other authorities having jurisdiction and shall permit no public nuisance.

18.00 RIGHTS OF WAY

18.01 The Owner will furnish the Contractor with all necessary rights-of-way for the prosecution of the Work. The rights of way herein referred to shall be taken to mean only permission to use or pass through the locations or space in any street, highway, public or private property in which the Contractor is to prosecute the Work.

18.02 It is possible that all lands and rights of way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin its Work upon such land and rights of way as the Owner may have previously acquired. Any delay in furnishing these lands by the Owner can be deemed proper cause for adjustment in the Contract amount and/or in the time of completion.

19.00 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

19.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission from the Owner, as well as the private property owner and/or and private property Lessees. The Contractor shall use every precaution necessary for the preservation of all public and private property, monuments, highway signs, telephone lines, other utilities, etc., along and adjacent to the Work; the Contractor shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures; and shall protect carefully from disturbance or damage all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. The street and highway signs and markers that are to be affected by the Work shall be carefully removed when the Work begins and stored in a manner to keep them clean and dry. The Contractor must obtain all necessary information in regard to existing utilities and shall give notice in writing to the owners or the proper authorities in charge of streets, gas, water, pipes, electric, sewers and other underground structures, including conduits, railways, poles and pole lines, manholes, catch basins, fixtures, appurtenances, and all other property that may be affected by the Contractor's operations, at least forty-eight (48) hours before its operations will affect such property. The Contractor shall not hinder or interfere with any person in the protection of such Work or with the operation of utilities at any time. When property, the operation of railways, or other public utilities are endangered, the Contractor shall at its own expense, maintain flagmen or watchmen and any other necessary precautions to avoid interruption of service or damage to life or property, and it shall promptly repair, restore, or make good any injury or damage caused by its negligent operations in an acceptable manner. The Contractor must also obtain all necessary information in regard to the installation of new cables, conduits, and transformers, and make proper provisions and give proper notifications, in order that same can be installed at the proper time without delay to the Contractor or unnecessary inconvenience to the Owner.

19.02 The Contractor shall not remove, cut or destroy trees, shrubs, plants, or grass that are to remain in the streets or those which are privately owned, without the proper authority. Unless otherwise provided in the Special Provisions or the Proposal, the Contractor shall replace and replant all plants, shrubs, grass and restore the grounds back to its original good condition to the satisfaction of the Owner and/or the property owner. The Contractor shall assume the responsibility of replanting and guarantees that plants, shrubs, grass will be watered, fertilized and cultivated until they are in a growing condition. No direct payment will be made for removing and replanting of trees, shrubs, plants or grass unless such items are set forth in the Proposal.

19.03 When or where direct damage or injury is done to public or private property by or on account of any negligent act, omission, neglect or otherwise of the Contractor, it shall make good such damage or injury in an acceptable manner.

20.00 CONTRACTORS RESPONSIBILITY FOR WORK

20.01 Until final acceptance of the Work by the Owner as evidence by approval of the final estimate, the Work shall be in the custody and under the charge and care of the Contractor and it shall take every necessary precaution against injury or damage to any part thereof by the action of the elements or from the non-execution of the Work; unless otherwise provided for elsewhere in the Specifications or Contract. The Contractor shall rebuild, repair, restore and make good, without extra compensation, all injuries or damages to any portion of the Work occasioned by any of the above causes before its completion and

acceptance, and shall bear the expenses thereof. In case of suspension of the Work from any cause whatever, the Contractor shall be responsible for all materials and shall properly and securely store same, and if necessary, shall provide suitable shelter from damage and shall erect temporary structures where necessary. If in the exclusive discretion of the Owner, any Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of its Subcontractors to so protect the Work, such materials shall be removed and replaced at the sole expense of the Contractor. Such amount shall be deducted from any sum due or to be due Contractor.

20.02 The Contractor shall give all notice and comply with all Federal, State, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work, and all such orders and decrees as exist, or may be enacted by bodies or tribunals having any jurisdiction or authority over the Work, and shall indemnify and hold harmless the Owner against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order or decree, whether by itself, its employees or Subcontractors.

21.00 TESTS AND INSPECTIONS CORRECTION & REMOVAL OF DEFECTIVE WORK

21.01 Contractor warrants and guarantees to Owner that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents. All unsatisfactory Work, all faulty or Defective Work and all Work not conforming to the requirements of the Contract Documents at the time of acceptance shall be considered Defective. Prompt and reasonable notice of all defects shall be given to the Contractor.

21.02 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved by some public body, Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish Owner the required certificates of inspection, testing or approval. All other inspections, tests and approval required by the Contract Documents shall be performed by organizations acceptable to Owner and Contractor and the costs thereof shall be borne by the Contractor unless otherwise specified.

21.03 Contractor shall give Owner timely notice of readiness of the Work for all inspections, tests or approvals. If any such Work required to be inspected, tested or approved is covered without written approval of Owner, it must, if requested by Owner, be uncovered for observation, and such uncovering shall be at Contractor's expense unless Contractor has given Owner timely notice of its intention to cover such Work and Owner has not acted with reasonable promptness in response to such notice.

21.04 Neither observations by Owner nor inspections, tests or approvals shall relieve Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Document.

21.05 Owner and its representatives will at reasonable times have access to the Work. Contractor shall provide proper and safe facilities for such access and observation of the Work and also for any inspection or testing thereof by others.

21.06 If any Work is covered contrary to the written request of Owner, it must, be uncovered for Owner's observation and replaced at Contractor's expense. If any Work has been covered which Owner has not specifically requested to observe prior to its being covered, or if Owner considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at Owner's request, shall uncover, expose or otherwise make available for observations, inspections or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is Defective, Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be Defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction.

- 21.07 If the Work is Defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors or for labor, materials or equipment, Owner may order Contractor to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party.
- 21.08 Prior to approval of final payment, Contractor shall promptly, without cost to Owner and as specified by Owner, either correct any Defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not correct such Defective Work or remove and replace such rejected Work within a reasonable time, all as specified in a written notice from Owner, Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement including compensation for additional professional services shall be paid by Contractor, and an appropriate deductive Change Order shall be issued. Contractor shall also bear the expense of making good all Work of others destroyed or damaged by its correction, removal or replacement of its Defective Work.
- 21.09 If, after the approval of final payment and prior to the expiration of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such Defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 21.10 If, instead of requiring correction or removal and replacement of Defective Work, Owner (and prior to approval of final payment) prefers to accept it, the Owner may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price, or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to Owner.
- 21.11 If Contractor should fail to progress the Work in accordance with the Contract Documents, including any requirements of the Progress Schedule, Owner, after seven (7) days written Notice to Contractor, may, without prejudice to any other remedy Owner may have, make good such deficiencies and the cost thereof including compensation for additional professional services shall be charged against Contractor. In such cases, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner.
- 21.12 The Owner may appoint representatives to make periodic visits to the site and observe the progress and quality of the executed Work. These representatives shall be governed by the same restrictions placed on the Owner by these Specifications. The governing body of the Federal, State or local government exercising authority in the area of the Work may appoint representatives to observe the progress and quality of the Work. Contractor shall cooperate with and assist these representatives in the performance of their duties.
- 21.13 The Contractor shall be responsible for the faithful execution of its Contract and the presence or absence of the Owner's or Government's Representative is in no way or manner to be presumed or assumed to relieve in any degree the responsibility or obligation of the Contractor.

- 21.14 The Contractor shall notify the Owner and the Governmental Agency having jurisdiction as to the exact time at which it is proposed to begin Work so the Owner may provide for inspection of all materials, foundations, excavations, equipment, etc., and all or any part of the Work and to the preparation or manufacture of materials to be used whether within the limits of the Work or at any other place.
- 21.15 The Owner or its representatives shall have free access to all parts of the Work and to all places where any part of the materials to be used are procured, manufactured or prepared. The Contractor shall furnish the Owner all information relating to the Work and the material therefor, which may be deemed necessary or pertinent, and with such samples of materials as may be required. The Contractor, at its own expense, shall supply such labor and assistance as may be necessary in the handling of materials for proper inspection or for inspection of any Work done by it.
- 21.16 No verbal instructions given to the Contractor by the Owner, Project Representative or any of their agents shall change or modify the written Contract. Contractors shall make no claims for additional payments or time based upon verbal instructions.

22.00 SUBSURFACE CONDITIONS

- 22.01 It is understood and agreed that the Contractor is familiar with the subsurface conditions that will be encountered and its price bid for the Work includes all of the costs involved for Work in these conditions and it is furthermore agreed that it has taken into consideration, prior to its Bid and acceptance by Owner, all of the subsurface conditions normal or unusual that might be encountered in the location of the Work.
- 22.02 Should the Contractor encounter during the progress of the Work subsurface conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Owner shall be directed to such conditions before the conditions are disturbed. If the Owner finds that the conditions materially differ from those shown on the Drawings or indicated in the Specifications, it shall at once make such changes in the Drawings or Specifications as it may find necessary, and any increase or decrease in cost or extension of time resulting from such changes shall be adjusted in the same manner as provided for changes for Extra Work. The Contractor shall submit breakdowns of all costs in a manner as instructed and approved by the Owner.

23.00 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

- 23.01 Bidder shall thoroughly examine the site of the Work and shall include in its Bid the cost of removing all structures and obstructions in the way of the Work.
- 23.02 The Contractor shall remove any existing structures or part of structures, fence, building or other encumbrances or obstructions that interfere in any way with the Work. Compensations for the removal of any structure shall be made only if the item(s) to be removed was/were listed as pay item(s) on the Proposal.
- 23.03 If called for in the Special Conditions, all privately and publicly owned materials and structures removed shall be salvaged without damage and shall be piled neatly and in an acceptable manner upon the premises if it belongs to an abutting property owner, otherwise at accessible points along the improvements. Materials in structures which is the property of the Owner or property of any public body, private body or individual which is fit for use elsewhere, shall remain property of the original Owner. It shall be carefully removed without damage, in sections which may be readily transported; same shall be stored on or beyond the right of way. The Contractor will be held responsible for the care and preservation for a period of ten (10) days following the day the last or final portion of the materials stored at a particular location are placed thereon. When privately owned materials are stored beyond the right of way, the Contractor will be held responsible for such care and preservation for a period of ten (10) days responsibility period for care and preservation of the materials begins. The Contractor must furnish the Owner with evidence satisfactory that the proper owner of the materials has been duly notified by the Contractor that the said owner must assume responsibility for its materials on the date following the Contractor's ten (10) day responsibility.

24.00 INSURANCE

- 24.01 Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
- 24.02 The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
- 24.03 Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
- 24.04 Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
- 24.05 Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
- 24.06 Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

24.07 The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract, include, but is not limited to:

1. Commercial General Liability insurance with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence/\$2,000,000 General Aggregate/Products-Completed Operations Per Project. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
 - a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal Injury;
 - e) Broad form property damage;
 - f) Explosion and collapse.
2. Marine Liability/Protection and Indemnity insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence/\$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability.
3. Contractors' Pollution Liability and Environmental Liability insurance in the minimum amount of \$1,000,000 per occurrence, \$2,000,000 general aggregate and include coverage for full contractual liability and for all such environmental and/or hazardous waste exposures affected by this project.
4. Business Automobile Liability insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
 - a) Any automobiles;
 - b) Owned automobiles;
 - c) Hired automobiles;
 - d) Non-owned automobiles;
 - e) Uninsured motorist.
5. Workers' Compensation/Employers Liability insurance: worker's compensation insurance coverage and limits as statutorily required; Employers' Liability Coverage shall be not less than \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate, except when projects include exposures covered under the United States Longshoremen and Harbor Workers Act, Maritime and/or Jones Act and/or Maritime Employers Liability (MEL) limits shall be not less than \$1,000,000/\$1,000,000/\$1,000,000. *Coverage for owners, officers and/or partners shall be included in the policy and a statement of such shall be made by the insuring producer on the face of the certificate.*
6. Owners Protective Liability (OPL) (formerly Owners and Contractors Protective Liability (OCP) Insurance) shall be furnished by the Contractor naming St. Tammany Parish Government as the Named Insured and shall provide coverage in the minimum amount of \$1,000,000 combined single limit (CSL) each occurrence, \$2,000,000 aggregate. Any project valued in excess of \$3,000,000 shall be set by the Office of Risk Management. The policy and all endorsements shall be addressed to St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434.
7. Builder's Risk Insurance shall be required on buildings, sewage treatment plants and drainage pumping stations, and shall be written on an "all-risk" or equivalent policy form in the amount of the full value of the initial Contract sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising 100% total value for the entire project including foundations. Deductibles should not exceed \$5,000 and Contractor shall be responsible for any and all policy deductibles. This insurance shall cover portions of the work stored off the site, and also portions of the work in transit. In addition, Installation Floater

Insurance, on an “all-risk” form, will be carried on all pumps, motors, machinery and equipment on the site or installed. Both the Builder’s Risk Insurance and the Installation Floater Insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors and shall terminate only when the Project has been accepted. St. Tammany Parish Government, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the Builder’s Risk and Installation Floater Insurance.

8. Professional Liability (errors and omissions) insurance in the sum of at least One Million Dollars (\$1,000,000) per claim with Two Million Dollars (\$2,000,000) annual aggregate.
 9. An umbrella policy or excess policy may be required and/or allowed to meet minimum coverage limits, subject to the review and approval by St. Tammany Parish Government, Office of Risk Management.
- 24.08 All policies of insurance shall meet the requirements of the Parish of St. Tammany prior to the commencing of any work. The Parish of St. Tammany has the right, but not the duty, to approve all insurance policies prior to commencing of any work. If at any time, it becomes known that any of the said policies shall be or becomes unsatisfactory to the Parish of St. Tammany as to form or substance; or if a company issuing any such policy shall be or become unsatisfactory to the Parish of St. Tammany, the Contractor shall promptly obtain a new policy, timely submit same to the Parish of St. Tammany for approval and submit a certificate thereof as provided above. The Parish agrees to not unreasonably withhold approval of any insurance carrier selected by Contractor. In the event that Parish cannot agree or otherwise authorize said carrier, Contractor shall have the option of selecting and submitting new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Contractor and thereafter deduct from Contractor's fee the cost of such insurance.
- 24.09 Upon failure of Contractor to furnish, deliver and/or maintain such insurance as above provided, the contract, at the election of the Parish of St. Tammany, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to maintain insurance shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Contractor concerning indemnification.
- 24.10 Contractor shall maintain a current copy of all annual insurance policies and provide same to the Parish of St. Tammany as may be reasonably requested.
- 24.11 It shall be the responsibility of Contractor to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Contractor. Contractor shall further ensure the Parish is named as additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project, and that renewal certificates for any policies expiring prior to the Parish’s final acceptance of the project shall be furnished to St. Tammany Parish Government, Department of Legal, Office of Risk Management, without prompting.

NOTICE:

These are only an indication of the coverages that are generally required. Additional coverages and/or limits may be required for projects identified as having additional risks or exposures. Please note that some requirements listed may not necessarily apply to your specific services. St. Tammany Parish Government reserves the right to remove, replace, make additions to and/or modify any and all of the insurance requirement language upon review of the final scope of services presented to Office of Risk Management prior to execution of a contract for services.

For inquiries regarding insurance requirements, please contact:

**St. Tammany Parish Government
Office of Risk Management
P. O. Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

24.12 Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's Responsibility for payment of damages resulting from its operations under this Contract.

25.00 **OWNER'S RIGHT TO OCCUPANCY**

25.01 The Owner shall have the right to use, at any time, any and all portions of the Work that have reached such a stage of completion as to permit such occupancy, provided such occupancy does not hamper the Contractor or prevent its efficient completion of the Contract or be construed as constituting an acceptance of any part of the Work.

25.02 The Owner shall have the right to start the construction of houses, structures or any other building concurrent with the Contractor's Work.

26.00 **SURVEY HORIZONTAL AND VERTICAL CONTROL**

26.01 The Owner shall provide surveys for construction to establish reference points which in its judgment are necessary to enable Contractor to layout and proceed with its Work. Contractor shall be responsible for surveying and laying out the Work and shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Owner. Contractor shall report to Owner whenever any reference point is lost or destroyed and the Owner shall decide if the reference point shall be replaced by its or the Contractor's forces.

26.02 The Contractor shall establish lines and grades with its own forces in sufficient number and location for the proper execution of the Work.

26.03 If the Contractor, during the construction, damages the established property corners and/or other markers and thereafter requests the Owner to re-stake same in order to complete the project, this expense will be borne solely by the Contractor.

27.00 **TERMINATION OF THE CONTRACT, OWNER'S AND CONTRACTORS RIGHT TO STOP WORK.**

27.01 If the Contractor should be adjudged bankrupt (voluntarily or involuntarily) or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail (except in cases for which extension of time is provided) to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certificate of the Owner that, in its unilateral discretion and judgment, believes sufficient cause exists to justify such action, may,

without prejudice to any other right or remedy and after giving the Contractor ten (10) calendar days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Owner may deem expedient.

- 27.02 Failure of the Contractor to start the Work within the time limit specified herein or substantial evidence that the progress being made by the Contractor is sufficient to complete the Work within the specified time shall be grounds for termination of the Contract by the Owner.
- 27.03 Before the Contract is terminated, the Contractor and its surety will first be notified in writing by the Owner of the conditions which make termination of the Contract imminent. When after ten (10) calendar days' notice is given and if satisfactory effort has not been made by the Contractor or its surety to correct the conditions, the Owner may declare, in its exclusive discretion, that the Contract is terminated and so notify the Contractor and its surety accordingly.
- 27.04 Upon receipt of notice from the Owner that the Contract has been terminated, the Contractor shall immediately discontinue all operations. The Owner may then proceed with the Work in any lawful manner that it may elect until Work is finally completed.
- 27.05 The exclusive right is reserved to the Owner to take possession of any machinery, implements, tools or materials of any description that shall be found upon the Work, to account for said equipment and materials, and to use same to complete the Project. When the Work is finally completed, the total cost of same will be computed. If the total cost is less than the Contract Price, the difference will not be paid to the Contractor or its surety.
- 27.06 In case of termination, all expenses incident to ascertaining and collecting losses under the Bond, including legal services, shall be assessed against the Bond.
- 27.07 If the Work should be stopped under any order of any court or public authority for period of sixty (60) calendar days, through no act or fault of the Contractor or anyone employed by it, or if the Owner shall fail to pay the Contractor within a reasonable time any sum certified by the Owner, then the Contractor may, upon ten (10) calendar days written notice to the Owner, stop Work or terminate this Contract and recover from the Owner payment for all Work properly and professionally executed in a workmanlike manner. This loss specifically includes actual cost of materials and equipment, together with all wages inclusive of all federal, state, and local tax obligations. This loss specifically includes reimbursement of all insurances on a pro-rata basis from the date of termination to date of policy period. This loss excludes and specifically does not include recovery by the Contractor for lost profit, indirect & direct expenses, overhead, and the like.

28.00 PAYMENTS TO THE CONTRACTOR

- 28.01 Monthly certificates for partial payment, in a form approved by the Owner, shall be transmitted to the Owner upon receipt from the Contractor and acceptance by the Owner. In accordance with LSA-R.S. 38:2248(A), when the Contract Price is less than five hundred thousand dollars, these certificates shall be equal to ninety percent (90%) of both the Work performed and materials stored at the site; and when the Contract Price is five hundred thousand dollars or more, these certificates shall be equal to ninety-five percent (95%) of both the Work performed and materials stored at the site. Partial payment certificates shall include only Work, materials and equipment that are included in official Work Order and which meet the requirements of plans, Specifications and Contract Documents. These monthly estimates shall show the amount of the original estimate for each item, the amount due on each item, the gross total, the retained percentage, the amount previously paid and the net amount of payment due.
- 28.02 After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is less than five hundred thousand dollars, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety percent (90%) of the Contract Price. After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is five hundred thousand dollars or more, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety-five percent (95%) of the Contract Price.

- 28.03 When the Contract Price is less than five hundred thousand dollars, the final payment certificate of the remaining ten percent (10%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. When the Contract Price is five hundred thousand dollars or more, the final payment certificate of the remaining five percent (5%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. Before issuance of the final payment certificate, the Contractor shall deposit with the Owner a certificate from the Clerk of Court and Ex-Officio Recorder of Mortgages from the Parish in which the Work is performed to the effect that no liens have been registered against Contract Work.
- 28.04 When, in the opinion of the Contractor, the Work provided for and contemplated by the Contract Documents has been substantially completed, the Contractor shall notify the Owner in writing that the Work is substantially complete and request a final inspection. The Owner shall proceed to perform such final inspection accompanied by the Contractor. Any and all Work found by this inspection to be Defective or otherwise not in accordance with the plans and Specifications shall be corrected to the entire satisfaction of the Owner and at the sole expense of the Contractor. If the Contract is found to be incomplete in any of its details, the Contractor shall at once remedy such defects, and payments shall be withheld and formal acceptance delayed until such Work has been satisfactorily completed.
- 28.05 If payment is requested on the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored and protected from damage and theft at the site, the Request for Payment shall also be accompanied by such data, satisfactory to the Owner, as will establish Owner's title to the material and equipment and protect its interest therein, including applicable insurance.
- 28.06 Each subsequent Request for Payment shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Request for Payment.
- 28.07 Each subsequent request for payment shall include an affidavit by Contractor that Contractor, all subcontractors, agents, material suppliers and all other persons supplying material to the project upon which State of Louisiana and/or St. Tammany sales taxes are lawfully due have paid these taxes and that all supplies and materials purchased for this project and for which Contractor has been paid have had all lawfully due State and/or St. Tammany sales taxes paid.
- 28.08 The Bid Proposal, unless otherwise modified in writing, and the Contract constitute the complete Project. The Contract Prices constitute the total compensation payable to Contractor and the cost of all of the Work and materials, taxes, permits and incidentals must be included into the Bid submitted by the Contractor and included into those items listed on the Proposal.
- 28.09 Any additional supporting data required by the Owner in order to substantiate Contractor's request for payment shall be furnished by Contractor at no cost to the Owner.
- 28.10 Owner may withhold from payment to Contractor as may be necessary to protect itself from loss on account of:
- (1) Defective and/or inferior work;
 - (2) Damage to the property of Owner or others caused by Contractor;
 - (3) Failure by Contractor to make payments properly to sub-contractors or to pay for labor, materials or equipment used on this project;
 - (4) Failure by Contractor to pay taxes due on materials used on this project;
 - (5) Damage by Contractor to another Contractor;
 - (6) Insolvency;
 - (7) Bankruptcy, voluntary or involuntary;
 - (8) Revocation of corporate status;
 - (9) Failure to follow corporate formalities;
 - (10) Unprofessional activities;

- (11) Unworkmanlike performance;
- (12) Fraud and/or misrepresentation of any kind.

29.00 ACCEPTANCE AND FINAL PAYMENT(S)

- 29.01 Upon receipt of written notice from Contractor that the work is substantially complete and usable by Owner or the Public in suitable manner, the Owner and the Contractor shall jointly inspect the work.
- 29.02 If the Owner by inspection determines that the work is not substantially complete in a suitable manner for use by the Owner or the Public, then the Owner shall so notify the Contractor in writing stating such reason. All reasons need not be disclosed unless actually known. The Owner is afforded an opportunity to amend said notices as are reasonably possible.
- 29.03 If the Owner by its inspection determines that the work is substantially complete, it shall prepare a list of all items not satisfactorily completed and shall notify the Contractor and Owner in writing that the work is substantially complete and subject to satisfactory resolution of those items on the list (punch list). Punch lists may be amended from time to time by Owner in the event that additional deficiencies are discovered. In accordance with LSA-R.S. 38:2248(B), any punch list generated during a construction project shall include the cost estimates for the particular items of work the design professional has developed based on the mobilization, labor, material, and equipment costs of correcting each punch list item. The design professional shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The contract agency shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon the expiration of the forty-five (45) day lien period. The provisions of this Section shall not be subject to waiver.
- 29.04 Upon determination of substantial completeness with the punch list, the Contract Time is interrupted and the Contractor is given a reasonable time not to exceed thirty (30) consecutive calendar days to effect final completion by correcting or completing all of those items listed on the punch list. If the items on the punch list are not completed in a satisfactory manner within the thirty day period, then the Contract Time will begin to run again and will include for purposes of determining liquidated damages the thirty day period the grace period being withdrawn.
- 29.05 Upon receipt by Owner of written determination that all work embraced by the contract has been completed in a satisfactory manner, the Owner shall provide a written acceptance to Contractor who shall record Owner's written acceptance with the recorder of Mortgages, St. Tammany Parish. The Contractor shall properly prepare, submit and pay for all costs associated with said Acceptance. The Contractor is also responsible for preparation, re-submission and payment of any and all updated certificates.
- 29.06 Retainage monies, minus those funds deducted in accordance to the requirements of this agreement including but not limited to Paragraph 28.10, shall be due Contractor not earlier than forty-six (46) calendar days after recordation of certificate of Owner's acceptance provided the following:
- (1) Contractor shall prepare, secure, pay for and submit clear lien and privilege certificate, signed and sealed by Clerk of Court or Recorder of Mortgages, Parish of St. Tammany and dated at least forty-six (46) days after recordation of certificate of acceptance;
 - (2) Ensure that the official representative of the Owner has accepted as per LSA-R.S. 38:2241.1, *et seq.* and that all following sub-sections have been properly satisfied as per law;
 - (3) Ensure that all signatures are affixed and that there exists the requisite authority for all signatures;
 - (4) Ensure accurate and proper legal descriptions;
 - (5) Properly identify all parties and/or signatories;

- (6) Properly identify all mailing addresses;
- (7) Correctly set for the amount of the contract, together with all change orders;
- (8) Set out a brief description of the work performed;
- (9) Reference to any previously recorded contract, lien or judgment inscription that may affect the property;
- (10) Certification that substantial completion has occurred, together with any applicable date(s);
- (11) Certification that no party is in default and/or that the project has been abandoned.

29.07 After securing the clear lien and privilege certificate the Contractor shall prepare its final application for payment and submit to Owner. The Owner shall approve application for payment, or state its objections in writing and forward to Contractor for resolution.

30.00 NOTICE AND SERVICE THEREOF

30.01 Any Notice to Contractor from the Owner relative to any part of this Contract shall be in writing and shall be considered delivered and the service thereof completed when said notice is posted; by certified mail, return receipt requested to the said Contractor at its last given address, or delivered in person to said Contractor or its authorized representative on the Work.

31.00 INTENTION OF THESE GENERAL CONDITIONS

31.01 These General Conditions shall be applicable to all contracts entered into by and between the Owner and Contractors, except as may be altered or amended with the consent of the Owner, and/or provided for in the Special Conditions of each contract. Contractor shall be presumed to have full knowledge of these General Conditions which shall be applicable to all contracts containing these General Conditions, whether Contractor has obtained a copy thereof or not.

32.00 SEVERABILITY

32.01 If any one or more or part of any of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

32.02 **CHANGING THESE CONDITIONS:** Owner reserves the right to change or modify these General Conditions as it deems best, or as required by law. The General Conditions may also be modified for a particular project by the use of Special Conditions prior to the issuance of the Advertisement for Bid. However, once an advertisement for bid is made for any specific project, any changes to the General Conditions as they affect that specific project must be made in writing and issued via an addendum in accordance with State Law.

33.00 LAW OF THE STATE OF LOUISIANA

33.01 The Contract Documents shall be governed by the Law of the State of Louisiana.

33.02 The Contractor agrees to pay reasonable attorney's fees and other reasonable attendant costs, in the event that it becomes necessary for the Owner to employ an attorney in order to enforce compliance with or any remedy relating to any covenants, obligations, or conditions imposed upon the Contractor by this Agreement. Attorney fees shall be based upon the prevailing hourly rate of attorney rates in the private sector. In no case shall the

hourly rate be less than \$175.00 per hour. All attorney fees collected shall be paid the operating budget of the Office of the Parish President.

- 33.03 The jurisdiction and venue provisions shall apply to all contractors, sureties, and subcontractors. The 22nd Judicial District for the Parish of St. Tammany shall be the court of exclusive jurisdiction and venue for any dispute arising from these General Conditions and/or any contract executed in conjunction with these General Conditions. All parties specifically waive any rights they have or may have for removal of any disputes to Federal Court, or transfers to different State District Court.
- 33.04 Contractor warrants that it has and/or had received a copy of these General Conditions at all times material hereto; Contractor further agrees that it has read and fully and completely understands each and every condition herein.
- 33.05 The property description will be more fully set out by an attached exhibit.
- 33.06 The Contractor warrants that it has the requisite authority to sign and enter this agreement.
- 33.07 It is specifically understood and agreed that in the event Contractor seeks contribution from the Parish or pursues its legal remedies for any alleged breach of this agreement by the Parish, then the following list of damages SHALL NOT BE RECOVERABLE BY CONTRACTOR. This list includes, but is not limited to:
1. indirect costs and/or expenses;
 2. direct costs and/or expenses;
 3. time-related costs and/or expenses;
 4. award of extra days;
 5. costs of salaries or other compensation of Contractor's personnel at Contractor's principal office and branch offices;
 6. expenses of Contractor's principal, branch and/or field offices;
 7. any part of Contractor's capital expenses, including any interest on Contractor's capital employed for the work;
 8. any other charges related to change orders;
 9. overhead and general expenses of any kind or the cost of any item not specifically and expressly included in Cost of Work.

33.08 DEFAULT AND WAIVERS

It is understood that time is of the essence. It is specifically understood between the parties that Contractor waives any and all notice to be placed in default by the Owner. This subsection shall supersede and prime any other subsection herein above that is in conflict. The Owner specifically reserves its right and specifically does not waive the requirement to be placed in default by the Contractor as per law.

- 33.09 St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
- 33.10 It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:
1. The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;
 2. A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;
 3. Copies of relevant documents;

4. All information establishing that the protester is an interested party and that the protest is timely; and
5. A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to Director of Procurement, St. Tammany Parish Government, P.O. Box 628, Covington, LA 70434.

The protest review shall be conducted by the Parish Procurement Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and, fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF INCORPORATED.

AT THE MEETING OF DIRECTORS OF _____ INCORPORATED, DULY NOTICED AND HELD ON _____, A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT WAS:

RESOLVED THAT _____, BE AND IS HEREBY APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS AND TRANSACTIONS WITH THE PARISH OF ST. TAMMANY OR ANY OF ITS AGENCIES, DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT LIMITED TO, THE EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS, BONDS, SURETIES, CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE ORDERS AND NOTICES ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID OR CONTRACT, THIS CORPORATION HEREBY RATIFYING, APPROVING, CONFIRMING, AND ACCEPTING EACH AND EVERY SUCH ACT PERFORMED BY SAID AGENT AND ATTORNEY-IN-FACT.

I HEREBY CERTIFY THE FOREGOING TO BE A TRUE AND CORRECT COPY OF AN EXCERPT OF THE MINUTES OF THE ABOVE DATED MEETING OF THE BOARD OF DIRECTORS OF SAID CORPORATION, AND THE SAME HAS NOT BEEN REVOKED OR RESCINDED.

SECRETARY-TREASURER

DATE

Certificate of Insurance Instructions

The below information is intended to guide Contractors on what information is needed to be listed on the Certificate of Insurance. All Insurance limit requirements can be found in Section 06.

- **Certificate Holder** – STPG must be listed as the certificate holder, and it must include our address of: P.O. Box 628, Covington, LA 70434
 - Reason: the certificate holder is where cancellations of coverage, or updated certificates are mailed. If a vendor terminates a policy, we will be notified.
- **Additional Insured** – We must be named as an additional insured so that if there is a lawsuit against the vendor for a project, their coverage will cover STPG as well if we are named in the lawsuit.
 - We must be named in the Description of Operations box – reason: there could be other additional insureds, and we want to have no doubt that we are one of the additional insureds.
 - We must be named as additional insured on the following coverages: General liability, Auto Liability, Umbrella/Excess Liability, Environmental/Pollution Liability.
 - Professional Liability policies do not allow for an additional insured by most carriers.
- **Project Name & Contract #** - We need this listed in the Description of Operations, again so that if there is a lawsuit, we have proof that coverage was active for that project.
- **Waiver of Subrogation** – This can either be listed in the Description of Operations or checked off in the appropriate columns.

From the Insurance Requirement form:

Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.

- **Owners Protective Liability (OPL) or (OCP)** – Certificate of Insurance for OCP names St. Tammany Parish Government as the Insured and the Certificate Holder.
- Sample of Certificate of Insurance (COI) can be found on page 2.
- Please refer to this section in the package labeled “Insurance Requirements” for limits required for this project

Any questions regarding insurance requirements please contact the Risk Department at 985-898-5226 or email riskman@stpgov.org



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:		
	PHONE (A/C, No. Ext):	FAX (A/C, No):	
	E-MAIL ADDRESS:		
	INSURER(S) AFFORDING COVERAGE		NAIC #
INSURED	INSURER A :		
	INSURER B :		
	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/>	<input type="checkbox"/>				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS	<input type="checkbox"/>	<input type="checkbox"/>				PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	<input type="checkbox"/> OCCUR						AGGREGATE \$
	EXCESS LIAB						\$
	<input type="checkbox"/> CLAIMS-MADE						
	DED						
	RETENTION \$						
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						OTHER
	If yes, describe under DESCRIPTION OF OPERATIONS below	<input type="checkbox"/> Y / N	<input type="checkbox"/> N / A				E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project Name:
Contract #:

(Name St. Tammany Parish Government as an additional insured).

CERTIFICATE HOLDER**CANCELLATION**St. Tammany Parish Government
P.O. Box 628
Covington, LA 70434

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Bond No.: _____

**CONTRACT AGREEMENT
BETWEEN PARISH AND CONTRACTOR**

BY: ST. TAMMANY PARISH GOVERNMENT

**UNITED STATES OF
AMERICA**

WITH:

**STATE OF LOUISIANA
ST. TAMMANY PARISH**

This agreement is entered into this _____ day of _____, 20____, by and between: «txtREQCompanyName», hereinafter called the "Contractor", whose business address is «txtREQAddress», «txtREQCity», «txtREQState» «txtREQZip» and the St. Tammany Parish Government, hereinafter called the "Parish", whose business address is P.O. Box 628, Covington, LA 70434 (collectively, the "Parties") for «txtPROJECTNAME» project. Witnessed that the Contractor and the Parish, in consideration of premises and the mutual covenants, consideration and agreement herein contained, agree as follows:

1. SCOPE OF SERVICES

The Contractor shall furnish all labor and materials and perform all of the work required to build, construct and/or complete in a thorough and workmanlike manner:

«txtScopeSummary»

2. CONSTRUCTION DOCUMENTS

It is recognized by the Parties herein that said Construction Documents, including by way of example and not of limitation, the plans and Specifications, General Conditions, Supplementary General Conditions, any addenda thereto, the drawings (if any), and the bid, quote or other procurement documents impose duties and obligations upon the Parties herein, and said Parties thereby agree that they shall be bound by said duties and obligations. For these purposes, all of the provisions contained in the aforementioned Construction Documents are incorporated herein by reference with the same force and effect as though said Construction Documents were herein set out in full. Copies of the aforementioned Construction Documents are in the possession of both the Contractor and the Parish for reference.

3. TIME FOR COMPLETION

The work shall be commenced on a date to be specified in a written order of the Parish and shall be completed within «intCompletionTime» calendar days from and after said date.

4. COMPENSATION TO BE PAID TO THE CONTRACTOR

The Parish will pay and the Contractor will accept in full consideration for the performance of the Contract the sum of «curREQGrandTotal» dollars.

5. PERFORMANCE AND PAYMENT BOND

To these presents personally came and intervened _____,
(Name of Attorney in Fact)
herein acting for _____, a corporation organized
(Surety)
and existing under the laws of the State of _____, and duly authorized to transact business in the State of Louisiana, as surety, who declared that having taken cognizance of this Contract and of the Construction Documents mentioned herein, he hereby in his capacity as its Attorney in Fact obligates his company, as surety for the said Contractor, unto the said Parish, up to the sum of «curREQGrandTotal». The condition of this performance and payment bond

shall be that should the Contractor herein not perform the Contract in accordance with the terms and conditions hereof, or should said Contractor not fully indemnify and save harmless the Parish from all costs and damages which he may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have fulfilled obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example, workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said surety agrees and is bound to so perform the Contract and make said payment(s).

Contractor and Parish specifically agree to and recognize (1) the statutory employer relationship existing between the Parish and any employees performing work under this Contract as employees of the Contractor or employees of the "Sub-Contractor", and (2) that the work performed by the employees of the Contractor and the employees of the "Sub-Contractor" is part of the Parish's business, occupation or trade and is essential to the ability of the Parish to generate their products or services, all of which is in accordance with LSA-R.S. 23:1061, and as may be amended.

6. LIABILITY AND INDEMNIFICATION

A. Duty to Defend

Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.

B. Contractor Liability

Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.

C. Force Majeure

It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.

D. Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its

owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.

E. Intellectual Property Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and

minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not furnished by Contractor; or, iii) use of the

product, material or service in other than the specified operating conditions and environment.

7. MODIFICATION OF CONTRACT TERMS

Provided that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Parish of any extensions of time for the performance of the Contract, or any other forbearance on the part of either the Parish or the Contractor to the other shall not in any way release the Contractor or the Surety from their liability hereunder, notice to the Surety of any such alterations, extensions or other forbearance being hereby waived.

8. TERMINATION, CANCELLATION, AND SUSPENSION

A. Termination

The term of this Contract shall be binding upon the Parties hereto until the work has been completed by the Provider and accepted by the Parish, and all payments required to be made to the Provider have been made. But, this Contract may be terminated upon thirty (30) days written notice under any or all of the following conditions:

- 1) By mutual agreement and consent of the Parties hereto;
- 2) By the Parish as a consequence of the failure of the Provider to comply with the terms, progress, or quality of the work in a satisfactory manner, proper allowances being made for circumstances beyond the control of the Provider;
- 3) By either party upon failure of the other party to fulfill its obligations as set forth in this Contract;
- 4) By the Parish with less than thirty (30) days' notice due to budgetary reductions and changes in funding priorities by the Parish;
- 5) In the event of the abandonment of the project by the Parish.

Upon termination, the Provider shall be paid for actual work performed prior to the Notice of Termination, either based upon the established hourly rate for services actually performed, or on a pro-rata share of the basic fee based upon the phase or percentage of work actually completed, depending on the type of compensation previously established under this Contract.

Upon Termination, the Provider shall deliver to the Parish all original documents, notes, drawings, tracings, computer files, and other files pertaining to this Contract or the Work performed, except for the Provider's personal and administrative files.

B. Cancellation

The continuation of this Contract is contingent upon the appropriation of funds to fulfill the requirements of the Contract by the Parish. If the Parish fails to appropriate sufficient monies to provide for the continuation of this or any other Contract, or if such appropriation is reduced by the veto of Parish President by any means provided in the appropriations Ordinance to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the Contract, the Contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated. It is understood and agreed that paragraph (9)(C) below may preempt this paragraph, all at the exclusive and unilateral option of the Parish.

C. Suspension

Should the Parish desire to suspend the work, but not definitely terminate the Contract, the Parish shall supply the Provider with thirty (30) days' notice. The Parish will also

supply Provider thirty (30) days' notice that the work is to be reinstated and resumed in full force. Provider shall receive no additional compensation during the suspension period. The Parties may revisit the terms of this Contract during the suspension period. The suspension shall not exceed six (6) months, unless mutually agreed upon between the Parties.

- D.** Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.
- E.** In the event of a default and/or breach of this agreement and this matter is forwarded to legal counsel, then the prevailing party may be entitled to collect a reasonable attorney fees and all costs associated therewith whether or not litigation is initiated. Attorney fees shall be based upon the current, reasonable prevailing rate for counsel in the private

sector. The Parties agree to be responsible for such attorney fees, together for all with legal interest from date of agreement breach, plus all costs of collection.

- F.** Termination or cancellation of this agreement will not affect any rights or duties arising under any term or condition herein.

- G.** As to the filing of voluntary or involuntary bankruptcy by Provider, Provider agrees that if any execution or legal process is levied upon its interest in this Contract, or if any liens or privileges are filed against its interest, or if a petition in bankruptcy is filed against it, or if it is adjudicated bankrupt in involuntary proceedings, or if it should breach this Contract in any material respect, the Parish shall have the right, at its unilateral option, to immediately cancel and terminate this Contract. In the event that Provider is placed in any chapter of bankruptcy, voluntarily or involuntarily, or otherwise triggers any provision of the preceding sentence herein, it is understood and agreed that all materials, goods and/or services provided shall be and remain the property of the Parish. All rights of Provider as to goods, wares, products, services, materials and the like supplied to Parish shall be deemed forfeited.

9. RECORDATION OF CONTRACT

Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law.

10. AUTHORITY TO ENTER CONTRACT

The undersigned representative of Contractor warrants and personally guarantees that he/she has the requisite and necessary authority to enter and sign this Contract on behalf of the corporate entity, partnership, etc. The undersigned Parties warrant and represent that they each have the respective authority and permission to enter this Contract. In the event that Contractor is a member of a corporation, partnership, L.L.C., L.L.P., or any other juridical entity, the Parish requires, as an additional provision, that Contractor supply a certified copy of a corporate resolution authorizing the undersigned to enter and sign this Contract. Another option to fulfill this additional provision he/she can supply Louisiana Secretary of State Business filings confirming that he/she is a managing member of a

Bond No.: _____

corporation, partnership, L.L.C., L.L.P., or any other juridical entity which authorizes the undersigned to enter and sign this Contract.

In Witness thereof, the Parties hereto on the day and year first above written have executed this Contract in **One (1)** counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

WITNESSES:

CONTRACTOR:

Signature

Signature

Print Name

Print Name

Signature

Title

Print Name

Date

Bond No.: _____

WITNESSES:

**ST. TAMMANY PARISH
GOVERNMENT:**

Signature

Michael B. Cooper
Parish President

Print Name

Date

Signature

Print Name

APPROVED BY:

Assistant District Attorney- Civil (Surety)
Division

Signature

Date

Print Name

Section 12

EFFECTIVE DATE: (08/22)

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT SUPPLEMENTAL SPECIFICATIONS (FOR 2016 STANDARD SPECIFICATIONS)

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LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT SUPPLEMENTAL SPECIFICATIONS

The 2016 Louisiana Standard Specifications for Roads and Bridges and supplemental specifications thereto are amended as follows.

PART I – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION, DEFINITIONS, AND TERMS:

Subsection 101.01 – Voice/Mood and References (03/20), Page 2

101.01 is deleted and replaced with the following:

101.01 VOICE/MOOD AND REFERENCES.

101.01.1 Active Voice/Imperative Mood: This specification book uses the active voice/imperative mood when describing the contractor’s responsibility, or the bidder’s responsibility prior to award of contract. The subject of a sentence written in the active voice/imperative mood is not explicitly stated. For example: “Provide competent supervision” is taken to mean “the Contractor is required to provide competent supervision.”

101.01.2 References: Section and Subsection titles and headings provide reference only, not interpretation.

A cross-reference to a specific Subsection of these specifications includes all general requirements of the Section of which the Subsection is a part.

Unless specified by year or date, cited publications refer to the most recent issue, including interim publications, in effect on the first date of advertisement for bids.

SECTION 105 – CONTROL OF WORK:

Subsection 105.02.1 – Plans (07/19), Page 41

The first paragraph of 105.02.1 is deleted and replaced with the following:

The contractor will be furnished, without charge, a maximum of 5 sets of half-scale plans, and when requested, a maximum of 3 full-scale plans. When plans include standard plans by reference only, copies of standard plans will be furnished, by request, with the same maximums described above without charge.

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

Subsection 107.19 – Contractor's Responsibility for Work (03/18), Page 85

The first sentence of the second paragraph of 107.19 is deleted and replaced with the following:

1. Guard rail, impact attenuators, cable barriers, and other such devices shall be repaired as soon as possible after damage.

PART II – EARTHWORK AND SITE PREPARATION

SECTION 202 – REMOVING OR RELOCATING STRUCTURES AND OBSTRUCTIONS:

Subsection 202.02 – General Construction Requirements (06/19), Pages 116 and 117

202.02 is deleted and replaced with the following:

202.02 GENERAL CONSTRUCTION REQUIREMENTS. Remove and dispose of all portions of structures or obstructions on the right-of-way, except items for which other provisions have been made for removal or relocation. When specified, remove structures and appurtenances that extend beyond the right-of-way or that are entirely on private property. Materials deemed salvageable by the engineer shall be carefully disassembled and care shall be taken to preserve the condition of the salvaged materials before and during transportation to the designated facility. Upon delivery to the designated facility, they shall be unloaded and neatly arranged at specified storage areas as directed by the engineer. When no storage sites are specified, deliver salvaged materials to the nearest DOTD maintenance unit. Dispose of materials not specified to be salvaged off the project right-of-way outside the view of the traveling public with written permission of the property owner on whose property the material is placed. DOTD reserves the right to refuse material prior to delivery for any reason or if not in usable condition upon delivery. Any material refused shall then be deemed unsalvageable and disposed of accordingly. Furnish copies of agreements (including rights of entry, etc.) with property owners to the engineer prior to beginning of work. The agreement must contain language holding the department harmless regarding any liabilities of the contractor or property owners. A certificate of release from the property owner will be required before final acceptance. Fill holes left by structure removal or the removal of materials associated with contaminated soils or sites by blading the area with surrounding soil or backfilling with soil complying with 203.06.1. Compact to a condition similar to the surrounding soils or as directed.

If any fuel storage tanks or other environmentally sensitive or contaminated sites are located during construction, stop construction activity in the immediate vicinity of the environmentally sensitive or contaminated site and notify the project engineer who in turn will notify the Department's Materials and Testing Section immediately for guidance. Testing and clean-up by the contractor shall be coordinated with the Materials and Testing Section.

The Department reserves the right to eliminate work items in accordance with 104.02.4.

SECTION 203 – EXCAVATION AND EMBANKMENT:

Subsection 203.06.7 – Soils for Soil Cement In-Place Cement Stabilization or Treatment (04/18), Page 132

203.06 is amended to include the following:

203.06.7 Soils for Soil Cement In-Place Cement Stabilization or Treatment: Soils to be used for in-place cement stabilization or treatment shall be in accordance with Subsection 302.02.1

PART III – BASE COURSES

SECTION 301 – CLASS I BASE COURSE:

Subsection 301.01 – Description (08/22), Pages 152 and 153

301.01 is deleted and replaced with the following:

301.01 DESCRIPTION. Furnish and place Class I base courses on a subgrade layer conforming to Section 305 in accordance with these specifications and in conformance with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the engineer. Control the selection, placement, mixing, and compaction of materials so that the completed base course is uniform and conforms to plan dimensions and other acceptance requirements.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication titled *Application of Quality Assurance Specifications for Embankments and Base Course*.

Unless approved otherwise in writing, use the same type of Class I base course throughout the project in accordance with these specifications.

When asphalt concrete or portland cement concrete is specified on the plans, the total thickness of asphalt concrete or portland cement concrete shall be the thickness as indicated on the plans.

When the base course material is not specified on the plans, any of the following types may be used:

1. Soil Cement
2. Crushed Stone
3. Asphalt Concrete on Embankment Layer
4. Recycled Portland Cement Concrete
5. Blended Calcium Sulfate

For Asphalt Concrete on Embankment Layer, the top half of the base course thickness shall be asphalt concrete. The remaining thickness of the base shall be the same type and construction as the top layer of the underlying embankment, treated layer, or subgrade, or in accordance with Section 203 for placement on existing ground. Do not place raw, untreated material between a treated embankment and the asphalt concrete layer.

In areas that are inaccessible for mixing and compacting, such as in turnouts, crossovers, and other isolated or irregular areas, full depth portland cement concrete or full depth asphalt concrete base course may be used in lieu of the specified Class I base course material with approval.

When portland cement concrete is used, unless otherwise specified or approved by the engineer, the minimum thickness shall be 6 inches.

Portland cement concrete shall be in accordance with Section 706 except as follows. Portland cement concrete thickness tolerances shall be in accordance with Section 601 and corrected in accordance with 301.16.2.2. Portland cement concrete width corrections shall be in accordance with 301.16.3.2. Any pay adjustment in portland cement concrete shall be in accordance with Table 901-5.

A bond breaker is required between portland cement concrete base and portland cement concrete pavement. A bond breaker shall consist of a double application of curing compound or 2 layers of polyethylene sheeting. A 3 inch scored joint will be made to control cracking in the concrete base. The scored joints should be placed at the required surface joint locations. No load transfers will be required in the base slab.

Drainage of all existing and constructed pavement structures shall be maintained at all times during construction at no additional cost to the Department. When base course is permeable, provide a base drain outlet consisting of non-plastic embankment (stone) and geotextile fabric, or as specified in the plans, in accordance with 203.09.

Submit a dust control plan to address weather, sight clearance, operational procedures, traffic control, and any other project specific concerns. Failure to maintain sight clearance will result in the engineer stopping contractor operations.

The Department will identify dust-sensitive areas in the plans. In these specific areas, the dust control plan must also include environmental requirements. In order to meet air quality standards, the contractor may be required to use central plant mixing of cement treated mixtures in dust sensitive areas at no direct pay. The contractor may use other types of Class I base course in dust sensitive areas at no direct pay.

Subsection 301.02.4 – Asphalt Concrete Base Course (08/22), Pages 153 and 154

301.02.4 is deleted.

Subsection 301.03.4 – Automatic Finishing Machine (08/22), Page 156

The last sentence of 301.03.4 is deleted and replaced with the following:

The approved automatic finishing machine shall be capable of operating from an erected stringline or Global Positioning System (GPS) and laser system, and be capable of automatically controlling grade and cross slope conforming to 502.09.2.3.

Subsection 301.09 – Grade and Cross-Slope Control (08/22), Page 160

301.09 is deleted and replaced with the following:

301.09 GRADE AND CROSS-SLOPE CONTROL. Unless otherwise specified, construct Class I Base Courses (except asphalt concrete) to the required grade and cross slope, using an automatic finishing machine controlled from an erected stringline or GPS and laser system conforming to 502.09.2.3.

Subsection 301.17 – Measurement (08/22), Pages 167 and 168

301.17 is deleted and replaced with the following:

301.17 MEASUREMENT. The quantities of Class I base course for payment will be the design volumes or areas specified in the plans and adjustments thereto. Design quantities are based on the horizontal dimensions and theoretical compacted thickness of the completed base course shown on the plans. Design quantities will be adjusted if the engineer makes changes to adjust to field conditions, plan errors are proven, or design changes are necessary.

Base drain outlets will be measured for payment per each.

Subsection 301.18 – Payment (08/22), Page 168

301.18 is deleted and replaced with the following:

301.18.PAYMENT. Payment for Class I base course will be made at the contract unit price, adjusted as specified in 301.16 and the following provisions, which include furnishing and placing required base course materials, portland cement, portland-pozzolan cement, water, grade control, asphalt curing membrane, and prime coat.

When the density test value for the section falls below 95.0 percent, a payment adjustment will be applied in accordance with Table 301-1.

Failure to add the specified amount of cement in soil cement will result in a payment adjustment in accordance with Table 301-3 below. For materials other than asphalt concrete, payment adjustments that are made for more than one deficiency shall be cumulative. Any payment adjustment in asphalt concrete shall be in accordance with Section 502 and shall apply to the cubic yard total quantity of base course.

**Table 301-3
Payment Adjustment Schedule**

	Percent of Contract Unit Price			
	100	90	80	50 or Remove and Replace ¹
Cement content (Percent by dry weight) less than required	0.0 – 0.1	0.2 – 0.4	0.5 – 1.0	more than 1.0

¹. At the option of the Chief Engineer.

Payment for base drain outlet will be made under the contract unit price per each and include excavation, furnishing and placing non-plastic embankment (stone) material, geotextile fabric, and all incidentals necessary to complete the work.

Payment will be made under:

Item No.	Pay Item	Pay Unit
301-01	Class I Base Course	Cubic Yard
301-02	Class I Base Course _____in Thick	Square Yard
301-03	Class I Base Course for Shoulders	Cubic Yard
301-04	Class I Base Course for Shoulders _____in Thick	Square Yard
301-05	Base Drain Outlet	Each

SECTION 303 – IN-PLACE CEMENT STABILIZED AND TREATED BASE COURSES:

Subsection 303.04 – Preparation of Roadbed (04/20), Page 185

303.04 is amended to include the following sentence between the second and third paragraph:

If only shoulder stabilization has been performed, the paving operation shall commence within 7 calendar days of stabilization.

PART IV – SURFACE COURSES

SECTION 401 – AGGREGATE SURFACE COURSE:

Subsection 401.07.1 – General (12/17), Page 217

401.07.1 is deleted and replaced with the following:

401.07.1 General: Place material and shape by suitable means. Compact with an approved roller. Continue to shape and compact until the surface conforms to the required sections and has a tight, uniform surface free from ruts and waves.

PART V – ASPHALT PAVEMENTS

PART V – ASPHALT PAVEMENTS:

Part V – Asphalt Pavements (11/21), Pages 224 – 305

Part V – Asphalt Pavements is deleted and replaced with the following:

Section 501

Thin Asphalt Concrete Applications

501.01 DESCRIPTION.

501.01.1 General: Furnish and construct a finish course of asphalt concrete mixture in conformance with these specifications and in conformance with the lines, grades, thicknesses, and typical sections shown on the plans or established. A finish course is defined as a 501 thin lift mix placed over a 502 asphaltic concrete pavement or a Portland cement concrete pavement.

Comply with Section 503 and the Application of Quality Assurance Specifications for Asphalt Concrete Mixtures (QA Manual).

Use a DOTD certified laboratory accredited by AMRL, CMEC, or other accreditation agency approved by DOTD.

These specifications apply to all asphalt concrete thin lift mixtures with typical plan thicknesses between $\frac{3}{4}$ inches and $1\frac{1}{2}$ inches. The following mixtures are further described herein and as shown on the plans:

1. Dense Mix – traffic volumes less than 3,500 ADT.
2. Coarse Mix – all traffic volumes. Can be substituted in place of Dense Mix without change order.
3. Open Graded Friction Course (OGFC) – all traffic volumes, typically specified for use on Interstate Highway System. Can be substituted in place of Coarse Mix or Dense Mix applications without change order.

Use the same mixture type throughout the project length unless approved otherwise by the Project Engineer.

501.01.2 Quality Assurance: Work shall meet the requirements of this section and be subject to acceptance by the Department. Exercise quality control as defined in 101.03. When these specifications are not being met and satisfactory control adjustments are not being made, discontinue operations and notify the Project Engineer immediately until proper adjustments and uniform operations are established. The contractor will have a quality control program independent of the Department's testing and ensure that the requirements of the job mix formula (JMF) are being achieved and that necessary adjustments provide the specified results.

Do not begin daily plant operations unless the contractors' Certified Asphalt Concrete Plant Technician (Level 2 or Level 3) is at the plant. When the plant is in operation, have a Certified Asphalt Concrete Plant Technician at the plant or jobsite.

501.02 MATERIALS. Comply with applicable subsections listed herein. Sample and test in accordance with the Material Sampling Manual and the test procedures described in Table 502-1.

Keep accurate records including proof of deliveries of materials for use in these processes. Ensure that materials comply with the following Sections and Subsections and as specified in this section:

Asphalt Cement	1002
Anti-Strip Additives	1002.02.1
Aggregates	1003.01 & 1003.06
Hydrated Lime	1018.02
Crumb Rubber	1002.02.2
Mix Release Agent	1018.10
Mineral Filler	1003.06.6
Fibers	1002.02.5
Reclaimed Asphalt Pavement (RAP)	1003.01 & 1003.06.5

501.02.1 Tack Coat: Ensure that tack coat meets the requirements of Section 1002. Apply tack coat as described in 501.09.1. Application rates are defined in Table 501-1. Use emulsions listed in the Approved Materials List.

For dense mixtures, apply a NTSS-1HM, CBC-1HT, SS-1H, CSS-1H, CSS-1HP, or a hot applied non-tracking tack (NTHAP).

For coarse and OGFC mixtures, apply a Polymer Emulsion Tack (PET) or hot applied non-tracking tack (NTHAP).

501.02.2 Asphalt Cement: Comply with Table 501-1. If the asphalt cement does not comply with the requirements of Section 1002 notify the Project Engineer and cease mix production until proper asphalt material is supplied. Allow grade substitution as specified for Level 1 wearing course in Section 502. PG76-22rm may also be substituted for PG76-22m.

501.02.3 Additives:

501.02.3.1 Anti-Strip: Use anti-stripping additives from a source listed on the Approved Materials List. Add anti-strip at a minimum rate of 0.6 percent or a rate approved by the District Lab Engineer. Increase the anti-strip additive or change to different additive as needed to meet Loaded Wheel Test (LWT) requirements. Discontinue production until satisfactory adjustments are made when the amount of anti-strip additive is not in accordance with the approved JMF.

501.02.3.2 Hydrated Lime: When used, specify rate of hydrated lime additive on the Job Mix Formula. Add hydrated lime additive at a minimum of 1.5 percent and thoroughly mix with aggregates in conformance with 503.05.5. Hydrated lime may be added as mineral filler in accordance with 503.05.4 and 1003.06.6.

501.02.3.3 Waste Tire Rubber Additive: When used, crumb rubber may be pre-blended or, with approval by the Materials Laboratory, may be blended at the plant. The maximum rubber replacement is 10 percent by weight of asphalt.

When blending crumb rubber at the contractor's plant, add crumb rubber to a PG 67-22 material on the Approved Materials List. Add 30 mesh (or finer) crumb rubber as required to meet grade PG 76-22rm. Comply with 1002.02.2.

501.02.4 Aggregates: Use aggregate from Approved Material List. For Coarse Mix and OGFC, use aggregate with a maximum water absorption of 2 percent as reported on the Approved Material List and verified by the District Lab Engineer. Use aggregate that meets requirements of 1003.06. Submit a Certificate of Analysis with the JMF to the District Laboratory Engineer indicating conformance to Table 501-2.

501.02.5 Mineral Filler: If used, meet the requirements of 1003.06.6.

501.02.6 Fibers: When required to prevent draindown, use cellulose or mineral fiber, meeting the requirements of 1002.02.5. When used, add fibers at a rate sufficient to prevent draindown with a minimum rate of 0.1 percent by weight (mass) of mixture.

501.02.7 Reclaimed Asphalt Pavement (RAP): Keep reclaimed asphalt pavement separate from other materials at the plant in such a manner that will allow for Department inspection and acceptance. Keep stockpiles uniform and free of soil, debris, foreign matter and other contaminants. Allowable RAP percentages are defined in Table 501-1. Screen or crush RAP, prior to use, to pass a 1-inch sieve.

501.02.8 Natural Sand: When used, meet the requirements of Table 501-1 and 1003.06.3.

501.03 DESIGN OF THIN ASPHALT CONCRETE MIXTURES AND JOB MIX FORMULA (JMF) APPROVAL. Submit an aggregate gradation that conforms to Table 501-1 along with the Certificates of Analysis required in 501.02.4. Aggregate friction rating for coarse mix and OGFC will be in accordance with Table 502-3.

Design dense and coarse mixtures to midpoint of voids using the gyratory requirements of Table 501-1. For design of OGFC mixtures, the full range of void requirements is allowed. Report the corresponding asphalt content on the JMF. Design and report mix temperatures between 300⁰F and 350⁰F on the JMF. At minimum, all design submittals will include the recommended materials proportions, extracted gradation, recommended mix and compaction temperatures, and supporting design data. Submit the recommended JMF electronically through a Department approved data system as designated by the Department for District Laboratory Engineer acceptance. No mixture will be produced until the proposed JMF has been accepted. Prior to JMF approval, present a Certificate of Analysis showing aggregate physical properties conforming to Table 501-2.

Once a plant is producing an acceptable JMF, keep JMF production within the specified tolerances. Changes will be reviewed and accepted by the District Laboratory Engineer as necessary. A change in the asphalt cement source will require testing for Moisture Susceptibility using Loaded Wheel Test (LWT) in accordance DOTD TR 332. An acceptable mix design may not be changed to eliminate or add the use of crumb rubber without submitting a new JMF.

The Project Engineer may require a new mix design when acceptance requirements are not being met or plant quality data indicates non-compliance.

501.04 LOT SIZES. A lot is a segment of continuous production of asphalt concrete mixture from the same JMF produced for the Department at a specific plant, delivered to a specific DOTD project. A lot is defined as 2400 tons of mixture production, a subplot is 800 tons. The final subplot may be increased up to 50 percent of the last subplot with the mutual agreement of the contractor and Project Engineer.

501.05 JOB MIX FORMULA (JMF) VALIDATION AND APPROVAL. The Department and contractor will jointly test plant mix to validate each JMF and accept each JMF whenever a plant begins initial operations for the Department in a specific plant location, or whenever a plant experiences a change in materials or change in source of materials (other than asphalt cement), or when there are significant changes in equipment, such as the introduction of a new crusher, drum mixer, burner, etc. All JMF's shall be re-validated a minimum of every 2 years. Re-validation may consist of reviewing ongoing production data.

Validate the JMF on the first 1200 tons (3-400 ton sublots) of production for a project by meeting the requirements of Table 501-1. With mutual agreement of the contractor and the Department, a fourth sample may be taken during validation. This sample may be used in place of the first validation plant sample for purposes of determining lot averages and establishing JMF targets.

During the validation process or when a new asphalt cement source is used, the Asphalt District Inspector (ADI) will collect a sample of loose mixture and a sample of asphalt cement to send to the central laboratory for GPC testing.

The District Laboratory and Contractor shall jointly test three sublots for theoretical maximum specific gravity (G_{mm}), percent air voids, percent asphalt cement content, and extracted aggregate gradation. The JMF is considered conditionally validated if the following parameter individual test results meet the design specification limits.

1. Theoretical Maximum Specific Gravity (G_{mm}),
2. Percent Air Voids at N_{design} ,
3. Percent Asphalt Content by Ignition,
4. Extracted Gradation,
5. Percent Draindown (if required)

The production can continue during conditional validation. The JMF is considered validated with passing LWT results. If any failure occurs, adjust mix and revalidate. If second failure occurs, redesign the mix.

Upon validation of the JMF, the average of results for the validation lot will become the JMF target values to be used with production tolerances in Table 501-3.

501.06 PLANT QUALITY CONTROL. Exercise quality control over all materials and their assembly, design, processing, production, hauling, laydown and associated equipment to ensure compliance with Table 501-3 and all other specifications herein. At the end of each production day, notify the District Lab Engineer (DLE) and the DOTD Asphalt District Inspector (ADI) of the next scheduled mix production run and placement. Keep accurate records, including proof of deliveries of all materials used in this process.

For plant quality control, a lot is defined as 2400 tons of continuously produced mixture from one JMF. Obtain a sample of plant mixture and test the mixture once every subplot using a random sampling approach. Minimum quality control testing for each subplot is as follows:

Loose Mix

1. Theoretical Maximum Specific Gravity, G_{mm}
2. % Asphalt Cement Content
3. Extracted Gradation
4. % Crushed
5. Dust to Asphalt Ratio
6. Temperature
7. Draindown (1/lot when required)

Compacted Specimen, N_{design}

1. % Air Voids, V_a

Age all loose mix tested for Gmm or volumetrics for one hour in accordance with AASHTO R30 prior to testing.

For each lot, report all quality control data to the Department's Certified Plant Inspector. Increased quality control sampling or control charts may be requested by the Project Engineer if mixture problems develop.

501.07 PLANT ACCEPTANCE. The Department will perform all plant acceptance and verification testing to meet the Materials Sampling Manual requirements. All Department inspection procedures, including sampling and testing, form the basis for acceptance of asphaltic concrete. Sampling and testing shall be accomplished following a stratified sampling plan in accordance with the Materials Sampling Manual and specified test procedures.

The Department will take samples or perform tests as outlined in these specifications, to ensure that the asphaltic concrete conforms to Department standards, which include job mix limits, material properties, and surface deviations. For plant acceptance, a subplot is defined as 800 tons and a lot is defined as 2400 tons of continuously produced mixture from one JMF. Obtain a sample of plant mixture and test the mixture once every subplot using a random sampling approach. Minimum plant acceptance testing for each subplot is as follows:

Loose Mix

1. Theoretical Maximum Specific Gravity, G_{mm}
2. Extracted Gradation
3. Temperature
4. Draindown (1/lot when required)

Sample and test the mixture for Moisture Susceptibility using LWT every 10,000 tons.

Take corrective action or cease production if the lot average for each test result does not fall within the production tolerances, listed in Table 501-3, when applied to the JMF validated targets or if the LWT results do not meet specifications. The District Laboratory Engineer may require re-validation of the mix when the averages of the acceptance data indicate repeated non-compliance with the specified limits or tolerances.

501.08 ROADWAY OPERATIONS. Meet the requirements of 502.08 except as modified herein.

501.08.1 Weather Limitations: Ensure that Thin Asphalt Concrete complies with the weather limitations of 502.08.1 except that both the surface and ambient temperatures shall be a minimum of 60°F.

Do not place OGFC when ambient temperatures are predicted to drop below freezing, 32°F, within a three-day forecast period by the U.S. National Weather Service (NWS).

501.08.2 Surface Preparation: Protect and cover manhole covers, drains, grates, catch basins and other such utility structures. Cut back all vegetation at the road edge. Sweep the surface clean of dust, dirt, caked clay, and loose foreign material. Remove any existing raised pavement markers prior to asphalt concrete overlay operations. Payment for removal of pavement markings will be included with the applicable asphalt item.

501.09 HAULING, PAVING AND FINISHING. Meet the requirements of 502.09 except as modified herein. Use fully sealed tarps on all loads. Load haul trucks to minimize segregation.

501.09.1 Application of Tack Coat: Before constructing the thin lift, apply an approved asphalt tack coat in accordance with Section 501.02.1. Apply all tack coat emulsions using a spray paver meeting the requirements of 503.15.1, or apply hot applied non-tracking tack (NTHAP) using a power asphalt distributor meeting the requirements of 503.13.1. Spray tack coat uniformly and accurately across the paving width and monitor the rate of spray. Determine the tack coat application rate by road conditions and mix type. Meet the undiluted asphalt emulsion application rate in Table 501-1. Any change to the tack coat application rate (increase or decrease) in Table 501-1 must be approved by the Project Engineer.

501.09.2 Placement: Place mixtures in accordance with processes and equipment described in Section 503. Deliver material to the paver at a uniform rate and in an amount within the capacity of paving and compacting equipment. Adjust the paver speed and number of trucks to maintain continuous paving operations. Keep the height of material in front of the screed at a uniform height.

Ensure the pavers are designed and operated to place mixtures to required line, grade and surface tolerance without resorting to hand finishing.

501.09.3 Paving: Place and compact the mixture to plan thickness. Place a smooth uniform mat over the full lane width.

501.09.4 Compaction: Comply with 502.10 except as modified herein. Compact the mixture applying a minimum of 3 passes over a single point on the road using a double drum steel wheel roller of sufficient weight to properly seat the aggregate without crushing. Roll longitudinal joints directly behind the paving machine. Do not vibrate except at transverse joints. Accomplish final compaction with a second roller. Compact and finish before the mixture temperature falls below 180°F.

501.10 ROADWAY QUALITY ASSURANCE. The Project Engineer will verify that the tack coat application rate meets the requirements of Table 501-1 and check the mixture yield.

Do not place asphalt concrete exhibiting deficiencies before placement such as segregation, contamination, lumps, non-uniform coating, excessive temperature variations, alignment deviations, variations in surface temperature or other deficiencies, apparent on visual inspection.

Poor construction practices such as handwork, improper truck exchanges, improper joint construction, or other deficiencies, apparent on visual inspection, will not be accepted.

501.10.1 Opening to Traffic: Do not open the new pavement to traffic or allow any roller to sit idle on the pavement until the rolling operation is complete and the material has cooled to a temperature where the mat will not be damaged by traffic.

501.10.2 Smoothness: Furnish equipment specified in 502.12.1. Measure IRI in accordance with DOTD TR644 using a DOTD certified inertial profiler before and after placement. Meet Table 501-5 requirements. Ensure a maximum transverse deviation of 1/8 inch and maximum longitudinal deviation of 1/4 inch using a 10 foot metal static straight edge. Correct by grinding at no direct pay at the direction of the Project Engineer.

Perform quality control for surface tolerance as needed. Measure initial and final IRI in the presence of the DOTD certified inspector and submit each data in accordance with 502.12.5 to the DOTD certified inspector at the time of collection.

501.11 MEASUREMENT. Measure the Thin Asphalt Concrete applications by the ton. Measure the tack coat in accordance with Section 504.

501.12 PAYMENT. Payment for Thin Asphalt Concrete mixture will be made at the contract unit price per ton which includes furnishing all required materials, labor, equipment, tools and incidentals necessary for designing and producing the mixtures, preparing the surfaces on which the mixtures are to be placed, hauling the mixtures to the work site, and placing and compacting the mixtures. Production of mix that is not eligible for 100 percent payment will not be allowed on a continuous basis.

Asphalt tack coat will not be a pay item and will be considered incidental to the 501 item. However, if the Project Engineer adjusts the application rate of tack coat from that specified by the contract document, payment for the asphalt mixture will be increased or decreased based on the difference in the applied quantity of asphalt emulsion shown on paid invoices (total of charges). The contractor shall provide copies of paid invoices for this determination. Payment will be subject to the payment adjustment schedules as shown in Table 501-4.

Payment adjustments will be assessed on a per lot basis. The percent payment for the roadway lot will be the lowest value of the payment adjustment parameters for that lot.

A separate payment adjustment for IRI will be applied per travel lane to the theoretical tonnage of each lane for the entire length of the project in accordance with Table 501-5.

Payment for removal of pavement markings will be included with the applicable asphalt item.

Payment will be made at the contract unit price under:

Item No.	Pay Item	Pay Unit
501-01	Thin Asphalt Concrete (Dense Mix)	Ton
501-02	Thin Asphalt Concrete (Coarse Mix)	Ton
501-03	Thin Asphalt Concrete (OGFC)	Ton

**Table 501-1
Asphalt Mix Design Requirements**

Mix Type	Dense Mix	Coarse Mix	OGFC
Asphalt Cement Grade	PG 70-22	PG 70-22m	PG 76-22m
Gyratory Revolutions, AASHTO T 312	50	75	50
Minimum AC content, %	4.5	4.5	6.5
Air Voids, % ¹	4-6	6-8	18-24 ²
Natural Sands, Max. %	15	0	0
Dust/ Asphalt Ratio	0.6-1.6	---	---
RAP, Max %	10	0	0
LWT rut depth, 12 mm (max) @ no. passes, DOTD TR 332 ³	12,000	20,000	5000
Draindown, % max, ASTM D6390	---	0.15	0.30
Min. Tack Coat Undiluted (or NTHAP) Application Rate, gal/sq.yd. (0.40 gal/sq.yd maximum)	0.08 ⁴	0.15	0.15
% Passing 3/4 inch	100	100	100
% Passing 1/2 inch	100	75-100	85-100
% Passing 3/8 inch	90-100	—	55-75
% Passing No. 4	—	25-40	10-25
% Passing No. 8	35-70	19-28	5-13
% Passing No. 16	20-50	—	—
% Passing No. 200	2.0-10.0	2.0-5.5	2.0-4.0

¹ Design target voids at mid-point of void requirement. Full range allowed for OGFC.

² As computed using the measure of the physical volume (weight of compacted specimen)/
(height of compacted specimen x area of the compacted specimen).

³ Compact LWT specimen to the mid-point of design void requirement, OGFC to 18% voids.

⁴ If bleeding, ponding or slipping are evident, this rate may be reduced to a minimum of 0.04 gallon/square yard with a minimum 0.02 gallon/square yard residual with approval of the Project Engineer.

**Table 501-2
Aggregate Physical Properties**

Test	Method	Coarse Mix and OGFC	Dense Mix
Micro Deval, % loss max ¹	AASHTO T-327	18	—
Flat and Elongated Ratio; 3:1, % Max.	ASTM D4791	25	—
Coarse Aggregate Angularity, % Crushed, Double Faced, Min.	DOTD TR 306	90	—
Sand Equivalent, Min.	DOTD TR 120	—	40
Fine Aggregate Angularity (FAA), Min.	DOTD TR 121	45	40
Friction Rating		I, II ²	I, II, III

¹ Micro Deval target applies to each individual aggregate.

² See Table 502-3.

**Table 501-3
Production Tolerances**

Sieve % Passing	Production Tolerances
3/4 inch	±4
1/2 inch	±4
3/8 inch	±4
No. 4	±4
No. 8	±3
No. 16	±2
No. 30	±2
No. 50	±2
No. 200	±1.5
A/C by Ignition, %	±0.2
Mix Temperature, °F	±25
G _{mm}	±0.015
Air Voids, %	Meet design
Dust/Asphalt Ratio	Meet design

**Table 501-4
Payment Adjustment Schedules**

Plant:	Percent of Contract Unit Price per Lot			
	100%	90%	80%	50% or Reapplication ¹
Theoretical Maximum Specific Gravity (G_{mm}) Average Deviation from Validated JMF Target Value	≤ 0.015	$>0.015 - 0.020$	$>0.020 - 0.025$	>0.025
Limits on Extracted Aggregate, Average Deviation from Table 501-3, JMF Validated Target ²				
No. 4 Sieve	≤ 4.0	$>4.0 - 5.0$	$> 5.0 - 6.0$	> 6.0
No. 200 Sieve ³	≤ 1.5	$>1.5 - 2.0$	$> 2.0 - 2.5$	> 2.5
Roadway:				
Tack Coat Undiluted (or NTHAP) Application Rate, gal/sq.yd. Coarse Mix and OGFC	≥ 0.15	$<0.15 - 0.08$	$<0.08 - 0.04$	< 0.04

¹ Reduced pay or reapplication at the contractor expense shall be As directed by the Chief Engineer.

² Gradation pay adjustment applies to coarse and OGFC mixtures only.

³ For OGFC and Coarse Mix, if the No. 200 sieve is above maximum design limit, apply at 90% adjustment or the computed adjustment from the deviation, whichever is greater.

**Table 501-5
Smoothness Payment Adjustment Schedules**

Percent of Contract Unit Price per Travel Lane for final IRI			
	100%	90%	50% or Reapplication¹
Initial IRI of ≤ 65	≤ 65	>65-73	> 73
Initial IRI > 65 to 81	≤ 65	≤10% greater than initial measure	> 10% greater than initial measure
Initial IRI > 81	≥ 20% reduction from initial measure	<20% reduction from initial measure	greater than initial measure

¹ As directed by the Chief Engineer.

Section 502 Asphalt Concrete Mixtures

502.01 DESCRIPTION.

502.01.1 General: Furnish and construct asphalt concrete mixtures in conformance with these specifications, the lines, grades, thicknesses, and typical sections in the plans.

Comply with Section 503 and the Application of Quality Assurance Specifications for Asphalt Concrete Mixtures (QA Manual).

Use a DOTD certified laboratory accredited by AMRL, CMEC, or other accreditation agency approved by DOTD.

502.01.2 Lift Description and Mixture Types: The wearing course is defined as the final lift placed. The binder course is defined as the lift placed prior to the final lift as defined in the plans. When a Section 501 thin lift mix is used in conjunction with construction of 502 mixtures, it is a finish course.

Mainline mixtures include wearing, binder, and base courses for travel lane, ramps and turnouts greater than 300 feet, interstate acceleration/deceleration lanes, turn lanes, and the two center lanes for airports.

Minor mixes include mixture used for bike paths, crossovers, curbs, detour roads, driveways, guardrail widening, islands, joint repair, leveling, medians, parking lots, shoulders, turnouts, ramps less than or equal to 300 feet, patching, widening, miscellaneous handwork, and any other mixture that is not mainline.

Stone Matrix Asphalt (SMA) is a plant produced hot mix asphalt concrete wearing course for high traffic applications that is a rut resistant hot mix design with stone on stone contact.

502.02 MATERIALS. Comply with applicable Part X subsections listed herein. Sample in accordance with the Materials Sampling Manual and ensure testing in accordance with the procedures listed in Part X and Table 502-1. Keep accurate records, including proof of deliveries of all materials used in asphalt concrete mixtures. Furnish copies of these records to the Project Engineer upon request.

Aggregates	1003.01 & 1003.06
Anti-Strip Additives	1002.02.1
Asphalt Cement	1002
Crumb Rubber	1002.02.2
Hydrated Lime	1018.02
Fibers	1002.02.5
Mineral Filler	1003.06.6
Mix Release Agent	1018.10
Reclaimed Asphalt Pavement (RAP)	1003.01 & 1003.06.5
Warm Mix Additives	1002.02.4

**Table 502-1
Test Procedures for Asphalt Concrete**

Description	Test Method
Specific Gravity and Density of Compressed Asphalt Mixtures	DOTD TR 304
Theoretical Maximum Specific Gravity, G_{mm}	DOTD TR 327
Asphalt Cement Content, P_b	DOTD TR 323
Mechanical Analysis of Extracted Aggregate	DOTD TR 309
Moisture Content of Loose HMA	DOTD TR 319
Degree of Particle Coating (plant requirement)	AASHTO T-195
Bulk Specific Gravity and Absorption	AASHTO T 84, T 85
Coarse Aggregate Angularity, % Crushed (Double Faced)	DOTD TR 306
Fine Aggregate Angularity	DOTD TR 121
Flat and Elongated Particles	ASTM D 4791
Sand Equivalent	DOTD TR 120
Mixture Conditioning (Aging) of HMA Mixtures	AASHTO R 30
Superpave Volumetric Mix Design	AASHTO M 323
Preparing Gyrotory Samples	AASHTO T 312
Asphalt Cement Draindown	ASTM D 6390
Longitudinal Profile Using Automated Profilers	DOTD TR 644
Thickness and Width of Base and Subbase	DOTD TR 602
Loaded Wheel Tester (LWT)	DOTD TR 332
Semi-circular Bend Test (SCB)	TR 330

502.02.1 Asphalt Cement: Comply with Table 502-2. If the asphalt cement does not comply with the requirements of Section 1002, notify the Project Engineer and cease mix production until proper asphalt material is supplied.

**Table 502-2
Asphalt Cement Usage**

Location	Mix Level	Asphalt Grade Required ¹	Substitutions Allowed ²	
			Lower Grade	Higher Grade
Mainline Wearing & Binder	1	PG 70-22m	PG 67-22 with traffic volume < 3500 ADT	PG 76-22rm, PG 76-22m
Mainline Wearing & Binder	2 and SMA ³	PG 76-22m PG 76-22rm	PG 70-22m with Hydrated Lime	
Base	1	PG 67-22	PG 58-28 ⁴	PG 76-22rm, PG 76-22m, PG 70-22m
Minor Mixes including Leveling	ALL	PG 67-22		PG 76-22rm, PG 76-22m, PG 70-22m

¹ For single lift overlay, match grade of overlay.

² Asphaltic mixtures using substitutions are required to meet all design requirements for the original design level in Table 502-6 or Table 502-6b.

³ Only PG76-22m and PG76-22rm are allowed for SMA.

⁴ When more than 25% RAP is used, PG 58-28 is required.

502.02.2 Additives:

502.02.2.1 Anti-Strip: Add anti-strip additive at the minimum rate of 0.6 percent by weight of asphalt cement or a rate approved by the District Lab Engineer. Anti-strip will be thoroughly mixed in-line with the virgin asphalt cement at the plant. Increase the anti-strip additive or change to different additive as needed to meet Loaded Wheel Test, LWT, requirements. Discontinue production until satisfactory adjustments are made when the amount of anti-strip additive is not in accordance with the approved JMF.

502.02.2.2 Hydrated Lime: When used, specify rate of hydrated lime additive on the Job Mix Formula. Add hydrated lime additive at a minimum of 1.5 percent and thoroughly mix with aggregates in conformance with 503.05.5 as required to meet LWT requirements.

502.02.2.3 Waste Tire Rubber Additive: When used, crumb rubber may be pre-blended or, with approval by the Materials Laboratory, may be blended at the plant. The maximum rubber replacement is 10 percent by weight of asphalt.

When blending crumb rubber at the contractor's plant, add crumb rubber to a PG 67-22 material on the Approved Materials List. Add 30 mesh (or finer) crumb rubber as required to meet grade PG 76-22rm. Comply with 1002.02.2

502.02.2.4 Latex Additive: When added at the contractor's plant, blend a minimum of 1.0 percent residual latex by weight of asphalt cement to a PG 67-22 material on the Approved Material List, and in accordance with Section 503. Meet PG 70-22m requirement using pre-qualified asphalt material and latex.

502.02.2.5 Warm Mix Asphalt Additives: When used, add only approved warm mix chemical additives. Foaming with water is allowed.

502.02.3 Aggregates: Use aggregates from Approved Material List. Blend aggregates to meet Section 502 and Section 1003.

502.02.3.1 Friction Ratings: Friction ratings for aggregates are determined in accordance with 1003.01.2.4. Table 502-3 describes the friction ratings and corresponding usage allowed for the current average daily traffic (ADT) shown on the plans. Friction rating requirements apply to the mainline wearing course only, unless a finish course is applied. If a finish course is applied, then the friction rating requirements do not apply to wearing course.

**Table 502-3
Aggregate Friction Rating**

Friction Rating	Allowable Usage ^{1,2}
I	All mixtures
II	All mixtures
III	All mixtures, except mainline wearing courses with current plan Average Daily Traffic (ADT) greater than 7000
IV	All mixtures, except mainline wearing courses

¹ When ADT is greater than 7000, blending of Friction Rating III aggregates and Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 30 percent by weight (mass) of the total aggregates shall have a Friction Rating of I, or at least 50 percent by weight (mass) of the total aggregate shall have a Friction Rating of II. The Friction Rating I and Friction Rating II aggregates used to obtain the required percentages shall not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

² When the average daily traffic (ADT) is less than 2500, blending of Friction Rating IV aggregates with Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 50 percent by weight (mass) of the total aggregate in the mixture shall have a Friction Rating of I or II. The Friction Rating I and Friction Rating II aggregates used to obtain the required percentages shall not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

502.02.3.2 Reclaimed Asphalt Pavement (RAP): Keep reclaimed asphalt pavement separate from other materials at the plant in such a manner that will allow for Department inspection and acceptance. Keep stockpiles uniform and free of soil, debris, foreign matter and other contaminants. Allowable RAP percentages are defined in Table 502-6 (or Table 502-6b for ADT ≤ 1000). Screen or crush RAP, prior to use, to pass the 1-inch sieve. RAP is not allowed in Airport or SMA.

502.02.3.3 Mineral Filler: When used, comply with the requirements of 1003.06.6. May be used to control draindown.

502.02.3.4 Natural Sand: When used, meet the requirements of Table 502-6 (or Table 502-6b for ADT ≤ 1000) and 1003.06.3.

502.02.3.5 Fibers: When required to prevent draindown, use cellulose or mineral fiber, meeting the requirements of 1002.02.5. When used, add fibers at a rate sufficient to prevent draindown with a minimum rate of 0.1 percent by weight (mass) of mixture.

502.02.3.6 SMA Aggregate: Aggregates for SMA are to be clean durable crushed stone with a minimum of 50 percent of the coarse aggregate having a friction rating of I with the remaining percentage meeting friction rating II or III. Alternately, 100 percent of the coarse aggregate will meet a friction rating of II. Fine aggregate for SMA will be 100 crushed manufactured sand.

All materials used for SMA production are to be on the Approved Materials List.

502.03 DESIGN OF ASPHALT MIXTURES AND JOB MIX FORMULA (JMF) APPROVAL. Design all asphalt mixtures for optimum asphalt content in compliance with the mix design in accordance with DOTD Quality Assurance Manual, AASHTO M323, AASHTO M325 for SMA, and the requirements of Table 502-6 (or Table 502-6b for ADT \leq 1000).

At minimum, all design submittals must include the recommended materials proportions, extracted gradation, recommended mix and compaction temperatures, and supporting design data. Submit the proposed JMF electronically through a Department approved data system, at least 7 days prior to use, as designated by the Department for District Laboratory Engineer acceptance. No mixture shall be produced until the proposed JMF has been accepted.

Indicate the optimum mixing and compaction temperatures as suggested by the asphalt binder supplier on the JMF. Mix temperatures are recommended by the asphalt supplier as determined by rotational viscosity or other means. Warm Mix Asphalt technology may be used to reduce this temperature and must be noted on the JMF. Warm mix asphalt may be substituted with a minimum production temperature of 275°F.

Once a plant is producing an acceptable JMF, keep JMF production within the specified tolerances. Changes will be reviewed and accepted by the District Laboratory Engineer as necessary. An acceptable mix design may not be changed to eliminate or add the use of crumb rubber without submitting a new JMF.

The Project Engineer may require a new mix design when roadway acceptance requirements are not being met or plant quality data indicates non-compliance.

502.03.1 Mixtures Design Substitutions: Changes in design level will not be allowed on the roadway.

The 3/4-inch Nominal Maximum Size (NMS) wearing course may be substituted for binder course but not substituted for base course. The 1-inch NMS binder course may be substituted for base course.

The 1/2-inch NMS wearing course may be substituted for incidental paving, Level A. Shoulders may be any mixture type shown in Table 502-4 regardless of design level except that shoulder wearing must be a 1/2-inch or 3/4-inch NMS mixture.

Apply all specification requirements for the substituted mixture with the following exceptions: When wearing course is substituted for binder course, Table 502-3 does not apply. The amount of RAP allowed is in accordance with the originally specified mixture.

Frictional aggregate requirements apply to final surface only. RAP is allowed in accordance with the original mixture specified, not the substituted mixture. When a 501 finish course and a 502 wearing course are required on a project, allowable RAP percentage for wearing may be increased by 5 percent.

502.04 LOT SIZES. A lot is a segment of continuous production of asphalt concrete mixture from the same JMF produced for the Department at a specific plant, delivered to a specific DOTD project. A lot is defined as 5000 tons of mixture production, a subplot is 1000 tons. The final lot size may be extended one subplot with the mutual agreement of the contractor and Project Engineer.

A lot may be terminated prior to 5000 tons with the mutual agreement of the contractor and Project Engineer for any of the following reasons:

1. The interval between continuous production exceeds 7 calendar days
2. A new job mix formula is accepted
3. The final lot is less than 5,000 tons
4. The total project quantity is less than 5,000 tons
5. A payment adjustment will be applied to the portion of the lot already produced, provided adjustments have been made to bring the asphaltic concrete into compliance with specifications.

502.04.1 Mainline Mix Type Uses: Mainline mixture uses include wearing, binder, and base courses for travel lane, ramps and turnouts greater than 300 feet, interstate acceleration/deceleration lanes, turn lanes, and the two center lanes for airports.

502.04.2 Minor Mix Type Uses with Density Requirement: Minor mixture uses requiring density include bike paths, crossovers, parking lots, patching, widening greater than 2.5 feet, uniform leveling thicker than 1.5 inches, tapers, and shoulders.

502.04.3 Minor Mix Type Uses without Density Requirement: Minor mixture uses not requiring density include curbs, detour roads, driveways, guardrail widening, islands, joint repair, spot leveling, medians, turnouts less than 300 feet, and mix uses not listed above. Make compaction effort to the satisfaction of the Project Engineer.

502.05 JOB MIX FORMULA VALIDATION AND APPROVAL. The Department and contractor will jointly test plant mix to validate each JMF. A JMF for mainline mixture will be validated whenever a plant begins initial operations for the Department in a specific plant location, whenever a plant experiences a change in materials or change in source of materials (other than asphalt cement), or when there are significant changes in equipment, such as the introduction of a new crusher, drum mixer, burner, foaming device, etc. Meet all applicable requirements of Table 502-6 (or Table 502-6b for $ADT \leq 1000$). All JMF's will be re-validated a minimum of every 2 years. Re-validation may consist of reviewing ongoing production data.

For all mixes, a change in the asphalt cement grade or asphalt cement source does not require re-validation, but will meet all applicable requirements of Table 502-6 (or Table 502-6b for $ADT \leq 1000$).

JMF's for minor mixtures do not require validation; however, use the first five quality control sublots to establish targets for production tolerances. The District Lab Engineer may reestablish targets for minor mixtures using production data.

The validation lot will be the first portion of production of a new JMF between 1000 and a maximum of 2000 tons of mixture produced. Divide the validation lot quantity into five sublots (typically 400 tons each) and sample using a random sampling approach. Obtain one sample of plant mixture for each subplot. With mutual agreement of the contractor and the Department, an sixth sample may be taken during validation. This sample may be used in place of the first validation plant sample for purposes of determining lot averages and establishing JMF targets.

During the validation process or when a new asphalt cement source is used, the Asphalt District Inspector (ADI) will collect a sample of loose mixture and a sample of asphalt cement to send to the central laboratory for GPC testing.

Report the mean, standard deviation, Quality Index and percent within limits (PWL) of the test results in accordance with the QA manual. The JMF is considered conditionally validated if the following parameters are 71 percent within limits of the JMF and meet the specifications.

1. Theoretical Maximum Specific Gravity (G_{mm}),
2. Percent G_{mm} at $N_{initial}$,
3. Percent passing the No. 8 and No. 200 sieves,
4. Percent Air Voids at N_{design} , and
5. VFA.

The averages of all other validation tests shall meet the specifications limits in Table 502-4 and Table 502-6 (or Table 502-6b for $ADT \leq 1000$). The production can continue during conditional validation. The JMF is considered validated with passing LWT results.

If any parameter falls below 71 PWL or the validation average falls outside of specifications, adjust mix and revalidate. If the second attempt does not meet specifications, redesign the mix. Upon validation of the JMF, the average of results for the validation lot will become the JMF target values to be used with production tolerances in Table 502-4.

502.05.1 Payment for Validation Lot: A validation lot is represented as an individual lot; the density requirement in Table 502-5 will still apply to any validation lot that fails to validate. Perform roadway acceptance in accordance with 502.11, except only one acceptance core is required per subplot, and pay in accordance with 502.15.

502.06 QUALITY CONTROL AND PLANT ACCEPTANCE. All quality control information, plant records, etc. will be considered part of the Department's acceptance decision. Exercise quality control over all materials and their assembly, design, processing, production, hauling, laydown and associated equipment to ensure compliance with Table 502-4 and all other specifications herein. At the end of each production day, notify the District Lab Engineer (DLE) and the DOTD Asphalt District Inspector (ADI) of the next scheduled mix production run and placement. All testing data will be entered into the DOTD data management software by the end of the work shift that it was performed.

For plant quality control, a subplot is defined as 1000 tons and a lot is defined as 5000 tons of produced mixture from one JMF that is consecutively sent to a single project (this tonnage may or may not be continuous at the plant). Obtain a sample of plant mixture and test the mixture once every subplot using a random sampling approach. Minimum quality control testing for each subplot is as follows:

Loose Mix

1. Theoretical Maximum Specific Gravity, G_{mm}
2. % Asphalt Cement Content
3. Gradation
4. % Crushed
5. Temperature, and
6. % Moisture content (1 per day per JMF)

Compacted Specimen, N_{design}

1. % G_{mm} at $N_{initial}$
2. % Air Voids, V_a
3. % VMA
4. % VFA, and
5. % G_{mm} at N_{max} (1 per 5 sublots)

Age all loose mix tested for G_{mm} or volumetrics for one hour in accordance with AASHTO R30 prior to testing. Age all warm mix for two hours.

Determine the G_{mm} for each subplot. The plant subplot G_{mm} will be utilized in the determination of the plant air voids and the density of the corresponding roadway subplot.

Determine the rolling five test results average and standard deviation for aggregate gradation, asphalt content, air voids, VFA, VMA, and G_{mm} . Take corrective action or cease production when the latest rolling five test results show:

1. Air voids or G_{mm} fall below 71 PWL; or
2. Average VMA, VFA, average asphalt content, or average gradation for the No. 8 or No. 200 sieve is outside of specification limits

The full range of gradation mix tolerances applied to the validated JMF will be allowed even if they fall outside the control points. The District Laboratory Engineer may require termination or re-validation of the JMF when the average of the Quality Control data indicates non-compliance with the specified limits or tolerances.

Measure the moisture content of the cold feed aggregates daily in accordance with DOTD TR 403. The moisture content of the final mixture, measured daily, shall not exceed 0.3 percent by weight (mass) when tested in accordance with DOTD TR 319.

502.07 PLANT INSPECTION AND AUDITS. All Department inspection procedures, including sampling and testing, and the contractor's quality control data form the basis for acceptance of the asphalt mixture. The Department's Certified Asphalt Plant Inspector will randomly visit and inspect asphalt plants, sample and test material, and review documentation to ensure conformance to specification requirements. In particular, the inspector will take a minimum of the following samples which may be tested for verification:

Loose Mix

1. Theoretical Maximum Specific Gravity, G_{mm} ,
2. % Asphalt Cement Content,
3. Gradation, and
4. % Crushed

Compacted Specimen, N_{design} (Using contractor's equipment)

1. % G_{mm} at Ninitial,
2. % Air Voids, V_a ,
3. % VMA,
4. % VFA, and
5. Loaded Wheel Testing (LWT) every 20,000 tons of production per JMF.

The inspector will review contractor data and documentation. The inspector will check the plant equipment, lab equipment and plant operations. The inspector will sample asphalt cement working tank and or transport during random plant visits and will obtain random asphalt cement transport samples as requested by the Materials Lab.

Failure to maintain production tolerances listed in Table 502-4 and specification limits listed in Table 502-6 (or Table 502-6b for $ADT \leq 1000$) for five sublots may result in increased sampling, reduced pay, or removal and replacement of the asphalt mixture, decertification of the technician, and/or decertification of the plant. Correct deficiencies or cease operations.

502.08 ROADWAY OPERATIONS.

502.08.1 Weather Limitations: Apply asphalt concrete mixtures on a dry surface when the ambient temperature is above 50°F for wearing courses and 40°F for base and binder courses. Material in transit, or a maximum of 100 tons in a surge bin or silo used as a surge bin, at the time plant operation is discontinued may be placed. All mixture placed is expected to perform satisfactorily and meet specification requirements. Inclement weather will be sufficient reason to terminate or not begin production.

When base course mixtures are placed in plan thicknesses of 2 3/4 inches or greater, disregard temperature limitations provided all other specification requirements are met. When a wearing course is substituted for a binder course mixture, apply the temperature limitation for binder course.

502.08.2 Surface Preparation: Maintain the surface being covered. Acceptance is required for each surface prior to placement of subsequent surface.

Roadway slope shall be established at the base course level unless otherwise authorized by the Project Engineer. The absolute minimum lift thickness placed shall be 1/4 inch greater than the nominal maximum aggregate size as shown on Table 502-6 (or Table 502-6b for ADT \leq 1000). Failure to meet minimum thickness is subject to removal.

502.08.2.1 Cleaning: Sweep the surface to be covered clean of dust, dirt, caked clay, caked material, vegetation, and loose material by revolving brooms or other mechanical sweepers supplemented with hand equipment as directed. Remove excess joint filler from the surface by an approved method when mixtures are to be placed on portland cement concrete pavement or previously overlaid portland cement concrete. Remove any existing raised pavement markers prior to asphalt concrete overlay or SMA operations. Payment for removal of pavement markings will be included with the applicable asphalt item.

Wash the surface with water in addition to brooming, when brooming alone does not adequately clean the surface.

When tack coat is exposed to traffic for more than one (1) calendar day, becomes contaminated, or degrades due to inclement weather, reapply the tack coat at the initial recommended rate at no direct pay.

502.08.2.2 Applying Tack Coat:

502.08.2.2.1 Existing Pavement Surfaces: Before constructing each course, apply an approved asphalt tack coat in accordance with Section 504. Protect the tack coat and spot patch as required.

502.08.2.2.2 Raw Aggregate Base Course and Raw Embankment Surfaces: Apply an approved asphalt prime coat to unprimed surfaces, or protect in-place prime coat and spot apply prime coat as required, in accordance with Section 505.

502.08.2.2.3 Cement and Lime Stabilized or Treated Embankment and Base Course Surfaces: Apply an approved asphalt curing membrane when none is in place, or protect the in-place curing membrane and spot apply, as required, with asphalt material in accordance with Section 506.

502.08.2.2.4 Other Surfaces: Cover contact surfaces of curbs, gutters, manholes, edges of longitudinal and transverse joints, and other structures with a uniform coating of an approved asphalt tack coat complying with Section 504 before placing asphalt mixtures.

502.08.3 Joint Construction:

502.08.3.1 Longitudinal Joints: When constructing longitudinal joints, set the screed to allow approximately 2 inches onto the adjacent pass. Use approved 10-foot static straight edge to maintain no greater than 1/8-inch deviation in grade. Make necessary correction in joint before continuing operations. Offset longitudinal joints in one layer over those in the layer below by a minimum of 3 inches; however, keep the top layer joint 6 inches to 9 inches from the centerline of two lane highways. Offset 6 inches to 9 inches from lane lines when the roadway is more than two lanes. Construct the narrow strip first.

502.08.3.2 Transverse Joints: Construct transverse joints by milling or hand forming paper butt joints. Use an approved 10-foot static straightedge to identify the location to be cut back to maintain no greater than a 1/8-inch deviation in grade. Lightly tack the cut face of the previously placed mat before fresh material is placed. Rest the screed on shims that are approximately 25 percent of lift thickness placed on the compacted mat. Provide an adequate crew to form transverse joints. Additionally, meet the transverse joint surface tolerance requirements of Table 502-5. Make necessary corrections to the joint before continuing placement operations.

Offset transverse joints in succeeding lifts by at least 3 feet.

502.09 HAULING, PAVING AND FINISHING. Transport mixtures from the plant and deliver to the paver at a temperature no cooler than 25°F below the lower limit of the approved job mix formula. The minimum temperature for WMA going through the paver is 245°F. Send no loads so late in the day that completion of spreading and compaction of the mixture cannot be completed during daylight, unless artificial lighting has been approved and is on site.

Load haul trucks to minimize segregation.

Place each course of asphalt mixture in accordance with the specified lift thickness shown in Table 502-6 (or Table 502-6b for ADT ≤ 1000).

With the Project Engineer's approval, motor patrols may be used to level isolated depressions in the initial layer, provided this construction does not result in unsatisfactory subsequent lifts.

502.09.1 Coordination of Production: Coordinate and manage plant production, transportation of mix and placement operations to achieve a high quality pavement. Provide sufficient hauling vehicles to ensure continuous plant and roadway operations. The Project Engineer will order a halt to operations when sufficient hauling vehicles are not available.

On final wearing course construction under traffic with pavement layers of 2 inches compacted thickness or less, the contractor will be permitted to pave one travel lane for a full day and the adjacent travel lane the next work day. When the adjacent travel lane is not paved the next work day and the longitudinal joint is exposed to traffic for more than 3 calendar days, and it has been determined that the roadway edge is not true to line and grade as previously constructed, cut back the entire length of exposed longitudinal joint to lift thickness to a vertical edge and heavily tack unless a notch wedge device is used. When pavement layers are greater than 2 inches compacted thickness, place approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane unless an approved notched wedge device is used.

Protect pavement from traffic until it has sufficiently hardened to the extent the surface is not damaged.

502.09.2 Paving Operations: When placing the final two lifts of asphalt concrete on the roadway travel lanes, use a material transfer vehicle (MTV) as described in 503.14. During continuous paving, maintain temperature of the mixture constant. At no time shall there be more than 50°F difference in temperature as measured in 300 linear feet of paving or 25°F across the full paved width. All mixtures shall flow through the paver hopper. Lift into the hopper any mixture dropped in front of the paver or reject such material and cast it aside. Deliver material to the paver at a uniform rate and in an amount within the capacity of paving and compacting equipment. Adjust the paver speed and number of trucks to maintain one truck waiting in addition to the one at the paver in order to maintain continuous paving operations. Maintain a uniform height of material in front of the screed.

Keep the paver steady and in constant alignment during mix transfer. Maintain a level of mix higher than the paver hopper feed slats at all times.

Use pavers and operators capable of placing mixtures to required line, grade and surface tolerance without resorting to hand finishing.

Construct longitudinal joints and edges along established lines. Utilize some form of longitudinal control for the paver to follow, preferably a string line. Position and operate the paver to closely follow the established line. Correct irregularities in alignment by trimming or filling directly behind the paver. Check the texture for uniformity after each load of material has been placed. Check the adjustment of screed, feed screws, hopper feed, etc., frequently and adjust as required to assure uniform spreading of the mix to proper line and grade and adequate compaction. When segregation of materials or other deficiencies occur, suspend paving operations until the cause is determined and corrected.

Correct surface irregularities directly behind the paver. Hand placement will be allowed in accordance with 502.09.3 for surface repair, taking care never to cast material over the fresh surface.

Discontinue paving operations when any screed control device malfunctions during binder or wearing course placement operations. When malfunctions occur, limit material through the paver to that which is in transit. Assume responsibility of meeting all specifications and yield requirements, and bear the cost of any overrun during malfunctions. Do not resume paving operations until the malfunction is fixed.

When paving operations are interrupted, remove and replace at no direct pay, mixture that has cooled below the point that it cannot be finished, or compacted to meet specifications. When additional mix is required to increase superelevation in curves, the use of automatic slope control is optional. However, ensure slope by measuring with a slope board. Allow the Project Engineer use of the slope board upon request.

Use the traveling reference plane method of construction for airport runways unless designated otherwise on the plans. Unless the erected string line is required or directed, use the 27-foot (minimum) traveling reference plane method of construction for roadway travel lanes. The requirements of 502.09.2.1, 502.09.2.2, and 502.09.2.3 shall apply for mechanical pavers.

502.09.2.1 Additional Requirements for SMA: Mixture temperature upon entry into the MTV will not be below 300°F. Paver speed is to be constant and not exceed 25 feet per minute or as directed by the Project Engineer.

502.09.2.2 Traveling Reference Plane: Obtain approval of the traveling reference plane method before use. After the initial paving strip of each lift is finished and compacted, place adjacent paving strips to the grade of the initial paving strip using the traveling reference plane or shoe device to control grade and a slope control device to control cross slope.

On multilane pavements, the initial paving strip and the sequence of lane construction will be subject to approval.

When both outside edges of the paving strip being placed are flush with previously placed material, do not use the slope control device. A grade sensor is required for each side of the paver.

In superelevated curves, the cross slope shall be changed from that specified for tangents to that specified for superelevation in gradual increments while the paver is in motion so a smooth transition in grade is obtained. This change in cross slope shall be accomplished within the transition distance specified.

This is the minimum acceptable method and the contractor must meet or exceed current surface tolerance specifications.

502.09.2.3 Erected Stringline: Use the erected stringline method in isolated areas as directed by the Project Engineer. This method may be used on the first lift of asphalt when the underlying new or reconstructed bases do not have grade control requirements. Equip pavers for roadway travel lanes with automatic screed and slope control devices when used with an erected stringline.

An erected stringline shall consist of a piano wire or approved equal stretched between stakes set at no greater than 25-foot intervals. Tension the stringline between supports so that there is less than 1/8-inch variance between supports when the sensor is in place. If required, place the initial paving strip of the first lift constructed using an erected stringline referenced to established grade. When permitted, mixtures required to level isolated depressions may be placed without automatic screed control. Subsequent lifts may be constructed by use of the traveling reference plane, provided surface and grade tolerances are met on the previous lift.

Only one grade sensor and the slope control device are necessary for roadways with a normal crown on tangent alignment. Superelevated curves will require the use of two grade sensors and two erected stringlines to obtain proper grade and slope; however, when the automatic screed control device is equipped with a dial or other device which can be conveniently used to change the cross slope in small increments, superelevated curves may be constructed using this device and one erected stringline.

After the initial paving strip of the first lift is finished and compacted, lay adjacent paving strips using an approved traveling reference plane.

502.09.2.4 Without Automatic Screed Control: When permitted, pavers without automatic screed control may be used for pavement patching, pavement widening, paved drives and turnouts.

502.09.3 Hand Placement: When the use of mechanical finishing equipment is not practical, the mix may be placed and finished by hand to the satisfaction of the Project Engineer. During paving operations, material shall be thoroughly loosened and uniformly distributed. Material that has formed into lumps and does not break down readily will be rejected. Check the surface before rolling and correct irregularities.

502.10 ROLLING AND COMPACTION.

502.10.1 General: After placement, uniformly compact mixture by rolling while still hot, to a density that complies with Table 502-5. If continuous roller operation is discontinued, move rollers to cooler areas of the mat where they will not leave surface indentations. The use of steel wheel rollers in the vibratory mode, which result in excessive crushing of aggregate, will not be permitted.

Utilize experienced operators when rolling the mixture using consistent rolling sequences and uniform methods to achieve specified density and smoothness. Uniformly overlap preceding passes of individual roller passes to ensure complete coverage of the paving area. Do not tear or crack the mat by varying the roller speed, amplitude, vibration frequency or other roller operation. Operate non-vibrating steel wheel rollers with drive wheels toward the paver. Correct any operation causing displacement, tearing or cracking of the mat.

Prohibit use of equipment, which leaves tracks or indented areas that cannot be corrected in normal operations or fails to produce a satisfactory surface. Stop use of equipment resulting in accumulation of material and subsequent shedding of accumulated material into the mixture or onto the mat.

Keep rollers of steel wheel rollers properly moistened without excess water to prevent adhesion of mixture to rollers.

Maintain adequate heat for pneumatic tire rollers to prevent mix from adhering to tires. Operate the pneumatic tire roller at a contact pressure which will result in a uniform, tightly knit surface. Keep the pneumatic tire roller approximately 6 inches from unsupported edges of the paving strip; however, when an adjacent paving strip is down, overlap the adjacent paving strip approximately 6 inches.

Vibratory rollers may be used provided they do not impair the stability of the pavement structure or underlying layers. Vibratory rollers shall not be used on the first lift of asphalt concrete placed over the asphalt treated drainage blanket. When mix is placed on newly constructed cement or lime stabilized or treated layers, do not use vibratory rollers until base is approved by the Project Engineer and not for at least 5 days after such stabilization or treatment.

It is the responsibility of the contractor to determine the number, size, and type of rollers to sufficiently compact the mixture to the specified density and surface smoothness. Ensure that the rolling equipment is capable of maintaining the pace of the paver and conforms to 503.16.

The surface of mixtures after compaction shall be smooth and true to cross slope and grade within the tolerances specified. Remove mixtures that become loose, broken, contaminated or otherwise defective and replace with fresh hot mixture compacted to conform to the surrounding mixture.

Excessive rippling of the mat surface will not be accepted. Ripples are small bumps in the pavement surface which usually appear in groups in a frequent and regular manner. No more than 12 ripples or peaks will be allowed in any 100-foot section. Rippling indicates a problem with the paving operation or mix that requires immediate corrective action by the contractor; otherwise cease operations. Correct unacceptable areas at no direct pay.

After rolling, ensure that newly finished pavements have a uniform, tightly knit surface free of cracks, tears, roller marks or other deficiencies. Correct deficiencies at no direct pay and adjust operations to correct the problem. This may require the contractor to adjust the mix or furnish additional or different equipment.

502.10.2 SMA Compaction: SMA mixture is to be rolled immediately after placement by two steel wheel breakdown rollers capable of rolling the entire width of the mat in one pass. The rollers are to have a minimum weight of 10 tons. Rollers are to use high frequency and low amplitude. The mastic is not allowed to migrate to the surface. Rolling will continue until all roller marks are eliminated and the minimum density is obtained. Rolling operations will cease when the mat has cooled to 220°F and traffic will not be allowed on the roadway until the mix has cooled to 140°F or less.

502.10.3 Hand Compaction: Along forms, curbs, headers, walls and at other places inaccessible to rollers, compact the mixture uniformly to the satisfaction of the Project Engineer with approved hand tampers or mechanical tampers, conforming to 503.17.

502.11 ROADWAY ACCEPTANCE. Acceptance testing for pavement density and dimensional tolerances will be conducted on that portion of the lot placed on each contract. Acceptance testing for surface tolerance will be conducted upon completion of mainline paving.

Do not place asphalt concrete mixture exhibiting deficiencies such as segregation, contamination, lumps, non-uniform coating, excessive temperature variations, or other deficiencies apparent on visual inspection.

Correct and/or replace at no direct pay any asphalt concrete mix exhibiting deficiencies, such as segregation, contamination, alignment deviations, variations in surface texture and appearance or other deficiencies, apparent on visual inspection. Poor construction practices such as handwork, improper truck exchanges, improper joint construction, or other deficiencies, apparent on visual inspection, will be corrected at no direct pay.

502.11.1 Density by Pavement Cores: Obtain pavement samples from each subplot within 24 hours after placement. When this falls on a day the contractor is not working, sampling will be done within 3 calendar days. Sample at locations determined by the Project Engineer using random number tables shown in DOTD S605.

When the sampling location determined by random sampling falls within areas that are to be replaced or within 18 inches of the unsupported pavement edge, another random sampling location will be used.

Take cores, approximately 6 inches in diameter, with an approved core drill. Furnish samples cut from the completed work. Replace removed pavement with hot or cold mixture and refinish during the work day coring is performed at no additional pay. Sample in the presence of the Project Engineer's representative. Do not use cores less than 1 3/8 inches thick upon extrusion for payment determination. For transport by parties other than DOTD representatives, ensure that the acceptance cores are transported in accordance with the quality assurance manual. Any evidence of tampering with the acceptance cores during transport by contractor or third party will result in the cores being rejected and additional pavement samples being required.

The Project Engineer or his representative will transport cores in approved transport containers. When allowed, the contractor or third party will transport in an approved, tamper proof transport container.

There are typically five sublots for each lot. Mainline and minor mixes may be in the same lot/ subplot. Divide each of the sublots into two segments of approximately equal tonnage. For each subplot segment, the Department will determine sample locations using random sampling approach. Obtain one acceptance core at the designated sample location, obtain one quality control core approximately 12 inches in the direction of travel from the acceptance core. If the subplot segment has mainline mix uses, the acceptance cores will be taken from the mainline portion. A typical lot will have 10 acceptance cores and 10 quality control cores. Record the location and mix use of each core taken.

If a subplot has both mainline and minor uses, at least one acceptance core is required to represent the minor mix type. If the lot has any mixture used for mainline, a minimum of three cores is required to represent the mainline portion. Take additional acceptance cores randomly from the respective portions as needed to meet these requirements. Take additional quality control cores approximately 12 inches in the direction of travel from the any additional acceptance core collected.

In the presence of the Department roadway inspector, the contractor will perform the following: cutting, extracting, trimming, and cleaning the roadway cores. The Department roadway inspector will immediately take possession of the acceptance core. The contractor may transport the acceptance cores to the District Laboratory provided that the acceptance cores are transported in accordance with the quality assurance manual.

For projects with less than 250 tons, the job mix formula, materials, and plant and paving operations shall be satisfactory to the Project Engineer. Sampling and testing requirements may be modified by the Project Engineer and payment adjustment for deviations waived.

502.11.1.1 Testing of Roadway Cores: The District Laboratory will calculate the density of each acceptance roadway core using the bulk specific gravity (G_{mb}) of the core and the maximum specific gravity (G_{mm}) of the corresponding plant subplot. The percent density requirement for each mix use is shown in Table 502-5.

The contractor will calculate the density of each quality control core using bulk specific gravity (G_{mb}) of the core and the maximum specific gravity (G_{mm}) of the corresponding plant subplot.

All roadway acceptance and quality control core results will be submitted using the approved DOTD software. All core result determination shall be completed within 3 calendar days of the cores being extracted and placed in DOTD custody. The only exception is if the 3 calendar days fall on a weekend or legal holiday.

502.11.1.2 Verification of G_{mm} : Within two calendar days after the contractor timeframe to dispute roadway core densities (24 hours after the completion and reporting of all roadway core data) or after a roadway core density dispute is settled, one acceptance core tested by the Department will be randomly selected for verification of the theoretical maximum specific gravity, G_{mm} . If the verification G_{mm} is not within ± 0.024 of the average plant G_{mm} reported for the lot, notify the contractor and randomly select one core from each of the other sublots for verification. If the average verification G_{mm} is not within ± 0.024 of the average plant G_{mm} reported for the lot, notify the District Laboratory Engineer and the average G_{mm} determined by verification for the lot will be used to calculate percent density for all sublots in the lot.

A sample of a core broken down for G_{mm} verification will be sent to the DOTD Central Materials Laboratory for GPC testing at a rate of one per project or every 20,000 tons of a JMF.

Cores will be retained for a period of 10 days after density is reported.

502.11.1.3 Contractor Dispute: The contractor may dispute the results of acceptance core (G_{mb}) tests or verification of G_{mm} tests performed in a District laboratory. If the contractor believes that a District laboratory test result is in error, the contractor will substantiate the reason for the belief that the test result is in error and document the reasons in writing. The contractor will submit the written dispute to the Project Engineer and the DOTD Asphalt Technology Lab (ATL) manager. If the Project Engineer and DOTD ATL manager agree that there is sufficient reason to question the test result, the acceptance samples will be taken for testing by the DOTD ATL.

The contractor may dispute acceptance core (G_{mb}) test results within one business day of notification of the final acceptance core (G_{mb}) test result. A representative of the DOTD ATL will take possession of the acceptance cores of any disputed subplot. A DOTD ATL representative independent of the project may test the cores at any laboratory that is AASHTO R18 accredited.

The contractor may dispute verification of G_{mm} test results, within one business day of notification of the average G_{mm} verification test result. A representative of the DOTD ATL laboratory will take possession of the remaining acceptance cores from the District laboratory. A DOTD ATL representative independent of the project may perform G_{mm} testing at any laboratory that is AASHTO R18 accredited.

If the original District laboratory test results are found to have been accurate, the contractor shall bear a cost of \$1,000 per subplot disputed for the additional core (G_{mb}) testing and evaluation or \$1,000 for G_{mm} verification testing and evaluation. Such costs shall be deducted from any monies owed to the Contractor.

If the original District laboratory test results are found to be in error, the ADI and District Laboratory Engineer will investigate the cause of the error.

502.11.1.4 Minor Mix without Density: This minor mix shall have a neat, uniform appearance and be compacted by methods to the satisfaction of the Project Engineer. Plant quality control data will be submitted using the approved DOTD software. Any mixture placed while quality control data indicates the mixture is out of specification is subject to removal at the option of the Project Engineer.

502.11.2 Density by Non-Destructive Technologies (NDT): In addition to all required quality control testing, contractors may submit quality control density measurements collected using DOTD approved non-destructive technologies (NDT) in accordance with the quality assurance manual. Density measurements reported by NDT devices will be for informational purposes only, such as, to provide supporting documentation for a dispute claim. Density measurements reported by NDT devices will not be used in place of any required quality control or quality assurance testing.

502.11.2.1 Equipment and Operation: Use a non-destructive technologies (NDT) device meeting requirements of AASHTO T-343 or AASHTO T-355.

When performing NDT tests, set the device in the single reading and shallow penetration modes. A density measurement will consist of the average of five readings taken in accordance with the reading pattern described by the manufacturers procedure manual. Take readings where the pavement surface is flat and no surface moisture is evident. Use brush to clear loose particles from contact area.

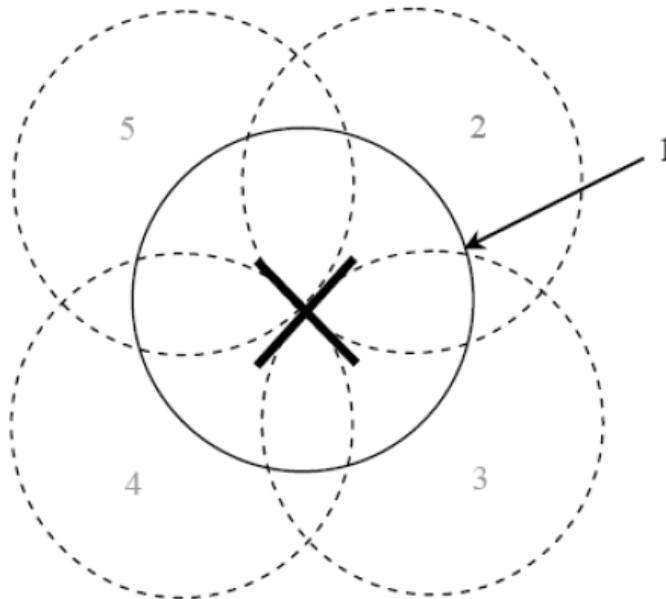
Verify the NDT device operation daily using the standardization plate issued with the gauge. Follow the Manufacturer's instructions for performing the standardization. Ensure each day's standardization result is within the limits established by the manufacture.

502.11.2.2 NDT Device Off-set Procedures: Prior to using NDT device measurements, an offset will be determined for each JMF, for each project. This offset will be established during mixture validation in the presence of DOTD personnel. On days when a control strip is being placed, the DOTD personnel must witness the contractor's personnel standard count procedure. The NDT device will be used to determine an average density from random locations determined by the DOTD personnel. The frequency of testing will be 20 locations within the validation lot. The center location of the device readings will be marked. Core specimens will be extruded from marked location after all NDT reading are conducted at that location. The device readings will be compared with the core densities in order to establish a working offset. The offset will be specific to that device, for that JMF, for that project. In the event that the JMF changes, or a new device is used, a new offset must be established.

Off-set procedures should be followed as listed below:

1. Contractor and DOTD technicians should jointly verify all NDT parameters for each device:
 - a. Successful self-test at start up
 - b. JMF G_{mm}
 - c. Lift thickness
 - d. Test mode
 - e. Target density
 - f. Correct any issue(s) prior to proceeding with field confirmation

2. DOTD personnel will select a random site on the mat:
 - a. Location of random spots will be recorded
3. NDT readings should be taken in single mode and reading pattern should follow the 5-point star



method as seen below.

4. The QA gauge operator will conduct 50 NDT density tests, 5 readings at each of the 10 random core locations within the validation lot. The 5 readings from each location will be averaged into a single density measurement for that location.
5. Density gauge readings will be recorded on paper and in the density gauge if possible.
6. Follow core sampling, trimming, handling and transport procedures outlined in section 502.11.1.
7. The off-set will be determined by subtracting the device density from the core density. An average offset is determined using the 10 locations. The off-set will be applied on subsequent lots of the same JMF, with the same device, during the construction of the project.

502.11.2.3 Roadway Testing Procedures: There are typically five sublots for each lot. Mainline and minor mixes may be in the same lot/ subplot. Divide each of the sublots into two segments of approximately equal tonnage each. For each subplot segment, the Department will determine sample locations using random sampling approach. The department will obtain one acceptance device density reading (average of 5 spot readings) at the designated sample location. The contractor will obtain one quality control device density reading (average of 5 spot readings) approximately 12 inches in the direction of travel from the acceptance reading. If the subplot segment has mainline mix uses, the acceptance reading will be taken from the mainline portion. A typical lot will have 25 acceptance readings and 25 quality control readings. Record the location and mix use of each reading taken.

The NDT density readings will be entered into an approved DOTD software. The off-set value determined during validation will be applied in the software and reported. All result determination shall be completed within 1 calendar day. Differences between the Contractor's quality control and the Department's quality assurance density results will be considered acceptable if within $\pm 1.3\%$.

One destructive field core will be cut from the roadway every lot for offset verification. The location will be determined randomly by DOTD.

502.11.2.4 Disputed NDT Device Readings: In the event of a questionable NDT device reading, a core will be extracted from the center location of the 5 readings. The core density will replace that NDT device reading for determination of pay. If the core density is found to be unacceptable, the roadway inspector will isolate the questionable section with the NDT device. Corrective action or reduction in pay may be associated with the section.

502.12 SURFACE TOLERANCE EQUIPMENT, QUALITY CONTROL, ACCEPTANCE, MEASUREMENT AND PAYMENT ADJUSTMENT. Measure the top two lifts of the mainline travel lanes with an DOTD certified inertial profiler. Maintain record of intermediate measures of smoothness quality as described herein. Final acceptance will be based on the last measurement taken on the final wearing course of the travel lanes. Measurement of the center two lanes will be required for airports. Constantly monitor equipment, materials, and processes to ensure that surface tolerance requirements are met.

502.12.1 Equipment: For longitudinal surface tolerance quality control testing and acceptance testing on mainline wearing and binder courses, furnish and use a DOTD certified inertial profiler. DOTD certified profilers will have a DOTD decal indicating the date of certification and profiler system parameter settings. Measure longitudinal surface profile in inches per mile in accordance with DOTD TR 644 and report as the International Roughness Index (IRI).

Verify the profiler system parameter settings before each run. Demonstrate the daily set up procedure and pre-operation tests in accordance with the manufacturer's procedures and DOTD TR 644. Ensure that a copy of the manufacturer's setup, pre-operation, and general operating procedures for measuring surface tolerance are available at all times during measurement.

For transverse smoothness, cross slope, and grade testing, furnish a 10-foot metal static straightedge and electronic or static level for quality control and for Department use. The straightedge and level will also be used for longitudinal quality control testing for mainline wearing course, mainline binder course, and minor wearing course (bike paths, detour roads, parking lots, and shoulders).

502.12.2 Longitudinal Surface Tolerance Quality Control: Within 7 calendar days of placement, for mainline wearing and binder courses, run the certified profiler. View the raw data with ProVAL to determine IRI for each wheelpath. Make corrections to operation and/or mixture to ensure that the overall ride and individual bump requirements are met. Ensure that the following quality requirements are met:

1. Produce IRI which meets the requirements for 100 percent pay in accordance with Table 502-8. Continued surface tolerance penalties are not allowed.
2. Correct all individual bumps which are more than longitudinal value specified in Table 502-5 when tested with a 10-foot metal static straightedge. The Rolling Straightedge Simulation in ProVAL may be used to help identify these bumps.
3. Correct ripples to the satisfaction of the Project Engineer. Report the Rolling Straightedge Simulation for areas with 12 or more small, regular (less than 1/4 inch) bumps in a 100-foot section or for any areas in question.

Minor mixes shall comply with Table 502-5. For minor mixes, use the 10-foot metal static straightedge to check for conformance to specifications.

502.12.3 Transverse Smoothness, Cross Slope, and Grade: The Department will test the surface of the binder and wearing courses at selected locations for conformance to the surface tolerance requirements of this subsection and Table 502-5.

502.12.3.1 Transverse Smoothness: Areas with surface deviations in excess of specification limits shall be isolated and corrected in accordance with 502.12.4. Control the transverse surface finish.

502.12.3.2 Cross Slope: When the plans require the section to be constructed to a specified cross slope, take measurements at selected locations using a stringline, a slope board, an electronic or static level mounted on a 10-foot metal static straightedge, or other comparable device. Control the cross slope for each lane to comply with the tolerances shown in Table 502-5. Make corrections in accordance with 502.12.4.

502.12.3.3 Grade: When the plans require the pavement to be constructed to a specified profile grade, test for conformance at selected locations, using a stringline or other comparable device. Control grade variations so that the tolerances shown in Table 502-5 are not exceeded. Grade tolerances shall apply to only one longitudinal line, such as the centerline or outside edge of pavement. Make corrections in accordance with 502.12.4.

502.12.4 Correction of Deficient Areas: Correct areas as required in 502.12.2 and 502.12.3 and those not meeting Table 502-5. Correct wearing and binder courses as defined in this subsection at no direct pay. In lieu of grinding, the Project Engineer may penalize the contractor \$1000 per individual bump specified in Table 502-5 or per “Ripple” as defined in 502.12.2.

502.12.4.1 Deficiencies in Mainline Wearing Course: Correct deficiencies in the final wearing course by:

1. by diamond grinding and applying a light tack coat; or
2. by furnishing and placing a supplemental layer of wearing course mixture at least 1½ inches compacted thickness for the full width of the roadway meeting specification requirements; or
3. by removing and replacing mixture.

If the supplemental layer does not meet specification requirements of Table 502-5, remove and replace or correct it by other methods approved by the Project Engineer.

For areas that will not be improved by grinding such as minor dips, extreme vertical curves, or other areas that are not exempt as measured with a 10 feet metal static straight edge, the Project Engineer may waive the requirement to grind as specified in 502.12.4.

502.12.4.2 Deficiencies in Mainline Binder Courses: Correct deficiencies in binder course: longitudinal, transverse, cross slope, and grade to meet specification requirements by diamond grinding, by milling, or by removing and replacing mixture. Make corrections before subsequent courses are constructed.

502.12.4.3 Deficiencies in Minor Mixes: Correct deficiencies in minor mixes by diamond grinding or approved method at the Project Engineer’s direction.

502.12.5 Longitudinal Surface Tolerance Acceptance: Measure the top two lifts of the mainline travel lanes with a DOTD certified inertial profiler. Final acceptance will be based on the last measurement taken on the final wearing course of the travel lanes. Measurement of the center two lanes will be required for airports.

Measure surface tolerance at the completion of the project, or an approved portion of the project in accordance with 105.17.1, and after all corrections have been made in accordance with 502.12.2. Measure the mainline wearing course continuously from start to finish in the direction of travel. The measurement shall be performed by the contractor in the presence of the DOTD certified inspector. The measurement may also be made by the Materials and Testing Section or by a private company approved by the Department. Report one IRI measurement in inches per mile for the entire project or an approved portion of the project. Although grinding may be waived by the Project Engineer, the measured roughness will still contribute to the total IRI for the project. A stand-alone pay adjustment factor will be determined in accordance with 502.15.

Place a start and stop mark at the beginning and end of each travel lane so that measurements can be rerun by the Department if needed. To ensure that the contractor has corrected deficiencies, the Department may spot check for 1/4 inch bumps in accordance with 502.12.2. Partial acceptance due to phasing, sequence of construction, or unavoidable lengthy delay may not exceed 100 percent pay. However, payment exceeding 100 percent for this section of roadway will only be allowed if the smoothness re-measured at the completion of the project meets the requirements of Table 502-8.

For mainline category D measure and submit IRI data to the DOTD certified inspector before starting paving operations.

The DOTD certified inspector will be present for acceptance IRI measurements and will immediately receive a copy of the raw data, the “.erd file” and any files with information about the project, the operator, the equipment, the settings, daily pre-operation results, and a copy of the IRI results via USB flash drive provided by the contractor. In addition to the data transferred by USB storage device, provide to the DOTD certified inspector a paper copy of the IRI report. Acceptance for the project will be in accordance with Tables 502-8, based on the data. The Department may elect to perform and utilize independent ride quality measurements for acceptance at any time.

502.12.5.1 Exclusions: Acceptance IRI measurements shall be taken in its entirety, without exclusions. The Department will then review the profile report obtained for each lane of the mainline wearing course. In special cases or extenuating circumstances, the Project Engineer may isolate or exclude sections of the profile. These include the following:

1. Bridge ends, and sections that are within 150 feet of bridge ends;
2. Outside wheelpath of curb and gutter sections that require adjustment in order to maintain adequate drainage;
3. Manholes, catch basins, valve and junction boxes;
4. Street intersections or rail road crossings of a different grade;
5. Structures located in the roadway which cause abrupt deviations in the profile;
6. Transitions to and from ramps and turn lanes and sections within 200ft of the limits of the project if the limits begin or end at an intersection;
7. Sections where the Project Engineer determines that attaining smoothness is beyond the contractor’s reasonable control.

Exclusions will not be used to simply isolate sections of road that are in poor condition when the project is let. The roughness in excluded areas will not be included in the total IRI used for payment purposes. All bumps shall be corrected in the excluded areas to meet the requirements of 502.12.2. The quantity of asphalt represented by the length excluded will not receive a pay adjustment for surface tolerance.

502.12.6 Surface Tolerance Measurement: Measure and report the average IRI of mainlines lane prorated for the entire project.

502.13 DIMENSIONAL REQUIREMENTS. Ensure that mixtures conform to the following dimensional requirements only. No other acceptance tests will be required for these mixtures. Over-thickness and over-width will be accepted at no direct pay.

502.13.1 Thickness: For mixture specified for payment on cubic yard or square yard basis, thickness of mixtures will be determined by the Department in accordance with DOTD TR 602. Under-thickness shall not exceed 1/4 inch.

Correct area under-thickness in excess of 1/4 inch to plan thickness at no direct pay. Furnishing and placing additional mixture in accordance with 502.12.4.1. Correct excesses of 1/2 inch for category D, Table 502-8. When grade adjustments do not permit placing additional mixture, remove the deficient under-thickness area and replace at no additional pay.

For mixtures specified for payment on a per ton basis, thickness of mixtures will be determined by the plans, Table 502-6 (or Table 502-6b for ADT ≤ 1000), and that agreed to with the Project Engineer. Under thickness shall not exceed 1/2 inch. Removal and replacement of deficient under-thickness area(s) or other approved remediation agreed to by the Project Engineer will be at no direct pay.

502.13.2 Width: The width of completed courses will be determined in accordance with DOTD TR 602. Correct under-widths by furnishing and placing additional mixture to a minimum width of 1 foot and plan thickness at no direct pay.

502.14 MEASUREMENT. Measure asphalt concrete by the ton of 2,000 pounds from printed weights as provided in Section 503. Provide stamped printer tickets with each truckload of material delivered denoting JMF number and plant tonnage. Material lost, wasted, rejected or applied contrary to specifications will not be measured for payment.

Any NDT performed shall not be measured for payment.

Removal of pavement markings will be considered incidental to the associated asphalt pay item and will not be measured for pay.

Estimated quantities of asphalt concrete shown on the plans are based on 110 lb/sq yd/inch thickness. The measured quantity of asphalt mixtures will be multiplied by the following adjustment factors to obtain the pay quantity.

Theoretical Maximum Specific Gravity, (G_{mm}) (DOTD TR 327)	Adjustment Factor
2.340 - 2.360	1.02
2.361 - 2.399	1.01
2.400 - 2.540	1.00
2.541 - 2.570	0.99
2.571 - 2.590	0.98

The adjustment factor for mixtures with theoretical maximum specific gravities less than 2.340 or more than 2.590 will be determined by the following formulas:

Theoretical maximum specific gravity less than 2.340:

$$F = \frac{2.400}{S}$$

Theoretical maximum specific gravity more than 2.590:

$$F = \frac{2.540}{S}$$

where,

F = quantity adjustment factor

S = theoretical maximum specific gravity of mixture from approved job mix formula

502.14.1 Volume or Area Measurement: The quantities for payment will be the design quantities specified in the plans and adjustments thereto. Design quantities will be adjusted when the Project Engineer makes changes to adjust the field conditions or when design changes are necessary. Design quantities are based on the horizontal dimensions and compacted thickness of the completed course shown on the plans.

502.15 PAYMENT.

502.15.1 Payment General: Payment for all mixes will be at the contract unit price of asphalt mixture accepted on the roadway. Payment for asphalt concrete will include furnishing all required materials, producing the mixtures, preparing the surfaces on which the mixtures are placed, hauling the mixtures to the work site, and placing and compacting the mixtures. Any NDT performed will be considered incidental to the associated asphalt pay item. When the mix does not meet requirements, payment adjustments shall be assessed. Production of mix that is not eligible for 100 percent payment will not be allowed on a continuous basis. When test results demonstrate that payment adjustments are necessary, satisfactory mixture and compaction adjustments shall be made, or production shall be discontinued. All calculations for percent payment adjustments will be rounded to the nearest one (1) percent. Payment for removal of pavement markings will be considered incidental to the associated asphalt pay item. Payment adjustments will be cumulative and determined in accordance with 502.14 and the QA Manual.

502.15.2 Payment for Mixture with Density Requirements:

502.15.2.1 Mainline Mixtures: For all mainline mixtures, adjustments in contract unit price for roadway density as required by Table 502-5 and will be based on PWL using Table 502-9 and Table 502-10 for all acceptance cores with mainline uses in the lot. This payment adjustment will be applied to the mainline tonnage and contract unit price.

In addition, for mainline wearing course, a separate pay adjustment for surface tolerance based on Table 502-8 shall apply for all travel lanes based on the theoretical mainline lane quantity and contract unit price.

The theoretical quantity is computed by using the plan width, the plan thickness, and the total length of travel lanes, without exclusion areas.

502.15.2.2 Mainline Mixtures (≤ 1000 ADT): Pay for Mainline mixtures with ADT ≤ 1000 may, at the contractor's request at the preconstruction conference, be determined using the average method. Otherwise, pay will be determined as per Section 502.15.2.1. When the average method is being used, the average of the acceptance cores for mainline use for each subplot will be used to determine the subplot pay adjustment using Table 502-7 and the density requirement in Table 502-5. The final pay adjustment for the lot will be determined using a weighted average on tonnage. When using the average method for pay of mainline mixtures, each individual mainline core density must be equal to 90.5 percent density or greater. Segments not meeting the individual core minimum density criteria will have additional cores taken at the direction of the Project Engineer to identify the localized deficient area. The localized deficient area will incur a 50 percent pay adjustment or be subject to removal and replacement at no direct cost to the Department at the discretion of the Chief Engineer.

502.15.2.3 Minor Mixtures: Pay will be determined on the average of acceptance cores for minor use per subplot and the pay of all sublots in the lot will then be averaged to determine the final pay for each lot. Adjustments in contract unit price for roadway density as required by Table 502-5 and will be based on subplot average for minor uses using Table 502-7.

502.15.2.4 Lots with Mainline and Minor: Determine pay using 502.15.2.1 and 502.15.2.2 for the respective uses. Compute the final lot pay percentage for percent density using a weighted average by mix use for the tonnage of the lot. Tonnage representing minor mixture without density requirements is treated as 100 percent pay for purposes of the weighted average.

502.15.3 Payment for Tack: Tack coat as required in 502.08.2.2 “Applying Tack Coat” will be considered incidental to the 502 item. If the Project Engineer adjusts the application rate of tack coat from that specified by the contract document, payment for the asphalt mixture will be increased or decreased based on the difference in the applied quantity of asphalt emulsion shown on paid invoices (total of charges). The contractor shall provide copies of paid invoices for this determination.

502.15.4 Payment Adjustment for Asphalt Cement: A payment adjustment of 50 percent of the 502 item will apply to areas of mixture placed that do not meet specification but are within one asphalt grade of the specification. Mixture placed that exceeds one lower grade difference in specification will be subject to removal and replacement at no direct cost to the Department at the discretion of the Chief Engineer.

The DOTD Central Materials Laboratory and the DOTD Asphalt Technology Laboratory will evaluate the roadway and the contractor’s documentation to isolate the area of mixture placed with the lower asphalt grade.

502.15.5 Payment Adjustment for Surface Tolerance: For mainline wearing course, apply a percent payment adjustment as described in Table 502-8 for the total theoretical quantity of tons represented in each lane of the mainline wearing course. Apply the adjustment to the total theoretical quantity and contract unit price.

The total theoretical quantity is computed by using the total length of lanes, the plan thickness, and the plan width, excluding shoulders, minor mixes, and excluded areas as described in 502.12.5.1.

This pay adjustment is in addition to the pay adjustments for density as described in 502.15.2.

502.15.6 Payment for Erected Stringline: When the use of an erected stringline is not specified, but directed by the Project Engineer, an additional payment of \$3500 per contract plus \$0.25 per linear foot will be made for mixtures placed by the erected stringline method. When the use of an erected stringline is specified, no additional payment will be made.

Payment will be made under:

Item No.	Pay Item	Pay Unit
502-01	Asphalt Concrete	Ton
502-02	Asphalt Concrete	Cubic Yard
502-03	Asphalt Concrete, (Inches Thick)	Square Yard
502-04	Asphalt Concrete (SMA) Wearing Course	Ton

Table 502-4
Plant Produced Asphalt Mixture Requirements and Tolerances

	REQUIREMENTS FOR EXTRACTED ASPHALT CEMENT AND AGGREGATE GRADATION						
U.S. (Metric) Sieve % Passing	½ inch SMA	3/8 inch Nominal	½ inch Nominal	¾ inch Nominal	1 inch Nominal	1.5 inch Nominal	Production Tolerances
2 inch	–	–	–	–	–	100	± 4
1 ½ inch	–	–	–	–	100	90 – 100	± 4
1 inch	–	–	–	100	90 – 100	89 Max.	± 4
¾ inch	100	–	100	90 – 100	89 Max.	–	± 4
½ inch	90 – 100	100	90 – 100	89 Max.	–	–	± 4
3/8 inch	75 Max.	90 – 100	89 Max.	–	–	–	± 4
No. 4	24 – 34	89 Max.	–	–	–	–	± 4
No. 8	16 – 28	32 – 67	29 – 58	26 – 49	23 – 45	19 – 41	± 3
No. 16	–	–	–	–	–	–	± 2
No. 30	12 – 25	–	–	–	–	–	± 2
No. 50	11 – 22	–	–	–	–	–	± 2
No. 100	–	–	–	–	–	–	± 2
No. 200	7 – 13	4.0 – 10.0	4.0 – 10.0	3.0 – 8.0	2.0 – 7.0	1.0 – 6.0	± 0.7
Extracted Asphalt, %	6.0 Min.	–	–	–	–	–	± 0.2
Mix Temperature	–	–	–	–	–	–	± 25°F

**Table 502-5
Asphalt Pavement Requirements**

<u>Density, Minimum Percent of Theoretical Maximum Specific Gravity (%Gmm), AASHTO T209 Method C</u>				
Mainline, SMA	93.5			
Mainline	92.0			
Minor with density	90.0			
Surface Tolerance Variation ¹	Longitudinal ² inches	Transverse ² inches	Cross Slope ² inches [%]	Grade ³ inches
Mainline Wearing Courses, Category A, B	1/4	1/8	3/8 [0.3]	1/2
Mainline Wearing Courses, Category C	1/4	1/4	1/2 [0.4]	1/2
Mainline Wearing Courses, Category D	1/2	1/2	3/4 [0.6]	3/4
Mainline Binder Courses	1/4	1/2	3/4 [0.6]	3/4
Minor Mixes ⁴	3/8	3/8	3/4 [0.6]	3/4
Bike Paths, Detour Roads and Parking Lots	1/2			
Shoulder, Ramps < 300'	1/2			

¹Mainline categories based on Table 502-8.

²Based on 10 feet, using 10-foot static straightedge and static or electronic level.

³Applicable only when profile grade is specified.

⁴Except bike paths, detour roads, parking lots, shoulders, and ramps less than 300 feet.

**Table 502-6
Asphalt Concrete General Criteria**

Nominal Max. Size Agg.	0.5 inch (12.5 mm)			0.75 inch (19 mm)			1.0 inch (25 mm)			1.5 inch (37.5 mm)	SMA	
Type of Mix	Incidental Paving ¹	Wearing Course		Wearing Course	Binder Course		Binder Course		Base Course	ATB ⁷	Base Course	Wearing
Level ²	A	1	2	2	1	2	1	2	1	1	1	2
Coarse Agg. Angularity, % Crushed, (Double Faced), Min. %	55	75	95	95	75	95	75	95	75	75	75	98
Fine Agg. Angularity, Min. %	40	40	44	44	40	44	40	44	40	40	40	45
Flat and Elongated Particles (5:1), Max. %	10											
Sand Equivalent, Min. %	40	40	45	45	40	45	40	45	40	40	40	NA
Natural Sand - Max. %	---	15		15		15		15		25	25	0
Asphalt Binder	Table 502-2, (3% minimum for Asphalt Treated base (ATB), 6% min for SMA)											
RAP, Max. % of Mix ³	25	20	20	20	25	25	25	25	35	35	35	0
Compacted Mix Volumetrics												
VMA @ N _{design} , Min. %	13.5	13.5	13.5	12.5	12.5	12.5	11.5	11.5	11.5	n/a	10.5	16.0
Air Voids @ N _{design} , % ⁴	(2.5-4.5); (no limit for ATB)											
VFA @ N _{design} , % ⁵	(69-80); no limit for ATB; no maximum for SMA											
N _{initial} 90% max. ⁶ (Gyrations)	7	7	7	7	7	7	7	7	7	n/a	7	7
N _{design} 96.5±1 % (Gyrations)	55	55	65	65	55	65	55	65	55	30	55	65
N _{max} 98 % max. (Gyrations)	90	90	105	105	90	105	90	105	90	n/a	90	65
LWT, max. rut-design, mm @ # passes, @ 50°C	10 @ 10,000	10 @ 20,000	6 @ 20,000	6 @ 20,000	10 @ 20,000	6 @ 20,000	10 @ 20,000	6 @ 20,000	12 @ 20,000	10 @ 10,000	12 @ 20,000	6 @ 20,000
Dust/Effective Ratio, % Asphalt	0.6 – 1.6											
SCB, min, Jc, KJ/m ² @ 25°C	---	0.5	0.6	0.6	0.5	0.6	0.5	0.6	---	---	---	0.6
Design Lift Thickness, inch ⁸	≤2.0	1.5–2.0		1.5–2.0	2.0–3.0		2.5–4.0		≥2.5	≥3.0	≥4.0	1.5-2.0

¹May be used for minor mix uses (except patching and widening), airports, and other incidental items approved by the Project Engineer. (May be used as a standard roadway mix for local governments.)

²Mixtures designated at Level 1F and 2F shall meet the requirements of Level 1 and 2, respectively. Additionally, Level 1F and 2F shall meet the friction rating requirements in Table 502-3 for travel lane wearing courses.

³RAP is not be allowed for airports or SMA.

⁴Air voids mix design target is a 3.5 percent.

⁵Mix design minimum VFA is 72.0%, Mix design minimum VFA for PG76-22rm is 75.0%, and 71% for 25 mm NMS mixtures.

⁶For Level 1 mixtures, N_{initial} shall be 91.0% max. For Level A mixes, N_{initial} shall be 92.0% max.

⁷Asphalt Treated Base (ATB) may be used for patching of base material, for shoulder <3500 ADT and maintenance widening; when used achieve average density of 90% of G_{mm} as measured per minor mix table.

⁸Absolute minimum of lift thickness across width equal to 1/2 inch lower than minimum lift thickness.

⁹Also must meet a maximum of 25 percent at a 3:1 ratio.

**Table 502-6b
Asphalt Concrete General Criteria (<1000 ADT)**

Nominal Max., Size Agg.	0.375 inch (9.5 mm)		0.5 inch (12.5 mm)	
Type of Mix	Incidental Paving ¹	Wearing Course	Incidental Paving ¹	Wearing Course
Coarse Agg. Angularity, % Crushed, (Double Faced), Min. %	55	75	55	75
Fine Agg. Angularity, Min. %	40	40	40	40
Flat and Elongated Particles (5:1), Max. %	10			
Sand Equivalent, Min. %	40	40	40	40
Natural Sand - Max. %	---	20	---	15
Asphalt Binder		Table 502-2		Table 502-2
RAP, Max. % of Mix ²	25	20		20
	Compacted Mix Volumetrics			
VMA @ N _{design} , Min. %	15.0	15.0	14.0	14.0
Air Voids @ N _{design} , % ³		2.5-4.5		2.5-4.5
VFA @ N _{design} , % ⁴		72-80		72-80
N _{design} 96.5±1 % (Gyrations)	40			
N _{max} 98 % max. (Gyrations)	40			
LWT, max. rut-design, mm @ # passes, @ 50°C	10 @ 10,000	10 @ 15,000	10 @ 10,000	10 @ 15,000
Dust/Effective Asphalt Ratio, %	0.6 – 1.6			
SCB, min, Jc, KJ/m ² @ 25°C	---	SCB, min, Jc, KJ/m ² @ 25°C	---	SCB, min, Jc, KJ/m ² @ 25°C
Design Lift Thickness, inch ⁵	≤2.0	Design Lift Thickness, inch ⁵	≤2.0	Design Lift Thickness, inch ⁵

¹May be used for minor mix uses (except patching and widening), airports, and other incidental items approved by the Project Engineer. (May be used as a standard roadway mix for local governments.)

²RAP is not be allowed for airports or SMA.

³Air voids mix design target is a 3.5 percent.

⁴Mix design minimum VFA is 72.0%, Mix design minimum VFA for PG76-22rm is 75.0%

⁵Absolute minimum of lift thickness across width equal to 1/2 inch lower than minimum lift thickness.

**Table 502-7
Payment Adjustment Schedule for Minor Mixture
and Low (≤ 1000) ADT Mainline Mixture**

Parameter	Percent of Contract Unit Price per Lot		
	100	90	50 or Remove ¹
Average Roadway Density of Lot, % G_{mm}	\geq Lower Limit	-0.1 to -0.9 below lower limit	-1.0 or greater below lower limit

¹At the option of the Chief Engineer

**Table 502-8
Payment Adjustment Schedules for Longitudinal
Surface Tolerance, Maximum International Roughness Index,
Inches per Mile**

Percent of Contract Unit Price per Travel Lane	102%	100%	98%	80%	50% or Remove ¹
Category A ² All Interstate and Three or More Lift Construction	<45	<65	65-85	86-105	>105
Category B ² Two Lift Overlays Over Milled Surface and Two Lift Overlay Over Improved Base	<55	<75	75-95	95-115	>115
Category C Two lift Overlay Over Existing Surface, Single-Lift Overlays with Surface Prep., and Single Lift Overlays Over Milled Surfaces or Improved Base	<55	<85	85-110	111-130	>130
Category D Single-Lift Overlays Over Unimproved Surfaces ^{3,4}	N/A	20% Reduction	0% - 19% Reduction	N/A	IRI Increase

¹ At the option of the Chief Engineer

² Remove and replace any individual 0.05-mile segment having an average greater than 150 in/mile. Removal and replacement will be at the direction of the Chief Engineer. This note does not apply to excluded areas.

³ A project with an unimproved surface has no surface preparation item.

⁴ IRI measurements taken before and after construction.

Table 502-9
Quality Index Values for Estimating Percent Within Limits
(PWL)^{1,2}

PWL	n = 3	n = 4	n = 5 - 6	n = 7 - 9	n = 10 - 12	n = 13 -15 or greater
99	1.16	1.47	1.68	1.89	2.04	2.14
98	1.15	1.44	1.61	1.77	1.86	1.93
97	1.15	1.41	1.55	1.67	1.74	1.80
96	1.15	1.38	1.49	1.59	1.64	1.69
95	1.14	1.35	1.45	1.52	1.56	1.59
94	1.13	1.32	1.40	1.46	1.49	1.51
93	1.12	1.29	1.36	1.40	1.43	1.44
92	1.11	1.26	1.31	1.35	1.37	1.38
91	1.10	1.23	1.27	1.30	1.32	1.32
90	1.09	1.20	1.23	1.25	1.26	1.27
89	1.08	1.17	1.20	1.21	1.21	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.04	1.04
84	1.02	1.02	1.02	1.01	1.00	1.00
83	1.00	0.99	0.98	0.97	0.96	0.96
82	0.98	0.96	0.95	0.94	0.93	0.92
81	0.96	0.93	0.92	0.90	0.89	0.89
80	0.94	0.90	0.88	0.87	0.85	0.85
79	0.92	0.87	0.85	0.83	0.82	0.82
78	0.89	0.84	0.82	0.80	0.79	0.78
77	0.87	0.81	0.79	0.77	0.76	0.75
76	0.84	0.78	0.76	0.74	0.72	0.72
75	0.82	0.75	0.73	0.71	0.69	0.69
74	0.79	0.72	0.70	0.67	0.66	0.66
73	0.77	0.69	0.67	0.64	0.63	0.62
72	0.74	0.66	0.64	0.61	0.60	0.59
71	0.71	0.63	0.60	0.58	0.57	0.56
70	0.68	0.60	0.58	0.55	0.54	0.54
69	0.65	0.57	0.55	0.53	0.51	0.51
68	0.62	0.54	0.52	0.50	0.48	0.48
67	0.59	0.51	0.49	0.47	0.46	0.45
66	0.56	0.48	0.46	0.44	0.43	0.42
65	0.53	0.45	0.43	0.41	0.40	0.40
64	0.49	0.42	0.40	0.38	0.37	0.37
63	0.46	0.39	0.37	0.35	0.35	0.34
62	0.43	0.36	0.34	0.33	0.32	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29
60	0.36	0.30	0.28	0.27	0.26	0.26
59	0.32	0.27	0.25	0.24	0.24	0.23
58	0.29	0.24	0.23	0.21	0.21	0.21
57	0.25	0.21	0.20	0.19	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.15
55	0.18	0.15	0.14	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05
51	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00

¹ For negative values of Qu or Ql. PWLU or PWLL is equal to 100 minus the tabular PWLU or PWLL.

² If the value of QU or QL does not correspond exactly to a value in the table, use the next higher value.

Table 502-10
Payment Adjustment for Mainline Pavement
Density (PWL)

Roadway Density PWL	Percent Payment
81-100	100
71-80	98
61-70	90
51-60	80
≤50	50 or remove

Section 503

Asphalt Concrete Equipment and Processes

503.01 DESCRIPTION. This section specifies requirements for the certification of asphalt concrete plants and paving equipment. It includes methods and equipment for handling and storing materials, producing asphalt concrete, and transporting and placing asphalt concrete at the job site.

The Department's publication entitled "Application of Quality Assurance Specifications for Asphalt Concrete Mixtures" is hereby made a part of this specification by reference.

503.02 PLANT EQUIPMENT.

503.02.1 General: Provide equipment and processes to proportion aggregates, additives and asphalt cement in accordance with the approved Job Mix Formula (JMF). When the automatic adjustments or other critical control and shutoff devices are not functioning, do not operate the plant. Operate the plant with clean, easily accessible, and accurate thermometers, scales and meters. Immediately repair, replace, or recalibrate equipment when faulty operation is detected.

Provide a system with positive weight control of cold aggregates fed by a belt scale or other device interlocked with the asphalt measuring system to maintain required proportions of combined aggregates and asphalt cement. Heat, dry and mix aggregates with asphalt cement to produce a homogeneous mixture in which all aggregate particles are uniformly coated. Use approved methods to discard the first and last output of the plant after each interruption. Place discarded material in a separate dedicated area.

Digitally display the total quantities and the rates of production of every material used on a DOTD project.

503.02.2 Certification and Calibrations: The Department will certify plants furnishing asphalt mixtures every two years with current Departmental procedures or when any major component is repaired, replaced or upgraded. The plant owner is required to report any major component upgrades to the District Laboratory Engineer. Forward all documentation available upon request by the Department. All plant components and processes are subject at any time to inspection and approval by the District Laboratory Engineer. The plant owner is required every 90 days to have the laboratory gram scales, ignition oven scales, truck platform scales, and weight batchers tested, inspected, and calibrated by a qualified independent scale service or the Weights and Measures Division, Louisiana Department of Agriculture and Forestry.

Within 10 working days of the 90 days plant scale recalibration, the Certified Asphalt Concrete Plant Technician, in accordance with 503.09, will verify calibration of the plant's cold feed bins, RAP feed bins, weight bridges, asphalt pump, and additives measuring devices to stated DOTD standards. The Certified Asphalt Concrete Plant Technician shall notify the DOTD certifying District Laboratory two days prior to plant calibration.

Provide a plant site laboratory conforming to 722.02 as a part of the plant facilities at no direct pay, except as modified herein. Each plant laboratory shall have a minimum floor space of 400 square feet. Laboratories are to be provided for all Quality Assurance testing. Calibrate, verify and document all laboratory equipment according to the procedures, test methods, and frequency in accordance with the current "LADOTD Laboratory Equipment Manual."

503.03 AGGREGATES.

503.03.1 Stockpiles: Store aggregates at the plant site so that no intermixing, segregation, pooling of water or contamination will occur. Ensure that gradation and other properties of aggregate in stockpiles are combined in proper proportions so that the resulting combined gradation will meet the requirements of the approved JMF.

503.03.2 Cold Feed Bins: Blend and proportion all aggregates in cold feed bins.

Provide cold aggregate bins of sufficient size to store the amount of aggregates required for continuous plant operation. Provide a cold bin feed system capable of uniformly delivering the maximum number of required aggregate sizes in their proper proportion. Extend partitions between bins a minimum of 1 foot above the top of bins sufficient to prevent intermixing of aggregate sizes. Do not use the partition as part of the bin.

Calibrate the cold feed system based on the weight of bin material. Feed material from a bin through the individual orifice and bypass to a container to be weighed, or over the calibrated weigh bridge. Calibrate material from each bin separately. Calibrate with manufacturer's recommended procedures and keep records on file. The calibration process shall be part of the contractor's quality control.

Provide an automatic plant no flow alarm and shutoff to cease operations when any aggregate bin becomes empty or flow is interrupted for 20 seconds. If repeated no flow indications are evident, cease operations until continuous flow can be maintained. Provide belt scales for conveyor systems and calibrate accordingly.

When more than one cold bin feeder is used, operate each as a separate unit. Integrate the individual controls with a master control for all materials.

503.03.3 Moisture: Make provisions for introducing the latest moisture content of the cold feed aggregates into the belt weighing system, thereby correcting the conversion of wet aggregate weight to dry aggregate weight. Digitally display dry weight of the aggregate flow in appropriate units.

503.03.4 Screens: Provide a static screen system on top of the fine sand cold feed bin system and the RAP bin system, to ensure removal of objectionable material.

When a belt scale is used, provide a vibrating scalping screen between the cold bin system discharge and the belt scale. Size the screens to remove all oversize aggregate and other objectionable material.

503.03.5 Reclaimed Asphalt Pavement (RAP): If RAP is used, provide a separate cold feed system. Include a scalping screen, bin, feeder belt, and weigh bridge which is fully integrated with the cold feed system and asphalt cement supply system. Calibrate this system in accordance with 503.02.2 and 503.03.2. Add RAP to the dryer in a location as recommended by the manufacturer so that it does not expose the material to direct flame.

503.04 ASPHALT CEMENT.

503.04.1 Working Tank: Provide an asphalt cement working tank capable of uniformly heating the material, under positive control, to the required temperature as recommended by the supplier by methods approved by the District Laboratory Engineer. Provide an asphalt circulating system of adequate size to ensure proper and continuous circulation (except while asphalt is being measured). Equip new tanks with paddle-type mixers or agitators which keep the material in motion and minimize prolonged exposure to the heating source. Maintain the proper mixing temperature of the asphalt. Heat and insulate pipelines and fittings. Provide a sampling spigot in each tank and/or the supply line. Place strainers or screens between the working tank and mixing unit to filter undesirable material. Fix a thermometer graduated in 5°F increments and having an accuracy of $\pm 5^\circ\text{F}$ in the asphalt feed line at an approved location near the discharge valve at the mixer unit to indicate the temperature of asphalt from storage.

503.04.2 Measurement: Measure the asphalt cement either by weight or volume. Ensure that all scales and meters are calibrated and accurate to 0.5 percent. Display by percent the rate of flow of asphalt cement and the total quantity used.

503.04.2.1 Weight Measurement: Provide scales reading to the nearest pound.

503.04.2.2 Volume Measurement: Measure the asphalt cement by volume using a positive displacement pump and record in digital form to the nearest gallon. Periodically check by weight the quantity of asphalt cement delivered. Continuously display in digital form the corrected rate of asphalt cement delivery and the total quantity delivered. Ensure measurement during production is accurate to within 1.0 percent.

503.05 ADDITIVES. When additives are used, digitally display the rate of flow and the total quantity used for each. Provide meters accurate to 0.5 percent.

503.05.1 Anti-Strip: Provide a recirculation anti-strip additive storage tank producing uniform heat with an indicating thermometer at an approved location near the tank discharge point. Place a thermometer graduated in 5°F increments and having an accuracy of $\pm 5^\circ\text{F}$ at an approved point near the anti-stripping tank discharge point before the meter. Disperse anti-strip additive directly into the asphalt feed line at a location between the asphalt control valve and the end of the asphalt discharge line. Ensure that the anti-strip delivery system continuously delivers the proper amount of material and in correct proportion to the asphalt cement. This system must be equipped with a no-flow indicator, which triggers a light or alarm in the control room and an alarm in the plant lab when the anti-strip material is not flowing. If the anti-strip flow is stopped or interrupted for more than 5 minutes, discontinue production until the system is repaired. The equipment shall include a positive displacement accumulating meter which accumulates and displays materials used, and reads to the nearest 0.25 gallon. Additionally, provide a measuring dip stick and a chart correlating tank quantity with the height of anti-strip liquid.

503.05.2 Plant Blending: Equipment required to introduce crumb rubber modifier, latex, or warm mix additives is described herein. Submit a proposed plant equipment diagram to the District Laboratory Engineer for review and forward a copy to the Materials Engineer. Provide written confirmation from the equipment manufacturer that the quantity and type of mixers are appropriate for the proposed materials and flow rates. When modifying asphalt liquid binder at the contractor's plant to meet a new grade of asphalt, provide a Dynamic Shear Rheometer (DSR) for on-site quality control testing.

The District Laboratory Engineer will inspect the plant facilities.

503.05.2.1 In-Line Blending: Provide a sampling spigot in line after the point of mixing and prior to anti-stripping introduction. When modifying the binder with additives, use a totalizing meter to measure the quantity of additive in a similar manner as anti-strip.

503.05.2.2 Single Tank Batch Blending: A single tank system consists of a single blending tank used to blend crumb rubber modifiers. Provide a 20,000-gallon capacity tank or greater, which serves as both a mixing liquid tank and working liquid tank. Continuously mix the liquid and crumb rubber or other additive with paddle type mixers, auger type mixers, or shear mills to properly blend and maintain suspension. Provide a safe and easily accessible sampling spigot.

503.05.2.3 Multiple Tank System: A multiple tank system consists of a blending tank feeding into a working tank used to blend crumb rubber modifiers. The blending tank may be batch or continuous with metered feed controls to accurately maintain proper ratios of crumb rubber or other additive to neat asphalt binder liquid. Properly agitate the mixture in the working tank with paddle type mixers or auger type mixers to maintain suspension of the modified liquid. Provide a safe and easily accessible sampling spigot.

503.05.3 Warm Mix Additives: Provide necessary equipment in accordance with the manufacturer's recommendations and submit a proposed plant equipment diagram to the District Laboratory Engineer for review. Forward a copy to the Materials Engineer.

503.05.3.1 Foaming Using Water Injection: Provide an approved foamed asphalt injection system flow diagram upon request. Provide a control room indicator when using the water injection system.

503.05.3.2 Chemical Additives: Chemical additives are supplied by the liquid supplier, by mixing in the working tank, by in-line blending, or by introducing as an anti-strip. Provide a system that continuously records the quantity of additive used.

503.05.4 Mineral Filler: Proportion mineral filler separately from a bin equipped with an adjustable feed in accordance with Subsection 503.03.2, which can be accurately and conveniently calibrated and be interlocked with the aggregate. The feeder shall accurately proportion the mineral filler and provide a constant flow of material. For continuous drum mixer plants introduce the mineral filler, if used, to the mix at an approved location sufficiently in advance of the addition of the asphalt cement.

503.05.5 Hydrated Lime: When hydrated lime additive is mixed with aggregate on the belt feed, interlock and synchronize the hydrated lime additive equipment with cold feed controls. Equip the system with an automatic no flow indicator that will automatically shut the plant down when a malfunction causes an improper supply of additive or water. Equip the hydrated lime additive system with the following:

1. A separate bulk storage bin with a vane feeder or other approved feeding system that can be readily calibrated. The system shall provide for easy sampling of additive and verification of the quantity dispensed by weight (mass). Ensure the feeder system continuously records the total amount of additive dispensed.
2. An approved spray bar, capable of spraying the composite aggregate with potable water before the addition of hydrated lime additive, when the moisture content of the composite aggregate falls below 3 percent. Ensure the approved equipment and methods consistently maintain the aggregates in a uniform, surface wet condition.
3. An approved pug mill after the cold feed system and before the belt scale.

Dispense the hydrated lime additive directly into the pug mill and composite aggregate. Uniformly blend the additive with the composited aggregate before exiting the pug mill. Obtain the District Laboratory Engineer's review of the process and equipment used for mixing the lime additive and aggregate. Ensure that no less than the required amount of additive is continuously blended with the aggregate.

503.05.6 Fibers: Use a separate feed system to accurately proportion and uniformly distribute the required quantity of mineral fibers into the mixture. Interlock the proportioning device with the aggregate feed or weigh system to maintain the correct proportions for all rates of production. Control the fiber proportion to within ± 10 percent of the amount of fibers required. Equip the system with an automatic no flow indicator that will automatically shut the plant down when a malfunction causes an improper supply of fiber. For drum plants, add the fiber adjacent to the asphalt cement discharge location.

503.06 DRUM. Equip the drum with automatic burner controls that continuously agitate aggregates during heating and drying. Provide equipment capable of heating and drying aggregates to meet specifications in the necessary quantities to supply the mixing unit continuously at its operating capacity and at a specified temperature and acceptable moisture content. Slope the drum and maintain flights in accordance with manufacturer's recommendations.

Produce a uniform blend at the specified production rate, with rapid and complete asphalt coating of aggregate. As a minimum, completely coat 95 percent of the coarse aggregate particles retained on the No. 4 sieve when tested in accordance with AASHTO T195.

Process the mixture at the temperature specified on the approved JMF and within $\pm 25^{\circ}\text{F}$ of the optimum mixing temperature at the discharge. Equip the drum with a thermometer or other temperature device to monitor the discharge temperature of the mix. Use temperature recording device or thermometers graduated in maximum 10°F increments with an accuracy of $\pm 5^{\circ}\text{F}$ and a sensitivity capable of detecting a change of at least 10°F per minute.

503.07 DUST COLLECTION SYSTEM. Return the fines from the dust collection system at a uniform and regulated rate near the asphalt cement discharge.

503.08 STORAGE AND LOADING OF ASPHALT CONCRETE MIXTURES.

503.08.1 Mix Conveyors: Transport the mix directly from plant to the storage silos or surge bin system by means of an enclosed continuous type conveyor system designed to prevent spillage and match the production rate of the plant. Deliver the mixture to the storage silo or surge bin within $\pm 15^{\circ}\text{F}$ of plant discharge temperature.

503.08.2 Storage Silos and Surge Bins: Use approved storage silos or surge bins for storing asphalt concrete mixtures.

Ensure that the use of storage silos or surge bins conform to the limitations on retention time, type of mixture, heater operation, bin atmosphere, bin level or other characteristics set forth in these specifications and other requirements stated in granting approval of these facilities. Affix an indicator device to each bin, visible to the loading operator, which is activated when material in the bin drops below the top of the sloped portion. Maintain mixtures above this level during production, except when the plant is not in operation.

When the mixture is placed into a silo or bins through a surge device, provide an automatic warning system to audibly warn the operator of a gate malfunction. Ensure silo or bin unloading gates are either clam shell gates operating under gravity feed or other approved gates that will not cause segregation or be detrimental to the mix.

503.08.2.1 Storage Silos: Maintain a uniform mixture temperature without localized heating. Maximum allowable overnight storage time is 18 hours, provided the silo has an oil sealed discharge gate. The Department may approve additional storage time provided test results and other data indicate that the additional storage time is not detrimental to the mix.

503.08.2.2 Surge Bins: Maintain the mixture at a temperature not less than 25°F below the optimum mixing temperature on the JMF. Do not store the mixture over night.

503.08.2.3 Loading and Sampling: Use haul trucks conforming to 503.11.

Provide a sturdy secured metal sampling platform, with protective rails, at least 30 square feet in area, and set at the proper height to easily obtain a sample. Protect the sampling platform from loaded trucks with barrier rail.

Equip the plant with an approved pressurized system capable of spraying a uniform coating of an approved asphalt mix release agent into the haul unit bed prior to loading. Do not use diesel as a mix release agent.

503.09 SCALES AND METERS.

503.09.1 Scales: Provide scales and meters accurate to ± 0.5 percent of the indicated load. Design, construct and install scales and meters so that operations do not affect their accuracy. Calibrate in accordance with 503.02.2. Measure all asphalt concrete mixtures by weigh hoppers or truck platform scales to determine weight for pay.

503.09.2 Weigh Hoppers: Provide weigh hoppers to weigh the mixture or individual material components. Provide hoppers that do not leak or cause segregation. Suspend weigh hoppers from calibrated springless dial scales or load cell scales. Equip the weigh hopper with an approved automatic printer system that will print the certified tare weight of the truck, each batch weight, and total weight of mixture loaded into the truck.

503.09.3 Platform Scales: Provide truck platform scales of sufficient length to weigh the entire unit transporting the mix. Weigh the truck empty to determine tare weight prior to mixture loading. Equip scales with an approved automatic printer system that will print the tare weight as well as the total weight of the unit and the mix.

503.09.4 Printers: Inform the Department in the event of a breakdown of the printing mechanism. Discontinue operations until the printer is repaired or replaced.

503.10 PAVING EQUIPMENT. The Department will inspect primary roadway equipment, including Material Transfer Vehicle (MTV), asphalt distributors, pavers, and rollers, at the start of each project.

503.11 HAUL TRUCKS. The Department will certify haul truck and trailers with a maximum of three trailer combinations for legal payload and volume. Comply with load restrictions in accordance with 105.14. Use trucks having tight, clean, and smooth beds. Spray beds daily or as often as directed with an approved asphalt mix release agent.

Provide a canvas or vinyl cover large enough to completely cover the top and extend over the sides of the bed to protect the mixture from the weather or loss of heat. Use sufficient tie-downs to hold the cover.

Discharge the mixture in a continuous manner so the spreader apron of the paver or MTV will not be overloaded. If the truck or paver is causing surface tolerance penalties or excessive bumps, discontinue its use.

Change equipment or operations when size, speed and condition of trucks interfere with orderly paving operations.

Equip haul trucks used for asphalt surface treatments with a mechanism to provide a positive connection to the aggregate spreader.

503.12 ASPHALT MILLING MACHINE. Use an approved self-propelled milling machine or grinder equipment for milling asphalt surfacing. Provide equipment with sufficient power, traction and stability to remove the thickness of asphalt concrete necessary to provide profile grade and cross slope uniformly across the surface. Provide milling equipment capable of controlling grade or cross-slope from an erected stringline, shoe device or approved traveling reference plane that will accurately reflect the average grade of the surface on which it is to be operated and have an automatic system for controlling cross slope at a given rate. The drum shall be round and true with sufficient number of teeth to yield a uniform and fine textured surface. Equip the milling machine with means to control dust created by the cutting action. Provide adequate loading equipment to immediately remove materials cut from the surface and discharge the cuttings into a truck or on the shoulder as specified or directed.

503.13 ASPHALT DISTRIBUTORS. Provide equipment that ensures even distribution of the asphalt or asphalt emulsion across the entire pavement area at the specified rate as measured per ASTM D2995.

503.13.1 Distributors: The asphalt cement distributor shall be capable of maintaining the allowable variation from any specified rate within ± 0.02 gallons per square yard. Equip the distributor with a height adjustable spray bar with spray nozzles recommended by the manufacturer. Assure that the end nozzle over the roadway edge provides a sharp line of asphalt material parallel to the direction of travel. Ensure nozzles remain clean and free from blockage.

Provide means for an accurate and rapid determination of the control and amount of asphalt materials being applied per square yard of surface. Equip the distributor with thermometers to indicate the temperature of the material in the tank. Equip the distributor with a hand-held spray attachment for applying asphalt materials to areas inaccessible with the spray bar.

Within 12 months prior to use, calibrate the asphalt distributor in accordance with ASTM D 2995. Provide the ASTM calibration and furnish the Project Engineer an accurate and satisfactory calibration record prior to beginning the work. The Project Engineer may at any time require verification of calibration accuracy of the asphalt distributor in accordance with ASTM D 2995.

503.14 MATERIAL TRANSFER VEHICLE (MTV). When placing the final two lifts of asphalt concrete on the roadway travel lanes, use a material transfer vehicle (MTV) or lightweight MTV to deliver mixtures from the hauling equipment to the paving equipment, and to minimize thermal and material segregation of the hot mix asphalt concrete.

Ensure that the MTV provides additional mixing of the asphalt concrete mixtures and then deposits the mixture into the paving equipment hopper to reduce segregation and facilitate continuous production. At a minimum, provide an MTV with a high capacity truck unloading system, which will receive mixtures from the hauling equipment; a 20-ton storage bin in the MTV to continuously mix the mixture prior to discharge to a conveyor system; a discharge conveyor, with the ability to swivel, delivering the mixture to a paving equipment hopper while allowing the MTV to operate from an adjacent lane. If the weight of the MTV is determined by the Project Engineer to cause settlement or movement in the base or sub-base, discontinue use. When a malfunction occurs in the MTV during lay-down operations, immediately discontinue plant operations and do not resume until the MTV malfunctions have been remedied. Mixtures in the silo (≤ 100 tons) or materials in transit may be placed.

Due to the weight of the loaded MTV, apply the following restrictions at bridge crossings:

1. Abide by posted weight limits.
2. Prior to crossing a bridge, be as near empty as possible.
3. Do not move across a bridge with any other vehicles being on the bridge.
4. Move on a bridge only within the limits of the travel lanes and do not move on the shoulders of the bridge.
5. Move at a speed no greater than 5 miles per hour when crossing a bridge.

503.14.1 Lightweight MTV: The lightweight MTV has a smaller capacity, is more fuel efficient and may be used in lieu of the MTV. Lightweight MTV's must meet all requirements of the 503.14 MTV and as modified herein. Use a Thermal Profile System in accordance with section 503.14.3 at all times when a lightweight MTV is used in lieu of the MTV. Discontinue use of lightweight MTV when thermal segregation is observed.

The requirement of the 20-ton storage hopper is waived for all lightweight MTVs. The approved remixing methods for lightweight MTV's are:

1. Counter rotating augers,
2. Offset gravity transfer conveyor chute, or
3. Twin interlaced augers.

A tracked or high flotation tires are required for the undercarriage of the MTV to facilitate low ground pressure (< 55 psi).

503.14.2 Windrow Paving: Windrow paving is allowed with the use of an MTV and Thermal Profile System. Equip the MTV with a windrow head attachment capable of removing 95 percent of the mixture off the pavement. Use a Thermal Profile System meeting 503.14.3.

503.14.3 Thermal Profile System: The Thermal Profile System may be used on all projects. The Thermal Profile System is a device capable of continuously recording the temperature of the full width of pavement as the mixture exits the paver with constant record of the GPS location and distance traveled. The system requirements include the capability to provide the Project Engineer with the thermal profile of every roadway subplot and roadway lot.

Mount the system with a recording device to the back of the paver. Provide capability of instant review of data on project site at any time keeping permanent record of all temperature and location data daily.

503.15 PAVERS. Use pavers with an automatic grade control device (dual grade may be required) and slope control devices for use with an approved traveling reference plane or erected stringline, as directed.

Use pavers capable of placing mixtures within specified tolerances. Use a screed or strike-off assembly to distribute the mixture over the entire paving strip. The width of the paving strip must be acceptable to the Project Engineer. Use screed, including screed extensions, to place mixtures that are uniform in appearance and quality. Adjust the screed assembly to provide the required cross section. Equip the screed (including screed extensions) with a heater and a vibrator.

Use a paver insert hopper, in conjunction with the MTV, with a minimum capacity of 5 tons (5 Mg).

Equip pavers with hoppers adequately designed and maintained to prevent spillage. Equip pavers with augers to place the mix evenly in front of the screed, including extensions. Equip pavers with a quick and efficient steering device capable of traveling both forward and in reverse. Provide pavers capable of spreading mixes to required thickness without segregation or tearing.

For shoulder construction or other incidental applications, use modified pavers or widening machines when permitted.

Use auger assembly extensions when screed extensions in excess of 2 feet on a side are to be continuously used in the pavement operation. Extend such auger extensions to within 2 feet of the end of the screed. With approval, the use of an auger extension with screed extensions in excess of 2 feet on one side may be waived for transitions, taper sections and similar short sections.

Do not use a strike-off assembly or boxed extension for paving within the traveled way, except when approved for short irregular sections or non-typical sections.

Ensure that the vibratory screed crowns the pavement with adjustable extensions to accommodate the desired pavement profile.

503.15.1 Spray Paver: Spray pavers are designed to distribute the tack coat immediately before placing the asphalt mixture. Comply with 503.13.1 and ensure that spray pavers evenly distribute the tack coat and apply and level thin asphalt concrete concurrently at a rate of 30 to 92 feet per minute. Do not allow a wheel or other part of the paving machine to come in contact with the tack coat before the hot mix asphalt concrete wearing course is applied. Equip the spray paver to include a receiving hopper, feed system, insulated storage chamber for the tack coat, spray bar, tanks with calibrated load cells, and a variable width heated screed unit.

503.16 COMPACTION EQUIPMENT.

503.16.1 General: Provide self-propelled compaction equipment capable of reversing without backlash. Establish a rolling pattern and provide the number, type and size of rollers sufficient to compact the mixture to the specified density and surface smoothness.

503.16.2 Steel Wheel Rollers: Use either vibratory or non-vibratory steel wheel rollers. Equip the roller with wheels that are true to round and equipped with suitable scrapers and watering devices. Design vibratory rollers for asphalt concrete compaction having separate controls for frequency, amplitude and propulsion.

503.16.3 Pneumatic Tire Rollers: Use treadless tires that are the same size and ply rating, and inflated to a uniform pressure not varying more than ± 5 psi between tires. Equip tires with scrapers to prevent adhesion of mixture. The Project Engineer may require additional cleaning and water apparatus on tires if material adhesion is detrimental to the mat.

503.16.4 Equipment for Asphalt Surface Treatments (AST):

503.16.4.1 Pneumatic Tire Rollers for AST: Use a minimum of two self-propelled rollers, weighing at least 12 tons each. Tires shall be smooth tread, of the same size and ply rating. Inflate to a minimum uniform tire pressure of 60 psi, unless damage occurs. The Project Engineer may require a reduction in roller pressure to prevent damage to the aggregate or underlying base course. Wheels shall not wobble and shall be aligned so that the gaps between tires on one axle are covered by tires of the other axle.

503.16.4.2 Power Broom or Blower for AST: Use a power revolving broom or power blower to clean the surface of dust, dirt, mud, and loose or excess material.

503.16.4.3 Aggregate Spreader for AST: Use a self-propelled, pneumatic tire power spreader designed, equipped, and operated to spread aggregate uniformly at the designated rate within the limits of the desired roadway width. The aggregate spreader shall be capable of maintaining an allowable variation from the specified rate within ± 0.5 pounds per square yard or ± 0.25 pounds per square yard for expanded clay.

Calibrate the aggregate spreader in accordance with ASTM D 5624.

503.16.4.4 Vacuum-Sweeper for AST: Provide a vacuum-sweeper when there is a dusting problem, as determined by the Project Engineer.

503.17 MISCELLANEOUS EQUIPMENT AND HAND TOOLS. Provide power revolving brooms or power blowers that are maintained and in satisfactory working condition.

In areas that are inaccessible to conventional rollers, use satisfactory mechanical compaction equipment, or hot hand tampers. Tamping tools may be used for compacting edges.

Section 504 Asphalt Tack Coat

504.01 DESCRIPTION. Prepare and treat existing asphalt or portland cement concrete pavement surfaces with asphalt material in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

504.02 ASPHALT MATERIALS. Use an undiluted asphalt emulsion Grade NTSS-1HM, CBC-1HT, CRS-2P, CSS-1H, SS-1H or PET or a hot applied non-tracking tack (NTHAP) as required by Section 501, Section 502, Section 507, and as listed on the Approved Materials List and comply with Section 1002.

504.03 WEATHER LIMITATIONS. Do not apply asphalt tack coat on a wet surface or when the ambient air temperature is below 40°F. For full depth patching, do not place asphalt tack coat when ambient air temperature is below 35°F.

504.04 EQUIPMENT. Provide equipment for applying asphalt material and prepare the surface to be tacked. Apply with equipment conforming to 503.13.1 and 503.15.1. A hand-held pressure nozzle may be used for tack coat application in lieu of the spray bar/tachometer combination for irregular sections or short sections of 1500 feet or less.

504.05 SURFACE PREPARATION. Clean the pavement surface by sweeping or other approved methods. Satisfactorily clean edges of existing pavements that will form joints with new pavement before tack coat is applied.

504.06 APPLICATION. Uniformly apply asphalt tack coat to a clean dry surface with no bare areas, streaks or puddles with an asphalt distributor at a rate in accordance with Table 504-1. If bleeding, ponding, or slipping are evident, these rates may be reduced to a minimum of 0.04 gallon/square yard with a minimum 0.02 gal/sq yd residual with approval of the Project Engineer.

**Table 504-1
Section 502 Asphalt Tack Coats**

Surface Type	Rate ^{1,3} ; Gal/Sq yd
Existing Surface Treatment ²	0.12
New Hot Mix	0.06
Existing Hot Mix	0.09
Portland Cement Concrete	0.09
Milled	0.08

¹Rates are minimum rates of undiluted asphalt emulsion.

²Section 507 Asphalt Surface Treatment Type E Interlayer does not require a tack coat.

³Minimum rate for hot applied non-tracking tack (NTHAP) is 0.08 gal/sq yd for all surface types in Table 504-1.

The minimum application temperature of the emulsified asphalt Grades NTSS-1HM, CBC-1HT, CRS-2P and Polymer Emulsion Tack (PET) is 160°F and Grades CSS-1H and SS-1H, is 70°F, or as recommended by the manufacturer. For hot applied non-tracking tack (NTHAP) the minimum application temperature is as recommended by the manufacturer.

Apply tack coat in such manner as to cause the least inconvenience to traffic. Traffic is not permitted on tacked surfaces prior to application of the mixture placement. The contractor will be permitted to apply the tack coat one calendar day prior to the mixture laydown for non-traffic areas. However, when tack coat has been damaged or contaminated by dirt, dust or mud, clean the surface and apply tack coat again prior to the mixture laydown at no direct pay. Reapply tack coat to previously tacked surfaces exposed to damage or due to inclement weather at no direct pay.

504.07 MEASUREMENT. Asphalt tack coat will not be measured for payment and is considered incidental to the associated asphalt concrete pay item; however, it will be measured by the gallon in-place using a calibrated stick and/or charts on level ground at the application temperature described in 504.06 for specification compliance.

504.08 PAYMENT. Payment of asphalt tack coat will not be made; however, the associated asphalt pay items will be subject to the payment adjustment provisions of Section 1002 for specification deviations of the asphalt materials.

Section 505 Asphalt Prime Coat

505.01 DESCRIPTION. An asphalt prime coat is used to seal newly constructed unbound and/or un-stabilized base courses. Prepare and treat a surface with asphalt material in conformance with these specifications and in conformity with lines shown on the plans or established.

505.02 ASPHALT MATERIALS. Prime coat shall be cutback asphalt Grade MC-30, MC-70, or AEP Emulsified Asphalt complying with Section 1002.

505.03 WEATHER LIMITATIONS. Do not apply MC-30 and MC-70 materials on a wet surface. Do not apply asphalt prime coat when ambient air temperature is less than 35°F in the shade.

505.04 EQUIPMENT. Provide the necessary equipment for proper construction of the work. Apply with equipment conforming to 503.13.1. A hand-held pressure nozzle may be used for prime coat application in lieu of the spray bar/tachometer combination for irregular sections or short sections of 1500 feet or less.

505.05 SURFACE PREPARATION. Shape the surface to be coated to required grade and section. Assure that the surface is free from ruts, corrugations, segregated material or other irregularities, and compact to required density. Delays in priming may necessitate reprocessing or reshaping to provide a smooth, compacted surface.

505.06 APPLICATION. Extend prime coat 6 inches beyond the width of surfacing shown on the plans. Do not apply the prime coat until the surface has been satisfactorily prepared.

Apply prime coat at the rates and temperatures shown in Table 505-1.

**Table 505-1
Prime Coats**

Asphalt Grade	Application Rate Gal/Sq Yd		Application Temperature °F	
	Min.	Max.	Min.	Max.
MC-30	0.25	0.30	60	120
MC-70	0.25	0.30	100	180
AEP	0.25	0.30	60	120

505.07 PROTECTION. After prime coat has been applied, cure for a minimum of 24 hours before placing the mixture. Keep traffic off the surface until the prime coat has properly cured, unless otherwise permitted by the Project Engineer.

If traffic is permitted, spread approved granular material, as directed by the Project Engineer, over the prime coat at no direct pay.

Maintain the prime coat intact. When required, thoroughly clean the primed surface prior to the placement of mixture.

Where the prime coat has failed, clean the failed area and reapply prime coat to the unbound surface at no direct pay. When the prime coat is generally unsatisfactory, reapply prime coat to the unsatisfactory surface at no direct pay.

505.08 MEASUREMENT AND PAYMENT. Asphalt prime coat will not be measured for payment; however, the associated asphalt pay items' payment under the contract will be subject to the payment adjustment provisions of Section 1002 for specification deviations of the asphalt materials. The Materials and Testing Section will provide the payment adjustment percentage for asphalt materials. Payment for surface preparation will be made under other items.

Section 506 Asphalt Curing Membrane

506.01 DESCRIPTION. The Asphalt Curing Membrane is used to cure treated or stabilized base/subgrade layers. Apply and maintain an asphalt curing membrane to the surface of cement or lime treated or stabilized materials in compliance with these specifications or as directed.

506.02 MATERIALS. Asphalt for curing membrane shall be an emulsified asphalt or an emulsified petroleum resin (EPR-1) complying with Section 1002. Water shall comply with 1018.01.

506.03 WEATHER LIMITATIONS. Do not apply asphalt curing membrane when the temperature is below 35°F, unless otherwise permitted by the Project Engineer.

506.04 EQUIPMENT. Provide and maintain the necessary equipment for proper construction of this work. Apply with equipment conforming to 503.13.1. A hand-held pressure nozzle may be used for application in lieu of the spray bar/tachometer combination for irregular sections or short sections of 1500 feet or less. A gravity flow distribution system will be allowed.

506.05 SURFACE PREPARATION. Assure that the surface to which curing membrane is to be applied is free from ruts, corrugations, loose material or other irregularities.

506.06 APPLICATION. Apply the asphalt curing membrane immediately upon completion of final finishing of the final lift of the surface. Uniformly apply the emulsified asphalt curing membrane in accordance with Table 506-1. Emulsified asphalt may be further diluted with water, to a maximum of 1 part water to 1 part undiluted asphalt emulsion, and applied in multiple passes of the distributor. The total amount of asphalt material applied such that the residual amount of asphalt material equals a minimum of 0.10 gallon per square yard. Remove extraneous material which has collected on the base before additional application of asphalt curing membrane. Maintain and repair the surface before additional applications.

**Table 506-1
Asphalt Curing Membrane**

Curing Membrane Type	Application Rate ¹ Gal/Sq Yd	Application Temperature ² °F
	Min.	Min.
EPR-1 ³	0.20	70
Emulsified Asphalt ⁴	0.10	70

¹Rates are minimum rates of undiluted asphalt emulsion.

²Minimum application temperature or as recommended by the manufacturer.

³Undiluted EPR shall consist of 5 parts water and 1 part resin concentrate and comply with Section 1002.

⁴Shall comply with Section 1002.

506.07 PROTECTION. After the curing membrane has been applied, keep public and construction traffic off the surface until the curing membrane has properly cured, unless otherwise directed by the Project Engineer. Maintain the curing membrane at no direct pay until the mixture has been placed. When traffic is permitted, apply additional curing membrane at intervals to protect and cure the surface at no direct pay.

506.08 MEASUREMENT AND PAYMENT. Asphalt curing membrane will not be measured for payment; however, the associated asphalt pay items' payment under the contract will be subject to the payment adjustment provisions of Section 1002 for specification deviations of the asphalt materials. The Materials and Testing Section will provide the payment adjustment percentage for asphalt materials. Water will not be measured for payment.

Section 507

Asphalt Surface Treatment

507.01 DESCRIPTION. This work consists of furnishing properly distributed asphalt material followed by a uniform application of aggregate for building a riding surface, improving the surface friction of a roadway, sealing cracks in the roadway, reducing the rate of oxidation of a surface mixture, or as an interlayer to delay or reduce the occurrence of reflective cracking.

Asphalt Surface Treatment (AST), sometimes referred to as “chip seal,” consists of a specified emulsion applied “cold” or polymer modified asphalt material applied “hot,” at the temperature range specified in Table 507-1 for cold applications or Table 507-2 for hot applications, respectively. The application rates of asphalt material and aggregates will vary with aggregate size and existing roadway conditions but, for bid purposes only, shall meet the requirements of Table 507-1 or Table 507-2. The Project Engineer will review the actual application rates.

507.02 MATERIALS.

507.02.1 Asphalt: Use asphalt materials complying with Section 1002 that are Approved Material List products. Comply with Table 507-1 or 507-2.

Take samples of asphalt material in the presence of the Project Engineer's representative. The Project Engineer's representative will immediately take possession of the samples.

507.02.2 Aggregates: Aggregates shall comply with 1003.07 and Table 1003-15. Use Approved Material List aggregates shown herein or as designated on the plans.

For hot applications, pre-coat aggregates with a paving grade asphalt cement or a cationic emulsion. For pre-coated aggregates, the residual asphalt content shall be a minimum of 1.4 percent by weight of the aggregate for high absorption aggregates and 0.5 percent minimum by weight for low absorption aggregates as defined in AASHTO T84. The pre-coat applicator shall certify the quantities of pre-coat used in the process. Ensure that the pre-coated aggregate flows freely. The gradation requirements apply to the aggregate after pre-coating. Submit a gradation Certificate of Analysis with each aggregate shipment of 1000 cubic yards or each project, whichever is less. If an emulsion is used for pre-coating, cure the stockpiled pre-coated aggregate prior to use.

507.03 EQUIPMENT. Provide asphalt distributors, pneumatic tire rollers, power brooms or blowers, aggregate spreaders, and vacuum sweepers in accordance with Section 503. Calibrate and maintain the necessary equipment for proper construction.

Keep storage tanks, piping, booster tanks, distributors, and all other equipment used in delivering, storing, or handling asphalt materials clean and in good operating condition.

507.03.1 Power Asphalt Distributor: Provide a computer operated asphalt distributor in accordance with 503.13.1.

507.03.2 Pneumatic-tire Rollers: Use self-propelled rollers, weighing at least 12 tons each in accordance with 503.16.4.1.

507.03.3 Power Broom or Blower: Use a power revolving broom or power blower in accordance with 503.16.4.2.

507.03.4 Aggregate Spreader: Use a self-propelled, pneumatic tire power spreader in accordance with 503.16.4.3.

507.03.5 Vacuum-Sweeper: Provide a vacuum-sweeper when there is a dusting problem in accordance with 503.16.4.4.

507.03.6 Haul Trucks: Provide haul trucks in accordance with 503.11.

507.04 WEATHER LIMITATIONS. Do not apply AST if any of the following conditions occur:

1. Wet or moist surface. Consider the pavement to be excessively moist when it is visibly wet or when a one square foot piece of polyethylene film condenses moisture after being tightly placed on the pavement surface for 15 minutes;
2. Rain has occurred within 24 hours (for hot applied AST only);
3. The air temperature or pavement surface temperature in the shade is less than 60°F; or
4. The air temperature is predicted by the National Weather Service to fall below 60°F within 24 hours after placement.

507.05 PREPARATION OF EXISTING SURFACE. Potholes and surface depressions will be repaired by the Department prior to the asphalt surface treatment work unless shown otherwise on the plans.

Prepare existing surface at no direct pay unless otherwise specified on the plans. Immediately prior to application of the asphalt material, clean and de-grass existing pavements over the full width to be treated. Remove any existing raised pavement markers prior to asphalt concrete overlay operations. Payment for removal of raised pavement markers will be included with the applicable asphalt item. Sweep the pavement with a power broom or blower to remove all loose material. Clean areas not reached by the power broom or blower by hand brooming or blowing.

If used, ensure that the prime coat or curing membrane, is satisfactorily cured and maintained in accordance with Section 505 and Section 506 prior to application of AST.

Obtain the Project Engineer's acceptance of the surface prior to application of AST.

507.06 APPLICATION. After the existing surface has been properly prepared, apply asphalt material and aggregates in the amounts determined by the contractor and accepted by the Project Engineer, and in the sequence specified herein.

Apply and spread asphalt surfacing at the temperatures and sequences given in Table 507-1 or 507-2. The quantities of material given in Table 507-1 or 507-2 may be adjusted by the Project Engineer as field conditions warrant. The type and condition of the surface being covered will affect the required application rate of asphalt material. Use the quantities as recommended by the contractor and accepted by the Project Engineer. Establish the actual rates during the first asphalt and aggregate application.

Before the asphalt surface treatment operation begins, calibrate and set the flow rates of the distributor and spray bar along with the aggregate spreader at a remote location offsite in a manner acceptable to the Project Engineer. Aggregate spread rates may be adjusted by the Project Engineer. It should be noted that after the aggregate spreader passes, the aggregate should never cover 100 percent of the roadway surface. The asphalt coated surface should be visible between the aggregates. Strike off aggregate trucks at the loading area for proper material yield measurements.

The aggregate spreader shall follow immediately behind the asphalt distributor. Make the initial pass with the rollers immediately following the aggregate spreader before the emulsion breaks.

507.06.1 Asphalt Material: In general, the rate of asphalt is increased if the road is absorbent, badly cracked, or coarse, and is decreased if the road is smooth and flushed with asphalt. Guidelines for adjusting the rate of asphalt emulsion in gallons per square yards are shown in Table 507-3.

Do not allow the length of spread of asphalt material to exceed that which can be covered by aggregate within approximately one minute.

Apply asphalt material at a uniform rate for the full width of treatment unless otherwise directed by the Project Engineer. Keep the application of asphalt material consistently within ± 0.02 gallons per square yard, otherwise stop construction and recalibrate the distributor to the satisfaction of the Project Engineer.

Adjust the height of the spray bar and the angle of the nozzles so that individual spray fans do not interfere with each other and uniform double or triple coverage is achieved. Maintain a minimum of 100 gallons of asphalt material in the distributor during operation.

Adjust and maintain one of the special spray nozzles at the ends of the spray bar to provide a sharp edge for the asphalt material on the edge of the roadway surface being covered. When the application is less in width than the length of the spray bar, move these special nozzles to provide the specified edge lines.

When any nozzle becomes blocked during application of asphalt material, immediately stop the flow of material and clean the nozzles. When the Project Engineer directs that application be made over less than the full width of the roadway at a time, slightly overlap adjacent treatments longitudinally. Operate the distributor along a marked edge to keep the surface treatment in proper alignment.

To secure uniform distribution at the transverse junction of two treatments, stop the distributor promptly before the flow decreases. Place building paper or other suitable material over the end of the previous application. Start the joining application on the building paper. Satisfactorily remove and dispose building paper in accordance with Section 202 or as directed. Do not burn building papers.

During application of asphalt material, do not splatter adjacent pavements, structures, and trees with asphalt material. Do not clean or discharge the distributor into ditches, borrow pits, on shoulders or along the right-of-way.

Remove excess asphalt material at the junction between distributor loads or correct satisfactorily. Areas of the surface to be treated, which are not covered with asphalt material directly from the distributor shall be covered by means of a hand-held spray attachment equipped with nozzles.

507.06.2 Aggregates: Begin aggregate spreading operations immediately after the application of the asphalt materials. Place all aggregates for hot applications in a surface dry condition. Apply aggregate material within approximately one minute after application of the asphalt material.

Uniformly spread aggregate over the full width of asphalt material with one pass of the spreading equipment and with the application being sharply defined at edges. Do not drive equipment on uncovered asphalt material. When necessary to obtain uniform coverage, hand broom the surface.

Hand spreading will be permitted in conjunction with self-propelled spreaders over areas inaccessible to spreaders. Cover asphalt material with the appropriate rate of aggregate before rolling.

507.06.3 Multiple Applications: When multiple applications are to be placed, allow a minimum of 48 hours to elapse between each successive application of emulsions. Successive hot applications can be placed without delay.

507.06.4 Interlayers: An interlayer shall be Type E as specified herein and may be placed on raw or stabilized base, on a milled surface, between lifts of asphalt, or over existing portland cement concrete pavement which will be overlaid with asphalt. Use a liquid application rate that corresponds to the proper aggregate size given in Table 507-1 or 507-2 as adjusted by the Project Engineer to meet existing conditions. Do not place asphalt concrete on an emulsion surface treatment for a minimum of five days after application. Hot applied interlayers may be overlaid immediately.

507.07 ROLLING AND BROOMING AGGREGATE MATERIAL. Roll the surface immediately after spreading the aggregate material using a minimum of three pneumatic tire rollers. Make the first pass within approximately one minute of spreading the aggregate. Proceed rolling in a longitudinal direction, beginning at the outer edges of the application.

Make a minimum of three (3) passes over a single point. Complete all rolling within 1/2 hour after aggregate material has been spread. Immediately correct any deficiencies or damage in the aggregate material detected during rolling and reroll as directed. Continue rolling aggregate material until uniform coverage has been obtained. Roll the remaining applications as specified for the first application. Do not use a steel wheel roller.

Lightly broom or blow the surface to remove loose material. Completely remove all loose material from all roadway surfaces, including paved shoulders. If the Project Engineer determines the amount of loose material is excessive, pick it up and remove from the project instead of brooming onto the adjacent slopes.

507.08 PROTECTION. Traffic shall not be allowed on the surface until the aggregate has been placed, rolled, and, if necessary, lightly broomed or blown. For cold applications, lightly broom or blow each treatment beginning the next morning, and continue removing loose aggregate up to final acceptance of the project, if necessary.

Distribute aggregate material over the surface to absorb any free asphalt, covering any area deficient with aggregate material, and roll as directed at no direct pay. Do not displace embedded material during maintenance. When placing lightweight aggregate and a dusting problem occurs, use a vacuum sweeper without the sweeper engaged to remove loose aggregate. Loose aggregate material will not be permitted on the surface and shall be promptly removed.

507.09 MEASUREMENT. The quantities of asphalt material and aggregate incorporated into the completed and accepted asphalt surface treatment will be measured separately. Design quantities are based on horizontal dimensions. Design quantities will be adjusted when the Project Engineer makes changes to adjust to field conditions. Each size aggregate will be measured by the square yard per application. Asphalt material will be measured in the distributor by the gallon at application temperatures.

507.10 PAYMENT. Payment for placement and maintenance of asphalt materials and aggregates will be made at the contract unit prices, subject to the payment adjustment provisions of Section 1002 for specification deviations of asphalt materials. The Materials and Testing Section will provide the payment adjustment percentage for asphalt materials. Payment for removal of pavement markings will be included in this pay item.

Payment will be made under:

Item No.	Pay Item	Pay Unit
507-01	Asphalt Material (type)	Gallon
507-02	Aggregate (size)	Square Yard

**Table 507-1
Asphalt Surface Treatment (AST) Requirements (Cold Application)**

	Course No.	AST TYPE A	AST TYPE B	AST TYPE C	AST TYPE D	AST TYPE E (Interlayer)
Aggregate		Lightweight, Crushed Stone	Lightweight, Crushed Stone	Lightweight, Crushed Stone	Lightweight, Crushed Stone, Crushed Gravel	Crushed Stone, Crushed Gravel
Agg. Friction Rating		I, II	I, II, III	I, II, III	I, II, III, IV	I, II, III, IV
Asphalt Emulsion		CRS-2P	CRS-2P	CRS-2P	CRS-2P	CRS-2P
Application Temp. Minimum		160°F	160°F	160°F	160°F	160°F
Application Temp. Maximum		175°F	175°F	175°F	175°F	175°F
Number of Applications		2	2	1	3	2
Asphalt Emulsion ¹ Application Rates Per Course	1	0.39	0.39	0.41	0.46	0.39
	2	0.29	0.29	-	0.36	0.29
	3	-	-	-	0.26	-
Aggregate Size and Application Rates Per Course ²	1	S2-0.0111	S2-0.0111	S2-0.0111	S1-0.0200	S2-0.0111
	2	S3-0.0075	S3-0.0075	-	S2-0.0111	S3-0.0075
	3	-	-	-	S3-0.0075	-

¹Application rates are in gallons of asphalt emulsion per square yard of AST.

²Size aggregate and application rates. For example, S2 is Size 2 aggregate and 0.0111 is the application rate in cubic yards of aggregate per square yard of AST. S1A may be used in lieu of S1. Aggregate sizes for AST are shown in Table 1003-15.

**Table 507-2
Asphalt Surface Treatment (AST) Requirements (Hot Application)**

	Course No.	AST TYPE A			AST TYPE B			AST TYPE C			AST TYPE D			AST TYPE E (Interlayer)		
		Lightweight, Crushed Stone	Crushed Stone	Lightweight, Crushed Stone	I, II, III	I, II, III	Lightweight, Crushed Stone	I, II, III, IV	I, II, III	Lightweight, Crushed Stone, Crushed Gravel	I, II, III, IV	Crushed Stone, Crushed Gravel	I, II, III, IV			
Aggregate		Lightweight, Crushed Stone	Crushed Stone	Lightweight, Crushed Stone	I, II, III	I, II, III	Lightweight, Crushed Stone	I, II, III, IV	Lightweight, Crushed Stone, Crushed Gravel	I, II, III, IV	Crushed Stone, Crushed Gravel	I, II, III, IV				
Agg. Friction Rating		I, II		I, II, III		I, II, III										
Asphalt Cement ¹		PAC-15		PAC-15		PAC-15		PAC-15		PAC-15		PAC-15				
Application Temp. Minimum		300°F		300°F		300°F		300°F		300°F		300°F				
Application Temp. Maximum		360°F		360°F		360°F		360°F		360°F		360°F				
Number of Applications		2	1	2	1	1	1	3	2	1	2	2				
Asphalt Cement ² Application Rates Per Course	1	0.30	0.31	0.30	0.24	0.31	0.31	0.36	0.30	0.24	0.30	0.30				
	2	0.23	-	0.23	-	-	-	0.28	0.23	-	0.23	0.23				
	3	-	-	-	-	-	-	0.20	-	-	-	-				
Aggregate Size and Application Rates Per Course ³	1	S2-0.0111	S2-0.0111	S2-0.0111	S3-0.0075	S2-0.0111	S2-0.0111	S1-0.0200	S2-0.0111	S3-0.0075	S2-0.0111	S2-0.0111				
	2	S3-0.0075	-	S3-0.0075	-	-	-	S2-0.0111	S3-0.0075	-	S3-0.0075	S3-0.0075				
	3	-	-	-	-	-	-	S3-0.0075	-	-	-	-				

¹See Table 1002-11.

²Application rates are in gallons of asphalt cement per square yard of AST.

³Size aggregate and application rates. For example, S2 is Size 2 aggregate and 0.0111 is the application rate in cubic yards of aggregate per square yard of AST. S1A may be used in lieu of S1. Aggregate sizes for AST are shown in Table 1003-15.

**Table 507-3
Asphalt Emulsion Adjustment Rate**

Existing Surface Condition	Adjustment rate in Gallons/Sq Yd
Black, flushed asphalt	-0.10 to -0.06
Smooth, non-porous	0.00
Absorbent, porous, oxidized	0.03 to 0.09

Section 508
Vacant

Section 509 Milling Asphalt Pavement

509.01 DESCRIPTION. Remove asphalt concrete surfacing by milling in accordance with these specifications and in conformity with the average depth, width, grade, cross-slope and typical sections shown on the plans or as established.

509.02 EQUIPMENT. Use an approved self-propelled milling machine or grinder for milling asphalt surfacing in accordance with 503.12.

509.03 CONSTRUCTION REQUIREMENTS. Prior to milling, pavement surface shall be clean, free of debris, properly de-grassed, and swept if necessary.

Pavement surfaces resulting from milling operations shall be of uniform texture, grade and cross slope and free from loose material. Re-mill surfaces not meeting these requirements at no direct pay. Uneven, undulating surfaces will not be accepted. If ridges are excessive, the Project Engineer may require additional milling, replacement of milling machine teeth, or other corrective action. Limit the maximum depth of milling to 2 inches per day when traffic is being maintained. Maintain a maximum 2-inch depth at milling edge of embankment at all times

Use a minimum length 25-foot traveling reference plane on the first pass of the milling machine. A shoe device may be used on adjacent passes.

When the entire roadway width has not been milled to a flush surface by the end of a work period, resulting in a vertical or near vertical longitudinal face exceeding 2 inches in height, slope this longitudinal face as directed. Place smooth transitions at transverse joints prior to restoring to traffic by milling or by using an asphalt concrete mix. Do not use RAP. Transitions shall be a minimum length of one linear foot per 1/4 inch of the milled depth. Make provisions at drives and turnouts to maintain local traffic.

Remove asphalt concrete next to structures or in small irregular areas that cannot be removed by the milling machine by other acceptable methods.

Provide drainage of milled areas, as necessary, by cutting through the shoulder to the ditch on the same day that adjacent milling is performed. After the roadway is completed, but prior to any required shoulder overlay, restore areas where drainage cuts are made in-kind, in accordance with Section 203, 401, 510, or 602.

The milling operation shall not precede the subsequent paving operation by more than 5 calendar days. Delay in starting the paving operations that causes a further degradation in the milled surface shall be corrected by the contractor by additional milling or providing leveling at no additional pay.

Severe raveling or degradation of the milled surface that occurs shall be reported to the Project Engineer in writing with station locations identified. The Project Engineer will direct corrective action.

Place temporary pavement markings prior to opening the roadway to traffic in accordance with Section 713.

Immediately haul, or as agreed upon by the Engineer, all reclaimed asphalt pavement (RAP) material to be retained by the Department for its recycling program, or by other government entities to the storage facility indicated on the plans and stockpile as directed. The contractor may also be required to retain a specified percentage or quantity of the RAP generated by the project.

Make required joint repairs prior to milling. Complete pavement patching before milling, unless additional areas requiring patching are exposed by the milling. Perform pavement patching and joint repair in accordance with Section 510. The initial face of a butt joint can match the radius of the cold planing milling drum. No true vertical face is required.

509.04 MEASUREMENT. The Department will measure milling by the square yard of asphalt concrete surfacing satisfactorily removed. No additional measurement will be made for multiple passes required to achieve total milling depth shown on the plans. Measurement of contractor retained RAP will be by the cubic yard, theoretical in-place plan quantity, and will be credited to the Department by treating it as a negative quantity in the Schedule of Pay Items.

Should the project generate more RAP than the original bid quantity; either by error in original quantity, extending the project limits, or any other reason; the contractor will receive the extra RAP generated at the original ratio of contractor retained bid quantity to DOTD retained RAP.

Should the project generate less RAP than the original quantity; either by error in original quantity, reducing the limits of the project, or any other reason; the contractor will receive the full amount of the original RAP quantity that was bid on or the full quantity of the RAP generated, whichever is less.

509.05 PAYMENT. Payment for milling of asphalt pavement will be made at the contract unit price per square yard, which includes the costs for removing, hauling and stockpiling of RAP material. The value of the RAP material retained by the contractor will be credited to the Department at the contract unit price for the retained material. The Department makes no assurances regarding the quality of existing asphalt pavement to be milled. No adjustment in payment related to quality of existing pavement to be milled will be made to either the contractor or the Department.

Drainage cuts placed through the shoulders, drop off transitions and transitions at transverse joints will be at no additional pay. Restore areas where drainage cuts are made in-kind, in accordance with Section 203, 401, 510, or 602, at no additional pay.

Payment for temporary pavement markings will be included under appropriate pay items.

Payment will be made under:

Item No.	Pay Item	Pay Unit
509-01	Milling Asphalt Pavement	Square Yard
509-02	Contractor Retained Reclaimed Asphalt Pavement	Cubic Yard

Section 510

Asphalt Concrete Pavement Patching, Widening, and Joint Repair

510.01 DESCRIPTION. Use asphalt concrete to patch, widen and repair joints of existing concrete pavements, asphalt concrete pavements, and composite pavements in accordance with these specifications and in conformity with the lines, grades and typical sections shown on the plans or as directed.

510.02 MATERIALS. Use any type of asphalt concrete mixture for patching and widening listed in Section 502, other than 1/2 inch nominal maximum size mixtures. For joint repair, use Incidental Paving Asphalt Concrete (Level A) complying with Section 502. Use asphalt tack coat complying with Section 504.

510.03 EQUIPMENT. Furnish equipment that meets the specification requirements in Section 503 for the types of material used.

510.04 GENERAL CONSTRUCTION REQUIREMENTS. Remove existing surfacing and base materials by sawcutting and perform all required excavation for patching and widening. Sawcuts shall be for the full depth of the pavement along the perimeter of the pavement to be removed as marked by the Project Engineer. Sawcuts shall be made with a diamond bladed concrete concrete saw for the full depth of patch if patching is performed on the final riding surface. Patching performed on underlying surface can be full depth sawed with a rock saw or milled out with a roto-mill or stabilizer, unless otherwise specified in plans. When through traffic is maintained, place the pavement widening material, or fill and compact open areas or trenches at the end of each day's operations. Under-thickness in excess of 1/2 inch will be corrected at no direct pay.

Excavate and dispose of the excess material beyond the right-of-way in accordance with Section 202 at no direct pay. Uniformly compact the subgrade.

For joint repair, clean contact surfaces of existing pavement and apply a thin, uniform layer of approved asphalt tack coat prior to placing asphalt mixture in the joint.

Patch and widen with asphalt concrete conforming to Section 502 except that priming of the subgrade will not be required. Clean contact surfaces of pavement and apply a uniform layer of approved asphalt tack coat before placement of asphalt concrete. Do not overlay patches for a minimum of 5 calendar days.

Spread, finish, and compact the asphalt concrete leaving the surface smooth and slightly above the edge of existing pavement. To provide lateral support, the contractor may construct temporary berms of excavated material against the outside edge of widening strips prior to rolling. If outside edges of widening strips are not edged up by the end of the work day, place super cones or drums on a maximum of 100-foot centers at no direct pay.

510.05 MEASUREMENT.

510.05.1 Patching: The Department will measure patching of pavement by the square yard or ton of existing pavement designated to be removed and replaced. Saw-cutting, removal of existing surfacing, base course, required excavation, and application of tack coat will not be measured for payment.

510.05.2 Widening: The quantities of widening for payment will be the design areas in square yards or ton as shown on the plans and adjustments thereto. Adjust design quantities if the Project Engineer makes changes to adjust to field conditions. Design quantities are based on the horizontal dimensions shown on the plans. No measurement for payment will be made for widening placed outside the dimensions shown on the plans unless dimensional requirements were re-established by the Project Engineer due to field conditions. Required excavation, removal of existing pavement and base course, asphalt tack coat and disposal of removed material will not be measured for payment. Measure the thickness and width in accordance with DOTD TR 602.

510.05.3 Joint Repair: The Department will measure joint repair by the ton of asphalt concrete used to fill the joint. Measurement will be made in accordance with 502.14.

510.06 PAYMENT.

510.06.1 Patching: Payment for pavement patching will be made at the contract unit prices per square yard or ton, subject to the following provisions:

Payment adjustments for deficiencies in asphalt concrete and asphalt materials will be applied at 1/2 the contract unit price for pavement patching. Asphalt concrete will be subject to the payment adjustment provisions of Section 502, Table 502-7 with 4-inch cores allowed.

When the Project Engineer orders additional thickness of patching in excess of plan thickness, payment for the additional thickness will be made as follows. When patching is on a square yard basis, the value per inch thickness will be calculated by dividing the contract unit price per square yard by the plan thickness. Thickness of patches will be measured from the surface that exists at the time of patching. Payment for the additional thickness will be made at 50 percent of the value per inch thus determined.

When the Project Engineer approves of an under-thickness of patching less than plan thickness, a deduction in payment will be made. The value per inch will be calculated by dividing the contract unit price per square yard by the plan thickness. This deduction per inch of under-thickness will be made at 50 percent of the value per inch.

When payment for patching is made per ton, no adjustment in unit price will be made for additional thickness or under-thickness. Any patching that develops or is required between the time of initial patching operations and the placement of the first lift of asphalt concrete will be paid for at the contract unit price. Any patching required due to base failure after placement of the first lift of asphalt concrete will be paid for at twice the contract unit price.

510.06.2 Widening: Payment for pavement widening will be made at the contract unit price per square yard or ton. Over-widths will be accepted at no additional pay. Correct under-widths by furnishing and placing additional asphalt concrete to a minimum width of 1 foot and plan thickness at no direct pay. Payment adjustments for deficiencies in asphalt concrete and asphalt materials will be applied at 1/2 the contract unit price for pavement widening. Asphalt concrete will be subject to the payment adjustment provisions of Section 502.

510.06.3 Joint Repair: Payment for pavement joint repair will be made at the contract unit price per ton.

Payment will be made under:

Item No.	Pay Item	Pay Unit
510-01	Pavement Patching	Square Yard
510-02	Pavement Widening	Square Yard
510-03	Pavement Joint Repair	Ton
510-04	Pavement Patching	Ton
510-05	Pavement Widening	Ton

PART VI – RIGID PAVEMENT

SECTION 601 – PORTLAND CEMENT CONCRETE PAVEMENT:

Subsection 601.03.8.7 – Dowel Bars (10/18), Pages 314 and 315

601.03.8.7 is deleted and replaced with the following:

601.03.8.7 Dowel Bars: Dowel bars shall have a uniformly round cross section and shall be saw-cut, smooth, and free of burrs, projections, and deformations. Dowel bars shall be coated in accordance with 1009.03.

Place dowel bars in approved basket assemblies or by an approved mechanical device that is capable of accurately placing the dowels to the proper depth and alignment. Position dowel bars parallel to the pavement centerline, and parallel to the surface without any skew of individual bars.

Carefully and thoroughly consolidate the concrete around the dowel bars. When using a mechanical insertion device for placement, firmly hold dowel bars in position during the consolidation process so that the bars do not move when released in the concrete by the mechanical insertion device.

Accurately and securely, mark the transverse centerline of the in-place dowel bars prior to sawing the transverse contraction joint over the dowels.

Provide an approved expansion tube on each bar used in expansion joints. The tube shall fit the dowel bar tightly and the closed end shall be watertight. Locate dowel bar placement as shown on the plans.

For plastic coated dowel bars, with the approval of the engineer, repair all slightly damaged coatings of dowel bars by lightly oiling or greasing; otherwise replace.

SECTION 602 – PORTLAND CEMENT CONCRETE PAVEMENT REHABILITATION:

Subsection 602.09 – High Early Strength (HES) Concrete Pavement Full and Partial Depth Patching (07/19), Pages 334 and 335

602.09 is deleted and replaced with the following:

602.09 HIGH EARLY STRENGTH (HES) CONCRETE PAVEMENT FULL AND PARTIAL DEPTH PATCHING. When specified or when construction conditions merit opening patched areas to traffic before concrete is fully cured, and approved by the engineer, high early strength concrete (HES) shall be used in accordance with Section 902.

Texture the patch surface to match the texture of adjoining pavement. If pavement is to be overlaid, only-drag finish the patched surface. The finished patched surface shall meet the surface finish requirements of 601.03.11 except the finished patched surface profile shall meet a maximum 1/4 inch deviation using an approved minimum 10-foot metal straightedge.

Subsection 602.16.3.2 – Consistency (04/19), Page 342

602.16.3.2 is deleted and replaced with the following:

602.16.3.2 Consistency: The slurry shall be of such consistency that the efflux time from the flow cone, when tested in accordance with ASTM C939, is 12 to 18 seconds for undersealing, and 15 to 26 seconds for slabjacking.

Subsection 602.16.5 – Dowel Bar Retrofit (10/18), Page 343

Paragraph 1, 2, and 3 of 602.16.5 is deleted and replaced with the following:

602.16.5 Dowel Bar Retrofit: Install coated 1 1/2 inch diameter by 18-inch long plain round dowel bars into slots cut across and through existing concrete pavement transverse joints. Remove the existing portland cement concrete pavement from the slots and retro fit the dowel bars across the pavement joints. Fill the voids surrounding the dowel bars with a rapid setting concrete patching material on the AML. Saw and seal the transverse joints as required in the plans.

All work shall conform to the plans, and the following requirements.

Patented processes or devices for simultaneous cutting of slots for dowel bar retrofitting shall conform to 107.03.

Subsection 602.16.5.2 – Construction Requirements (10/18), Page 344

Paragraph 6 of 602.16.5.2 is deleted and replaced with the following:

When using plastic coated dowel bars, lightly oil or grease the dowel bars prior to placement. The bar chairs shall provide a minimum of 1/2-inch clearance between the bottom of the dowel bar and the bottom of the slot. Center the dowel bars over the transverse joint. Place the bar in the middle of the slot to the depth shown on the plans, parallel to the roadway centerline and the roadway surface. The chairs shall hold the dowel bar securely in place during placement of the patching mix.

PART VII – INCIDENTAL CONSTRUCTION

TABLE OF CONTENTS:

Sections 741, 742, 743, and 744 (08/22), Page 350

Items 741, 742, 743, and 744 are deleted and replaced with the following:

741 Water Distribution Systems.....	529
742 Sanitary Sewer Systems.....	530
743 Airport Pavement Markings.....	531
744 Traffic Control Devices.....	532

SECTION 701 – CULVERTS AND STORM DRAINS:

All Subsections (07/20), Pages 351 – 363

701 is deleted and replaced with the following:

**Section 701
Culverts and Storm Drains**

701.01 DESCRIPTION. Furnish, install, and clean pipe, pipe arch, storm drains, and sewers, also referred to as culverts or conduits, in accordance with these specifications and in conformity with the lines and grades shown on the plans or as established by the engineer.

701.02 MATERIALS. Materials shall comply with the following sections and subsections:

Usable Soil	203.06.1
Selected Soil	701.08.1
Plastic Soil Blanket	203.10
Flowable Fill	710
Portland Cement Concrete	901
Mortar	1001.03
Stone	1003.03.1
Recycled Portland Cement Concrete	1003.03.2
Granular Material	1003.09
Bedding Material	1003.10
Thermoplastic Pipe	1006
Split Plastic Coupling Bands	1006.06
Plastic Yard Drain Pipe	1006
Gasket Material	1016.01.1
Reinforced Concrete Pipe	1016.02
Reinforced Concrete Pipe Arch	1016.03
Bituminous Coated Corrugated Steel Pipe and Pipe Arch	1007.02
Structural Plate for Pipe, Pipe Arch and Arch	1007.04
Corrugated Aluminum Pipe and Pipe Arch	1007.05
Coupling Bands	1007.09, 1007.08.1
Reinforcing Steel	1009
Geotextile Fabric	1019

701.02.1 Side Drain Pipe or Side Drain Pipe Arch: When an item for Side Drain Pipe or Side Drain Pipe Arch is included in the contract, furnish thermoplastic pipe, corrugated metal pipe or corrugated metal pipe arch, or reinforced concrete pipe or reinforced concrete pipe arch in conformance with Sections 1006, 1007, or 1016, as indicated by the pay item, unless otherwise specified.

701.02.2 Cross Drain Pipe or Cross Drain Pipe Arch: When an item for Cross Drain Pipe or Cross Drain Pipe Arch is included in the contract, furnish thermoplastic pipe, corrugated metal pipe or corrugated metal pipe arch, or reinforced concrete pipe or reinforced concrete pipe arch in conformance with Sections 1006, 1007 or 1016, as indicated by the pay item, unless otherwise specified.

701.02.3 Storm Drain Pipe or Storm Drain Pipe Arch: When an item for Storm Drain Pipe or Storm Drain Pipe Arch is included in the contract, furnish thermoplastic pipe, corrugated metal pipe or corrugated metal pipe arch, or reinforced concrete pipe or reinforced concrete pipe arch in conformance with Sections 1006 or 1016, as indicated by the pay item, unless otherwise specified.

701.02.4 Yard Drain Pipe: When an item for Yard Drain Pipe is included in the contract, furnish thermoplastic pipe in accordance with Section 1006 unless otherwise specified.

701.02.5 Material Type Abbreviations:

701.02.5.1 Reinforced Concrete Pipe:

RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch

701.02.5.2 Corrugated Metal Pipe:

CAP	Corrugated Aluminum Pipe
CAPA	Corrugated Aluminum Pipe Arch
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CSP	Corrugated Steel Pipe
CSPA	Corrugated Steel Pipe Arch
BCCSP	Bituminous Coated Corrugated Steel Pipe
BCCSPA	Bituminous Coated Corrugated Steel Pipe Arch

701.02.5.3 Thermoplastic Pipe (TPP):

TPP	Thermoplastic Pipe
PVCP	Polyvinyl Chloride Pipe
RPVCP	Ribbed Polyvinyl Chloride Pipe
CPEPSW	Corrugated Polyethylene Pipe Single Wall
CPEPDW	Corrugated Polyethylene Pipe Double Wall
CPPPDW	Corrugated Polypropylene Pipe Double Wall

701.02.6 Joint Type Abbreviations:

T1	Type 1 Joint
T2	Type 2 Joint
T3	Type 3 Joint

701.02.7 Quality Assurance for Pipe: Manufacturing plants will be periodically inspected for compliance with specified manufacturing methods, and material samples will be randomly obtained for laboratory testing for verification of manufacturing lots. Materials approved at the manufacturing plant will be subject to visual acceptance inspections at the jobsite or point of delivery.

701.02.8 Pipe Definitions: Flexible pipe consists of all corrugated metal and thermoplastic pipe.

701.03 EXCAVATION. For all trench excavation, ensure that the sides of the trench are stable, as evidenced by the sides of the trench being able to maintain a vertical cut face. Consider the sides unstable if fissures develop in the face of or adjacent to the open excavation; if the edge of the excavation subsides; if material ravel, spalls, or slumps from the face of the excavation; or if the bottom of the excavation bulges or heaves. In all cases of apparent distress, or when the trench excavation exceeds 5 feet in depth, sloping, benching, and shoring will be required in accordance with the OSHA trench safety standards, 29 CFR § 1926 (P). Consider these and any more stringent trench safety standards as minimum contract requirements.

Submission of bid and subsequent award of contract will serve as certification that all trench excavation in excess of 5 feet will be in compliance LA R.S. 48:251.1.

Consider all available geotechnical information when designing the trench excavation safety system, including groundwater. Evaluate trench stability due to the effects of surcharge loads from adjacent structures, stored materials and equipment, or traffic. Ensure that excavated material is placed a sufficient distance back from the trench edge to preclude material from falling back into the trench, otherwise provide an adequate retention system.

Ensure that the bottom width of a pipe trench provides at least 18 inches of clearance on each side of the pipe. For flexible pipe with a diameter greater than or equal to 48 inches provide, a minimum of 24 inches of clearance on each side of the pipe. In accordance with 202.02, satisfactorily dispose of surplus excavated material that does not conform to the requirements of 203.06.1. Control rainfall runoff or excess moisture by proper selection of backfill materials, dewatering sumps, wells, well points, or other approved procedures during excavation, bedding installation, over-excavated trench backfilling, pipe placement, and pipe backfill.

701.03.1 Over-Excavation: When encountering unsuitable material as defined in 203.04, or a stable, non-yielding foundation cannot be obtained at either the established pipe grade or at the grade established for placement of the bedding, remove unstable or unsuitable material below this grade and replace with granular material complying with 1003.09, bedding materials complying with 1003.10, or Type A backfill complying with 701.08.1. Place all granular backfill materials below the established pipe or bedding grade in lifts less than 8 inches thick. Compact sufficiently with a dynamic mechanical hand compaction device over the surface of each lift to form a stable, non-yielding foundation at the surface of the established bedding or pipe grade.

When encountering rock, remove the rock below grade and replace it with granular material, bedding materials, or Type A backfill. Provide a compacted earth cushion thickness under the pipe of at least 1/2 inch per foot of fill height over the top of the pipe with a minimum thickness of 8 inches. Place all granular backfill materials below the established pipe or bedding grade in lifts less than 8 inches thick. Sufficiently compact with a dynamic mechanical hand operated compaction device over the surface of each lift to form a stable, non-yielding foundation at the surface of the established bedding or pipe grade.

Materials used to backfill in an over-excavated portion of a trench do not require encasement in a geotextile fabric.

701.04 FORMING PIPE BED. When specifying bedding material, construct in accordance with Section 726. Materials allowed for bedding shall comply with 1003.10 or may be type A backfill materials. When specifying bedding materials, perform additional excavation below established pipe grade and place the bedding material in lifts less than 8 inches thick. Lightly compact with a vibratory plate compactor over the surface of each lift then scarify 3 inches deep minimum 1/3 pipe diameter wide.

When the bottom of the pipe is not laid in a trench but constructed above natural soils, construct a uniform bed as specified for the bottom of a trench.

In lieu of removing and replacing unstable soil with granular material, bedding material, or Type A backfill material, a cabled articulated concrete block mattress meeting the requirements of Section 712 may be used with a 6-inch layer of bedding material between the pipe and the mattress installed in accordance with Section 726. Excavate the trench to a depth 6 inches plus the thickness of the mattress below the grade line of the pipe. Join adjacent mattress segments together to form a continuous supporting foundation beneath the pipe to the satisfaction of the engineer.

701.05 LAYING PIPE. Begin laying pipe at the downstream end of the line. Ensure that the pipe is in contact with the foundation throughout its length. Place bell or grooved ends of pipe and outside circumferential laps of riveted metal pipe facing upstream. Place riveted seam metal pipe with longitudinal laps at sides. Pipes in each continuous line shall have the same wall thickness. Handle metal pipes provided with lifting lugs only by these lugs.

After laying pipe and before placing backfill, the engineer will inspect the pipe for alignment, grade, integrity of joints, and coating damage.

701.06 JOINING PIPE.

701.06.1 Joint Usage: Joints types shall be selected in accordance with Table 701-1 and the roadway classification provided in the plans.. If the roadway classification is not provided in the plans, use Type 3 joints for all cross drain applications other than on local roads. Unless otherwise directed or specified, joint types for connecting side roads shall match the mainline roadway classification.

**Table 701-1
Joint Type Selection**

Joint Type	Application	Roadway Classification
Type 1 (T1)	Side Drain	All roadway classifications
Type 2 (T2)	Cross drains	2-lane Collector roadways and Local roadways
Type 3 (T3)	Cross drains	Freeways, Ramps, Arterials and multi-lane Collector roadways
	Storm drains, flumes, siphons, other watertight systems	All roadway classifications

701.06.2 Concrete Pipe: Concrete pipe may be either bell and spigot or tongue and groove. Join pipe sections so that ends are fully entered and inner surfaces are flush and even.

Use an approved mechanical pipe puller for joining pipes over 36 inches in diameter. For pipe 36 inches or less in diameter, use any approved method for joining pipe that does not damage the pipe.

Joints shall comply with 1016.01.1 and 1018.03. Seal with gasket material installed in accordance with the manufacturer's recommendations.

701.06.3 Metal Pipe: Firmly join metal pipe by coupling bands. Center bands over the joint.

For Type 1 joints, place approved gasket material in one corrugation recess on each side of the joint at the coupling band and on each band connection in such manner to prevent leakage.

When Type 2 or 3 joints are specified, join metal pipe sections as follows:

701.06.3.1 General: Seal band joints with gasket material. Place gasket material in accordance with the plan details.

701.06.3.2 Circular Section: Connecting bands shall be of an approved design. Install in accordance with plan details.

701.06.3.3 Arch Section: Connecting bands shall be a minimum of 12 inches wide for a pipe arch less than 36 inches round equivalent diameter, and a minimum of 21 inches wide for pipe arch 36 inches round equivalent diameter and greater. Connect bands at the ends by approved angle or strap connections. Use two-piece connecting bands for a pipe arch 36 inches round equivalent diameter and greater.

701.06.4 Thermoplastic Pipe: Joints for thermoplastic pipe shall be bell and spigot or split coupling bands.

701.06.4.1 Bell and Spigot Type Joint System: Join pipe sections so that ends are fully entered and inner surfaces are flush and even.

Use any approved method for joining pipe that does not damage the pipe.

After joints approval, seal with a rubber gasket material complying with 1007.08.4.1.

701.06.4.2 Split Coupling Type Joint System: Split coupling bands shall comply with all dimensional and material requirements of 1006.07. Center the bands over the joint. Secure the split coupling band to the pipe with a minimum of five stainless steel or other approved corrosion resistant bands.

After joints approval, seal with gasket material. Place gasket material in the first two corrugation recesses on each side of the pipe connection. Also place gasket material on each band connection to prevent leakage. When using flexible thermoplastic gasket material, it shall be a minimum of 1/2 inch in size. Tighten the bands to create overlap of the band and adequately compress the gasket material.

701.06.5 Connections: Use approved connections when joining new pipes to existing pipes. When using concrete collars to extend the ends of existing pipes that have been damaged construct the concrete collars in accordance with plan details, the applicable requirements of Section 901, and as directed. Wrap pipe joints with geotextile fabric before pouring concrete and in accordance with Section 1019.

701.06.6 Geotextile Fabric Wrapped Pipe Joints: For concrete, metal, and thermoplastic pipes, use Types 2 and 3 joints wrapped with geotextile fabric for a minimum of 12 inches on each side of the joint for pipe 36 inches or less in diameter and a minimum of 18 inches on each side of the joint for pipe greater than 36 inches in diameter. Wrap the ends of the fabric around the circumference of the pipe and overlap at least 10 inches. Secure the edges and ends of fabric for the entire circumference of the pipe.

701.07 RELAYING PIPE. If specified or directed, remove existing pipes and relay suitable sections as specified for new pipes.

701.08 BACKFILLING.

701.08.1 General: Prior to backfilling, remove pipes found to be damaged or out of alignment or grade; reinstall or replace.

Type A backfill material shall be stone, recycled portland cement concrete, or flowable fill.

Type B backfill materials are select soils. Select soils are natural soils with a maximum PI of 20, a maximum liquid limit of 35, and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed. Where Type B backfill materials are called for, Type A backfill materials may be substituted.

When using corrugated metal pipe, the backfill material shall be tested and shall have a resistivity greater than 1500 ohm-cm and a pH greater than 5 when tested in accordance with DOTD TR 429 and DOTD TR 430 respectively.

When using Type A backfill material, place geotextile fabric to surround this backfill in accordance with 726.03 between the aggregate backfill material and all other natural or placed soils in the trench or embankment. Take care to prevent damage to geotextile fabric during placement of backfill material. For concrete pipe, enclose not only the initial backfill with the fabric, but wrap the fabric over the top of the pipe with at least 12 inches of overlap.

When using a trench box or trench sheeting in unstable soils and/or for worker safety, and when moved during backfilling operations, immediately fill and provide additional compaction of the disturbed zone of backfill to the satisfaction of the engineer.

Initial backfill is a structural backfill encasing the pipe from the bottom of the pipe to the springline for concrete pipe and to a point one foot above the top of the pipe for flexible pipe. Final backfill is not a structural backfill. Final backfill extends from the top of the initial backfill to the top of the subgrade in cut areas or to the top of existing ground in fill areas. Consider and treat any fill required above the final backfill as embankment.

Backfill shall be placed and compacted in accordance with the plan details.

701.08.2 Pipes Subject to Construction Traffic: Construct the embankment or pipe backfill to a minimum height of 24 inches over the pipe before allowing heavy construction equipment to cross the installation. Where practical, do not construct installations with less than 24 inches of cover over the top of the pipe until after completing the heavy hauling over the pipe location. After completion of hauling operations, remove excess cover material. Remove and reinstall or replace, pipe damaged by hauling and backfilling operations at no direct pay.

701.08.3 Placement and Compaction: For all pipes, culverts, and conduits under paved and unpaved areas, where using Type A and Type B backfill material, thoroughly hand compact the Type A and Type B backfill under the pipe haunches and then dynamically compact in layers not exceeding 12 inches compacted thickness. Initially compact under the haunches of the pipe by hand tamping or other acceptable means, until reaching a level in which the dynamic tamping can commence. Compact each lift using a hand operated, dynamic mechanical compaction device over the surface of each lift. Verify satisfactory installation and performance, in accordance with 701.08.6. If using flowable fill, furnish, place, and consolidate in accordance with Section 710. Control placement operations during initial backfill operations without damage to protective coatings on metal pipes. Repair damaged coatings at no additional pay.

701.08.4 Deleted

701.08.5 Placement and Compaction- Trenchless or Partial Trench Condition: All pipes, culverts, drains, and conduits placed with any portion of the pipe above existing ground shall comply with 701.08.1, 701.08.2, 701.08.3; 701.08.4 shall be for the portion of the pipe within a trench and the portion of the pipe not constructed in a trench. The initial and final backfill of that portion of pipe above existing ground and not within a trench shall be constructed to such a width that the requirements for placement, compaction, and density are met.

701.08.6 Density Requirements: Under all paved areas which are to be under traffic, determine the maximum dry density of the backfill material, excluding flowable fill, in accordance with DOTD TR 415 or TR 418. Determine in-place density in accordance with DOTD TR 401. Place backfill, excluding flowable fill, at or near optimum moisture content in accordance with DOTD TR 415 or TR 418. Compact each layer by approved methods prior to the placement of a subsequent layer. The engineer will approve the compaction method upon validation that such method, including moisture control, will achieve at least 95 percent of maximum dry density in accordance with DOTD TR 401. Density testing on subsequent backfill layers may be waived by the engineer if installation has been in accordance with approved compaction methods and performance has been continuously satisfactory.

Under all unpaved areas, place initial and final backfill and compact evenly along the length of the culvert, pipe, or drain. Compact layered backfill to at least the density of the adjoining existing soils or the compaction required of the laterally adjoining layers of soil immediately outside the trench for embankment installations. Place and compact initial and final backfill at or near optimum moisture content in accordance with DOTD TR 415 or TR 418.

701.09 INSPECTION OF PIPES. After completion of embankment and prior to roadway surfacing, the engineer shall inspect pipes for proper alignment and integrity of joints. Correct any misaligned pipe or defective joints at no direct pay.

701.09.1 Thermoplastic Pipe: Test installed thermoplastic pipe to ensure that vertical deflections do not exceed 5.0 percent. Maximum allowable deflections shall be governed by the mandrel requirements stated herein.

Perform deflection tests no sooner than 30 calendar days after installation and compaction of backfill. Clean the pipe and inspect for offsets and obstructions prior to testing.

For pipe 36 inches and less in diameter, pull a mandrel through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. The mandrel must be approved by the Department. Use of an unapproved, mandrel or a mandrel altered or modified after approval mandrel will invalidate the test. If the mandrel fails to pass through the pipe, the pipe is over-deflected.

Unless otherwise permitted, uncover over-deflected pipe and, if not damaged, reinstall. Do not reinstall damaged pipe. Remove and replace with new pipe. Any pipe subjected to any method or process other than removal, which attempts, even successfully, to reduce or cure any over-deflection, shall be removed and replaced with new pipe.

Use a rigid, nonadjustable, odd-numbered leg (minimum 9 legs) mandrel having a length not less than its nominal diameter or 24 inches, whichever is less. The minimum diameter at any point shall be 5.0 percent less than the base inside diameter of the pipe being tested. The mandrel shall be fabricated of steel, aluminum, or other approved material fitted with pulling rings at each end. The nominal pipe size and outside diameter of the mandrel shall be verified prior to pulling the mandrel through the pipe. Furnish a suitable carrying case.

For pipe larger than 36 inches in diameter, determine deflection by a method approved by the engineer. If a mandrel is selected, the minimum diameter, length, and other requirements shall conform to the above requirements.

Conduct mandrel testing in the presence of the engineer. Mandrel testing shall be at no direct pay.

701.09.2 Metal Pipe: If the inside diameter of metal pipe or rise dimension of metal pipe arch deflects more than 5.0 percent from original dimensions, remove and reinstall the metal pipes or pipe arches, unless they do not rebound or are damaged. Remove pipes or pipe arches which are damaged or do not rebound; and replace at no direct pay. Measurement of deflection will be made by the engineer away from rerolled ends.

701.10 CLEANING PIPES.

701.10.1 Existing Pipes: Clean designated pipes of soil, debris, and other materials to the invert of the pipe by approved methods that will not damage the pipes. Satisfactorily repair all damage caused by the contractor's operations at no direct pay.

Dispose of removed soil, debris, and other materials in accordance with 202.02 or as otherwise approved in writing.

701.10.2 Contractor Installed Pipes: Prior to final acceptance, clean pipes of all debris and soil to the invert of the pipe at no direct pay.

Dispose of removed soil, debris, and other materials in accordance with 202.02 or as otherwise approved in writing.

701.11 STUBBING AND PLUGGING PIPES. Construct pipe plugs with Class R concrete complying with Section 901. Thickness of plug and method of construction shall be as directed.

When stubbing new pipes are to be stubbed into new or existing pipes or other structures, make the connection with approved mortar complying with 1001.03.

701.12 MEASUREMENT.

1. The length of new and re-laid pipe will be measured in linear feet along the pipe from end to end unless stated otherwise.
2. Pipe tees, elbows, and other fittings will be measured per each fitting. The length of pipe in such fittings will be included in the pay length measurement of pipes of which they form a part.
3. Excavation required for pipe installation will not be measured for payment, except as otherwise specified in 203.14 and 701.12.10.
4. Furnishing and placing backfill material below existing ground level for pipes will not be measured for payment. Backfill material needed to complete backfill above natural ground and around pipes that extend above natural ground will be measured for payment under applicable earthwork items. When specifying flowable fill, measure for payment in accordance with Section 710.

5. Plugging and stubbing of pipes will not be measured for payment.
6. Cleaning existing pipes will be measured by the length of pipe cleaned and accepted.
7. Concrete collars will be measured per each.
8. Dewatering of excavated areas will not be measured for payment.
9. Special shoring and bracing (depth > 5 feet), needed in addition to OSHA requirements for trench safety, will be measured by the square foot of wall area.
10. Trench excavation safety protection (depth > 5 feet) will be measured by the length of trench having a depth > 5 feet below natural ground.
11. Geotextile fabric will not be measured for payment.

701.13 PAYMENT. Payment for concrete and metal pipe will be made at the contract unit price per linear foot of the types and sizes specified, which includes all labor, materials, equipment, tools, and incidentals necessary to complete the work.

When thermoplastic pipe is shown on the plans or elected to be used by the contractor, payment will be made at the contract unit price per linear foot of the types and sizes specified in accordance with the payment schedule of Table 701-2.

**Table 701-2
Payment Schedule for Thermoplastic Pipe**

Percent Payment	Stage of Completeness
75	After placement and backfill has been completed
25	After the pipe has met vertical deflection requirements in accordance with 701.09.1

Payment for fabricating pipe tees, elbows, and other fittings will be made at the contract unit price per each fitting.

When unstable conditions are encountered, the additional excavation will not be measured for payment; however, the additional materials furnished and placed for the pipe foundation will be measured and paid for as follows:

1. Granular Materials: Payment will be made under the embankment item. The net section volume of the materials will be multiplied by 3 to determine the pay volume. When the contract does not include a pay item for embankment, payment will be made in accordance with 104.02.
2. Bedding Material: Measurement and payment will be made in accordance with Section 726. When the contract does not include a pay item for bedding material, payment will be made in accordance with 104.02.
3. Trench Excavation Safety Protection: When excavation depths exceed 5 feet from natural ground, safety precautions for excavations in compliance with OSHA are required and will be paid per linear foot of trench. When the contract does not include a pay item for trench excavation safety protection, payment will be made in accordance with 104.02.
4. Payment for cleaning existing pipes will be made at the contract unit price per cleaned linear foot.
5. Payment for concrete collars will be made at the contract unit price per each.
6. Payment for special shoring and bracing will be made at the contract unit price per square foot of wall area.

Payment will be made under:

Item No.	Pay Item	Pay Unit
701-01	Cross Drain Pipe	Linear Foot
701-02	Cross Drain Pipe Arch	Linear Foot
701-03	Storm Drain Pipe	Linear Foot
701-04	Storm Drain Pipe Arch	Linear Foot
701-05	Side Drain Pipe	Linear Foot
701-06	Side Drain Pipe Arch	Linear Foot
701-07	Yard Drain Pipe	Linear Foot
701-08	Relaying Pipe	Linear Foot
701-09	Pipe Fittings	Each
701-10	Reinforced Concrete Pipe (Extension)	Linear Foot
701-11	Reinforced Concrete Pipe Arch (Extension)	Linear Foot
701-12	Corrugated Metal Pipe (Extension)	Linear Foot
701-13	Corrugated Metal Pipe Arch (Extension)	Linear Foot
701-14	Cleaning Existing Pipes	Linear Foot
701-15	Concrete Collar	Each
701-16	Thermoplastic Pipe (Extension)	Linear Foot
701-17	Trench Excavation Safety Protection (Depth >5 feet)	Linear Foot
701-18	Special Shoring and Bracing (Depth >5 feet)	Square Foot

SECTION 704 – GUARDRAIL:

Subsection 704.02 – Materials (12/17), Page 373

704.02 is deleted and replaced with the following:

704.02 MATERIALS. Materials shall comply with the following sections and subsections:

Portland Cement Concrete (Class A1)	901
Reinforcing Steel	1009
Metal Beam Guardrail	1010.09
Guardrail Posts and Blockout	1010.10
Guardrail Hardware	1010.11
Wire Rope and Fittings for Highway Guardrail	1010.12

Welding shall comply with Section 809.

SECTION 705 – FENCES:

Subsection 705.03 – General Construction Requirements (05/18), Pages 376 and 377

705.03 is deleted and replaced with the following:

705.03 GENERAL CONSTRUCTION REQUIREMENTS. Conform to Section 201 when clearing and grubbing for fence installation.

Confine operations to the area adjacent to right-of-way lines and within the right-of-way.

Where breaks in a run of fencing are required, and at intersections with existing fences, make appropriate adjustment in post spacing for the type closure indicated.

Place wood posts with small end up. When posts, braces, or anchors are to be embedded in concrete, install temporary braces as required to hold posts in proper position until concrete has set sufficiently to hold posts. Do not install fencing material on posts or place strain on bracing set in concrete for 72 hours after concrete has been placed. Set tops of posts to required grade and alignment. Cutting of wood post tops will be allowed only when approved. Treat cut ends with 2 applications of the same type preservative used for post treatment. Stretch wire taut.

Install ground rods along each segment of new or rebuilt fence in conformance with plan details.

SECTION 707 – CURBS AND GUTTERS:

Subsection 707.12.2 – Portland Cement Concrete (05/18), Page 386

707.12.2 is deleted and replaced with the following:

707.12.2 Portland Cement Concrete: The portland cement concrete in the curbs and/or gutters will be identified by lots and shall be subject to payment adjustments per linear foot in accordance with Table 901-4 for Class A1 concrete and Table 601-3 for Type B & D concrete. Size, sampling, and testing of each concrete lot shall be in accordance with the Materials Sampling Manual.

SECTION 713 – TEMPORARY TRAFFIC CONTROL:

Subsection 713.02 – Materials (08/21), Page 403

713.02 is deleted and replaced with the following:

713.02 MATERIALS. Materials for temporary signs, barricades, barriers, and related devices shall comply with the following sections and subsections:

Portland Cement Concrete	901
Reinforcing Steel	1009.01
Backing Material	1015.04.2
Reflective Sheeting	1015.05
Sign Enamels, Paints, Silk Screen, Overlay Film, and Digital Printing	1015.07
Temporary Pavement Markings	1015.08
Raised Pavement Markers & Adhesive	1015.09
Thermoplastic Pavement Markings	1015.10
Traffic Paint	1015.12
Barricade Warning Lights	1018.13

713.02.1 Temporary Pavement Markings: Temporary pavement markings shall be a minimum of 4 inches wide.

713.02.2 Reflective Sheeting: Reflective sheeting requirements for temporary signs, barricades, channelizing devices, drums, and cones shall comply with 1015.05.6

Subsection 713.07 – Pavement Markings (08/21), Page 407

Table 713-1 is deleted and replaced with the following:

**Table 713-1
Temporary Pavement Marking^{1,2}**

		Two-Lane Highways	Undivided Multilane Highways	Divided Multilane Highways
Short Term	Required Striping that must be in place at the end of each day of paving and maintained until replaced with other short term or long term markings.	Centerlines 4-foot tape on 40-foot centers	Lane lines 4-foot tape on 40-foot centers	Lane lines 4-foot tape on 40-foot centers
		“Do Not Pass” and “Pass With Care” signs, as required	Double yellow centerline	
	Required Striping that must be in place, within 72 hours of removal or overlay of permanent striping, and maintained until replaced with either long-term striping or permanent striping.	Centerlines 4-foot tape on 40-foot centers	Lane lines 4-foot tape on 40-foot centers	Lane lines 4-foot tape on 40-foot centers
		No passing zone markings	Double yellow centerline	Edge lines
Edge lines	Edge lines			
Long Term	Required Striping that must be in place within 30 days of removal or covering of permanent striping and maintained until permanent striping is installed.	Standard 10-foot long centerlines on 40-foot center	Standard 10-foot long lane lines on 40-foot center with raised pavement markers ³	Standard 10-foot long lane lines on 40-foot center with raised pavement markers ³
		No passing zone markings	Double yellow centerline with raised pavement markers ³	Legends & Symbols
		Legends & Symbols	Legends & Symbols	
		Edge lines	Edge lines	Edge lines

¹On all asphalt surface treatments, that are open to traffic, temporary reflectorized raised pavement markers (tabs) on 20-foot centers shall be used in lieu of the 4-foot tape on 40-foot centers.

²All work will be stopped and time will continue to be charged if the required markings in this table are not in place and maintained throughout the indicated time periods. Work will only resume after all required markings are in place and approved by the Project Engineer

³Raised Pavement Markers only to be applied on concrete surfaces when required in plans.

Subsection 713.07.1 – Short-term Pavement Markings (08/21), Pages 407 and 408

713.07.1 is deleted and replaced with the following:

713.07.1 Short-term Pavement Markings: Provide short-term pavement markings on all pavement surfaces under traffic according to Table 713-1.

When short-term pavement markings require no-passing zone markings or double yellow centerlines, use any of the temporary pavement markings listed in 713.02.

Removal of short-term pavement markings is only required on the final surface, unless otherwise indicated in the plans or required in order to avoid conflicting markings due to phasing.

Subsection 713.07.2 – Long-term Pavement Markings (08/21), Page 408

713.07.2 is deleted and replaced with the following:

713.07.2 Long-term Pavement Markings: Provide long-term pavement markings according to Table 713-1 and in accordance with plan details and standard plans. Layout work for exact location of markings will only be required on the final wearing surface.

These markings include all of the pavement markings listed in 713.02.

Subsection 713.11.2 – Temporary Pavement Markings (08/21), Page 419

The first paragraph of 713.11.2 is deleted and replaced with the following:

When the contract does not include a pay item for Temporary Pavement Markings, provision of these markings will be considered by the Department to be for the convenience of the contractor and will not be measured for payment. When the contract includes an item for Temporary Pavement Markings, these markings will be measured by the linear foot, mile, per each, or as specified and will include acceptable furnishing, placing, maintenance, and removal.

SECTION 724 – RUMBLE STRIPS:

Subsection 724.04 – Measurement (10/18), Page 457

The first paragraph of 724.04 is deleted and replaced with the following:

The quantity of Rumble Strips (Centerline or Shoulder/Edge) to be paid for will be the plan quantity in miles, constructed and accepted. The plan quantity will be determined based on the roadway length. Shoulder/edge rumble strips shall be measured per each shoulder. No deduction will be made for gaps.

SECTION 731 – RAISED PAVEMENT MARKERS:

All Subsections (08/18), Pages 479 – 481

731 is deleted and replaced with the following:

**Section 731
Raised Pavement Markers**

731.01 DESCRIPTION. Furnish and place raised pavement markers in accordance with the plans.

The contractor shall be responsible for field layout and alignment of raised pavement markers. Existing pavement striping shall generally be used as a guide in determining raised marker locations. Any required striping will be placed prior to installation of raised pavement markers.

731.02 MATERIALS.

731.02.1 Markers: Markers shall comply with 1015.09. Use the same product throughout the project. Mix epoxy components and dispense adhesive in accordance with manufacturer's recommendations.

731.02.2 Epoxy Adhesive: Epoxy resin adhesive system shall comply with 1017.03.

731.02.3 Bituminous Adhesive: Bituminous adhesive shall comply with 1015.09.3.2.

731.03 CONSTRUCTION REQUIREMENTS.

731.03.1 Weather Limitations: Do not apply markers if moisture is present.

731.03.1.1 Epoxy Adhesive: When using a standard set adhesive, do not apply markers at ambient air temperatures less than 50°F. When using a rapid set adhesive, do not apply markers at ambient air temperatures less than 35°F. When using a rapid set adhesive, application of markers will be permitted at ambient air temperatures between 35°F and 50°F, provided the adhesive is adequately heated to obtain proper viscosity for mixing and application, and is also identified as a rapid set type on container labels and Certificates of Delivery.

731.03.1.2 Bituminous Adhesive: Apply markers when the ambient air temperature reaches 35°F or greater, or in accordance with the manufacturer's recommendations.

731.03.2 Removal of Markers: Remove markers, when required, by methods that will not damage the pavement surface. Repair damage to pavement surface at no cost to the Department. After removing the markers, the debris and residue shall become the property of the contractor and be disposed of properly.

731.03.3 Cleaning of Surfaces: Surfaces, including ramps and gore areas, on which markers are to be applied must be cleaned of all materials that may reduce the bond of adhesive. Maintain surfaces in a clean dry condition until placement of markers.

731.03.4 Application of Markers: Do not place pavement markers on joints.

Place markers with bituminous adhesive on asphalt surfaces. Place markers with epoxy resin adhesive, or bituminous adhesive on portland cement concrete surfaces.

Apply markers to surfaces with adhesive in sufficient quantity to be slightly outside the entire perimeter of the marker.

731.04 MEASUREMENT. Raised pavement marker installation will be measured per each marker furnished, placed, and accepted.

Raised pavement marker removal will be measured per centerline miles (project length) including shoulders and ramps.

731.05 PAYMENT. Payment for installation of raised pavement markers will be made at the contract unit prices per each. Payment for removal of raised pavement markers will be made at the contract unit price per linear mile. Payment will include all labor, materials, equipment, and incidentals necessary to complete the work.

Item No.	Pay Item	Pay Unit
731-01	Non-reflectorized Raised Pavement Markers	Each
731-02	Reflectorized Raised Pavement Markers	Each
731-03	Removal of Raised Pavement Markers	Linear Mile

SECTION 740 – CONSTRUCTION LAYOUT:

Subsection 740.02 – Construction Requirements (08/20), Pages 526 and 527

740.02 is deleted and replaced with the following:

740.02 CONSTRUCTION REQUIREMENTS. Establish all lines and grades and stake out all project work, including sufficient vertical and horizontal control points for utility relocations for use by the Department and others.

The project survey control and horizontal alignment are based on the Louisiana State Plane Coordinate System. The construction plans and/or right-of-way map depicts the coordinates and datum of sufficient survey control points to establish or re-establish horizontal control throughout the length of the project. Employ such methods as approved by the Project Engineer for the location of the project alignment and other necessary survey control points in accordance with currently acceptable surveying standards and practices. When required, the Department will also provide one bench mark on or near the project for vertical control. Verify the values of any intermediate bench marks shown on the plans, by checking against the bench mark established by the Department for vertical control.

Employ qualified engineering and surveying personnel experienced in layout and construction of highways and bridges to correctly establish and keep complete and comprehensive records (field books or approved electronic files) of all lines and grades necessary from initial layout to final acceptance. Provide sufficient qualified staff, of at least one employee, on site during utility relocation periods. Provide any necessary survey work to ensure there are no utility conflicts with required construction. Provide daily documentation of utility relocation activities for incorporation into the project diaries.

The contractor shall be liable for the accuracy of the initial layout and all subsequent alignment and elevations and shall, at no additional pay, rebuild, repair or make good any portion of the work found to be incorrectly positioned either horizontally or vertically at any time before final acceptance. Notify the Engineer, in writing, immediately of any apparent errors in the plans. Compute and provide template grades to the Engineer. In order to obtain pipe order lengths, provide the appropriate grades to the Engineer two weeks in advance of the work.

Numbered notebooks for recording of all lines and grades will be provided by the Department and shall be properly indexed and cross referenced by the contractor before return to the Engineer for submittal with the final estimate. Computer generated printouts will be allowed when approved.

Set stationing for overlay projects using an approved measuring device that is accurate to 0.1 percent. Place stakes every 100 linear feet and maintain throughout construction.

When existing markings are to be removed or covered, or obliterated in such manner that the existing layout can no longer readily be determined in the field and the plans do not provide a proposed layout for pavement markings for the entire roadway or any section of roadway, then the existing pavement markings shall be recorded and submitted to the Engineer as the Existing Pavement Markings Layout for review.

All existing signs, including those being removed or replaced, must be documented in an inventory and should include the station and offset, sign type and condition, and submitted to the Engineer as the Existing Signs Inventory for review. The inventory must be in an acceptable format for use by the Project Engineer.

The Existing Pavement Markings Layout and the Existing Signs Inventory shall be submitted at least 7 days prior to the start of construction and may be used by the Project Engineer in conjunction with the District Traffic Operations Engineer in its entirety or in a modified version as the final pavement marking layout.

The installation of pavement markings shall not proceed until approval is granted by the District Traffic Operations Engineer.

PART VIII – STRUCTURES

SECTION 803 – DRILLED SHAFTS:

Subsection 803.03.3.2 – Testing Consultant (04/20), Page 566

803.03.3.2 is deleted and replaced with the following:

803.03.3.2 Testing Consultant: Use an experienced independent Testing Consultant that has been accepted by the Engineer prior to testing. Submit the consultant qualifications and the specifications for the test equipment to the Engineer prior to beginning drilled shaft installation. Perform all integrity testing and analyses under the supervision of a Registered Professional Engineer in the State of Louisiana.

A minimum of 3 years of experience in field testing and analyses of CSL test results is required for the CSL consultant.

The Thermal Integrity Profiling (TIP) testing consultant shall demonstrate 1 year of experience in TIP testing and an additional 5 years of experience with other nondestructive drilled shaft testing methods.

Subsection 803.03.5.1 – Integrity Test Report (04/20), Page 568

803.03.5.1 is deleted and replaced with the following:

803.03.5.1 Integrity Test Report: Provide as one document all integrity testing results, including CSL, TIP, and other Non-destructive Testing (NDT) results, along with all Shaft Construction Logs for the tested shaft. Testing results shall be in accordance with 803.05.11. For TIP testing, include any variation in temperature between wires, indicating cage misalignment and insufficient concrete cover as established using the thermal gradient. Follow ASTM D7949 Standard Test Methods for Thermal Integrity Profiling for minimum TIP report requirements.

Subsection 803.05.11 – Integrity Testing (04/20), Page 578

803.05.11 is amended to include the following:

803.05.11 Integrity Testing: Non-destructive Testing (NDT), other than CSL or TIP, shall be performed in accordance with the plans and specifications. Test all drilled shafts, test shafts, and technique shafts using CSL when any of the following conditions occur:

1. Shaft is constructed with the placement of concrete through slurry.
2. Full-length casing is used to prevent water from entering the shaft.
3. Testing is specified in the plans.
4. Testing is required by the Engineer.

Perform TIP testing on drilled shafts, test shafts, and technique shafts in addition to, or instead of, CSL testing only as directed in the plans.

Subsection 803.05.11.1.3 – Testing Procedures (04/20), Page 579

The first paragraph of 803.05.11.1.3 is deleted and replaced with the following:

Use the submitted and accepted Testing Consultant to perform CSL testing. Provide drilled shaft construction logs to the Testing Consultant.

Subsection 803.05.11.2 – Thermal Integrity Profiling (TIP) Testing (04/20), Page 579

803.05.11.2 is deleted and replaced with the following:

803.05.11.2 Thermal Integrity Profiling (TIP) Testing:

803.05.11.2.1 Testing Equipment: The TIP testing equipment shall be capable of performing the following functions and conform to ASTM D7949:

1. Perform TIP testing by measuring the heat generated by curing concrete placed in a shaft and comparing the expected temperature to the temperature at a given location.

2. Measure temperature using thermal wires tied to the shaft cage at various locations around the perimeter. Instrument the shaft and perform testing in accordance with ASTM D7949 Standard Test Methods for TIP of Concrete Deep Foundations.
3. Use method B of ASTM D7949.

803.05.11.2.2 Testing Procedures:

1. Contractor Assistance: Provide cooperative assistance, suitable access to the shafts to be tested, and labor as required to assist the TIP Consultant in performing the required tests. Prior to testing, provide the shaft lengths, thermal wire lengths and positions, and dates of shaft construction to the TIP Consultant. Coordinate with TIP Consultant to install the necessary TIP equipment prior to concreting the shaft.
2. Shaft Preparation: Attach thermal sensors to the reinforcing cage and align with longitudinal reinforcement. Space wires uniformly. Tie wires to reinforcing cage every 3 feet. Stretch wires tight and ensure there is minimal slack. The minimum number of wires installed shall be as specified below:

Table 803-7

Shaft Diameter, D (feet)	Minimum Number of Thermal Wires
D < 4.0	4
4 < D < 5.5	5
5.5 < D < 7.0	6
7.0 < D < 8.0	7
8.0 < D < 9.0	8
9.0 < D < 10.0	10
10.0 < D < 11.0	11
11.0 < D < 12.0	12

3. TIP Testing Procedure: Connect thermal sensors to recording apparatus. Document the measurement location in the shaft of each thermal sensor. Start recording data within 2 hours of completion of concrete placement. Transfer data to display apparatus upon completion of data collection.

Subsection 803.05.11.3.3 – TIP Test Results (04/20), Page 581

803.05.11.3 is amended to include the following:

803.05.11.3.3 TIP Test Results: The Geotechnical Engineer of Record will evaluate the TIP test results and determine whether the shaft construction is acceptable. Allow 7 working days for the evaluation to be conducted after receipt of the final TIP test results. If additional NDT is required in the plans, such as CSL, shafts will not be accepted until all required NDT is complete. The Geotechnical Engineer will evaluate the TIP test results for anomalies to determine if any defects may be present that need to be further investigated. Additional NDT testing may be required to determine the extent and severity of any defects. If the Geotechnical Engineer determines that the shaft is unacceptable based on TIP testing or other NDT, the shaft shall be considered defective.

Subsection 803.06.11 – Thermal Integrity Profiling (TIP) (04/20), Page 589

803.06 is amended to include the following:

803.06.11 Thermal Integrity Profiling (TIP): Measure the Thermal Integrity Profiling test per each drilled shaft tested and accepted.

Subsection 803.07.11 – Thermal Integrity Profiling (TIP) (04/20), Page 591

803.07 is amended to include the following:

803.07.11 Thermal Integrity Profiling (TIP): Payment for the Non-Destructive Test (Thermal Integrity Profiling) will be made at the contract unit price per each drilled shaft tested and shall include all labor, materials, equipment, and incidentals necessary to perform the required installation of instrumentation and testing services performed by Testing Consultant, and testing reports by TIP Consultant.

803-11	Thermal Integrity Profiling (Diameter)	Each
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SECTION 804 – PILES:

Subsection 804.05 – Pile Driving Equipment (03/21), Page 597

804.05 is amended to include the following:

804.05 PILE DRIVING EQUIPMENT. Provide pile driving equipment including crane, hammer, leads, and template capable of handling and driving piles 25 percent longer than the plan pile lengths.

Subsection 804.06.1.2 – Abutment (End Bent) Fill (04/21), Page 599

804.06.1.2 is deleted and replaced with the following:

804.06.1.2 Abutment (End Bent) Fill:

Construct the embankment at bridge ends to full height in accordance with 813.03 before driving affected piles. Drive piles through compacted embankment using prebored holes with a minimum depth equal to the compacted embankment height at the prebored location. Prebore holes for pile driving in accordance with 804.07. If a surcharge has been placed, drive affected piles after settlement monitoring is complete and the surcharge has been removed.

SECTION 805 – STRUCTURAL CONCRETE:

Subsection 805.03.5 – Steel Stay-in-Place Forms (04/19), Page 623

The number 7 bullet of 805.03.5 is deleted and replaced with the following:

7. Repair damage to galvanized surfaces on the metal forms or the visually exposed surfaces of the support angles in accordance with 811.08.1.

Subsection 805.06 – Curing (09/21), Page 628

The first paragraph of 805.06 is deleted and replaced with the following:

Cure precast concrete in accordance with 805.09.4. Use wet cure method for all other concrete unless specified otherwise herein.

Subsection 805.06.1 – Wet Cure Method (09/21), Pages 628 and 629

805.06.1 is deleted and replaced with the following:

805.06.1 Wet Cure Method: Use water conforming to 1018.01. Begin curing immediately after concrete placement. Keep exposed surfaces damp by applying water with a fog nozzle (fogging operation) until the surface has set sufficiently to support covering materials. Maintain a layer of high humidity above the concrete surface and minimize water loss in the mix after placement and before application of covering materials. Do not allow large water droplets that drip from nozzle to fall onto plastic concrete.

After concrete surface finishing and when the surface is sufficient to support the covering materials, cover exposed concrete with two layers of pre-wet burlap, or combination of one layer of pre-wet burlap and one layer of polyethylene or other acceptable blanket materials. Secure covering materials to stay in contact with the concrete at all times. After placement, keep the concrete continuously wet for at least 7 curing days for cast-in-place concrete.

Subsection 805.06.2 – Membrane Cure Method (09/21), Page 629

805.06.2 is deleted and replaced with the following:

805.06.2 Membrane Cure Method: Membrane Cure Method using a curing membrane in accordance with 1011.01 may be substituted for Wet Cure Method for curing concrete in minor drainage structures.

Cover or shield exposed reinforcing steel and construction joint surfaces to prevent coating with curing membrane. Wet cure construction joint surfaces.

Apply curing membrane uniformly to surfaces. Apply curing membrane to exposed surfaces as soon as bleed water and other surface moisture has disappeared. Apply curing membrane to formed surfaces immediately after form removal. Do not apply curing membrane during rainfall or to surfaces with standing water. If rain falls on newly-coated concrete before the film has dried sufficiently to resist damage, or if the film is damaged or deficient, immediately apply a new coat of curing membrane to affected surfaces.

Apply curing membrane under pressure using mechanical sprayers using the method and rate recommended by the curing membrane manufacturer, but using a rate of not less than 1 gallon per 100 square feet of surface area. Use the fully atomizing type of spraying equipment with a tank agitator. Immediately, prior to, and during application, thoroughly mix the curing membrane, stirring continuously by mechanical methods.

Hand spraying is allowed on small irregular widths or shapes and on surfaces exposed by form removal. Thoroughly agitate the curing membrane prior to placing in the sprayer.

Apply the curing membrane in one or two applications. If the curing membrane is applied in two applications, apply the second application no more than 30 minutes after first application.

After final application of curing membrane, the membrane surface should have the appearance of a blank white sheet of paper.

Subsection 805.06.4 – Bridge Deck Curing (09/21), Page 629

805.06.4 is deleted and replaced with the following:

805.06.4 Bridge Deck Curing: Cure bridge decks using only Wet Cure Method with the following requirements:

Immediately after deck placement, and until completion of surface finishing, apply fogging operation in accordance with 805.06.1.

Immediately after surface finishing, apply Type 2 white-pigmented membrane curing compound to exposed surfaces in accordance with 805.06.2.

When concrete has set sufficiently to support covering materials without marring the surface, cover the concrete with first layer of pre-wet burlap with minimum length sufficient to cover the bridge deck from side to side of the concrete placement. Provide soaker hoses at a maximum of 10-foot intervals for additional soaking of the initial covering to cover the full width of the concrete placement. Overlap covering edges at least 12 inches. Do not allow initial wetting of burlap to dry before soaker hoses are in place and operational. Operate soaker hoses continuously to keep the initial covering saturated. Place second layer of pre-wet burlap or pre-wet burlap laminated with polyethylene over the initial covering and soaker hoses. Overlap covering edges at least 12 inches. Secure covering materials in place during the 7 curing days by taping and weighting the edges where they overlap or are vulnerable to movement by wind.

Close deck to all traffic, including vehicles of the contractor, until wet cure is completed and the concrete has attained at least 4000 psi compressive strength.

Subsection 805.07 – Removal of Forms and Falsework (09/21), Page 630

805.07 is deleted and replaced with the following:

805.07 REMOVAL OF FORMS AND FALSEWORK. Remove forms and falsework without overstressing or damaging the concrete, and in such a manner that will permit concrete to uniformly and gradually take stresses due to its own weight. Remove forms and falsework without causing concrete distortion.

Side forms may be removed after one curing day provided they are no longer resisting forces and if permitted by the Engineer. Curing days are as defined in 805.06. For cast-in-place concrete, forms and falsework supporting the weight of concrete may be removed when concrete attains the compressive strength requirements in Table 805-6. For slip formed concrete, Table 805-6 does not apply.

Removal of forms does not relieve the wet curing requirements of 805.06.1. Form curing method of 805.06.3 will cease upon removal of forms and other means of wet curing shall immediately be implemented, to the satisfaction of the Engineer, for the remainder of the required curing duration.

For precast concrete, forms and falsework may be removed when concrete attains the minimum strength requirements of Table 805-6, with the exception of non-prestressed box culverts, catch basins, junction boxes, end treatments, and temporary precast barriers, for which Table 805-6 does not apply.

Table 805-6 is deleted and replaced with the following:

**Table 805-6
Removal of Forms and Falsework
Strength Requirements**

Concrete Class	Compressive Strength, psi
A1, MASS (A1), and S	4000
A2 and MASS(A2)	6000
A3 and MASS(A3)	8500
M	2700
P1	3600
P2	5100
P3	6000

Table 805-7 is deleted.

**Table 805-7
Forms and Falsework Removal Schedule
Cast-in-Place and Precast Non-Prestressed Concrete**

The contents of this table are deleted.

Subsection 805.09.4 – Curing (09/21), Page 635

Paragraph 1, 2, 3, and 4 of 805.09.4 is deleted and replaced with the following:

805.09.4 Curing: Cure concrete in accordance with 805.06, Section 901, and as amended by this section.

Cure non-prestressed members for three curing days using steam cure method or wet cure method. Cure prestressed members until concrete reaches release strength using steam cure method or wet cure method.

Furnish and install two recording thermometers reporting time-temperature relationship for each 200 feet of bed.

Use thermocouple cure for all Class P2 and P3 concrete or when specified in the contract.

Subsection 805.09.4.2 – Wet Cure Method (09/21), Page 636

805.09.4.2 is deleted.

Subsection 805.09.4.3 – Combined Steam and Wet Cure Method (09/21), Page 636

805.09.4.3 is deleted.

Subsection 805.09.4.4 – Membrane Cure Method (09/21), Page 636

805.09.4.4 is deleted and replaced with the following:

805.09.4.4 Membrane Cure Method: Use Membrane Cure Method as an interim short term curing method for plastic concrete.

Maintain concrete in a surface saturated condition using foggers until finishing is complete. Immediately after finishing, apply curing membrane in accordance with 805.06.2.

When concrete has set sufficiently to prevent marring the surface, apply Steam Cure Method or Wet Cure Method for the remainder of the required cure time.

SECTION 807 – STRUCTURAL METALS:

Subsection 807.05.2.4 – Bolted Parts (04/19), Page 667

The number 4 bullet of 807.05.2.4 is deleted and replaced with the following:

- 4. When metallic thermal spray coatings are specified, conform to 811.08.2.

SECTION 811 – PAINTING AND PROTECTIVE COATINGS:

Subsection 811.03 – Materials (10/19), Pages 689 – 691

811.03 is deleted and replaced with the following:

811.03 MATERIALS. Materials shall comply with the following sections or subsections:

Paints	1008
Cold Tar Epoxy-Polyamide Paint	1008.04
Cold Galvanizing Repair Compound	1008.05
Maintenance Overcoating of Steel Bridges	1008.08

Unless otherwise specified, use a Zinc Paint System from the Approved Materials List for painting new and existing metals to be painted. Provide organic zinc primer compatible with the inorganic zinc primer as a repair and stripe coat component. Provide an intermediate coat compatible with both the inorganic and organic zinc primers. The paint supplier will certify at the time of paint approval, the materials (primers & intermediate coats) are compatible and will not affect the performance of the whole system as tested by NTPEP.

Show the paint system to be used on shop or working drawings. Use only one paint system from one manufacturer for the entire structure without modifications. Top coat colors shall be as defined in Table 811-1. When spot painting or zone painting existing metals, match existing top coat color.

**Table 811-1
Top Coat Colors for Painting Metalwork**

Description	SAE AMS-STD-595A Color Number
Black	17038
Silver	17178
Dark Bronze	30040
Weathered Steel	30045
Khaki	30372
Gray	36463

Provide a gloss finish for top coat. The Color Numbers in Table 811-1 are for pigment color matching purposes only.

Provide coating systems with visibly contrasting color tint for each full coat and stripe coat.

Provide anti-skid surface, compatible with the paint system and recommended by the manufacturer unless otherwise specified, on stair treads, walkway surfaces, platforms, and landings.

Coating materials shall not be used until the Project Engineer has inspected the materials and each batch of paint has been accepted by the DOTD Materials and Testing Section.

811.03.1 Abrasives: Use properly sized abrasives to achieve the required cleanliness and surface profile. Use abrasives meeting the requirements of SSPC-AB1, Mineral and Slag Abrasives; SSPC-AB2, Cleanliness of Recycled Ferrous Metallic Abrasives; or SSPC-AB3, Newly Manufactured or Re-Manufactured Steel Abrasive. Do not introduce any contamination that interferes with the coating application and performance, including chlorides and other salts.

For field applications, abrasives delivered to project site shall be new and conform to SSPC-AB3. Once used during the work, abrasives may be recycled provided the resulting conductivity and cleanliness conform to SSPC-AB2. Select a sample from each recycling machine in use and conduct the water-soluble contaminant and oil content tests outlined in SSPC-AB2 at least one time each week or more frequently, if directed. Conduct the non-abrasive residue and lead content tests as directed by the Project Engineer. If test results do not meet requirements, notify the Project Engineer immediately, remove and replace the abrasive, clean the recycling equipment, and conduct tests each day to confirm the equipment is functioning properly. Return to the weekly testing interval when directed.

811.03.2 Caulk: Unless otherwise specified, use caulks that are paintable, compatible with the coating system, and recommended by the coating manufacturer. Provide caulk conforming to Federal Specification TT-S-00230C, Type II, Class A. For painted metalwork, use caulk colored to contrast the color of the intermediate and top coats. For unpainted and painted sections of weathering steel, use caulk colored to match the color of the weathered steel in accordance with Table 811-1.

811.03.3 Penetrating Sealer: Use low viscosity 100 percent solids un-pigmented epoxy recommended by the coating manufacturer.

811.03.4 Rust Preventative Compound: Use a Class 3 rust preventative compound meeting the requirements of Military Specification MIL-C-11796C, Corrosion Preventative Compound, Petrolatum, Hot-Applied.

811.03.5 Soluble Salts Test Kit: Use a soluble salts test kit in accordance with SSPC-Guide 15 utilizing Multi-Step Ion-Specific Methods. Ensure the test patch/cell or sleeve creates a sealed, encapsulated environment during ion extraction and is suitable for testing all structural steel surfaces. A Fully Automated Conductivity Measuring System may be allowed, subject to acceptance by the Project Engineer.

811.03.6 Thinners, Solvents, and Cleaners: Use thinners, solvents, and cleaners listed on the coating manufacturer’s product data sheet. For overcoating systems, use thinners, solvents, and cleaners that do not damage the existing coating system or inhibit the performance of the newly applied coatings.

SECTION 813 – CONCRETE APPROACH SLABS:

Subsection 813.03.5.1 – High Early Strength Concrete (02/19), Pages 731 and 732

813.03.5.1 is deleted and replaced with the following:

813.03.5.1 High Early Strength Concrete: When specified or when determined by the Project Engineer that construction conditions merit opening concrete approach slabs to traffic before concrete is fully cured, high early strength concrete (HES) shall be used in accordance with Section 902.

SECTION 816 – BRIDGE DRAINAGE SYSTEMS:

Subsection 816.02 – Materials (11/18), Page 745

The first paragraph of 816.02 is deleted and replaced with the following:

Materials shall comply with the plans and specifications and the following:

Culverts and Storm Drains	701.02
Manholes, Junction Boxes, Catch Basins, and End Treatments	702.02
Bedding Material	726.02
Structural Concrete	805.02
Deformed Reinforcing Steel	806.02
Structural Metals	807.02
Painting and Protective Coatings	811
Metals	1013
Stainless Steel Bolts	1013.08

SECTION 817 – TEMPORARY WORKS:

Subsection 817.03.1.1 – Temporary Detour Bridge (07/18), Pages 748 and 749

The first sentence of the second paragraph of 817.03.1.1 is deleted and replaced with the following:

Conform to Section 803 for drilled shafts, Section 804 for piles, Section 810 for bridge railings, and Section 704 for guardrails.

The first sentence of the fifth paragraph of 817.03.1.1 is deleted and replaced with the following:

Remove the detour bridge in accordance with 202.03. Remove piling completely.

Subsection 817.03.2.4 – Cofferdams (07/18), Page 750

The second sentence of the fourth paragraph is deleted and replaced with the following:

Conform to 105.19.

Subsection 817.03.2.7 – Temporary Detour Bridge (07/18), Page 754

817.03.2 is amended to include the following:

817.03.2.7 Temporary Detour Bridge: Conform to 817.03.1.1. All submittals shall be for review. Design temporary detour bridge in accordance with the latest version of AASHTO LRFD Bridge Design Specifications. Design all bents in the channel for the local scour depth shown on the plans. Provide as-designed bridge rating for HL-93 Inventory and HL-93 Operating. Refer to the LA DOTD Bridge Design and Evaluation Manual for as-designed rating requirements. Submit all design and rating calculations.

Provide detour bridge drawings and erection drawings. Include general bridge layout showing plan and elevation views. Include current ground line along detour centerline and water elevation at the time of construction. Provide superstructure and substructure details. Include pile types, lengths, and locations, and any other details required to construct the detour bridge.

When prefabricated steel bridge systems are used, submit the assembly and installation instructions from the original manufacturer a minimum of 90 days prior to installation. Construct in accordance with the original manufacturer's specifications and recommendations, and as specified in the plans and in the accepted submittals. A representative from the original manufacturer must be present at the project site and oversee the assembly and installation of the first erected span. Upon completion of the installation and prior to allowing vehicular traffic, submit for record a letter from the original manufacturer certifying that the bridge has been properly installed.

When prefabricated bridge systems are used, apply asphalt concrete overlay in accordance with the original manufacturer's specifications and recommendations, and Section 502. Do not apply asphalt concrete overlay if the manufacturer supplies deck panels with an epoxy anti-skid surface. Do not use an epoxy anti-skid surface and an asphalt concrete overlay surface in conjunction on the same bridge. Do not supply open grid decking.

Subsection 817.04.1 – Temporary Detour Bridge (07/18), Page 755

The first paragraph of 817.04.1 is deleted and replaced with the following:

Temporary detour bridge will be measured by the square foot and shall include all materials and labor required for construction of the temporary detour bridge, all striping, wearing surface, maintenance of the detour bridge, continual removal of debris accumulation, removal of the detour bridge, and restoration of the project site to the satisfaction of the Project Engineer. Square foot measurement will be made by multiplying the clear roadway width by the length of the bridge from beginning bridge joint at abutment to ending bridge joint at abutment along the centerline of the bridge.

SECTION 822 – ELECTRICAL SYSTEMS:

Subsection 822.05.1 – Pole Installation (11/18), Page 871

822.05 is amended to include the following:

822.05.1 Pole Installation: Poles shall be installed, leveled, and plumbed in accordance with the accepted manufacturer's pole drawings and approved methods. Unless shown otherwise on the plans, extend anchor bolts a minimum of 1/4 inch above the nut or as recommended by the manufacturer, whichever is greater. Where indicated in the plans, the space between the top of the foundation and the bottom of the pole base (or flange) shall be grouted with a non-shrink grout mixture in accordance with 1018.04 and neatly troweled to the contour of the pole base. A pvc drain pipe shall be inserted through the grout to provide ventilation and drainage from the interior of the pole base.

Subsection 822.11.5 – Light Poles (11/18), Page 877

822.11.5 is deleted and replaced with the following:

822.11.5 Light Poles: Light poles will be measured per each pole furnished and installed, which will include the pole, decals, ownership plate, wiring and connections to circuit conductors, grounding electrode, ground clamp, exothermic weld, base assembly, and all hardware and appurtenances required for a complete installation. When an aluminum pole is installed, oxide-inhibiting compound is required.

Subsection 822.11.6 – High Mast Poles (11/18), Page 877

822.11.6 is deleted and replaced with the following:

822.11.6 High Mast Poles: High mast poles will be measured per each pole furnished and installed, which will include the pole, luminaire ring, lowering assembly, drive assembly, wiring, electrical connections, fuses, grounding electrode, ground clamp, exothermic weld, mounting hardware, grout in accordance with 1018.04, and all hardware and appurtenances required for a complete installation.

PART IX – PORTLAND CEMENT CONCRETE

SECTION 901 – PORTLAND CEMENT CONCRETE:

Subsection 901.06.1.1 – Self-Consolidating Concrete (05/19), Page 918

901.06.1 is amended to include the following:

901.06.1.1 Self-Consolidating Concrete: Self-consolidating concrete (SCC) may be used for precast members, drilled shafts, and light pole foundations. SCC may be used for cast-in-place structural concrete as permitted by the Bridge Design Engineer Administrator.

SCC is concrete that is highly flowable, non-segregating concrete that can spread into place, fill the formwork, and encapsulate reinforcement without mechanical consolidation. This concrete leads to better surface finishes in precast operations and better consolidation around steel rebar.

901.06.1.1.1 Materials: Use concrete as indicated by the plans. A combined aggregate gradation in accordance with 1003.08.3 is required with the exception of the maximum allowable aggregate size of ½ inch. SCC shall have a slump flow spread measurement as measured by ASTM C1611 as shown in Table 901-1A. The SCC shall have a visual stability index rating (VSI) of 1 or 0 as measured according to ASTM C1611 Appendix. SCC being placed in an underwater condition shall incorporate a viscosity modifying admixture (VMA) incorporated in the mixture complying with ASTM C494.

Table 901-1A

Type of Construction	Range of Slump Flow Values
	Inches
Precast Members	20-30
Drilled Shafts/Light Pole Foundations	20-24
Cast-in-Place Structural Concrete	20-30

901.06.1.1.2 Consolidation: Mechanical consolidation is not typically necessary for SCC. However, internal vibrators shall be available on site to be used when internal vibration is needed, as determined by the Engineer, to prevent formation of a cold joint due to delays in placement, or if the concrete has a lower than expected slump flow. Internal vibration is not allowed for drilled shafts. If the vibratory action adversely effects the concrete, as determined by the Engineer, then the concrete shall be removed and replaced at no cost to the Department.

Subsection 901.06.2 – Quality Control Tests (05/19), Page 918

901.06.2 is amended to include the following:

For Self-Consolidating Concrete, perform slump flow spread measurement testing and visual stability index rating (VSI), in the presence of the Engineer, in lieu of slump testing and at the same required frequency as slump testing.

Subsection 901.07 – Substitutions (06/18), Page 920

Table 901-2 is deleted and replaced with the following:

**Table 901-2
Portland Cement Concrete Mixture Substitutions**

Structural Class ¹	Substitute
A1	No Substitutions
A2	No Substitutions
A3	No Substitutions
P1	P2, P3
P2	P3
P3	No Substitutions
S	No Substitutions
MASS(A1)	No Substitutions
MASS(A2)	No Substitutions
MASS(A3)	No Substitutions
Minor Structure Class ¹	
M	A1, B, D
R	A1, B, D, M
Pavement Type ^{1,2}	
B	D
D	B
E	No Substitutions

¹The substituting mixture shall meet the requirements of Table 901-3 for its class or type. The substituting mix shall meet the strength requirements of the original mix.

²If approved by the engineer, small irregular areas of paving projects using Types B or D concrete may be substituted with Class A1 concrete.

Subsection 901.08.2 – Cementitious Material Substitution (06/20), Page 921

Paragraph 5 of 901.08.2 is deleted and replaced with the following:

When ASR mitigation is required, use 30% Class F Fly Ash, 50% GGBFS, or a ternary mixture containing both Class F Fly Ash and GGBFS at a minimum replacement rate of 50%.

The maximum substitution rate for ternary mixtures containing Type I, II, III, or IL portland cement is 70 percent of cement. When using Type IP or IS portland cement, the maximum substitution rate for ternary mixtures is 40 percent. Ternary combinations using both class C and F fly ash are allowable. When using fly ash ternary mixtures, replace portland cement with class C and class F fly ash in equal amounts. When using combinations of GGBFS and fly ash, the amount of GGBFS must be equal to or greater than the amount of fly ash.

Subsection 901.13 – Acceptance and Payment Schedules (11/19), Page 931

901.13 is deleted and replaced with the following:

901.13 ACCEPTANCE AND PAYMENT SCHEDULES. Acceptance and payment schedules in Table 901-4 and Table 901-6 apply to all cast-in-place structural portland cement concrete. Tables 901-3 and 901-6 apply to Classes P1, P2, and P3; whereas, Table 901-4 does not apply. Acceptance and payment schedules in Table 901-5 apply to all minor structure portland cement concrete. Acceptance and payment schedules for portland cement concrete pavement are shown in Table 601-3 of Section 601.

Table 901-3 – Master Proportion Table for Portland Cement Concrete (12/21), Page 932

Table 901-3 is deleted and replaced with the following:

Table 901-3¹²
Master Proportion Table for Portland Cement Concrete

	Average ⁸ Compressive Strength, psi at 28 days	Grade of Coarse Aggregate ¹	Surface Resistivity ^{2,13} (kΩ-cm)	Maximum Water/Cementitious Ratio, lb/lb	Air Content (Percent by volume) ³	Slump Range ⁵ , inches		Slip Form Paving ⁶
						Non- Vibrated ⁴	Vibrated	
Structural Class⁷								
A1	4,500	57M, 67, 89M ⁹ , B,D	18	0.45	2 - 7	2-5	2-4 ⁴	N/A
A2	6,500 ¹¹	57M, 67, 89M ⁹ , B,D	18 ¹¹	0.45	2 - 7	2-5	2-4 ⁴	N/A
A3	9,000 ¹¹	57M, 67, 89M ⁹ , B,D	18 ¹¹	0.36	2 - 7	2-5	2-4 ⁴	N/A
P1	6,000 ⁸	57M, 67, 89M ⁹ , B,D	18	0.44	2 - 7	N/A	2-6 ¹⁰	N/A
P2	8,500 ⁸	57M, 67, 89M ⁹ , B,D	18	0.40	2 - 7	N/A	2-6 ¹⁰	N/A
P3	10,000 ⁸	57M, 67, 89M ⁹ , B,D	18	0.40	2 - 7	N/A	2-6 ¹⁰	N/A
S	4,500	B, D	18	0.53	2 - 7	6-8	N/A	N/A
MASS(A1)	4,500	B, D	18	0.53	2 - 7	N/A	2-4 ⁴	N/A
MASS(A2)	6,500 ¹¹	B, D	18 ¹¹	0.46	2 - 7	N/A	2-4 ⁴	N/A
MASS(A3)	9,000 ¹¹	B, D	18 ¹¹	0.36	2 - 7	N/A	2-4 ⁴	N/A
Minor Structure Class⁷								
M	3,000	57M, 67, 89M ⁹ , B,D	N/A	0.56	2 - 7	2-5	2-4 ⁴	1-2.5
R	1,800	57M, 67, B,D	N/A	0.70	2 - 7	2-5	2-4 ⁴	N/A
Pavement Type⁷								
B	4,000	B, D	N/A	0.53	2 - 7	N/A	2-4	1-2.5
D	4,000	B, D	N/A	0.53	2 - 7	N/A	2-4	1-2.5
E	4,000	57M, 67, 89M ⁹ , B,D	N/A	0.40	2 - 7	N/A	2-4	1-2.5

N/A – Not Applicable

¹ Combined aggregate gradation shall comply with the requirements of 1003.08.2.

² Value based on a 4-inch X 8-inch cylinder tested at 28 days of age.

³ See 901.08.3.

⁴ Allow an 8-inch maximum slump when high-range water reducers or superplasticizers are used.

⁵ Additional allowance in slump range to be approved by the Construction Engineer Administrator.

⁶ Also slump range for other concrete placed by extrusion methods.

⁷ See 901.08.1 for allowable types of cement.

⁸ P1, P2, P3 values shown represent the minimum compressive strengths allowed for all test cylinders.

⁹ Grade 89M coarse aggregate shall be used only when specified or permitted.

¹⁰ No more than 2-inch slump differential for any design placement. Allow 8-inch maximum when high-range water reducers or superplasticizers are used.

¹¹ Average Compressive Strength, psi and Resistivity (kΩ-cm) at 56 days.

¹² Dry-cast concrete for concrete pipe is exempt from Table 901-3. See Section 1016 specifications.

¹³ Resistivity requirements do not apply to Class A1 concrete used for curb, gutter, or as a substitute for Class M.

Table 901-4 – Acceptance and Payment Schedules Cast-In-Place Structural Concrete (10/19),
Page 933

Table 901-4 is deleted and replaced with the following:

Table 901-4
Acceptance and Payment Schedules
Cast-In-Place Structural Concrete

Average Compressive Strength per Lot, psi (28 to 31 days) ³	
	Percent of Contract Unit Price ¹
Class A1, S & MASS (A1)	
4500 & above	100
4301 - 4499	98
4000 - 4300	90
below 4000	50 or remove and replace ²
Class A2, & MASS (A2)	
6500 & above	100
6301 - 6499	98
6000 - 6300	90
below 6000	50 or remove and replace ²
Class A3, & MASS (A3)	
9000 & above	100
8801 – 8999	98
8500 - 8800	90
below 8500	50 or remove and replace ²

¹When concrete is part of an item or not a direct pay item, lot sizes, sampling, and acceptance testing for the required quantities will be in accordance with 805.11. The value for each cubic yard required will be assessed at \$350 for the purpose of applying payment adjustment percentages. The amount of payment adjustment for the quantity of concrete involved will be deducted from payment. Acceptance and payment schedules shall apply to the contract item itself for cast-in-place piling.

²When the average compressive strength of **any batch in a lot** is less than the specified strength a prompt investigation will be made. If concrete is allowed to remain in place by the Chief Engineer, payment will be based on 50 percent of the contract price unless associated cylinders were improperly molded or tested and investigative core strength results are above design strength ($f'c$). If concrete is not allowed to remain in place, the identifiable deficient areas shall be removed and replaced at no direct pay.

³Average Compressive Strength for A2 and A3 shall be taken at 56 to 59 days.

Table 901-6 – Acceptance and Payment Schedules Structural Concrete (12/21), Page 934

Table 901-6 is deleted and replaced with the following:

Table 901-6
Acceptance and Payment Schedules
Structural Concrete

Surface Resistivity per Lot, k Ω -cm (28 to 31 days) ³	
Class A1, A2, A3, S, P1, P2, P3, & MASS(A1,A2,A3)	Percent of Contract Price ²
18.0 & above	100
16.5 – 17.9	98
15.0 – 16.4	90
below 15.0	50 or remove and replace ¹

¹When the average surface resistivity is less than 15.0 k Ω - cm, an investigation will be made. If concrete is allowed to remain in place by the Chief Engineer, payment will be based on 50 percent of the contract price. Any cores obtained in these investigations are for evaluation purposes only. Payment will be based on original acceptance samples.

²When concrete is part of an item or not a direct pay item, the value for each cubic yard of concrete required will be assessed at \$350 for the purpose of applying payment adjustment percentages. The amount of payment adjustment for the quantity of concrete involved will be deducted from payment.

³Surface resistivity for A2, A3, MASS(A2), and MASS(A3) shall be taken at 56 to 59 days.

SECTION 902 – HIGH EARLY STRENGTH CONCRETE:

All Subsections (10/19), Page 934

Part IX is amended to include the following:

Section 902 **High Early Strength Concrete**

902.01 DESCRIPTION. This section specifies requirements for High Early Strength Concrete (HES), including methods for handling, sampling, testing, placing, and curing HES. HES shall be used when conditions merit the early opening to traffic of concrete pavements and bridge approach slabs, as specified in contract documents or as determined by the Engineer. All work shall be in accordance with the general requirements of the pay item associated with the use of HES unless otherwise specified herein.

902.02 MATERIALS. For pavement patching, use a rapid patching material that is on the AML or a Type B, D, or E concrete mixture. For bridge approach slabs, use Class A1 concrete. All HES mixtures shall conform to Section 901 with the following exceptions:

1. Type III cement is allowed.
2. Do not use chloride-type accelerators.
3. Surface Resistivity requirements do not apply to HES.
4. Type B or Type D may be substituted for the Class A1 concrete on approach slabs, but will be paid in accordance with Table 901-4 for Class A1 concrete.

Use the maturity method for compressive strength determination according to ASTM C1074. If any of the mix components change (material sources or mix proportions change by more than $\pm 5\%$; admixture dosages change by more than $\pm 20\%$), a new maturity curve must be developed and verified. Submit the HES mix design, trial batch results, and maturity curves to the Engineer for review.

Verify by trial batch that the proposed HES mix achieves the compressive strength specified in Table 901-3, and the appropriate early opening strength specified in 902.04.1 within the time frame specified in the contract documents.

Trial batch requirements may be waived, with written approval from the District Laboratory Engineer, for previously approved mix designs when all materials and proportions of the proposed design exactly match the previously approved mix design materials.

902.03 CONSTRUCTION REQUIREMENTS. Follow the manufacturer's or supplier's recommendations on mixing and placing HES unless otherwise specified in the contract documents or by the Engineer. Place the concrete continuously to prevent formation of cold joints. Promptly finish the concrete. Immediately after finishing, apply curing compound at one gallon per 50 square feet, resulting in a consistent surface appearance that roughly resembles the color of a blank sheet of white paper.

902.04 TESTING FOR OPENING TO TRAFFIC. A minimum of two wireless maturity sensors are to be placed in each identifiable concrete pour per mix design, for compressive strength determination with the use of maturity curves.

To verify the sensor results, a minimum of four concrete cylinders for the first placement and, thereafter, for every 1000 square yards of concrete placed or every month of concrete placement shall be made according to DOTD TR 226 and tested in accordance with DOTD TR 230. For bridge approach slabs, a minimum of four concrete cylinders per distinct approach slab placement shall be made and tested in accordance with the requirements of this section.

When the results of testing the verification cylinders vary from the maturity curve results by more than negative 10%, then the mix design shall no longer be used until a new maturity curve has been developed, and accepted by the Engineer.

The frequency of verification may be increased at the discretion of the Engineer.

902.04.1 Early Opening to Traffic: For early opening to traffic, attain the minimum compressive strength of 3000 psi for bridge approach slabs and 2000 psi for paving applications within the lane closure time frame specified in the plans, contract documents or where construction conditions merit, as determined by the Engineer.

When the mix does not achieve the minimum required compressive strength specified in the required time frame, its use shall be discontinued until the cause can be determined to the satisfaction of the Engineer. When this occurs for two placements, the Engineer may determine the mix to be invalid and require a new mix design to be accepted before work continues, at no additional cost or time to the department.

902.05 ACCEPTANCE TESTING. Acceptance for compressive strength will be in accordance with the requirements of the pay item associated with the use of HES. If the results of the testing for opening to traffic meet the minimum requirements for compressive strength of the pay item associated with the use of HES, then these results may be used in lieu of acceptance testing with the approval of the Chief Construction Engineer.

PART X – MATERIALS

SECTION 1001 – PORTLAND CEMENT AND CEMENTITIOUS MATERIALS:

Subsection 1001.04 – Fly Ash and Natural Pozzolans (06/20), Page 936

1001.04 is deleted and replaced with the following:

1001.04 FLY ASH AND NATURAL POZZOLANS. Use fly ash from the Approved Materials List. Comply with AASHTO M 295 for Class C and Class F. Comply with ASTM C618 for Class N. Alkali content calculated in accordance with DOTD TR 531 shall not exceed 3.0 percent by weight.

SECTION 1002 – ASPHALT CEMENT, EMULSIONS, AND ADDITIVES:

Subsection 1002.02.2 – Crumb Rubber (07/18), Page 938

1002.02.2 is deleted and replaced with the following:

1002.02.2 Crumb Rubber: Waste Tire Rubber must be pre-qualified by the Materials Laboratory. The maximum size of rubber particles shall be 30 mesh crumb (90-100 percent passing the No. 30 sieve) with a maximum replacement of 10 percent by weight of asphalt material.

SECTION 1003 – AGGREGATES:

Subsection 1003.01.1 – Test Methods (03/21), Page 951

Table 1003-1 is deleted and replaced with the following:

**Table 1003-1
Aggregate Test Procedures**

Property	Test Procedure
Deleterious Materials	DOTD TR 119
Flat and Elongated Particles	ASTM D4791
Magnesium Sulfate Soundness	AASHTO T 104
Los Angeles Abrasion	AASHTO T 96
Alkali-Silica Reactivity (Chemical Method)	ASTM C289
Alkali Reactivity (Mortar-Bar Method)	ASTM C1260
Reactivity of Concrete Aggregates	AASHTO R80
Alkali Reactivity of Carbonate Rocks (Rock-Cylinder Method)	ASTM C586
Organic Impurities	AASHTO T 21
Unit Weight	AASHTO T 19
Specific Gravity & Absorption of Fine Aggregate	AASHTO T 84
Specific Gravity & Absorption of Fine Lightweight Aggregate	DOTD TR 123
Specific Gravity & Absorption of Coarse Aggregate	AASHTO T 85
Polish Value	AASHTO T 278 and T 279
Amount of Material Finer than the No 200 (75 µm) Sieve	DOTD TR 112
Sieve Analysis (Gradation)	DOTD TR 113
pH of Soil and Water	DOTD TR 430
pH of Aggregates	DOTD TR 122
Atterberg Limits (LL, PL, & PI)	DOTD TR 428
Organic Content	DOTD TR 413
Percent Crushed	DOTD TR 306
Mechanical Analysis of Extracted Aggregate	DOTD TR 309
Sand Equivalent	DOTD TR 120
Fine Aggregate Angularity	DOTD TR 121
Micro-Deval	AASHTO T 327
Moisture Sensitivity (TSR)	DOTD TR 322
Mortar Strength	AASHTO T 71
Methylene Blue	AASHTO TP 57-99
Abrasion of Lightweight Coarse Aggregate	DOTD TR 111
Determining Chloride Content and Organic Additive for PCC	DOTD TR 643
Chemical Analysis	ASTM C114
Potential Carbonate Reactivity	ASTM C1105
Potential Alkali-Silica Reactivity	ASTM C1293
Clay Lumps and Friable Particles	AASHTO T 112

Subsection 1003.01.2.3 – Los Angeles Abrasion (03/21), Page 952

1003.01.2.3 is deleted and replaced with the following:

1003.01.2.3 Los Angeles Abrasion: For coarse natural aggregates, lightweight aggregates and RPCC source approval, maximum Los Angeles abrasion loss is 40.0 percent. The Los Angeles abrasion loss for lightweight aggregates will be calculated in accordance with DOTD TR 111.

Subsection 1003.01.4.1 – Alkali Silica Reactivity (ASR) of Sands and Gravels in Portland Cement Concrete (03/21), Page 954

1003.01.4.1 is deleted and replaced with the following:

1003.01.4.1 Alkali Silica Reactivity (ASR) of Sands and Gravels in Portland Cement Concrete: For source approval, aggregates for use in portland cement concrete are tested for alkali silica reactivity properties in accordance with ASTM C1260, using a portland cement from the Department's Approved Materials List. Aggregates categorized as "innocuous" (non-reactive, less than 0.10% expansion) are allowed without restriction. If ASTM C1260 designates aggregates as "potentially deleterious," (greater than or equal to 0.10% expansion but less than or equal to 0.20% expansion) then use a mixture with cementitious substitution as specified for ASR mitigation in Section 901.08.2. If ASTM C1260 results exceed 0.20%; aggregates must be further evaluated by means of ASTM C1293 to determine reactivity. If ASTM C1293 results are less than 0.04% expansion, the aggregate is considered "innocuous". If ASTM C1293 results are greater than or equal to 0.04% expansion; the aggregate is considered "reactive". Concrete mixtures incorporating aggregates designated as "reactive" will not be allowed. The aggregate source will not be given a concrete user code until this evaluation is complete. Aggregates must wait a minimum of 6 months after a failing ASTM C1293 result, to resubmit the material for evaluation; a passing ASTM C1293 must be submitted with request for re-certification.

Subsection 1003.01.4.2 – Alkali Carbonate Reactivity (ACR) and Alkali Silica Reactivity (ASR) of Limestone in Portland Cement Concrete (03/21), Page 954

1003.01.4.2 is deleted and replaced with the following:

1003.01.4.2 Alkali Carbonate Reactivity (ACR) and Alkali Silica Reactivity (ASR) of Limestone in Portland Cement Concrete: For source approval, limestone aggregates for use in portland cement concrete will be evaluated for alkali carbonate reactivity (ACR) and alkali silica reactivity (ASR) utilizing AASHTO R80. If the aggregate's chemical composition (CaO/MgO ratio vs Al₂O₃) plots outside of the diverging lines of the CSA A23.2 - 26A chart; the aggregate is considered non-expansive for ACR. Aggregate shall then be checked for ASR. If ASTM C1260 designates aggregates as "potentially ASR deleterious," (greater than or equal to 0.10% expansion but less than or equal to 0.20% expansion) then use a mixture with cementitious substitution as specified for ASR mitigation in Section 901.08.2. If ASTM C1260 results exceed 0.20%; aggregate must be further evaluated by means of ASTM C1293 to determine ASR reactivity. If ASTM results are less than 0.04% expansion, the aggregates are considered "innocuous". If ASTM C1293 results are greater than or equal to 0.04% expansion; the aggregate is considered reactive and will not be allowed in concrete mixtures. If the aggregate plots inside of the diverging lines of the CSA A23.2 - 26A chart; then the aggregate is considered "potentially ACR expansive" and shall be further appraised by ASTM C1105 testing. If ASTM C1105 results are less than 0.03%, then aggregates are considered "innocuous". If ASTM C1105 results are greater than or equal to 0.03% expansion; the aggregate is considered "ACR reactive". Concrete mixtures incorporating aggregates designated as "ASR reactive and/or ACR reactive" will not be allowed. The aggregate source will not be given a concrete user code until these evaluations (ASTM C1260, Chemical composition plot of CSA A23.2 - 26A chart and/or ASTM C1105/C1293) are complete. Aggregates must wait a minimum of 6 months after a failing ASTM C1105 and/or ASTM C1293 results, to resubmit the material for evaluation; passing ASTM C1293 and/or ASTM C1105 results must be submitted with request for re-certification.

Subsection 1003.05.2 – Sand-Clay-Gravel (09/19), Page 959

1003.05.2 is amended by deleting the phrase "For material passing the No. 40 (425 µm) sieve, comply with the following after lime treatment:" and replacing with the following:

For material passing the No. 40 (425 µm) sieve, comply with the following prior to lime treatment:

Subsection 1003.07 – Aggregates for Asphalt Surface Treatment (08/18), Page 961

Table 1003-15 is deleted and replaced with the following:

**Table 1003-15
Asphalt Surface Treatment Aggregates Percent Passing**

U.S. Sieve	Metric Sieve	Size 1		Size 2	Size 3
		Slag or Stone Aggregate (Size No. 5)	Crushed Gravel ² or Lightweight Aggregate	All Aggregate (Size No. 7)	All Aggregate (Size No. 8)
1 1/2 inch	37.5 mm	100	100	—	—
1 inch	25.0 mm	90-100	95-100	—	—
3/4 inch	19.0 mm	20-55	60-90	100	—
1/2 inch	12.5 mm	0-10	—	90-100	100
3/8 inch	9.5 mm	0-5	0-15	40- 80	85-100
No. 4	4.75 mm	—	0-5	0-15	10-40
No. 8	2.36 mm	—	—	0-5	0-10
No. 16	1.18 μm	—	—	—	0-5
No. 200	75 μm	0-1	0-1	0-1	0-1

1. The percentage passing the No. 200 (75 μm) sieve shall be 0 - 2 percent for crushed aggregate when the materials finer than the No. 200 (75 μm) sieve consist of dust fraction from crushing and handling, essentially free of clay.
2. Uncrushed gravel may be used for Size 1 aggregate if more than one application of Asphalt Surface Treatment is required.

Subsection 1003.10 – Bedding Material (04/18), Page 965

Table 1003-21 is deleted and replaced with the following:

**Table 1003-21
Gradation for Bedding, Sand-Aggregate**

US Sieve Size	Percent Passing by Weight (Mass)
1 1/2 inches	95-100
No. 4	30-50
No. 10	20-45
No. 200	0-10

SECTION 1006 - THERMOPLASTIC PIPE (TPP):

All Subsections (11/20), Pages 979 and 980

1006 is deleted and replaced with the following:

**Section 1006
Thermoplastic Pipe (TPP)**

1006.01 GENERAL. Thermoplastic pipe and joint systems for cross drains, storm drains, and side drains shall be from the Approved Materials List. Thermoplastic pipe for underdrains and yard drains shall be perforated or non-perforated, as specified, and shall be from the Approved Materials List. Perforations, if specified, shall comply with AASHTO M252 for polyethylene pipe and with AASHTO M330 for polypropylene pipe.

1006.02 POLYVINYL CHLORIDE PIPE (PVCP). PVCP and gasket materials shall comply with AASHTO M278 or ASTM D3034, SDR 35.

1006.03 RIBBED POLYVINYL CHLORIDE PIPE (RPVCP). RPVCP may be either open profile or dual wall construction in accordance with the specified ASTM standards. Pipe and gasket materials shall comply with ASTM F794 or ASTM F949, Series 46 with UV inhibitors. The resin shall have a minimum cell classification of 12454-C in accordance with ASTM D1784.

1006.04 CORRUGATED POLYETHYLENE PIPE SINGLE WALL (CPEPSW). CPEPSW shall be perforated and shall comply with AASHTO M252, Type C. Perforations shall comply with AASHTO M252. Do not use CPEPSW as shoulder outlet underdrain pipe.

1006.05 CORRUGATED POLYETHYLENE PIPE DOUBLE WALL (CPEPDW). When used for cross or side drains, CPEPDW pipe and gasket materials shall comply with AASHTO M294, Type S, with a minimum resin cell classification of 435400C in accordance with ASTM D3350.

When used for plastic underdrain pipe, the pipe and joint system shall comply with AASHTO M252.

When used for yard drain pipe, the pipe and joint system shall comply with AASHTO M252, Type S, with a minimum resin cell classification of 424420C in accordance with ASTM D3350, or AASHTO M294, Type S, with a minimum resin cell classification of 435400C in accordance with ASTM D3350.

1006.06 CORRUGATED POLYPROPYLENE PIPE (CPPP).

1006.06.1 Corrugated Polypropylene Pipe Double Wall (CPPPDW): When used for storm drains, cross drains, side drains, or yard drains, the CPPPDW pipe, fittings, and gasket materials shall comply with AASHTO M330, Type S.

1006.06.2 Corrugated Polypropylene Pipe Triple Wall (CPPPTW): When used for storm drains, cross drains, side drains, or yard drains, the CPPPTW pipe, fittings, and gasket materials shall comply with AASHTO M 330, Type D.

1006.07 JOINT SYSTEMS FOR THERMOPLASTIC PIPE (TPP). Use pipe and joint systems from the Approved Materials List. Joint systems shall comply with 1018.03. A Type 2 or 3 joint system may be substituted for a Type 1 joint system; a Type 3 joint system may be substituted for a Type 2 joint system.

When using split coupling bands, use one piece that is composed of the same material as the pipe. The bands shall be the same thickness as the base pipe. The width of the band shall be equal to one-half the diameter of the pipe but a minimum of 12 inches wide.

Thermoplastic pipe gaskets shall be a part of a pipe/gasket system designed by the manufacturer and shall be from the Approved Materials List (AML), and comply with ASTM F477.

SECTION 1008 – PAINTS:

Subsection 1008.02 – Zinc Paint Systems (10/19), Pages 985 and 986

1008.02 is deleted and replaced with the following:

1008.02 ZINC PAINT SYSTEMS. The zinc paint system shall be from the Approved Materials List. Each system will be tested in accordance with AASHTO R 31. Zinc paint systems shall conform to the specification requirements of AASHTO R 31. All zinc paint systems shall meet the performance requirements listed in the latest Northeast Protective Coating Committee (NEPCOAT) Acceptance Criteria for New and 100 percent Bare Existing Steel for Bridges. The latest acceptance criteria can be found on the NEPCOAT website at www.nepcoat.org under the Qualified Products for Protective Coatings for New and 100 percent Bare Existing Steel for Bridges document.

Paint used on projects will be sampled and tested and shall comply with the following requirements:

**Table 1008-1
Zinc Paint System Properties**

Property	Test Method	Tolerance ¹
Pigment Content.	ASTM D2698	±2.0%
Density	ASTM D1475	±0.25 lbs/gal (±0.03 kg/l)
Solids Content	ASTM D2369	±2.0%
Non-volatile in Vehicle Content	ASTM D2698	±2.0%
Viscosity	ASTM D562	±5 KU
Dry to Touch	ASTM D1640	±10%
Dry Through	ASTM D1640	±10%
Sag, Lenetta	ASTM D4400	±10%
Infrared Spectrum	DOTD TR 610	Match Original ²

¹Target Values shall be established by the Materials and Testing Section upon qualification of the paint system.

²Standards for infrared spectrum shall be kept on file and compared to project samples for acceptance purposes.

Unless specified otherwise, the topcoat shall be tinted to match color 36463 from SAE AMS-STD-595A for non-weathering steel, and tinted to match color 30045 from SAE AMS-STD-595A for weathering steel.

Subsection 1008.08 – Maintenance Overcoating of Steel Bridges (10/19), Pages 989 and 990

1008.08 is deleted and replaced with the following:

1008.08 MAINTENANCE OVERCOATING OF STEEL BRIDGES. Use an overcoat system from the Approved Materials List. For source approval, a field trial is required, which consists of a three year side-by-side comparison between the new overcoat system and a corrosion inhibiting alkyd paint “control” system. Both systems shall overcoat a red lead paint system and/or approved alternate system. The new overcoat paint system shall perform as well or better than the control system in the areas of blistering, rusting, fading, chalking, and adhesion. Alternate testing programs such as NTPEP and NEPOVERCOAT will be allowed if approved by the Materials Engineer Administrator.

Paint used on projects will be sampled and tested and shall comply with the following requirements:

**Table 1008-6
Paint Overcoat System Properties**

Property	Test Method	Tolerance ¹
Pigment Content	ASTM D2698	±2.0%
Density	ASTM D1475	±0.25 lbs/gal (±0.03 kg/l)
Total Solids Content	ASTM D2369	±2.0%
Non-volatile in Vehicle Content	ASTM D2698	±2.0%
Viscosity	ASTM D562	±5 KU
Dry to Touch	ASTM D1640	±10%
Dry Through	ASTM D1640	±10%
Sag, Lenetta	ASTM D4400	±10%
Infrared Spectrum	DOTD TR 610	Match original ²

¹Target values shall be established by the Materials and Testing Section upon qualification of the paint system.

²Standards for infrared spectrum shall be kept on file and compared to project samples for acceptance purposes.

Unless specified otherwise, the topcoat shall be tinted to match color 36463 from SAE AMS-STD-595A for non-weathering steel, and tinted to match color 30045 from SAE AMS-STD-595A, for weathering steel.

SECTION 1009 – REINFORCING STEEL, STRAND, AND WIRE ROPE:

Subsection 1009.03.1 – Pavement Dowel Bars (10/18), Page 992

1009.03.1 is deleted and replaced with the following:

1009.03.1 Pavement Dowel Bars: Steel dowel bars shall comply with 1009.01.1, 1009.01.2, or 1009.01.3. Dowels shall have a uniformly round cross section and shall be saw cut, smooth and free of burrs, projections and deformations.

When, plastic coated dowels are being used, coated dowel bars shall be undercoated with an adhesive and given an outer coat of polypropylene or polyethylene. Coated dowel bars shall comply with AASHTO M 254. Type B coatings shall meet the requirements of ASTM A 775. Any damage to Type B coated dowels shall be repaired in accordance with ASTM A 775. For PCCP, place coated dowel bars in approved dowel bar assemblies in accordance with the plans.

Prior to placement of concrete, ensure dowel bars are entirely covered with an approved bond breaker that is one of the following:

1. Paraffin based lubricant, either Dayton Superior DSC BB-Coat or Valvoline Tectyl 506
2. White-pigmented curing compound conforming to ASTM C309, Type 2, Class A, with 22% minimum nonvolatile compound consisting of 50% paraffin wax
3. Any other bond breaker that is submitted with documentation sufficient to validate that it is equal to the above alternatives. Any approved equal must be reviewed and approved through the DOTD Materials Laboratory prior to use.

The use of oil-based or asphalt-based bond breakers is prohibited.

SECTION 1011 – CONCRETE CURING MATERIALS, ADMIXTURES, SPECIAL FINISHES, MODIFIERS, AND FIBER REINFORCEMENTS:

All Subsections (10/19), Pages 998 - 1000

1011 is deleted and replaced with the following:

Section 1011

Concrete Curing Materials, Admixtures, Special Finishes, Modifiers, and Fiber Reinforcements

1011.01 CURING MATERIALS.

1011.01.1 Liquid Membrane-Forming Compounds: This material shall comply with ASTM C309 and shall be from the Approved Materials List. Allowable types are Type 2 white-pigmented or Type 1-D, clear or translucent with a fugitive dye, as specified.

1011.01.2 Moist Cure Materials:

1011.01.2.1 Sheet Material: Use sheet materials for curing concrete meeting the physical and performance requirements of ASTM C171.

1011.01.2.2 Burlap Cloth: Use burlap cloth made from Jute or Kenaf complying with AASHTO M 182, Class 3.

1011.02 ADMIXTURES.

1011.02.1 Physical Requirements: Use concrete admixtures from the Approved Materials List in conformance with ASTM C494, ASTM C260, ASTM G109, and ASTM C1582, as applicable.

1011.02.2 Chemical Requirements: The contribution of chloride ion resulting from the addition of admixtures to the concrete shall not exceed 0.02 pound per cubic yard of concrete, when tested in accordance with DOTD TR 643.

1011.02.3 Acceptance Testing: The admixture shall be tested by analytical infrared (IR) spectroscopy in accordance with DOTD TR 610. The IR spectrum shall compare favorably to the standard IR spectrum of the original material tested and on file at the Materials and Testing Section. The percent solids by weight, determined in accordance with DOTD TR 524, shall not deviate more than ± 10 percent from that of the original approved material and shall not exceed the manufacturer's stated limits. Tests to determine rate of hardening, compressive strength or other properties may be made at any time during the work to ensure continued compliance with these specifications.

1011.03 SPECIAL FINISH FOR CONCRETE. Use material from the Approved Materials List. The material shall provide a uniform-textured finish complying with these specifications. Follow the manufacturer's recommendation for method of mixing, method of application, and rate of application, except that the rate shall not exceed 60 square feet per mixed gallon. Modifications to the manufacturer's recommendations will not be permitted.

Use a one-component coating system containing pigments, sand, and resins. The coating shall contain fungicides to prevent the growth of mildew, mold, etc. Unless specified otherwise, color of the material when applied to the test panel shall match color 36463 from SAE AMS-STD-595A.

For project samples, comply with Table 1011-1.

**Table 1011-1
Special Finish Sample Acceptance**

Property	Test Method	Specifications Acceptance¹
Density	ASTM D1475	Target Value ± 0.25 lbs/gal
Viscosity	ASTM D562	Target Value ± 5 KU
Dry to Touch	ASTM D1640	Target Value $\pm 10\%$
Dry Through	ASTM D1640	Target Value $\pm 10\%$
Solids percent	ASTM D2369	Target Value $\pm 2\%$
Volatile percent	ASTM D2369	Target Value $\pm 2\%$
Infrared Spectrum	DOTD TR 610	²

^{1.} Target Values shall be established by the Materials Section upon qualification of the paint system.

^{2.} Standards for infrared spectrum shall be kept on file and compared to project samples for acceptance purposes

For source approval, comply with the following:

1. The average number of cycles to failure shall be not less than 50 cycles when tested in accordance with ASTM C666, Method A. Test specimens shall show no flaking, cracking, spalling or loss of bond.
2. The material shall be unaffected except for slight chalking or discoloration when exposed to 1000 hours of accelerated weathering using UV-B lamps in accordance with ASTM G154.

1011.04 MODIFIERS.

1011.04.1 Formulated Latex: Use a styrene butadiene latex modifier produced in the United States at a proportion no greater than 24.5 gallons per cubic yard of concrete.

Use a latex modifier that is non-toxic, film-forming, and a polymeric emulsion of which 90 percent of the non-volatiles are styrene butadiene polymers. Use a modifier that is homogeneous, uniform in composition, and free from chlorides. Conform to chemical and physical properties specified in Table 1011-2, when tested in accordance with the requirements of FHWA Report No. RD-78-35.

**Table 1011-2
Formulated Latex Modifier Chemical and Physical Properties**

Property	Value or Range	Testing Standards
Butadiene Content	30% - 40%	FHWA 4.A.1
Solids	46% - 53%	FHWA 4.A.2
pH	8.5 - 12	FHWA 4.A.4
Coagulum	0.10% (max.)	FHWA 4.A.5
Surface Tension	50 dynes/cm (max.)	FHWA 4.A.8
Particle Size:		
Mean Angstrom	1400 - 2500	FHWA 4.A.9
Median Angstrom	1400 - 2500	FHWA 4.A.9
Distribution	Unimodal	FHWA 4.A.9
95% Range Angstrom	2000 (max.)	FHWA 4.A.9
Freeze-thaw Stability (% coagulum after 2 cycles)	0.10 (max.)	FHWA 4.A.10
Concrete Slump (in.)	Greater than standard	ASTM C143
Concrete Air Content (%)	9% (max.)	ASTM C231
Time for 50% Slump Loss	+/- 25% standard	ASTM C143
Concrete Compressive Strength (24 hr and 28 day) (psi)	75% standard (min.)	ASTM C39
Compressive Strength Loss (28 - 42 day)	20% (max.)	ASTM C39
Concrete Flexural Strength (24 hr and 28 day) (psi)	Greater than standard	ASTM C78
Flexural Strength Loss (28 - 42 day)	25% (max.)	ASTM C192
Deicer Scaling (50 cycles) / Median Grading:		
Median Grading	3 (max.)	FHWA 4.B.6
Worst Rated	Below 5	FHWA 4.B.6
Chloride Permeability (95% absorbed):		
1/16 - 1/2 in (% Cl-)	0.320 (max.)	FHWA 4.B.7
1/2 - 1 in (% Cl-)	0.064 (max.)	FHWA 4.B.7

1011.05 FIBER REINFORCEMENTS.

1011.05.1 Physical Requirements Fiber: Use fibers from the Approved Materials List.

Fibers shall conform to ASTM C1116 (with the exception of ASTM C666 for Freeze/Thaw which is not required) and each fiber type's subsequent ASTM standard:

1. Steel Fibers: ASTM A820 (Steel Fibers shall comply with the "Buy American" clause).
2. Glass Fibers: ASTM C1666 (prove ASR resistance).
3. Polyolefin Fibers: ASTM D7508.
 - a. Minimum tensile strength of macro-synthetic fibers shall be 50 ksi when tested in accordance with ASTM D3822.
 - b. Macro-synthetic fibers shall have an aspect ratio (L/D) between 50 and 150.
 - c. Micro-synthetic fibers shall produce a minimum of 50% or greater reduction in Plastic Shrinkage Cracking of Restrained Fiber Reinforced Concrete when tested in accordance with ASTM C1579.
4. Natural Fibers: ASTM D7357.

Fibers and their dosage shall obtain a minimum residual strength ratio (Re_3) of 25%, when tested in accordance to ASTM C1609.

Fibers shall have a fixed length and aspect ratio, and any changes in either parameter shall be approved by the Department.

SECTION 1016 – CONCRETE PIPE AND PRECAST REINFORCED CONCRETE DRAINAGE UNITS:

Subsection 1016.06 – Precast Reinforced Concrete Manholes, Catch Basins, Junction Boxes, and Safety Ends (02/19), Pages 1038 and 1039

1016.06 is deleted and replaced with the following:

1016.06 PRECAST REINFORCED CONCRETE MANHOLES, CATCH BASINS, JUNCTION BOXES, AND SAFETY ENDS. Comply with the dimensions shown on the plans, and the following:

Circular precast concrete manholes shall comply with ASTM C478, except that Class A1 concrete shall be used.

Square or rectangular precast concrete catch basins, junction boxes and drain manholes shall comply with ASTM C858, except that Class A1 concrete shall be used and surface resistivity requirements do not apply.

Precast safety ends shall comply with 702.04.3.

Portland cement concrete shall attain a minimum compressive strength of 4500 psi before shipping of the units.

Castings for frames, grates and covers shall comply with 1013.05 for steel and shall comply with 1013.06 for gray iron or malleable iron castings. Galvanization shall conform to ASTM A123.

1016.06.1 Casting Concrete: When multiple castings are to be made using the same forms, the use of metal forms are required. Concrete shall be placed into each sectional unit without interruption and shall be consolidated to force the concrete into the corners of forms and prevent formation of stone pockets or cleavage planes.

1016.06.2 Reinforcement: Reinforcement shall be as shown on the plans, and shall not vary more than 1/4 inch from the positions shown, except at pipe connections. Cover on reinforcement shall not be less than that shown on the plans.

SECTION 1017 – EPOXY RESIN SYSTEMS:

Subsection 1017.02 – Epoxy Resin Adhesives (General Use) (10/19), Page 1042

Table 1017-1 is deleted and replaced with the following:

**Table 1017-1
Epoxy Resin Adhesives**

Property	Test Method	Type I		Type II		Type III		Type IV		Type V		Type VI & Type VII	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Compressive Strength, psi	DOTD TR 705	3 hours	—	—	—	—	1000	—	—	—	—	—	—
		24 hours	5000	—	—	—	3000	—	5000	—	—	—	—
Tensile Bond Strength, psi	DOTD TR 706	24 hours (dry cure)	350	—	—	—	250	—	350	—	—	—	—
		72 hours (moist cure)	—	—	150	—	—	—	—	—	150	—	—

SECTION 1018 – MISCELLANEOUS MATERIALS:

Subsection 1018.03.1 – General (11/20), Pages 1044 and 1045

1018.03.1 is deleted and replaced with the following:

1018.03.1 General: All pipe joint systems and materials shall be approved by the Materials Engineer Administrator. For source approval on all pipes exceeding 12 inches in diameter and for all concrete drainage units, joint types are determined by hydrostatic joint testing in accordance with Table 1018-1, with the modifications of 1018.03.2.

**Table 1018-1
Joint Type Determination**

Type of Pipe	Test Method
Concrete Pipe and Drainage Units	ASTM C443
Metal Pipe	AASHTO M36
Thermoplastic Pipe – CPEPDW	AASHTO M294
Thermoplastic Pipe – PVCP	AASHTO M278 or ASTM D3034
Thermoplastic Pipe – RPVCP	ASTM F794 or ASTM F949
Thermoplastic Pipe – CPPPDW	AASHTO M330
Thermoplastic Pipe – CPPPTW	AASHTO M330

SECTION 1019 – GEOTEXTILE FABRIC AND GEOCOMPOSITE SYSTEMS:

Subsection 1019.01.1 – General Requirements (06/19), Page 1051

1019.01.1 is amended to include the following:

High strength geotextile fabric required under roadway embankment shall be manufactured from high-tenacity polyester yarns which are woven into a stable network. The fabric shall be inert to biological degradation and resistant to chemicals encountered naturally in soils, alkalis, and acids. Prior to installation, a Certificate of Analysis shall be submitted indicating each lot meets specification criteria. The contractor shall send samples to an accredited third party lab or require it from the manufacturer to test materials for compliance with performance requirements. High strength geotextile fabric is not required to be on the AML.

Subsection 1019.01.2 – Detailed Requirements (06/19), Page 1053

Table 1019-1 is deleted and replaced with the following:

**Table 1019-1
Geotextile Fabrics**

Property	Test Method	Requirements									
		Classes							Types		
		A	B	C	D	S	F	G	1	2	3
AOS, Metric Sieve, μm , Max.	ASTM D4751	300	300	300	212	600	850	850	850	—	—
Grab Tensile, N, Min.	ASTM D4632	330	400	580	800	800	400	400	—	—	—
% Elongation @ Failure, Min.	ASTM D4632	—	—	50	50	—	—	—	—	—	—
% Elongation @ 200 N, Max.	ASTM D4632	—	—	—	—	—	—	50	—	—	—
Burst Strength, N, Min.	ASTM D3787	440	620	930	1290	1390	—	—	—	—	—
Puncture, N, Min.	ASTM D4833	110	130	180	330	330	—	—	—	—	—
Trapezoid Tear Strength, N, Min.	ASTM D4533	110	130	180	220	220	—	—	—	—	—
Permittivity, Sec^{-1} , Min.	ASTM D4491	1.0	1.0	1.0	1.0	0.2	0.01	0.01	0.2	—	—
Grab Tensile Strength Retained after weathering 150 h, UVA lamps, %, Min	ASTM D4632 ASTM G154	70	70	70	70	70	—	—	—	—	—
Grab Tensile Strength Retained after weathering 500 h, UVA lamps, %, Min	ASTM D4632 ASTM G154	—	—	—	—	—	70	70	—	—	—
Strength @ Ultimate, kN/M	ASTM D-4595	—	—	—	—	—	—	—	140	390	650
Strength @ 5% Strain*, kN/M	ASTM D-4595	—	—	—	—	—	—	—	52	130	250
Long-term Design Strength, kN/M	GRI-GT7	—	—	—	—	—	—	—	66	195	290

*Minimum value shown in table must be met unless otherwise approved by the engineer

INDEX TO SHEETS

Table with 2 columns: SHEET NO. and DESCRIPTION. Lists sheets 1 through 46 including title sheets, typical sections, quantities, surveys, drainage maps, guardrail layouts, and pavement details.

SPECIAL DETAILS

Table with 2 columns: Detail number (201, 202) and description (SEWER EFFLUENT DISCHARGE PIPE TIE-IN DETAIL, SHOULDER WEDGE DETAIL).

STANDARD PLANS

Table with 3 columns: Standard plan number (301-344), description (BM-01, CB-01, CP-01, etc.), and revision date (11/16/2021, 11/2/2000, etc.).

CROSS SECTIONS

Table with 2 columns: Cross section number (401-447) and description (CROSS SECTION SHEETS).

TRAFFIC DATA

2022 A.A.D.T. = 4,479

POSTED SPEED = 35 MPH
DESIGN SPEED = 35 MPH
DESIGN CLASSIFICATION = URBAN COLLECTOR

TYPE OF CONSTRUCTION

SUBSURFACE DRAINAGE, REINFORCED CONCRETE BOX CULVERT AND HEADWALLS, ASPHALT PAVEMENT, BASE COURSE, SUBGRADE, PAVEMENT STRIPING, CONCRETE AND ASPHALT DRIVES

SURVEY

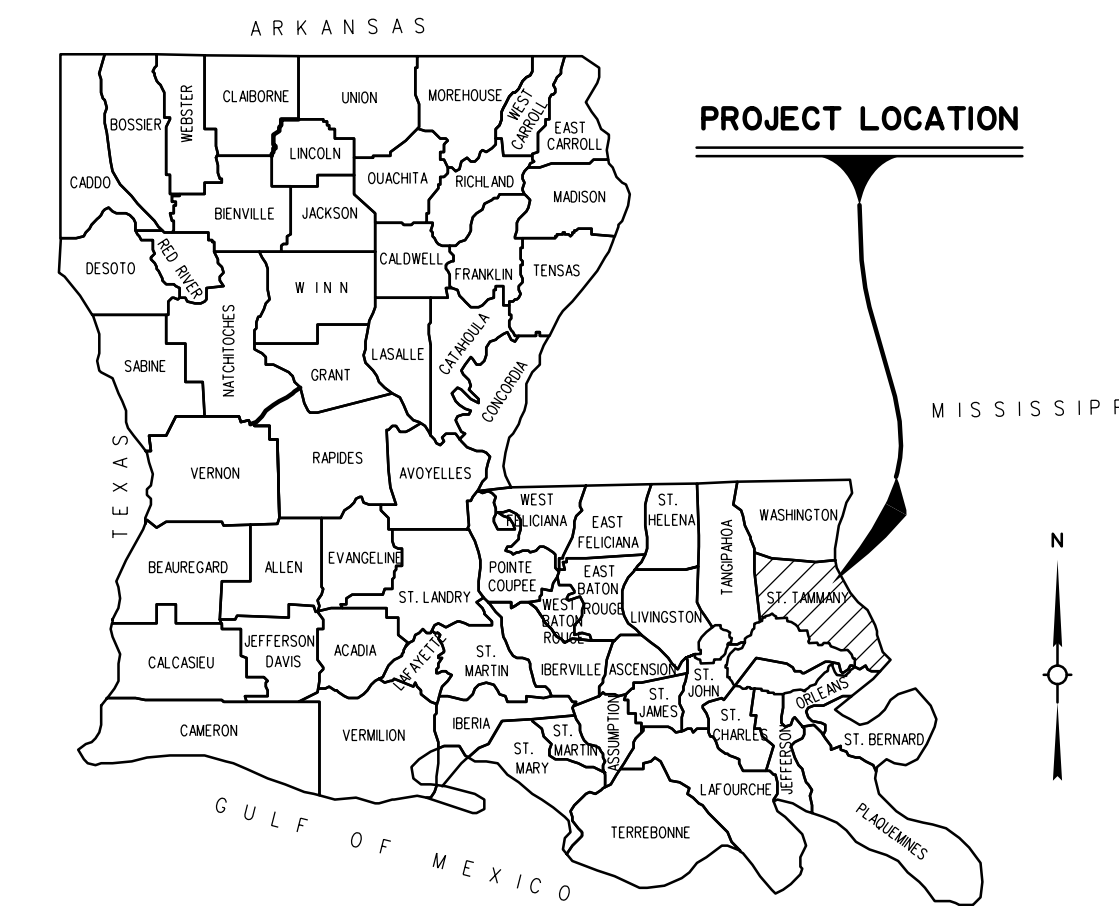
HORIZONTAL CONTROL: LOUISIANA STATE PLANE COORDINATES ZONE 1702, NAD 83

VERTICAL CONTROL: NAVD 88

Section 13

SHARP RD.

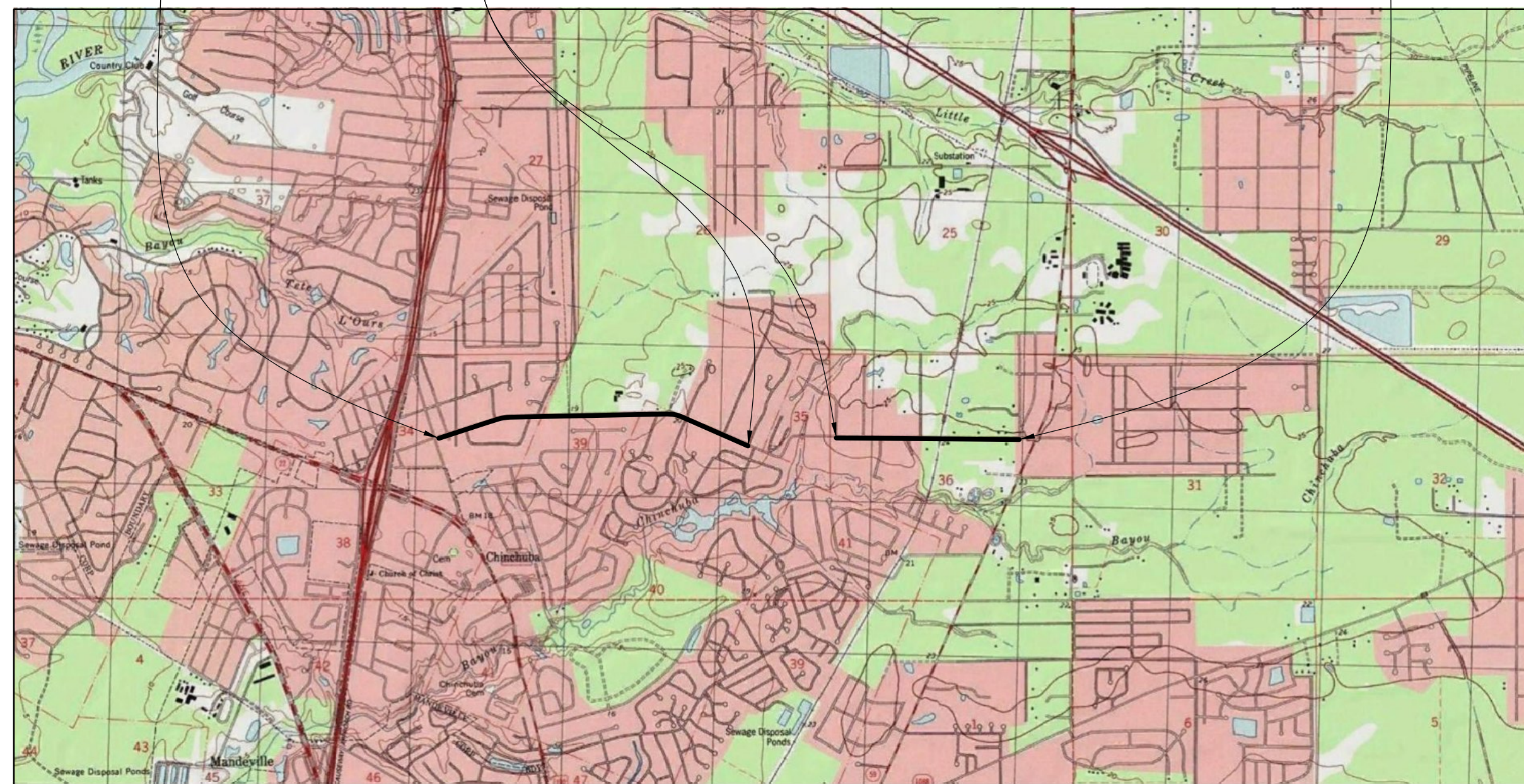
PROJECT NUMBER: EN21000010
PHASE 2



VICINITY MAP

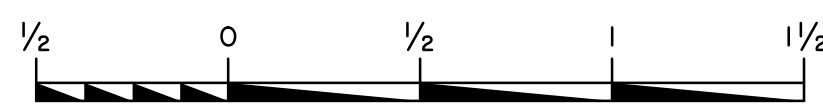
BEGIN PROJECT STA. 101+22.00
EXCEPTION STA. 169+00.00 TO STA. 191+83.00
END PROJECT STA. 232+99.00

ST. TAMMANY PARISH



LAYOUT MAP

SCALE: 1 INCH = 1/2 MILE



STANDARD SPECIFICATIONS

THE 2016 EDITION OF THE LOUISIANA DOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS AMENDED BY THE PROJECT SPECIFICATIONS, SHALL GOVERN.

SCALES

PLAN: 1"=20'
PROFILE HORIZ: 1"=20'
PROFILE VERT: 1"=5'

APPROVED

[Signature]

G.E.C., INC.

DATE 1/29/2024

MICHAEL B. COOPER - PARISH PRESIDENT

ST. TAMMANY PARISH COUNCIL MEMBERS

- RICK SMITH 1
LARRY ROLLING 2
MARTHA J. CAZAUBON 3
KATHY SEIDEN 4
PAT PHILLIPS 5
CHERYL TANNER 6
JOE IMPASTATO 7
PAT BURKE 8
DAVID COUGLE 9
MAUREEN "MO" O'BRIEN 10
ARTHUR LAUGHLIN 11
JERRY BINDER 12
JEFF CORBIN 13
JIMMY STRICKLAND 14

SCHEDULE OF REVISIONS table with columns for DATE, REVISION, DATE RECOMMENDED, DATE, and APPROVED.

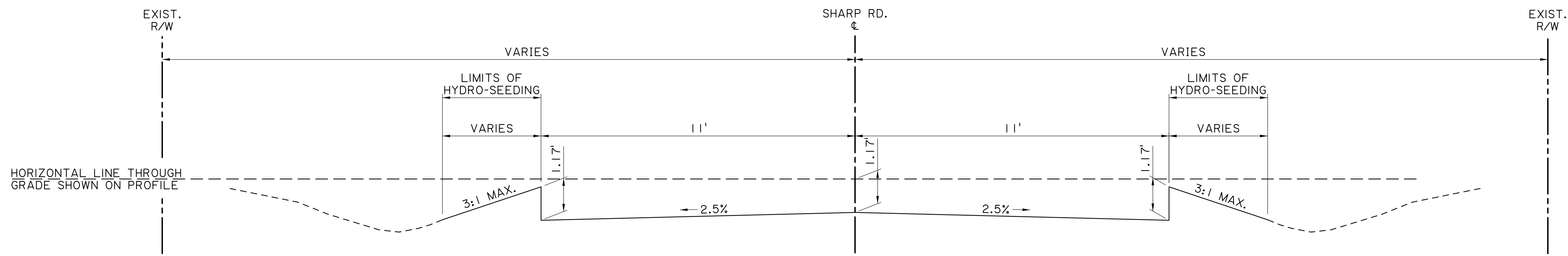
LENGTH AND LOCATION OF WORK

Table with columns: CONTROL SECTION, STATION (BEGIN, END), LOGMILE (BEGIN, END), ALGEBRAIC SUM OF ALL EQUATIONS (FEET), GROSS LENGTH (FEET), EXCEPTION (FEET), BRIDGE LENGTH (FEET, MILES), ROADWAY LENGTH (FEET, MILES). Includes summary rows for TOTAL LENGTH OF BRIDGES, TOTAL LENGTH OF ROADWAY, and TOTAL MILES.

Vertical sidebar containing SHEET NUMBER (I), DESIGNER (C. NIPPER), CHECKER (J. LOHMANN), PARISH (ST. TAMMANY), PROJECT NUMBER (EN21000010), PROFESSIONAL ENGINEER seal for Christopher J. Nipper, and TITLE SHEET AND LAYOUT MAP for SHARP RD.

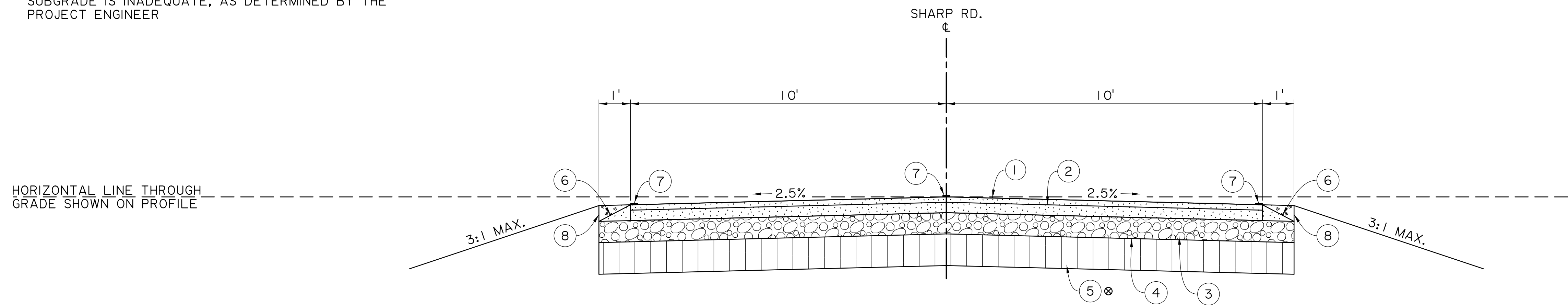
J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\002_typical section.dgn 1/29/2024 09:3:

FINAL PLANS



TYPICAL GRADED SECTION (N.T.S.)
APPLIES STA. 101+22.00 TO STA. 102+35.00

⊗ 12" SUBGRADE TO BE USED IN LOCATIONS WHERE EXISTING SUBGRADE IS INADEQUATE, AS DETERMINED BY THE PROJECT ENGINEER



TYPICAL FINISHED SECTION (N.T.S.)
APPLIES STA. 101+22.00 TO STA. 102+35.00

- NOTE:
- SEE STANDARD PLAN PM-01 FOR DETAILS REGARDING PAVEMENT STRIPING
 - SEE PLAN AND PROFILE SHEETS FOR LOCATION AND SIDE OF ϵ OF SUBSURFACE DRAINAGE SWALE AND DITCH

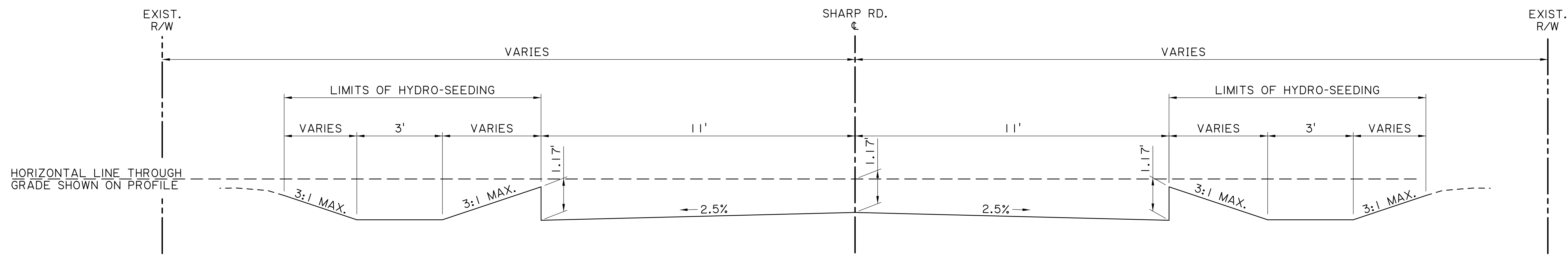
LEGEND

- ① 2" ASPHALT CONCRETE WEARING COURSE (LEVEL 1)
- ② 4" ASPHALT CONCRETE BINDER COURSE (LEVEL 1)
- ③ 8" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCC)
- ④ GEOTEXTILE FABRIC (INCLUDED IN COST OF BASE COURSE)
- ⊗ ⑤ 12" SUBGRADE LAYER (SAND)
- ⑥ SHOULDER WEDGE
- ⑦ PAVEMENT MARKINGS
- ⑧ AGGREGATE SHOULDER

SHEET NUMBER	2	PARISH	ST. TAMMANY	PROJECT NUMBER	EN21000010
DESIGN	C. NIPPER	CHECK	J. LOHMANN	REVIEW	
DETAIL	C. NIPPER	CHECK	J. LOHMANN	SERIES #	
<p>TYPICAL SECTION AND DETAILS</p> <p>SHARP RD.</p>					

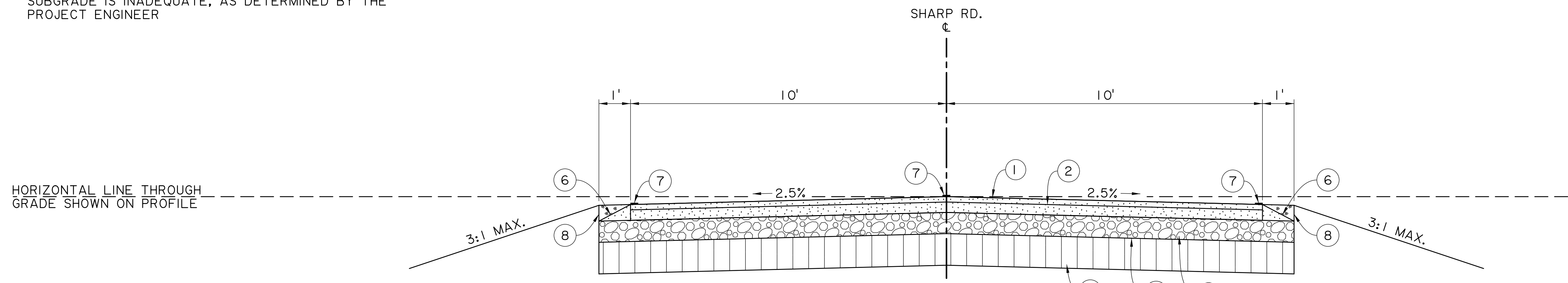
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FINAL PLANS



TYPICAL GRADED SECTION (N.T.S.)
APPLIES STA. 102+35.00 TO STA. 103+31.00

⊗ 12" SUBGRADE TO BE USED IN LOCATIONS WHERE EXISTING SUBGRADE IS INADEQUATE, AS DETERMINED BY THE PROJECT ENGINEER



TYPICAL FINISHED SECTION (N.T.S.)
APPLIES STA. 102+35.00 TO STA. 103+31.00

- NOTE:
- SEE STANDARD PLAN PM-01 FOR DETAILS REGARDING PAVEMENT STRIPING
 - SEE PLAN AND PROFILE SHEETS FOR LOCATION AND SIDE OF ϵ OF SUBSURFACE DRAINAGE SWALE AND DITCH

LEGEND

- ① 2" ASPHALT CONCRETE WEARING COURSE (LEVEL 1)
- ② 4" ASPHALT CONCRETE BINDER COURSE (LEVEL 1)
- ③ 8" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCC)
- ④ GEOTEXTILE FABRIC (INCLUDED IN COST OF BASE COURSE)
- ⊗ ⑤ 12" SUBGRADE LAYER (SAND)
- ⑥ SHOULDER WEDGE
- ⑦ PAVEMENT MARKINGS
- ⑧ AGGREGATE SHOULDER

SHEET NUMBER	2a	PARISH	ST. TAMMANY	PROJECT NUMBER	EN21000010
DESIGN	C-NIPPER	CHECK	J. LOHMANN	REVIEW	J. LOHMANN
DETAIL	C-NIPPER	CHECK	J. LOHMANN	SERIES #	

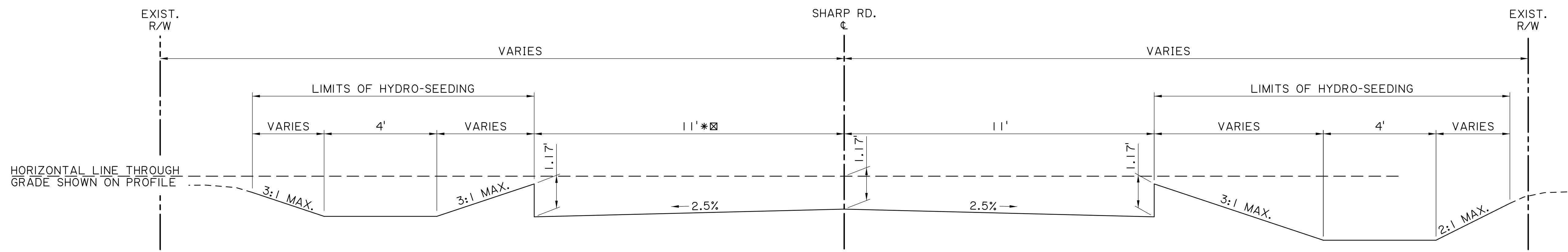
NO.	DATE	BY
REVISION OR CHANGE ORDER DESCRIPTION		

TYPICAL SECTION AND DETAILS

SHARP RD.

J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\002b_typical section.dgn 1/29/2024 09:3:

FINAL PLANS

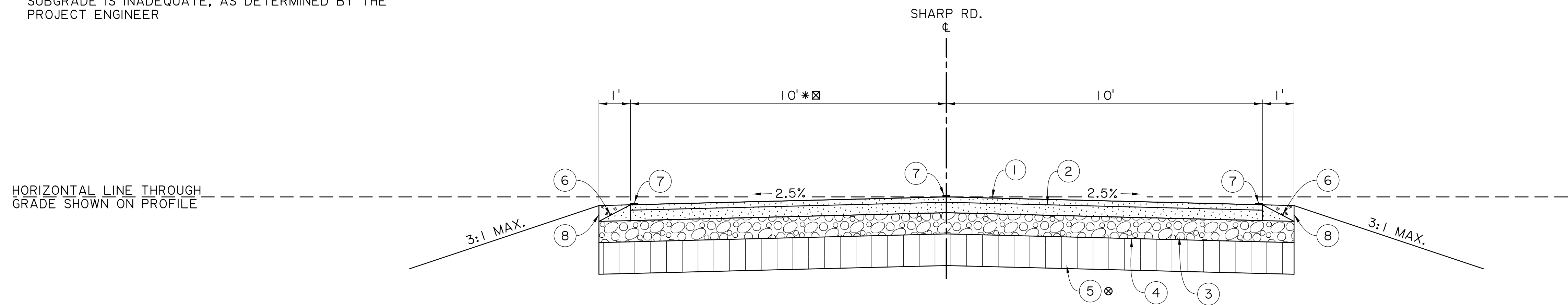


HALF SECTION WITH SUBSURFACE DRAINAGE SWALE

TYPICAL GRADED SECTION (N.T.S.)
 APPLIES STA. 103+31.00 TO STA. 168+50.00
 APPLIES STA. 191+83.00 TO STA. 232+99.00

HALF SECTION WITH DITCH

- * LANE WIDTH TRANSITIONS FROM 10' TO 22.33' FROM:
STA. 125+58.84 TO STA. 128+57.32
- ☒ LANE WIDTH TRANSITIONS FROM 22.33' TO 10' FROM:
STA. 129+61.96 TO STA. 131+87.95
- ⊗ 12" SUBGRADE TO BE USED IN LOCATIONS WHERE EXISTING SUBGRADE IS INADEQUATE, AS DETERMINED BY THE PROJECT ENGINEER



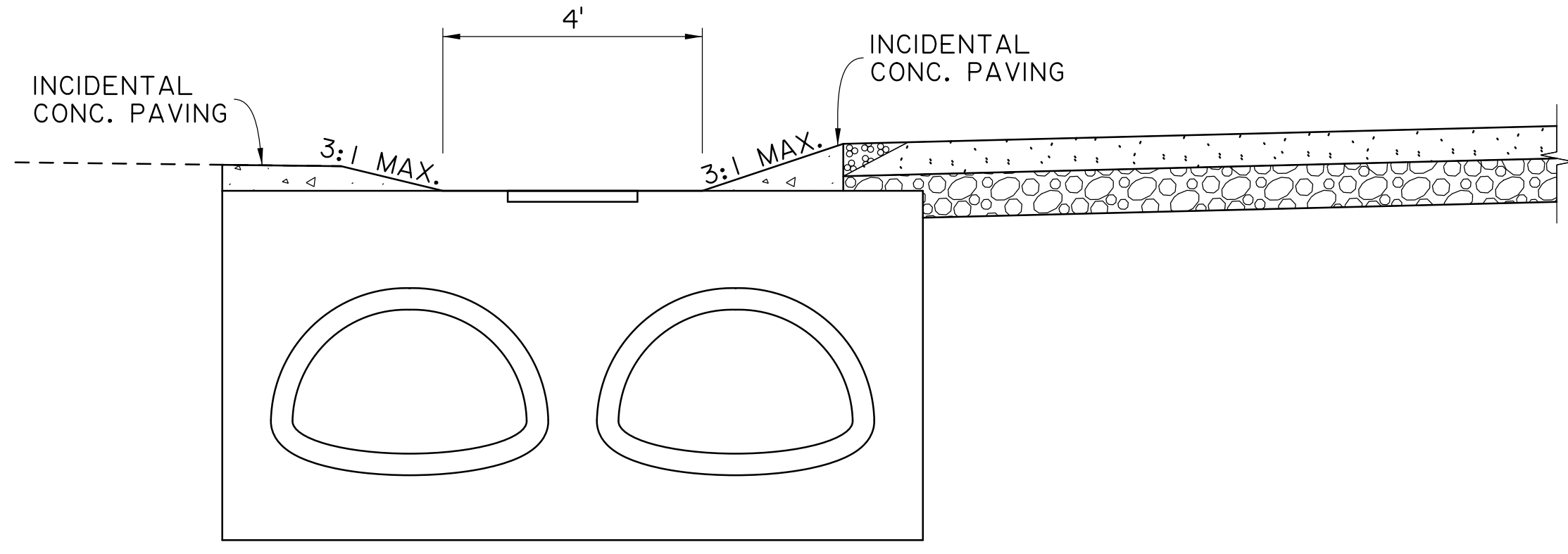
TYPICAL FINISHED SECTION (N.T.S.)
 APPLIES STA. 103+31.00 TO STA. 168+50.00
 APPLIES STA. 191+83.00 TO STA. 232+99.00

- NOTE:
1. SEE STANDARD PLAN PM-01 FOR DETAILS REGARDING PAVEMENT STRIPING
 2. SEE PLAN AND PROFILE SHEETS FOR LOCATION AND SIDE OF ϵ OF SUBSURFACE DRAINAGE SWALE AND DITCH

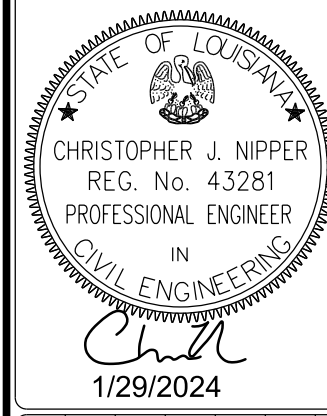
LEGEND

- ① 2" ASPHALT CONCRETE WEARING COURSE (LEVEL 1)
- ② 4" ASPHALT CONCRETE BINDER COURSE (LEVEL 1)
- ③ 8" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCC)
- ④ GEOTEXTILE FABRIC (INCLUDED IN COST OF BASE COURSE)
- ⊗ ⑤ 12" SUBGRADE LAYER (SAND)
- ⑥ SHOULDER WEDGE
- ⑦ PAVEMENT MARKINGS
- ⑧ AGGREGATE SHOULDER

SHEET NUMBER	2b	DESIGN	C. NIPPER	CHECK	J. LOHMANN	PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010	DETAIL	C. NIPPER	REVIEW	J. LOHMANN		
TYPICAL SECTION AND DETAILS SHARP RD.							



INCIDENTAL PAVEMENT AT
CB-SD02 CATCH BASINS (N.T.S.)



NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY



TYPICAL SECTION AND DETAILS

SHARP RD.



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	2c
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010		
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					

FINAL PLANS

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10/2/2024

13:51

⊗ 12" SUBGRADE TO BE USED IN LOCATIONS WHERE EXISTING SUBGRADE IS INADEQUATE, AS DETERMINED BY THE PROJECT ENGINEER. EXCAVATION FOR 12" SUBGRADE TO BE INCLUDED IN THE COST OF THE SUBGRADE.

Item No.	Item Description	Unit	Quantity
201-01-00100	Clearing and Grubbing	ACRE	7
202-01-00100	Removal of Structures and Obstructions	LUMP	1
202-02-02000	Removal of Asphalt Drives	SQYD	1100
202-02-02020	Removal of Asphalt Pavement	SQYD	24330.7
202-02-06100	Removal of Concrete Walks and Drives	SQYD	1258.4
202-02-32500	Removal of Portland Cement Concrete Pavement	SQYD	1113.0
203-05-00100	Excavation and Embankment	LUMP	1
204-02-00100	Temporary Hay Bales	EACH	975
204-06-00100	Temporary Silt Fencing	LNFT	1000
302-02-08070	Class II Base Course (8" Thick) (Crushed Stone or Recycled Portland Cement Concrete)	SQYD	27047.7
⊗ 305-01-04000	Subgrade Layer (12" Thick) (Sand)	SQYD	13523.9
401-02-00100	Aggregate Surface Course (Adjusted Vehicular Measurement)	CUYD	217.1
402-01-00101	Traffic Maintenance Surfacing (Aggregate) (Vehicular Measurement)	CUYD	200.0
502-01-00100	Asphalt Concrete	TON	8402.4
502-01-00200	Asphalt Concrete, Drives, Turnouts and Miscellaneous	TON	434.4
510-01-00100	Pavement Patching (6" Minimum Thickness)	SQYD	200
601-01-00100	Portland Cement Concrete Pavement (6" Thick)	SQYD	1113.0
701-02-01020	Cross Drain Pipe Arch (30" Equiv. RCPA)	LNFT	158
701-02-01040	Cross Drain Pipe Arch (36" Equiv. RCPA)	LNFT	185
701-02-01060	Cross Drain Pipe Arch (42" Equiv. RCPA)	LNFT	105
701-03-01002	Storm Drain Pipe (15" RCP/RPVC)	LNFT	28
701-04-01000	Storm Drain Pipe Arch (15" Equiv. RCPA)	LNFT	2737
701-04-01020	Storm Drain Pipe Arch (18" Equiv. RCPA)	LNFT	4566
701-04-01040	Storm Drain Pipe Arch (24" Equiv. RCPA)	LNFT	5401
701-04-01060	Storm Drain Pipe Arch (30" Equiv. RCPA)	LNFT	2764
701-04-01080	Storm Drain Pipe Arch (36" Equiv. RCPA)	LNFT	1453
701-06-00020	Side Drain Pipe Arch (18" Equiv. RCPA)	LNFT	952
701-15-00100	Concrete Collar	EACH	3
702-01-00100	Junction Boxes [MH-14XOPEN]	EACH	6
702-02-00100	Manholes (MH-06)	EACH	21
702-03-00100	Catch Basins (CB-01)	EACH	163
702-03-00200	Catch Basins (CB-02)	EACH	14
702-03-01100	Catch Basins (CB-SD02)	EACH	18
704-03-00200	Blocked Out Guard Rail - 31", (6'-3" Post Spacing)	LNFT	225.0
704-10-00205	Guard Rail End Treatment, MASH, (TL-3 Tangent)	EACH	4
706-02-00200	Concrete Drive (6" Thick)	SQYD	1258.4
706-03-00100	Incidental Concrete Paving (4" Thick)	SQYD	171.2
706-03-00300	Incidental Concrete Paving (6" Thick)	SQYD	680
707-01-00100	Concrete Curb	LNFT	507
710-01-00100	Flowable Fill	CUYD	38
713-01-00100	Temporary Signs and Barricades	LUMP	1
713-04-01020	Temporary Pavement Markings (Solid Line) (4"Width) (Type 1 Removable)	MILE	8.216
720-01-02060	Erosion Control System, Flexible (Channel Liner) (Type F)	SQYD	208
726-01-00100	Bedding Material	CUYD	2033.2
727-01-00100	Mobilization	LUMP	1
729-16-00300	Object Marker Assembly (Type 3)	EACH	4
731-02-00100	Reflectorized Raised Pavement Markers	EACH	733
732-01-02080	Plastic Pavement Striping (24" Width) (Thermoplastic 125 mil)	LNFT	50
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	8.216
732-02-02040	Plastic Pavement Striping (Solid Line) (8" Width) (Thermoplastic 90 mil)	MILE	0.054
732-03-02030	Plastic Pavement Striping (Dotted Line)(8" W)(2' L)(Thermo 90 mil)	MILE	0.02
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	1
739-01-00100	Hydro-Seeding	ACRE	6.54
740-01-00100	Construction Layout	LUMP	1
740-02-00100	Utility Oversight and Coordination	LUMP	1
805-01-01000	Class A1 Concrete (Headwalls)	CUYD	16.87
805-13-00100	Reinforced Concrete Box Culverts (Cast-In-Place or Precast) (4' x 4')	LNFT	120
806-01-00100	Deformed Reinforcing Steel	LB	1543
NS-500-00340	Saw Cutting Asphalt Concrete Pavement	INLF	484

EARTHWORK*			
STATION	STATION	EVCAVATION	EMBANKMENT
		CUYD	CUYD
101+22.00	168+50.00	15775	3699
191+83.00	232+99.00		
TOTAL		15775	3699

*FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER		3	
PARISH		ST. TAMMANY	
DESIGN	CHECK	DETAIL	REVIEW
C-NIPPER	J.LOHMANN	C-NIPPER	J.L OHMANN
PROJECT NUMBER		EN21000010	
NO.		DATE	
BY		REVISION OR CHANGE ORDER DESCRIPTION	
<p>SUMMARY OF ESTIMATED QUANTITIES</p> <p>SHARP RD.</p>			

FINAL PLANS

LEGEND - EXISTING TOPOGRAPHY

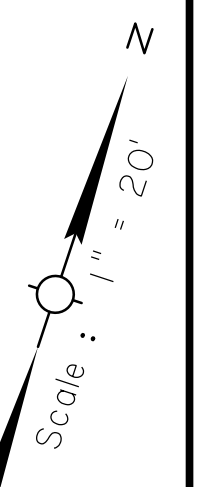
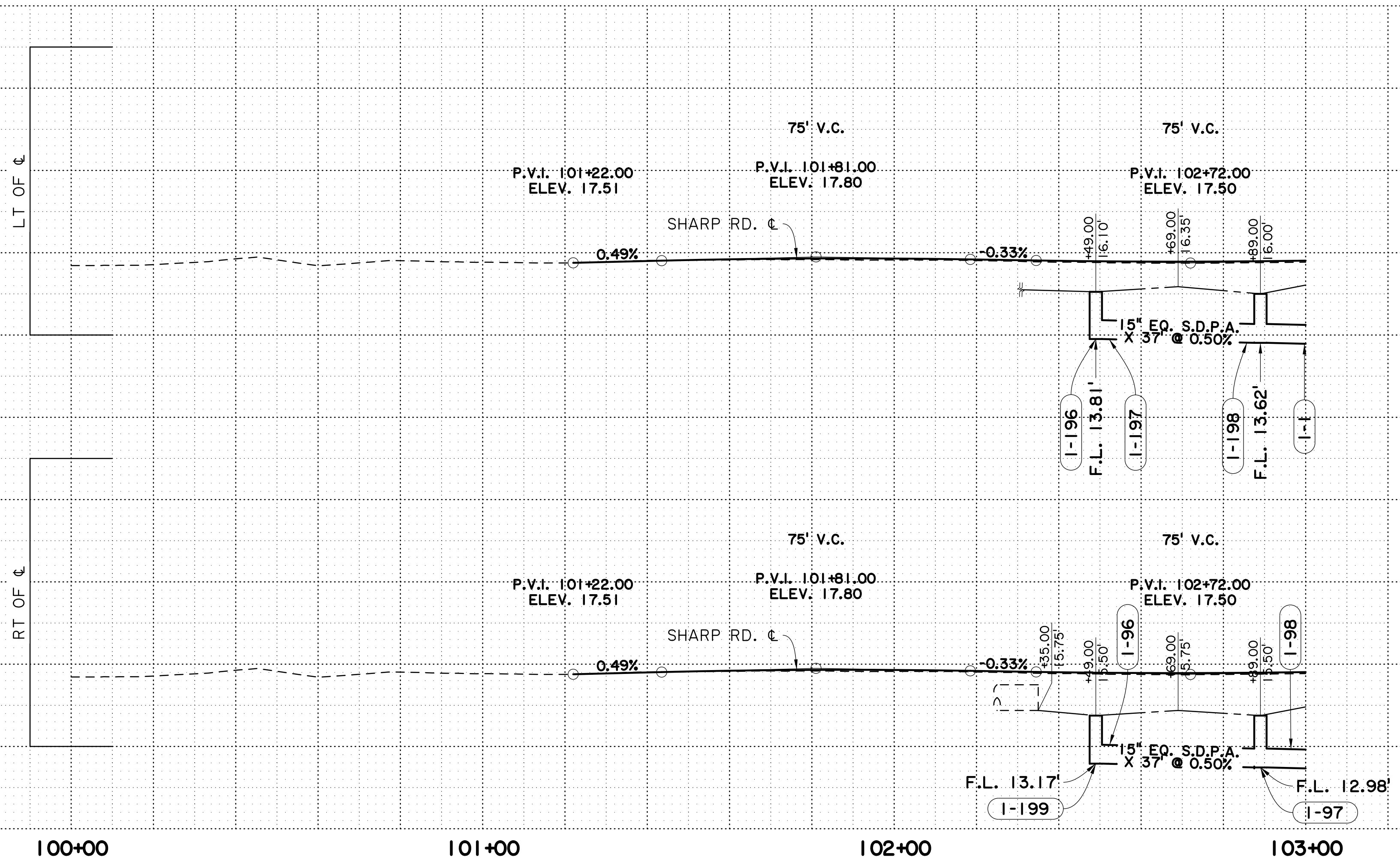
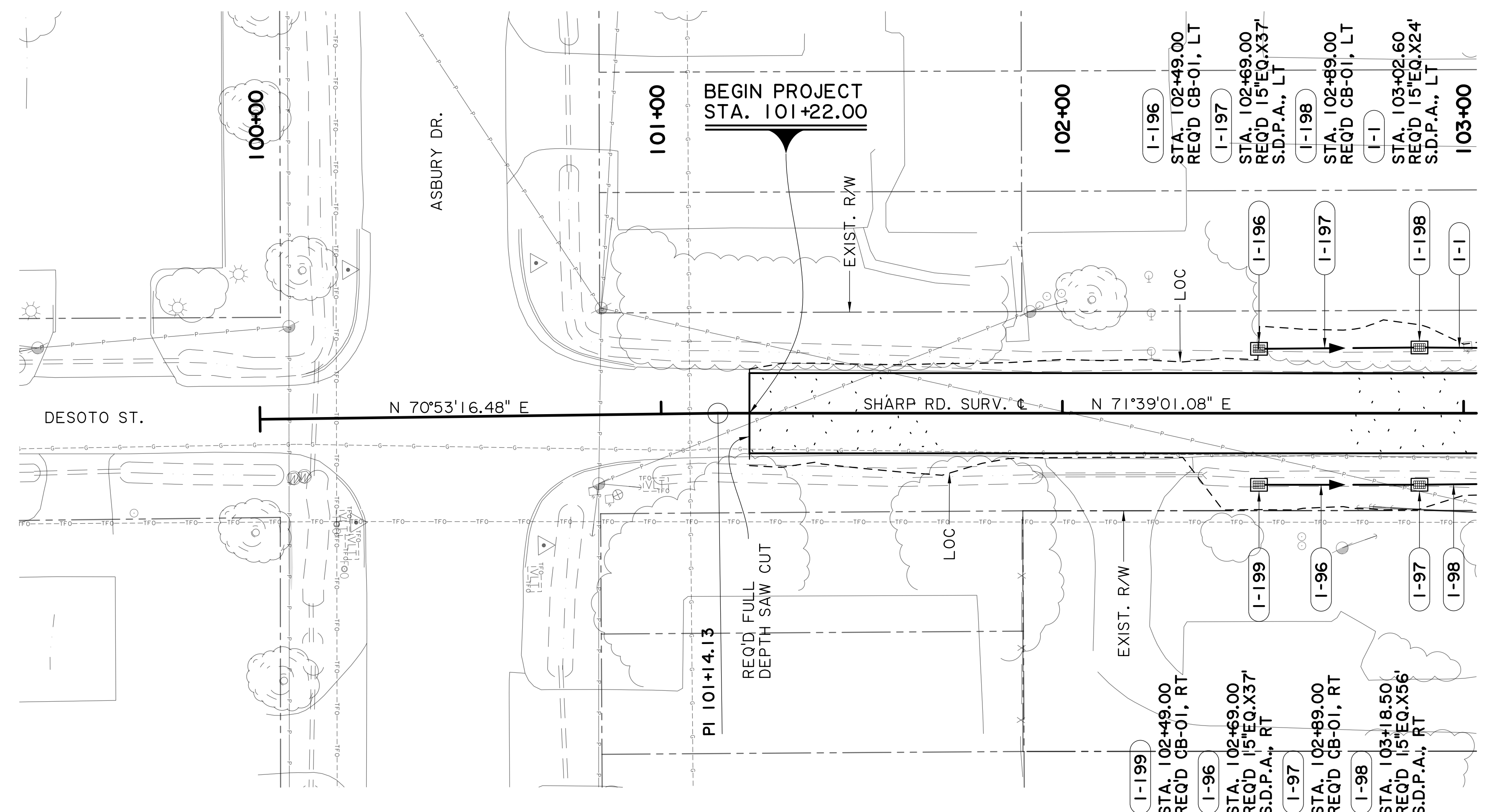
CONTROL POINT		GAS LINE	
TEMPORARY BENCH MARK		GAS METER	
PHOTO TARGET		GAS SERVICE (NO METER)	
PAVEMENT EDGE		GAS REGULATOR	
SHOULDER EDGE		GAS RISER	
SLOPE TOE		GAS TEST BOX	
GUARDRAIL TOP		GAS VALVE	
HIGH BANK		GAS LINE CASING	
WATER'S EDGE		GAS VENT	
HIGH WATER MARK		RAILROAD MILEPOST	
BOX CULVERT		RAILROAD SIGNAL	
PIPE CULVERT		RAILROAD SWITCH	
CATCH BASIN TOP (ROUND)		RAILROAD TRACK	
DROP INLET TOP (ROUND)		RR TRAFFIC SIGNAL BOX	
DRAINAGE MANHOLE TOP		SEWER LINE	
LEVEE TOP		SEWER MANHOLE TOP	
DITCH CENTERLINE		SEWER BLOWOUT VALVE	
TREE		SEWER CLEANOUT	
WOODS EDGE		SEPTIC TANK	
MARSH LINE		SEWER PUMP (PRIVATE)	
SWAMP LINE		SEWER TREATMENT (INDIVIDUAL)	
TREE CLUSTER		FEDERAL AID MARKER	
HEDGE		TRAFFIC CONTROLLER BOX	
BUSH		TRAFFIC COUNTER	
TREE LINE		TRAFFIC SIGNAL	
FENCE LINE		TRAFFIC SIGNAL SUPPORT POLE	
GATE		LIGHT POLE	
CATTLE GUARD		LIGHT PEDESTAL	
PROPERTY CORNER		LIGHT POWER VAULT	
RIGHT OF WAY MONUMENT		TRAFFIC SIGN	
SECTION CORNER		PARKING METER	
FENCE CORNER		TELEPHONE POLE	
TELEVISION CABLE		TELEPHONE LINE	
TELEVISION PEDESTAL		TELEPHONE BOOTH	
POWER POLE		TELE CROSS CONNECT BOX	
DEADMAN		TELEPHONE PEDESTAL	
POWER LINE		TELEPHONE PRESSURE BOX	
POWER JUNCTION BOX		WATER LINE	
POWER VAULT		WATER LINE CASING	
TRANSFORMER		WATER CLEANOUT	
COMBINATION POLE		WATER METER	
POWER DROP		WATER VALVE	
PIPELINE		WATER VALVE VAULT	
PIPELINE VENT		WATER WELL	
PIPELINE REGULATOR		FIRE HYDRANT	
GAS WELL		BILLBOARD	
HAY BALES		FUEL PUMP	
SILT FENCE		POST	
INLET SILT TRAP		SIGN POST	
TRAFFIC FIBER OPTIC		STORAGE TANK (ROUND)	
TELEPHONE FIBER OPTIC		GRAVE	
TV FIBER OPTIC		MAILBOX	
		ORNAMENTAL LIGHT	
		FLAG POLE	
		GRAVE	
		TRAFFIC SIGNAL POWER	
		SEWER FORCE MAIN	

LEGEND

	REQ'D CONCRETE
	REQ'D ASPHALT
	REQ'D AGGREGATE
	REQ'D REMOVAL
	REQ'D BEDDING MATERIAL
	REQ'D SUBSURFACE DRAINAGE SWALE
	REQ'D DITCH GRADE
	LOC LIMITS OF CONSTRUCTION

GENERAL NOTES:

- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND TIE-IN OF ALL SEWER EFFLUENT DISCHARGE PIPE TO SUBSURFACE DRAINAGE USING SEWER EFFLUENT DISCHARGE PIPE TIE-IN DETAIL AT NO DIRECT PAY. DRAINAGE STRUCTURES TO REMAIN UNLESS OTHERWISE NOTED. REMOVAL OF DRAINAGE STRUCTURES TO BE INCLUDED UNDER ITEM REMOVAL OF STRUCTURES AND OBSTRUCTIONS.
- SIDE SLOPES FOR DRIVEWAYS TO BE 6:1 WHERE SIDE DRAINS PIPES ARE REQUIRED
- ALL STUB-IN'S TO BE INCLUDED IN THE COST OF PIPE GRADING MAY BE NECESSARY TO PROVIDE POSITIVE DRAINAGE TO CB AS DIRECTED BY PROJECT ENGINEER, AT NO DIRECT PAY
- ALL FLOW LINES NOT INDICATED HEREON ARE TO BE FIELD SET BY PROJECT ENGINEER
- CONTRACTOR TO FIELD VERIFY ALL INVERTS AND FLOW LINES OF EXISTING STRUCTURES TO REMAIN PRIOR TO ORDERING DRAINAGE STRUCTURES



SHEET NUMBER	4
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PROJECT NUMBER	EN2 1000010
PARISH	ST. TAMMANY

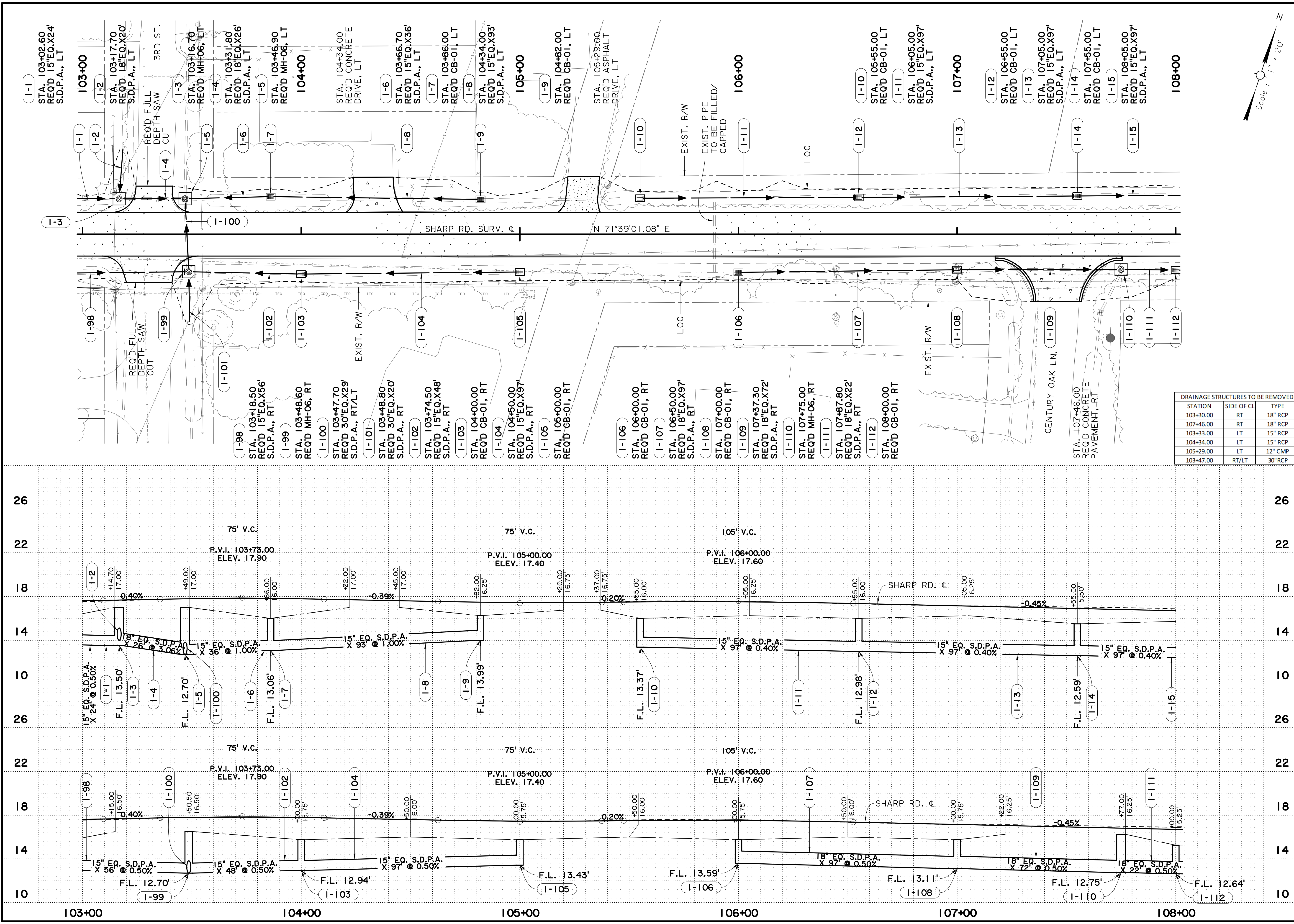
CHRISTOPHER J. NIPPER
REG. NO. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/29/2024

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE

SHARP RD.

FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
103+30.00	RT	18" RCP
107+46.00	RT	18" RCP
103+33.00	LT	15" RCP
104+34.00	LT	15" RCP
105+29.00	LT	12" CMP
103+47.00	RT/LT	30" RCP

DESIGN: C. NIPPER
CHECK: J. LOHMANN
DETAIL: C. NIPPER
CHECK: J. LOHMANN
REVIEW: []
SERIES #

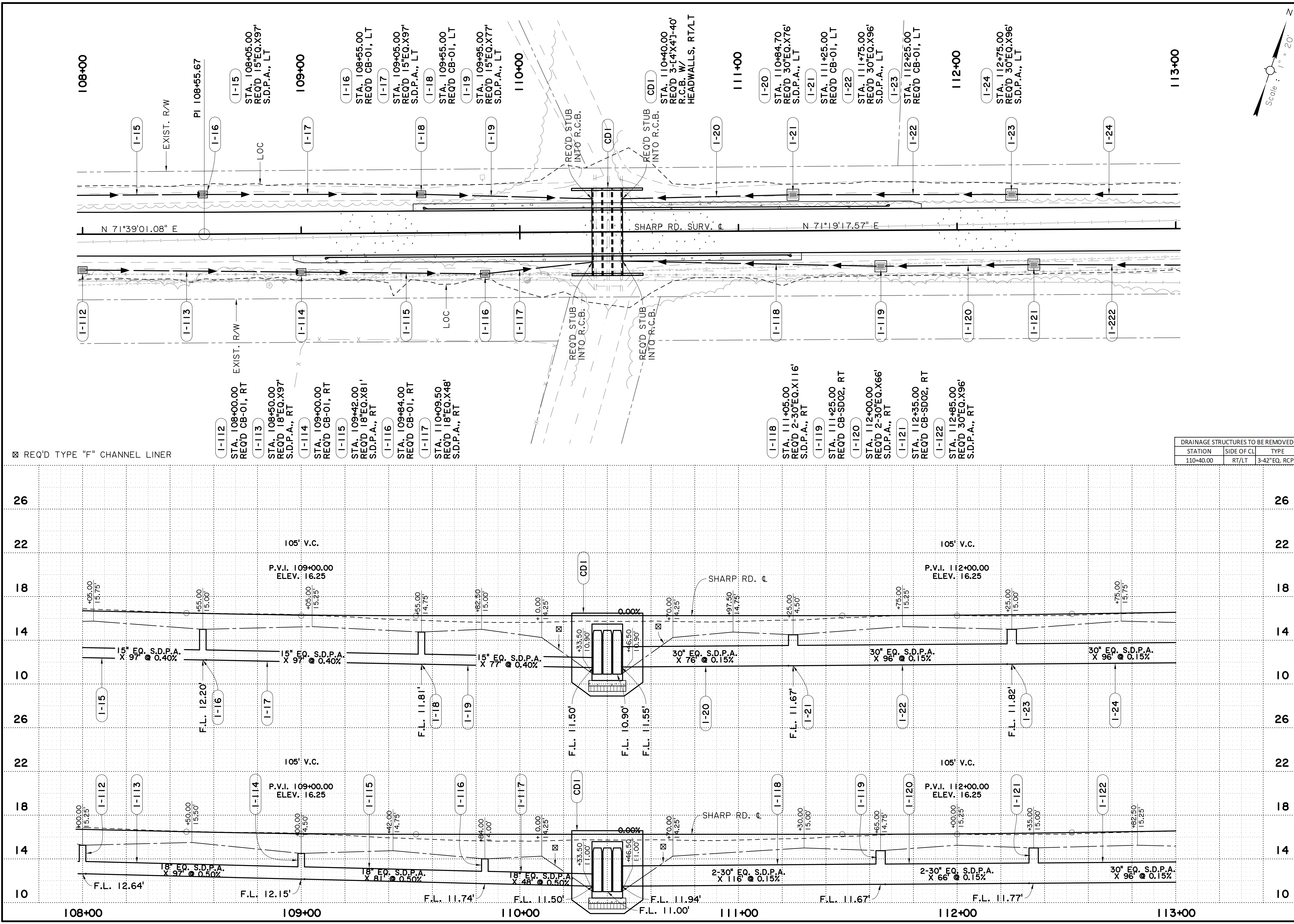
PARISH: ST. TAMMANY
PROJECT NUMBER: EN21000010
SHEET NUMBER: 5

NO. DATE BY

REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
SHARP RD.

FINAL PLANS



DESIGN: C-NIPPER
CHECK: J.LOHMANN
DETAIL: C-NIPPER
CHECK: J.LOHMANN
REVIEW: J.LOHMANN

SHEET NUMBER: 6
PROJECT NUMBER: EN21000010

1/29/2024

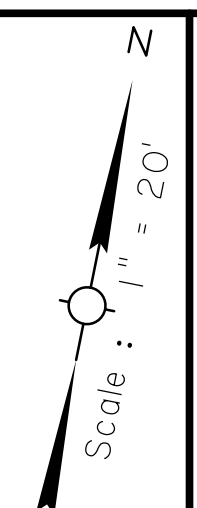
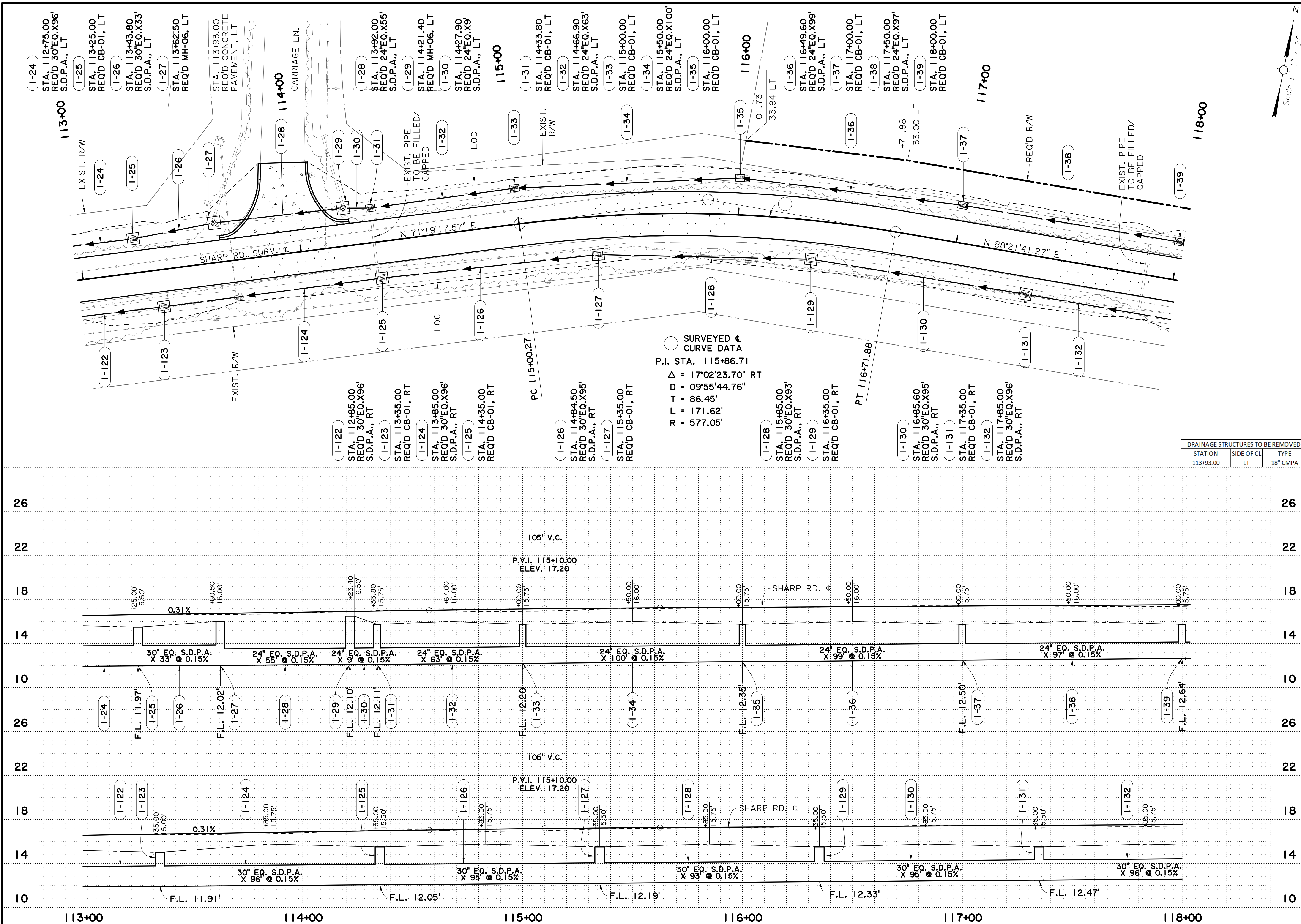
NO. DATE

BY

PLAN AND PROFILE

SHARP RD.

FINAL PLANS



DESIGN	C-NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	7
CHECK	J.LOHMANN				
DETAIL	C-NIPPER				
CHECK	J.LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

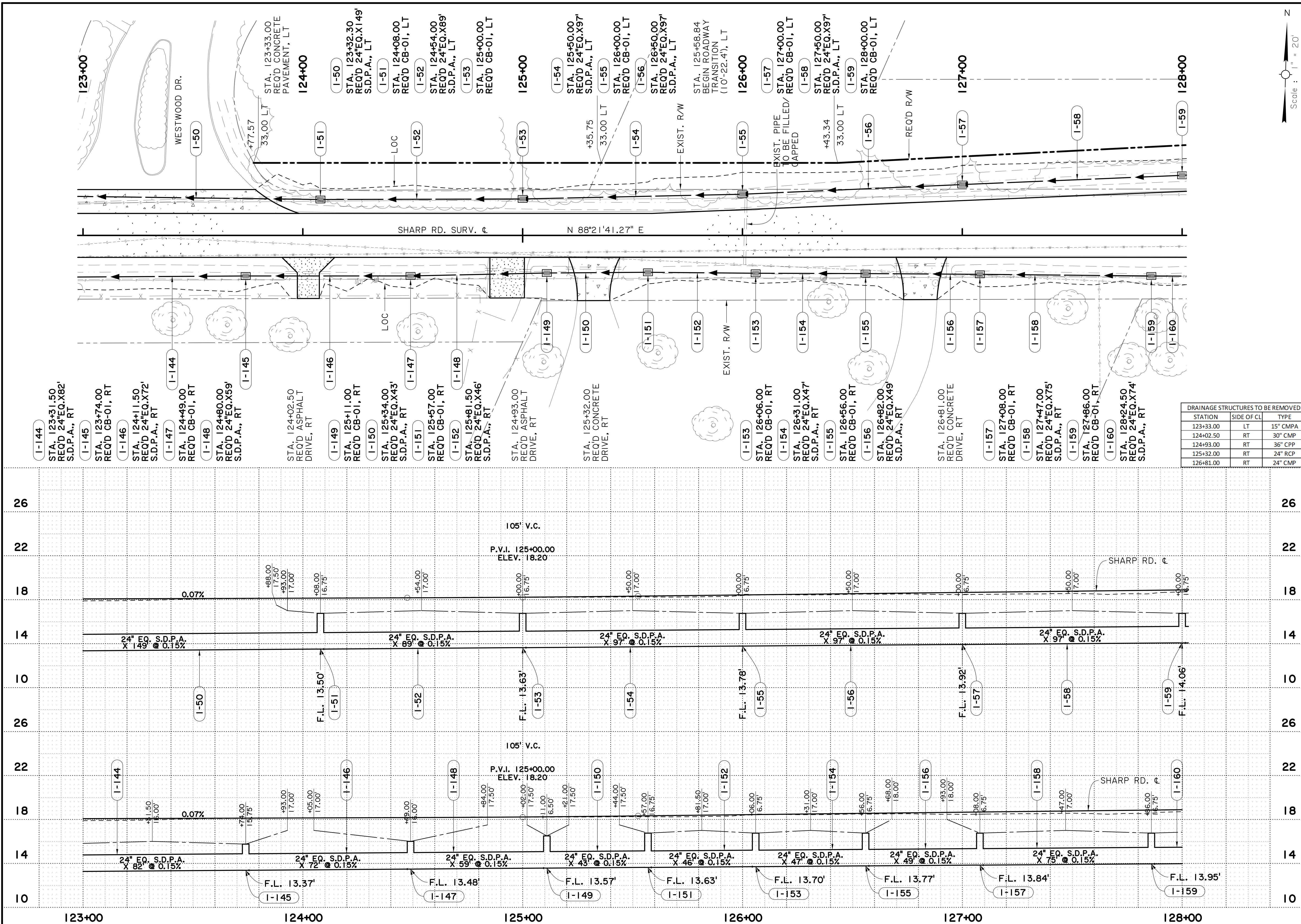
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
 SHARP RD.

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 Gulf Engineers & Consultants

FINAL PLANS



Scale: 1" = 20'

STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

DESIGN: C. NIPPER
 CHECK: J. LOHMANN
 DETAIL: C. NIPPER
 CHECK: J. LOHMANN
 REVIEW: J. LOHMANN

SHEET NUMBER: 9
 PROJECT NUMBER: EN21000010

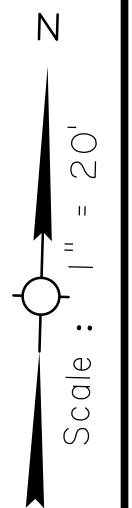
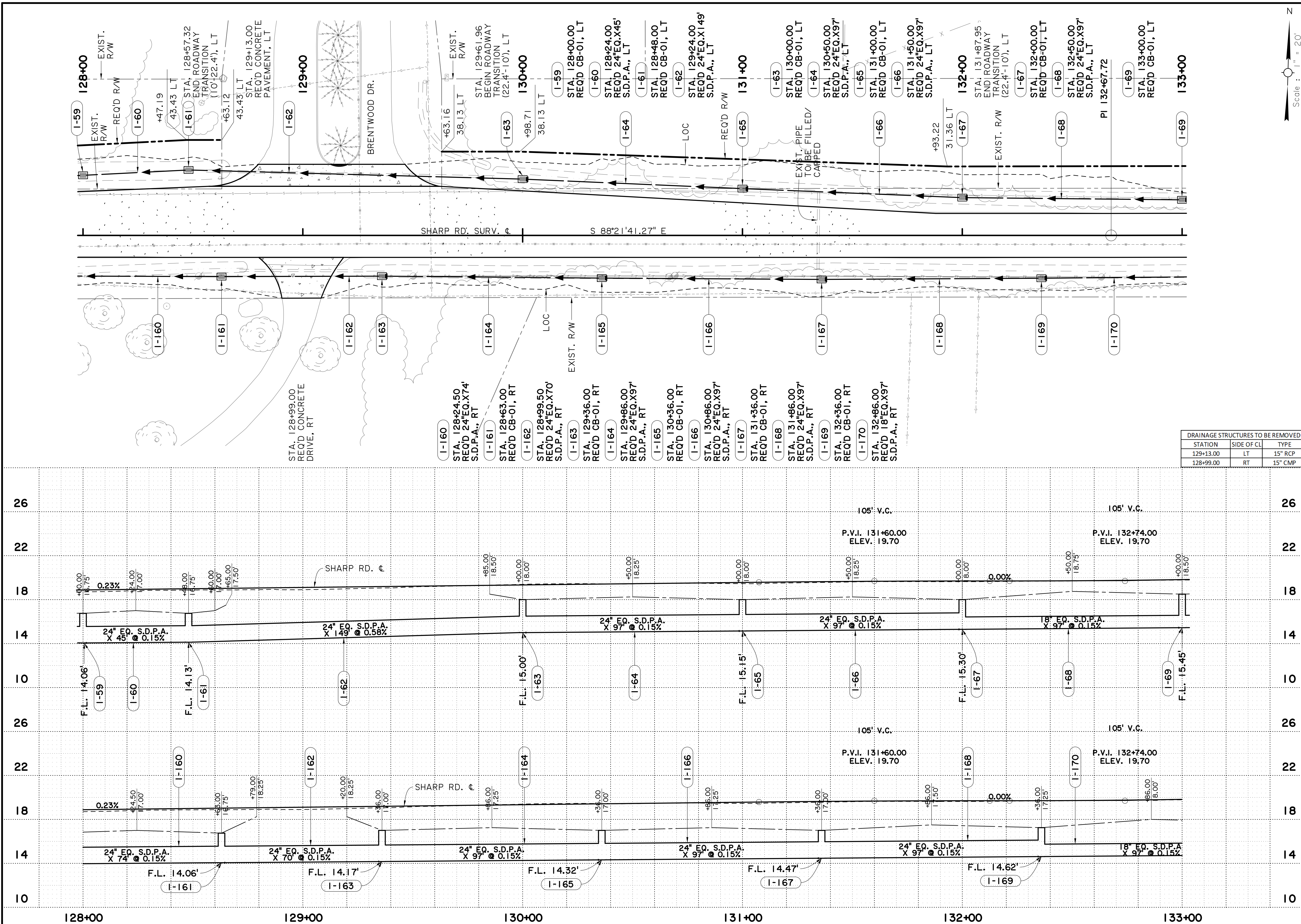
NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

STATE OF LOUISIANA
 PROFESSIONAL ENGINEER

PLAN AND PROFILE
 SHARP RD.

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FINAL PLANS



DESIGN	C-NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	10
CHECK	J.LOHMANN				
DETAIL	C-NIPPER				
CHECK	J.LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

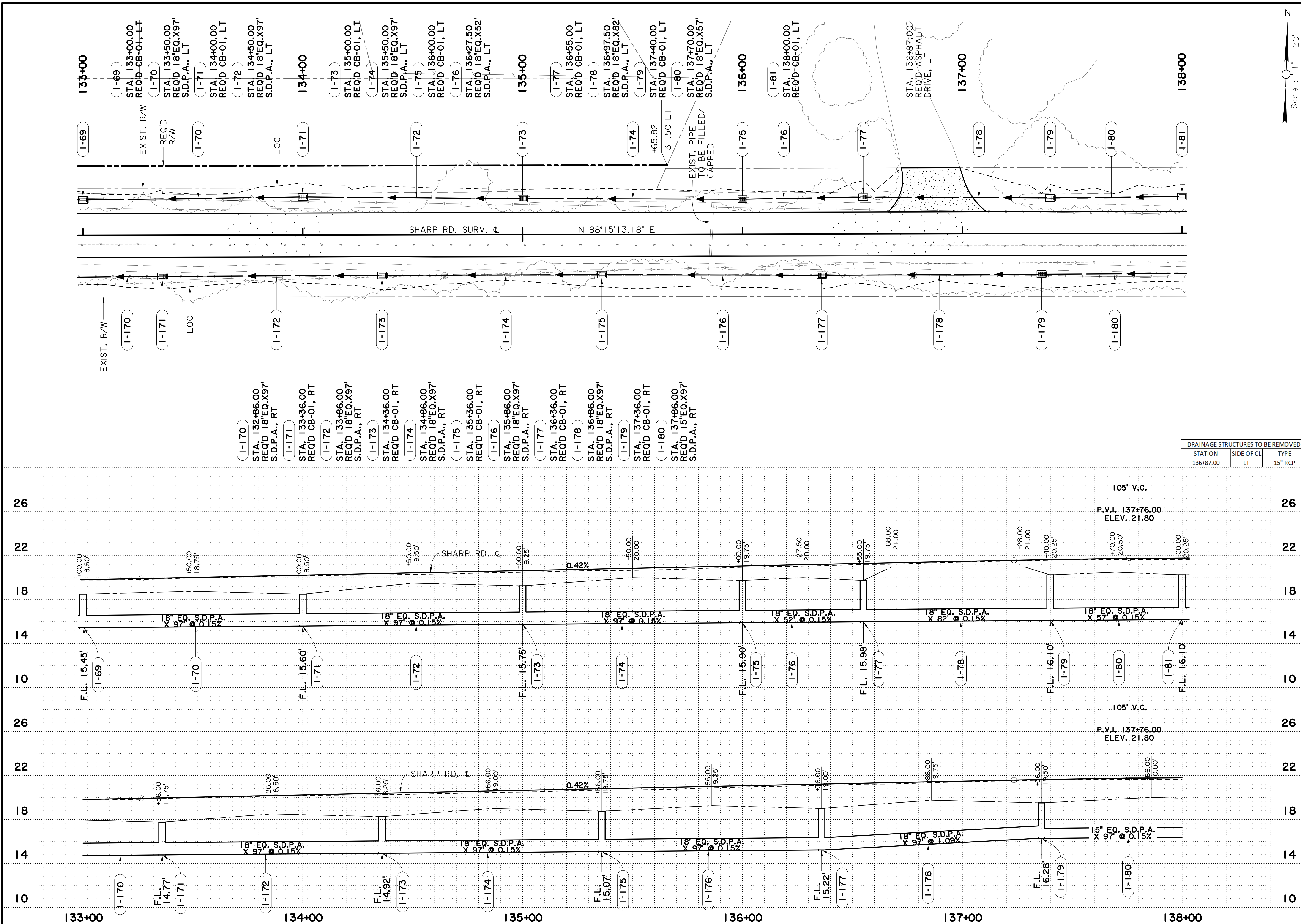
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Ch
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

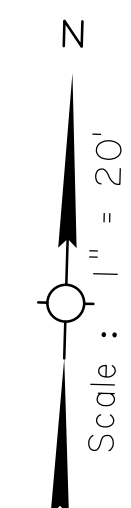
PLAN AND PROFILE
 SHARP RD.

GEC
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FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
136+87.00	LT	15" RCP



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	11
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

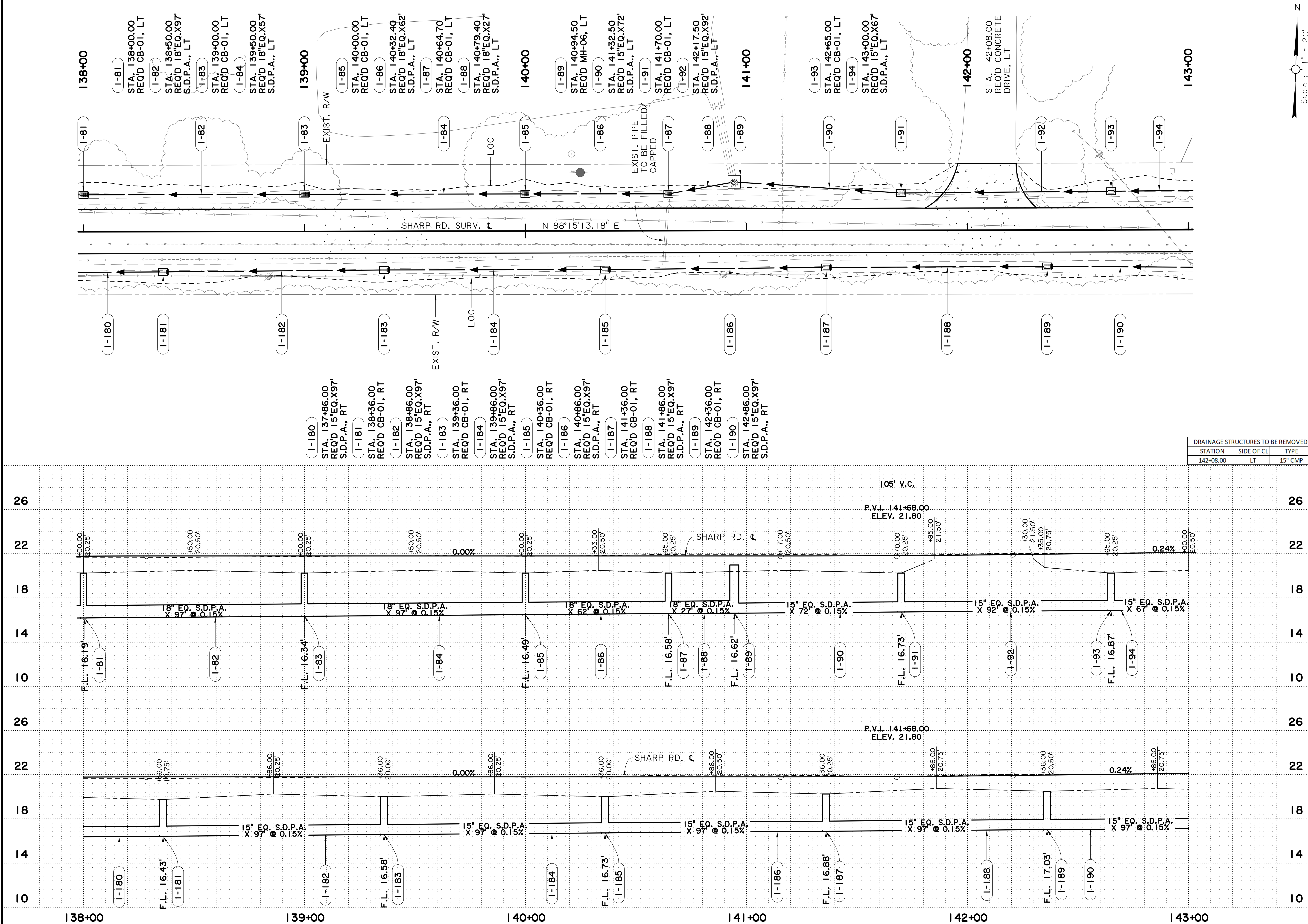
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

STATE OF LOUISIANA
 PROFESSIONAL ENGINEER
 1948

PLAN AND PROFILE
 SHARP RD.

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 Gulf Engineers & Consultants

FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
142+08.00	LT	15" CMP

Scale: 1" = 20'



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	12
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN2 1000010
SERIES #					

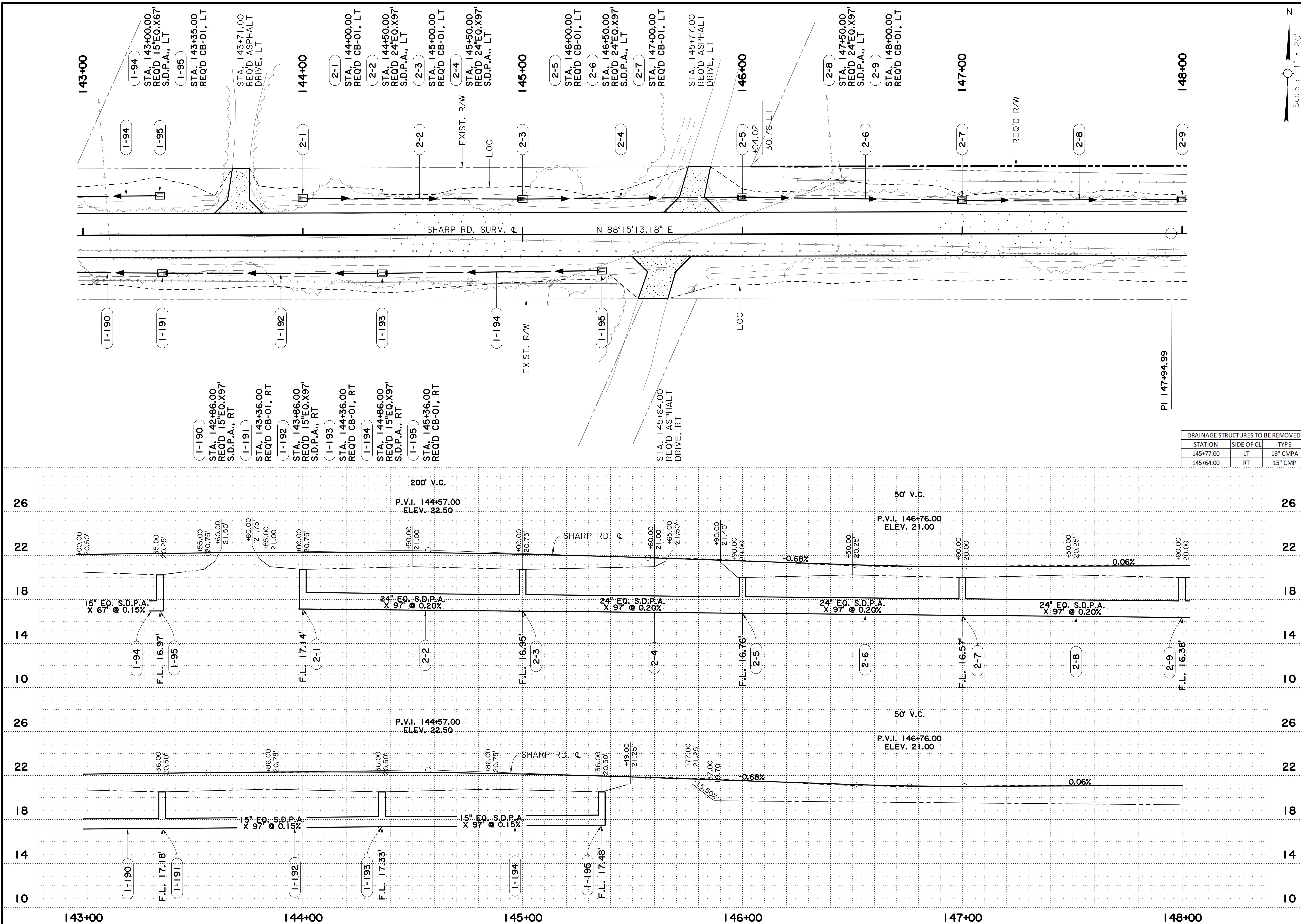
NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

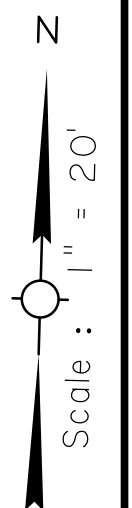
STATE OF LOUISIANA
 PLAN AND PROFILE
 SHARP RD.

GEC
 Gulf Engineers & Consultants

FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
145+77.00	LT	18" CMPA
145+64.00	RT	15" CMP



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	13
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

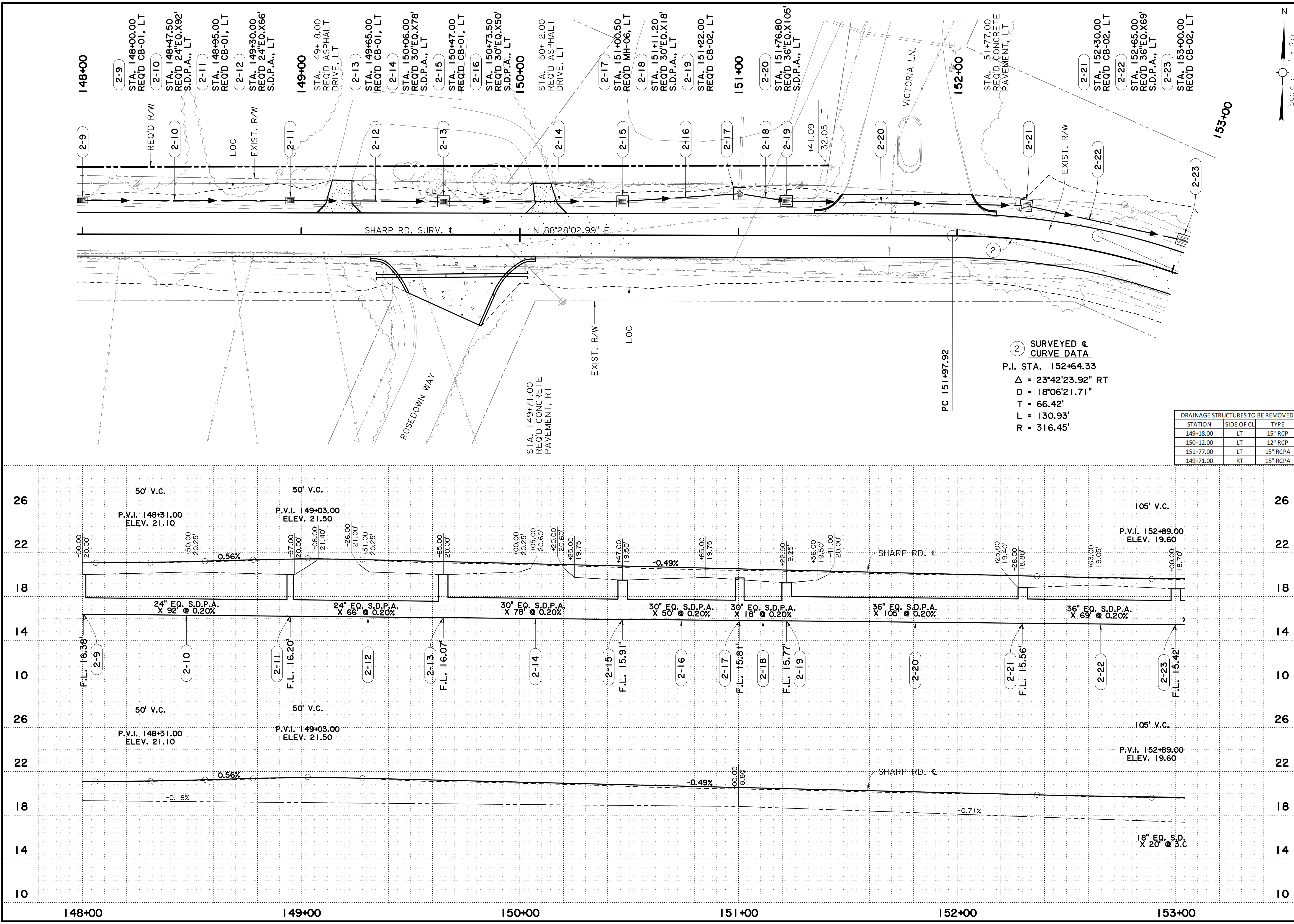
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Chris
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

STATE OF LOUISIANA
 PROFESSIONAL ENGINEER
 PLAN AND PROFILE
 SHARP RD.

GEC
 Gulf Engineers & Consultants

FINAL PLANS



Scale: 1" = 20'

DESIGN: C. NIPPER
CHECK: J. LOHMANN
DETAIL: C. NIPPER
CHECK: J. LOHMANN
REVIEW: J. LOHMANN
SERIES #

PARISH: ST. TAMMANY

PROJECT NUMBER: EN21000010

SHEET NUMBER: 14

STATE OF LOUISIANA
CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/29/2024

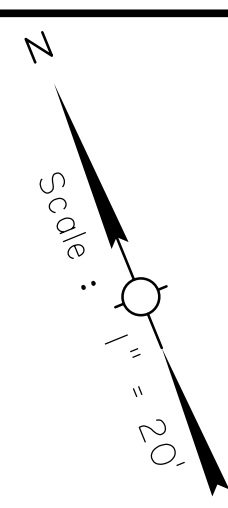
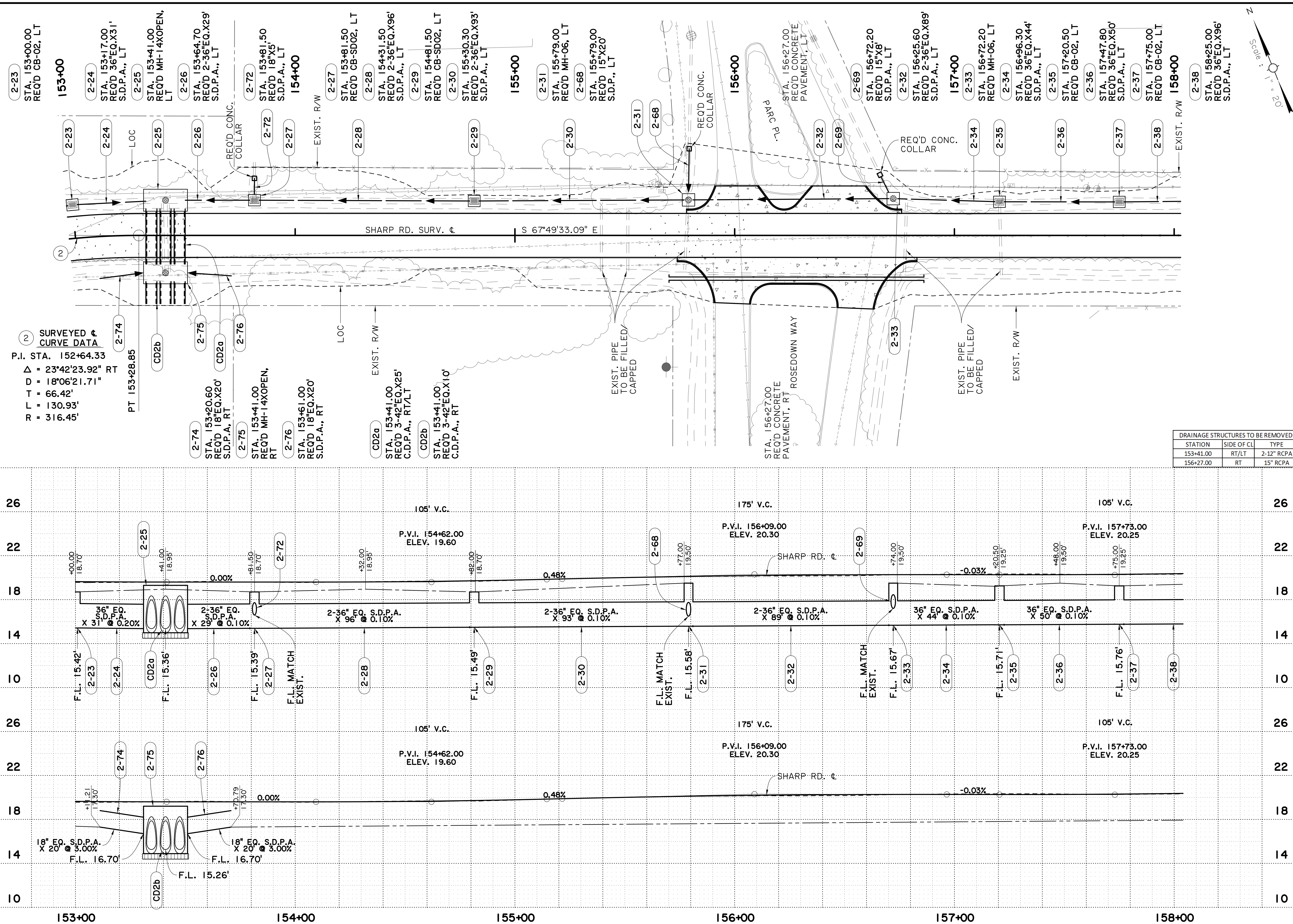
NO. DATE BY

REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
SHARP RD.

GEC
Gulf Engineers & Consultants

FINAL PLANS



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	1 of 1
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

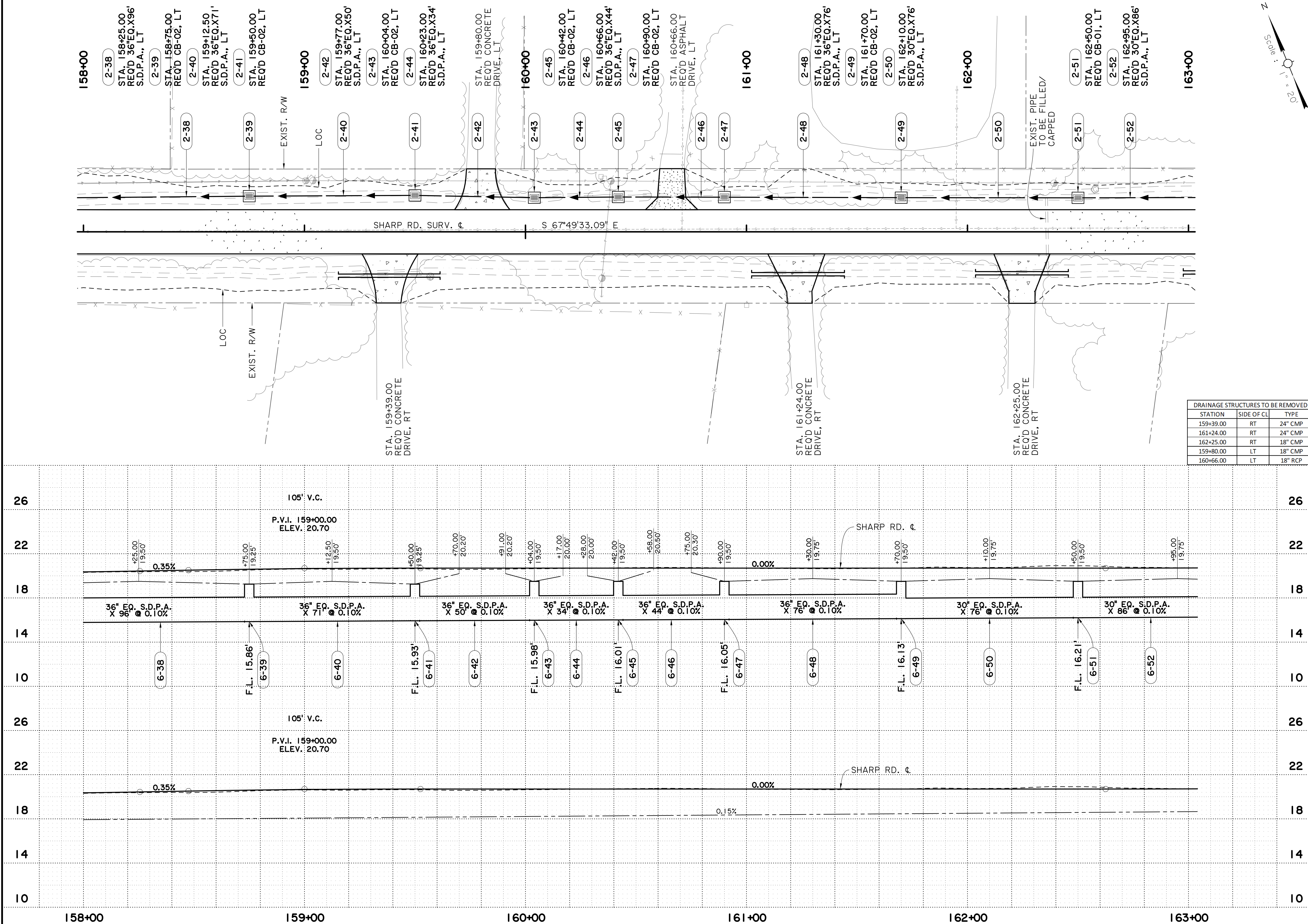
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

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ST. TAMMANY

PARISH

C-NIPPER

J.LOHMANN

C-NIPPER

J.LOHMANN

DESIGN

CHECK

DETAIL

CHECK

REVIEW

NO. DATE

REVISION OR CHANGE ORDER DESCRIPTION

BY

STATE OF LOUISIANA

CHRISTOPHER J. NIPPER

REG. No. 43281

PROFESSIONAL ENGINEER

IN

CIVIL ENGINEERING

Ch

1/29/2024

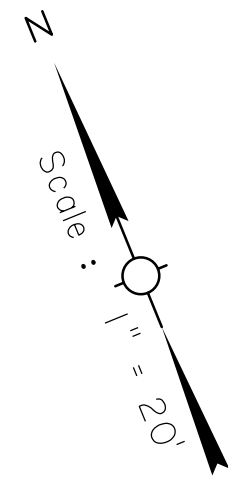
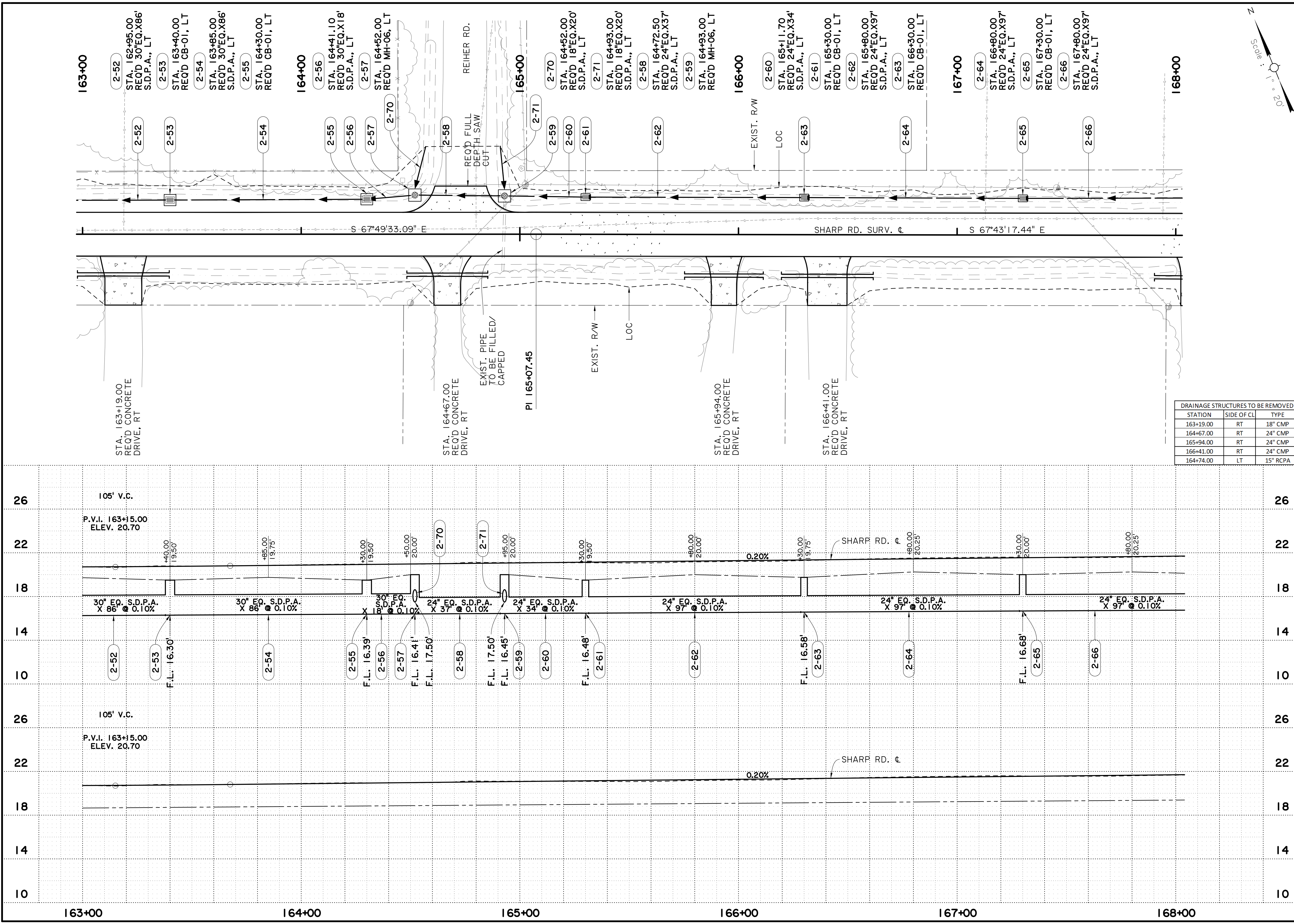
SHEET NUMBER

16

PROJECT NUMBER

EN21000010

FINAL PLANS



SHEET NUMBER		17	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN		
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW		PROJECT NUMBER	EN21000010
SERIES #			

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

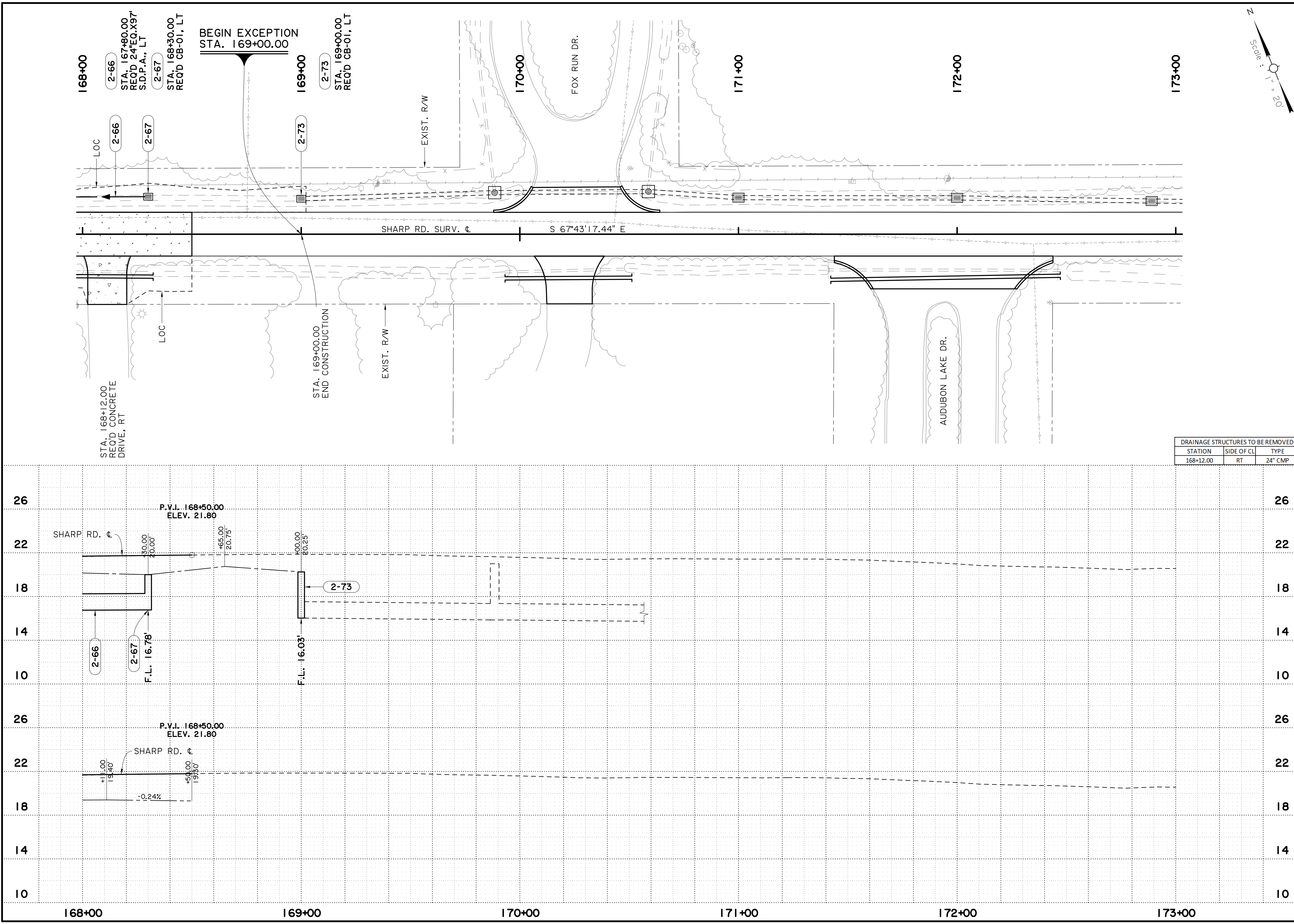
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Chh
 1/29/2024

STATE OF LOUISIANA
 PROFESSIONAL ENGINEER
 1945

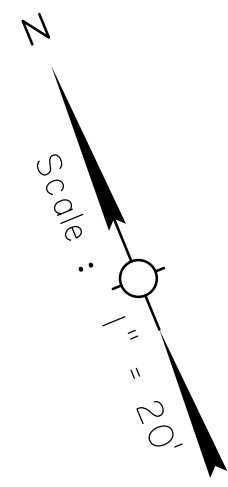
PLAN AND PROFILE
 SHARP RD.



FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
168+12.00	RT	24" CMP



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	18
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010		
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/29/2024

STATE OF LOUISIANA

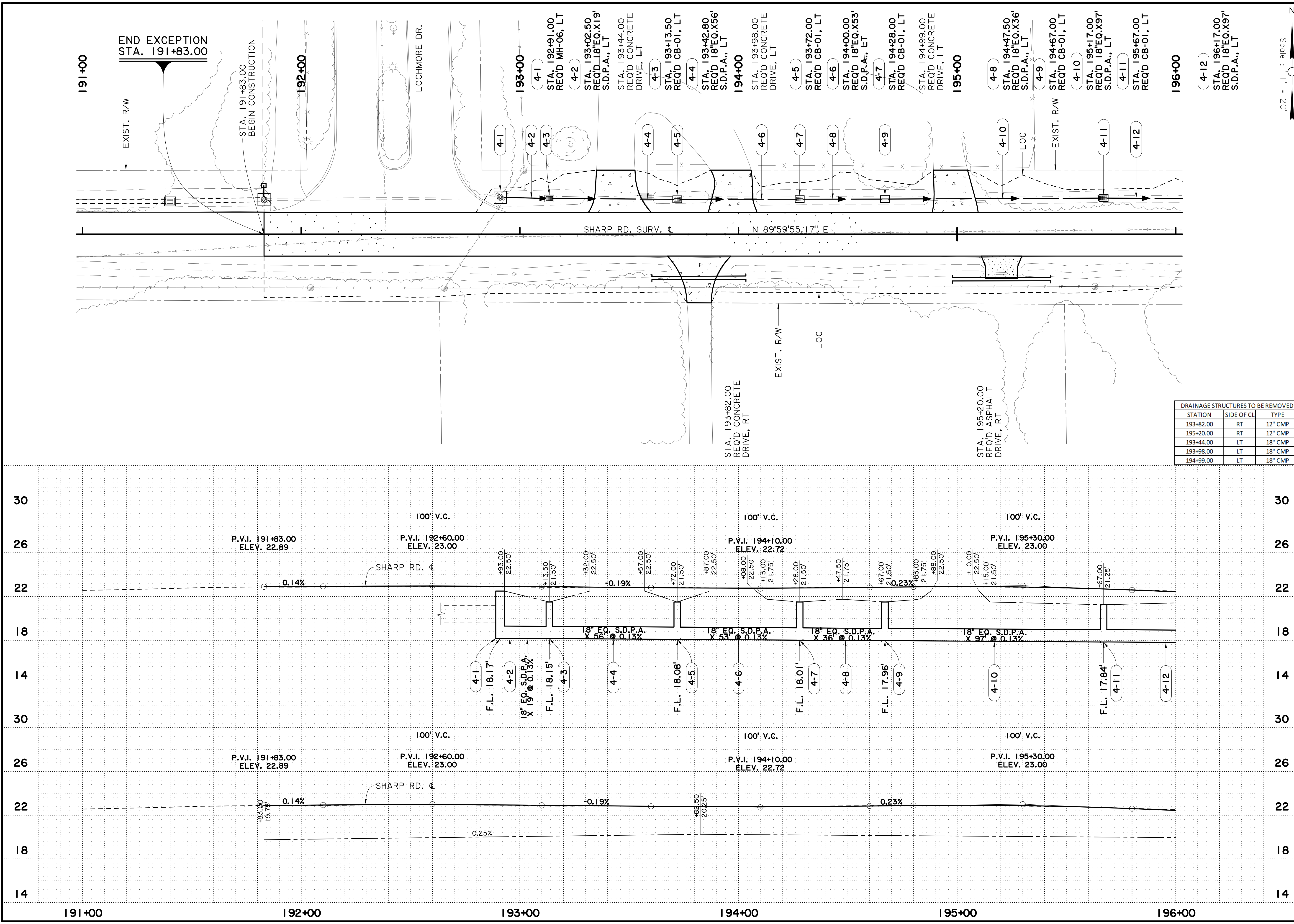
PLAN AND PROFILE

SHARP RD.

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION



FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
193+82.00	RT	12" CMP
195+20.00	RT	12" CMP
193+44.00	LT	18" CMP
193+98.00	LT	18" CMP
194+99.00	LT	18" CMP

Scale: 1" = 20'

DESIGN: C. NIPPER
CHECK: J. LOHMANN
DETAIL: C. NIPPER
CHECK: J. LOHMANN
REVIEW: #

PARISH: ST. TAMMANY
PROJECT NUMBER: EN21000010

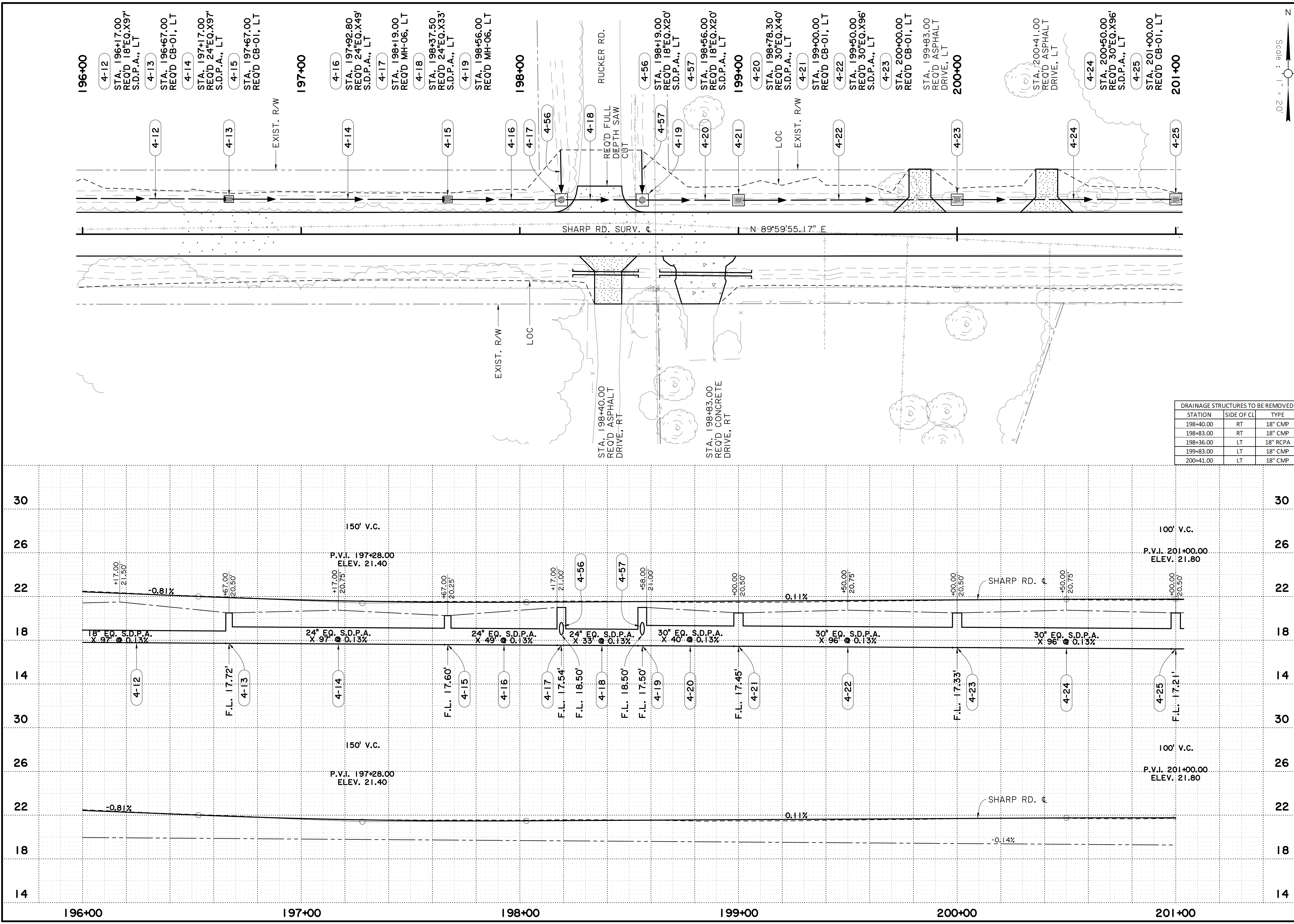
NO. DATE

REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE

SHARP RD.

FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
198+40.00	RT	18" CMP
198+83.00	RT	18" CMP
198+36.00	LT	18" RCPA
199+83.00	LT	18" CMP
200+41.00	LT	18" CMP

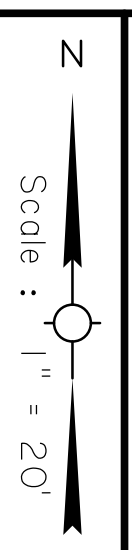
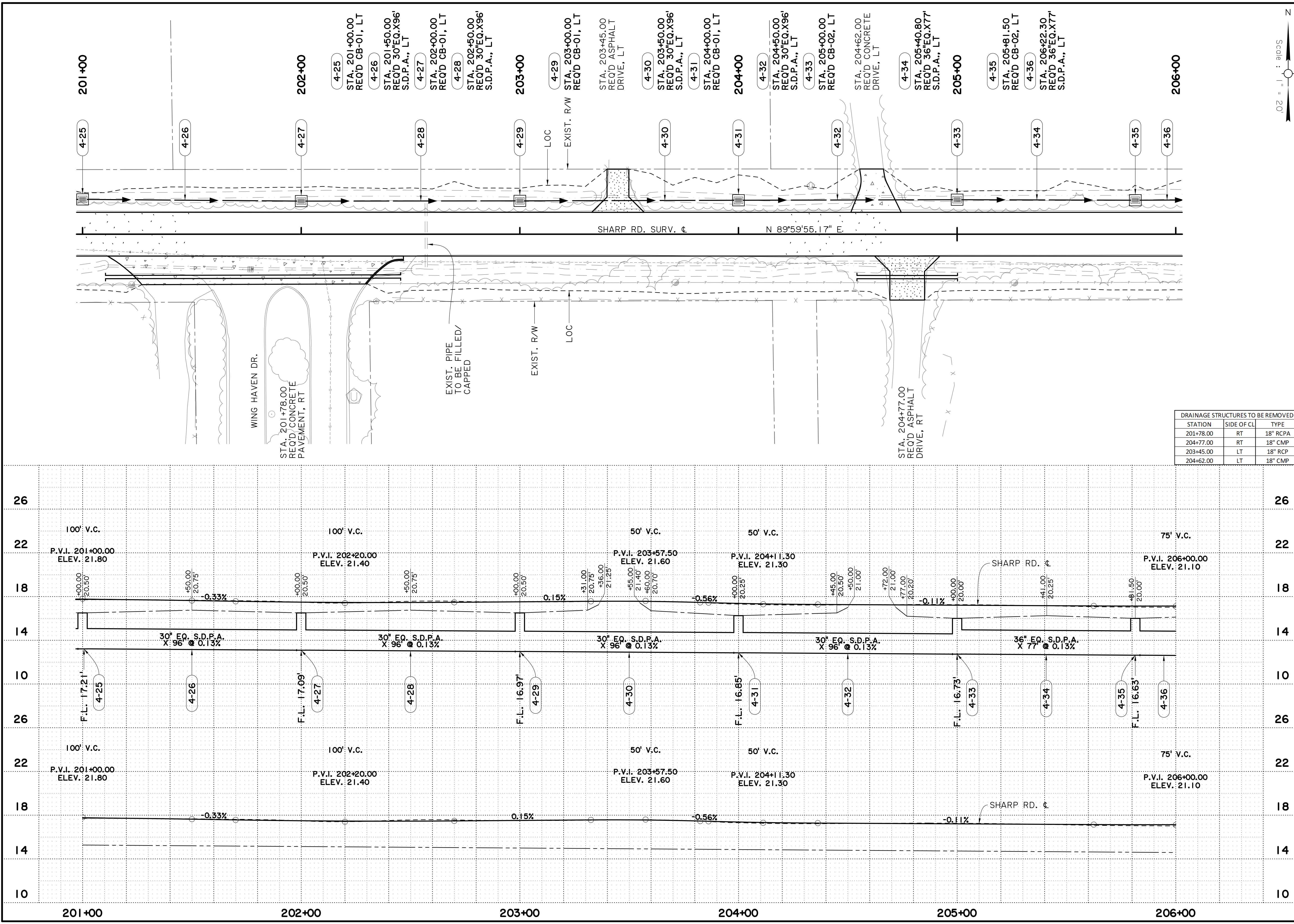
Scale: 1" = 20'

SHEET NUMBER	20	PARISH	ST. TAMMANY	PROJECT NUMBER	EN2 1000010
DESIGN	CHECK	DETAIL	CHECK	REVIEW	SERIES #
C-NIPPER	J.LOHMANN	C-NIPPER	J.LOHMANN	C-NIPPER	J.LOHMANN

PLAN AND PROFILE

SHARP RD.

FINAL PLANS



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	21
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

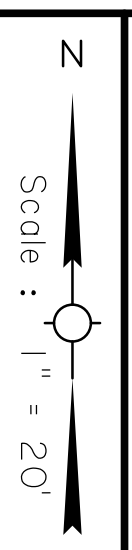
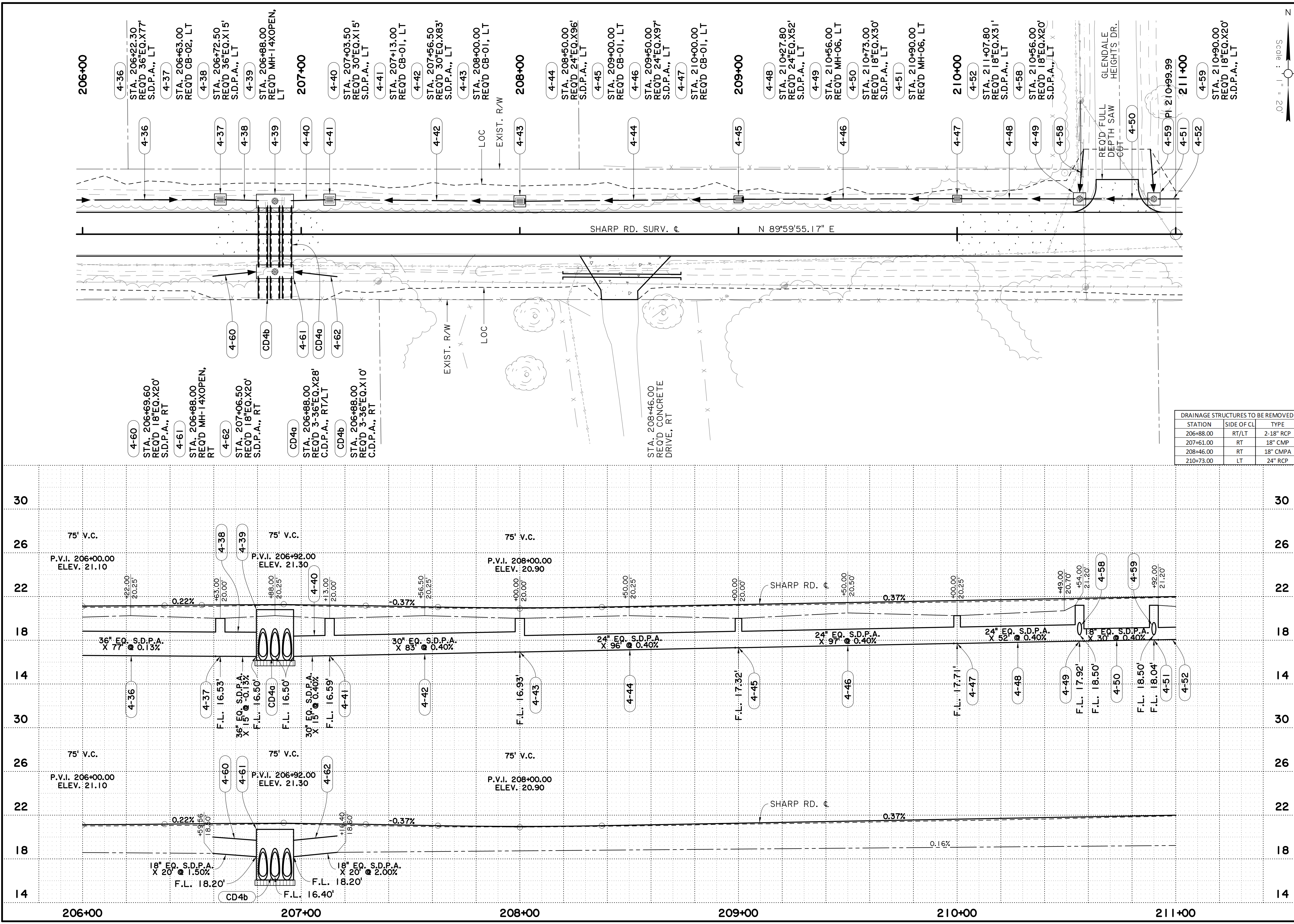
NO. DATE BY

REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
 SHARP RD.

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FINAL PLANS



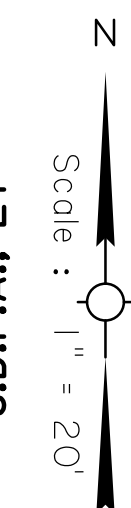
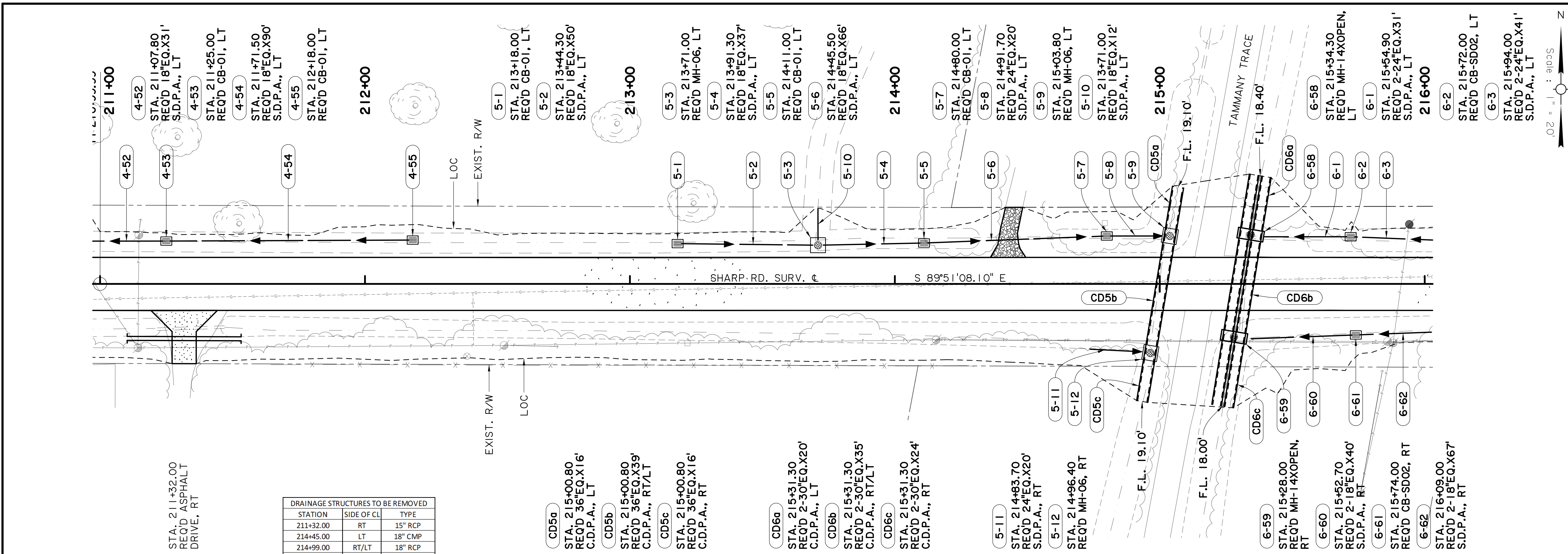
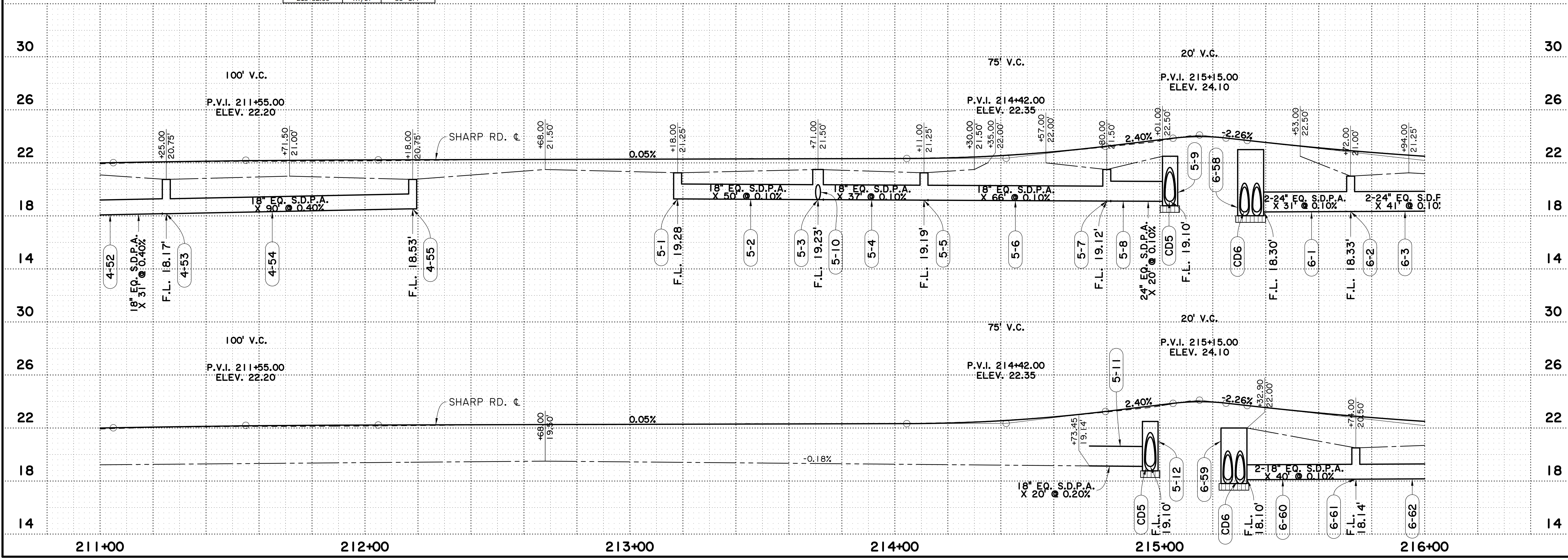
SHEET NUMBER	22	DESIGN	C. NIPPER	PARISH	ST. TAMMANY
CHECK	J. LOHMANN	DETAIL	C. NIPPER	PROJECT NUMBER	EN21000010
CHECK	J. LOHMANN	REVIEW	J. LOHMANN	DATE	1/29/2024
REVISION OR CHANGE ORDER DESCRIPTION	NO.	DATE	BY		

Christopher J. Nipper
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/29/2024

STATE OF LOUISIANA
SEAL

PLAN AND PROFILE

SHARP RD.



DESIGN	C-NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	23
CHECK	J.LOHMANN				
DETAIL	C-NIPPER				
CHECK	J.LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

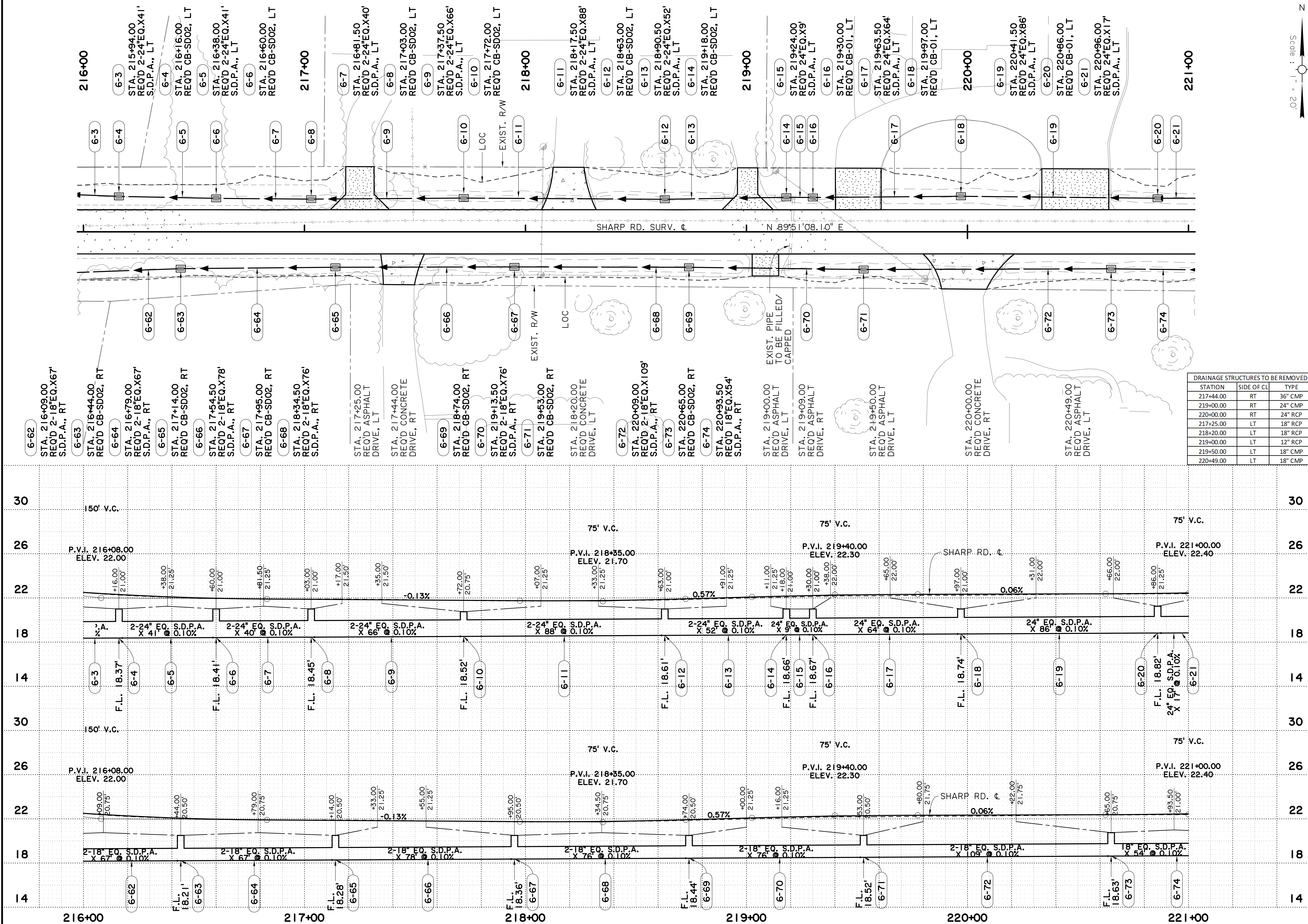
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Chris
 10/2/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
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FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
217+44.00	RT	36" CMP
219+00.00	RT	24" CMP
220+00.00	RT	24" RCP
217+25.00	LT	18" RCP
218+20.00	LT	18" RCP
219+00.00	LT	12" RCP
219+50.00	LT	18" CMP
220+49.00	LT	18" CMP

DESIGN: C. NIPPER
CHECK: J. LOHMANN
DETAIL: C. NIPPER
CHECK: J. LOHMANN
REVIEW: J. LOHMANN

PARISH: ST. TAMMANY
PROJECT NUMBER: EN21000010

NO. _____ DATE _____

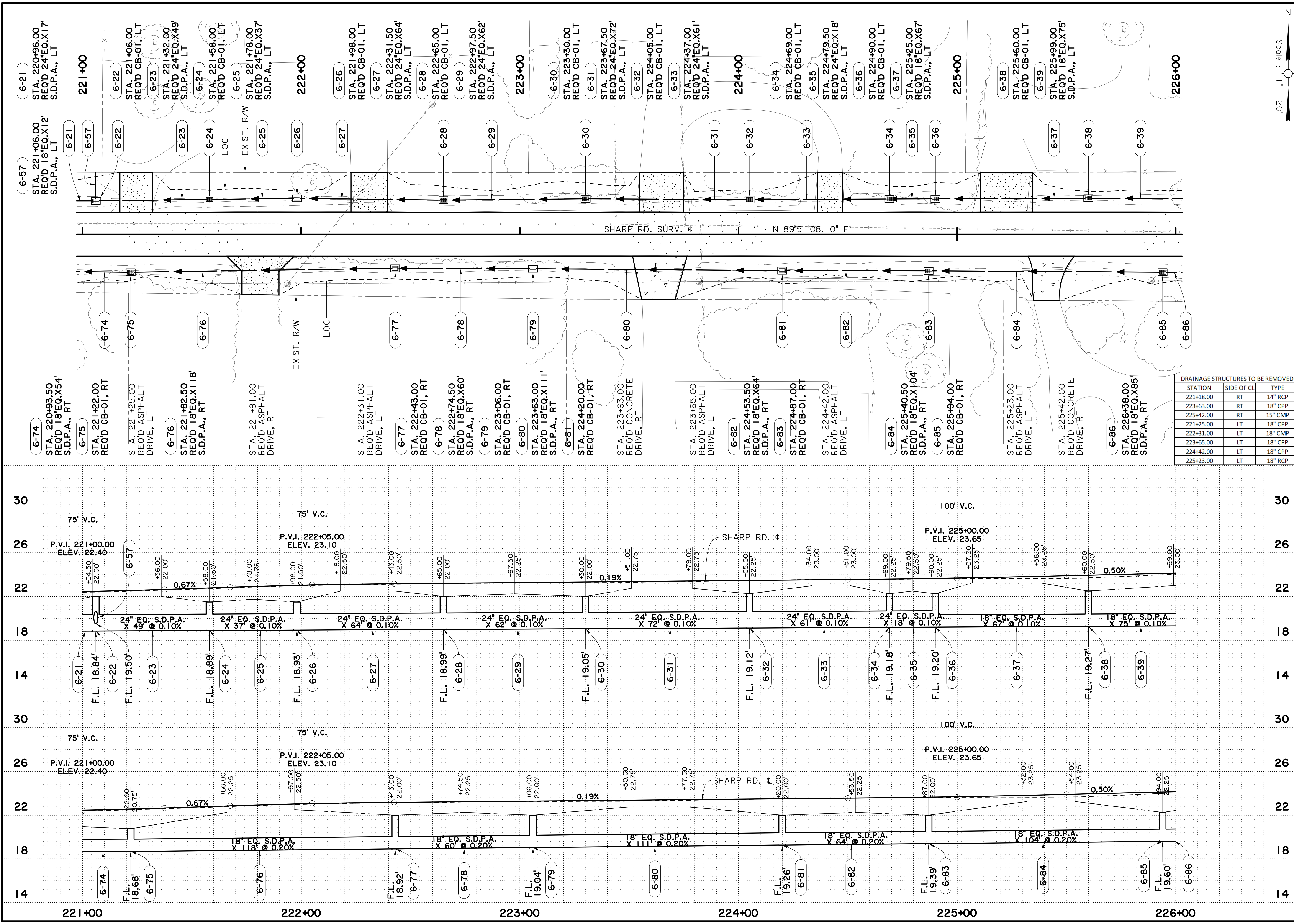
REVISION OR CHANGE ORDER DESCRIPTION

BY _____

PLAN AND PROFILE

SHARP RD.

FINAL PLANS



DRAINAGE STRUCTURES TO BE REMOVED		
STATION	SIDE OF CL	TYPE
221+18.00	RT	14" RCP
223+63.00	RT	18" CPP
225+42.00	RT	15" CMP
221+25.00	LT	18" CPP
222+31.00	LT	18" CMP
223+65.00	LT	18" CPP
224+42.00	LT	18" CPP
225+23.00	LT	18" RCP

Scale: 1" = 20'

DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	25
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW				PROJECT NUMBER	EN21000010
SERIES #					

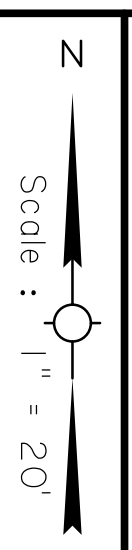
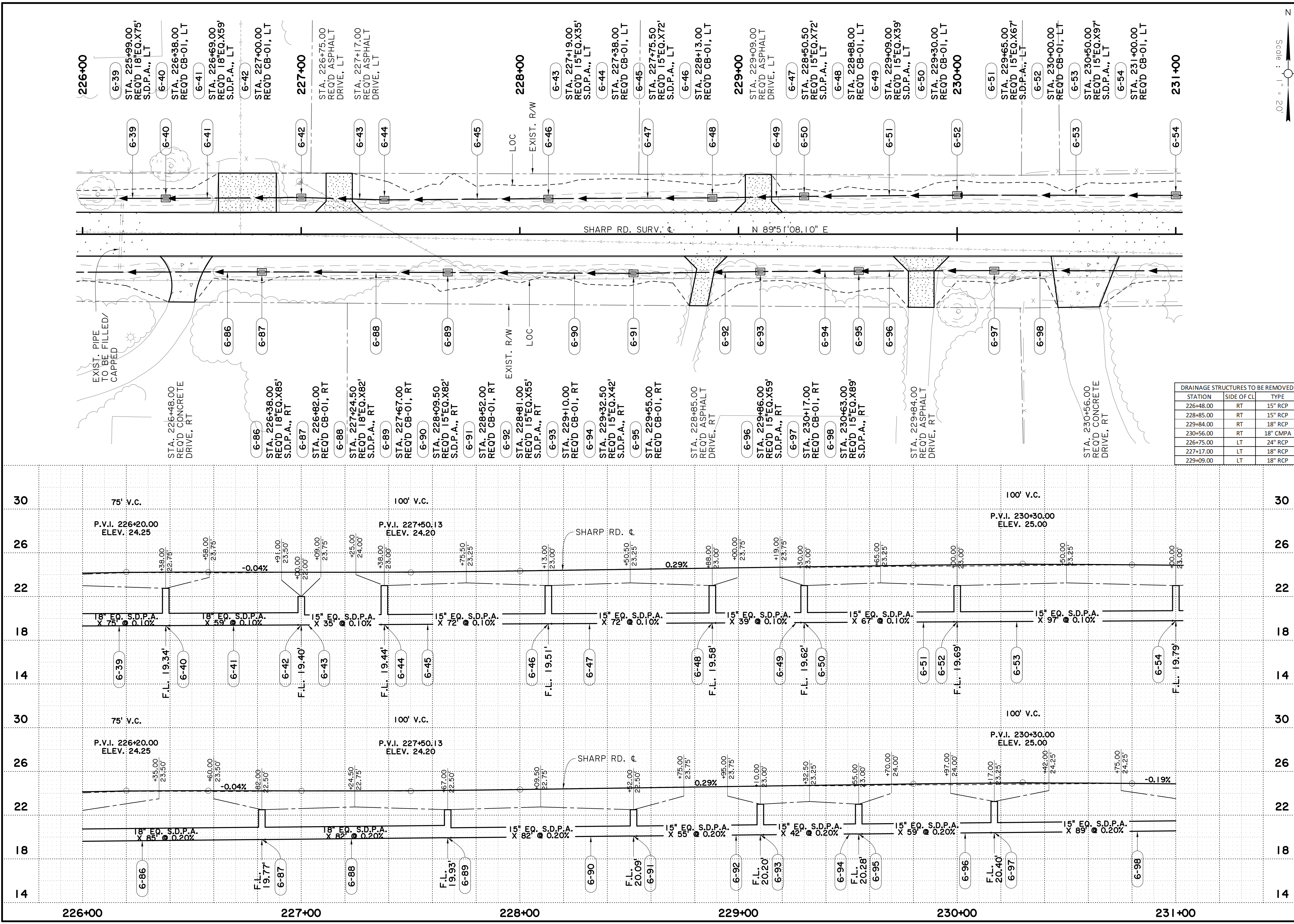
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. NO. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
 SHARP RD.

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DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	26
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					
PROJECT NUMBER					EN2 1000010

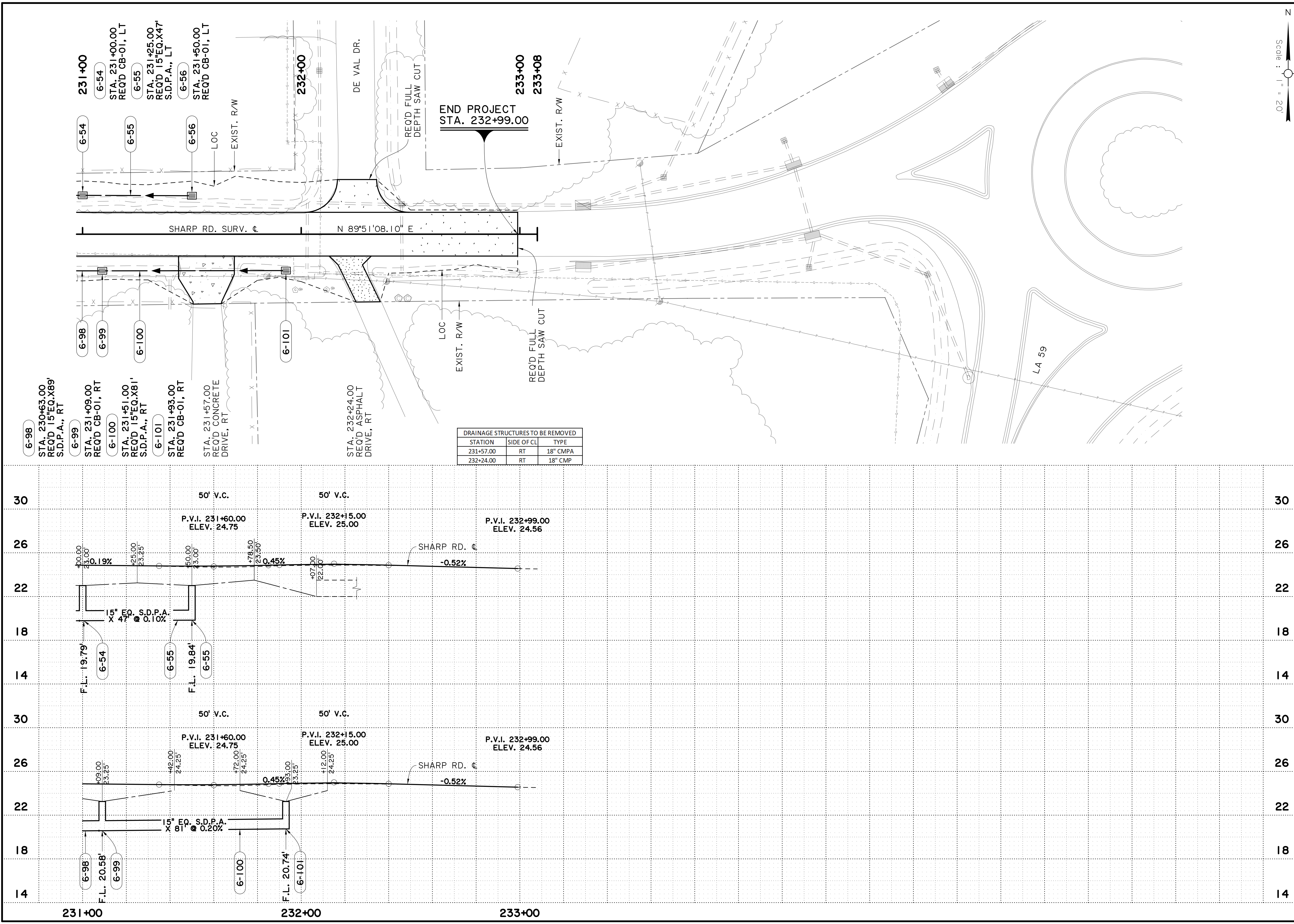
STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

NO. DATE BY
 REVISION OR CHANGE ORDER DESCRIPTION

PLAN AND PROFILE
 SHARP RD.

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FINAL PLANS



Scale: 1" = 20'

SHEET NUMBER	27
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	

STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Ch
 1/29/2024

NO. DATE BY

REVISION OR CHANGE ORDER DESCRIPTION

ST. TAMMANY

PARISH

PROJECT NUMBER

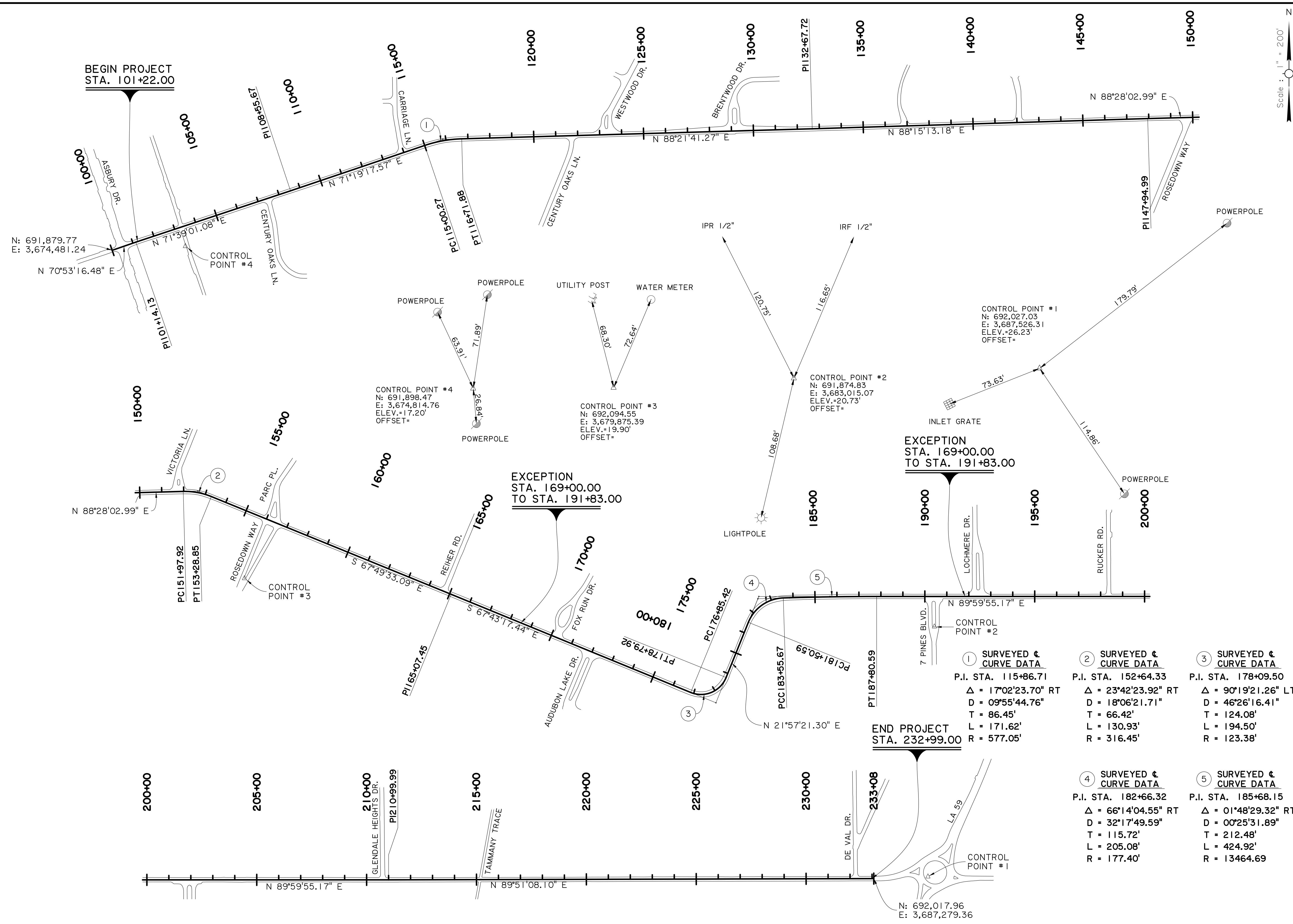
EN21000010

PLAN AND PROFILE

SHARP RD.

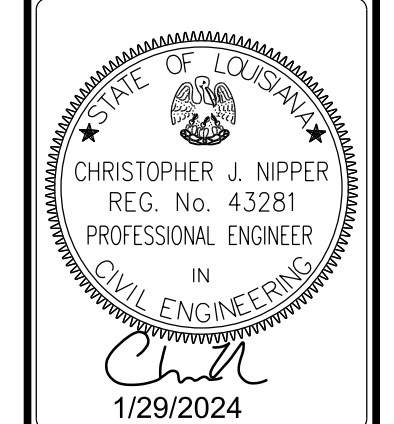
GEC
 Gulf Engineers & Consultants

FINAL PLANS

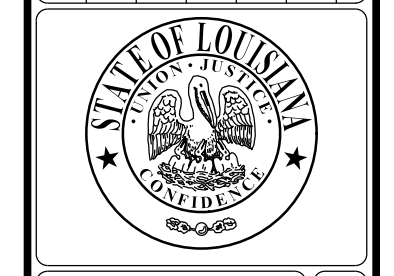


Scale: 1" = 200'

SHEET NUMBER	28
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010



NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION



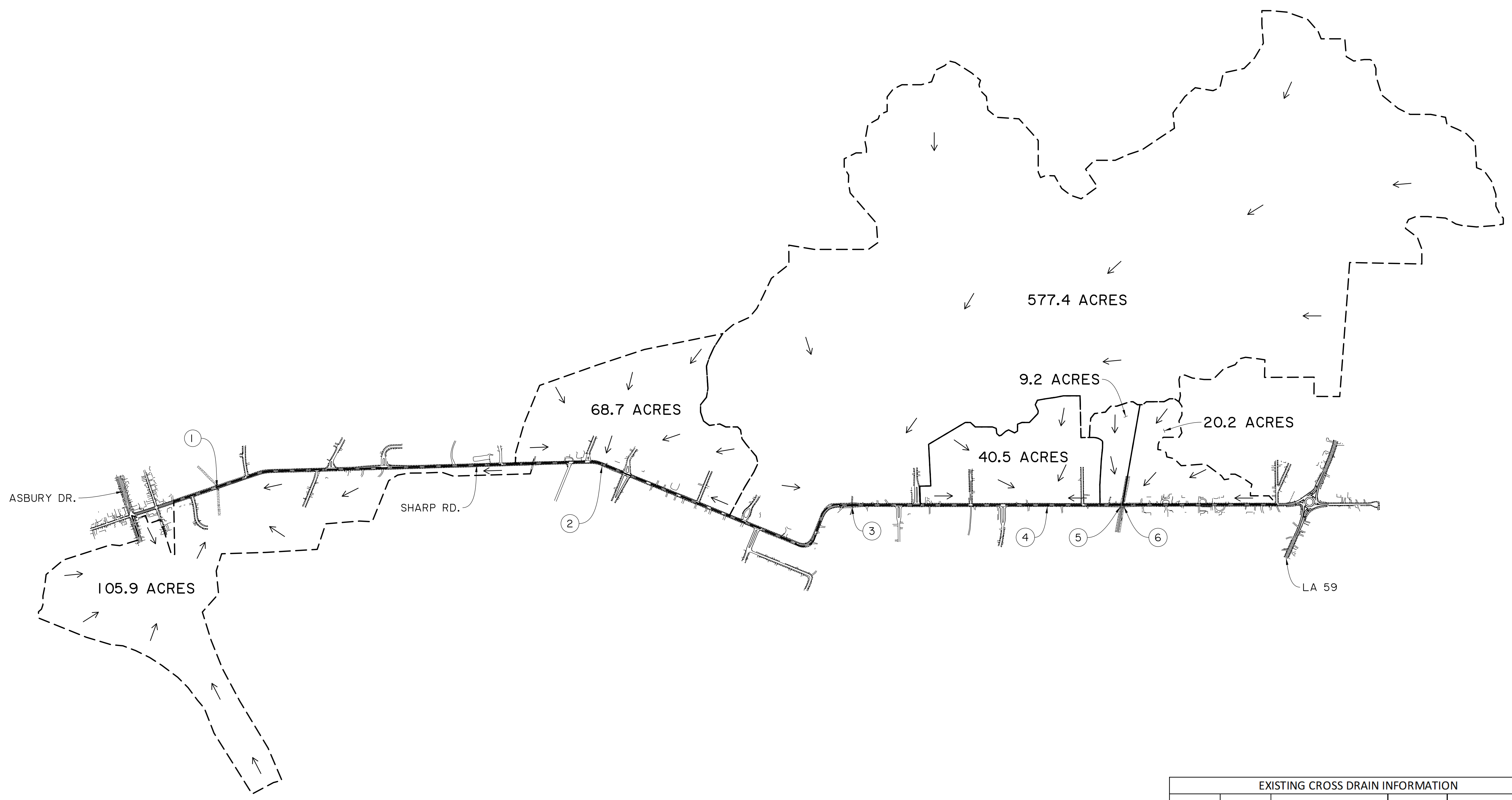
SURVEY CONTROL POINTS	
SHARP RD.	SHARP RD.

① SURVEYED & CURVE DATA	② SURVEYED & CURVE DATA	③ SURVEYED & CURVE DATA
P.I. STA. 115+86.71	P.I. STA. 152+64.33	P.I. STA. 178+09.50
Δ = 17°02'23.70" RT	Δ = 23°42'23.92" RT	Δ = 90°19'21.26" LT
D = 09°55'44.76"	D = 18°06'21.71"	D = 46°26'16.41"
T = 86.45'	T = 66.42'	T = 124.08'
L = 171.62'	L = 130.93'	L = 194.50'
R = 577.05'	R = 316.45'	R = 123.38'

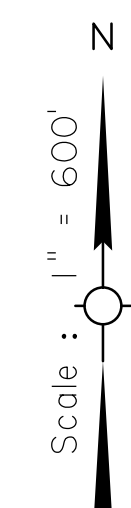
④ SURVEYED & CURVE DATA	⑤ SURVEYED & CURVE DATA
P.I. STA. 182+66.32	P.I. STA. 185+68.15
Δ = 66°14'04.55" RT	Δ = 01°48'29.32" RT
D = 32°17'49.59"	D = 00°25'31.89"
T = 115.72'	T = 212.48'
L = 205.08'	L = 424.92'
R = 177.40'	R = 13464.69



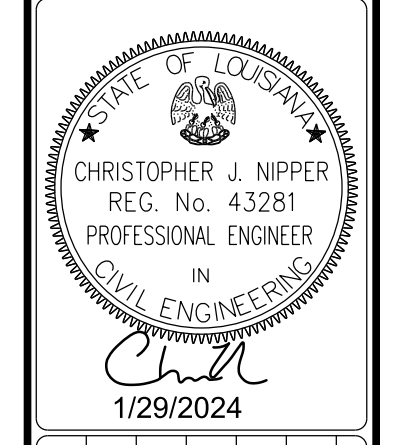
FINAL PLANS



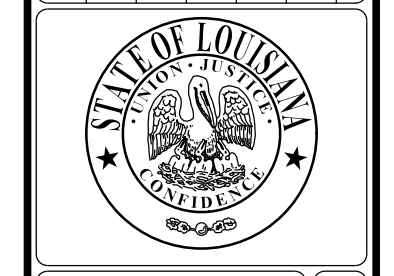
EXISTING CROSS DRAIN INFORMATION				
MAJOR CROSS DRAIN	STATION	STRUCTURE	DRAINAGE AREA (ACRES)	INVERT ELEV. (DOWNSTREAM)
1	110+40	3 - 42" EQ. RCPA	105.9	10.9'
2	153+41	2 - 15" EQ. RCPA	68.7	16.80
3	185+23	3 - 7'X5' RCB	577.4	11.4'
4	206+88	2 - 18" RCP	40.5	17.7'
5	214+99	18" RCP	9.2	18.8'
6	215+32	36" RCP	20.2	18.9'



DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	29
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010		
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					



NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

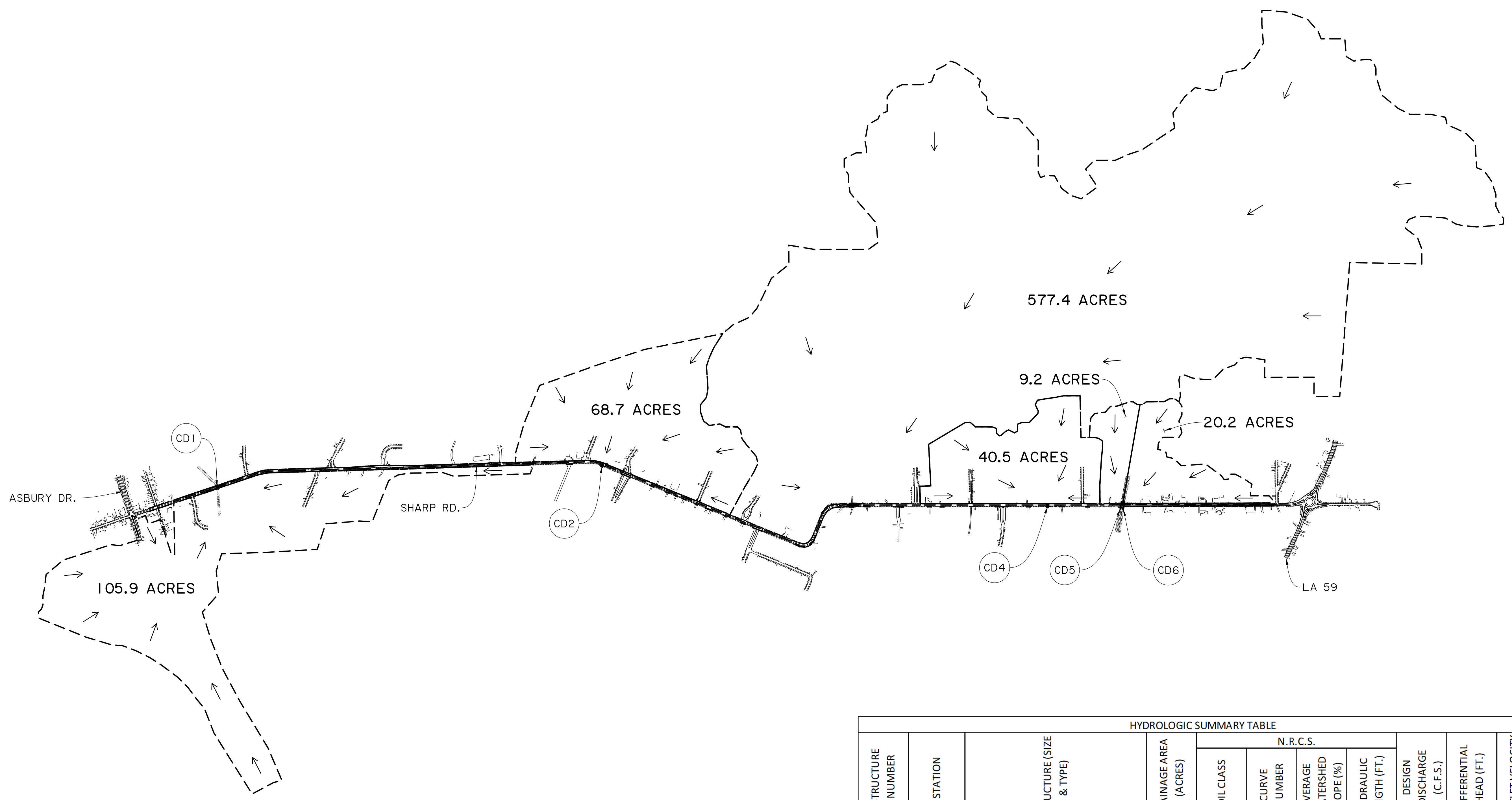


EXISTING DRAINAGE MAP

SHARP RD.

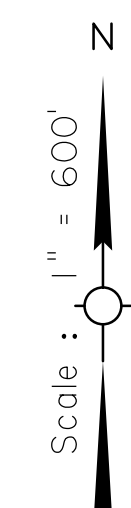
FINAL PLANS

J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\030_design drainage map (cross drains).dgn/29/2024 09:3'



- CROSS DRAIN DESIGN CRITERIA
1. 50 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING NRCS METHOD

HYDROLOGIC SUMMARY TABLE										
STRUCTURE NUMBER	STATION	STRUCTURE (SIZE & TYPE)	DRAINAGE AREA (ACRES)	N.R.C.S.			DESIGN DISCHARGE (C.F.S.)	DIFFERENTIAL HEAD (FT.)	OUTLET VELOCITY (F.P.S.)	
				SOIL CLASS	CURVE NUMBER	AVERAGE WATERSHED SLOPE (%)				HYDRAULIC LENGTH (FT.)
CD1	110+40.00	3 - [4'X4'] X 40' RCB	105.9	C/D	90.2	0.18	3489	273	0.74	5.69
CD2	153+41.00	3 - 42" EQ. X 43' S.D.P.A.	68.7	C/D	80.3	0.14	2170	148	0.65	5.71
CD4	206+88.00	3 - 36" EQ. X 42' S.D.P.A.	40.5	C/D	80.8	0.22	1856	116	0.80	6.16
CD5	215+00.80	36" EQ. X 82' S.D.P.A.	9.2	D	81.6	0.36	1130	43	1.23	7.72
CD6	215+31.30	2 - 30" EQ. X 88' S.D.P.A.	20.2	C/D	79.9	0.19	1680	56	0.78	6.34



SHEET NUMBER	30	PARISH	ST. TAMMANY	PROJECT NUMBER	EN21000010
DESIGN CHECK	C-NIPPER J.LOHMANN	DRAWING CHECK	C-NIPPER J.LOHMANN	REVISION	BY
DETAIL	C-NIPPER J.LOHMANN	DATE		NO.	
REVISION		DESCRIPTION		DATE	

DESIGN DRAINAGE MAP
CROSS DRAIN
SHARP RD.

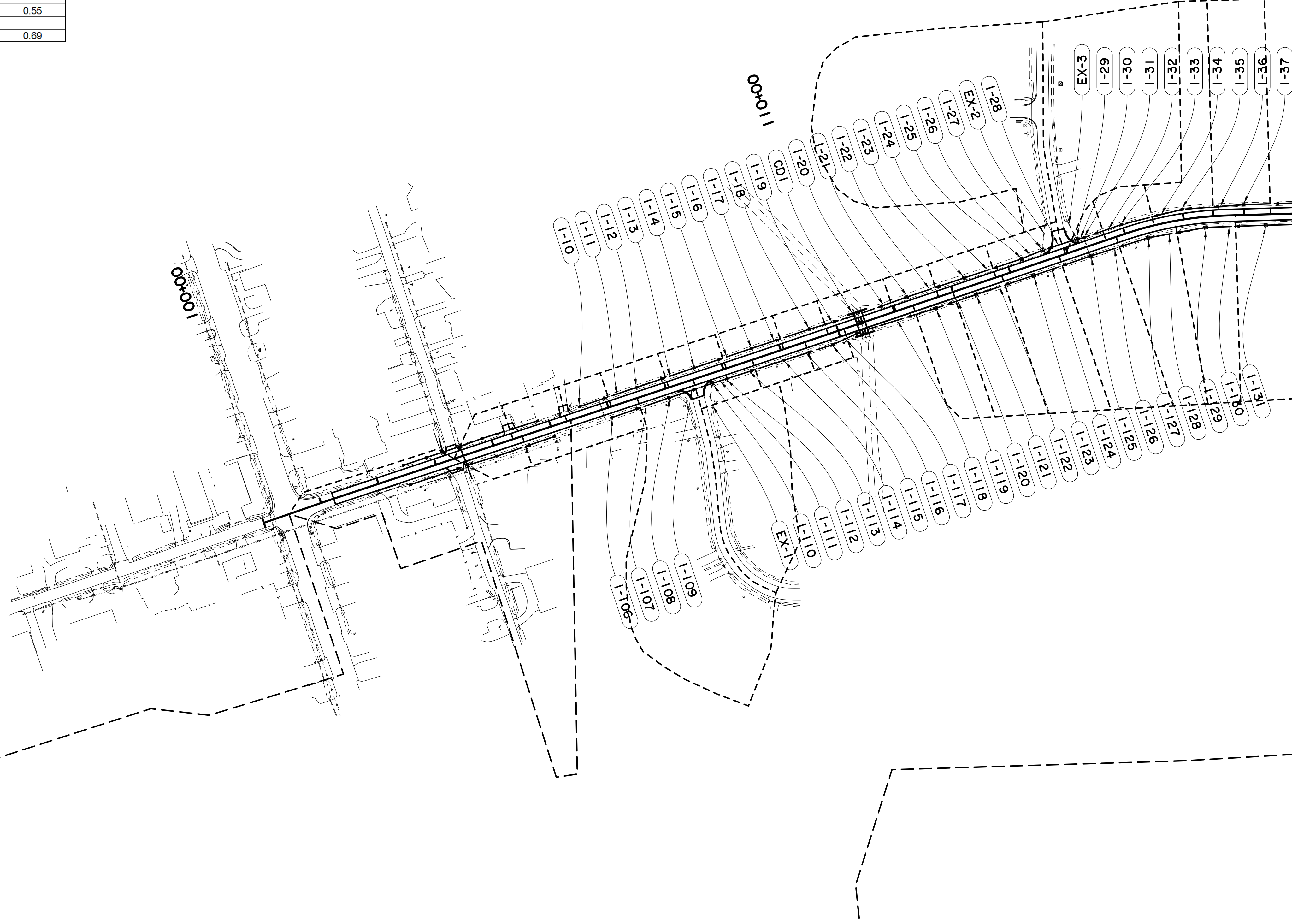
FINAL PLANS

J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\031_design drainage map (system 1_1).dgn 1/29/2024 09:3'

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-10		0.3	0.10
1-11	0.16		
1-12		0.3	0.13
1-13	0.30		
1-14		0.3	0.13
1-15	0.42		
1-16		0.3	0.13
1-17	0.54		
1-18		0.3	0.10
1-19	0.62		
1-20	11.03		
1-21		0.3	0.10
1-22	11.01		
1-23		0.3	0.13
1-24	10.98		
1-25		0.3	0.16
1-26	10.89		
EX-2	2.66	0.3	2.43
1-27		0.0	0.00
1-28	9.34		
1-29		0.0	0.00
EX-3	1.77	0.3	1.60
1-30	8.31		
1-31		0.3	0.06
1-32	8.29		
1-33		0.3	0.14
1-34	8.24		
1-35		0.3	0.48
1-36	7.96		
1-37		0.3	0.77

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-106		0.3	0.15
1-107	0.22		
1-108		0.3	1.80
1-109	2.39		
EX-1	1.02	0.3	0.87
1-110		0.0	0.00
1-111	3.26		
1-112		0.3	0.12
1-113	3.39		
1-114		0.3	0.10
1-115	3.46		
1-116		0.3	0.08
1-117	3.52		
1-118	11.59		
1-119		0.3	0.33
1-120	11.41		
1-121		0.3	0.45
1-122	1.10		
1-123		0.3	0.58
1-124	10.69		
1-125		0.3	0.64
1-126	10.22		
1-127		0.3	0.54
1-128	9.83		
1-129		0.3	0.55
1-130	9.43		
1-131		0.3	0.69

SUBSURFACE DRAINAGE DESIGN CRITERIA
 1. 10 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING RATIONAL METHOD (Q=CIA)



Scale : 1" = 100'

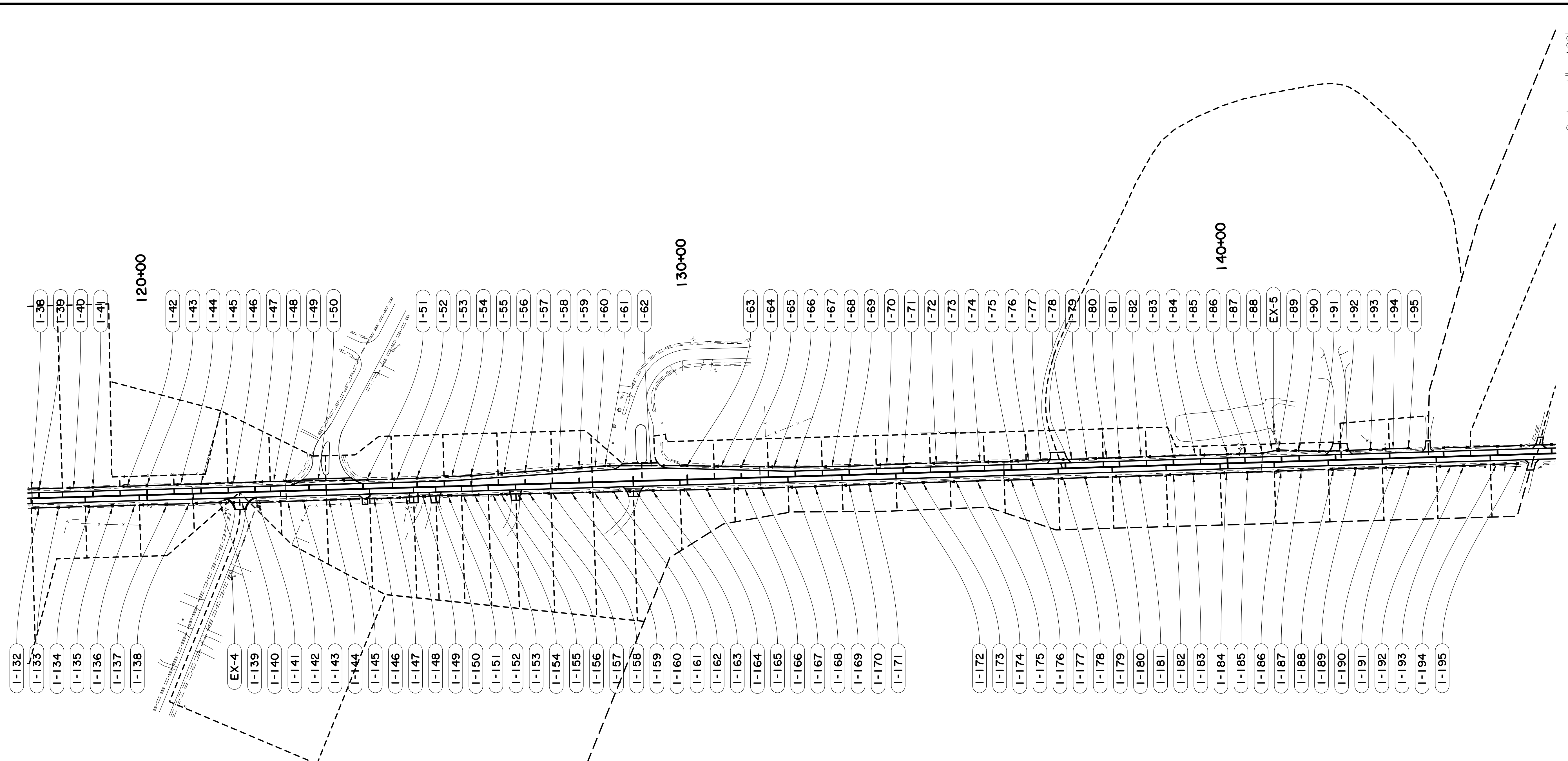
SHEET NUMBER		31	
DESIGN	C. NIPPER	PARISH	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

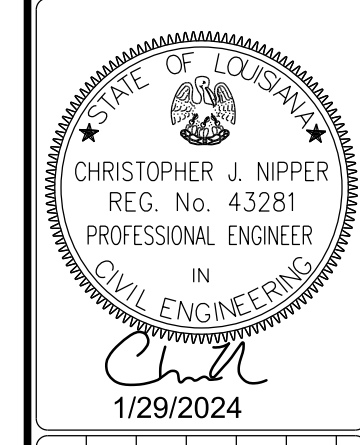
DESIGN DRAINAGE MAP
 SUBSURFACE DRAINAGE
 SHARP RD.

FINAL PLANS

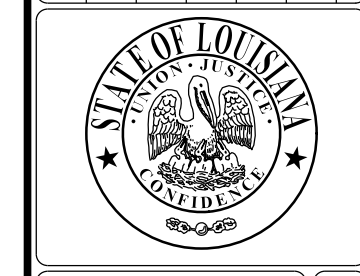


Scale: 1" = 100'

DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	32
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010		
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					



NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY



DESIGN DRAINAGE MAP
SUBSURFACE DRAINAGE

SHARP RD.

SUBSURFACE DRAINAGE DESIGN CRITERIA
 1. 10 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING RATIONAL METHOD (Q=CIA)

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-38	7.48		
1-39		0.3	0.82
1-40	6.98		
1-41		0.3	0.78
1-42	6.50		
1-43		0.3	0.08
1-44	6.48		
1-45		0.3	0.15
1-46	6.41		
1-47		0.3	0.23
1-48	6.28		
1-49		0.3	0.19
1-50	6.20		
1-51		0.3	0.21
1-52	6.09		
1-53		0.3	0.21
1-54	5.99		
1-55		0.3	0.22
1-56	5.87		
1-57		0.3	0.22
1-58	5.75		
1-59		0.3	0.16
1-60	5.66		
1-61		0.3	0.11
1-62	5.64		
1-63		0.3	0.20
1-64	5.53		
1-65		0.3	0.16
1-66	5.46		
1-67		0.3	0.16

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-68	5.36		
1-69		0.3	0.16
1-70	5.27		
1-71		0.3	0.16
1-72	5.18		
1-73		0.3	0.16
1-74	5.08		
1-75		0.3	0.13
1-76	5.00		
1-77		0.3	0.09
1-78	4.95		
1-79		0.3	0.14
1-80	4.86		
1-81		0.3	0.13
1-82	4.79		
1-83		0.3	0.12
1-84	4.72		
1-85		0.3	0.06
1-86	4.69		
1-87		0.3	0.08
1-88	4.64		
EX-5	4.39	0.2	8.87
1-89		0.0	0.00
1-90	0.44		
1-91		0.3	0.06
1-92	0.39		
1-93		0.3	0.14
1-94	0.22		
1-95		0.3	0.14

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-132	8.91		
1-133		0.3	0.34
1-134	8.69		
1-135		0.3	0.26
1-136	8.54		
1-137		0.3	0.23
1-138	8.41		
1-139		0.3	0.07
1-140	8.40		
EX-4	2.73	0.3	2.44
1-141	0		0
1-142	6.25		
1-143		0.3	0.22
1-144	6.10		
1-145		0.3	0.3
1-146	5.86		
1-147		0.3	0.37
1-148	5.55		
1-149		0.3	0.2
1-150	5.39		
1-151		0.3	0.23
1-152	5.20		
1-153		0.3	0.25
1-154	5.00		
1-155		0.3	0.26
1-156	4.78		
1-157		0.3	0.35
1-158	4.49		
1-159		0.3	0.43
1-160	4.12		

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-161	0.3		0.44
1-162	3.74		
1-163		0.3	0.38
1-164	3.43		
1-165		0.3	0.23
1-166	3.26		
1-167		0.3	0.17
1-168	3.15		
1-169		0.3	0.15
1-170	3.02		
1-171		0.3	0.16
1-172	2.89		
1-173		0.3	0.16
1-174	2.76		
1-175		0.3	0.16
1-176	2.63		
1-177		0.3	0.22
1-178	2.43		
1-179		0.3	0.26
1-180	2.17		
1-181		0.3	0.26
1-182	1.91		
1-183		0.3	0.26
1-184	1.85		
1-185		0.3	0.26
1-186	1.38		
1-187		0.3	0.26
1-188	1.11		
1-189		0.3	0.26
1-190	0.83		

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
1-191		0.3	0.26
1-192	0.55		
1-193		0.3	0.26
1-194	0.25		
1-195		0.3	0.17

FINAL PLANS

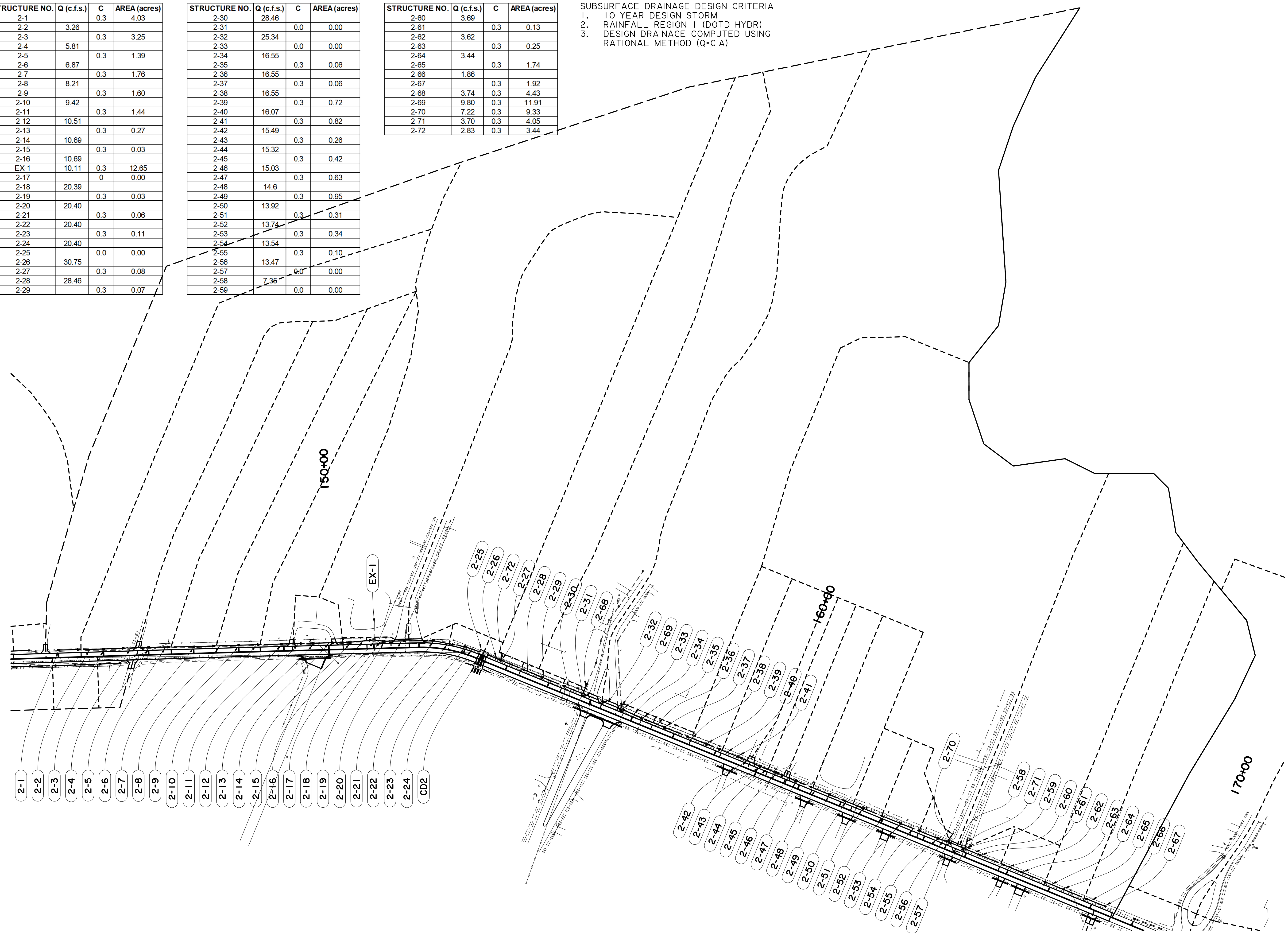
J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\033_design drainage map (system 2).dgn 1/29/2024 09:13'

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
2-1			
2-2	3.26	0.3	4.03
2-3		0.3	3.25
2-4	5.81		
2-5		0.3	1.39
2-6	6.87		
2-7		0.3	1.76
2-8	8.21		
2-9		0.3	1.60
2-10	9.42		
2-11		0.3	1.44
2-12	10.51		
2-13		0.3	0.27
2-14	10.69		
2-15		0.3	0.03
2-16	10.69		
EX-1	10.11	0.3	12.65
2-17		0	0.00
2-18	20.39		
2-19		0.3	0.03
2-20	20.40		
2-21		0.3	0.06
2-22	20.40		
2-23		0.3	0.11
2-24	20.40		
2-25		0.0	0.00
2-26	30.75		
2-27		0.3	0.08
2-28	28.46		
2-29		0.3	0.07

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
2-30	28.46		
2-31		0.0	0.00
2-32	25.34		
2-33		0.0	0.00
2-34	16.55		
2-35		0.3	0.06
2-36	16.55		
2-37		0.3	0.06
2-38	16.55		
2-39		0.3	0.72
2-40	16.07		
2-41		0.3	0.82
2-42	15.49		
2-43		0.3	0.26
2-44	15.32		
2-45		0.3	0.42
2-46	15.03		
2-47		0.3	0.63
2-48	14.6		
2-49		0.3	0.95
2-50	13.92		
2-51		0.3	0.31
2-52	13.74		
2-53		0.3	0.34
2-54	13.54		
2-55		0.3	0.10
2-56	13.47		
2-57		0.0	0.00
2-58	7.36		
2-59		0.0	0.00

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
2-60	3.69		
2-61		0.3	0.13
2-62	3.62		
2-63		0.3	0.25
2-64	3.44		
2-65		0.3	1.74
2-66	1.86		
2-67		0.3	1.92
2-68	3.74	0.3	4.43
2-69	9.80	0.3	11.91
2-70	7.22	0.3	9.33
2-71	3.70	0.3	4.05
2-72	2.83	0.3	3.44

SUBSURFACE DRAINAGE DESIGN CRITERIA
 1. 10 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING RATIONAL METHOD (Q-CIA)



Scale : 1" = 100'

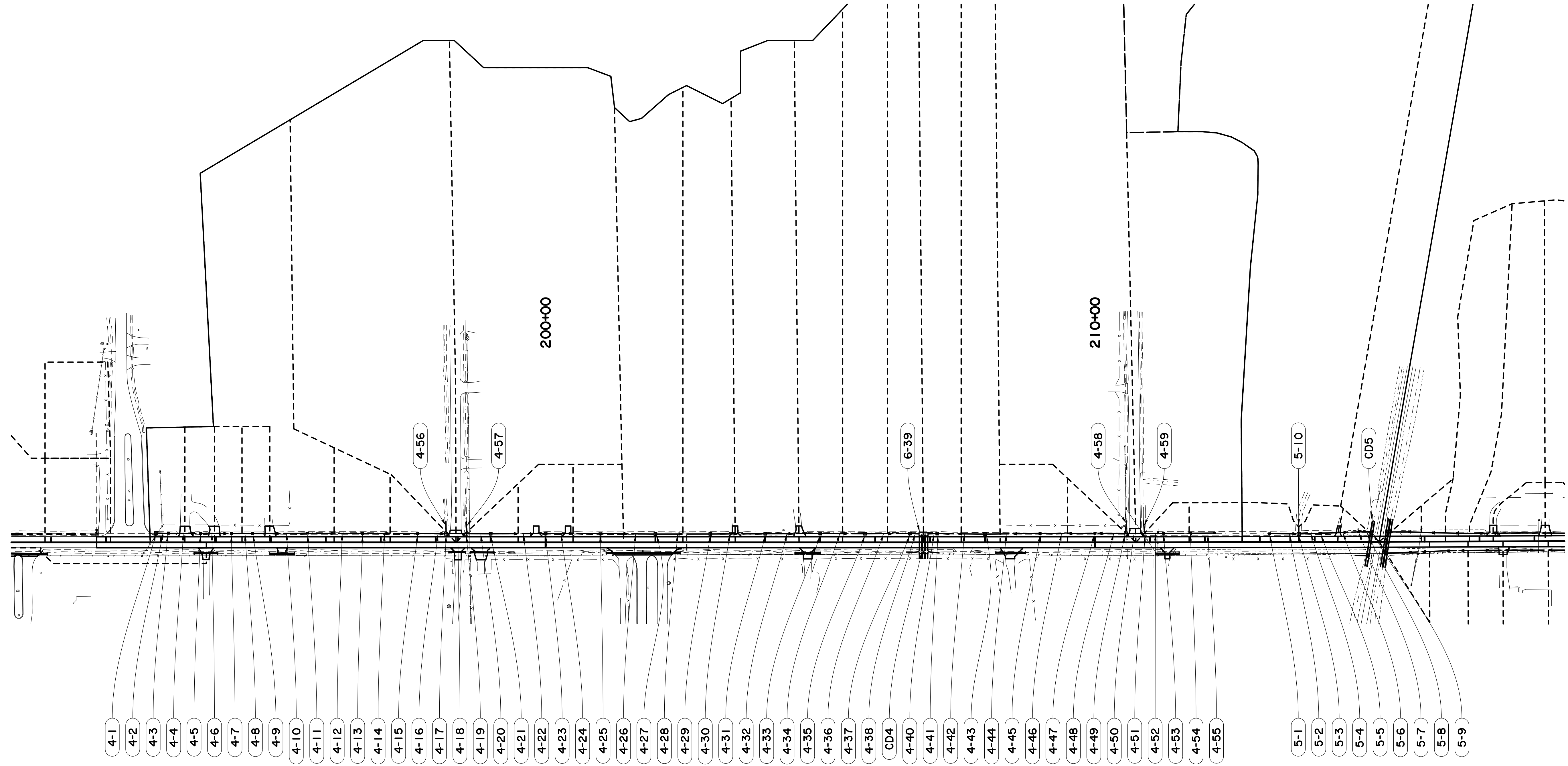
SHEET NUMBER		33	
PARISH		ST. TAMMANY	
DESIGN	C. NIPPER	PROJECT NUMBER	EN21000010
CHECK	J. LOHMANN	REVISION OR CHANGE ORDER DESCRIPTION	
DETAIL	C. NIPPER	NO.	DATE
CHECK	J. LOHMANN	BY	
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/29/2024

DESIGN DRAINAGE MAP
 SUBSURFACE DRAINAGE
 SHARP RD.

FINAL PLANS

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SUBSURFACE DRAINAGE DESIGN CRITERIA
 1. 10 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING RATIONAL METHOD (Q=CIA)

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
4-3		0.3	0.32
4-4	0.41		
4-5		0.3	0.26
4-6	0.71		
4-7		0.3	0.24
4-8	0.97		
4-9		0.3	0.24
4-10	1.24		
4-11		0.3	2.36
4-12	3.88		
4-13		0.3	0.35
4-14	4.24		
4-15		0.3	0.17
4-16	4.37		
4-17		0.0	0.00
4-18	8.16		
4-19		0.0	0.00
4-20	12.94		
4-21		0.3	0.14
4-22	13.04		

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
4-23		0.3	0.31
4-24	13.24		
4-25		0.3	0.29
4-26	13.43		
4-27		0.2	2.11
4-28	13.43		
4-29		0.2	1.71
4-30	13.43		
4-31		0.2	2.38
4-32	13.43		
4-33		0.2	1.79
4-34	13.73		
4-35		0.2	2.06
4-36	14.60		
4-37		0.2	1.63
4-38	15.27		
4-39		0.0	0.00
4-40	5.20		
4-41		0.2	2.00
4-42	4.42		

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
4-43		0.2	1.79
4-44	4.41		
4-45		0.3	0.39
4-46	4.20		
4-47		0.3	0.17
4-48	4.11		
4-49		0.0	0.00
4-50	1.78		
4-51		0.0	0.00
4-52	0.34		
4-53		0.3	0.10
4-54	0.25		
4-55		0.3	0.16
4-56	4.53	0.3	4.92
4-57	4.82	0.3	5.23
4-58	2.55	0.2	6.06
4-59	1.60	0.2	3.34

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
5-1		0.3	0.16
5-2	0.24		
5-3		0.0	0.00
5-4	3.00		
5-5		0.3	0.10
5-6	3.06		
5-7		0.3	0.05
5-8	3.08		
5-9		0.0	0.00
5-10	2.90	0.2	6.80

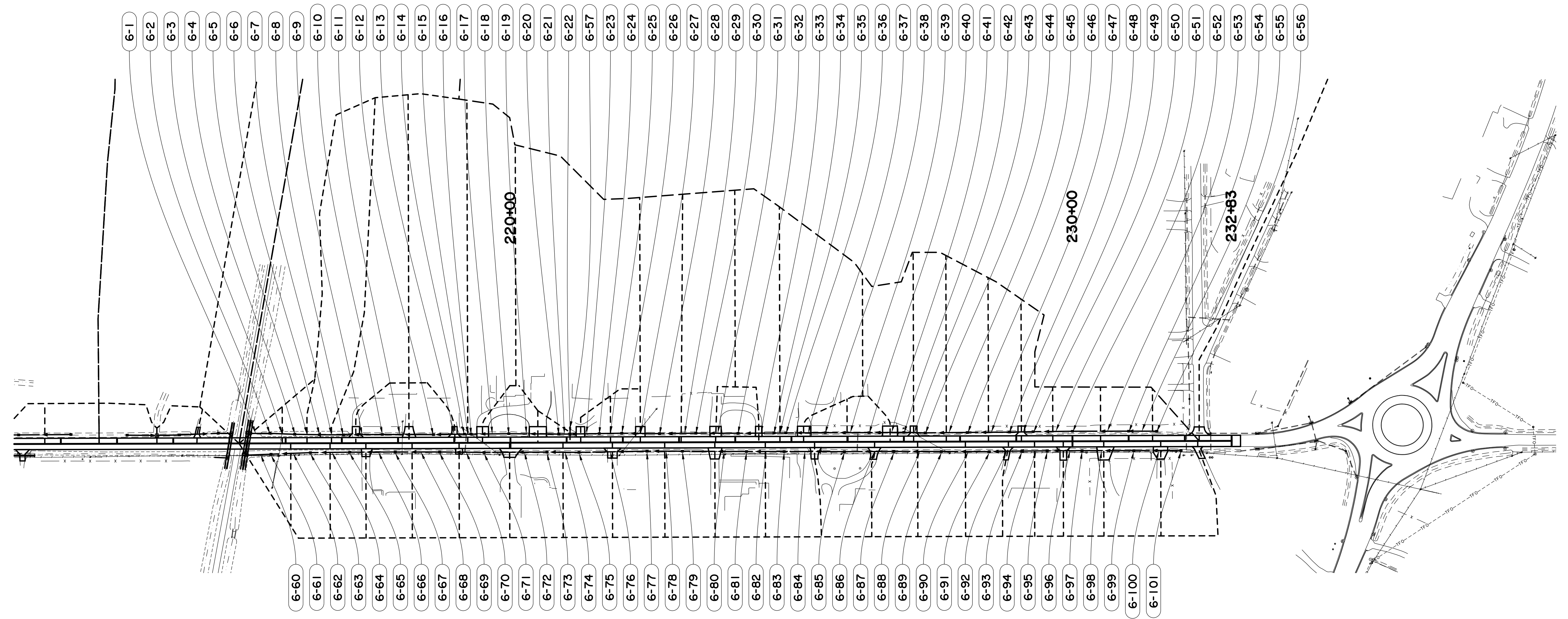
DESIGN DRAINAGE MAP
SUBSURFACE DRAINAGE

SHARP RD.

STATE OF LOUISIANA
 CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
C. Nipper
 1/29/2024

DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	34
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010		
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					

FINAL PLANS



SUBSURFACE DRAINAGE DESIGN CRITERIA
 1. 10 YEAR DESIGN STORM
 2. RAINFALL REGION I (DOTD HYDR)
 3. DESIGN DRAINAGE COMPUTED USING RATIONAL METHOD (Q-CIA)

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
6-1	13.50		
6-2		0.3	0.06
6-3	13.49		
6-4		0.3	0.09
6-5	13.45		
6-6		0.3	1.00
6-7	12.51		
6-8		0.3	0.98
6-9	11.61		
6-10		0.3	0.20
6-11	11.51		
6-12		0.3	0.16
6-13	11.41		
6-14		0.3	1.31
6-15	10.16		
6-16		0.3	1.07
6-17	9.32		
6-18		0.3	0.18
6-19	9.19		
6-20		0.3	0.05
6-21	9.15		
6-22		0	0.00
6-23	6.96		
6-24		0.3	0.08
6-25	6.90		
6-26		0.3	0.11
6-27	6.82		
6-28		0.3	0.75
6-29	6.06		
6-30		0.3	0.89

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
6-31	5.15		
6-32		0.3	0.17
6-33	5.00		
6-34		0.3	0.71
6-35	4.31		
6-36		0.3	1.07
6-37	3.19		
6-38		0.3	0.10
6-39	3.10		
6-40		0.3	0.12
6-41	2.99		
6-42		0.3	0.53
6-43	2.38		
6-44		0.3	0.45
6-45	1.88		
6-46		0.3	0.54
6-47	1.29		
6-48		0.3	0.37
6-49	0.86		
6-50		0.3	0.22
6-51	0.61		
6-52		0.3	0.19
6-53	0.40		
6-54		0.3	0.20
6-55	0.14		
6-56		0.3	0.09
6-57	2.22	0.3	2.11

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
6-60	6.73		
6-61		0.3	0.16
6-62	6.61		
6-63		0.3	0.27
6-64	6.37		
6-65		0.3	0.25
6-66	6.16		
6-67		0.3	0.32
6-68	5.88		
6-69		0.3	0.32
6-70	5.59		
6-71		0.3	0.35
6-72	5.29		
6-73		0.3	0.37
6-74	4.90		
6-75		0.3	0.34
6-76	4.57		
6-77		0.3	0.36
6-78	4.19		
6-79		0.3	0.35
6-80	3.84		
6-81		0.3	0.35
6-82	3.47		
6-83		0.3	0.37
6-84	3.09		
6-85		0.3	0.37
6-86	2.70		
6-87		0.3	0.31
6-88	2.37		
6-89		0.3	0.33

STRUCTURE NO.	Q (c.f.s.)	C	AREA (acres)
6-90	2.00		
6-91		0.3	0.26
6-92	1.71		
6-93		0.3	0.21
6-94	1.47		
6-95		0.3	0.20
6-96	1.24		
6-97		0.3	0.28
6-98	0.92		
6-99		0.3	0.39
6-100	0.45		
6-101		0.3	0.34

Scale : 1" = 100'

DESIGN DRAINAGE MAP
SUBSURFACE DRAINAGE

SHARP RD.

ST. TAMMANY

PROJECT NUMBER: EN21000010

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DESIGN: C. NIPPER

CHECK: J. LOHMANN

DETAIL: C. NIPPER

CHECK: J. LOHMANN

REVIEW:
 SERIES #

PARISH: ST. TAMMANY

PROJECT NUMBER: EN21000010

FINAL PLANS

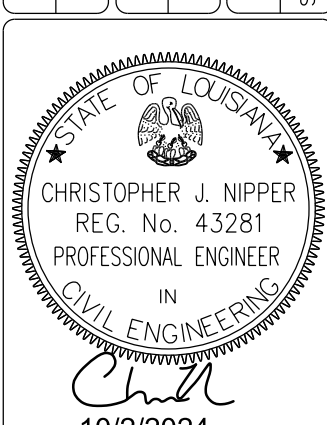


SUMMARY OF DRAINAGE STRUCTURES

STRUCTURE NO.	STATION	SIDE OF CL	DESCRIPTION	PLAN	TYPE	STORM DRAIN PIPE ARCH (TYPE 3 JOINTS)					STORM DRAIN PIPE (TYPE 3 JOINTS)	SIDE DRAIN PIPE ARCH	CROSS DRAIN PIPE ARCH			MANHOLE		CATCH BASIN			REINFORCED CONCRETE BOX	CONCRETE COLLAR	BEDDING MATERIAL	
						15" EQ. LIN. FT.	18" EQ. LIN. FT.	24" EQ. LIN. FT.	30" EQ. LIN. FT.	36" EQ. LIN. FT.	15" LIN. FT.		18" EQ. LIN. FT.	30" EQ. LIN. FT.	36" EQ. LIN. FT.	42" EQ. LIN. FT.	MH-06 EACH	MH-14XOPEN EACH	CB-01 EACH	CB-02 EACH	CB-SD02 EACH			4X4' PRECAST LIN. FT.
1-1	103+02.60	LT	STORM DRAIN PIPE ARCH 15" EQ. X 24'		SDPA	24																		2.13
1-2	103+17.70	LT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA		20																	1.96
1-3	103+16.70	LT	MH-06	MH-06	MH											1								0.78
1-4	103+31.80	LT	STORM DRAIN PIPE ARCH 18" EQ. X 26'		SDPA		26																	2.55
1-5	103+46.90	LT	MH-06	MH-06	MH											1								0.91
1-6	103+66.70	LT	STORM DRAIN PIPE ARCH 15" EQ. X 36'		SDPA	36																		3.20
1-7	103+86.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-8	104+34.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 93'		SDPA	93																		8.27
1-9	104+82.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-10	105+55.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-11	106+05.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 97'		SDPA	97																		8.62
1-12	106+55.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-13	107+05.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 97'		SDPA	97																		8.62
1-14	107+55.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-15	108+05.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 97'		SDPA	97																		8.62
1-16	108+55.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-17	109+05.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 97'		SDPA	97																		8.62
1-18	109+55.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.78
1-19	109+95.00	LT	STORM DRAIN PIPE ARCH 15" EQ. X 77'		SDPA	77																		6.84
1-20	110+84.70	LT	STORM DRAIN PIPE ARCH 30" EQ. X 76'		SDPA				76															9.15
1-21	111+25.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.91
1-22	111+75.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96															11.56
1-23	112+25.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.91
1-24	112+75.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96															11.56
1-25	113+25.00	LT	CB-01 W/ TYPE "B" GRATE	CB-01	CB													1						0.91
1-26	113+43.80	LT	STORM DRAIN PIPE ARCH 30" EQ. X 33'		SDPA				33															3.97
1-27	113+62.50	LT	MH-06	MH-06	MH											1								0.91
1-28	113+92.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 55'		SDPA			55																5.91
1-29	114+21.40	LT	MH-06	MH-06	MH											1								0.78
1-30	114+27.90	LT	STORM DRAIN PIPE ARCH 24" EQ. X 9'		SDPA			9																0.97
1-31	114+33.80	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-32	114+66.90	LT	STORM DRAIN PIPE ARCH 24" EQ. X 63'		SDPA			63																6.77
1-33	115+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-34	115+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 100'		SDPA			100																10.74
1-35	116+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-36	116+49.60	LT	STORM DRAIN PIPE ARCH 24" EQ. X 99'		SDPA			99																10.63
1-37	117+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-38	117+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-39	118+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-40	118+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-41	119+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-42	119+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-43	120+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-44	120+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-45	121+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-46	121+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-47	122+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-48	122+28.30	LT	STORM DRAIN PIPE ARCH 24" EQ. X 54'		SDPA			54																5.80
1-49	122+56.50	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-50	123+32.30	LT	STORM DRAIN PIPE ARCH 24" EQ. X 149'		SDPA			149																16.00
1-51	124+08.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-52	124+54.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 89'		SDPA			89																9.56
1-53	125+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-54	125+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-55	126+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-56	126+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-57	127+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-58	127+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-59	128+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-60	128+24.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 45'		SDPA			45																4.83
1-61	128+48.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-62	129+24.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 149'		SDPA			149																16.00
1-63	130+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-64	130+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-65	131+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-66	131+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																10.42
1-67	132+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-68	132+50.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																	9.52
1-69	133+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-70	133+50.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																	9.52
1-71	134+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-72	134+50.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																	9.52
1-73	135+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-74	135+50.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																	9.52
1-75	136+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-76	136+27.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X 52'		SDPA		52																	5.10
1-77	136+55.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB													1						0.78
1-78	136+97.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X 82'		SDPA		82																	8.05
1-79	137+40.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01																				

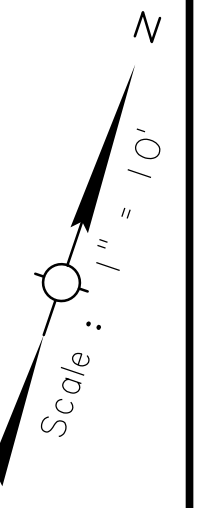
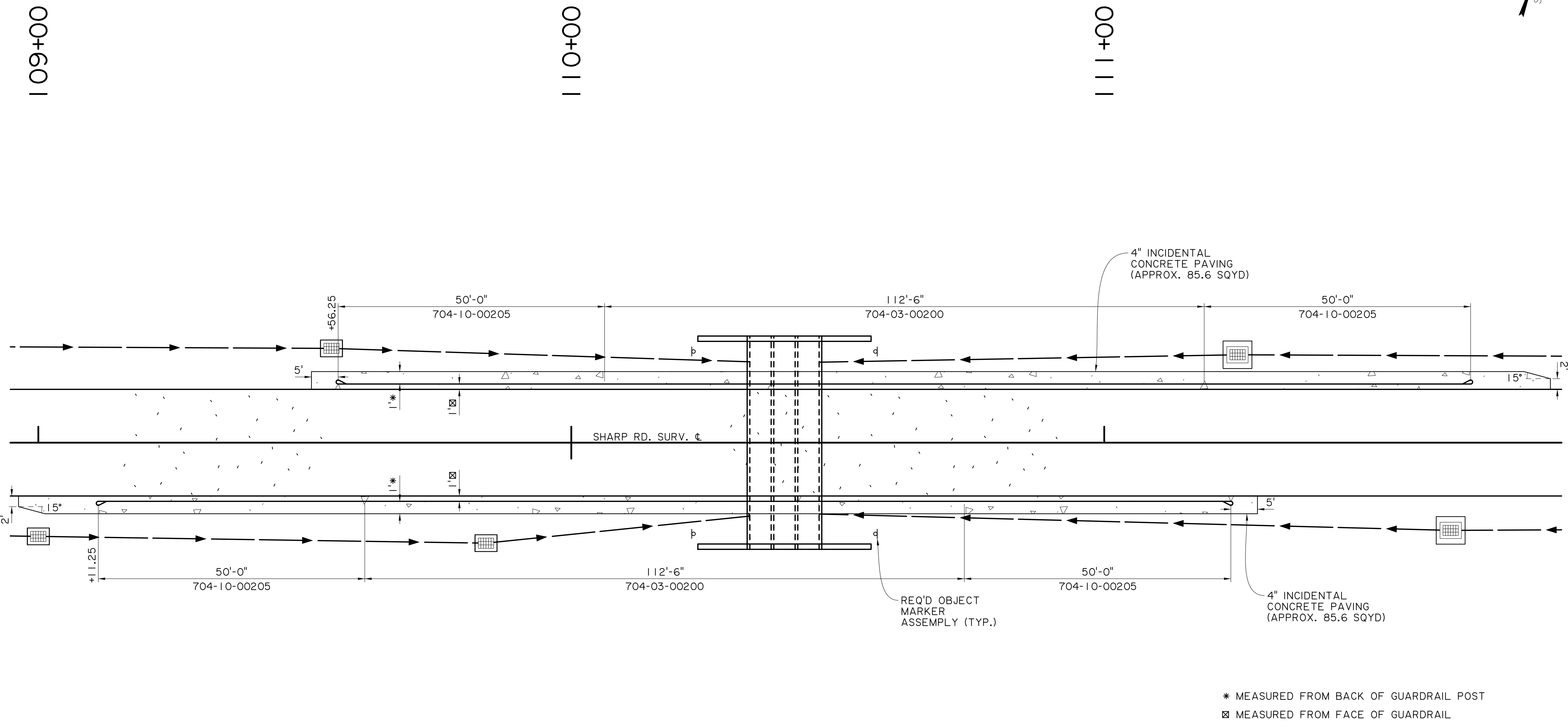
FINAL PLANS

SUMMARY OF DRAINAGE STRUCTURES																									
STRUCTURE NO.	STATION	SIDE OF CL	DESCRIPTION	PLAN	TYPE	STORM DRAIN PIPE ARCH (TYPE 3 JOINTS)					STORM DRAIN PIPE (TYPE 3 JOINTS)	SIDE DRAIN PIPE ARCH	CROSS DRAIN PIPE ARCH			MANHOLE		CATCH BASIN			REINFORCED CONCRETE BOX	CONCRETE COLLAR	BEDDING MATERIAL		
						15" EQ.	18" EQ.	24" EQ.	30" EQ.	36" EQ.	15"		18" EQ.	30" EQ.	36" EQ.	42" EQ.	MH-06	MH-14XOPEN	CB-01	CB-02	CB-SD02			4X4' PRECAST	
						LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.		LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH			EACH	LIN. FT.
4-1	192+91.00	LT	MH-06	MH-06	MH											1									0.78
4-2	193+02.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X 19'		SDPA		19																		1.86
4-3	193+13.50	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-4	193+42.80	LT	STORM DRAIN PIPE ARCH 18" EQ. X 56'		SDPA		56																		5.50
4-5	193+72.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-6	194+00.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 53'		SDPA		53																		5.20
4-7	194+28.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-8	194+47.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X 36'		SDPA		36																		3.53
4-9	194+67.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-10	195+17.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																		9.52
4-11	195+67.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-12	196+17.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 97'		SDPA		97																		9.52
4-13	196+67.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-14	197+17.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA			97																	10.42
4-15	197+67.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.78
4-16	197+92.80	LT	STORM DRAIN PIPE ARCH 24" EQ. X 49'		SDPA			49																	5.26
4-17	198+19.00	LT	MH-06	MH-06	MH											1									0.78
4-18	198+37.50	LT	STORM DRAIN PIPE ARCH 24" EQ. X 33'		SDPA			33																	3.54
4-19	198+56.00	LT	MH-06	MH-06	MH											1									0.91
4-20	198+78.30	LT	STORM DRAIN PIPE ARCH 30" EQ. X 40'		SDPA				40																4.81
4-21	199+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-22	199+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-23	200+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-24	200+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-25	201+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-26	201+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-27	202+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-28	202+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-29	203+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-30	203+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-31	204+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB														1						0.91
4-32	204+50.00	LT	STORM DRAIN PIPE ARCH 30" EQ. X 96'		SDPA				96																11.56
4-33	205+00.00	LT	CB-02 W/ TYPE "C" GRATE	CB-02	CB															1					0.91
4-34	205+40.80	LT	STORM DRAIN PIPE ARCH 36" EQ. X 77'		SDPA					77															10.41
4-35	205+81.50	LT	CB-02 W/ TYPE "C" GRATE	CB-02	CB															1					0.91
4-36	206+22.30	LT	STORM DRAIN PIPE ARCH 36" EQ. X 77'		SDPA					77															10.41
4-37	206+63.00	LT	CB-02 W/ TYPE "C" GRATE	CB-02	CB															1					0.91
4-38	206+72.50	LT	STORM DRAIN PIPE ARCH 36" EQ. X 15'		SDPA					15															2.03
4-39	206+88.00	LT	MH-14XOPEN	MH-14XOPEN	MH														1						1.98
4-40	207+03.50	LT	STORM DRAIN PIPE ARCH 30" EQ. X 15'		SDPA					15															1.81
4-41	207+13.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.91
4-42	207+56.50	LT	STORM DRAIN PIPE ARCH 30" EQ. X 83'		SDPA					83															9.99
4-43	208+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.91
4-44	208+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 96'		SDPA					96															10.31
4-45	209+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
4-46	209+50.00	LT	STORM DRAIN PIPE ARCH 24" EQ. X 97'		SDPA					97															10.42
4-47	210+00.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
4-48	210+27.80	LT	STORM DRAIN PIPE ARCH 24" EQ. X 52'		SDPA					52															5.59
4-49	210+56.00	LT	MH-06	MH-06	MH											1									0.78
4-50	210+73.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 30'		SDPA					30															2.94
4-51	210+90.00	LT	MH-06	MH-06	MH											1									0.78
4-52	211+07.80	LT	STORM DRAIN PIPE ARCH 18" EQ. X 31'		SDPA					31															3.04
4-53	211+25.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
4-54	211+71.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X90'		SDPA					90															8.83
4-55	212+18.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
4-56	198+19.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
4-57	198+56.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
4-58	210+56.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
4-59	210+90.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
4-60	206+69.60	RT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
4-61	206+88.00	RT	MH-14XOPEN	MH-14XOPEN	MH														1						1.98
4-62	207+06.50	RT	STORM DRAIN PIPE ARCH 18" EQ. X 20'		SDPA					20															1.96
5-1	213+18.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
5-2	213+44.25	LT	STORM DRAIN PIPE ARCH 18" EQ. X 50'		SDPA					50															4.91
5-3	213+71.00	LT	MH-06	MH-06	MH															1					0.78
5-4	213+91.30	LT	STORM DRAIN PIPE ARCH 18" EQ. X 37'		SDPA					37															3.63
5-5	214+11.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
5-6	214+45.50	LT	STORM DRAIN PIPE ARCH 18" EQ. X 66'		SDPA					66															6.48
5-7	214+80.00	LT	CB-01 W/ TYPE "C" GRATE	CB-01	CB															1					0.78
5-8	214+91.70	LT	STORM DRAIN PIPE ARCH 24" EQ. X 20'		SDPA					20															2.15
5-9	215+03.80	LT	MH-06	MH-06	MH											1									0.78
5-10	213+71.00	LT	STORM DRAIN PIPE ARCH 18" EQ. X 12'		SDPA					12															1.18
5-11	214+83.70	RT	STORM DRAIN PIPE ARCH 24" EQ. X 20'		SDPA					20															2.15
5-12	214+96.40	RT	MH-06	MH-06	MH											1									0.78
6-1	215+54.90	LT	STORM DRAIN PIPE ARCH 2-24" EQ. X 31'		SDPA					62															4.59
6-2	215+72.00	LT	CB-SD02 W/ TYPE "B" GRATE	CB-SD02	CB																1				1.20
6-3	215+94.00	LT																							

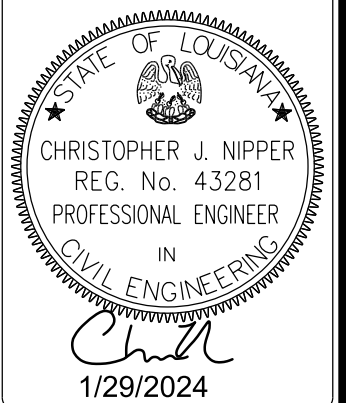
SUMMARY OF DRAINAGE STRUCTURES																								
STRUCTURE NO.	STATION	SIDE OF CL	DESCRIPTION	PLAN	TYPE	STORM DRAIN PIPE ARCH (TYPE 3 JOINTS)					STORM DRAIN PIPE (TYPE 3 JOINTS)	SIDE DRAIN PIPE ARCH	CROSS DRAIN PIPE ARCH			MANHOLE		CATCH BASIN			REINFORCED CONCRETE BOX	CONCRETE COLLAR	BEDDING MATERIAL	
						15" EQ.	18" EQ.	24" EQ.	30" EQ.	36" EQ.	15"	18" EQ.	30" EQ.	36" EQ.	42" EQ.	MH-06	MH-14XOPEN	CB-01	CB-02	CB-SD02	4X4' PRECAST	EACH		
						LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH	EACH	LIN. FT.	EACH	CU. YDS.	
CD5c	215+00.80	RT	CROSS DRAIN PIPE ARCH 36" EQ. X 16'		CDPA																		2.16	
CD6a	215+31.30	LT	CROSS DRAIN PIPE ARCH 2-30" EQ. X 20'		CDPA							40											17.93	
CD6b	215+31.30	RT/LT	CROSS DRAIN PIPE ARCH 2-30" EQ. X 35'		CDPA							70											17.93	
CD6c	215+31.30	RT	CROSS DRAIN PIPE ARCH 2-30" EQ. X 24'		CDPA							48											17.93	
	149+70.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 69'									69												
	156+27.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 116'									116												
	159+39.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 46'									46												
	161+23.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	162+25.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	163+19.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	164+67.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 37'									37												
	165+94.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 36'									36												
	166+40.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	168+11.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	193+82.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 43'									43												
	195+20.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 45'									45												
	198+40.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 30'									30												
	198+83.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 42'									42												
	201+78.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 135'									135												
	204+77.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 46'									46												
	208+46.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 54'									54												
	211+32.00	RT	SIDE DRAIN PIPE ARCH 18" EQ. X 43'									43												
	153+81.50	LT	CONCRETE COLLAR																			1		
	155+79.00	LT	CONCRETE COLLAR																			1		
	156+66.00	LT	CONCRETE COLLAR																			1		
TOTAL																								
						2737	4566	5401	2764	1453	28	952	158	185	105	21	6	163	14	18	120	3	2033.20	

SHEET NUMBER	41	ST. TAMMANY	PARISH	PROJECT NUMBER	EN2 1000010
DESIGN	C-NIPPER	CHECK	J.LOHMANN	DETAIL	C-NIPPER
REVIEW	J.L OHMANN	SERIES #			
 CHRISTOPHER J. NIPPER REG. No. 43281 PROFESSIONAL ENGINEER IN CIVIL ENGINEERING 10/2/2024					
NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION		
 SUMMARY OF DRAINAGE STRUCTURES SHARP RD.					

FINAL PLANS




SHEET NUMBER	42
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010



NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION



GUARDRAIL LAYOUT
SHARP RD.

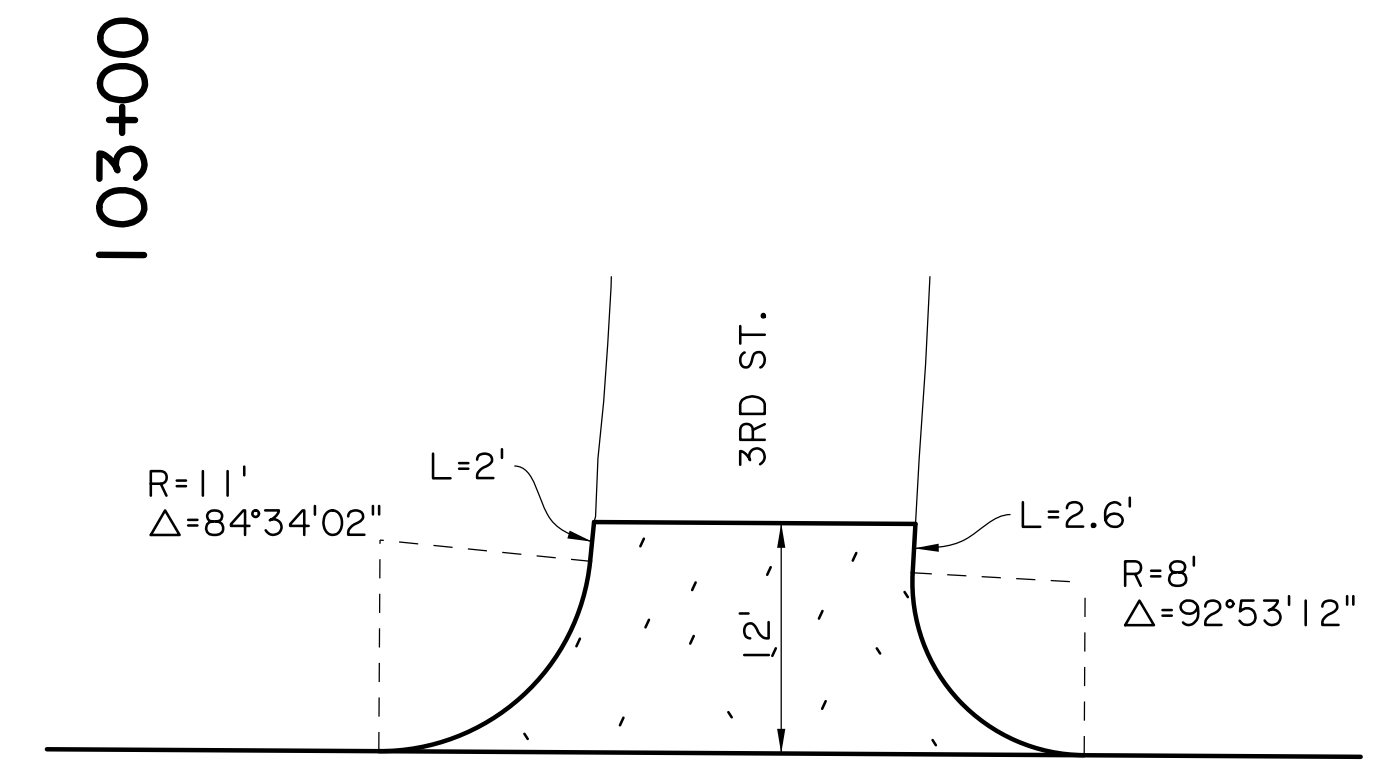


FINAL PLANS

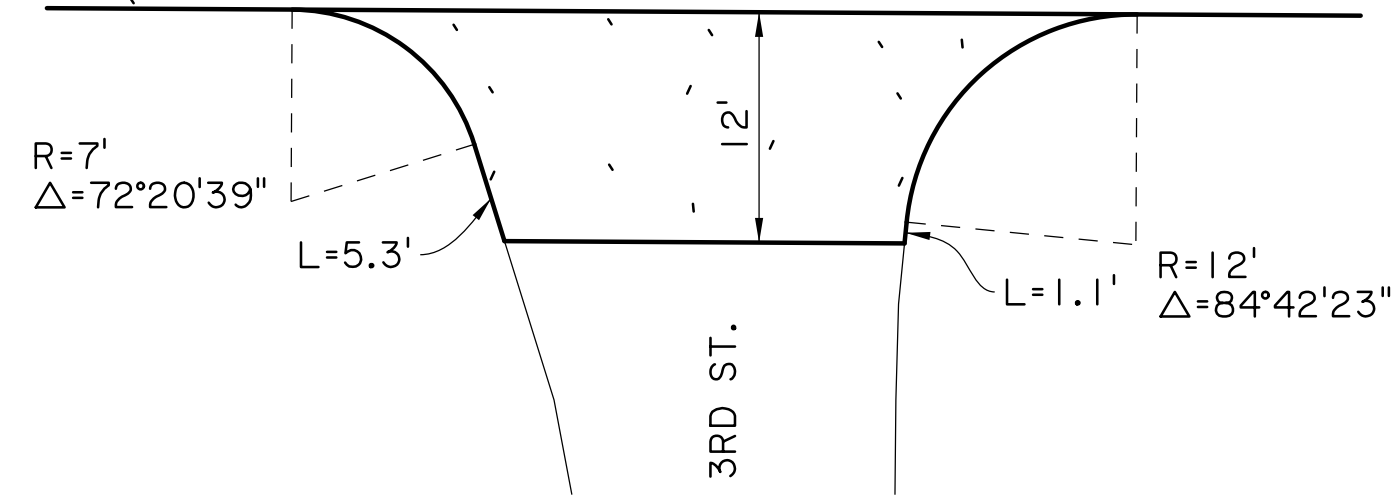
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1/29/2024

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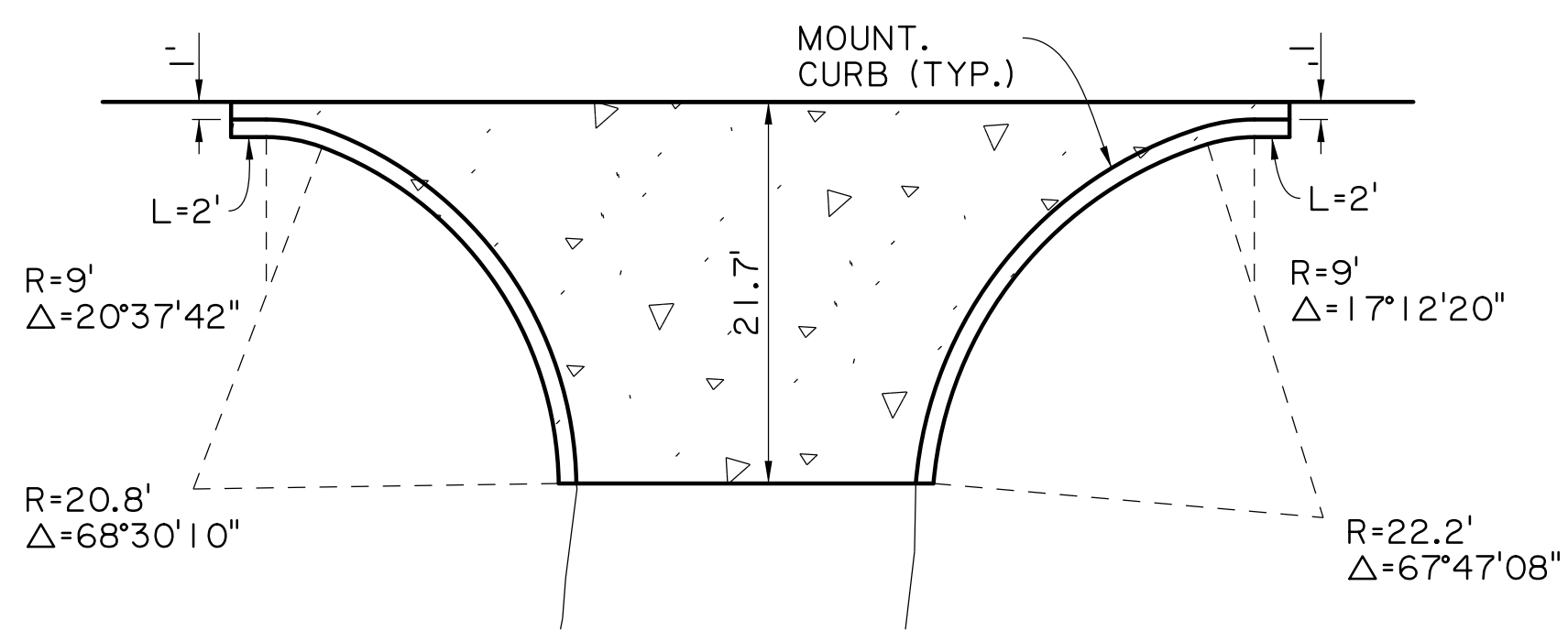


SHARP RD. SURV. ϵ



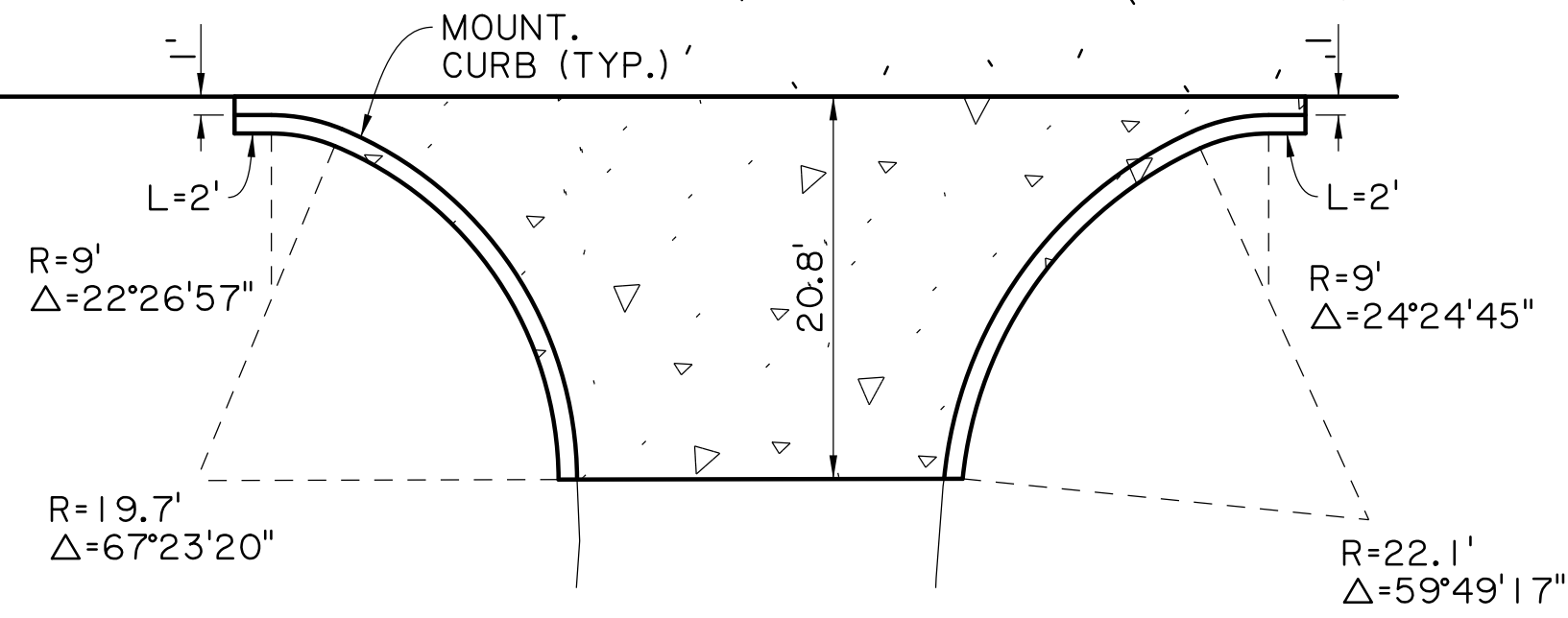
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SHARP RD. SURV. ϵ

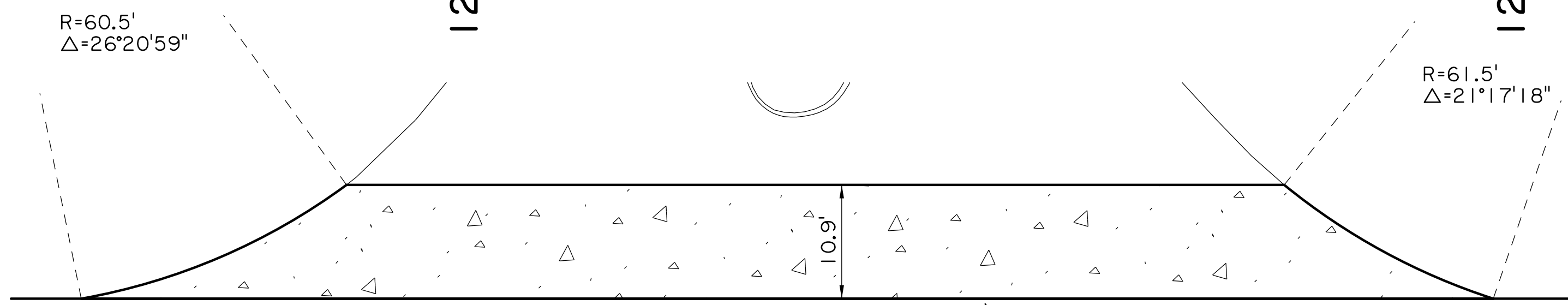


107+00

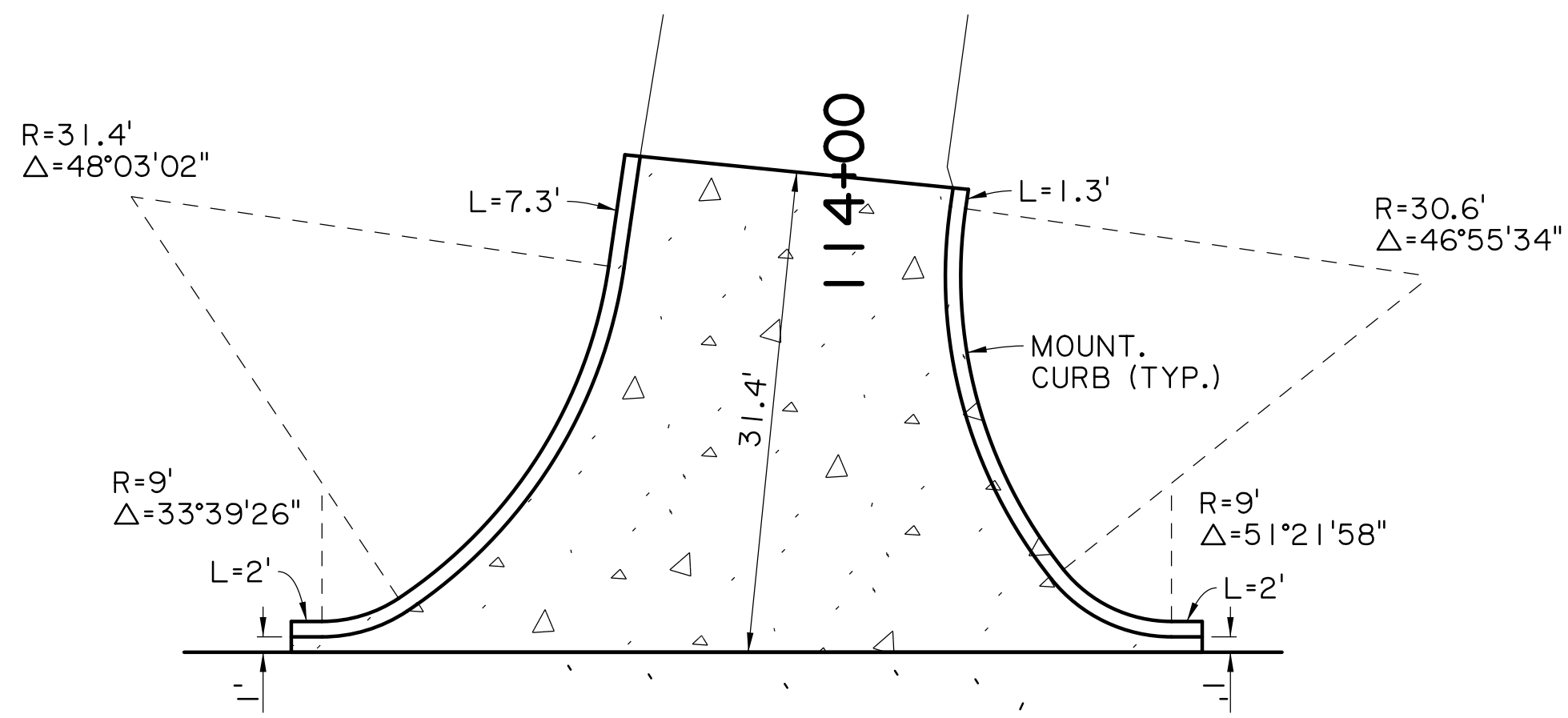
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123+00



SHARP RD. SURV. ϵ



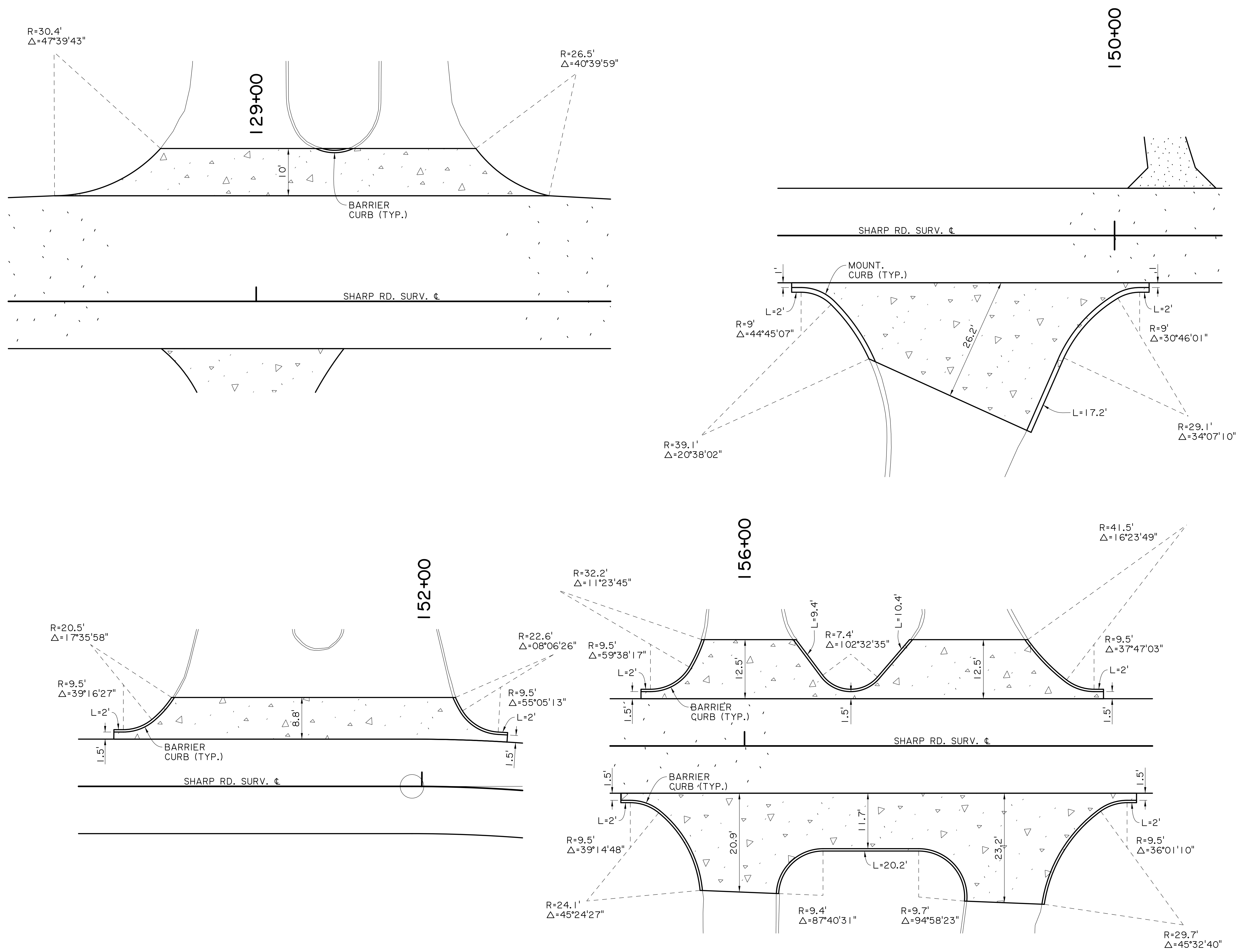
SHARP RD. SURV. ϵ

SCALE: 1"=10'

SHEET NUMBER		43	
DESIGN		C-NIPPER	
CHECK		J.L. OHMANN	
DETAIL		C-NIPPER	
CHECK		J.L. OHMANN	
REVIEW			
SERIES #		EN21000010	
PARISH		ST. TAMMANY	
PROJECT NUMBER		EN21000010	
NO.		DATE	
REVISION OR CHANGE		ORDER DESCRIPTION	
BY			
<p>GEOMETRIC DETAILS TURNOUTS SHARP RD.</p>			

FINAL PLANS

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SHEET NUMBER		44
DESIGN	C-NIPPER	ST. TAMMANY
CHECK	J.LOHMANN	
DETAIL	C-NIPPER	
CHECK	J.L OHMANN	
REVIEW		
SERIES #		EN21000010

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/29/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

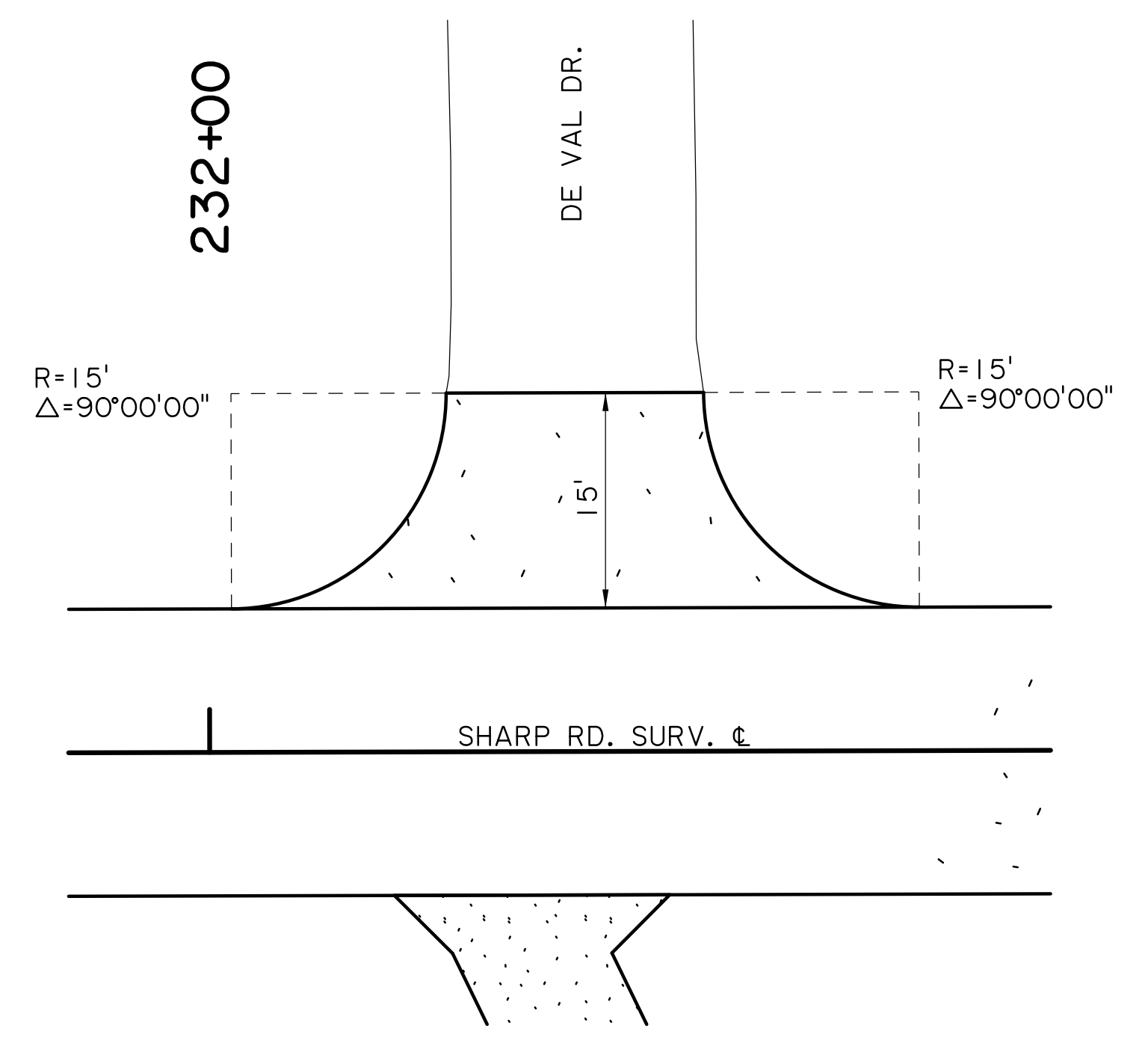
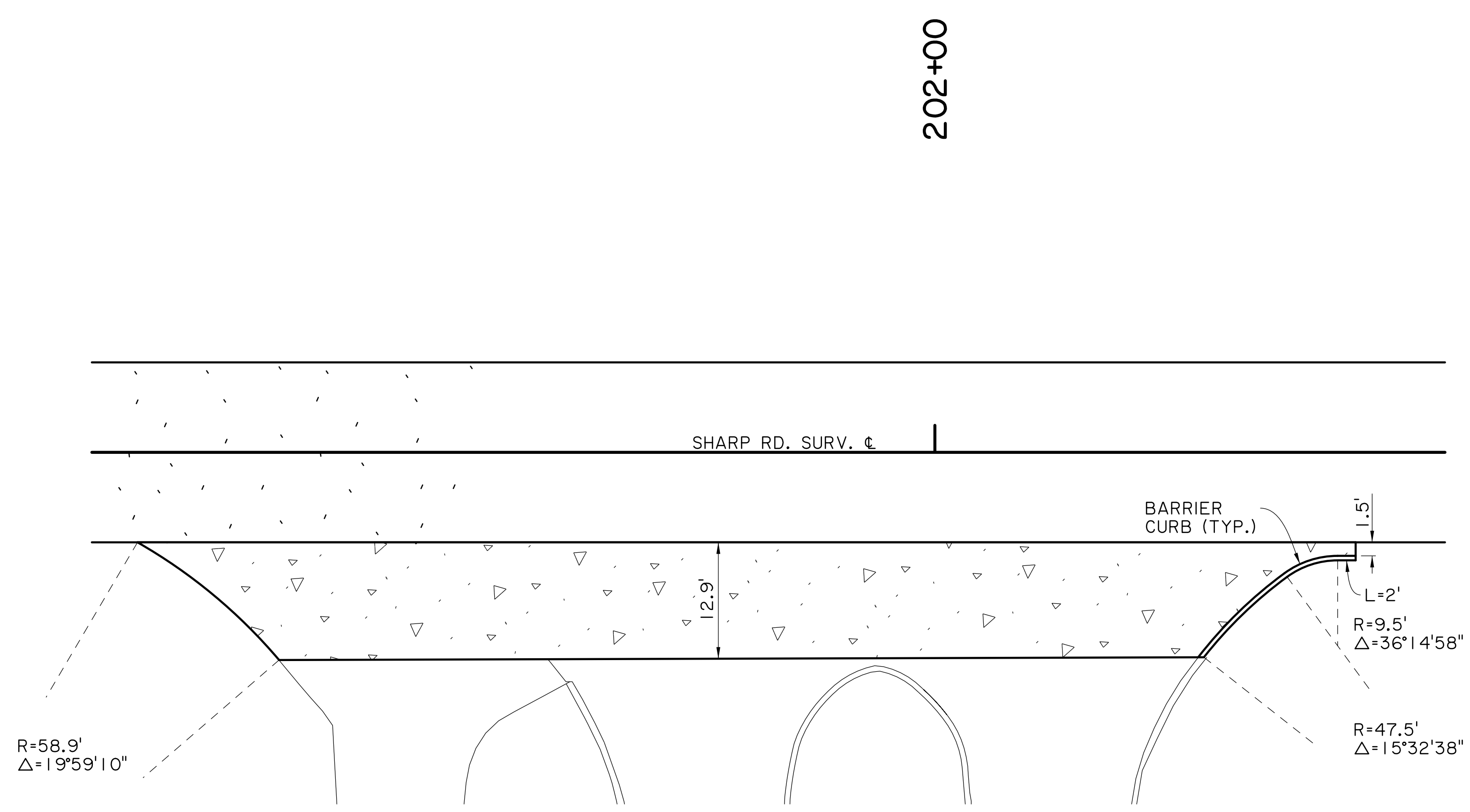
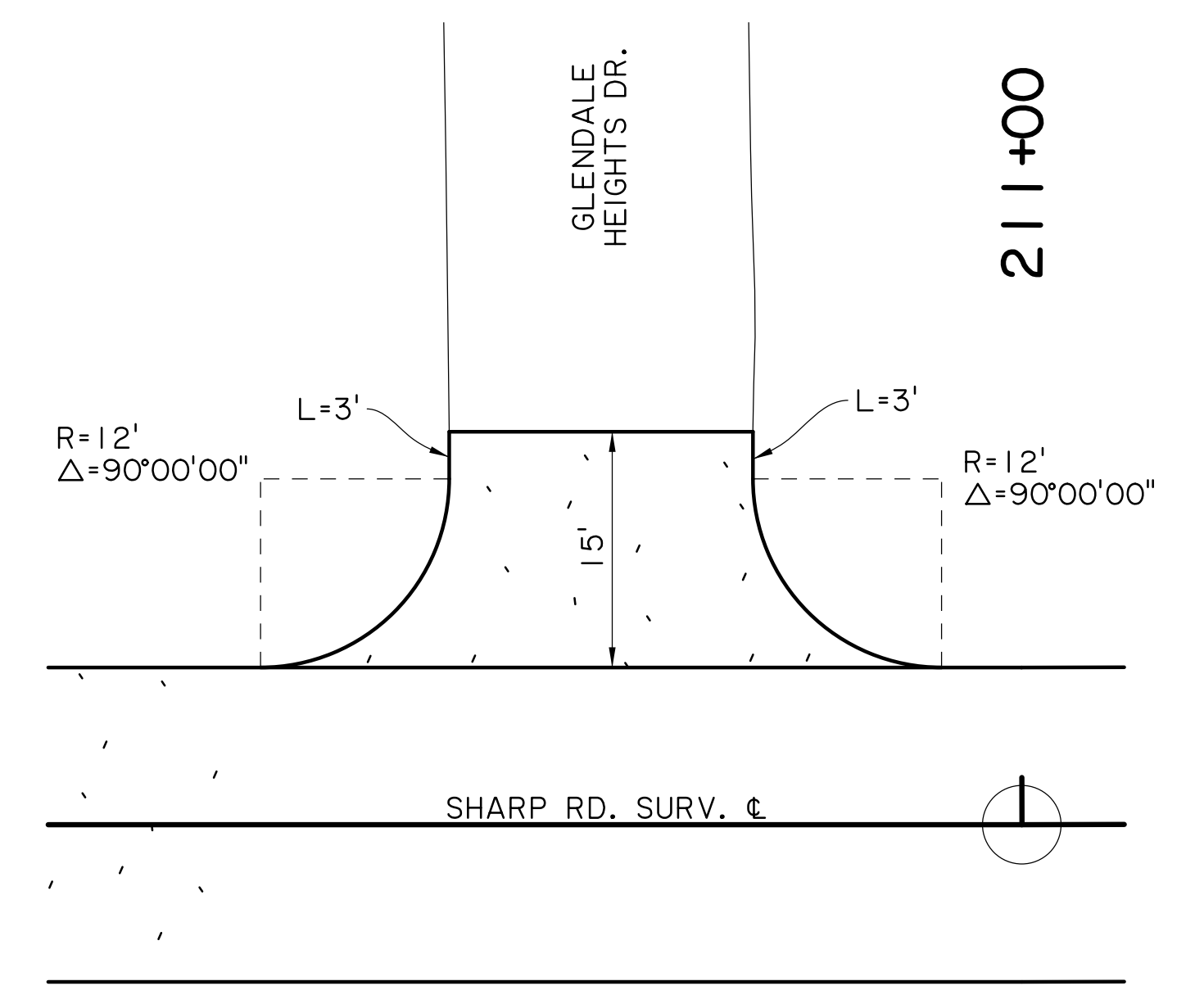
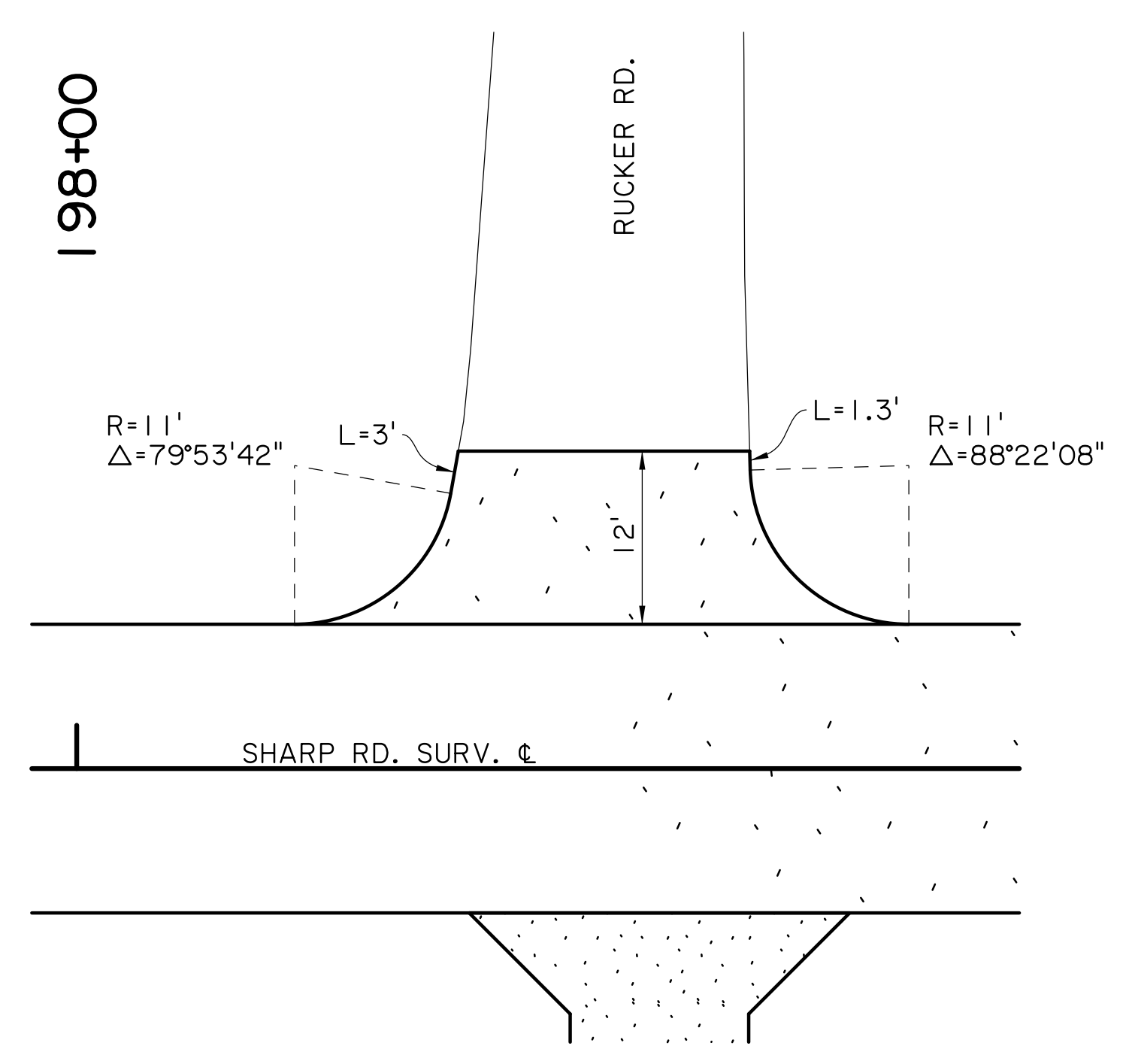
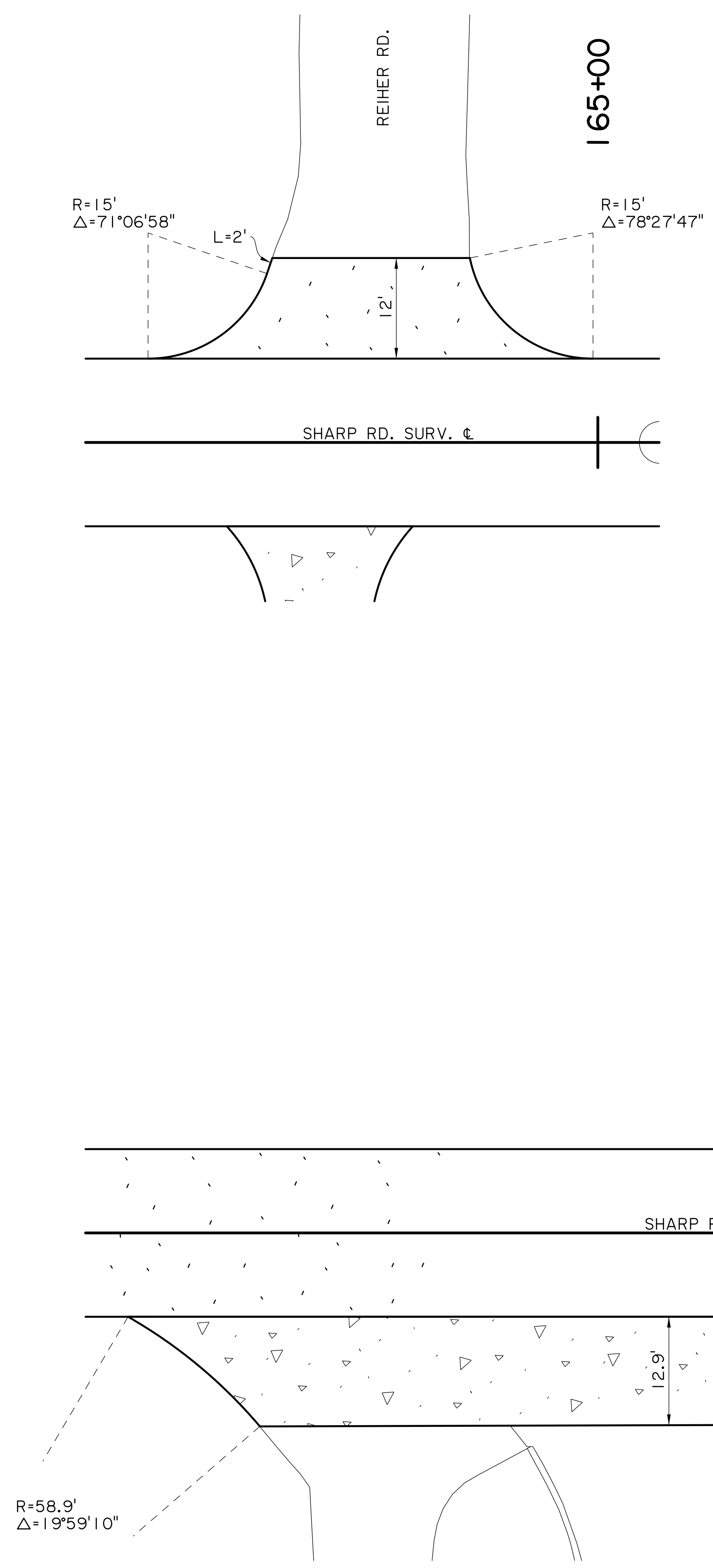
STATE OF LOUISIANA
CIVIL ENGINEERING

GEOMETRIC DETAILS
TURNOUTS
SHARP RD.

SCALE: 1"=10'

FINAL PLANS

J:\50\2240 St Tammany\0050.2240108.000 - Sharp\Design\Roadway\2) St Tammany Plans - Part 2\043-045_geometric_details.dgn 1/29/2024 09:31



SCALE: 1"=10'

SHEET NUMBER		45	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

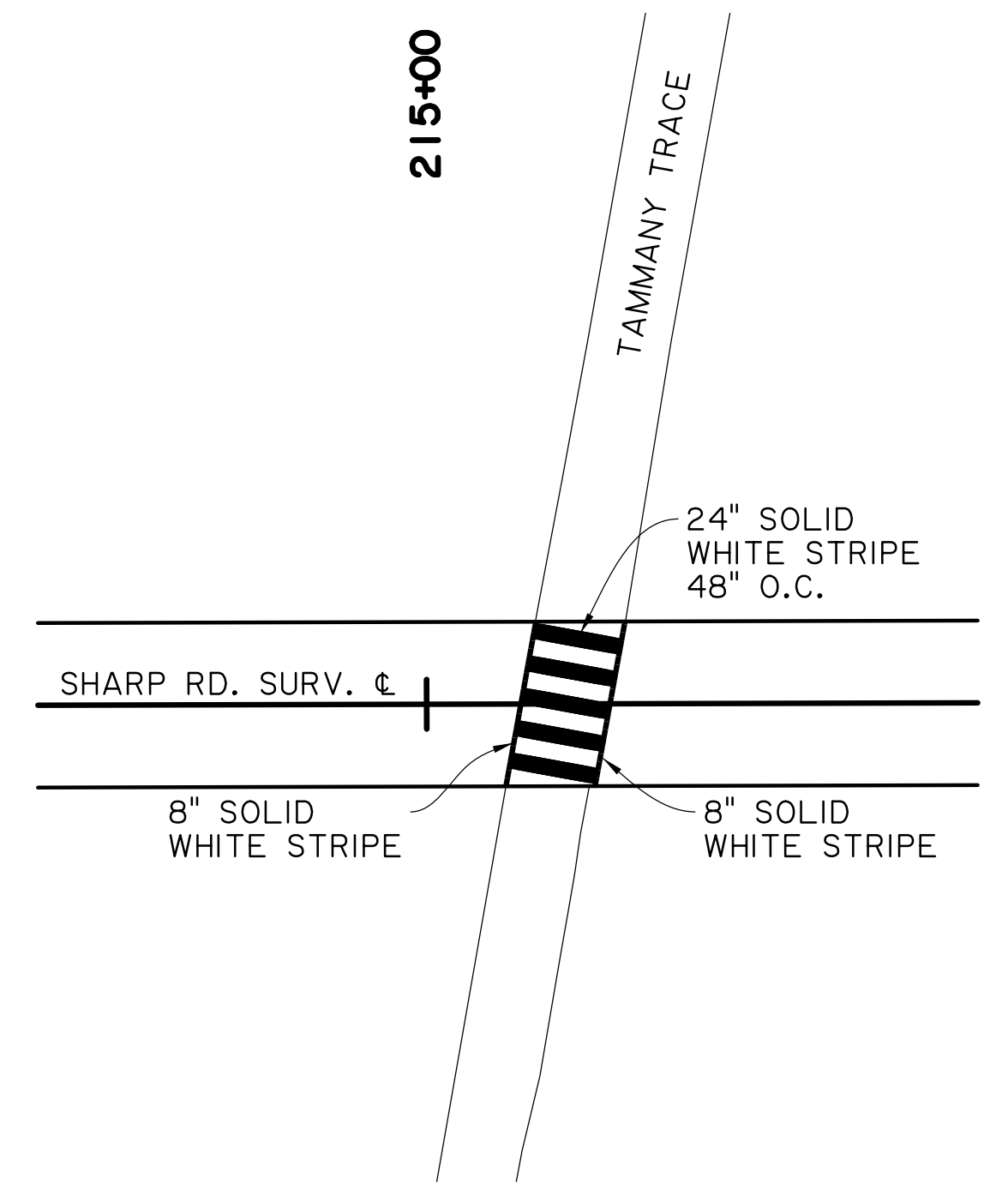
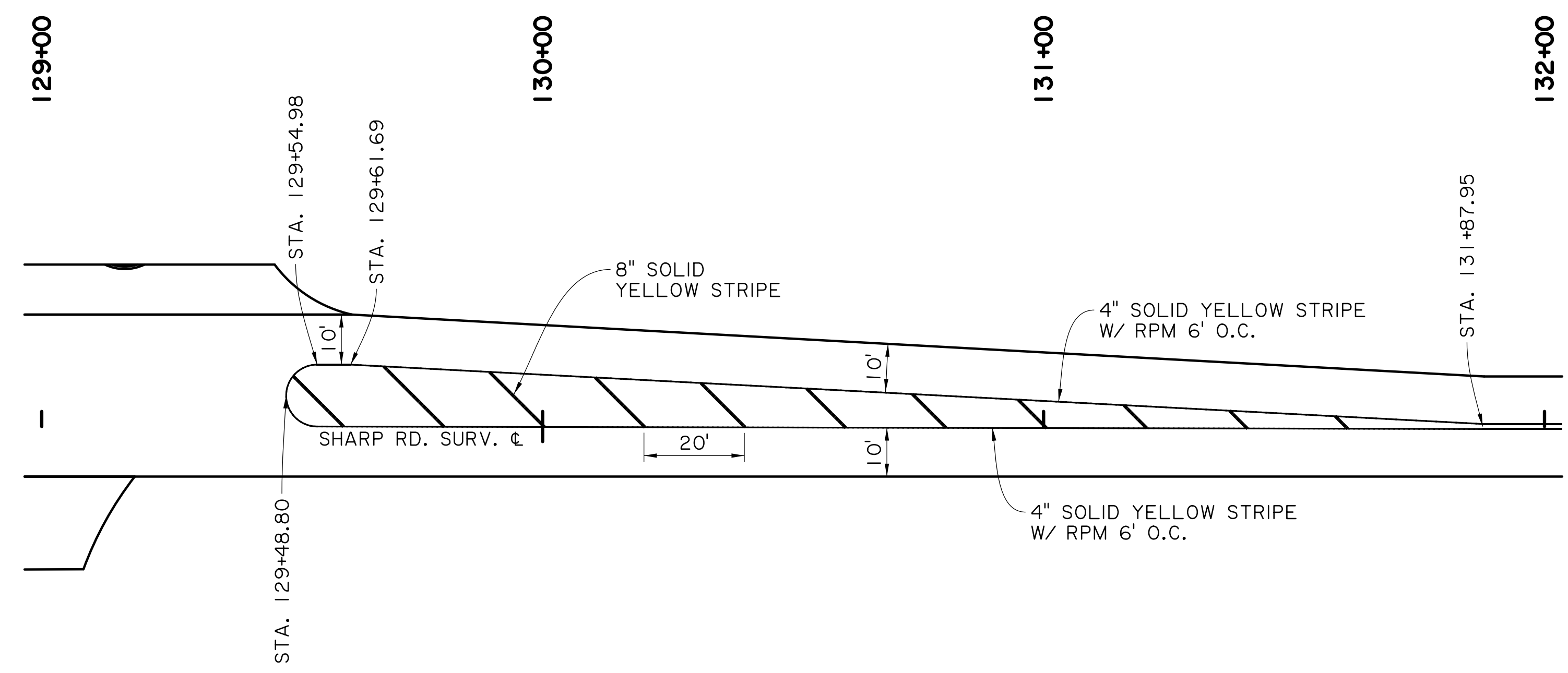
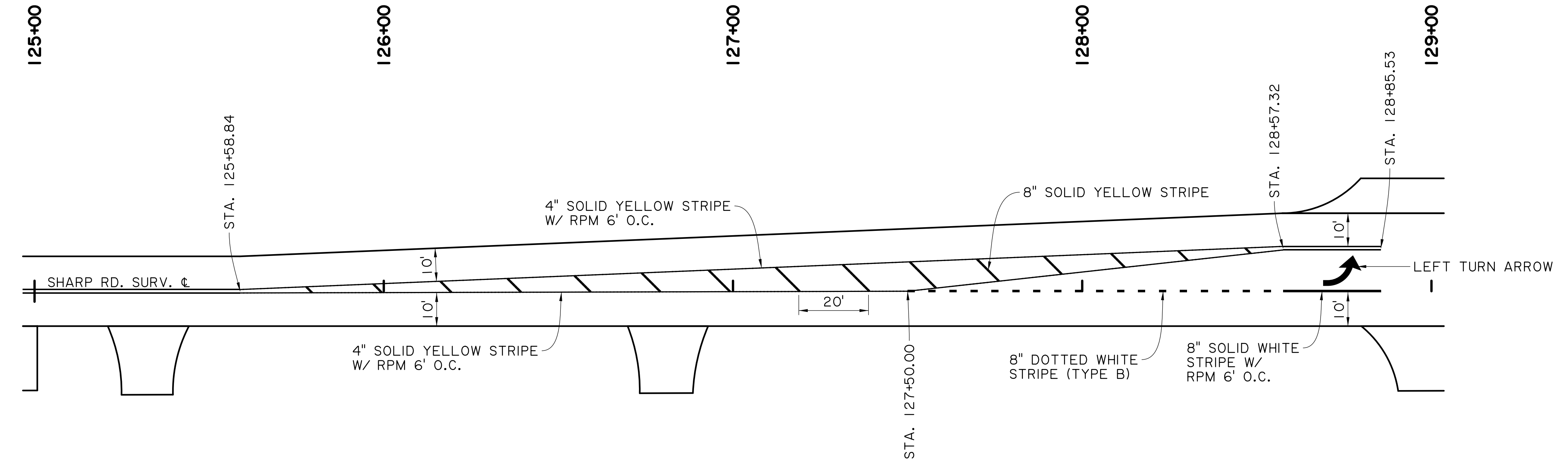
1/29/2024

GEOMETRIC DETAILS
TURNOUTS

SHARP RD.

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

FINAL PLANS



NOTE:
 1. SEE STANDARD PLAN PM-01, PM-02, AND TYPICAL SECTIONS FOR MORE DETAIL

SCALE: 1"=20'

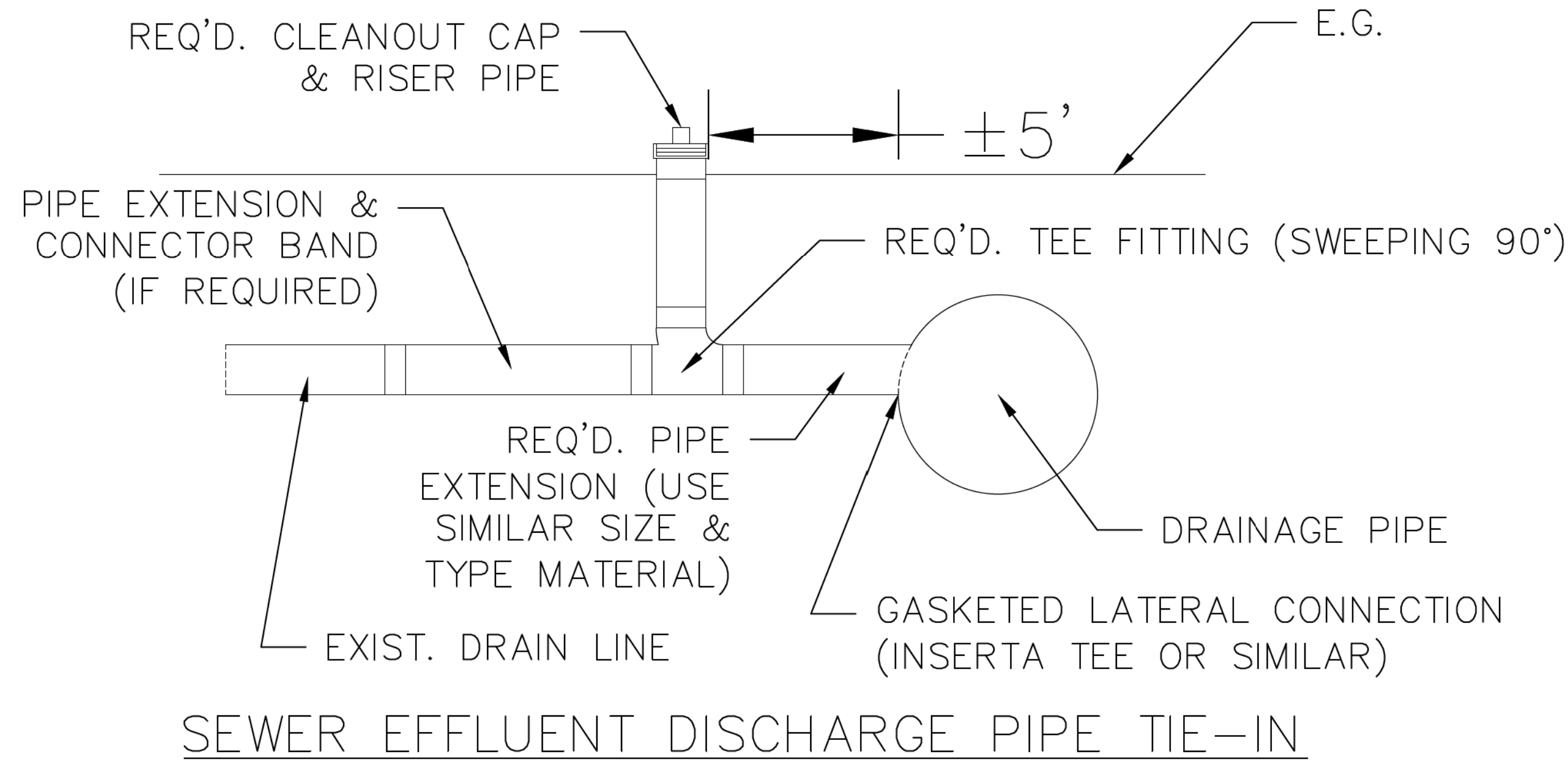
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CHECK	J. LOHMANN	CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER	CHECK	J. LOHMANN	SERIES #	
REVIEW		REVIEW			

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

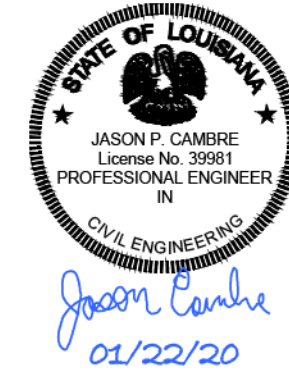
PAVEMENT STRIPING DETAILS

SHARP RD.

x:\Combre\Drawings\2019 drainage\Final\Sheets\17 Tee Inlet & Sewer Effluent Tie-in Detail.dwg, 1/22/2020 10:36:33 AM



SEWER EFFLUENT DISCHARGE PIPE TIE-IN



St. Tammany Parish
 Department of Public Works
 P.O. Box 628 Covington, La. 70434
 Phone (850) 888-2552
 E-mail: eng@spov.org

Rev. No.	Date	Description

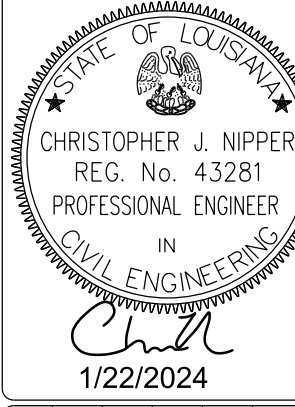
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

TEE INLET & SEWER EFFLUENT TIE-IN DETAIL



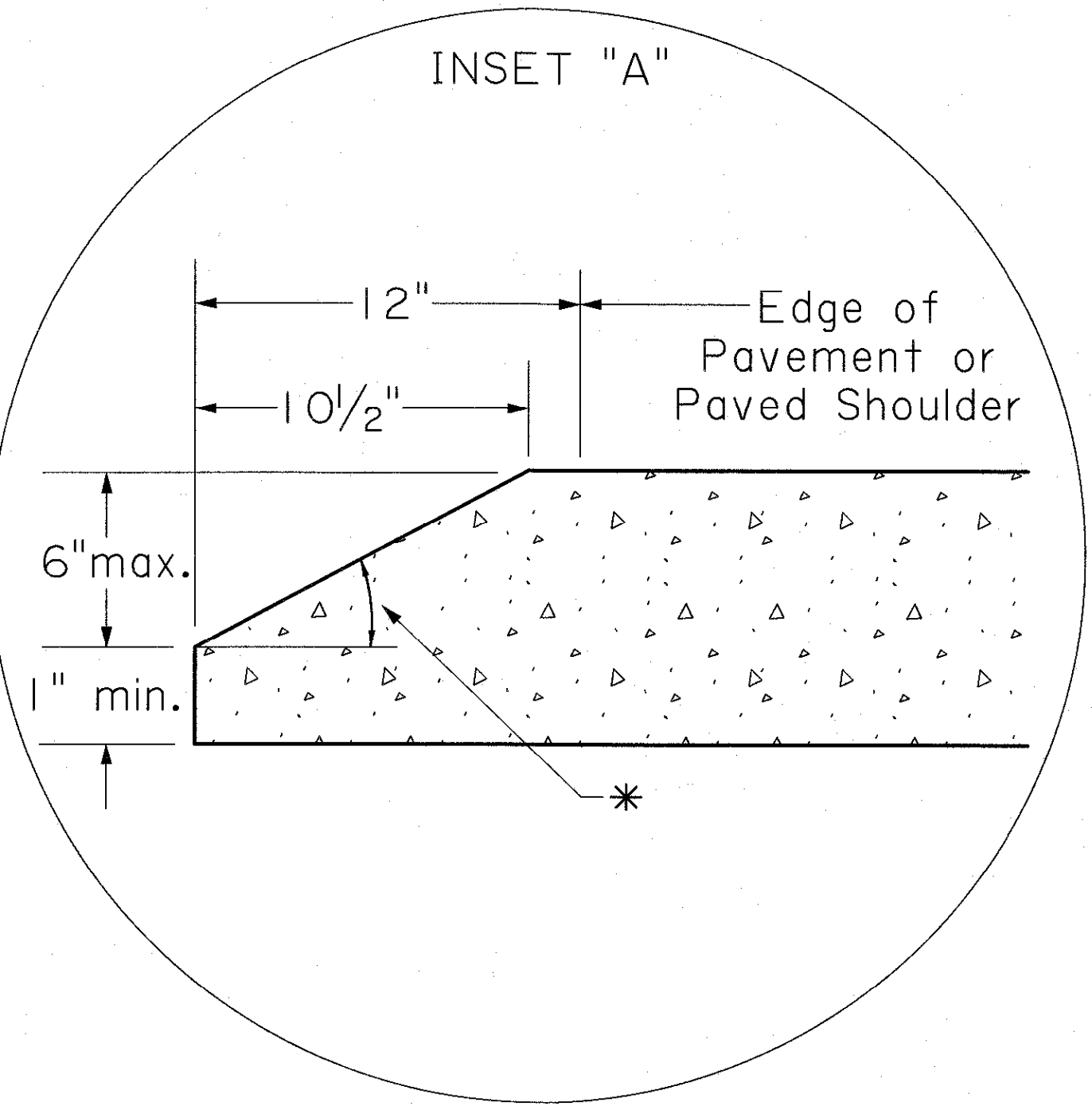
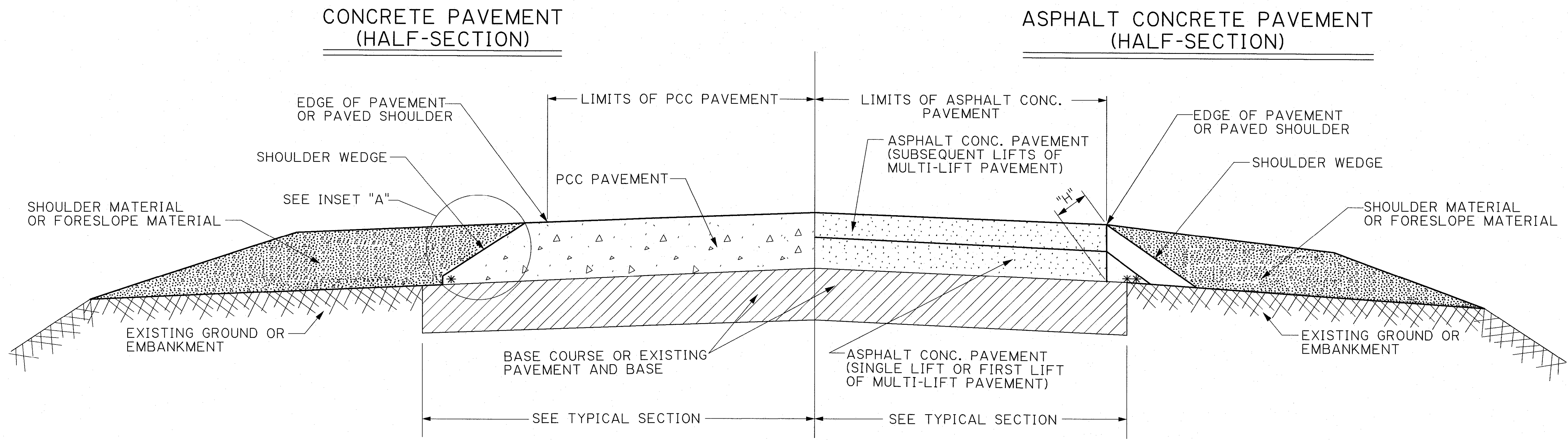
SEWER EFFLUENT DISCHARGE
 PIPE TIE-IN DETAIL

SHARP RD.



DESIGN	CHECK	DETAIL	CHECK	REVIEW	SERIES #
C-NIPPER	J.LOHMANN	C-NIPPER	J.LOHMANN		

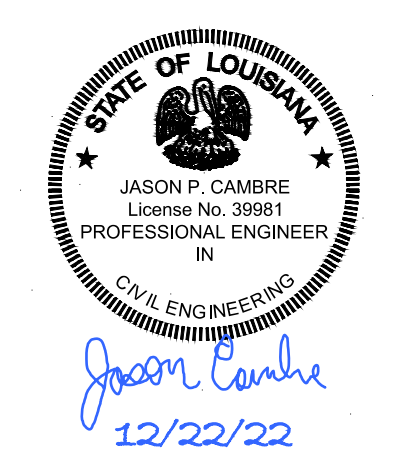
PARISH	PROJECT NUMBER
ST. TAMMANY	EN21000010



NOTES:

- 1) SHOULDER WEDGES SHALL BE REQUIRED AT THE OUTSIDE EDGES OF THE PAVED ROADWAY (EDGE OF TRAVEL LANE OR EDGE OF PAVED SHOULDER).
- 2) FOR ASPHALT CONCRETE PAVEMENTS: SHOULDER WEDGES SHALL BE UTILIZED ON SINGLE LIFTS IF THE LAYER THICKNESS IS GREATER THAN OR EQUAL TO 2" AND, AT A MINIMUM, ON EACH OF THE 2 TOP LIFTS OF MULTI-LIFT PAVEMENT.
- 3) EQUIP THE PAVER WITH A MECHANICAL DEVICE THAT WILL PRODUCE A WEDGE WITH A UNIFORM TEXTURE, SHAPE, AND DENSITY, WHILE AUTOMATICALLY ADJUSTING TO VARYING HEIGHTS ENCOUNTERED ALONG THE SHOULDER EDGE.
- 4) THE CONTRACTOR SHALL BLADE AND SHAPE EXISTING GROUND OR SHOULDER MATERIAL TO FORM A UNIFORM SURFACE UNDER THE ASPHALT SHOULDER WEDGE PRIOR TO PLACEMENT OF THE PAVEMENT.
- 5) FOR ASPHALT CONCRETE PAVEMENTS: THE MAXIMUM SHOULDER WEDGE HEIGHT ("H") SHALL EQUAL 6". IF THE TOTAL ASPHALT THICKNESS IS GREATER THAN 6" THE CONTRACTOR SHALL STAGE CONSTRUCTION BY PULLING UP THE SHOULDERS OR FORESLOPE MATERIAL IN THE LOWER LIFTS, THEN UTILIZING THE WEDGE IN EACH OF THE FINAL 2 LIFTS.
- 6) REQUIRED BASE WIDTHS ARE AS SHOWN ON TYPICAL SECTIONS. FOR ASPHALT SHOULDER WEDGE, REQUIRED BASE WIDTH MIGHT NOT INCLUDE WIDTH OF ASPHALT WEDGE. ASPHALT SHOULDER WEDGE MAY BE SUPPORTED BY THE EXISTING GROUND OR SHOULDER MATERIAL. FOR CONCRETE SHOULDER WEDGE, REQUIRED BASE WIDTH IS TO INCLUDE THE WIDTH OF SHOULDER WEDGE AND THE DESIRED ADDITIONAL WIDTH BEYOND THE SURFACING.

* 30° desired
 ** 35° desired



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



DESIGNED	MAC	MAC	PARISH	CONTROL SECTION	STATE PROJECT
CHECKED	MAC	MAC			
DATE					
REVISION OR CHANGE ORDER					
DESCRIPTION					
NO.					
DATE					
BY					

SHOULDER WEDGE DETAIL

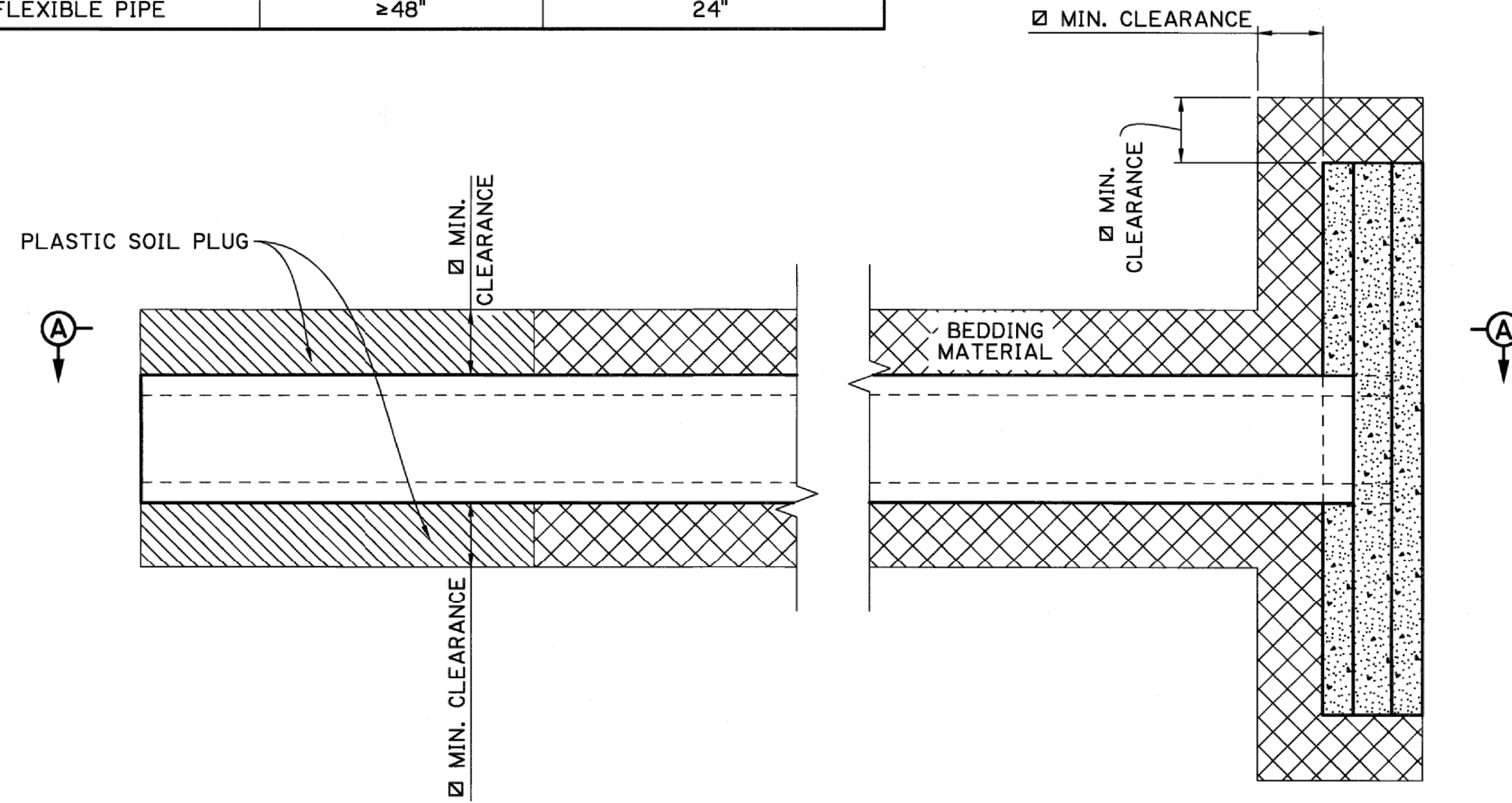
DOTD ROAD DESIGN

07:51
10/5/2021

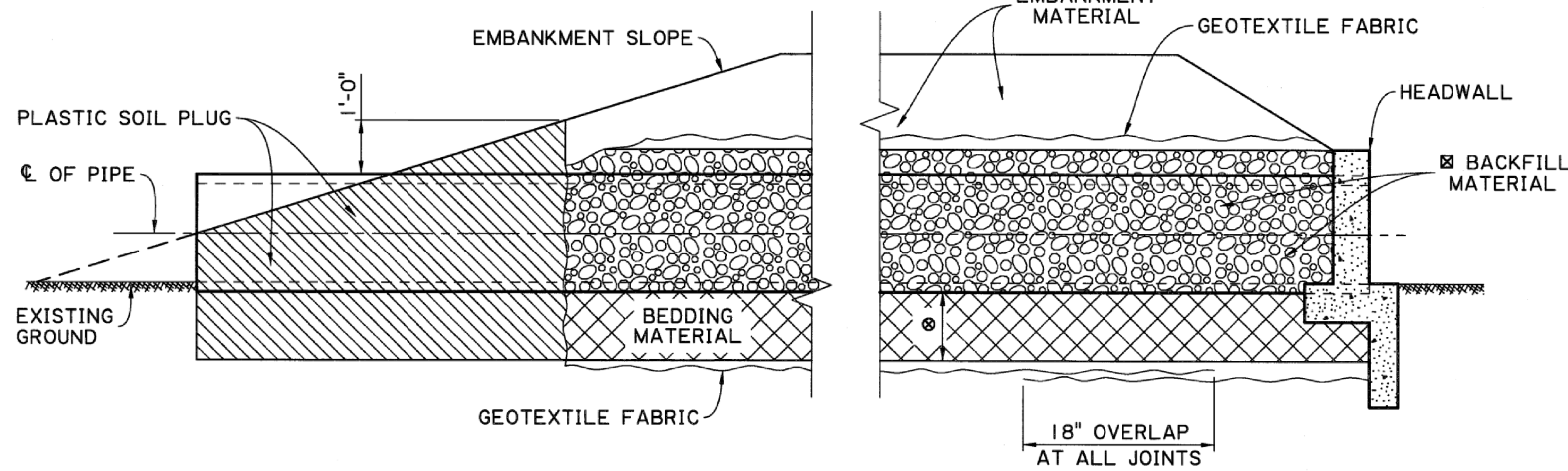
GENERAL NOTES :

1. REINFORCED CONCRETE PIPE AND FLEXIBLE PIPE ARE SHOWN AS TYPICAL STRUCTURES. DETAILS ALSO APPLY TO REINFORCED CONCRETE BOX CULVERT, REINFORCED CONCRETE PIPE ARCH, CORRUGATED METAL PIPE ARCH, AND CORRUGATED STRUCTURAL PLATE STRUCTURES.
2. CONSTRUCTION COVER REQUIREMENTS MAY EXCEED FINAL COVER. SEE SECTION 701 OF LADOTD STANDARD SPECIFICATIONS.
3. CROSS DRAIN DETAILS APPLY TO ALL REACHES OF PIPE UNDER RIGID OR FLEXIBLE ROADWAYS.
4. TRENCH SAFETY STANDARDS SHALL BE IN ACCORDANCE WITH SECTION 701 OF LADOTD STANDARD SPECIFICATIONS.

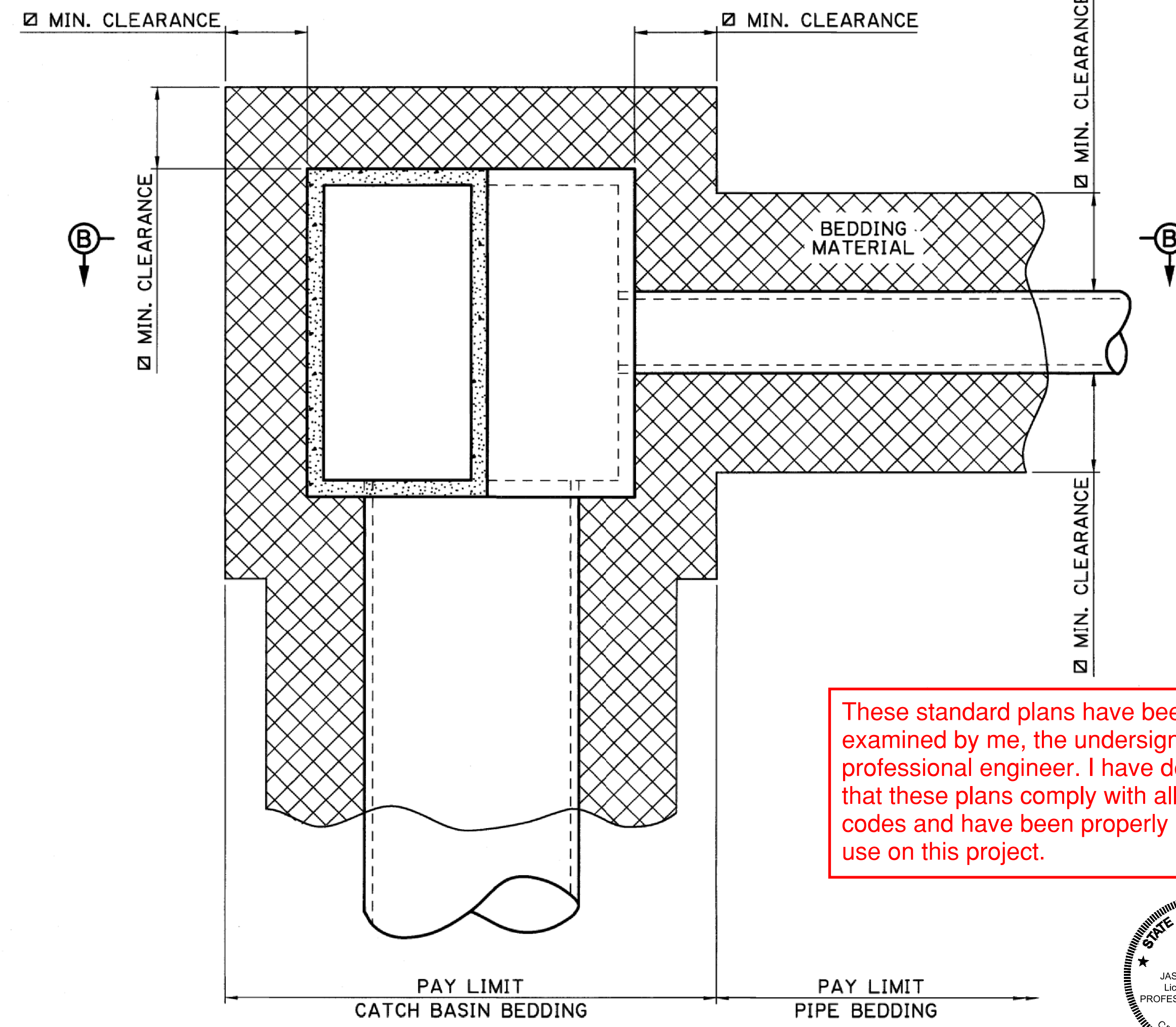
MINIMUM TRENCH CLEARANCE		
TYPE OF PIPE	INSIDE DIAMETER	MIN. CLEARANCE
REINFORCED CONCRETE PIPE	ALL	18"
FLEXIBLE PIPE	<48"	18"
FLEXIBLE PIPE	≥48"	24"



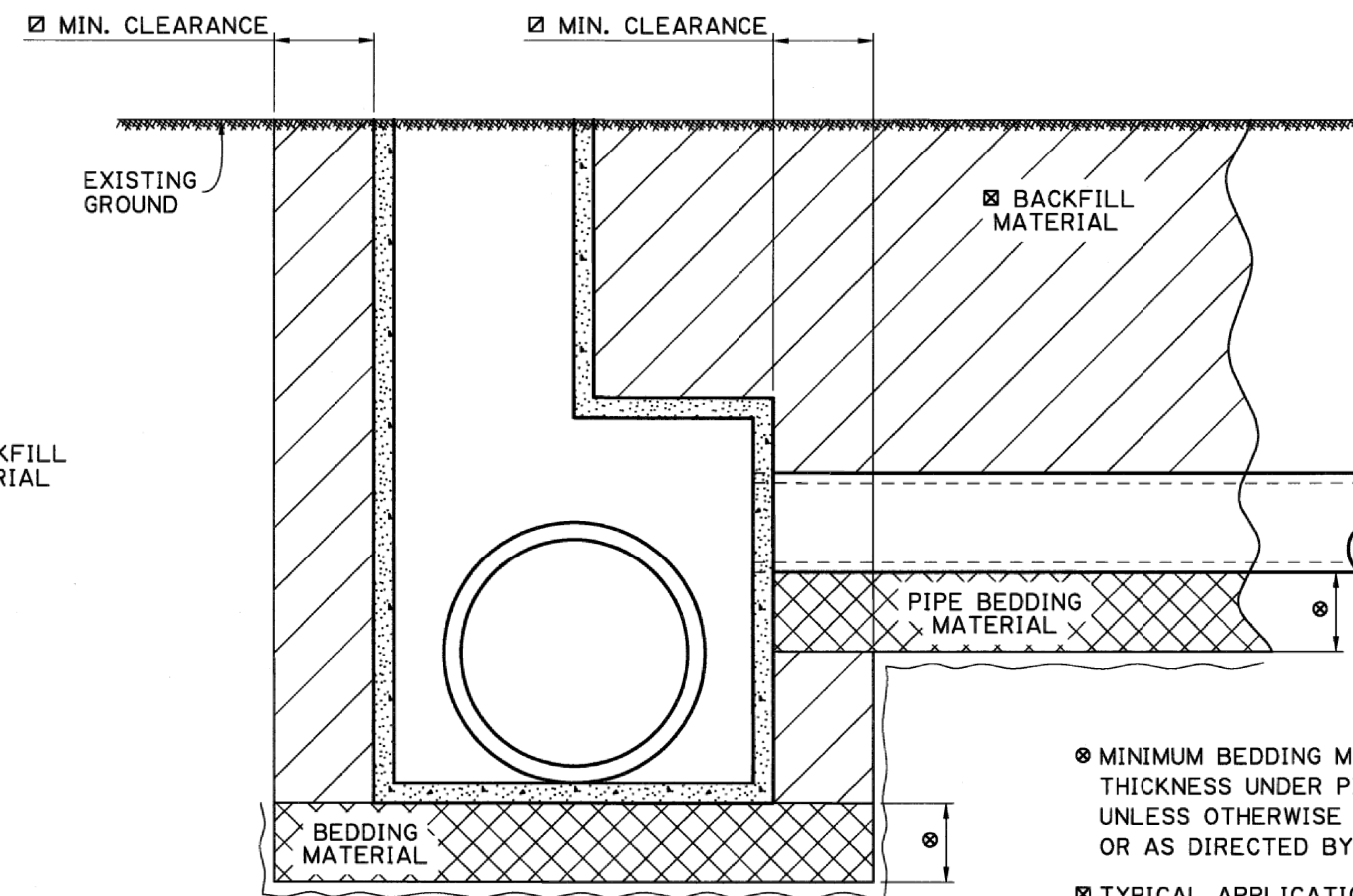
TYPICAL CROSS DRAIN INSTALLATION
WITH AND WITHOUT HEADWALL
(EMBANKMENT MATERIAL NOT SHOWN FOR CLARITY)
NTS



SECTION A-A
WITH AND WITHOUT HEADWALL
NTS



TYPICAL CATCH BASIN AND STORM SEWER PIPE INSTALLATION
NTS



SECTION B-B
NTS

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

STATE OF LOUISIANA
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/22/22

SHEET NUMBER	301
PARISH	
CONTROL SECTION	
STATE PROJECT	
DESIGN	
CHECK	
DETAIL	L.F.H.
CHECK	A.M.N.
REVIEW	C.J.N.
SERIES #	1 OF 2

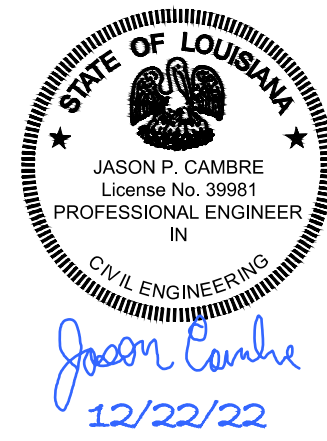
APPROVED BY CHIEF ENGINEER:
Christopher J. Nickel
DATE: 11/16/2021

STATE OF LOUISIANA
PROFESSIONAL ENGINEER

DRAINAGE STRUCTURES
BEDDING & BACKFILL
BM-01
STANDARD PLAN

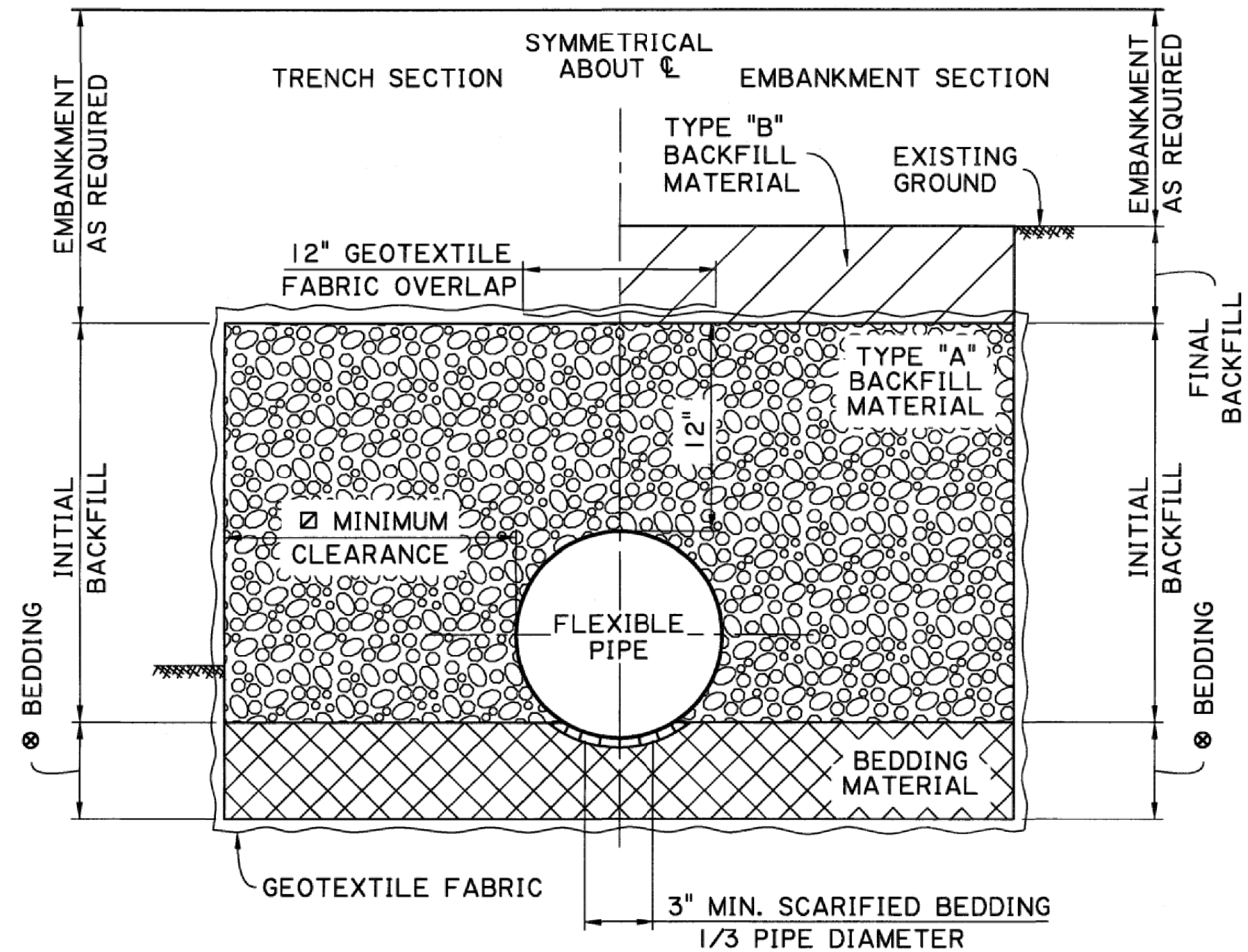
DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
PAVEMENT & GEOTECHNICAL SERVICES

MINIMUM TRENCH CLEARANCE		
TYPE OF PIPE	INSIDE DIAMETER	MIN. CLEARANCE
REINFORCED CONCRETE PIPE	ALL	18"
FLEXIBLE PIPE	<48"	18"
FLEXIBLE PIPE	≥48"	24"



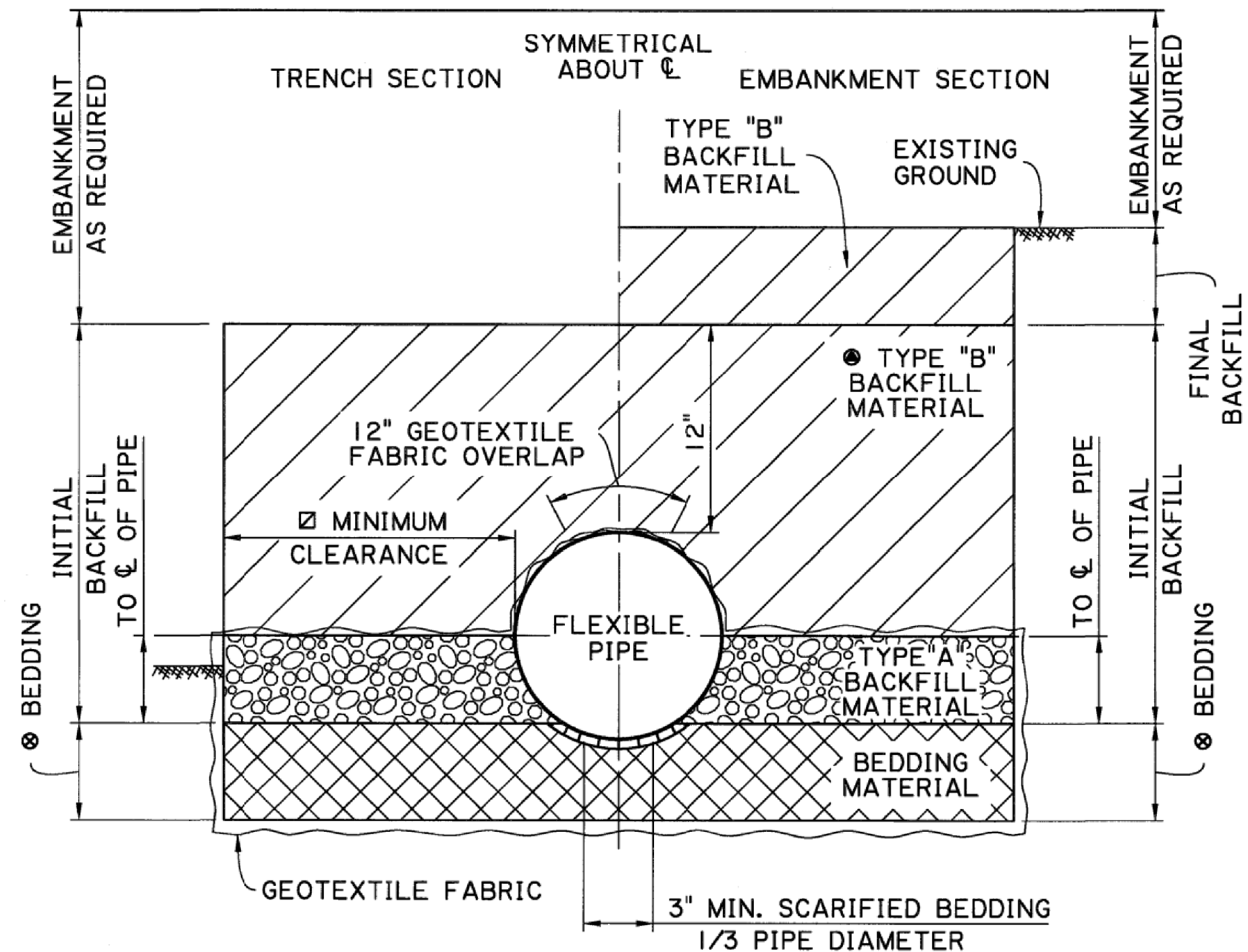
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

- MINIMUM BEDDING MATERIAL THICKNESS UNDER PIPE IS 6 INCHES UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED BY THE PE.
- ▲ THE NEED FOR BEDDING MATERIAL SHALL BE EVALUATED BEFORE IT IS USED.
- REFER TO NOTE 3 ON SHEET 1 OF THIS SERIES.



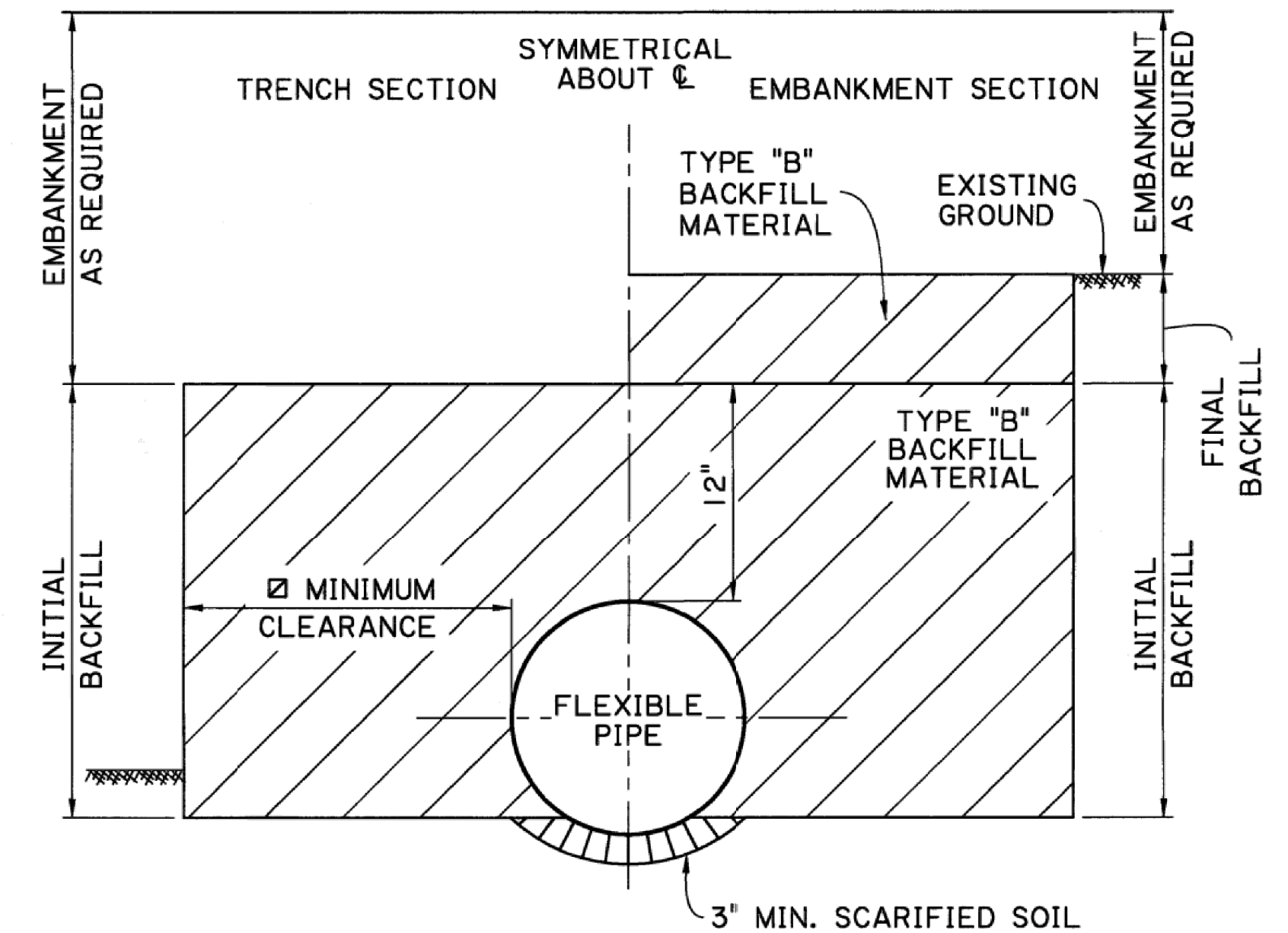
FLEXIBLE PIPE CROSS DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"



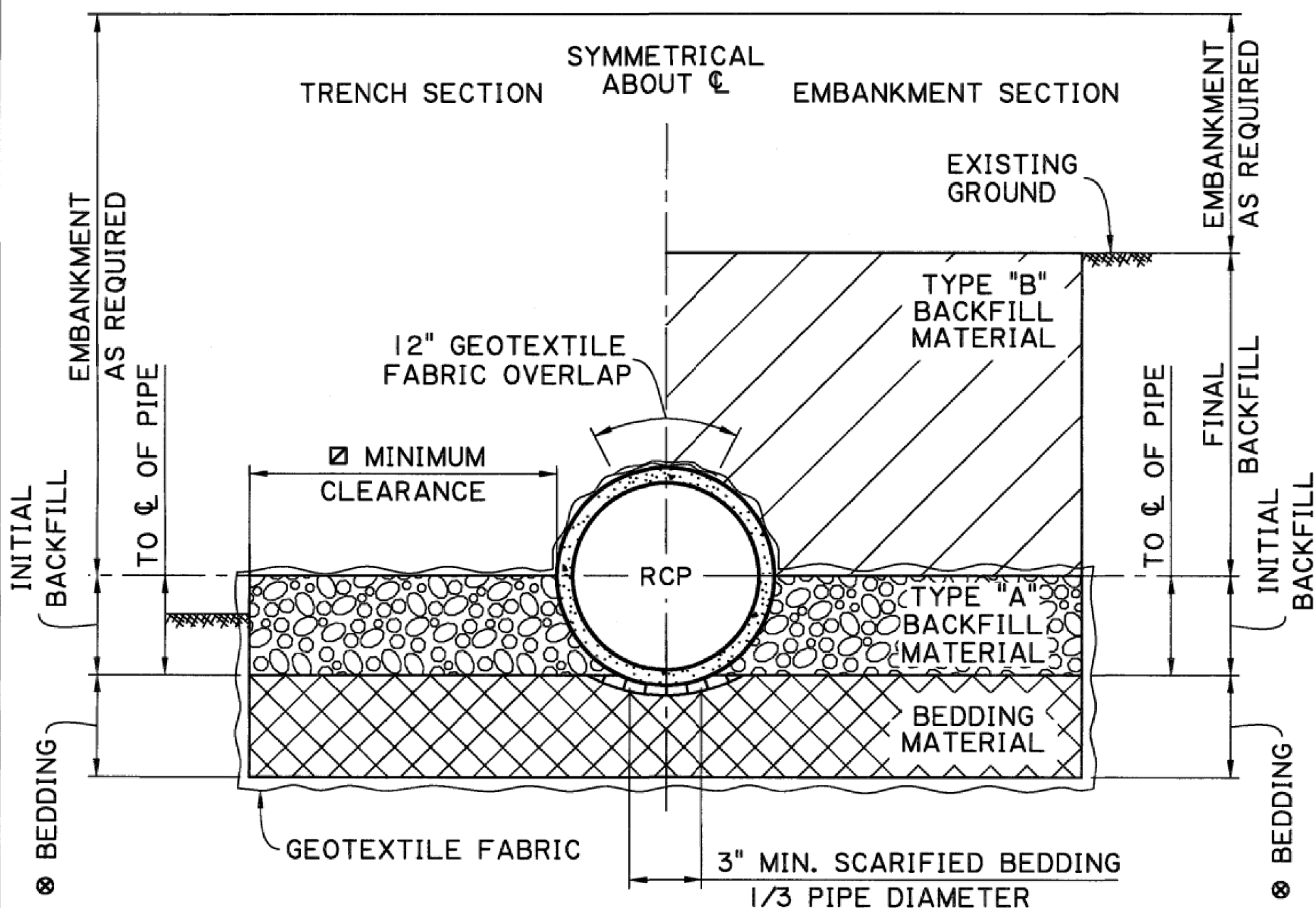
FLEXIBLE PIPE STORM DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"



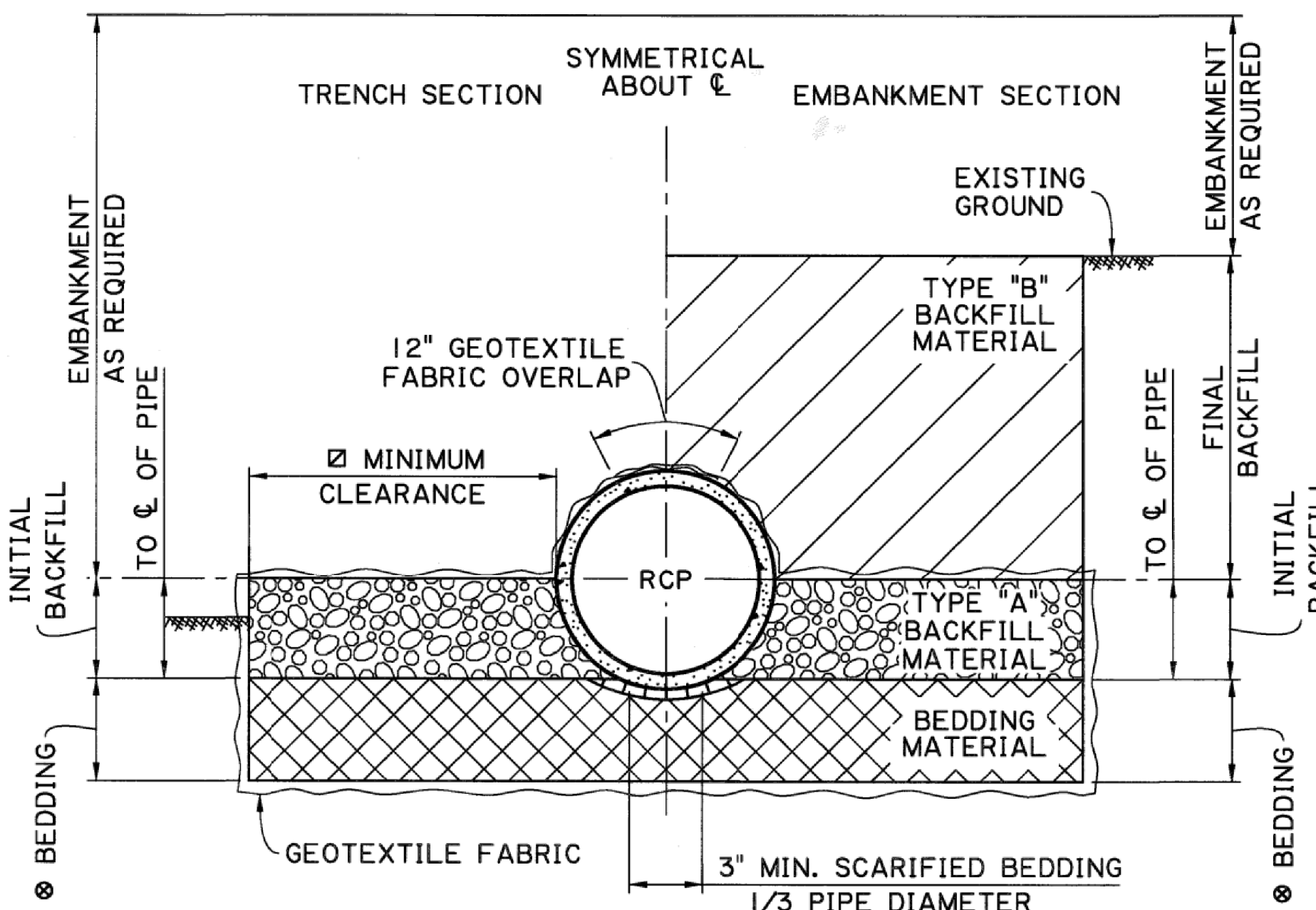
▲ FLEXIBLE PIPE SIDE DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"



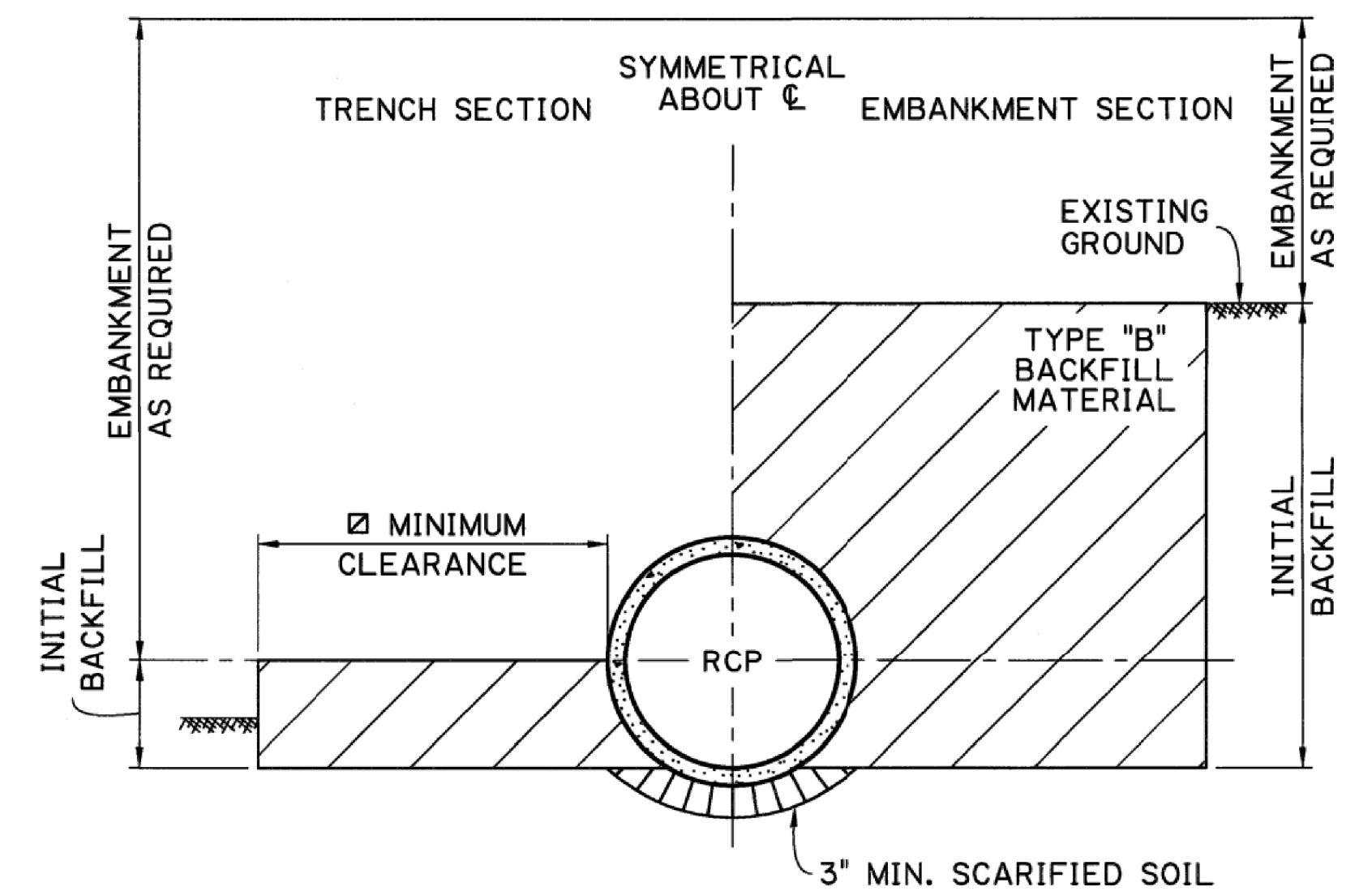
REINFORCED CONCRETE PIPE CROSS DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"



REINFORCED CONCRETE PIPE STORM DRAIN

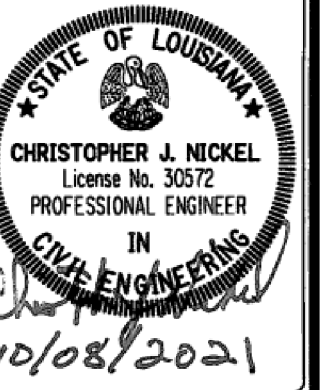
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"



▲ REINFORCED CONCRETE PIPE SIDE DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1/2"=1'-0"

DESIGN	CHECK	DETAIL	LPH	AMN	CJN	REVIEW	DATE
							10/08/2021
SERIES # 12 OF 2							



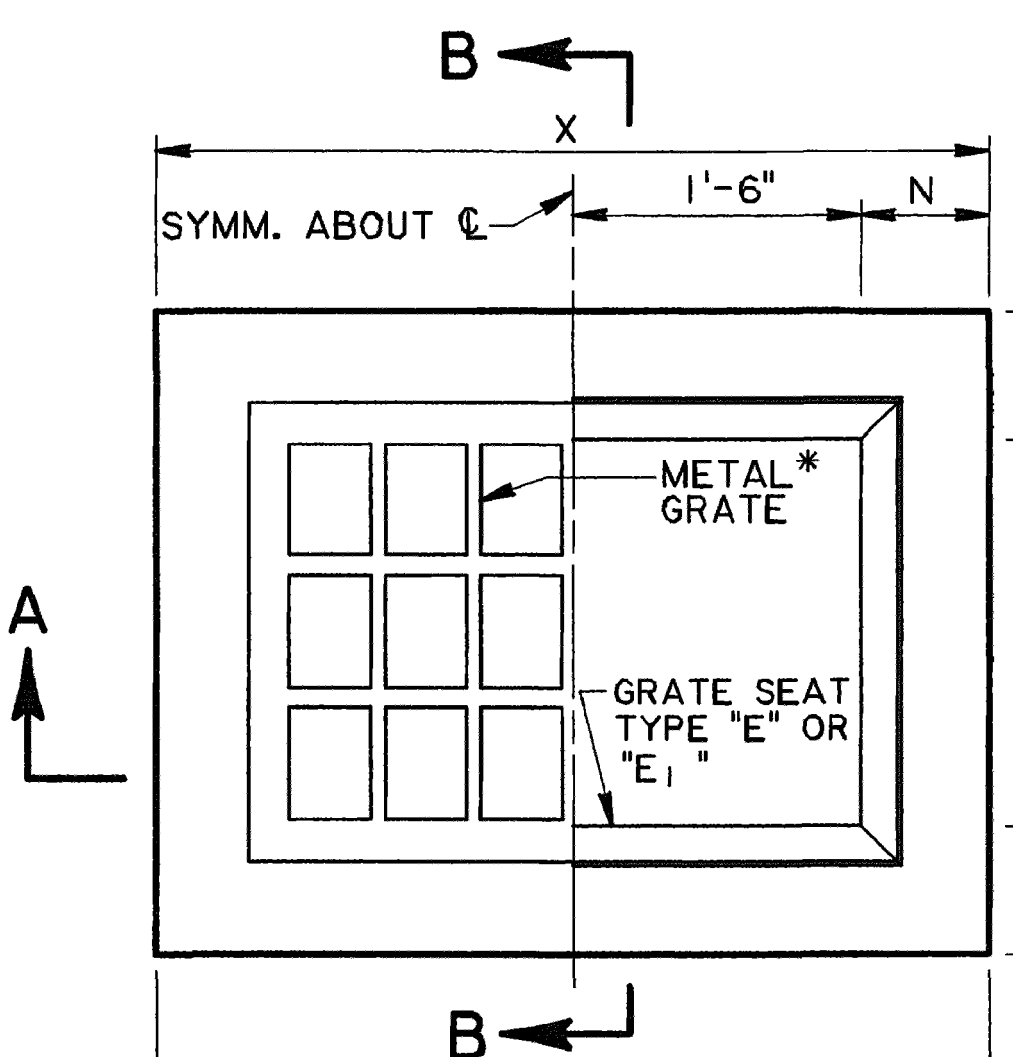
APPROVED BY CHIEF ENGINEER:
Christopher J. Nickel
DATE: 11/16/2021



DRAINAGE STRUCTURES
TYPICAL SECTIONS FOR CROSS DRAINS & SIDE DRAINS
STANDARD PLAN
BM-01



DIMENSIONS			
DEPTH OF BASIN	N	X	Y
FT.	IN.	FT.- IN.	FT.- IN.
0 - 8	7	4-2	3-2 1/4
8.1 - 12	8	4-4	3-4 1/4

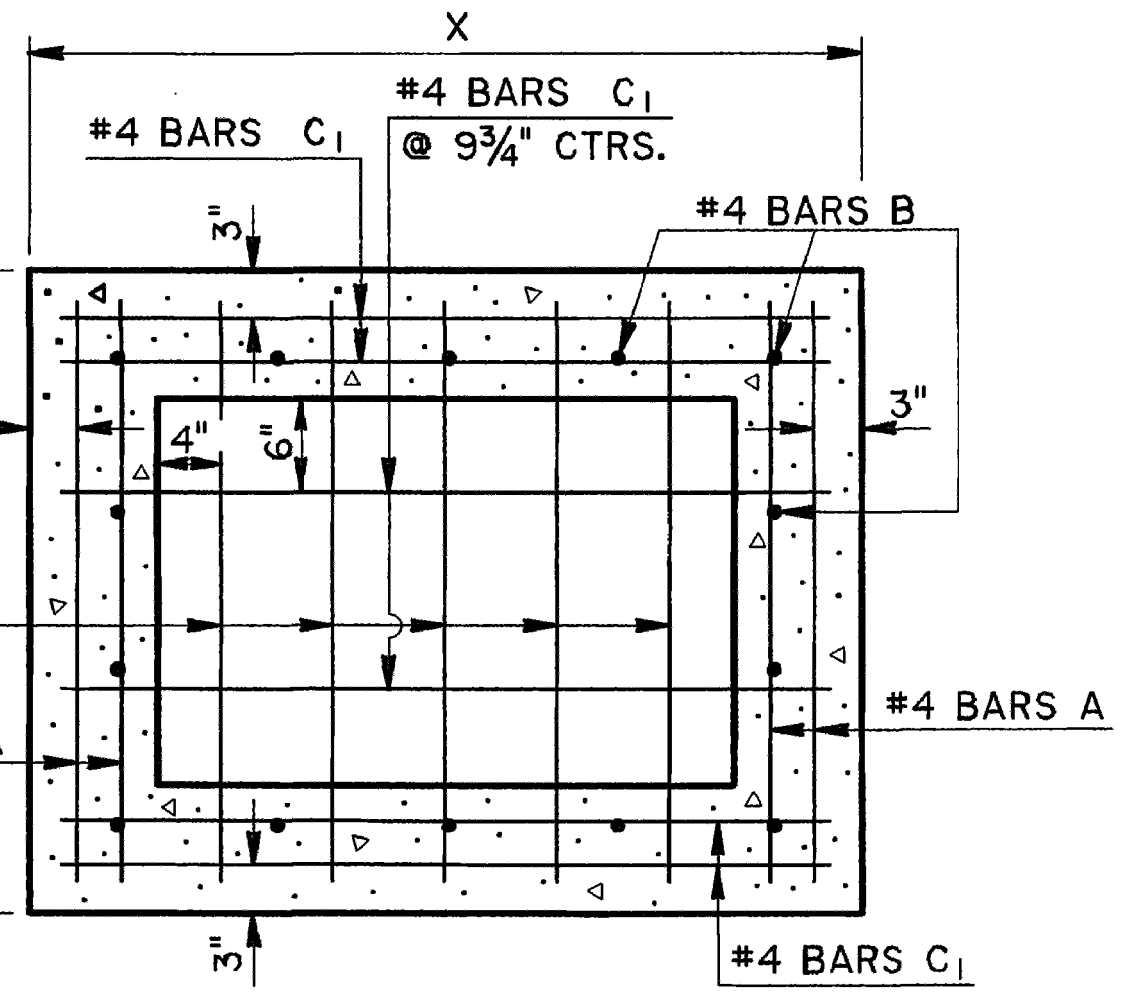


PLAN

* GRATE TO BE TYPE "B" OR "C"
TYPE "B" SHOWN.

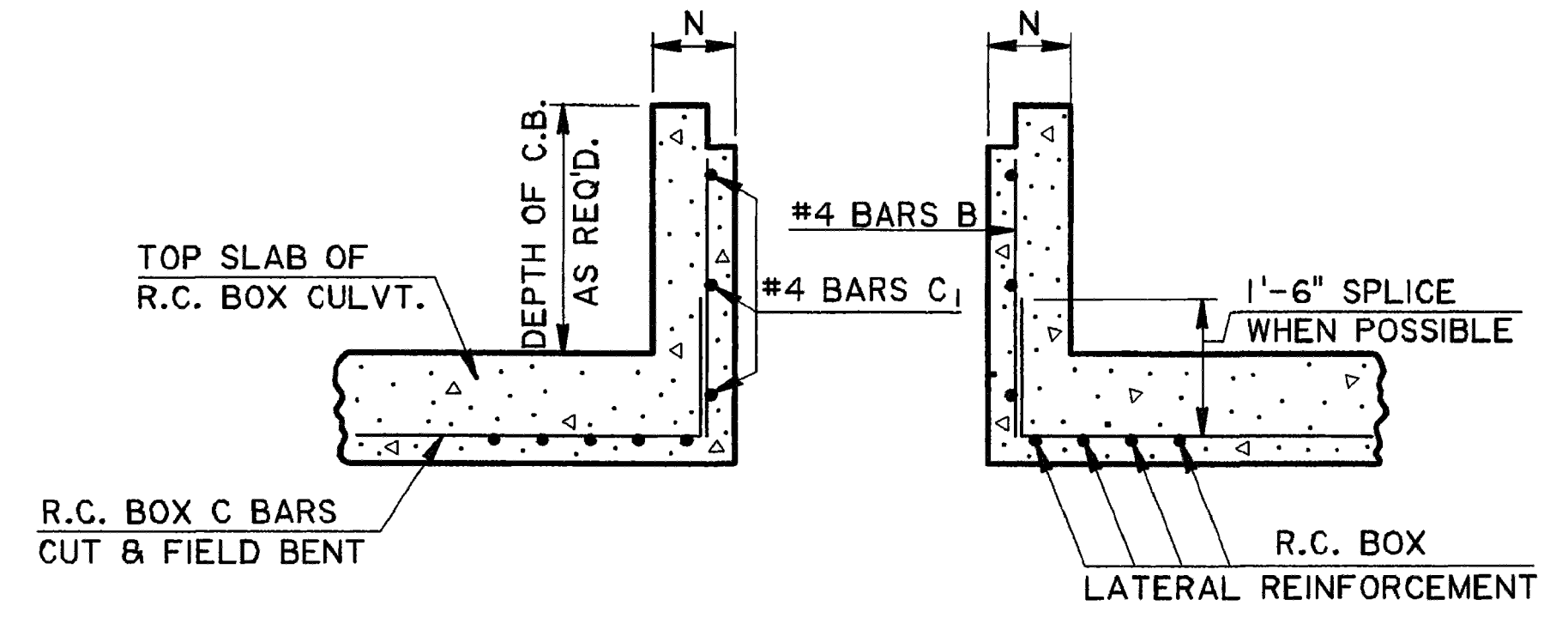
NOTE: TYPE "B" GRATE TO BE USED WHERE NO PEDESTRIAN TRAFFIC IS EXPECTED.

TYPE "C" GRATE TO BE USED WHERE PEDESTRIAN TRAFFIC IS EXPECTED.



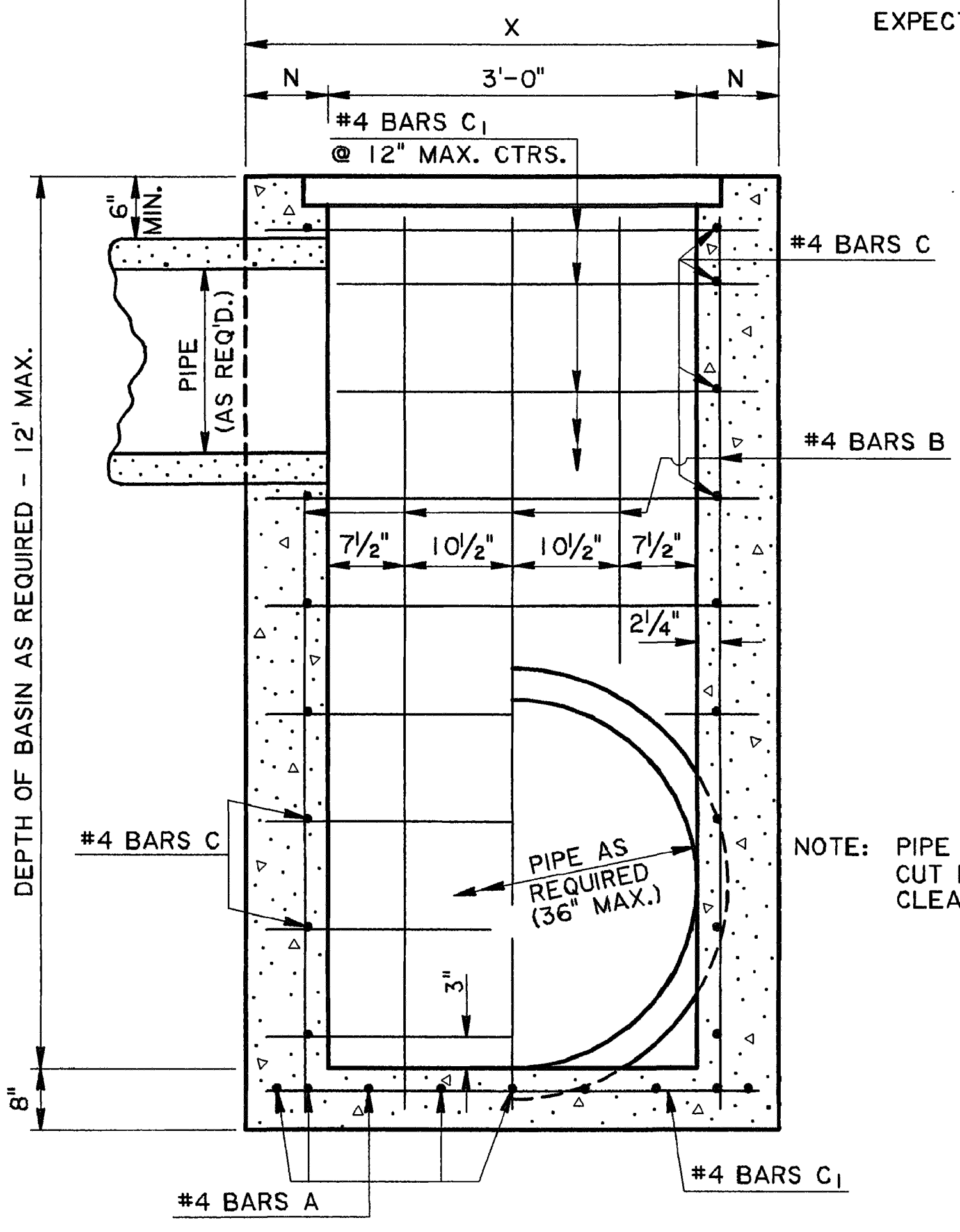
HORIZONTAL SECTION

SHOWING BOTTOM SLAB REINFORCING STEEL



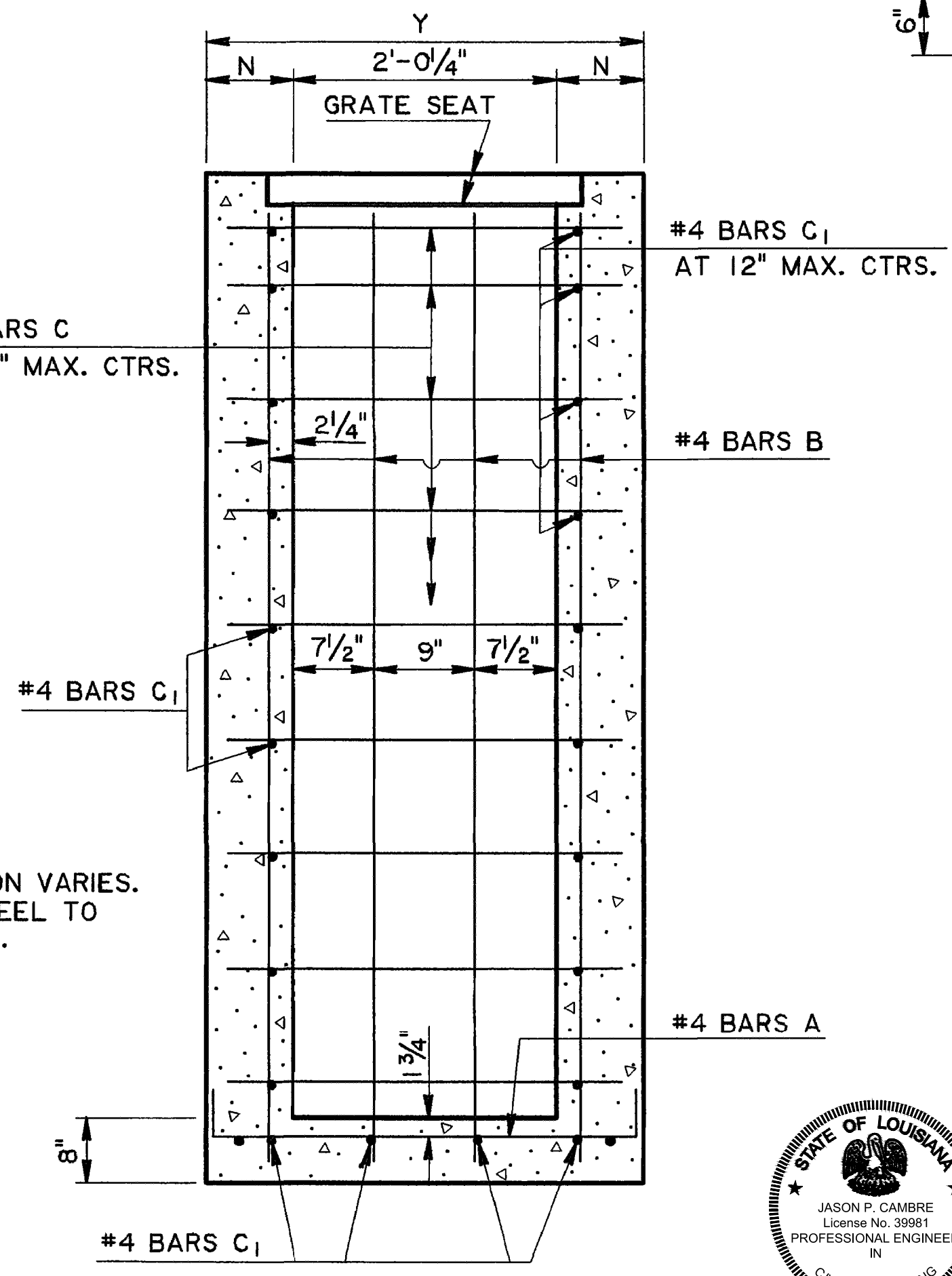
LONGITUDINAL SECTION

SHOWING CATCH BASIN USED WITH R.C. BOX CULVERT.

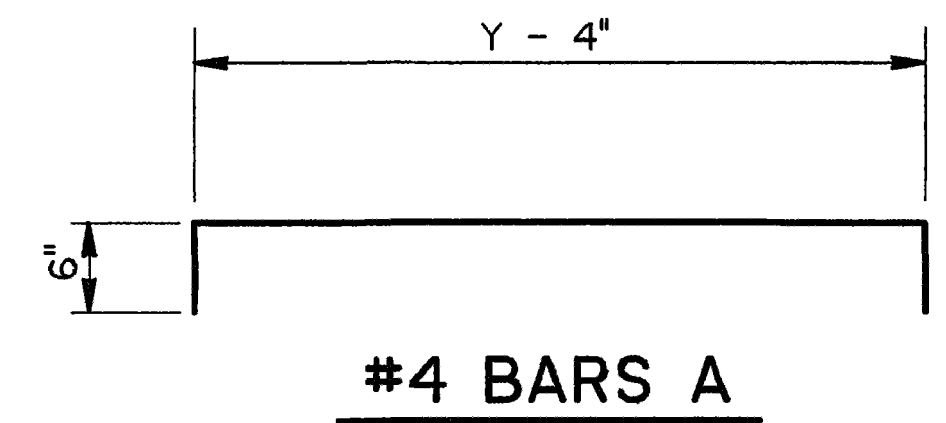


SECTION A-A

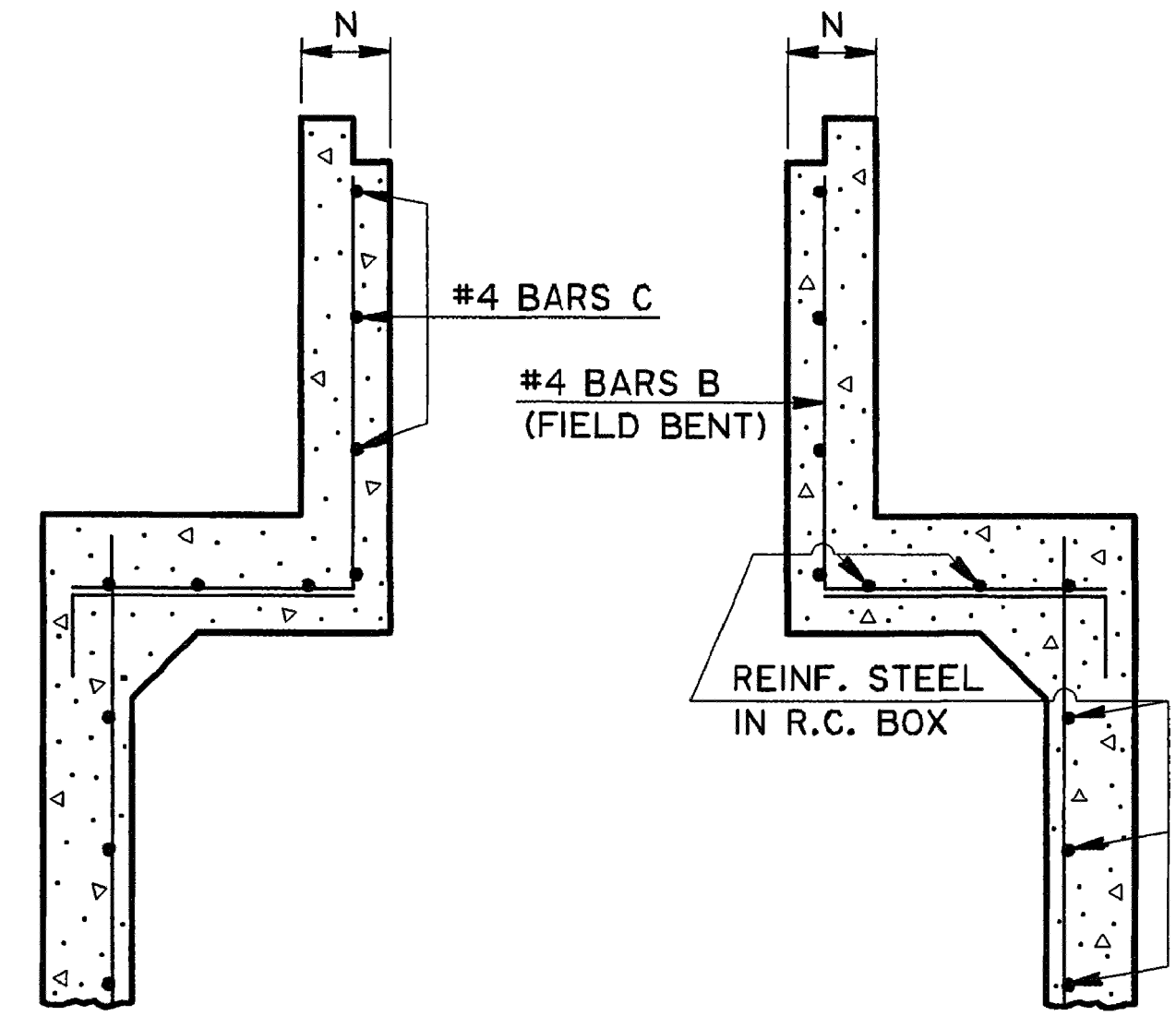
NOTE: PIPE SIZE & LOCATION VARIES. CUT REINFORCING STEEL TO CLEAR, AS REQUIRED.



SECTION B-B

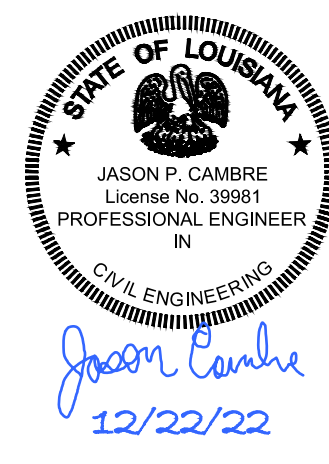


#4 BARS A



TRANSVERSE SECTION

SHOWING CATCH BASIN USED WITH R.C. BOX CULVERT.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

GENERAL NOTES:
SECTION 702 OF THE CURRENT DOTD STANDARD SPECIFICATIONS SHALL APPLY.
DIMENSIONS RELATING TO REINFORCING STEEL ARE TO BAR CENTERS.
VERTICAL REINFORCING STEEL MAY BE SPLICED. SPLICE LENGTH IS 35 DIAMETERS.
FOR DETAILS OF GRATE AND SEAT, SEE STD. PLAN MC-01 (TYPE B OR C).
SEE PLANS FOR TYPE OF GRATE TO BE USED FOR EACH CATCH BASIN.

DESIGNED BY: PAA
CHECKED BY: KAJ
DATE: 1-31-97

REVISION DESCRIPTION: 11-2-00 Converted Metric CB-01M to English CB-01
DATE: 11-2-00
APPROVED BY: [Signature]
CHIEF ENGINEER

CONCRETE OPEN TOP CATCH BASIN
Max. Pipe: 36" x 24"
Max. Depth: 12'
To Be Used in Conjunction With Std. Plan MC-01

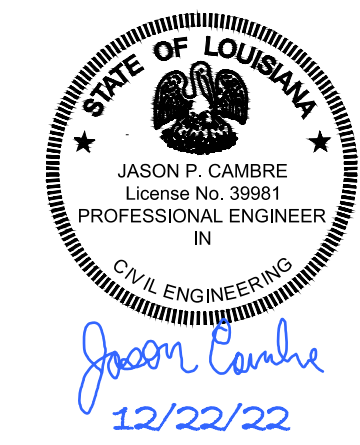
HYDRAULICS SECTION

PLAN VIEW
ROADWAY SHOWING JOINTS

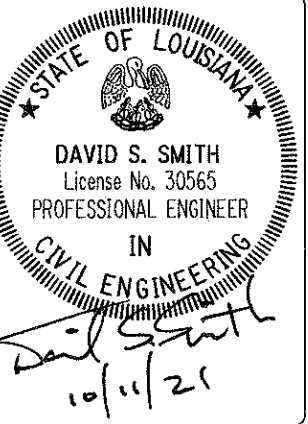
JOINT ABBREVIATIONS:

- LJ - LONGITUDINAL JOINT
- EJ - TRANSVERSE EXPANSION JOINT
- TCJ - TRANSVERSE CONTRACTION JOINT
- CJ - CONSTRUCTION JOINT
- LCJ - LONGITUDINAL CONSTRUCTION JOINT
- LBJ - LONGITUDINAL BUTT JOINT
- BJ - TRANSVERSE BUTT JOINT
- PJ - PAVEMENT EDGE SEAL JOINT

DESIGN	T. LAM	PARISH		STATE	PROJECT
CHECK	D. SMITH	CONTROL			
DETAIL	T. LAM	SECTION			
CHECK	D. SMITH				
REVIEW					
SERIES	# 1 OF 3				



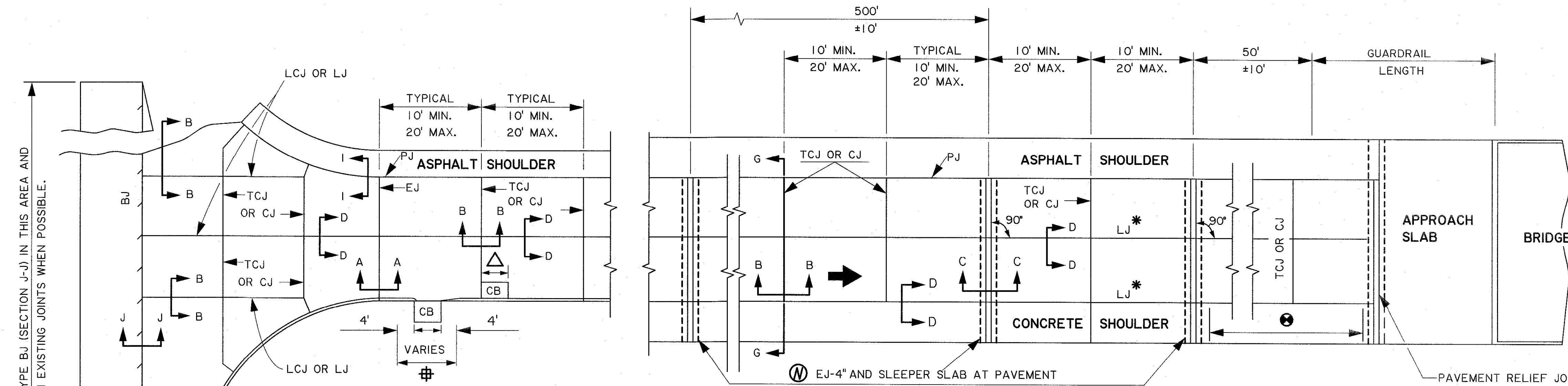
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



APPROVED BY CHIEF ENGINEER:
Christy P. Kelly
DATE: 10/13/2021



**PORTLAND CEMENT CONCRETE
PAVEMENT DETAILS**



- * USE TYPE LCJ JOINT WITH SPLIT SLAB CONSTRUCTION.
 - ⊕ WHEN POSSIBLE, AT CATCH BASINS NO JOINTS SHALL BE PLACED IN THE LIMITS SHOWN.
 - △ TRANSVERSE JOINTS NEAR CATCH BASIN (CB-07, 08 & 09) THAT EXTEND INTO THE PAVEMENT SHALL BE ADJUSTED TO COINCIDE WITH ONE EDGE OF THE CATCH BASIN OR THE CENTER OF THE CATCH BASIN. SEE DETAIL E (SHEET 3 OF 3).
 - Ⓜ SEE SECTION C-C (SHEET 2 OF 3) AND DETAIL "G" (SHEET 3 OF 3) FOR EJ-4" JOINT, SLEEPER SLAB AND DRAINAGE DETAILS. (REQUIRED (3) PLACES.)
 - ⊙ CJ OR TCJ JOINTS AT 20' MAX. CTRS.
- NOTE:** MAXIMUM JOINT SPACING AT 18' WHEN PAVEMENT IS PLACED ON PERMEABLE BASE. (SEE SECTION 307)

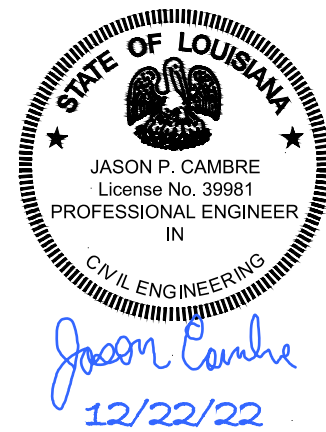
TABLE I - SCHEDULE OF DIMENSIONS
(ALL DIMENSIONS ARE IN INCHES)

SLAB THICKNESS	SMOOTH DOWEL BARS			DEFORMED TIE BARS			KEYWAY	
	SIZE (DIA.)	LENGTH	SPACING	SIZE (DIA.)	LENGTH	SPACING	A ±1/4"	B ±1/4"
8	1 1/4	18	12	1/2	24	24	2 1/2	1 1/4
9	1 1/4	18	12	1/2	24	24	2 1/2	1 1/4
10	1 1/2	18	12	1/2	24	24	2 1/2	1 1/4
11	1 1/2	18	12	5/8	30	24	2 1/2	1 1/4
12	1 1/2	18	12	5/8	30	24	3	1 1/2
13	1 1/2	18	12	5/8	30	24	3	1 1/2
14	1 1/2	18	12	5/8	30	24	3	1 1/2

NOTES:

- ① PAVEMENT EDGES SHALL BE SLIGHTLY ROUNDED (1/4" APPROX.).
- ② ASPHALT CONCRETE SHOULDER: THE SHOULDER JOINTS SHALL BE SAW CUT AND CONSTRUCTED IN ACCORDANCE WITH SECTION I-I (SHEET 2 OF 3).
- ③ FOR SECTIONS A-A THROUGH J-J (SEE SHEET 2 OF 3).
- ④ ALL JOINTS TO BE USED WHERE SHOWN ON THIS SHEET OR AS SHOWN ELSEWHERE IN THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER.
- ⑤ ON TYPE EJ ALTERNATE JOINTS, SPOT WELD ALTERNATE ENDS OF DOWEL BARS TO DOWEL BASKETS AND PLACE EXPANSION TUBES ON FREE ENDS OF DOWEL BARS.
- ⑥ FOR DESIGN SPEEDS GREATER THAN 45MPH: SAW CUT AND CONSTRUCT THE TYPE LJ, TCJ, AND CJ JOINTS AS IN DETAILS "A, B OR C" TO A DEPTH OF T/3 INCHES. THOROUGHLY CLEAN THE JOINT FACES BY SANDBLASTING; FOLLOWED BY AN OIL-FREE AIR JET IMMEDIATELY PRIOR TO SEALING WITH A Poured OR EXTRUDED SEALANT CONFORMING TO SECTION 1005.
- ⑦ FOR DESIGN SPEEDS OF 45MPH OR LESS:
 - A. SAW CUT AND SEAL TYPE LJ JOINTS AS DESCRIBED IN NOTE 6.
 - B. CONSTRUCT TYPE TCJ OR CJ JOINTS AS DESCRIBED IN NOTE 6 OR CONSTRUCT WITH A REMOVABLE FORMING DEVICE AS SPECIFIED IN DETAIL "C" (SHEET 3 OF 3). THOROUGHLY CLEAN THE JOINT FACES BY SANDBLASTING; FOLLOWED BY AN OIL-FREE AIR JET IMMEDIATELY PRIOR TO SEALING WITH A Poured OR EXTRUDED SEALANT CONFORMING TO SECTIONS 601 AND 1005. WITH A COMBINATION JOINT FORMER/SEALER AS SHOWN IN DETAIL "D" (SHEET 3 OF 3), THE SEALER SHALL CONFORM TO SECTION 1005 AND BE INSTALLED IN ACCORDANCE WITH SECTION 601 AND NO ADDITIONAL SEALANT IS REQUIRED.
- ⑧ EXCEPT AS NOTED BELOW, DOWEL BARS & TIE BARS SHALL BE HELD IN PLACE BY SUPPORTS SIMILAR TO THE ONES SHOWN, OR APPROVED EQUALS. APPROVED MECHANICAL PLACEMENT OF DOWEL BARS AND TIE BARS WILL BE ALLOWED WITH ALL PAVING METHODS.
- ⑨ INSTALL GEOTEXTILE FABRIC (TYPE B, C, OR D) UNDER ALL TCJ, CJ, AND EJ ALTERNATE JOINTS WHEN CONCRETE PAVEMENT IS PLACED ON PERMEABLE BASE. WHEN DOWEL BARS ARE MECHANICALLY IMPLANTED, THE GEOTEXTILE FABRIC SHALL BE ANCHORED TO THE BASE COURSE WITH PINS.
- ⑩ WHEN CONSTRUCTING CONCRETE CURB AND GUTTER ADJACENT TO NEW P.C.C. PAVEMENT, USE TYPE LCJ JOINT. WHEN ADJACENT TO EXISTING P.C.C. PAVEMENT, USE TYPE LBJ JOINT. THE FIRST LOAD TRANSFER DEVICE SHALL BE INSTALLED 18" FROM THE PAVEMENT EDGE.
- ⑪ TRANSVERSE EXPANSION JOINTS ARE NOT TO BE USED FOR CONSTRUCTION JOINTS.
- ⑫ CONCRETE SHOULDERS:
 - A. CONSTRUCT TCJ JOINTS IN ACCORDANCE WITH SECTION B-B (SHEET 2 OF 3).
 - B. CONSTRUCT LCJ JOINTS IN ACCORDANCE WITH TYPE LCJ DETAIL AND LJ JOINTS IN ACCORDANCE WITH TYPE LJ DETAIL. SEE SECTION D-D (SHEET 2 OF 3).
 - C. USE THE MAXIMUM SHOULDER THICKNESS WHEN DETERMINING DOWEL BAR AND TIE BAR SIZES IN TABLE I.
 - D. WHEN SKEWED JOINTS ARE USED ON MAINLINE PAVING THE SHOULDER TCJ JOINTS MAY BE SKEWED OR CONSTRUCTED AT 90°.
 - E. SHOULDER JOINTS AND JOINT MATERIALS SHALL MATCH THE MAINLINE.
 - F. HEIGHT OF DOWEL BASKET SHALL BE BASED ON THE THINNEST SHOULDER THICKNESS. VARYING HEIGHT DOWEL BASKETS WILL BE ALLOWED TO KEEP THE DOWEL BAR LOCATED WITHIN TOLERANCE.
- ⑬ TIE BARS SHALL NOT BE PLACED WITHIN 18" OF CONTRACTION OR EXPANSION JOINTS.

NOT TO SCALE

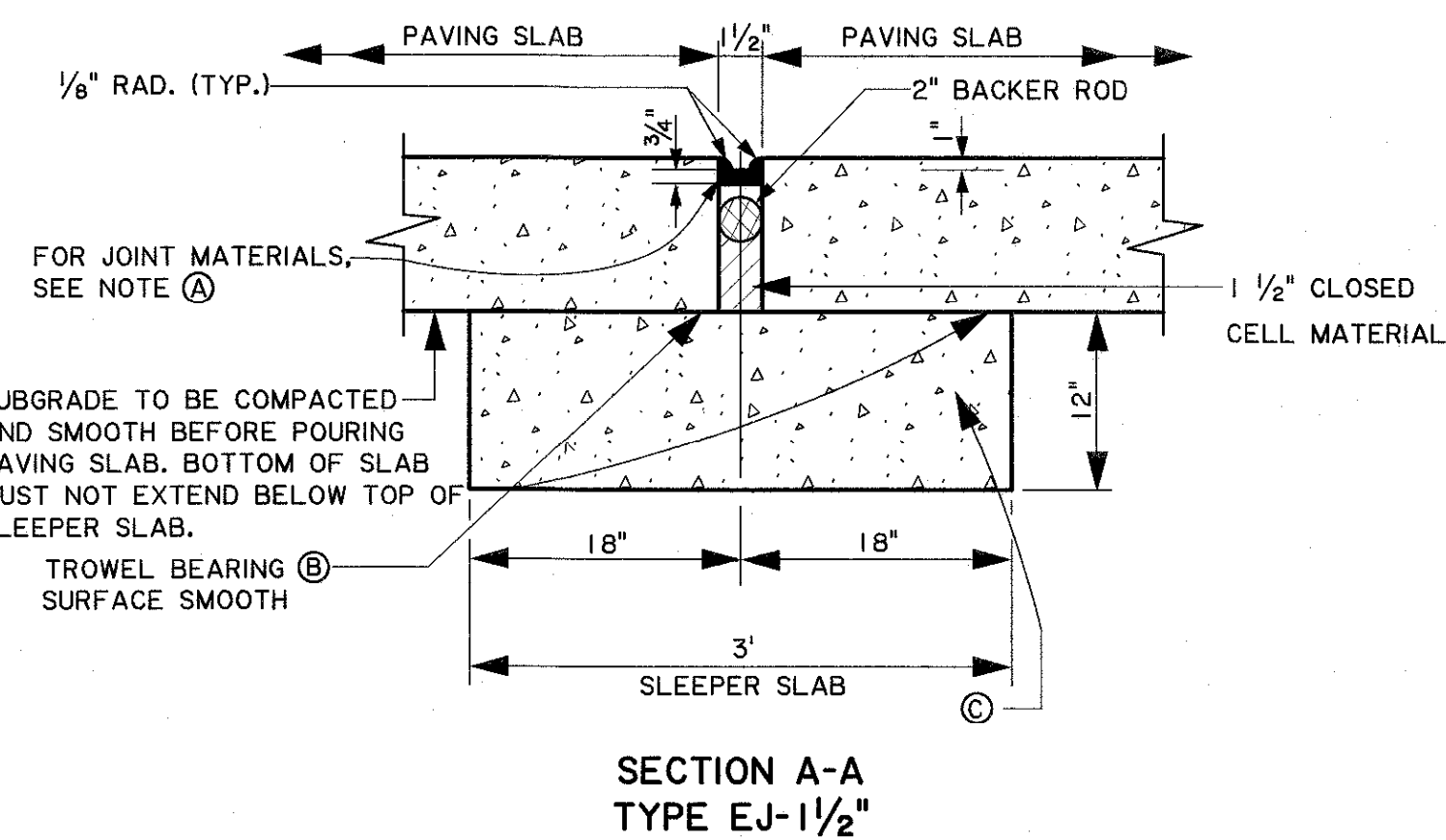


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

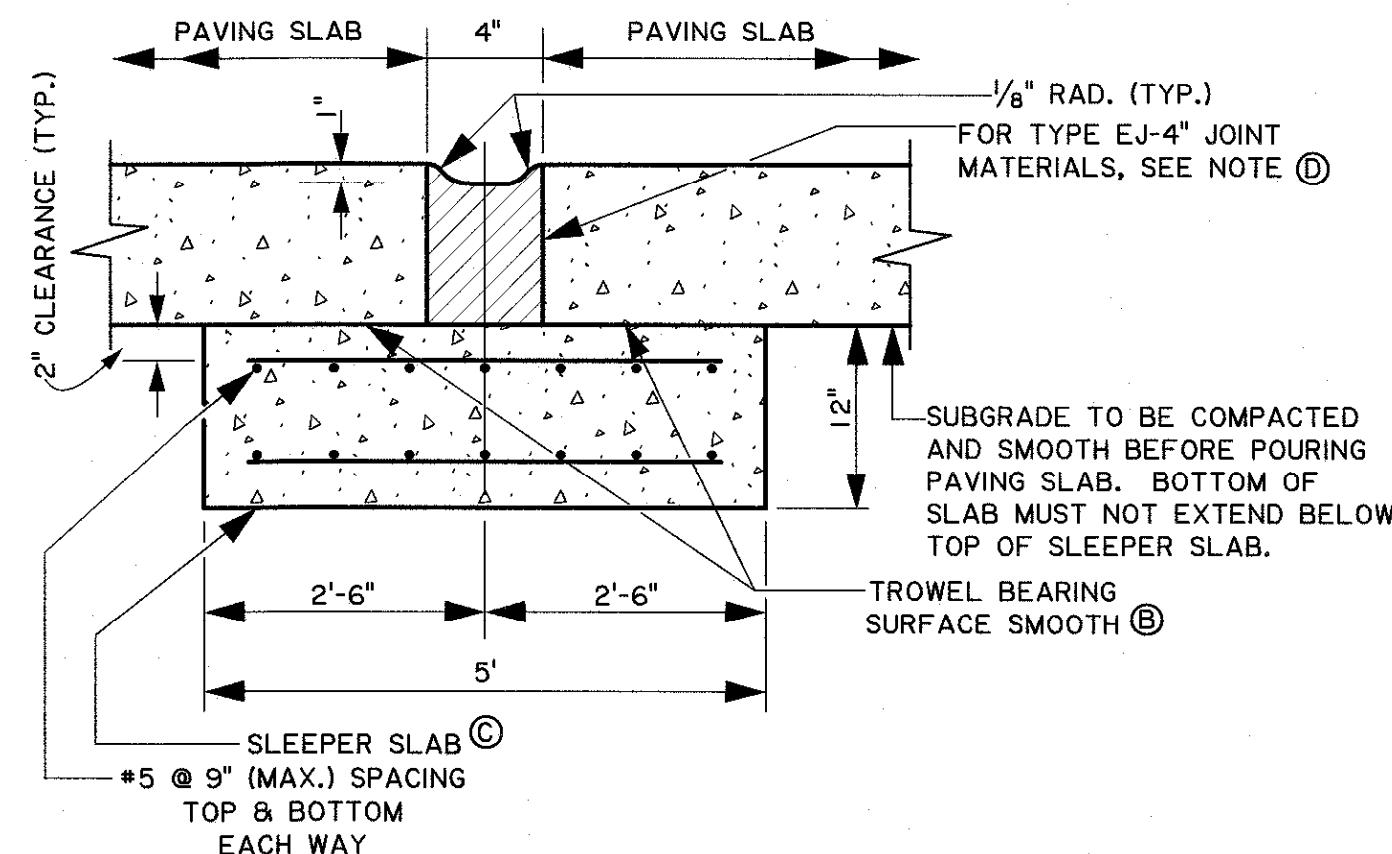
Jason Cambre
12/22/22

NOTES:

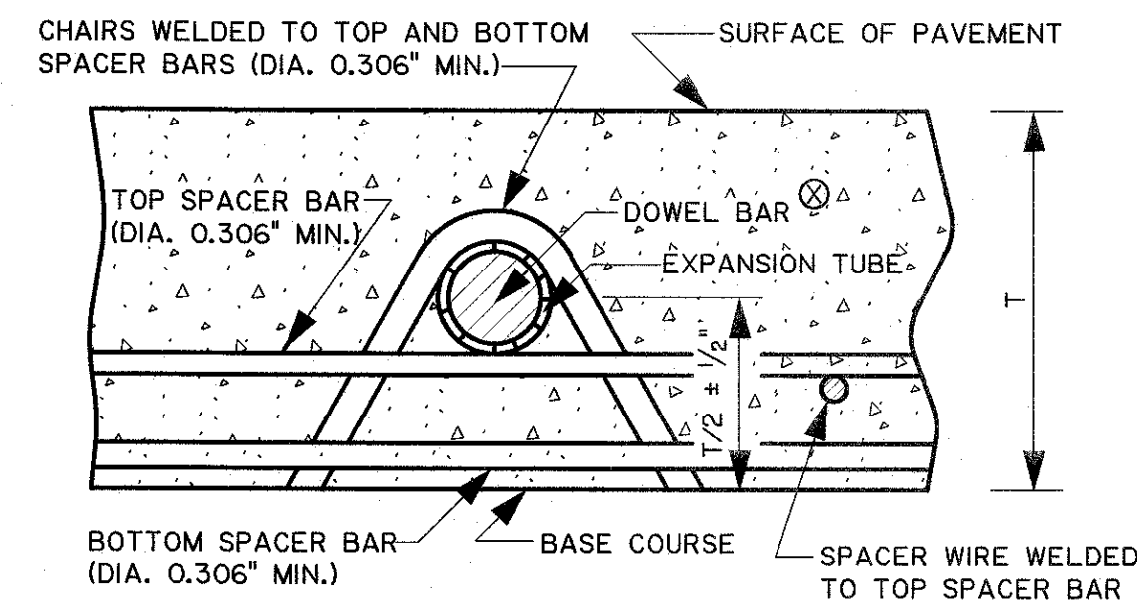
- (A) ONE OR TWO COMPONENT SILICONE CONFORMING TO SECTION 1005.
- (B) TAR PAPER EQUIVALENT TO 30 lbs./100 ft² SHALL BE PLACED BETWEEN THE SLEEPER SLAB AND THE PAVING SLAB.
- (C) SLEEPER SLAB SHALL BE CONSTRUCTED OF CLASS "A1" OR PAVEMENT TYPE CONCRETE AND INCLUDED IN THE COST OF THE PAVEMENT. PROVIDE DEFORMED GRADE 60 REINFORCING STEEL.
- (D) JOINT SHALL BE FILLED WITH A PREFORMED POLYURETHANE FOAM TYPE FILLER CONFORMING TO SECTION 1005.
- (E) SEE DETAIL "G" - EJ-4" BASE DRAIN OUTLET FOR UNDERDRAIN DETAILS (SHEET 3 OF 3)



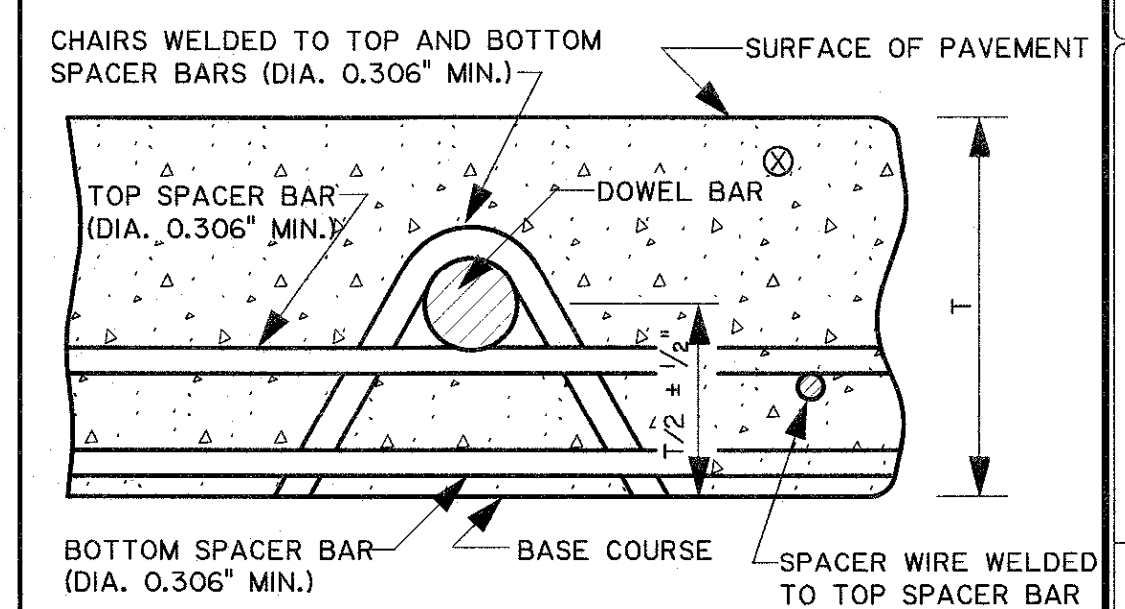
**SECTION A-A
TYPE EJ-1 1/2"**



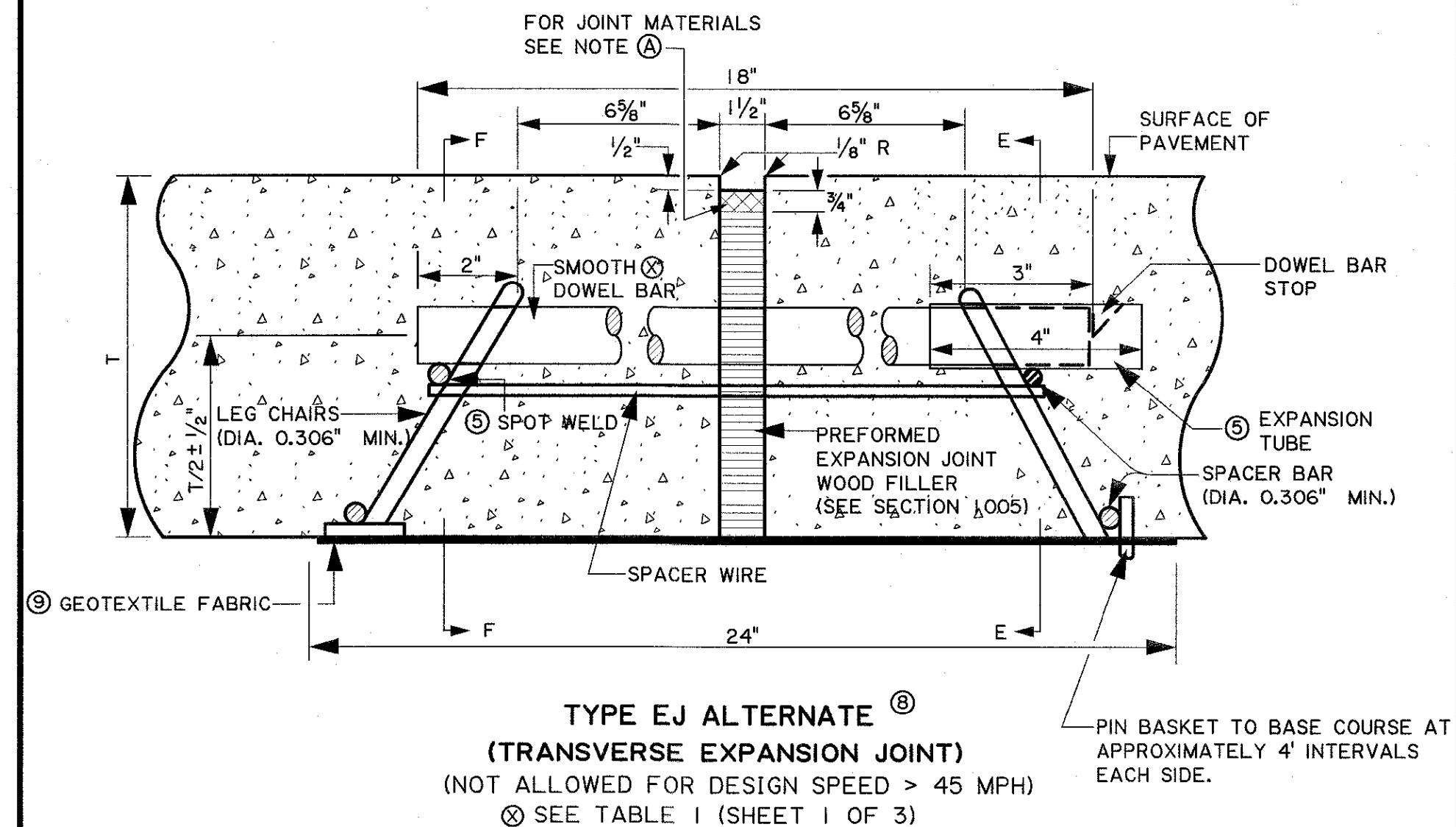
**SECTION C-C
TYPE EJ-4" JOINT
AND SLEEPER SLAB**



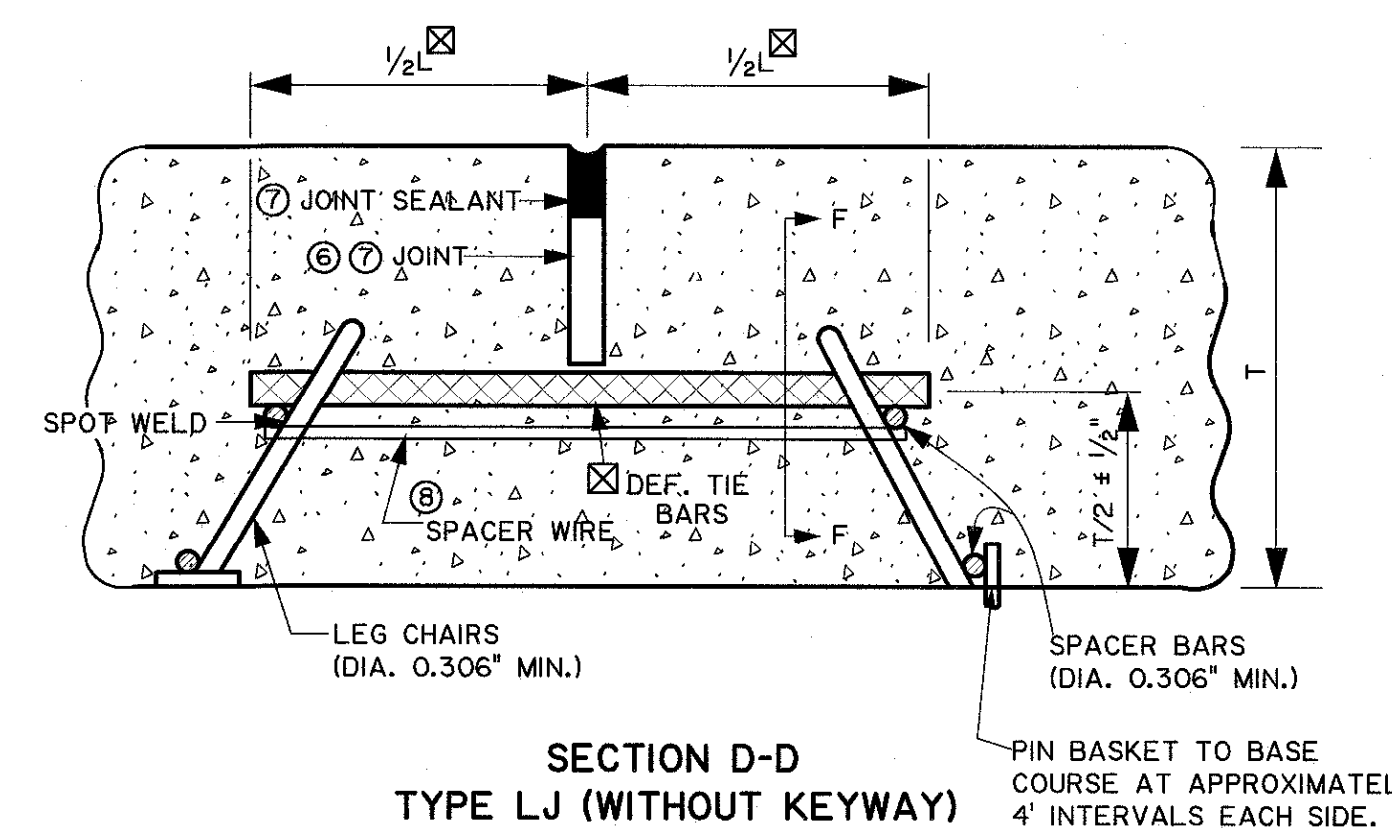
SECTION E-E
SEE TABLE I (SHEET 1 OF 3)



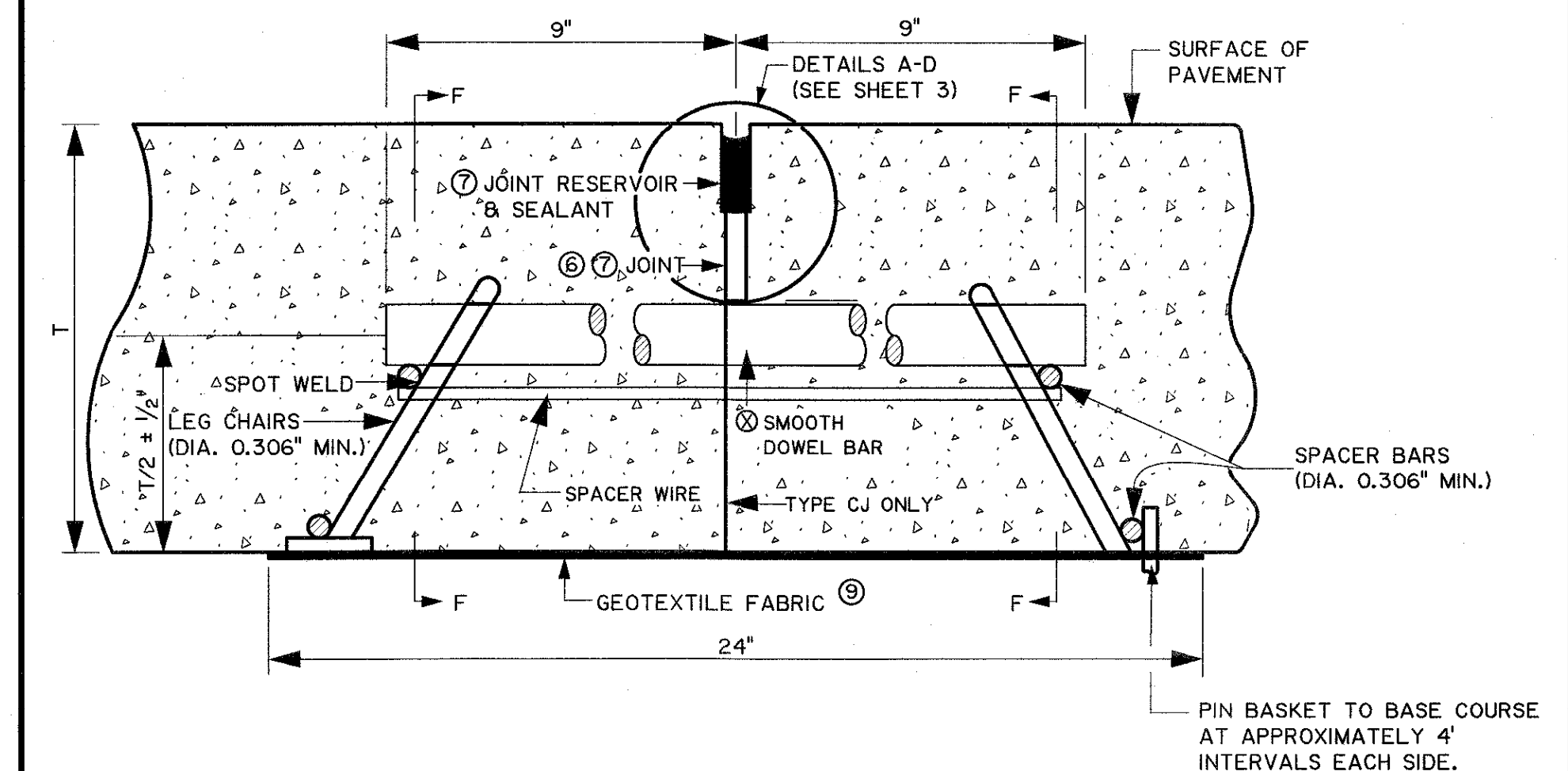
SECTION F-F
SEE TABLE I (SHEET 1 OF 3)



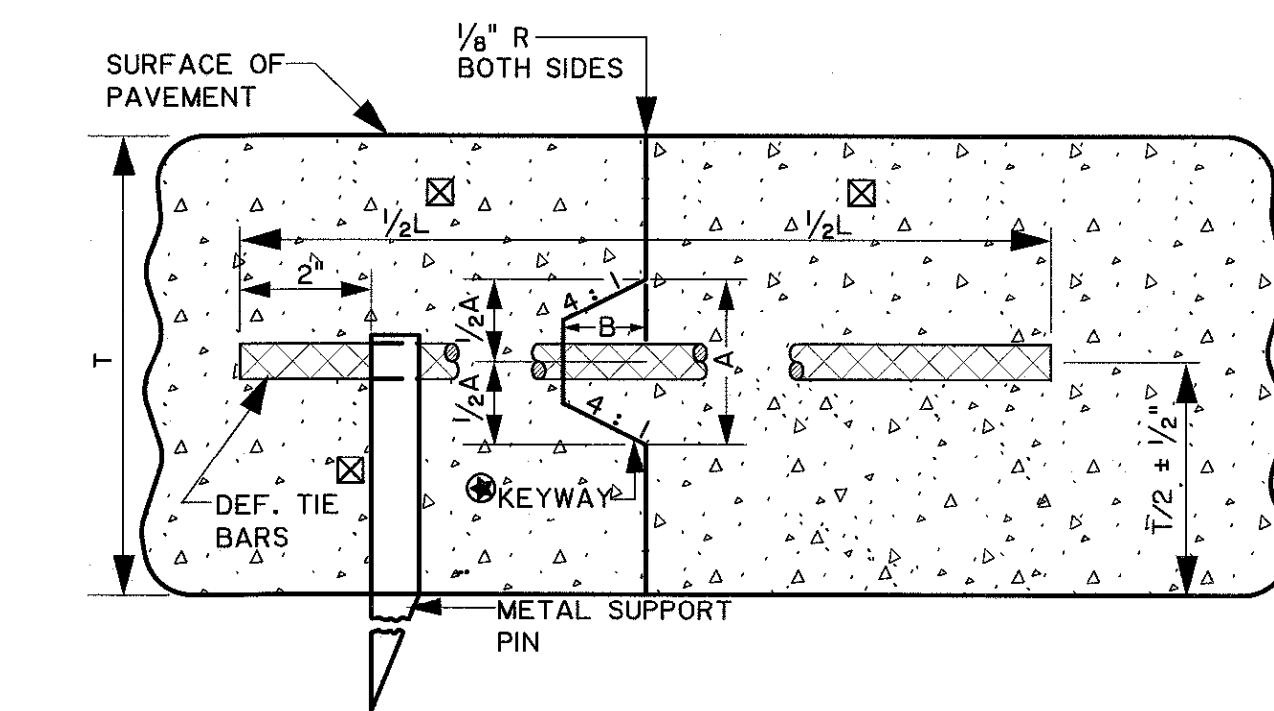
TYPE EJ ALTERNATE (TRANSVERSE EXPANSION JOINT)
(NOT ALLOWED FOR DESIGN SPEED > 45 MPH)
SEE TABLE I (SHEET 1 OF 3)



**SECTION D-D
TYPE LJ (WITHOUT KEYWAY)
(LONGITUDINAL JOINT)**
(REQUIRED WHEN PAVEMENT WIDTH EXCEEDS 15') (SEE NOTE (C))
SEE TABLE I (SHEET 1 OF 3)

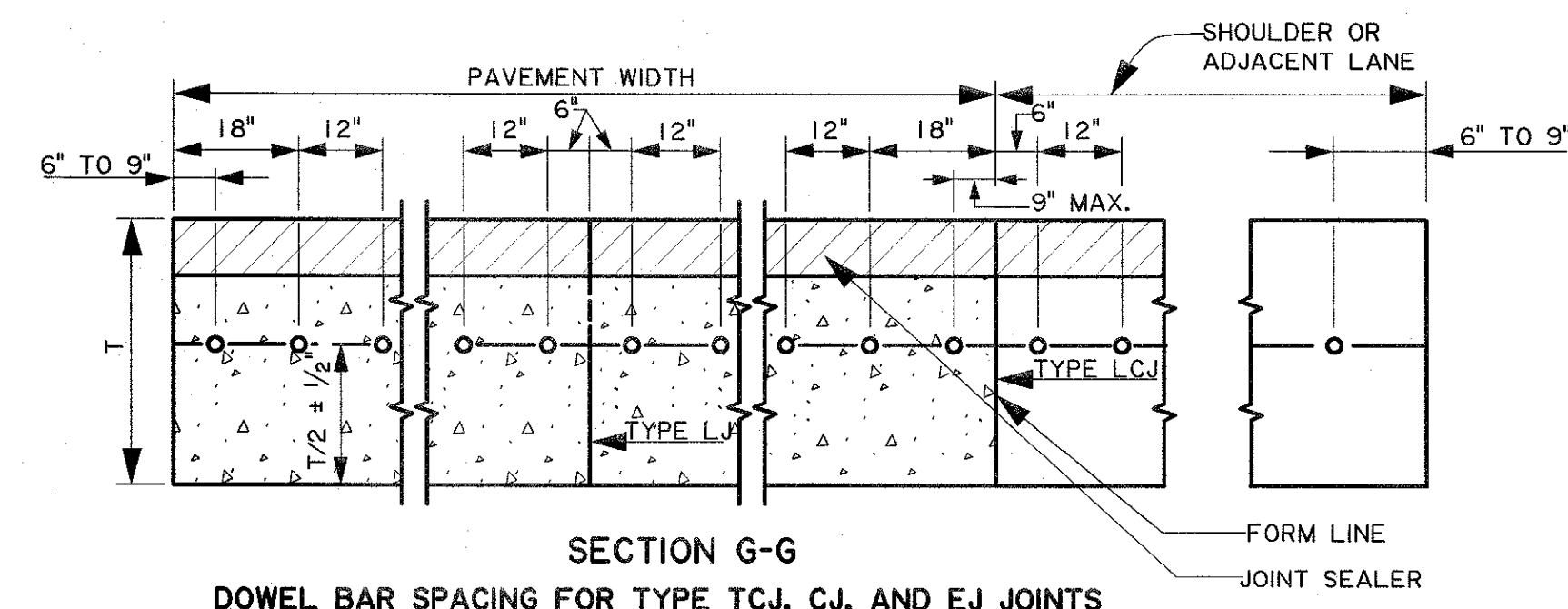


**SECTION B-B
TYPE TCJ OR CJ (TRANSVERSE CONTRACTION JOINT OR CONSTRUCTION JOINT)**
SEE TABLE I (SHEET 1 OF 3)

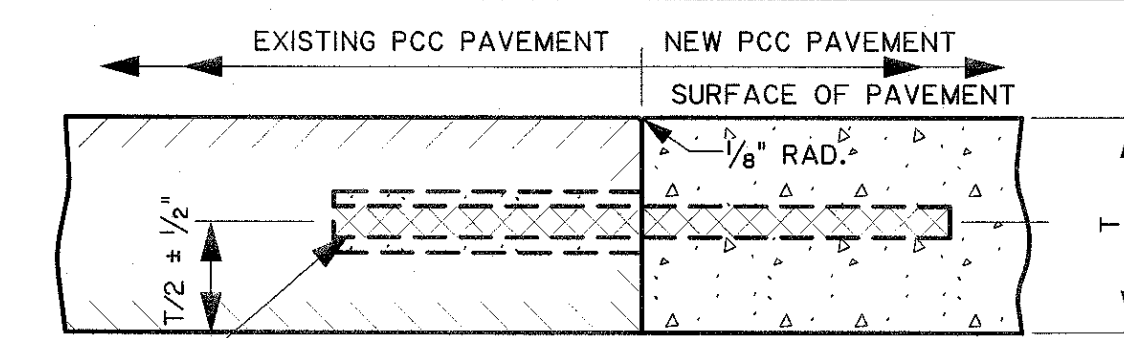


**SECTION D-D
TYPE LCJ (WITH KEYWAY)
(LONGITUDINAL CONSTRUCTION JOINT)**

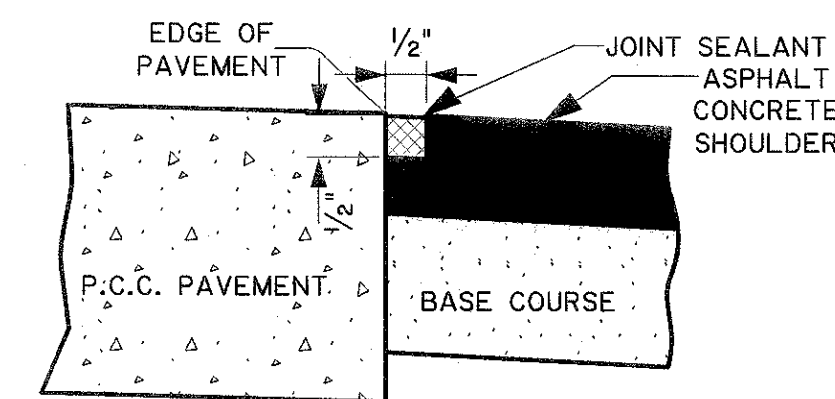
FOR KEYWAY DIMENSIONS A & B SEE TABLE I. IN LIEU OF THE KEYWAY, ONE OF THE FOLLOWING OPTIONS WILL BE ALLOWED:
A. INSTALL TIE BARS OF THE SIZE SHOWN IN TABLE I, AT 1/2 THE SPACING.
B. INSTALL TIE BARS 1/4" LARGER THAN THE TIE BAR DIAMETER SHOWN SHOWN IN TABLE I, AT THE SAME SPACING.
SEE TABLE I (SHEET 1 OF 3)



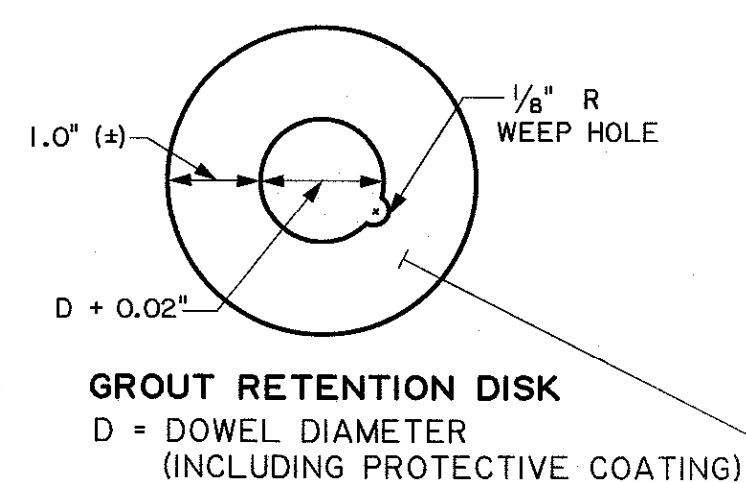
**SECTION G-G
DOWEL BAR SPACING FOR TYPE TCJ, CJ, AND EJ JOINTS**



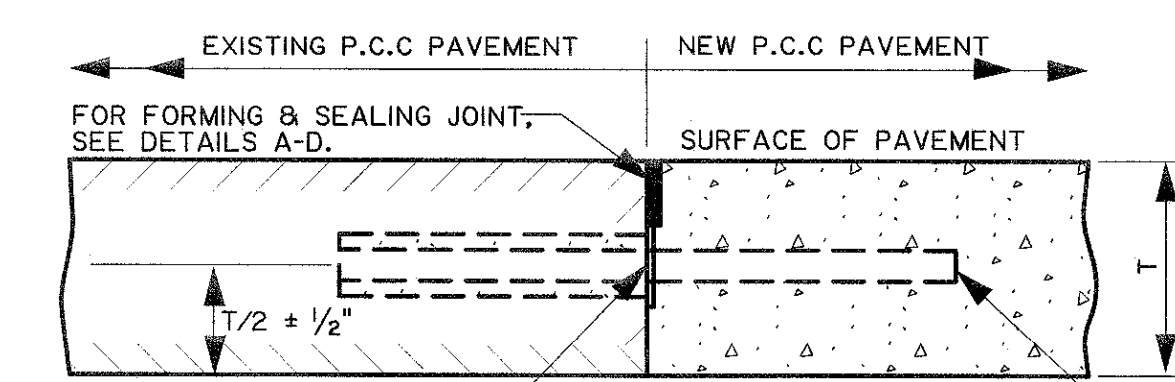
**SECTION H-H
TYPE LBJ
(LONGITUDINAL BUTT JOINT)**
DEFORMED TIE BARS OF THE SIZE, LENGTH AND ONE HALF THE SPACING SPECIFIED IN TABLE I SHALL BE USED. THE BARS SHALL BE INSTALLED IN EXISTING PAVEMENT BY DRILLING HOLES 1/8" LARGER THAN THE BAR DIAMETER TO A REQUIRED DEPTH OF 1/2 THE BAR LENGTH. THE HOLES SHALL BE DRILLED AND FILLED IN ACCORDANCE WITH SECTION 601 BEFORE INSERTION OF THE TIE BARS.



**SECTION I-I
TYPE PJ
(HOT POURED SEALANT SECTION 1005)**



GROUT RETENTION DISK
D = DOWEL DIAMETER
(INCLUDING PROTECTIVE COATING)



**SECTION J-J
TYPE BJ
(TRANSVERSE BUTT JOINT)**

SMOOTH DOWEL BARS OF THE SIZE, LENGTH AND SPACING SPECIFIED IN TABLE I SHALL BE USED. THE BARS SHALL BE INSTALLED IN EXISTING PAVEMENT BY DRILLING HOLES 1/8" LARGER THAN THE BAR DIAMETER TO A REQUIRED DEPTH OF 1/2 THE BAR LENGTH. THE HOLES SHALL BE DRILLED AND FILLED IN ACCORDANCE WITH SECTION 601 BEFORE INSERTION OF THE DOWEL BARS.

SHEET NUMBER		305	
DESIGN	T. LAM	CONTROL SECTION	STATE PROJECT
CHECK	D. SMITH	REVIEW	2 OF 3
DETAIL	T. LAM	SERIES #	
CHECK	D. SMITH		
REVIEW			
SERIES #			

APPROVED BY CHIEF ENGINEER:
Christoph P. Heitsch
DATE: 10/13/2021

STATE OF LOUISIANA
DAVID S. SMITH
License No. 35365
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
10/11/21

PORTLAND CEMENT CONCRETE PAVEMENT DETAILS

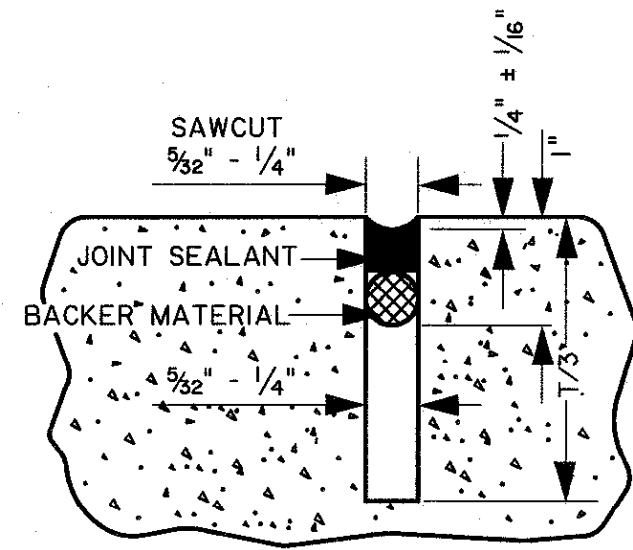
STANDARD PLAN CP-01

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

ROAD DESIGN

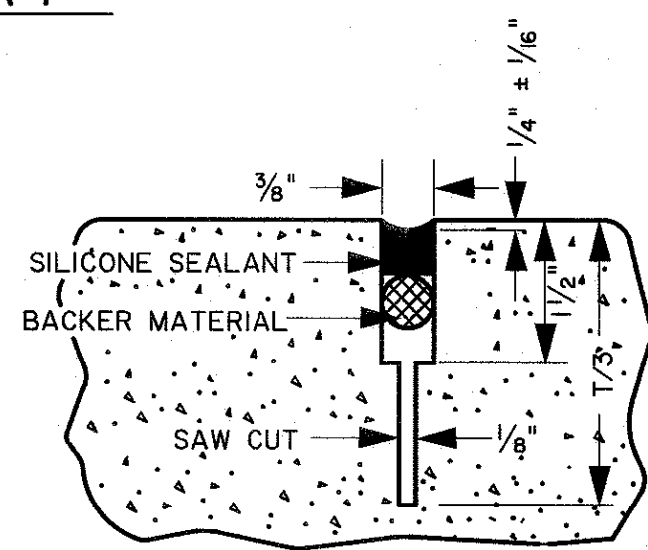
NOT TO SCALE

DETAILS "A-F"



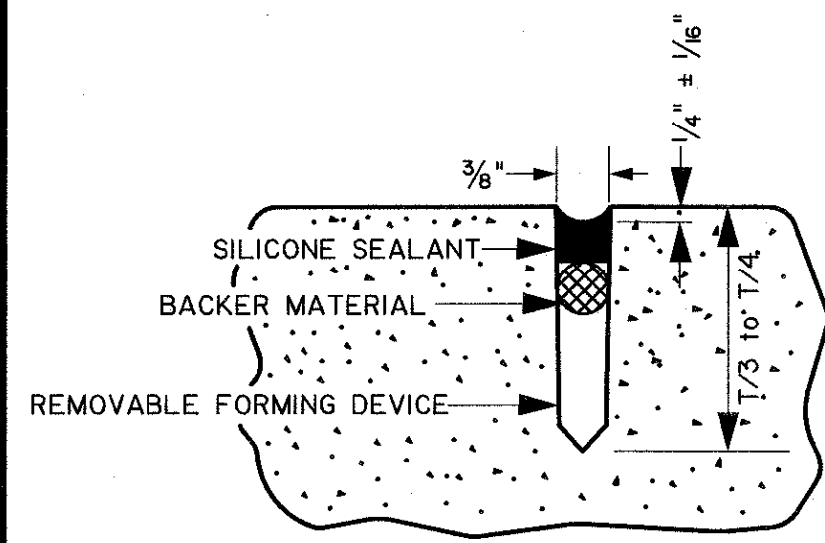
DETAIL "A"

USE THIS DETAIL IN CONJUNCTION WITH TYPE TCJ (SECTION B-B) AND TYPE LJ JOINT (SECTION D-D) AND NOTES ⑥ & ⑦ ON SHEET #1.



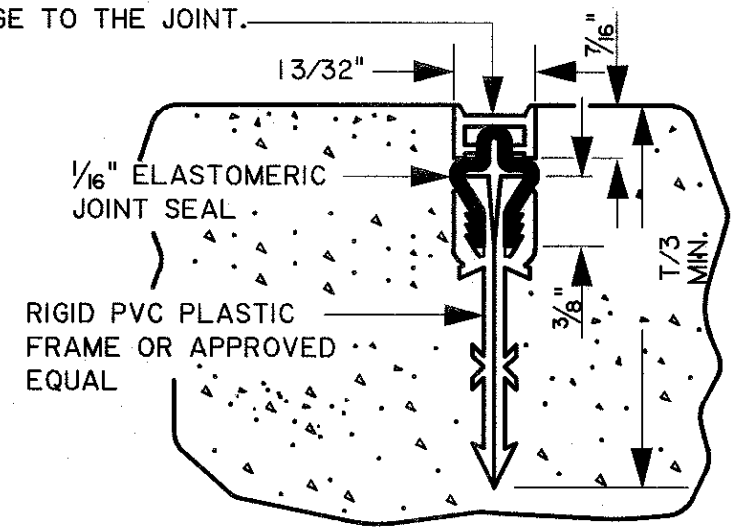
DETAIL "B"

REMOVE CAP AFTER CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT REMOVAL WITHOUT DAMAGE TO THE JOINT.



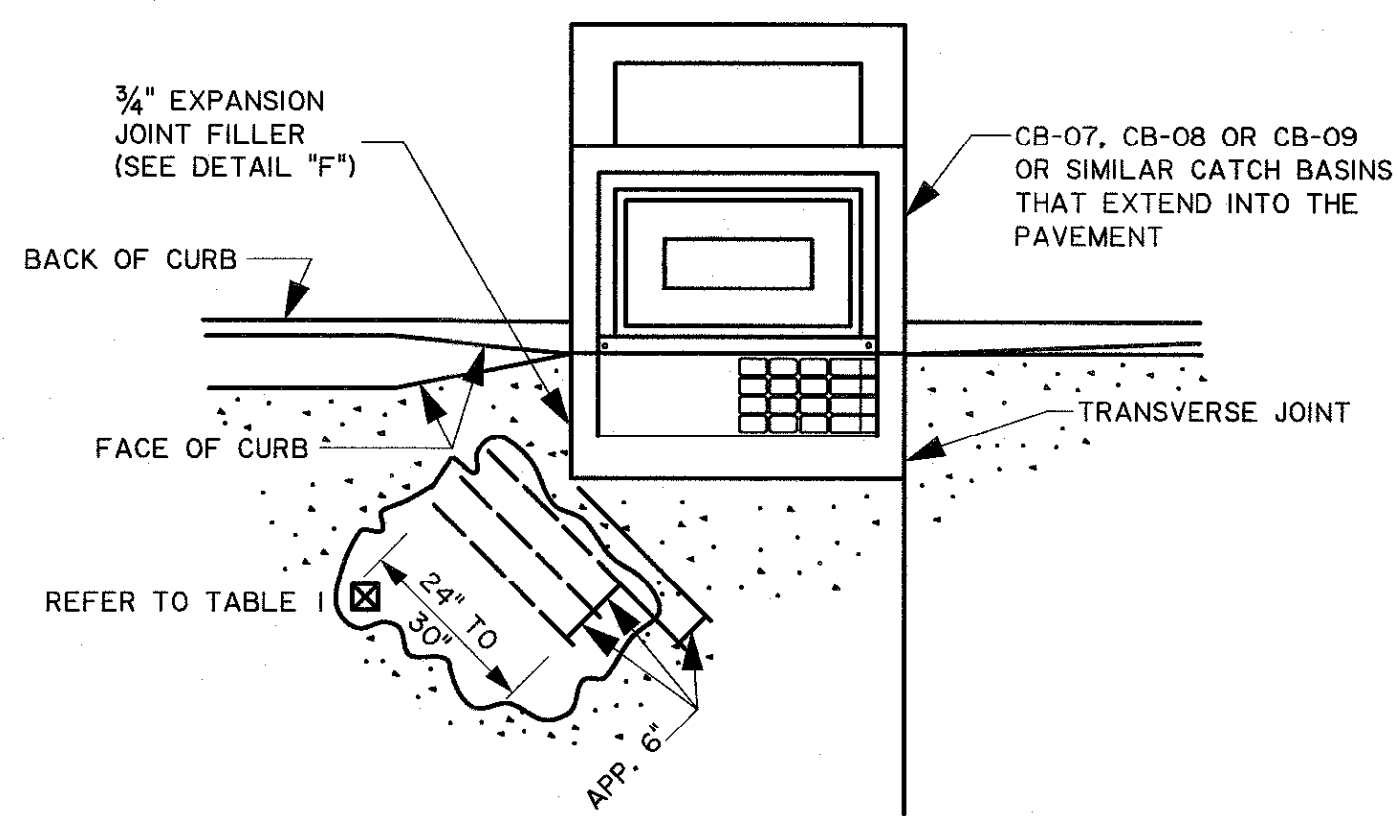
DETAIL "C"

NOT ALLOWED FOR DESIGN SPEEDS GREATER THAN 45 MPH.



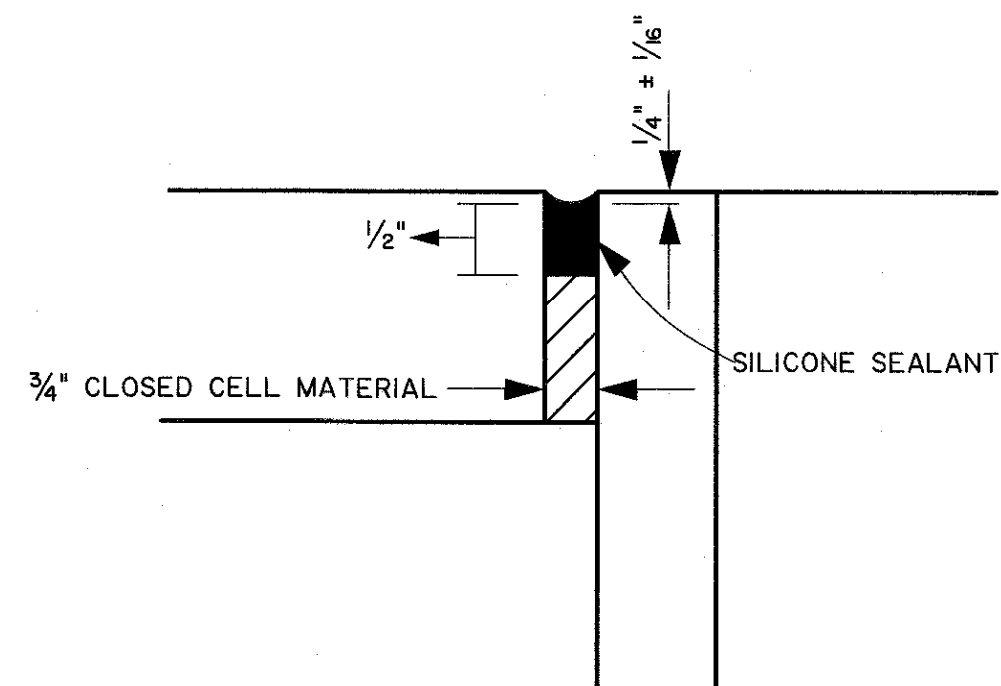
DETAIL "D"

NOT ALLOWED WHEN THE PAVEMENT IS PLACED ON PERMEABLE BASES
NOT ALLOWED FOR DESIGN SPEEDS GREATER THAN 45 MPH.



DETAIL "E"

TRANSVERSE JOINT AT CATCH BASIN



DETAIL "F"

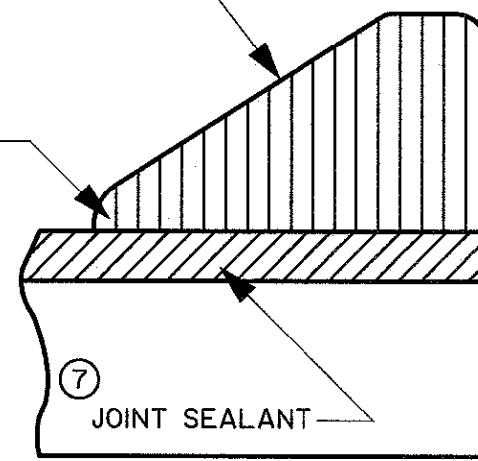
AFTER CATCH BASIN TOP IS POURED, THE TOP OF THE 3/4" JOINT FILLER IS TO BE REMOVED TO THE DEPTH SHOWN PRIOR TO SEALING. THE CURB FACES ADJACENT TO THE BASIN SHALL ALSO BE SEALED. JOINT FACES SHALL BE CLEANED IN ACCORDANCE WITH SECTION 601.

NOTE: SEE STANDARD PLAN DW-01 AND PLANS FOR CURB PLACEMENT DETAILS.

NOTE:

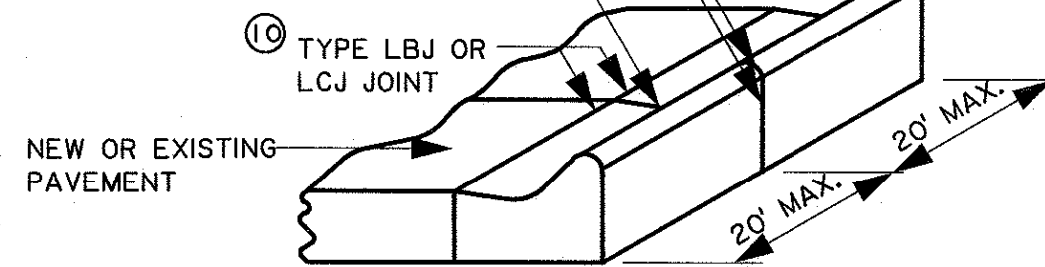
WHEN CURB IS POURED MONOLITHICALLY WITH PAVEMENT, THE BITUMINOUS PREFORMED EXPANSION JOINT FILLER SHALL EXTEND TO THE TOP OF JOINT INSERT. WHEN TRANSVERSE JOINTS ARE CONSTRUCTED BY SAWING, THE INITIAL SAW CUT SHALL EXTEND THRU THE CURBED SECTION (CURB AND UNDERLYING PAVEMENT). THE SUBSEQUENT WIDENING CUT FOR THE JOINT SEALANT RESERVOIR SHALL EXTEND INTO THE CURB FOR A DISTANCE NECESSARY TO ENSURE THE SPECIFIED RESERVOIR DEPTH IS BEING MAINTAINED AT THE GUTTER LINE. ALL CURB FACES REGARDLESS OF CURB TYPE SHALL BE SEALED WHEN TRANSVERSE JOINT IS SAWED THROUGH CURB.

3/8" BITUMINOUS PREFORMED EXPANSION JOINT FILLER

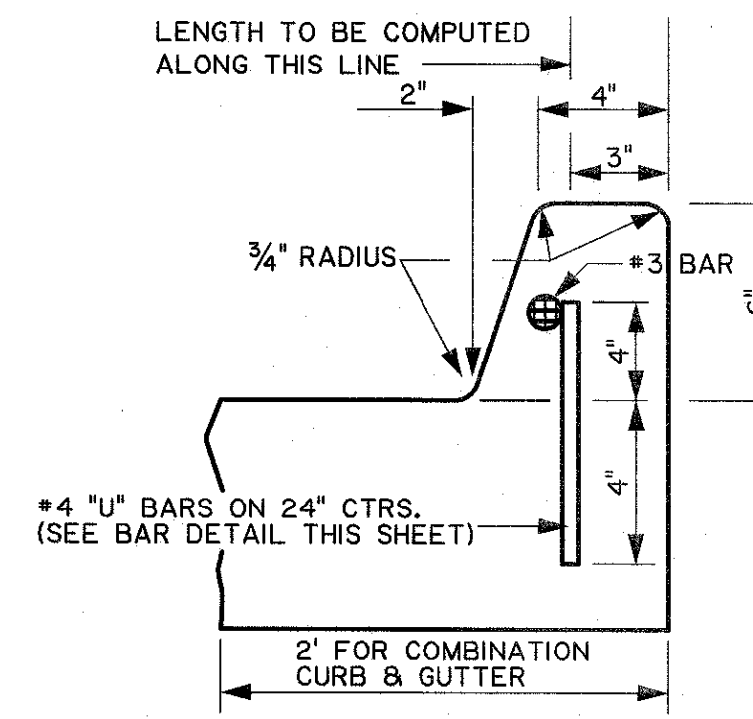


JOINT FILLER DETAIL FOR INTEGRAL CONCRETE CURB (MOUNTABLE OR BARRIER TYPE)

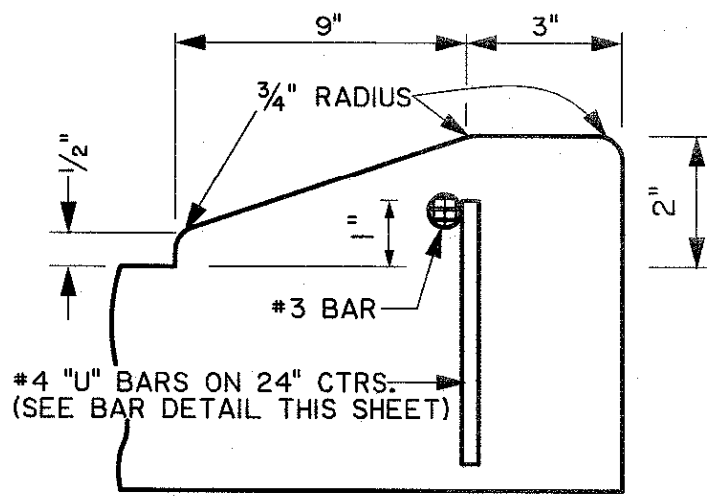
WHEN SLIP-FORM SYSTEM IS USED, THIS FACE TO BE TROWEL CUT TO A DEPTH OF 3" (APPROX.), THEN SCORED WITH A 1" SCORING TOOL AT 20' MAXIMUM INTERVALS OR TO MATCH ROADWAY JOINTS.



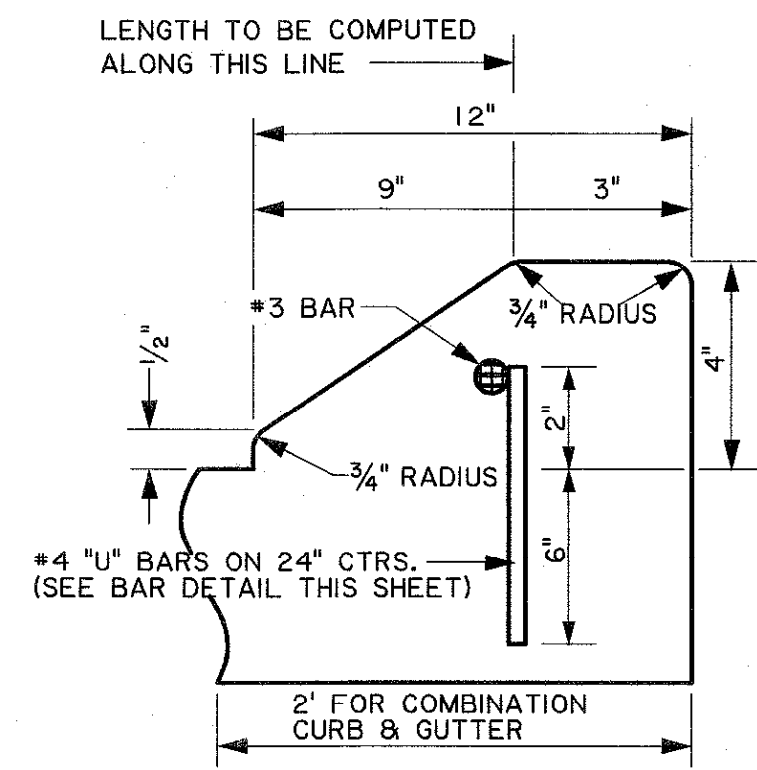
DETAIL SHOWING JOINTS IN CONCRETE CURB AND GUTTER (EXTEND ALL TCJ THROUGH CURB & GUTTER)



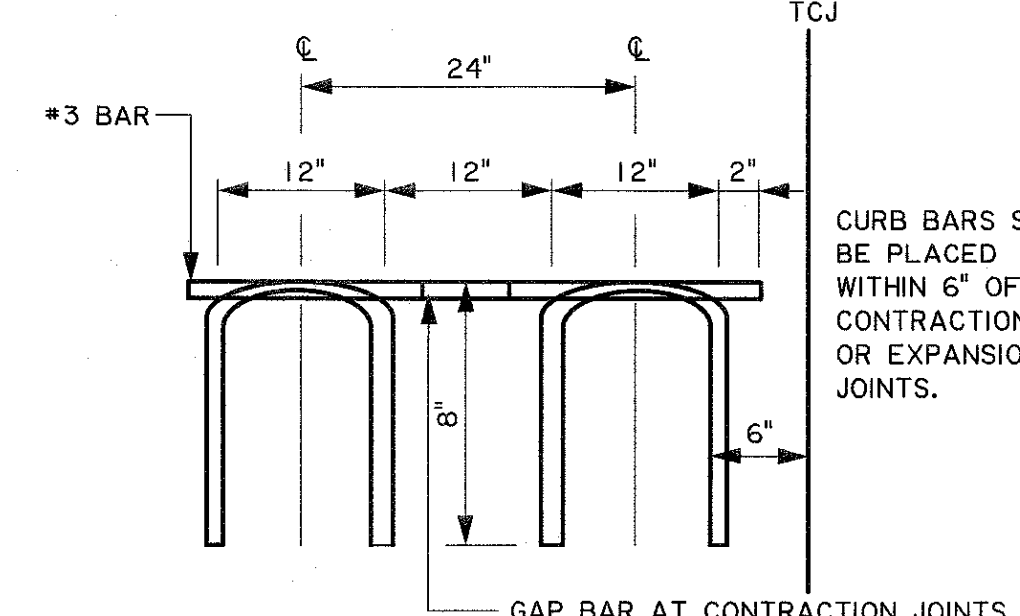
(BARRIER TYPE)



MODIFIED BARRIER OR MOUNTABLE CURB THRU DRIVEWAY



(MOUNTABLE TYPE)

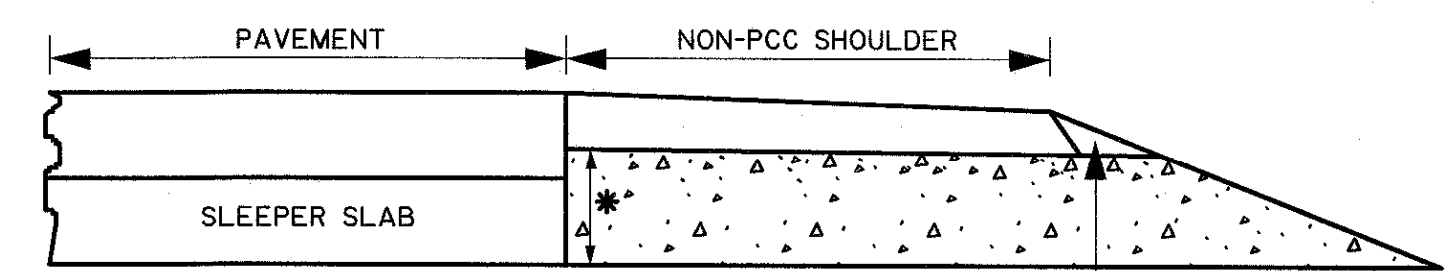


BAR DETAIL
SHOWING DIMENSIONS AND SPACING OF #4 "U" BARS AND LONGITUDINAL BARS FOR CONC. CURB

CURB DETAILS

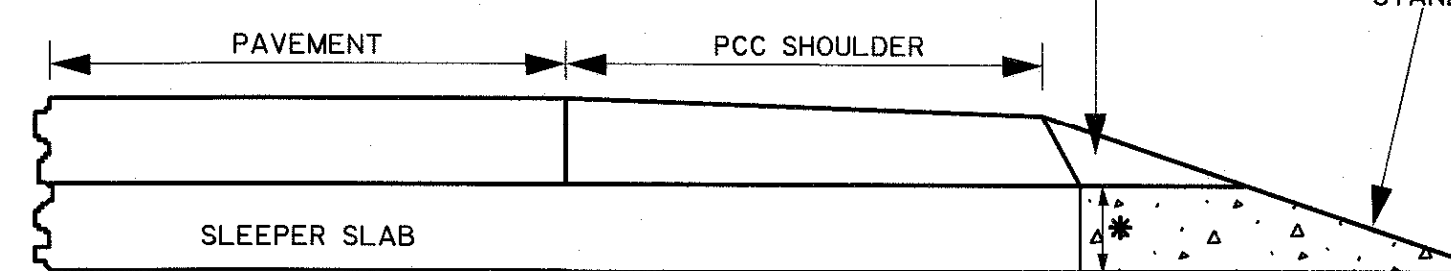
NOTES:

- POUR CURB INTEGRAL WITH PCC PAVEMENT OR GUTTER TO INSURE MONOLITHIC CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE ENGINEER. CURB BARS ARE NOT REQUIRED WHERE CURB IS CONSTRUCTED MONOLITHIC WITH THE PAVEMENT.
- ALL BARS SHOWN SHALL BE DEFORMED REINFORCING STEEL.
- WHEN REPLACING OR ADDING CONCRETE CURB TO EXISTING PAVEMENT, CONNECT THE NEW CONCRETE CURB TO THE PAVEMENT WITH THE DEFORMED REINFORCING STEEL SHOWN BY DRILLING HOLES INTO THE EXISTING PAVEMENT 1/2" LARGER THAN THE BAR DIAMETER. ANCHOR THE BARS WITH AN APPROVED EPOXY RESIN SYSTEM FROM THE DOTD AML. APPLY EPOXY ADHESIVE, COMPLYING WITH AASHTO M235, TYPE V, TO THE SURFACE AREA WHERE THE CONCRETE CURB WILL BE PLACED. INCLUDE ALL COST RELATED TO THE CONSTRUCTION OF THE CURB, INCLUDING THE DRILLED HOLES, DEFORMED REINFORCING BARS, AND EPOXY, IN THE UNIT PRICE FOR THE CURB ITEM.

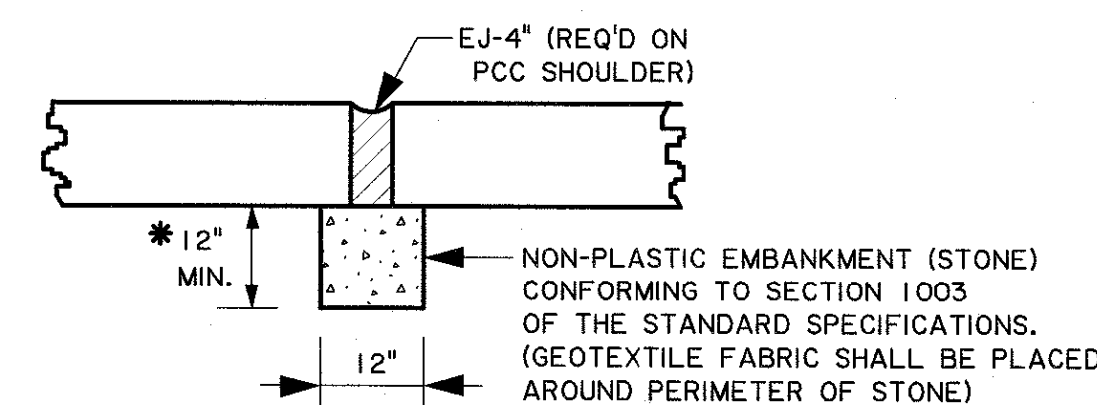


SECTION K-K

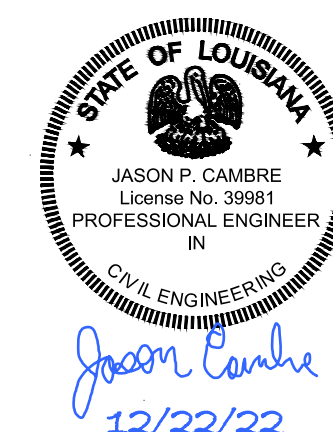
* SEE TYPICAL SECTION FOR DEPTH (12" MIN.)



SECTION L-L (WITH CONCRETE SHOULDER)

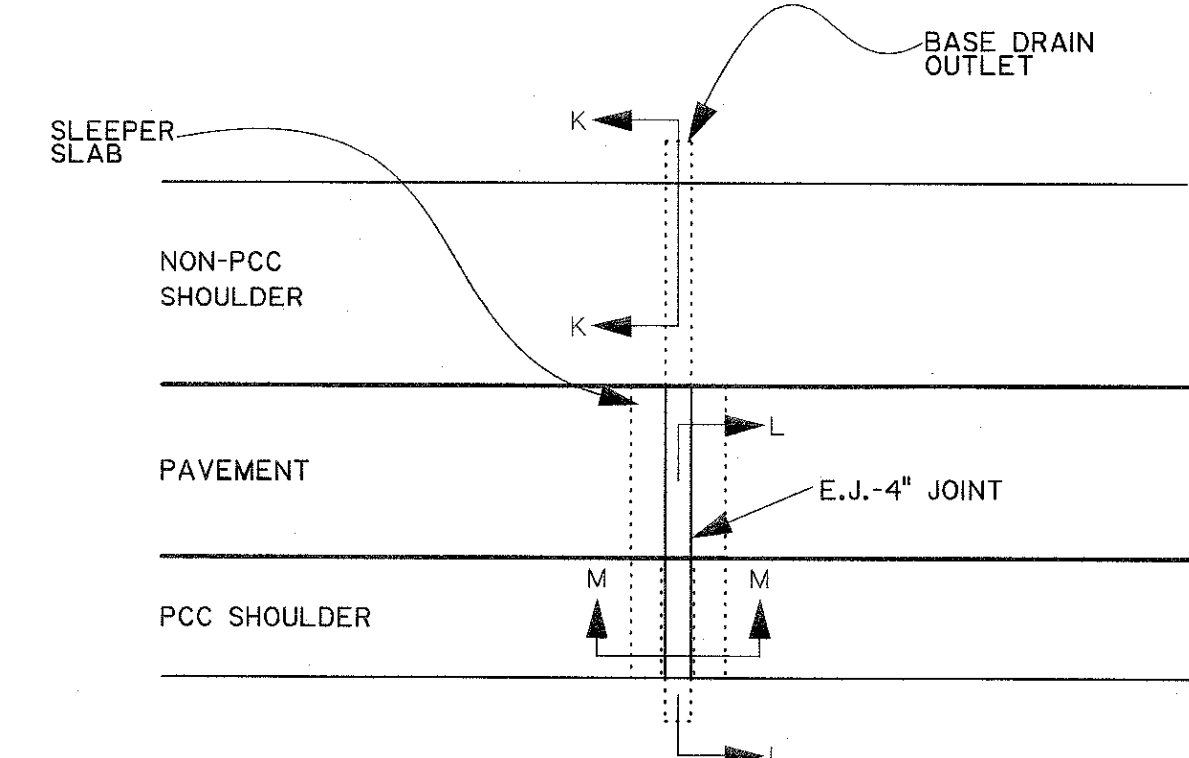


SECTION M-M (SLEEPER SLAB NOT SHOWN)



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

A BASE DRAIN OUTLET WILL BE REQUIRED AT E.J.-4" JOINTS UNLESS A SHOULDER UNDER DRAIN SYSTEM IS SPECIFIED ON THE PLANS, IN WHICH CASE, THE SHOULDER UNDER DRAIN FOR THE E.J. JOINT SHALL BE CONNECTED TO THE NEAREST STORM SEWER OR DISCHARGED THROUGH A HEADWALL. THE COST FOR THE BASE DRAIN OUTLET FOR THE E.J. JOINT IS TO BE INCLUDED IN THE COST OF THE PAVEMENT.



PLAN - BASE DRAIN OUTLET AT 4" E.J. EJ-4" JOINTS

DETAIL "G" - EJ-4" BASE DRAIN OUTLET

NOT TO SCALE

SHEET NUMBER	306
PARISH	
CONTROL SECTION	
STATE PROJECT	
DESIGN	T. LAM
CHECK	D. SMITH
DETAIL	T. LAM
CHECK	D. SMITH
REVIEW	
SERIES	3 OF 3

STATE OF LOUISIANA
DAVID S. SMITH
License No. 30565
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
DATE: 10/13/2021

APPROVED BY CHIEF ENGINEER:
Christy P. Hayes
DATE: 10/13/2021

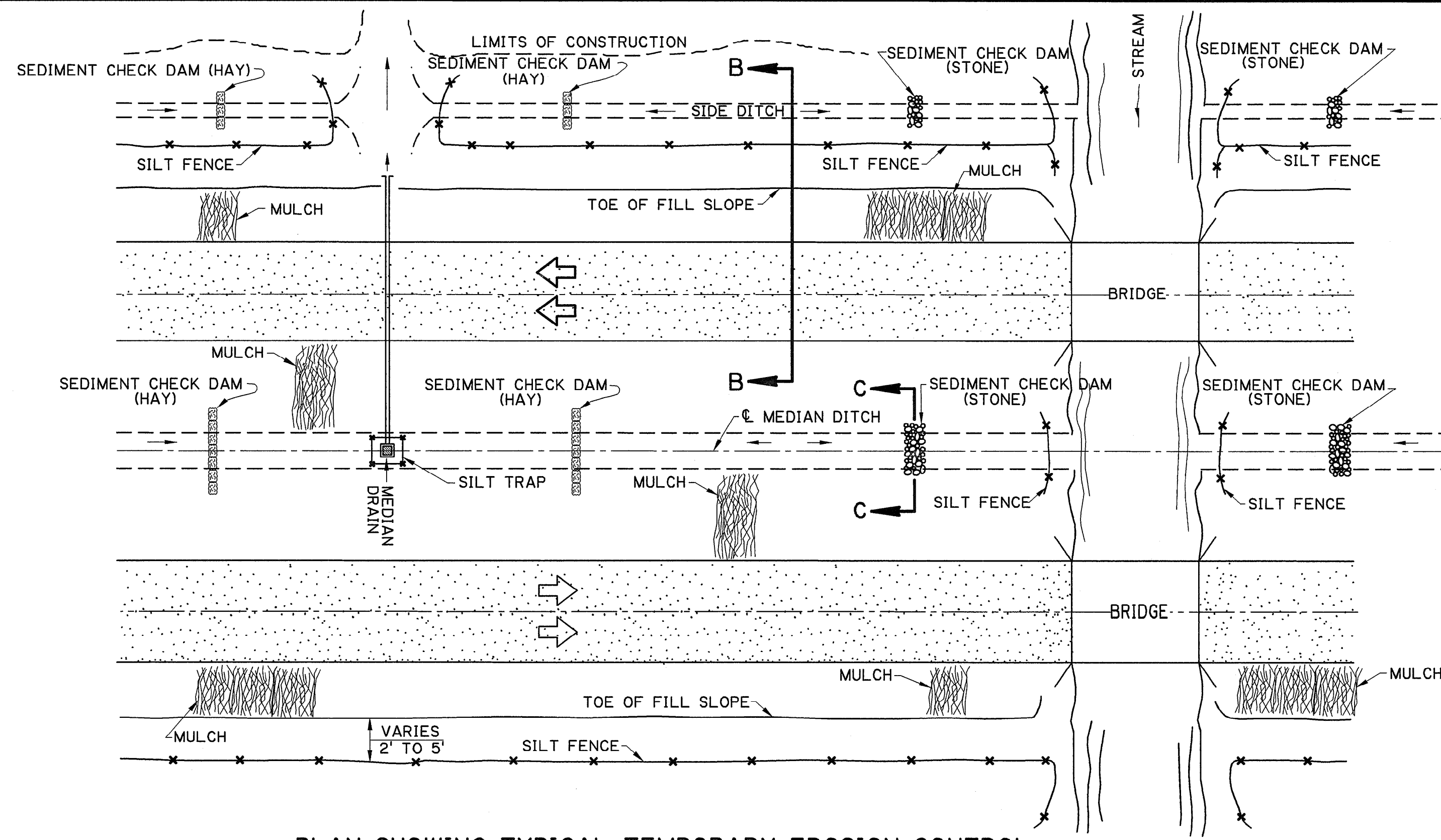
STATE OF LOUISIANA
JASON P. CAMBRE
License No. 35951
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
DATE: 12/22/22

PORTLAND CEMENT CONCRETE PAVEMENT DETAILS

STANDARD PLAN CP-01

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

ROAD DESIGN

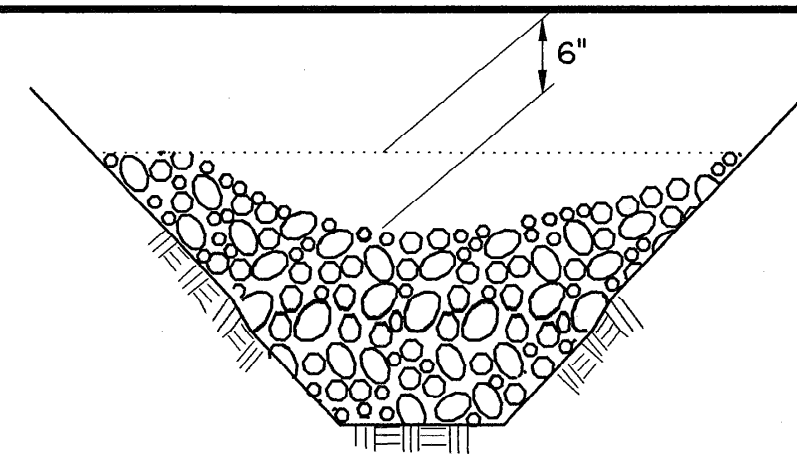


PLAN SHOWING TYPICAL TEMPORARY EROSION CONTROL

MULCHES

MULCHES ARE THE APPLICATION OF MATS OF MATERIAL PLACED ON THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND TO REDUCE THE VELOCITY OF OVERLAND FLOW. MULCHES CAN BE ORGANIC OR SYNTHETIC. MULCHES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW GUIDELINES FOR THE USE OF MULCHES ARE:

1. USE ON CUT AND EMBANKMENT SLOPES WHICH HAVE NOT BEEN COMPLETED TO PLAN GRADE OR WHERE THE WEATHER OR SOIL CONDITIONS WILL NOT PERMIT COMPLETING THEM WITHIN A REASONABLE TIME
2. USE ON CLEARED, GRUBBED, AND SCALPED AREAS WHERE SOIL EROSION IS LIKELY TO OCCUR
3. USE WITH TEMPORARY SEEDING



SECTION C-C

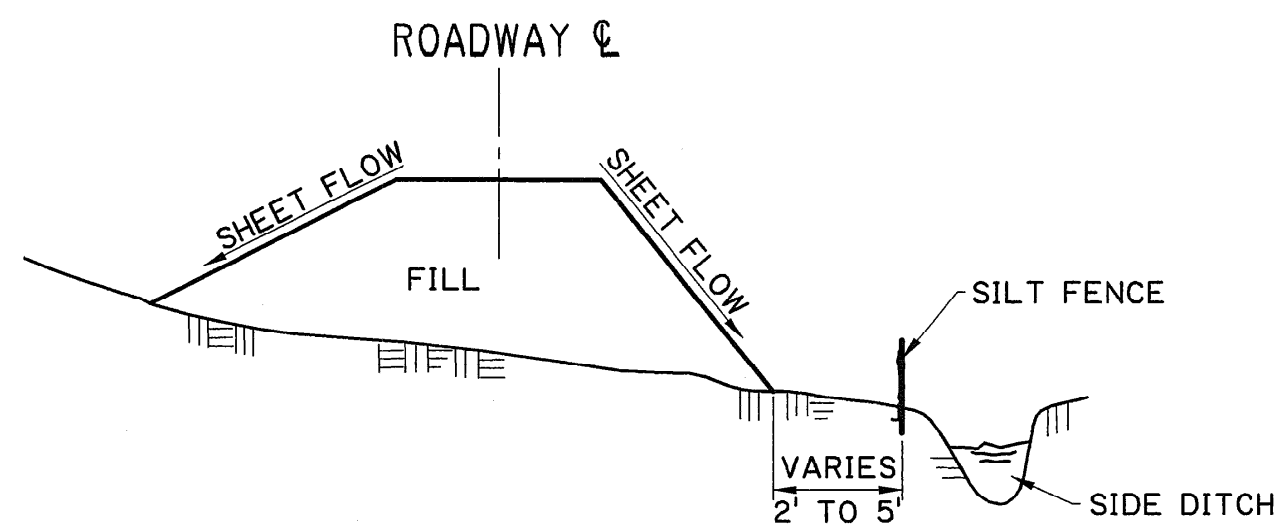
TEMPORARY SEDIMENT CHECK DAM (STONE)

PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (STONE)

NOTES:

A STONE CHECK DAM IS A SMALL TEMPORARY DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH. THE PURPOSE OF THIS MEASURE IS TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS, THEREBY REDUCING EROSION OF THE SWALE OR DITCH. THE STONE CHECK DAM WILL TRAP SMALL AMOUNTS OF SEDIMENTS GENERATED IN THE DITCH ITSELF, HOWEVER IT SHOULD NOT BE USED AS A SEDIMENT TRAPPING DEVICE. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF STONE CHECK DAMS ARE:

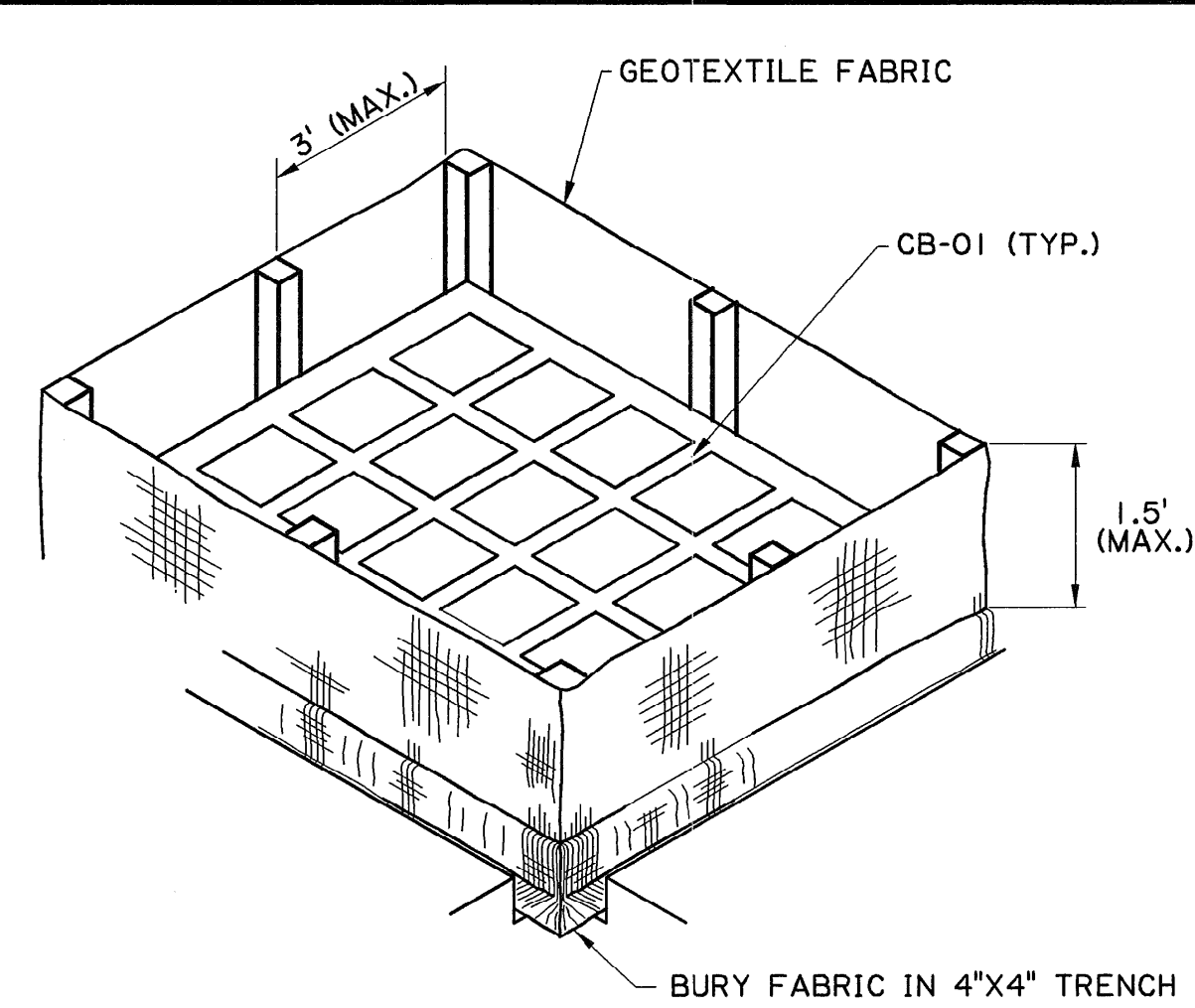
1. USE IN SMALL OPEN CHANNELS WHICH DRAIN 10 ACRES OR LESS
2. DO NOT USE IN A LIVE STREAM
3. USE IN A TEMPORARY DITCH OR SWALE WHICH, BECAUSE OF THEIR SHORT LENGTH OF SERVICE, CANNOT RECEIVE A NON-ERODIBLE LINING
4. USE IN PERMANENT DITCHES OR SWALES WHICH WILL NOT RECEIVE A PERMANENT LINING FOR AN EXTENDED PERIOD OF TIME
5. USE IN TEMPORARY OR PERMANENT DITCHES OR SWALES WHICH NEED PROTECTION DURING THE ESTABLISHMENT OF GRASS LININGS
6. FOR STONE SPECIFICATIONS, SEE PROJECT SPECIFICATIONS FOR RIPRAP, (CLASS 2 LB)



SECTION B-B

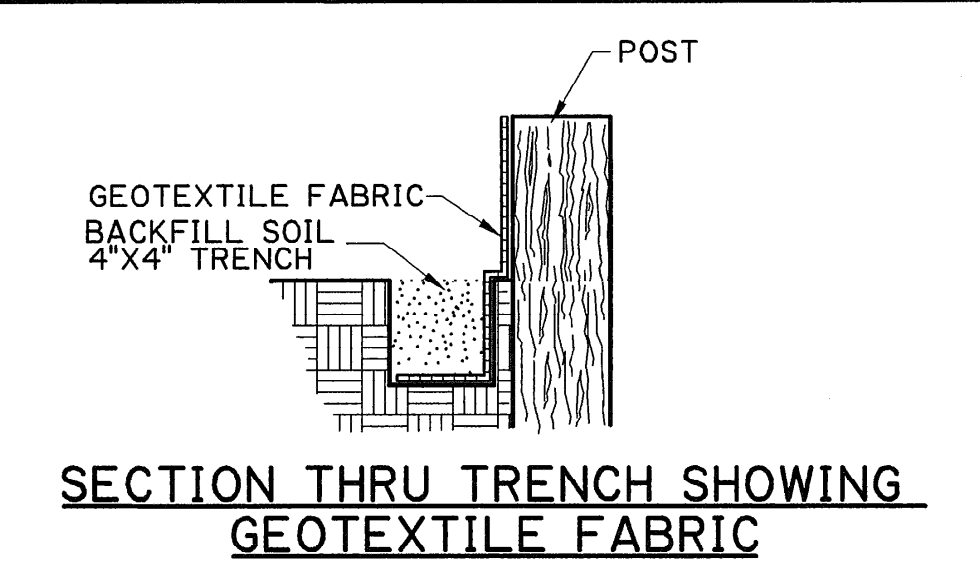
TEMPORARY SILT FENCE APPLICATION

(FOR CONSTRUCTION DETAILS AND SPECIFICATIONS SEE SHEET 2 OF 2.)

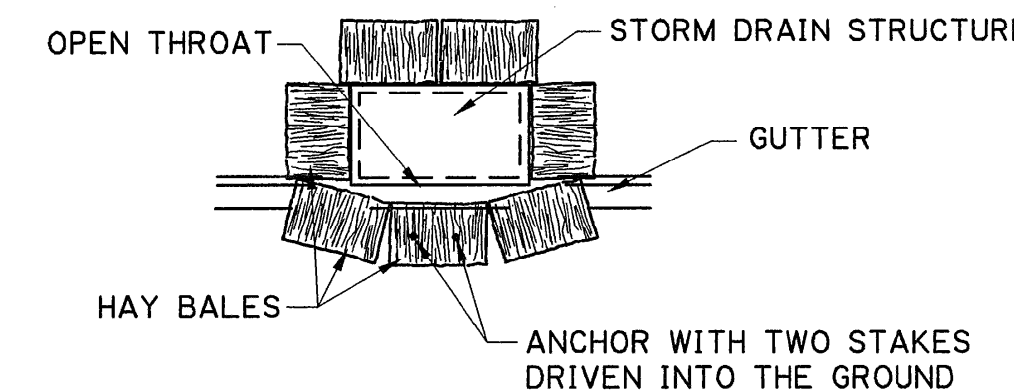


ISOMETRIC VIEW SHOWING GEOTEXTILE FABRIC

(BACKFILL SOIL NOT SHOWN)



SECTION THRU TRENCH SHOWING GEOTEXTILE FABRIC



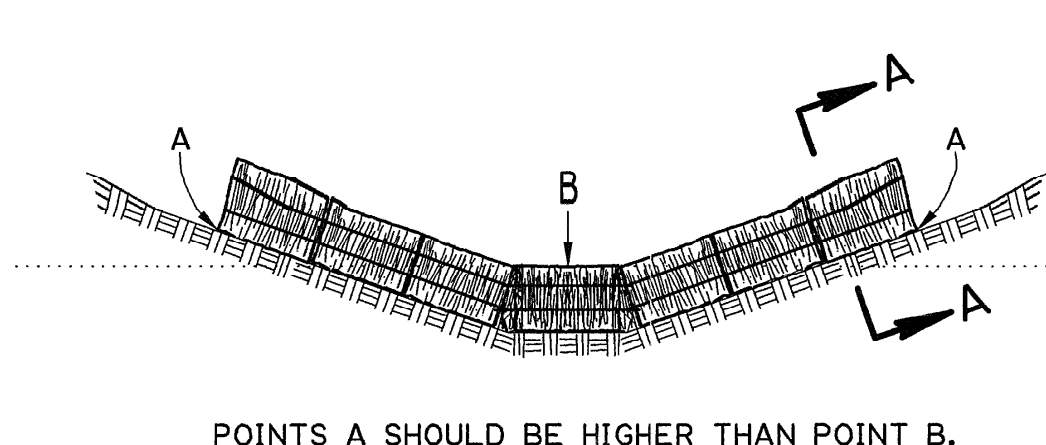
TEMPORARY INLET SILT TRAP

THE TEMPORARY DROP INLET SILT TRAP IS TO BE USED FOR SMALL DRAINAGE AREAS (LESS THAN 1 ACRE) WHERE THE STORM DRAIN IS FUNCTIONAL BEFORE THE AREA IS STABILIZED. THE TRAP CAN BE EITHER GEOTEXTILE FABRIC OR HAY BALES.

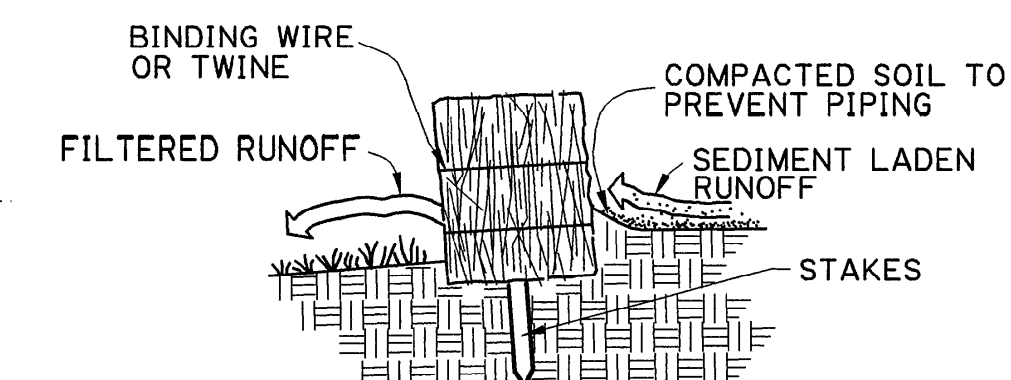
1. THE GEOTEXTILE FABRIC SHALL CONFORM TO PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS G).
2. WOODEN STAKES SUPPORTING THE FABRIC SHALL BE 2" X 2" OR 2" X 4" WITH A MINIMUM LENGTH OF 3 FEET. THE STAKES SHALL BE SPACED AROUND THE INLET AT A MAXIMUM SPACING OF 3 FEET.
3. THE HEIGHT OF THE FABRIC ABOVE THE INLET SHALL BE LIMITED TO 1.5' AND THE BOTTOM OF THE FABRIC SHALL BE BURIED IN A TRENCH APPROXIMATELY 4" WIDE BY 4" DEEP. THE FABRIC SHALL BE STAPLED TO THE POST WITH 1/2" STAPLES.
4. THE TRAP SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM. THE SEDIMENT SHOULD BE REMOVED AND EACH STAKE SHOULD BE FIRMLY IN THE GROUND.
5. HAY BALES SHALL BE PLACED SO THAT THE BINDING WIRE OR TWINE IS NOT IN CONTACT WITH THE GROUND.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



ELEVATION



SECTION A-A

TEMPORARY SEDIMENT CHECK DAM (HAY)

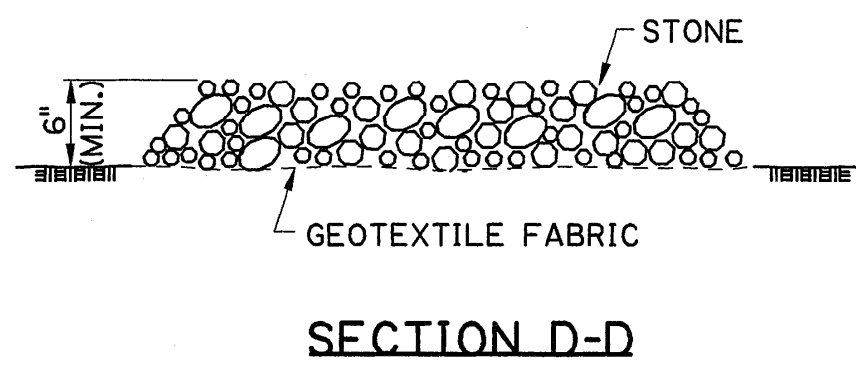
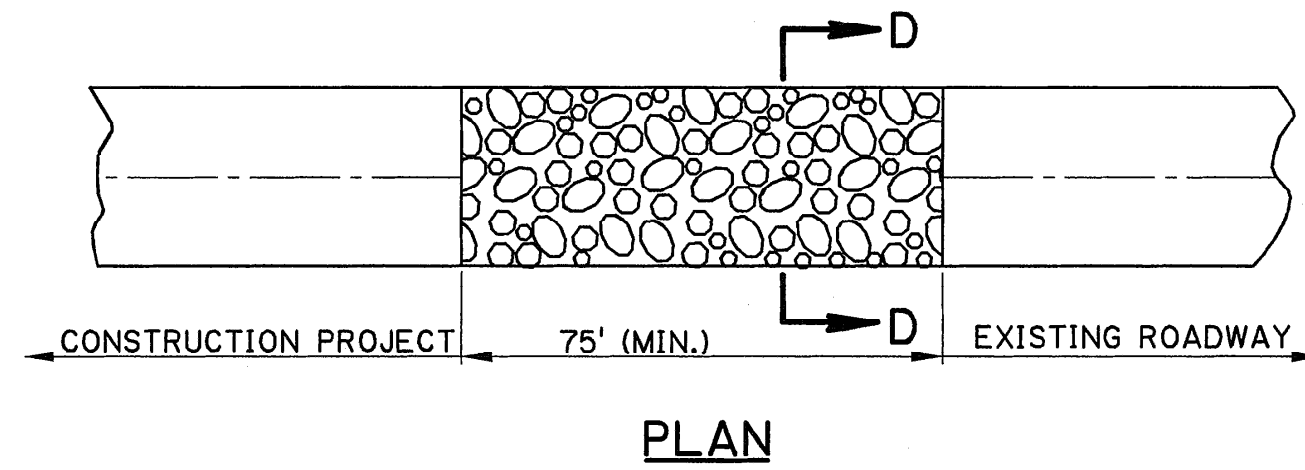
PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (HAY)

NOTES:

A HAY BALE BARRIER IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A ROW OF ENTRENCHED AND ANCHORED BALES OF STRAW OR HAY. THE HAY BALE BARRIER IS ALSO USED AS A CHECK DAM TO REDUCE THE VELOCITY IN SMALL DITCHES OR SWALES. THE HAY BALES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A HAY BALE BARRIER ARE:

1. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
2. USE IN MINOR SWALES OR DITCHES WHERE THE MAXIMUM DRAINAGE AREA IS 2 ACRES
3. ONLY USE WHERE THE EFFECTIVENESS IS REQUIRED FOR LESS THAN 3 MONTHS
4. DO NOT USE IN LIVE STREAMS OR IN SWALES OR DITCHES WHERE THERE IS A POSSIBILITY OF A WASHOUT

SHEET NUMBER	308
DESIGNED	JCM
CHECKED	JCM
DATE	1-14-94
SHEET	1 OF 2
REVISIONS	GENERAL REVISIONS
DATE	10-1-08
DESCRIPTION	REMOVE SPECIFIC PAY ITEM NOS.,
BY	W. H. Temple
DATE	10-1-08
APPROVED BY	J. P. Cambre
CHIEF ENGINEER	
STANDARD PLAN	EC-01
TEMPORARY EROSION CONTROL DETAILS	
HYDRAULICS SECTION	



TEMPORARY STONE CONSTRUCTION ENTRANCE

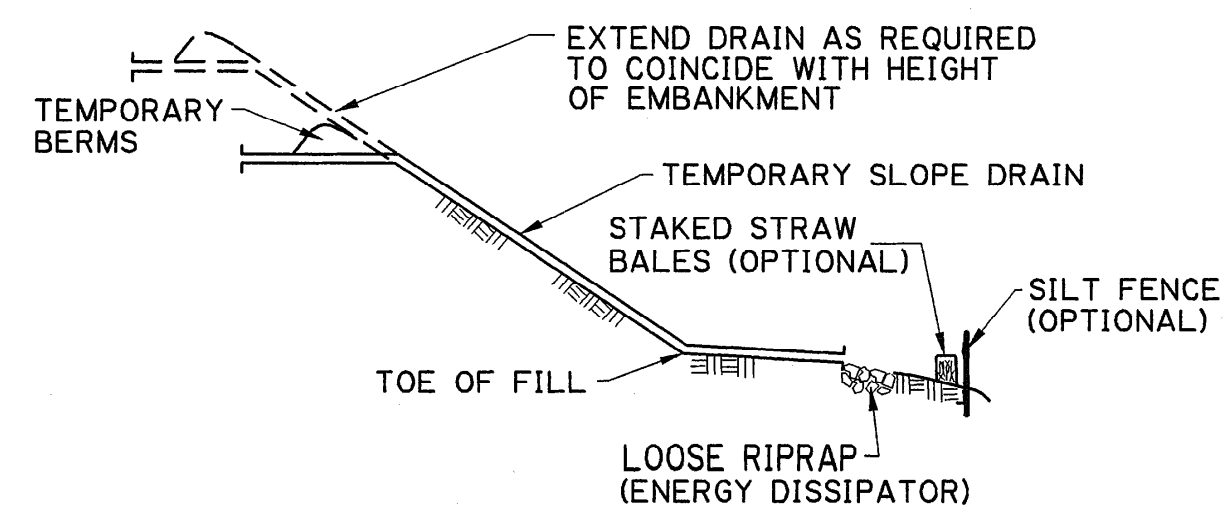
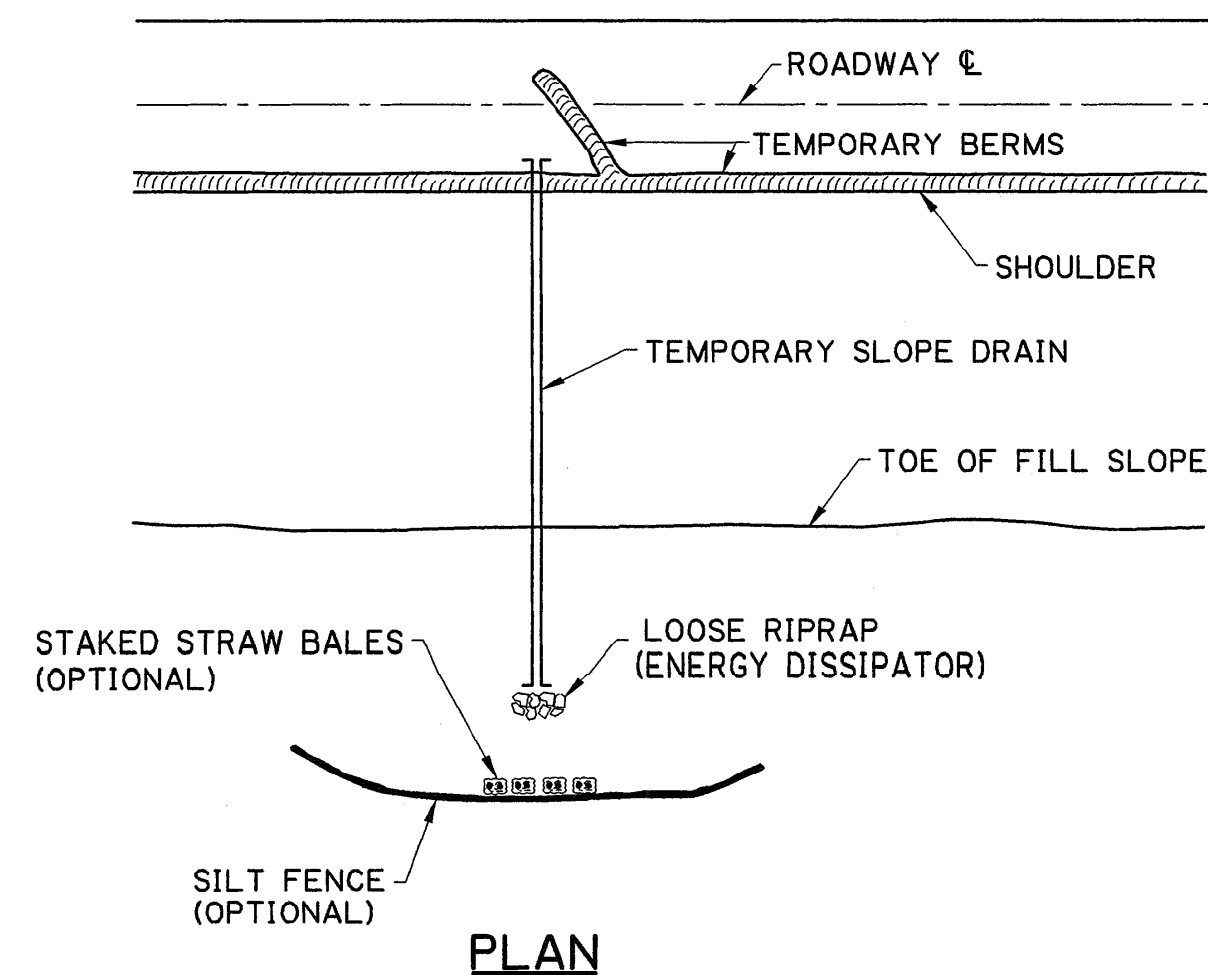
PAY ITEM: TEMPORARY STONE CONSTRUCTION ENTRANCE

NOTES:

TEMPORARY STONE CONSTRUCTION ENTRANCE AND/OR WASH RACK

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON THE CONSTRUCTION SITE TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS A PUBLIC ROAD. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A STONE ENTRANCE AND/OR WASH RACKS ARE:

1. THE STONE LAYER MUST BE AT LEAST 6 INCHES THICK.
2. THE STONE SHALL CONFORM TO PROJECT SPECIFICATIONS FOR RIPRAP (CLASS 2 LB).
3. THE LENGTH OF THE PAD MUST BE A LEAST 75 FEET AND IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS.
4. A GEOTEXTILE FABRIC UNDERLINER IS REQUIRED. THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS D).
5. IF A WASH RACK IS NECESSARY, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF-SITE.



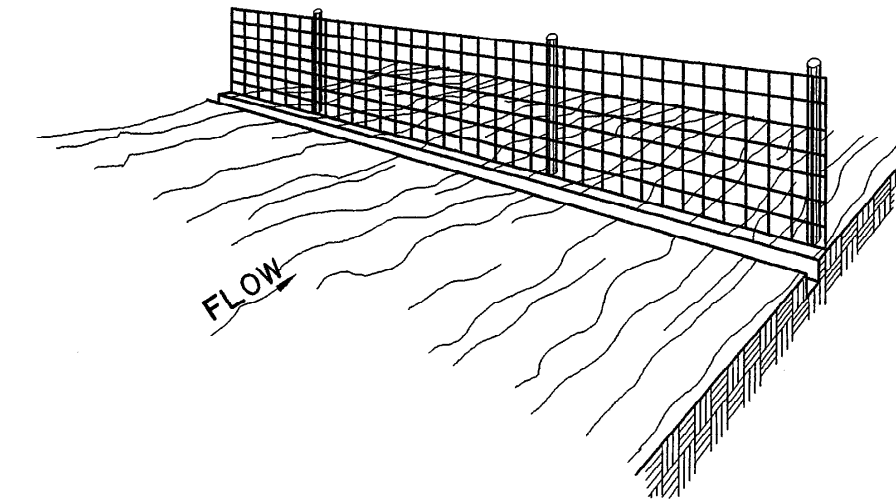
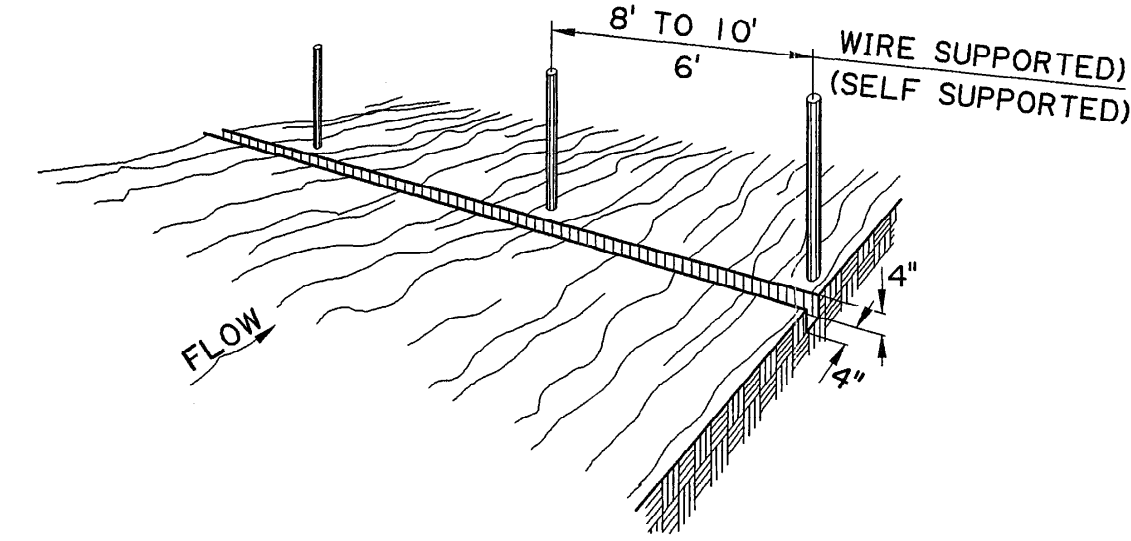
TEMPORARY SLOPE DRAIN

A TEMPORARY SLOPE DRAIN IS A DEVICE USED TO CARRY WATER FROM THE CONSTRUCTION WORK AREA TO A LOWER ELEVATION. SLOPE DRAINS MAY BE PLASTIC SHEET, METAL OR PLASTIC PIPE, STONE GUTTERS, FIBER MATS, OR CONCRETE OR ASPHALT DITCHES. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A TEMPORARY SLOPE DRAIN ARE:

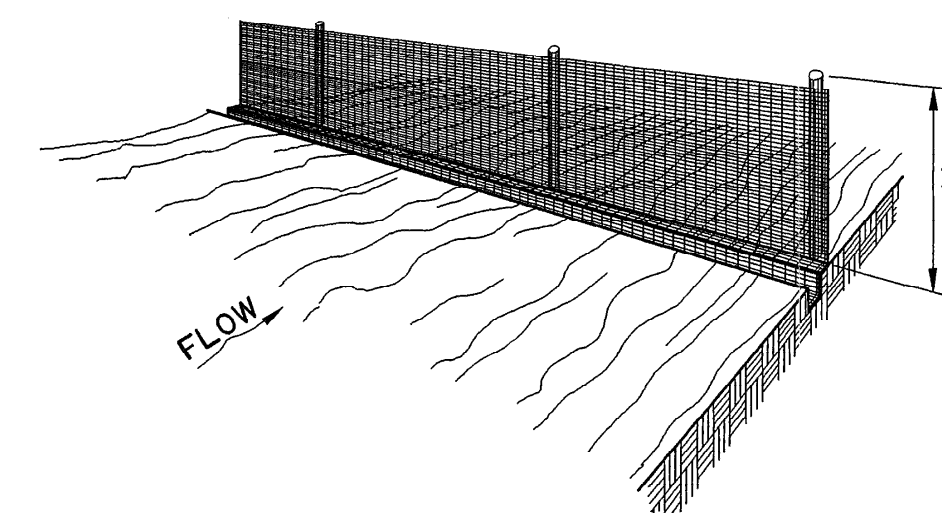
1. THE SPACING OF THE SLOPE DRAINS VARIES WITH THE ROAD GRADE.
 FOR GRADES: 0.0% - 2.0% USE 500' SPACING
 2.1% - 5.0% USE 200' SPACING
 GREATER THAN 5.0% USE 100' SPACING
2. SLOPE DRAIN MATERIAL: SMOOTH PIPE - 8" MINIMUM - 3 MILS THICK MIN.
 CORRUGATED PIPE - 12" MINIMUM
 PLASTIC SHEETING - 4' WIDE MINIMUM
 PLASTIC SHEETING - 3 MILS THICK MIN.
3. PLASTIC SHEETING CAN BE STAKED DOWN OR WEIGHTED WITH ROCKS OR LOGS. THE AREA UNDER THE SHEETING SHOULD BE SHAPED TO PROVIDE AN ADEQUATE CHANNEL.
4. THE OUTLET END SHOULD BE PROTECTED OR HAVE SOME MEANS OF DISSIPATING ENERGY. THE FLOW SHOULD BE DIRECTED THROUGH A SEDIMENT TRAP SUCH AS A SILT FENCE, HAY BALES, OR OTHER APPROVED SEDIMENT CONTROL DEVICES.
5. TO INSURE PROPER OPERATION, TEMPORARY SLOPE DRAINS SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM, FOR CLOGGING OR DISPLACEMENT. EROSION AT THE OUTLET SHOULD BE CHECKED AND THE SILT TRAPS CLEANED IF NECESSARY.

1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.

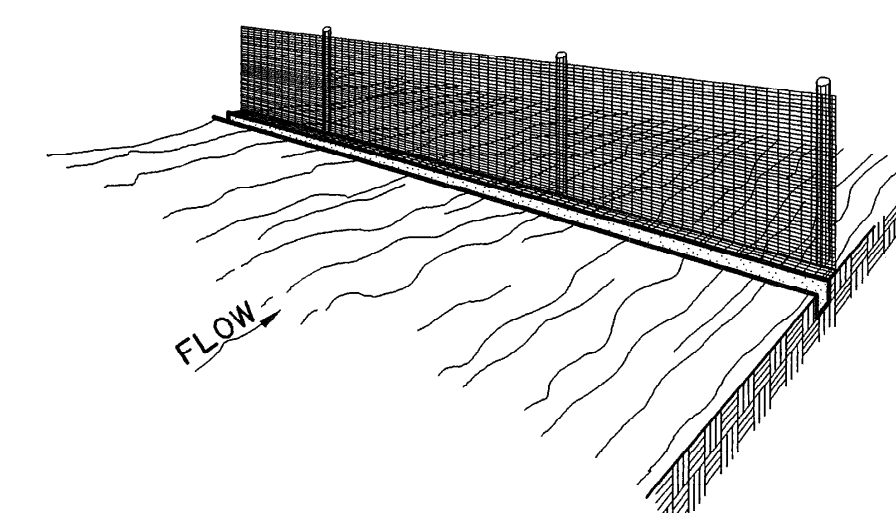
2. STAPLE WIRE FENCING TO THE POSTS.



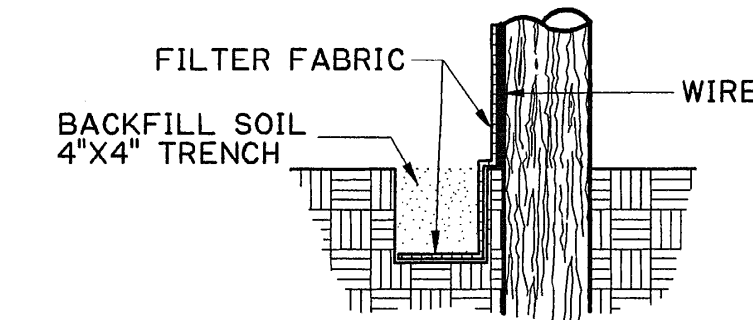
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT EXCAVATED SOIL.



EXTENSION OF FABRIC INTO THE TRENCH.



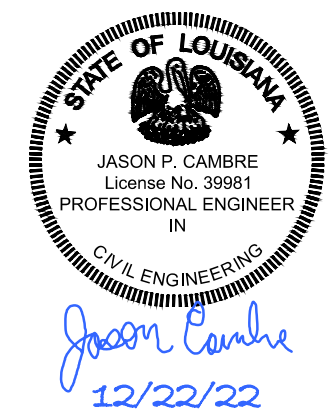
CONSTRUCTION OF TEMPORARY SILT FENCING

(WIRE SUPPORTED SILT FENCE IS SHOWN. SELF SUPPORTED SILT FENCE WILL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.)

NOTES:

SILT FENCING IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC SUPPORTED BY POSTS AND STRETCHED ACROSS AN AREA TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT. THE SILT FENCING SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW BASIC GUIDELINES FOR THE USE OF SILT FENCING ARE:

1. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
2. USE WHERE THE MAXIMUM DRAINAGE AREA BEHIND THE SILT FENCE IS 1/4 ACRE PER 100 FEET OF SILT FENCE LENGTH
3. USE WHERE THE MAXIMUM SLOPE LENGTH BEHIND THE BARRIER IS 100 FEET
4. USE WHERE THE MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1
5. DO NOT USE SILT FENCES IN LIVE STREAMS OR IN DITCHES OR SWALES WHERE FLOWS EXCEED ONE CUBIC FOOT PER SECOND



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

SHEET NUMBER	309
DESIGNED	JCM
CHECKED	KAJ
DATE	1-14-94
SHEET	2 OF 2
REVISION DESCRIPTION	REVISIONS
DATE	DATE
APPROVED BY	DATE
CHIEF ENGINEER	DATE
TEMPORARY EROSION CONTROL DETAILS	EC-01
HYDRAULICS SECTION	



GUARD RAIL GENERAL NOTES:

1. DESIGN REFERENCE: THE LATEST EDITIONS OF THE AASHTO ROADSIDE DESIGN GUIDE (RDG) AND THE LADOTD BRIDGE DESIGN AND EVALUATION MANUAL (BDEM), PART II, VOLUME 4 - HIGHWAY SAFETY.
2. GUARD RAIL LENGTH: TOTAL GUARD RAIL LENGTH AND LENGTH OF NEED SHALL BE BASED ON THE LATEST AASHTO ROADSIDE DESIGN GUIDE LENGTH OF NEED REQUIREMENTS. TOTAL LENGTH OF GUARD RAIL SHALL NOT BE LESS THAN 75'-0" BASED ON A LENGTH OF LENGTH OF NEED OF X=62'-6". A DESIGN WAIVER IS REQUIRED FOR GUARD RAIL LENGTHS NOT MEETING THESE REQUIREMENTS.
3. FOR BRIDGES WITH GUARD RAILS IN URBAN AREAS WITH A DESIGN SPEED OF 45 MPH OR LESS, SEE DOTD EDSM NO. II.3.1.4 FOR DESIGN INFORMATION.
4. FOR GUARD RAIL ON EXISTING HIGHWAYS, SEE DOTD EDSM NO. II.3.1.3 FOR DESIGN INFORMATION.
5. EMBANKMENT WIDENING IS TO PROVIDE SLOPES NOT STEEPER THAN 10H: 1V IN FRONT OF THE GUARD RAIL.
6. ALL GUARD RAIL COMPONENTS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFIC PLAN LAYOUT DETAILS, GUARD RAIL DESIGN DATA, PAY ITEMS, AND QUANTITY TABLES PROVIDED IN THE PROJECT PLANS.
7. LONGITUDINAL DIMENSIONS FOR GUARD RAIL ARE MEASURED ALONG THE PROJECTED FACE OF RAILING.
8. THE QUANTITY FOR THE EMBANKMENT WIDENING IS TO BE INCLUDED IN THE EMBANKMENT PAY ITEM QUANTITY FOR THE ROADWAY.
9. A TANGENT END TREATMENT MAY BE USED AS AN ALTERNATE TO THE FLARED END TREATMENT. A ZERO FLARE RATE (b/a=0) IS REQUIRED WHEN THE TANGENT END TREATMENT IS USED AND THE LENGTH OF NEED "X" SHALL BE CALCULATED BASED ON A "ZERO" FLARE RATE.
10. THE POINT WITHIN THE GUARD RAIL END TREATMENT WHERE THE LENGTH OF NEED TERMINATES MAY VARY WITH EACH TYPE OF GUARD RAIL END TREATMENT. THE 12'-6" LENGTH APPLIES TO MOST END TREATMENTS.
11. RETROREFLECTIVE ADHESIVE SHEETING (12" X 2'-8")(TYPE III HIGH INTENSITY OBJECT MARKER PATTERN) SHALL BE APPLIED TO THE END TREATMENT NOSE. SEE THE LATEST L.A. STANDARD SPECS. FOR ROADS AND BRIDGES FOR SPECIFICATIONS AND THE SHEETING MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION. FOR PATTERN DETAIL, SEE OBJECT MARKER STANDARD PLANS.
12. GUARD RAIL INSTALLATIONS MAY BE PAVED BY USING CONCRETE PAVING OR ASPHALT CONCRETE. THE INCIDENTAL CONCRETE OR ASPHALT WILL BE USED IF A LAYOUT DETAIL, PAY ITEM, AND QUANTITY IS INDICATED IN THE PLANS. SEE SHEET 11 FOR REQUIRED POST DETAILS WHEN PAVING IS USED AROUND POSTS.
13. GUARD RAIL END TREATMENTS SHALL BE SELECTED FROM THE DOTD APPROVED MATERIALS LIST (AML), AND SHALL BE AASHTO MASH, TEST LEVEL 3 (TL-3) UNLESS OTHERWISE NOTED IN THE PLANS. IF MASH FLARED END TREATMENTS ARE NOT AVAILABLE, USE GUARD RAIL END TREATMENT, NCHRP 350 - 31" (TL-3 FLARED), WITH APPROVAL OF PROJECT ENGINEER.
14. FLARED GUARD RAIL END TREATMENTS (12'-6" OR 18'-9"), (PAY ITEMS 704-10-00105 AND 704-10-00110) ARE GENERIC TEST LEVEL 2 (TL-2) NCHRP 350 SYSTEMS THAT CAN ONLY BE USED WITH PERMISSION FROM THE BRIDGE DESIGN ENGINEER ADMINISTRATOR AND AN APPROVED DESIGN WAIVER. SEE BRIDGE DESIGN SPECIAL DETAILS FOR THESE END TREATMENT DETAILS.
15. GUARD RAIL DESIGN VARIABLES FOR STANDARD PLAN SHEETS:

- L₁ = LENGTH OF TANGENT SECTION OF RAIL IN ADVANCE OF OBJECT. (FT)
- L₂ = DISTANCE FROM EDGE OF TRAVEL LANE TO TANGENT SECTION OF RAIL. (FT)
- L₃ = DISTANCE FROM EDGE OF TRAVEL LANE TO OBJECT OF CONCERN.
- L_R = RUNOUT LENGTH (FT)
- L_C = REQUIRED CLEAR ZONE (FT)
- L_A = DISTANCE FROM THE EDGE OF THE TRAVEL LANE TO THE LATERAL EXTENT OF THE OBJECT. (FT)
- L_A = L FOR BRIDGE APPLICATIONS, UNLESS OTHERWISE APPROVED BY THE BRIDGE DESIGN ADMINISTRATOR.
- X = CALCULATED LENGTH OF NEED (FT)
- Y = DISTANCE FROM EDGE OF THE TRAVEL LANE TO THE BEGINNING OF THE LENGTH OF NEED.
- Z = DISTANCE FROM EDGE OF THE TRAVEL LANE TO THE EDGE OF EMBANKMENT.
- b/a = FLARE RATE (VERTICAL/HORIZONTAL)

FOR CLEAR ZONE, RUNOUT, FLARE RATE, SHYLINE, AND HORIZONTAL CURVE ADJUSTMENTS, SEE LATEST AASHTO ROADSIDE DESIGN GUIDE AND THE DOTD BRIDGE DESIGN AND EVALUATION MANUAL.

16. IF SHOWN IN DETAILS, STEEL POSTS MAY BE USED AS AN ALTERNATE TO WOOD POSTS.
17. INTERMIXING OF STEEL AND WOOD POSTS IN ANY ONE SECTION OF THE GUARD RAIL SHALL NOT BE PERMITTED.
18. ALL MATERIAL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
19. GUARD RAIL HEIGHT TOLERANCE ALLOWED FOR INSTALLATION IS 1 INCH ABOVE AND 0.5 INCH BELOW THE SPECIFIED HEIGHT.
20. GUARD RAIL TRAILING END ANCHORAGE SHALL BE USED TO ANCHOR DOWNSTREAM END OF GUARD RAIL ONLY WHEN TYPICAL GUARD RAIL END TREATMENTS ARE NOT REQUIRED.
21. STANDARD COMPONENTS: STANDARD GUARD RAIL COMPONENTS, INCLUDING POSTS, PANELS, AND BOLT SYSTEM ARE BASED UPON ENGLISH UNIT CONVERSIONS OF THE AASHTO-AGC-ARTBA JOINT COMMITTEE TASK FORCE 13 REPORT: A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE.
- * 22. IF OFF-SYSTEM BRIDGE OR BOX CULVERT DETAILS ARE USED, THE PLANS MUST ALSO INCLUDE THE COMMON DETAILS (SHTS. I-11).

GUARD RAIL AND RELATED PAY ITEMS :

- 202-02-14500 REMOVAL OF GUARD RAIL, (LN FT)
- 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-1/2" POST SPACING), (LN FT)
- 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPACING), (LN FT)
- 704-01-02000 GUARD RAIL (DOUBLE THRIE BEAM) (3'-1/2" POST SPACING), (LN FT)
- 704-01-02020 GUARD RAIL (DOUBLE THRIE BEAM) (6'-3" POST SPACING), (LN FT)
- 704-03-00200 BLOCKED OUT GUARD RAIL - 31", (6'-3" POST SPACING), (LN FT)
- 704-03-00300 BLOCKED OUT GUARD RAIL - 31", (3'-1/2" POST SPACING), (LN FT)
- 704-04-00200 BLOCKED OUT GUARD RAIL - 31", (DOUBLE FACED, 6'-3" POST SPACING), (LN FT)
- 704-04-00300 BLOCKED OUT GUARD RAIL - 31", (DOUBLE FACED, 3'-1/2" POST SPACING), (LN FT)
- 704-05-00300 GUARD RAIL ANCHOR SECTIONS - 31", (TRAILING END), (LN FT)
- 704-06-00100 GUARD RAIL BRIDGE ATTACHMENTS, (LN FT)
- 704-06-00200 GUARD RAIL BRIDGE ATTACHMENTS (SINGLE THRIE BEAM), (LN FT)
- 704-07-00200 GUARD RAIL TRANSITION, (DOUBLE THRIE BEAM), (LN FT)
- 704-09-00100 GUARD RAIL ANCHOR BLOCK, (EA.)
- ⊕704-10-00105 GUARD RAIL END TREATMENT (FLARED, 12'-6" LENGTH), (EA.)
- ⊕704-10-00110 GUARD RAIL END TREATMENT (FLARED, 18'-9" LENGTH), (EA.)
- ⊙704-10-00120 GUARD RAIL END TREATMENT, MASH, (TL-3 FLARED), (EA.)
- ⊙704-10-00205 GUARD RAIL END TREATMENT, MASH, (TL-3 TANGENT), (EA.)
- ⊙704-10-00305 GUARD RAIL END TREATMENT, MASH, (TL-3 BI-DIRECTIONAL), (EA.)
- ⊙704-10-00310 GUARD RAIL END TREATMENT, NCHRP 350 - 31" (TL-3 FLARED), (EA.)
- 810-06-00100 CONCRETE PIER PROTECTION SYSTEM (VEHICLE), (LN FT)
- ⊙SEE NOTE NO.13
- ⊕SEE NOTE NO.14

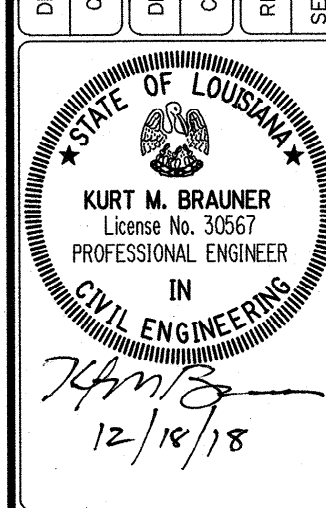
GUARD RAIL STANDARD PLAN INDEX

	BRIDGE STANDARD INDEX NO.	SERIES	DESCRIPTION
COMMON DETAILS BRIDGE END AND NON-BRIDGE APPLICATIONS	BD.1.1.0.01	1 OF 11	GENERAL NOTES, PAY ITEMS, STANDARD PLAN INDEX
	BD.1.1.0.02	2 OF 11	BRIDGE APPLICATION, TYPICAL LAYOUT
	BD.1.1.0.03	3 OF 11	THRIE BEAM GUARD RAIL TRANSITION TO BRIDGE RAIL
	BD.1.1.0.04	4 OF 11	NON BRIDGE APPLICATION, TYPICAL LAYOUT
	BD.1.1.0.05	5 OF 11	NON BRIDGE APPLICATION, TYPICAL LAYOUT
	BD.1.1.0.06	6 OF 11	TYPICAL DETAILS AND SECTIONS
	BD.1.1.0.07	7 OF 11	TRAILING END DETAILS
	BD.1.1.0.08	8 OF 11	TRAILING END DETAILS
	BD.1.1.0.09	9 OF 11	RAIL STRUCTURAL DETAILS
	BD.1.1.0.10	10 OF 11	GUARD RAIL POST AND BLOCK DETAILS
	BD.1.1.0.11	11 OF 11	MISCELLANEOUS DETAILS, MOW STRIPS AND CONCRETE ANCHORS
* OFF - SYSTEM BRIDGE	BD.1.2.0.01	1 OF 1	OFF-SYSTEM BRIDGE GUARD RAIL DETAILS
* BOX CULVERT DETAILS	BD.1.3.0.01	1 OF 1	BOX CULVERT GUARD RAIL DETAILS

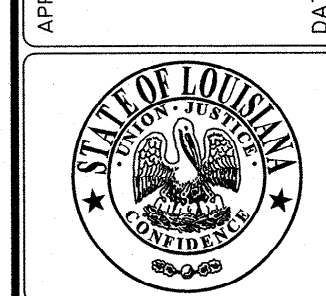


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

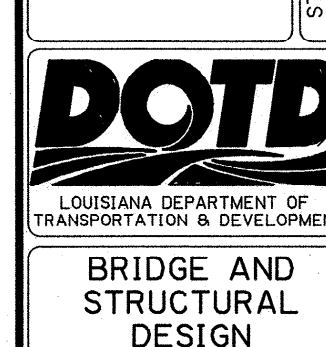
DESIGN	P. FOSSIER	PARISH	
CHECK	K. BRAUNER	CONTROL SECTION	
DETAIL	J. DOUCET	STATE PROJECT	
CHECK	K. BRAUNER		
REVIEW	C. GUIDRY		
SERIES #	1 OF 11		



APPROVED BY CHIEF ENGINEER
 [Signature]
 DATE: 11/3/19



HIGHWAY GUARD RAIL (MASH)
 GENERAL NOTES, PAY ITEMS
 AND STANDARD PLAN INDEX
 BD.1.1.0.01
 GR-MASH-ON
 STANDARD PLAN



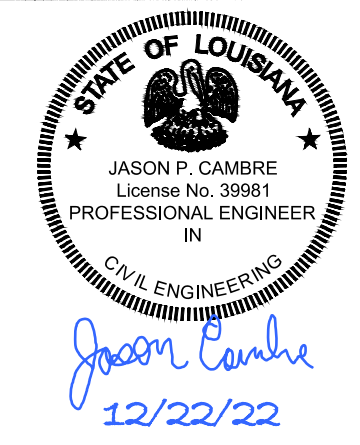
BRIDGE AND STRUCTURAL DESIGN

09:17

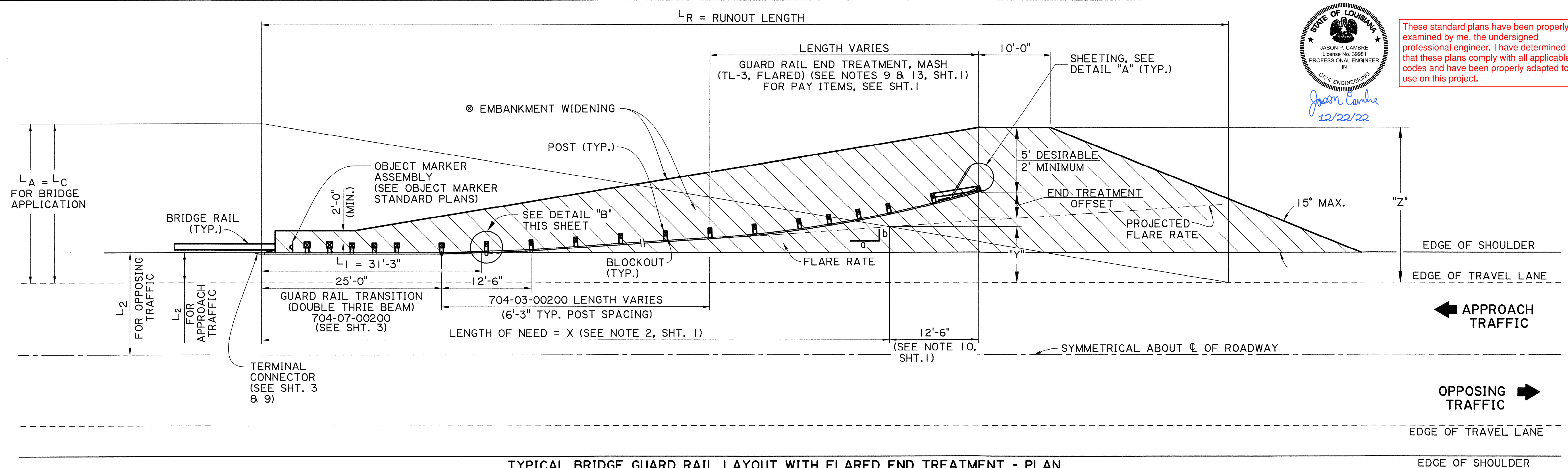
12/13/2018



IP_PWP:d0811905\BD.1.1.0.02 - HIGHWAY GUARD RAIL (MASH).dgn

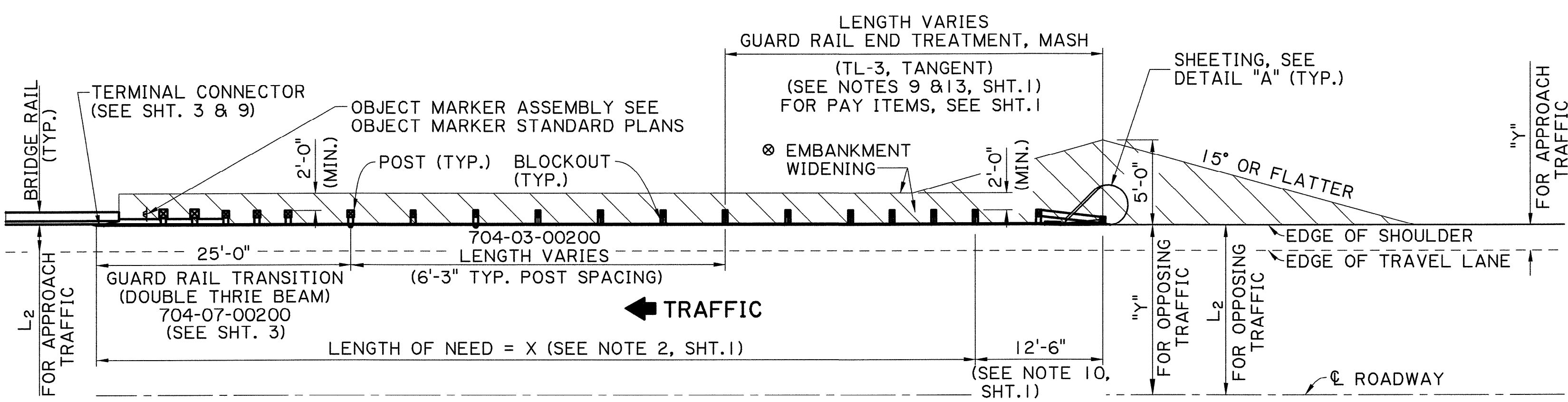


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



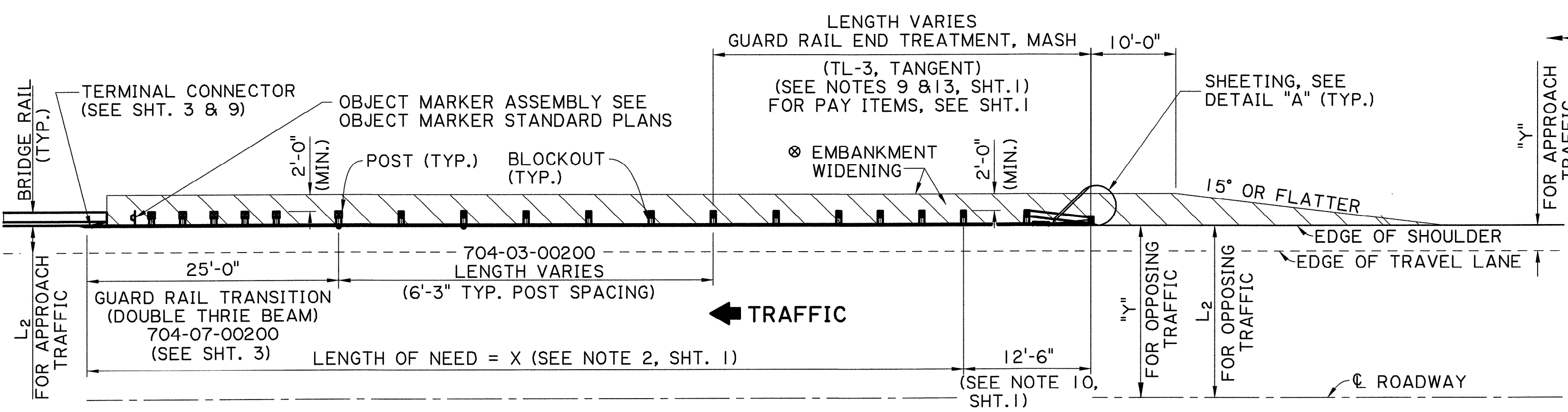
TYPICAL BRIDGE GUARD RAIL LAYOUT WITH FLARED END TREATMENT - PLAN

NOTE: LAYOUT SIMILAR FOR OTHER QUADRANTS OF BRIDGE END
SEE NOTES 5, 8, AND 12, SHT. 1.



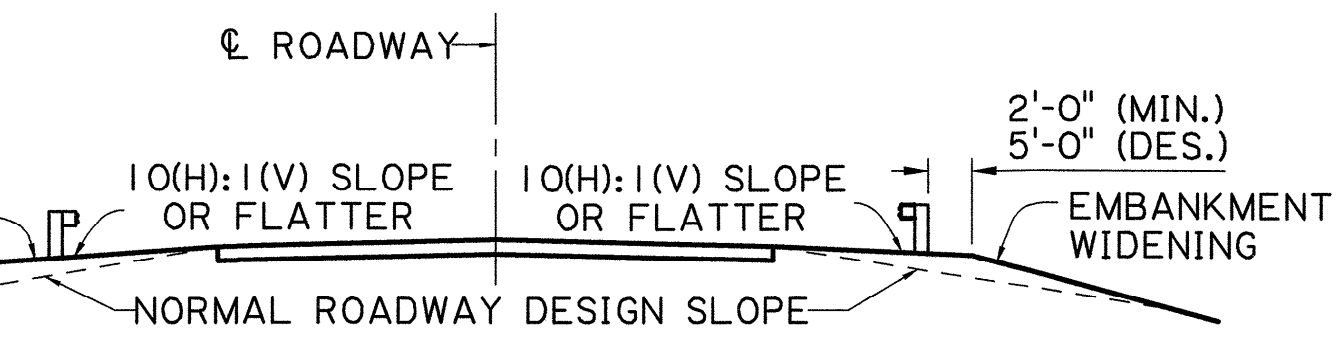
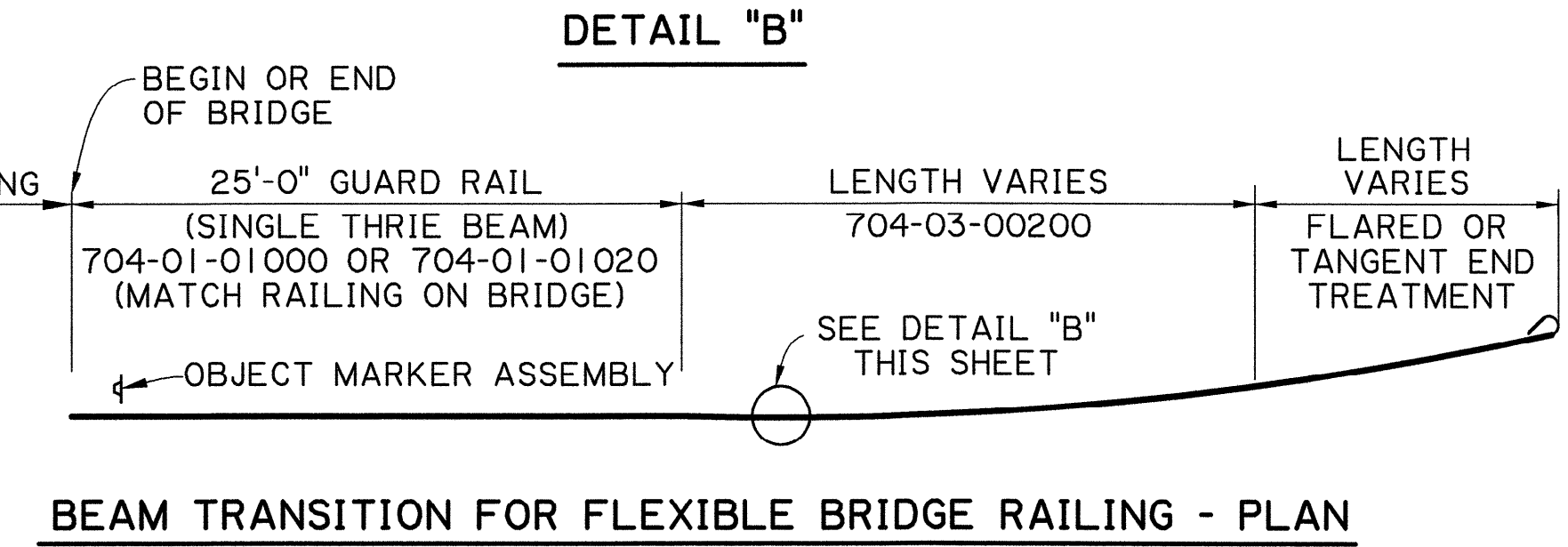
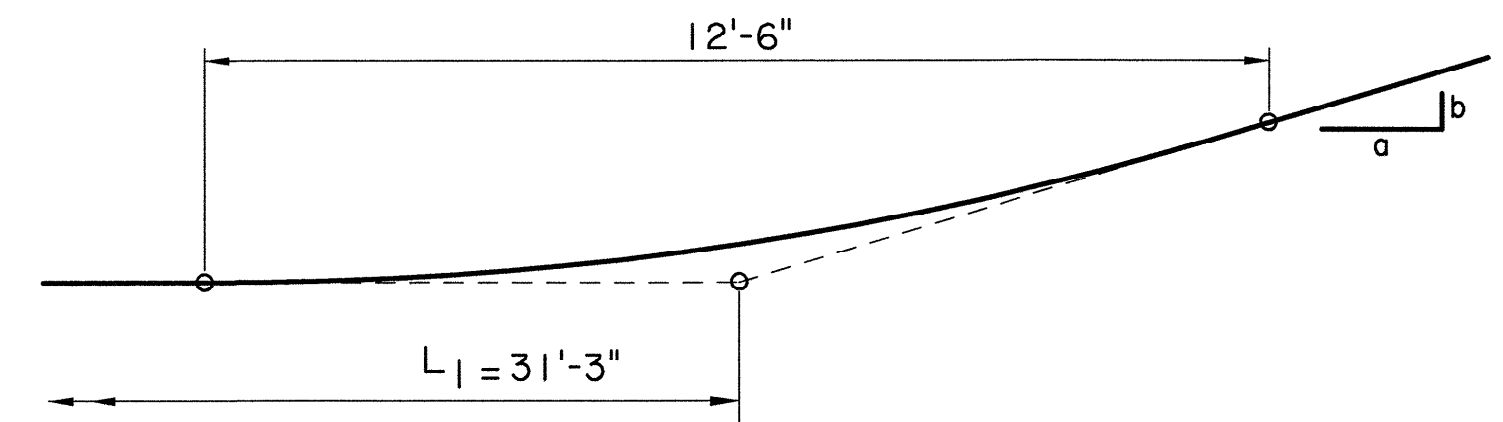
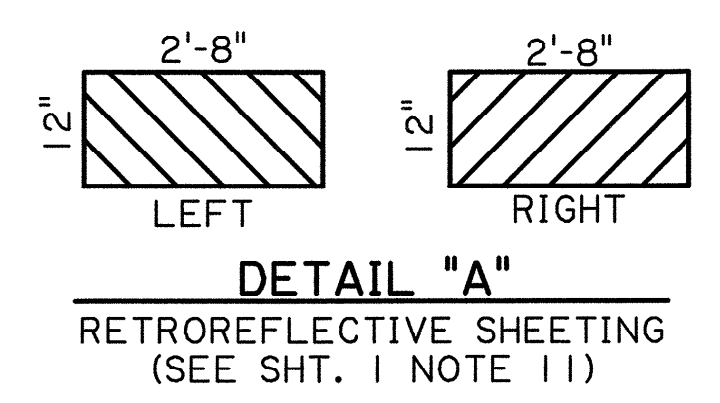
TYPICAL BRIDGE GUARD RAIL LAYOUT WITH TANGENT END TREATMENT - PREFERRED GRADING - PLAN

SEE NOTES 5, 8, AND 12, SHT. 1.



TYPICAL BRIDGE GUARD RAIL LAYOUT WITH TANGENT END TREATMENT - ALTERNATIVE GRADING - PLAN

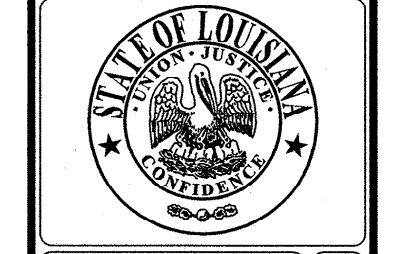
SEE NOTES 5, 8, AND 12, SHT. 1.



TYPICAL EMBANKMENT WIDENING SECTION

SHEET NUMBER	311
DESIGN	P. FOSSIER
CHECK	K. BRAUNER
DETAIL	J. DOUCET
CHECK	K. BRAUNER
REVIEW	C. GUIDRY
SERIES	2 OF 11

APPROVED BY CHIEF ENGINEER
Michael P. Hebert
 DATE: 1/3/19

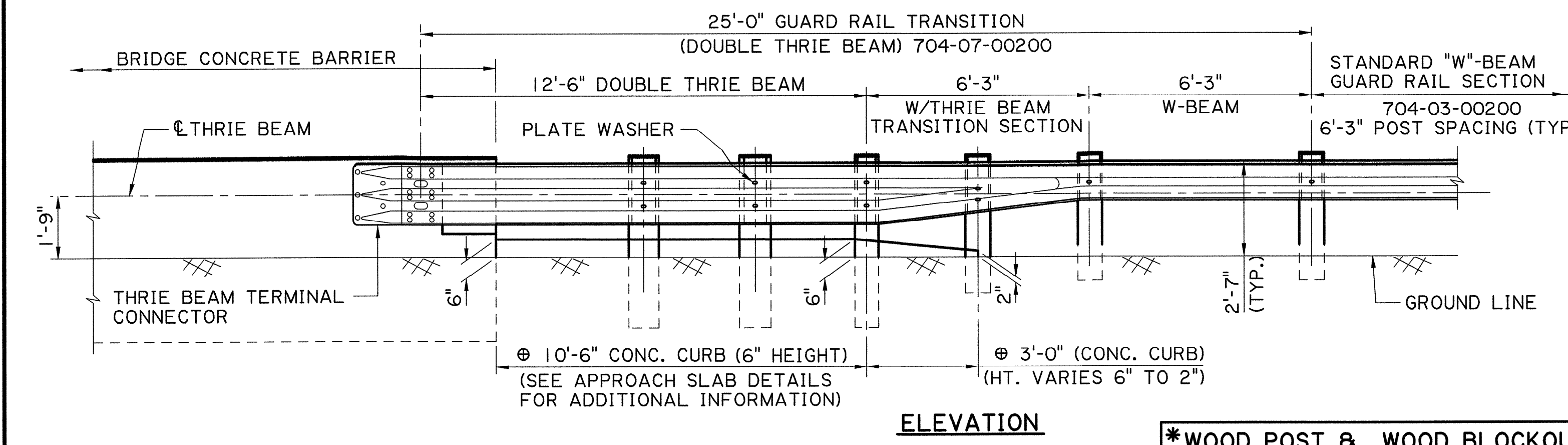
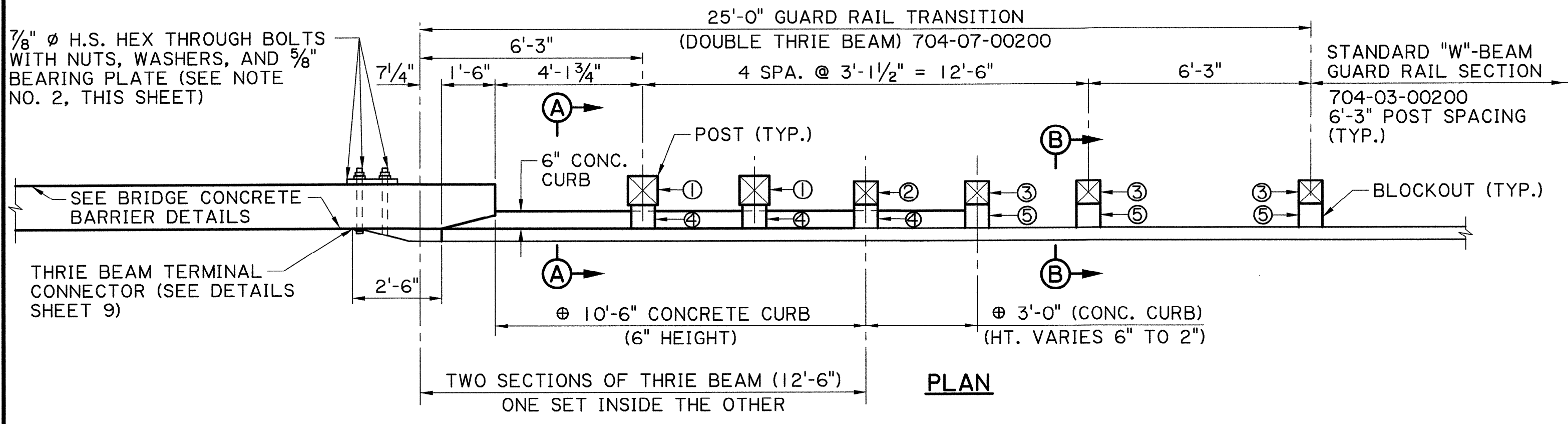


STANDARD PLAN
 BD.1.1.0.02
 GR-MASH-ON
 HIGHWAY GUARD RAIL (MASH) BRIDGE APPLICATION (TYPICAL LAYOUT)



BRIDGE AND STRUCTURAL DESIGN

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 12/13/2018
 I.P. PWP-0811905\BD.1.1.0.03 - HIGHWAY GUARD RAIL (MASH) .cgn



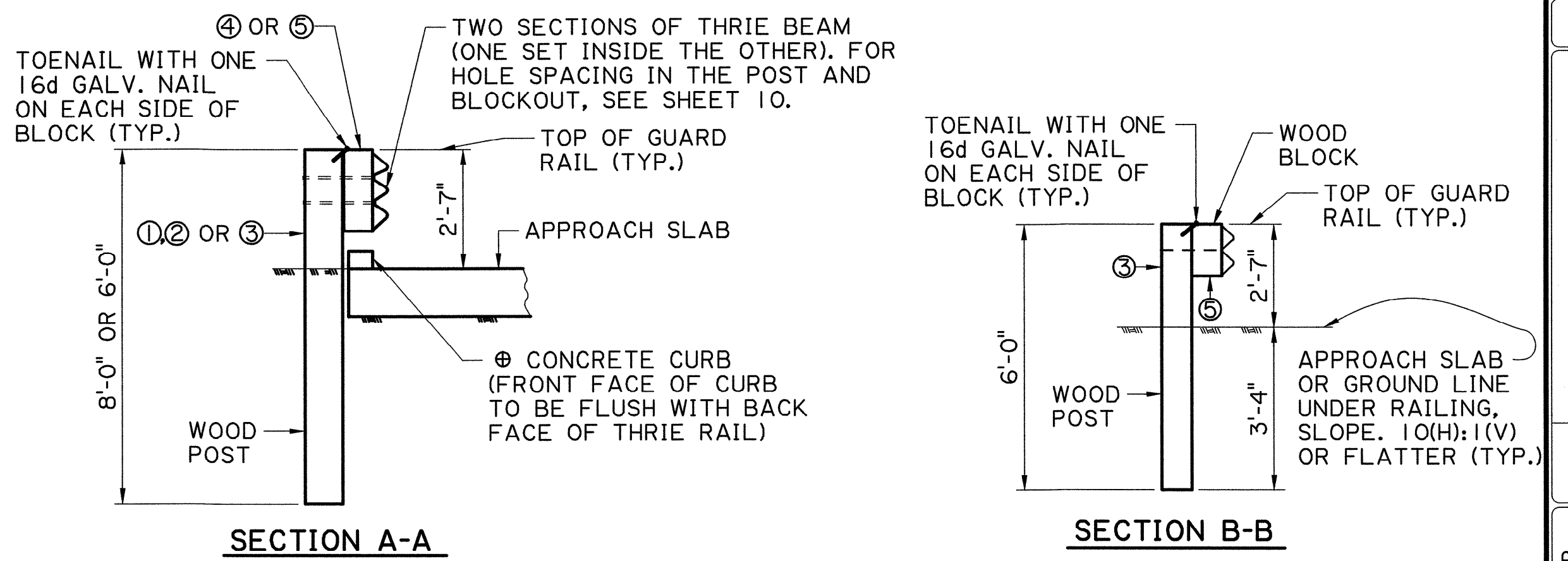
NOTES

- THIS GUARD RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO THE CONCRETE BARRIER SHAPE AS SHOWN. SEE BRIDGE BARRIER RAILING DETAILS FOR INFORMATION.
- 7/8" Ø H.S. BOLTS FOR CONCRETE BARRIER AND THRIE BEAM TERMINAL CONNECTOR SHALL BE ASTM A449. FOR 5/8" STEEL BEARING PLATE, SEE SHEET 9. GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A153.
- STEEL POST ALTERNATES: STEEL POSTS ARE ALLOWED AS AN ALTERNATE TO WOOD POSTS. USE W8 x 24 STEEL POST ALTERNATE FOR 10" x 10" WOOD POST. USE W6 x 25 STEEL POST ALTERNATE FOR 8" x 8" WOOD POST. USE SAME LENGTHS AS WOOD POSTS.
- BLOCKOUTS: USE WOOD BLOCKOUTS ONLY, STEEL AND RECYCLED BLOCKOUTS ARE NOT PERMITTED FOR THE GUARD RAIL TRANSITION. ALL WOOD BLOCKOUTS ARE REQUIRED TO BE ROUTED WHEN USED WITH STEEL POSTS. SEE SHEET 10.
- INTERMIXING OF STEEL AND WOOD POSTS IN THE GUARD RAIL TO BRIDGE RAIL TRANSITION SECTION IS NOT ALLOWED.
- FOR GUARD RAIL TRANSITIONS CONSTRUCTED WITH NEW APPROACH SLABS, CONCRETE CURBS SHALL BE USED AND PAID FOR WITH THE APPROACH SLAB PAY ITEM. FOR GUARD RAIL TRANSITIONS CONSTRUCTED WHEN THE APPROACH SLAB OR PAVEMENT IS EXISTING AND A NEW CURB IS NEEDED, THE ASPHALT CURB ALTERNATE DETAIL SHALL BE USED ON ASPHALT PAVEMENTS, AND PAID FOR UNDER 707-04-00100, "ASPHALT CURB" OR AS INDICATED IN THE PLANS. ON EXISTING CONCRETE PAVEMENTS, THE CONCRETE CURB ALTERNATE DETAIL SHALL BE USED AND PAID FOR UNDER 707-01-00100, "CONCRETE CURB" OR AS INDICATED IN THE PLANS.

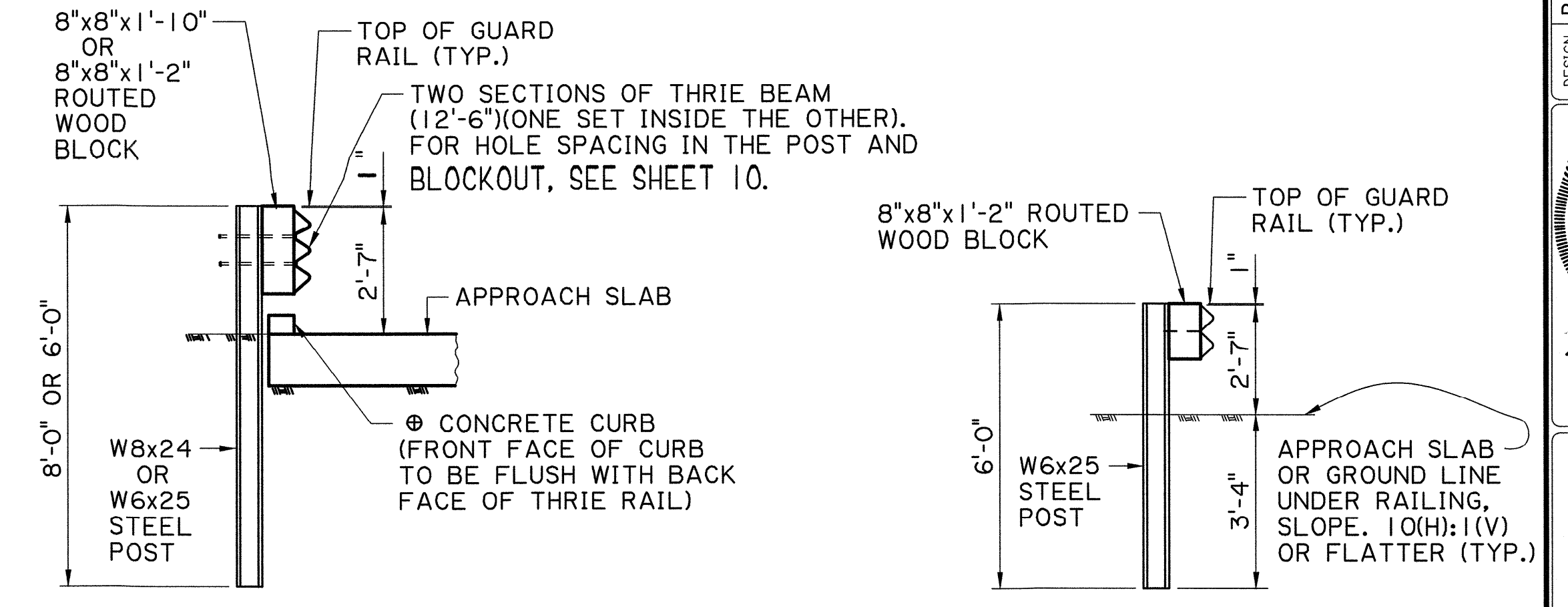
***WOOD POST & WOOD BLOCKOUT FOR GUARD RAIL TRANSITION**

NO.	SIZE (WIDTHxDEPTHxLENGTH)
①	10" x 10" x 8'-0" POST
②	8" x 8" x 8'-0" POST
③	8" x 8" x 6'-0" POST
④	8" x 8" x 1'-10" BLOCKOUT
⑤	8" x 8" x 1'-2" BLOCKOUT

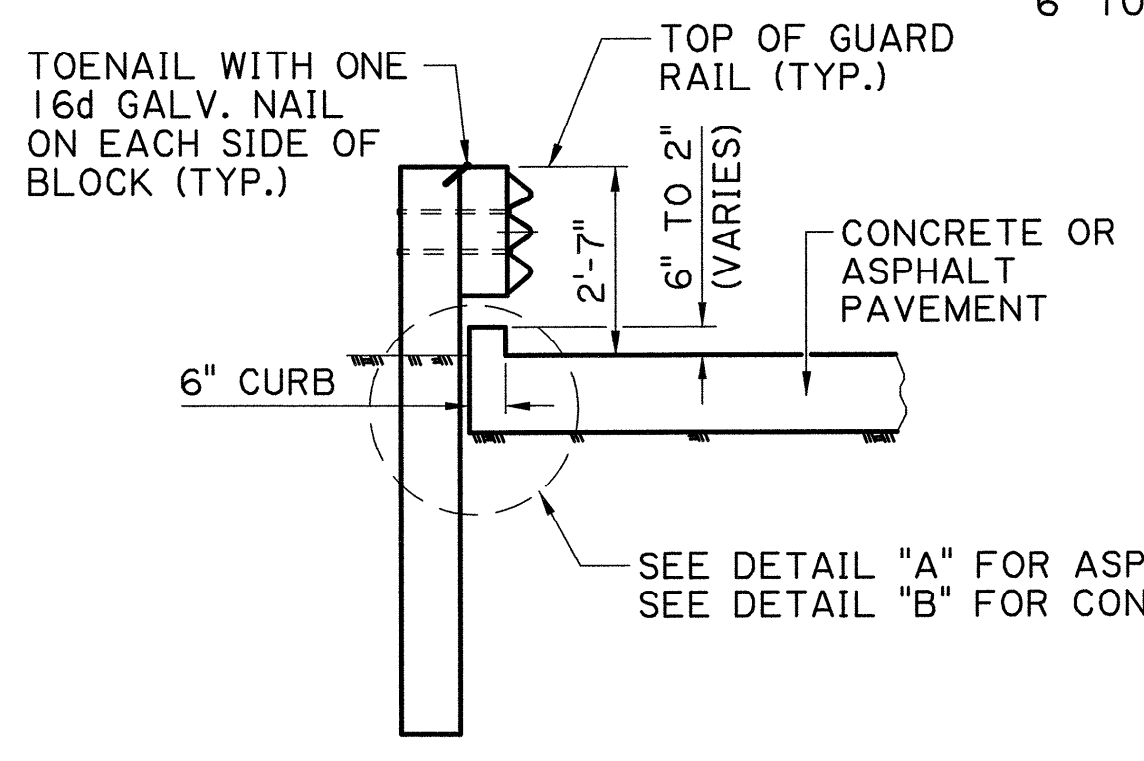
*SEE NOTE FOR STEEL POST ALTERNATE



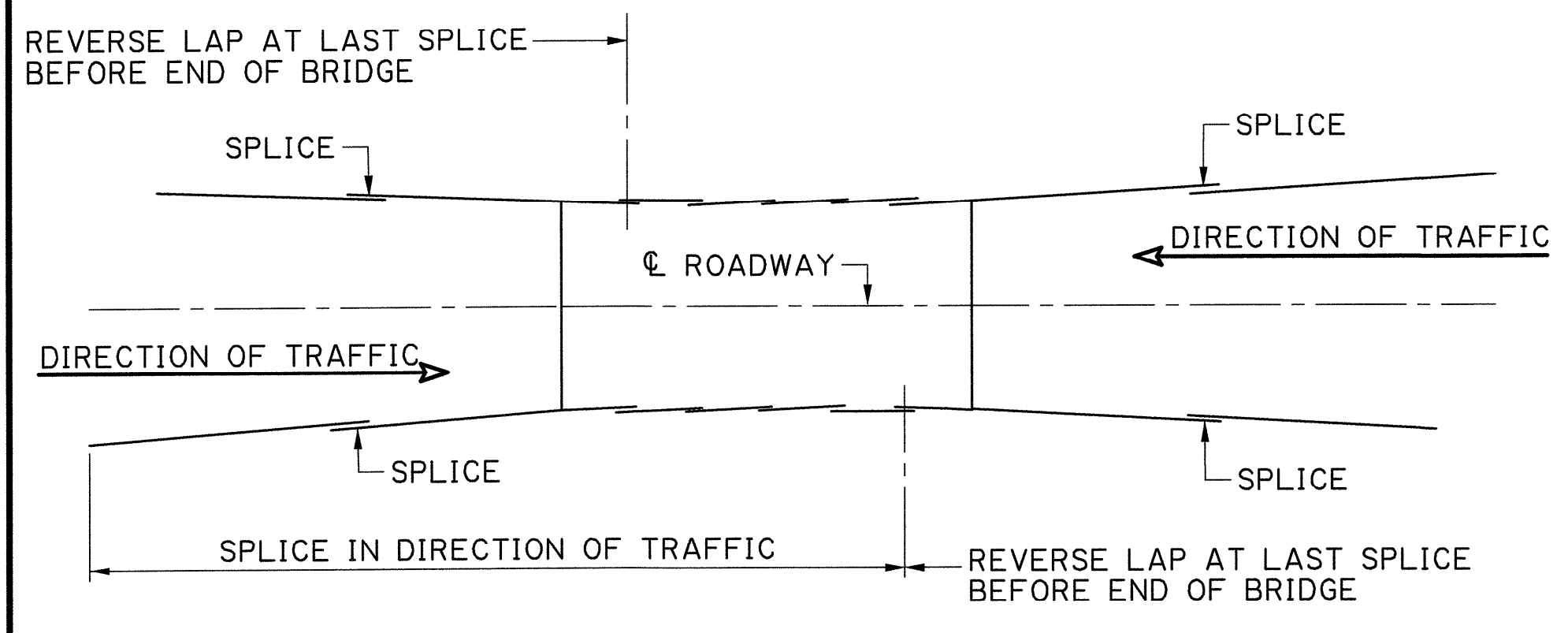
WOOD POST & WOOD BLOCKOUT
(POST & BLOCKOUT SIZE VARY IN TRANSITION, SEE PLAN VIEW)



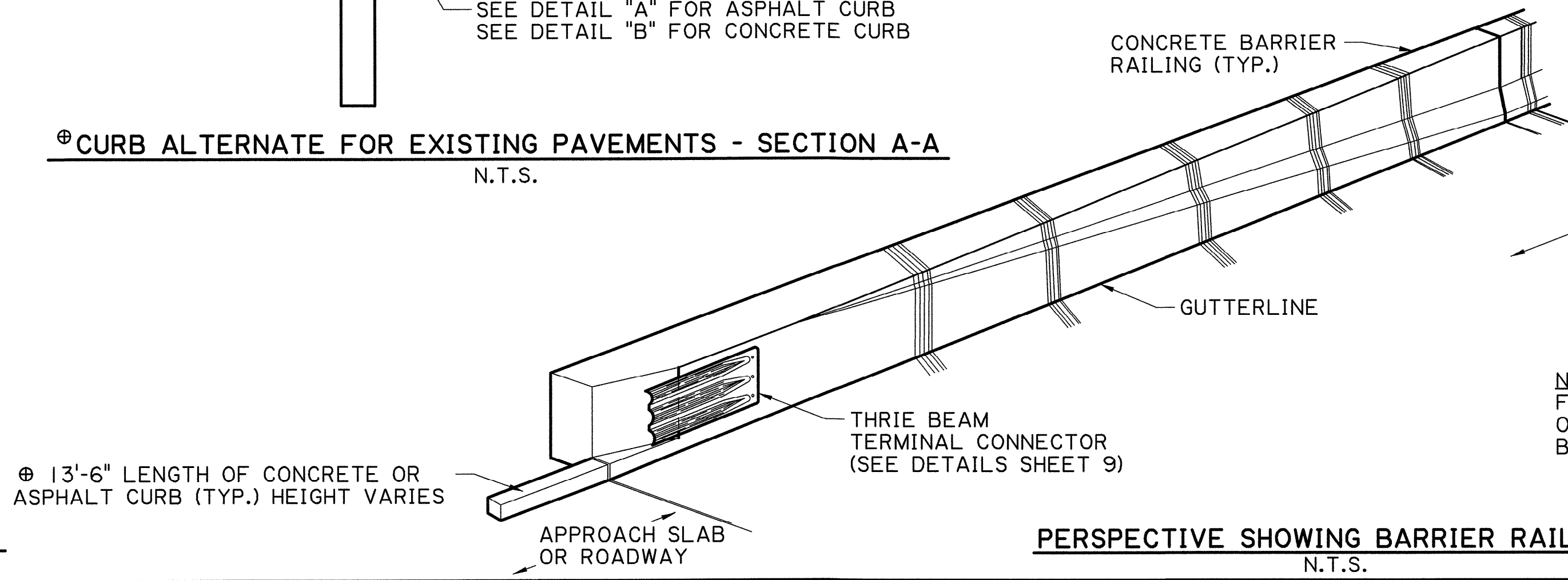
STEEL POST & ROUTED WOOD BLOCKOUT ALTERNATE
(POST & BLOCKOUT SIZE VARY IN TRANSITION, SEE PLAN VIEW)



***CURB ALTERNATE FOR EXISTING PAVEMENTS - SECTION A-A**
N.T.S.



LAYOUT SHOWING DIRECTION OF GUARD RAIL SPLICE FOR TWO WAY TRAFFIC
N.T.S.



PERSPECTIVE SHOWING BARRIER RAIL END
N.T.S.

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

STATE OF LOUISIANA
 JASON P. CAMBRE
 License No. 39981
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 12/22/22

SHEET NUMBER	312	PARISH	CONTROL SECTION	STATE PROJECT	
DESIGN	P. FOSSIER	CHECK	K. BRAUNER	REVIEW	C. GUIDRY
DETAIL	J. DOUCET	CHECK	K. BRAUNER	SERIES #	3 OF 11

STATE OF LOUISIANA

KURT M. BRAUNER
License No. 30567
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

12/19/18

APPROVED BY: CHIEF ENGINEER

[Signature]

DATE: 1/3/19

STATE OF LOUISIANA

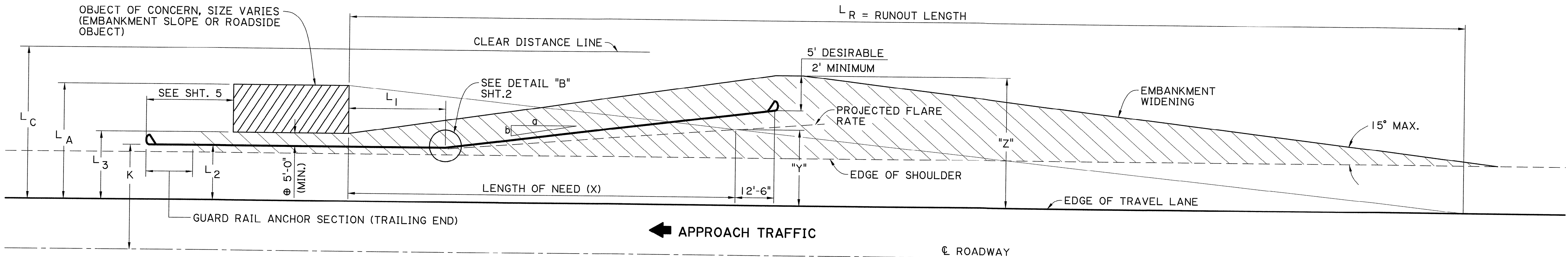
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

12/22/22

HIGHWAY GUARD RAIL (MASH) THRIE BEAM GUARD RAIL TRANSITION TO BRIDGE RAIL
 BD. I. I. O. 03
 GR-MASH-ON
 STANDARD PLAN
 BRIDGE AND STRUCTURAL DESIGN

09:44

12/13/2018



OPPOSING TRAFFIC →

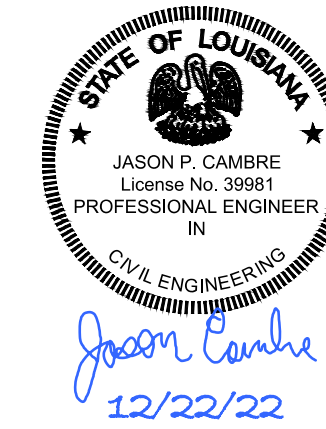
← APPROACH TRAFFIC

GUARD RAIL LAYOUT FOR SHOULDER APPLICATIONS - APPROACH VARIABLES

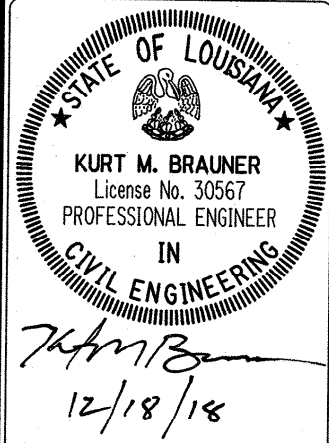
(GUARD RAIL OUTSIDE OF OPPOSING TRAFFIC'S CLEAR ZONE ; $K > L_c$)
N.T.S.

⊕ MINIMUM DISTANCE MEASURED FROM BACK FACE OF GUARD RAIL TO FRONT FACE OF OBJECT OF CONCERN.

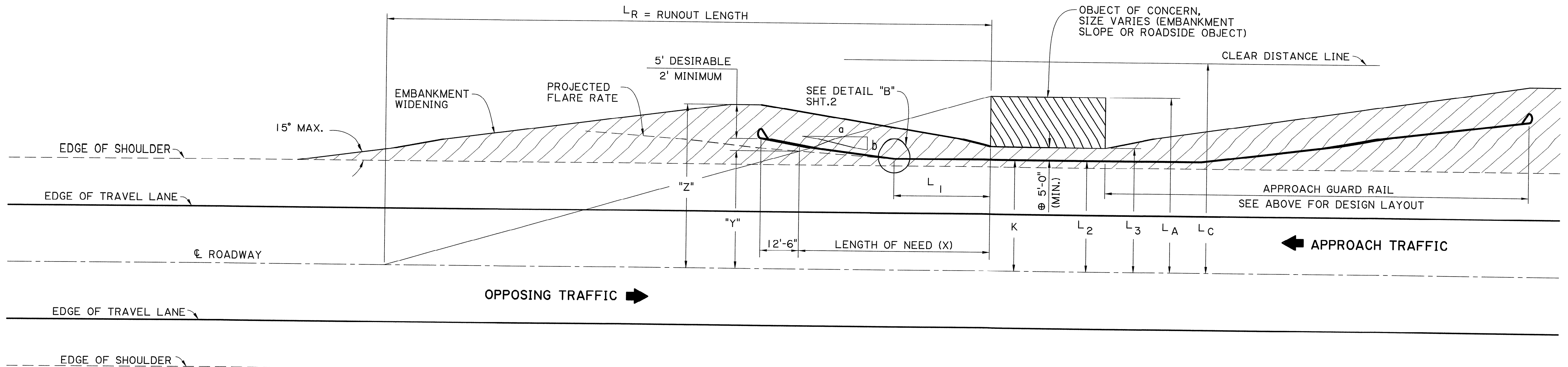
LAYOUT FOR TANGENT GUARD RAIL SECTIONS AND END TREATMENTS SIMILAR. FOR EMBANKMENT WIDENING DETAILS, SEE SHT. NO. 2.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



APPROVED BY CHIEF ENGINEER: *[Signature]* DATE: 1/3/19



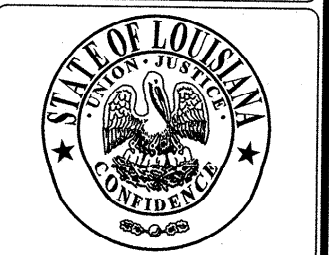
OPPOSING TRAFFIC →

← APPROACH TRAFFIC

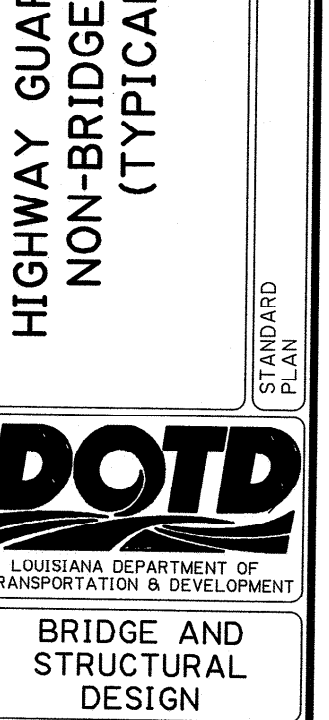
GUARD RAIL LAYOUT FOR SHOULDER APPLICATIONS - OPPOSING VARIABLES

(GUARD RAIL INSIDE OF OPPOSING TRAFFIC'S CLEAR ZONE ; $K < L_c$)
N.T.S.

IP_PWP:c0811905\BD.1.1.0.04 - HIGHWAY GUARD RAIL (MASH).dgn



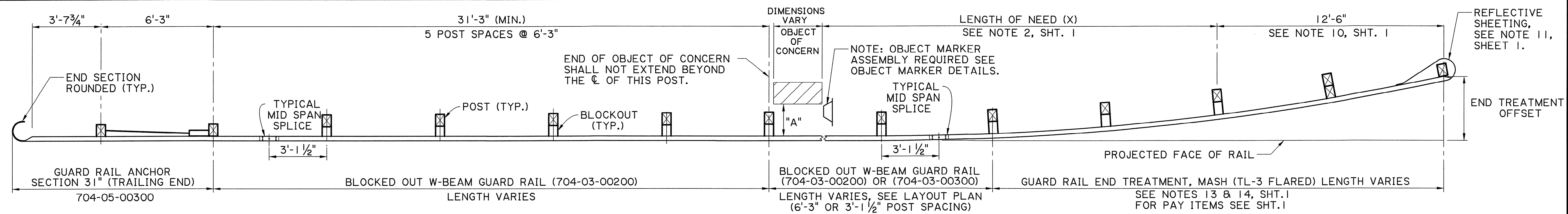
HIGHWAY GUARD RAIL (MASH) NON-BRIDGE APPLICATION (TYPICAL LAYOUT)



SHEET NUMBER 313

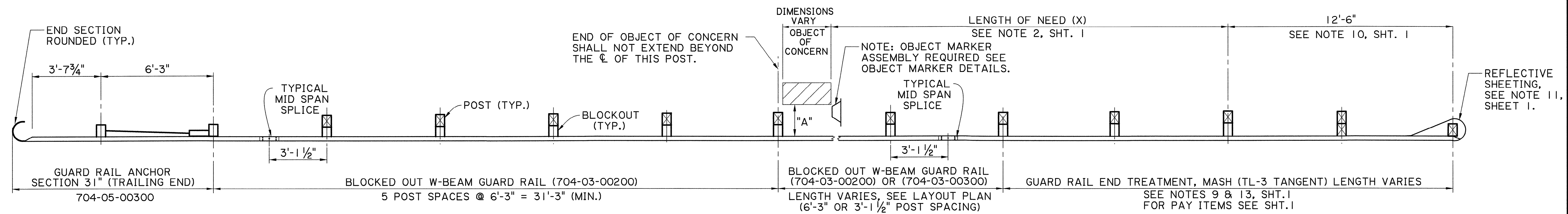
DESIGN	P. FOSSIER	PARISH	
CHECK	K. BRAUNER	CONTROL SECTION	
DETAIL	J. DOUCET	STATE PROJECT	
CHECK	K. BRAUNER		
REVIEW	C. GUIDRY		
SERIES	4 OF 11		

09:49
12/13/2018



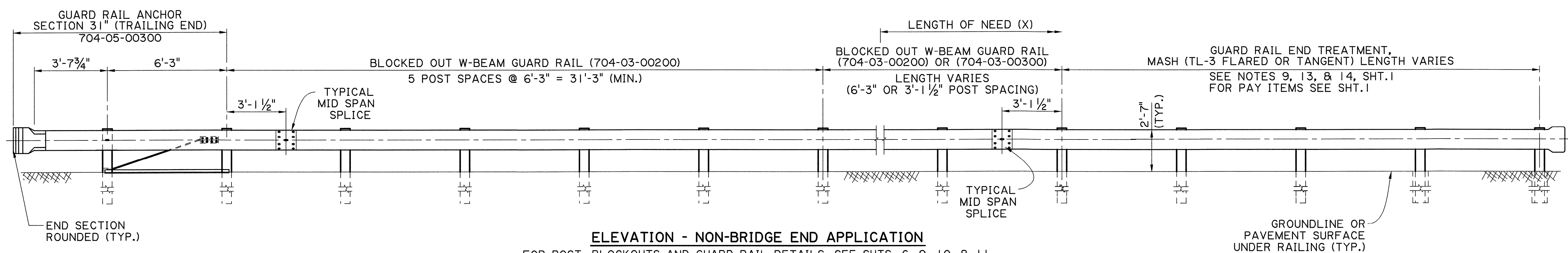
PLAN - NON-BRIDGE END APPLICATION - FLARED
N.T.S.

FOR TRAILING END TERMINAL DETAILS AND NOTES, SEE SHTS. 7 & 8.
BACK FACE OF GUARD RAIL TO FRONT FACE OF OBJECT = "A" = 5'-0" MIN.

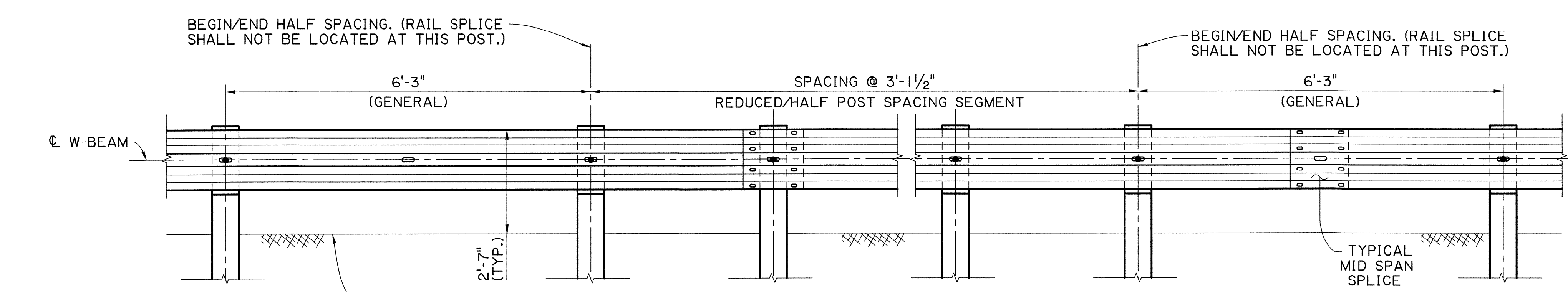


PLAN - NON-BRIDGE END APPLICATION - TANGENT
N.T.S.

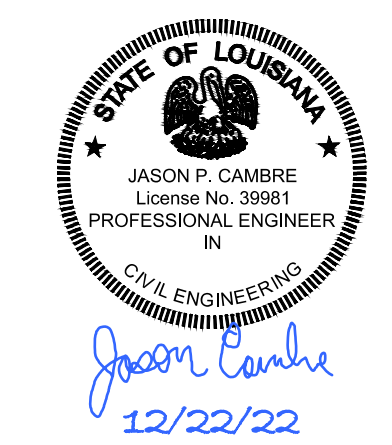
FOR TRAILING END TERMINAL DETAILS AND NOTES, SEE SHTS. 7 & 8.
BACK FACE OF GUARD RAIL TO FRONT FACE OF OBJECT = "A" = 5'-0" MIN.



ELEVATION - NON-BRIDGE END APPLICATION
FOR POST, BLOCKOUTS AND GUARD RAIL DETAILS, SEE SHTS. 6, 9, 10, & 11
N.T.S.



ELEVATION - HALF SPACING TRANSITION
(POST SPACING 6'-3" TO 3'-1 1/2")
N.T.S.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

PANEL SPLICES, FOR HALF POST SPACING TRANSITIONS
MIDSPAN PANEL SPLICES ARE NOT REQUIRED IN TRANSITION AND REDUCED POST SPACING SEGMENTS, HOWEVER THEY ARE REQUIRED FOR GENERAL SEGMENTS. TO PLACE MIDSPAN SPLICES IN GENERAL SEGMENTS NEAR A TRANSITION, USE ONE NON-GENERAL PANEL LENGTH (9'-4 1/2" OR 15'-7 1/2") OR ADD AN ADDITIONAL TRANSITION SPACED POST WHERE REQUIRED.

IP_PWP:c0811905\BD.1.1.0.05 - HIGHWAY GUARD RAIL (MASH).dgn

SHEET NUMBER	314
DESIGN	P. FOSSIER
CHECK	K. BRAUNER
DETAIL	J. DOUCET
CHECK	K. BRAUNER
REVIEW	C. GUIDRY
SERIES	5 OF 11

APPROVED BY CHIEF ENGINEER: *Jason P. Cambre* 1/9/19

DATE: 1/9/19

STATE OF LOUISIANA
KURT M. BRAUNER
License No. 30267
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

STATE OF LOUISIANA
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

12/22/22

BD.1.1.0.05
GR-MASH-ON
STANDARD PLAN

HIGHWAY GUARD RAIL (MASH)
NON-BRIDGE APPLICATION
(TYPICAL LAYOUT)

BRIDGE AND STRUCTURAL DESIGN

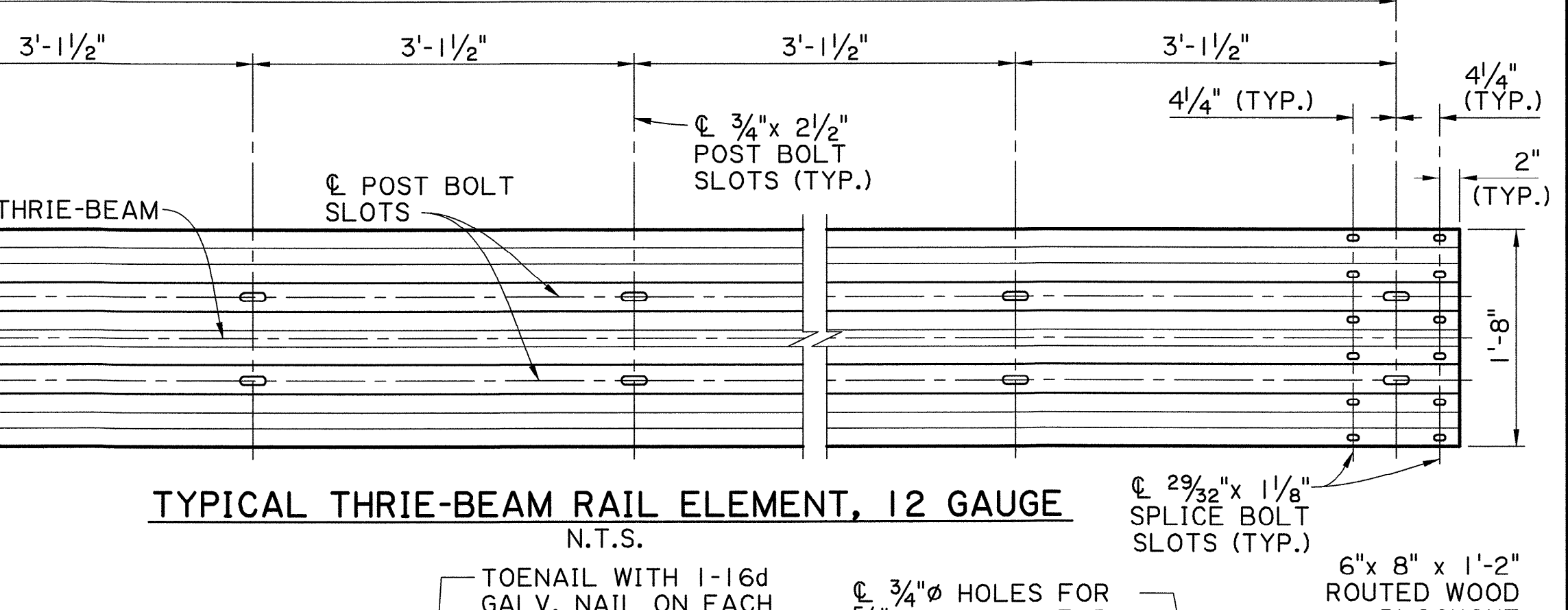
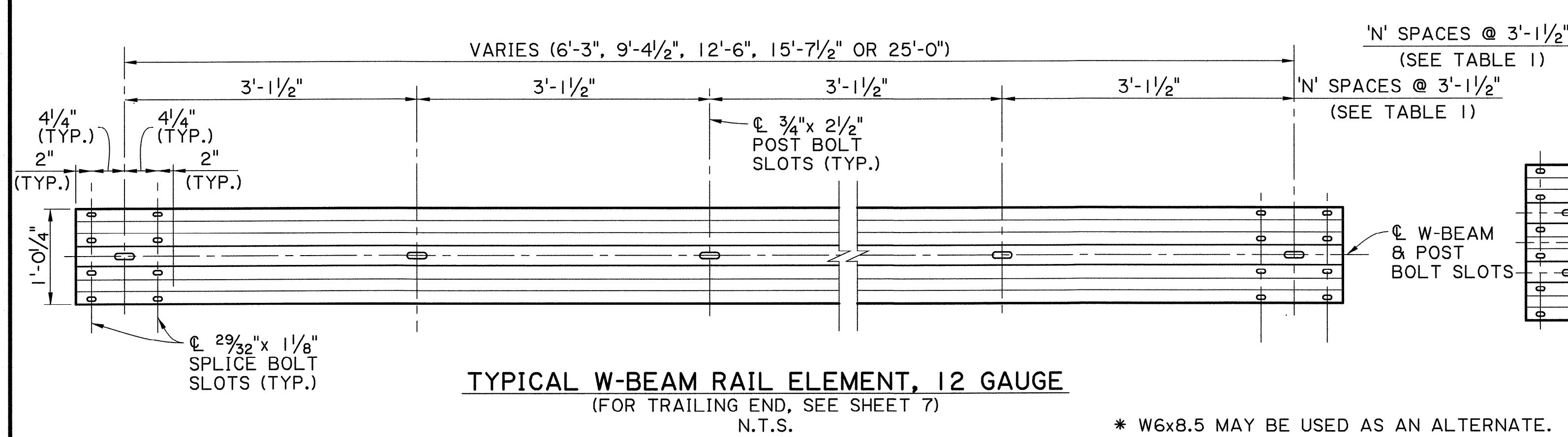
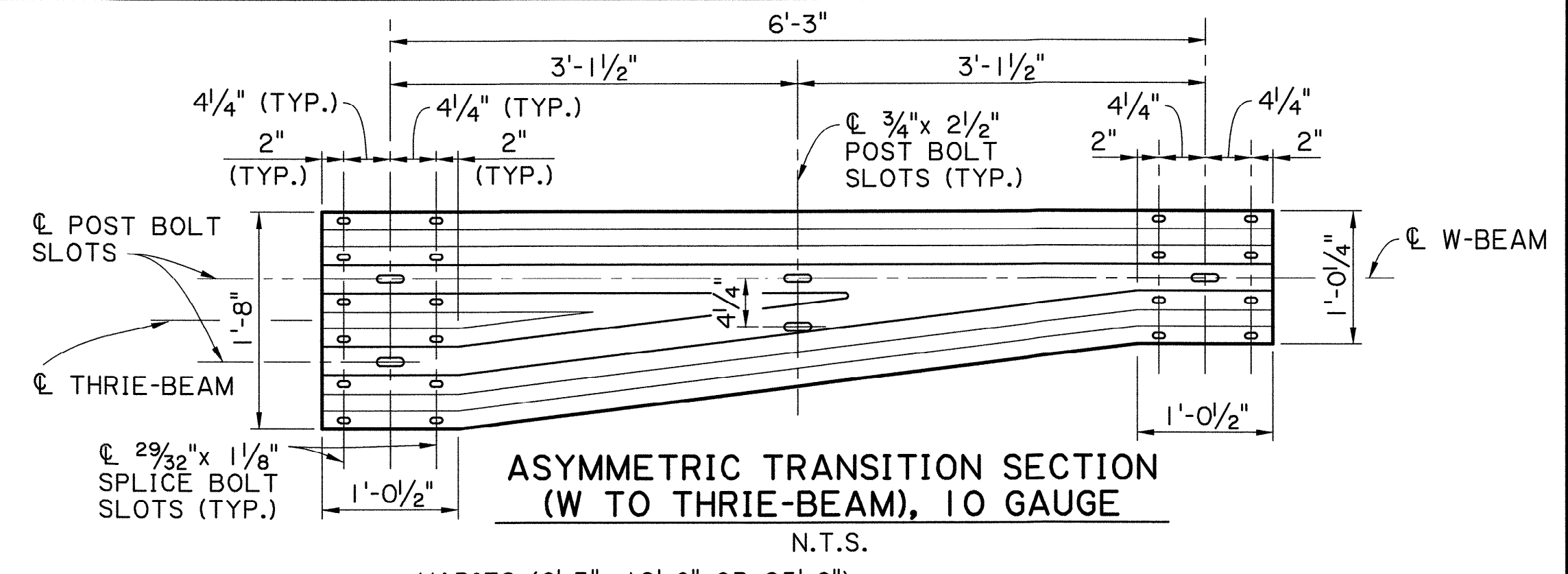
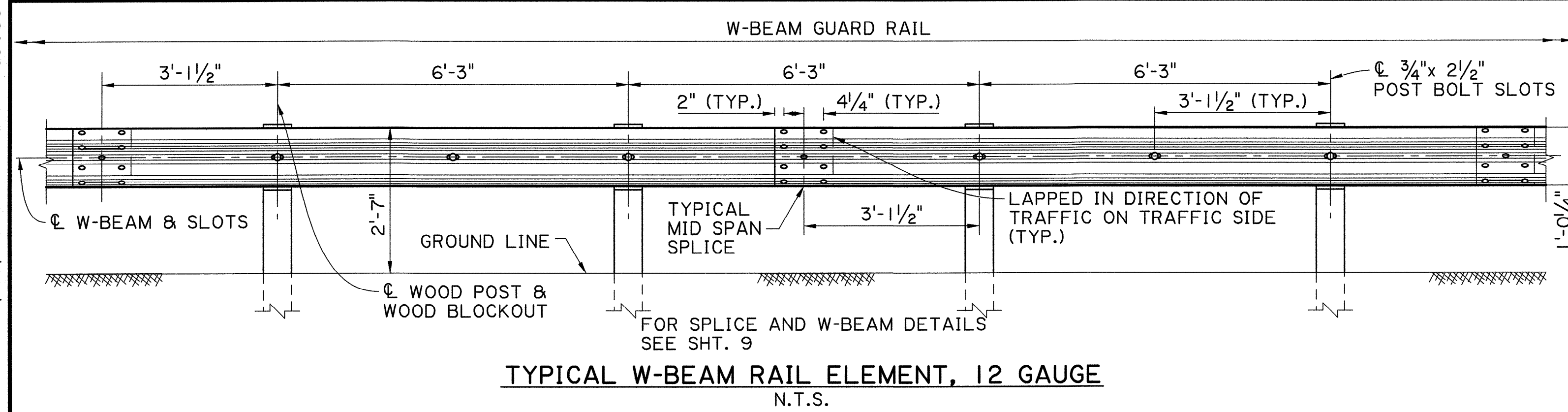
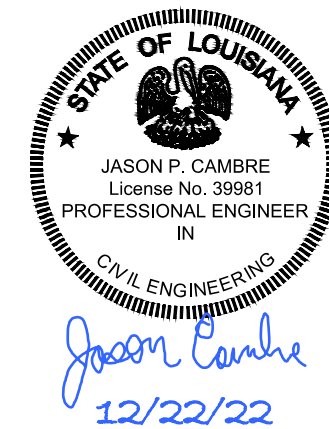


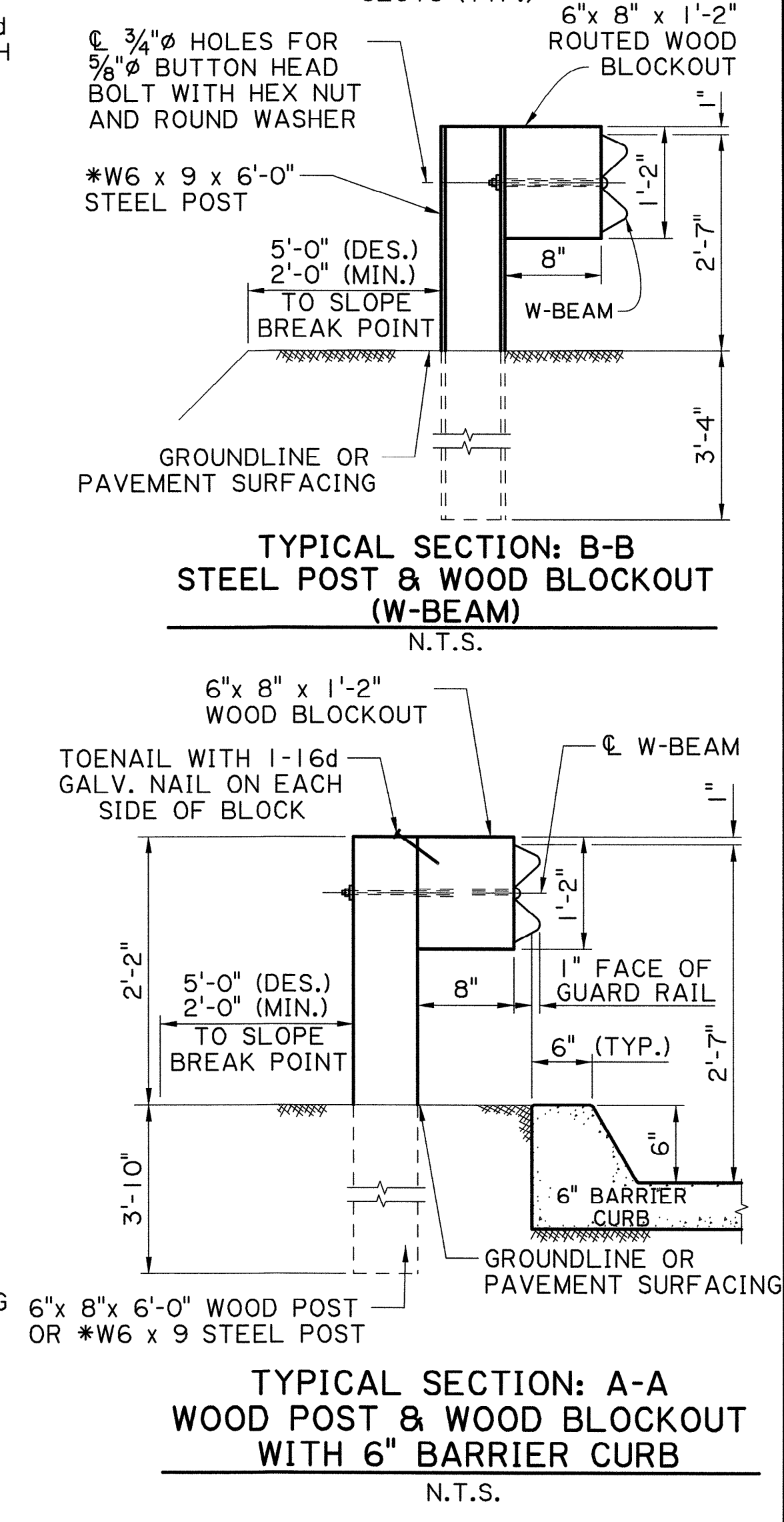
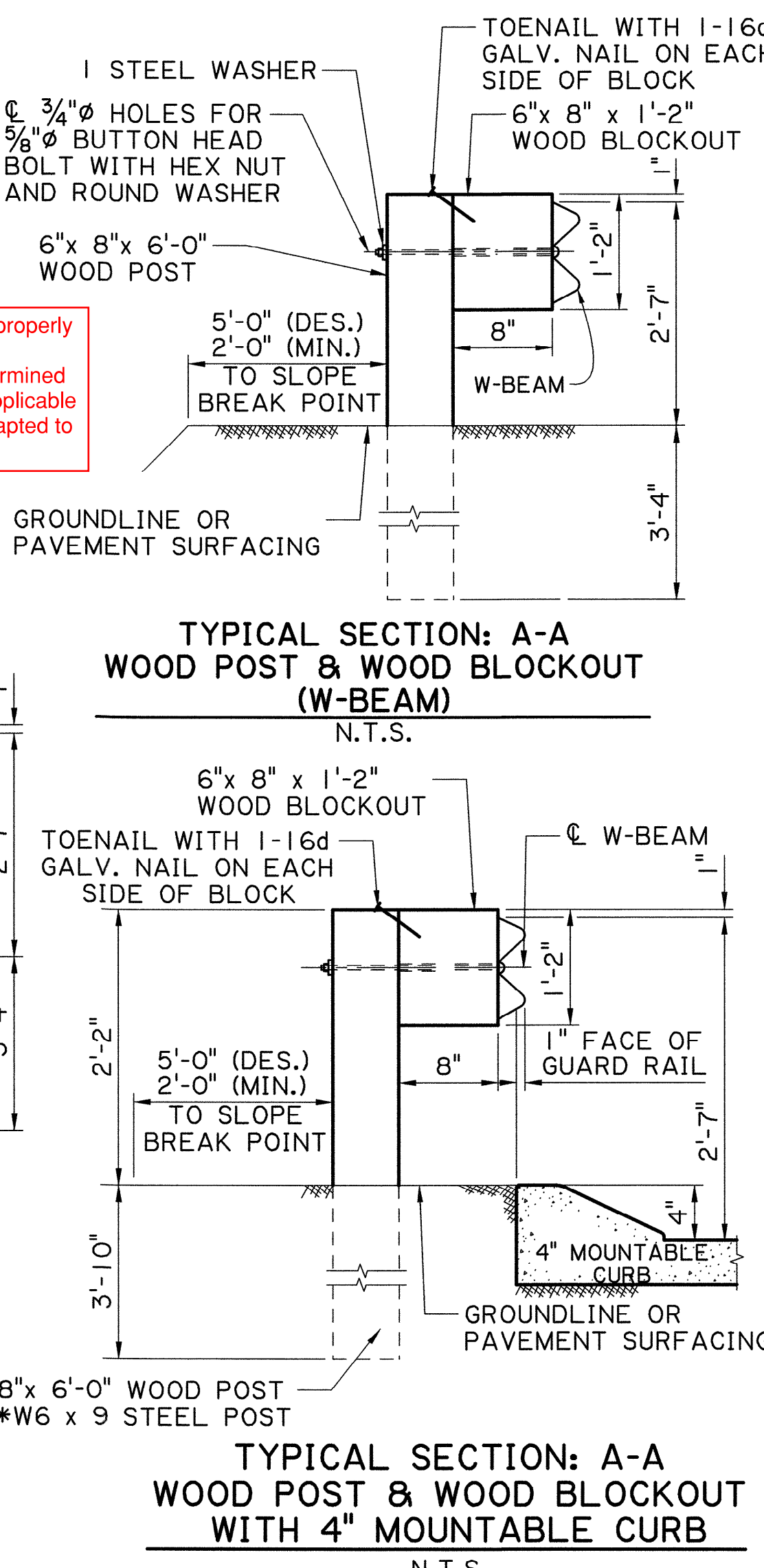
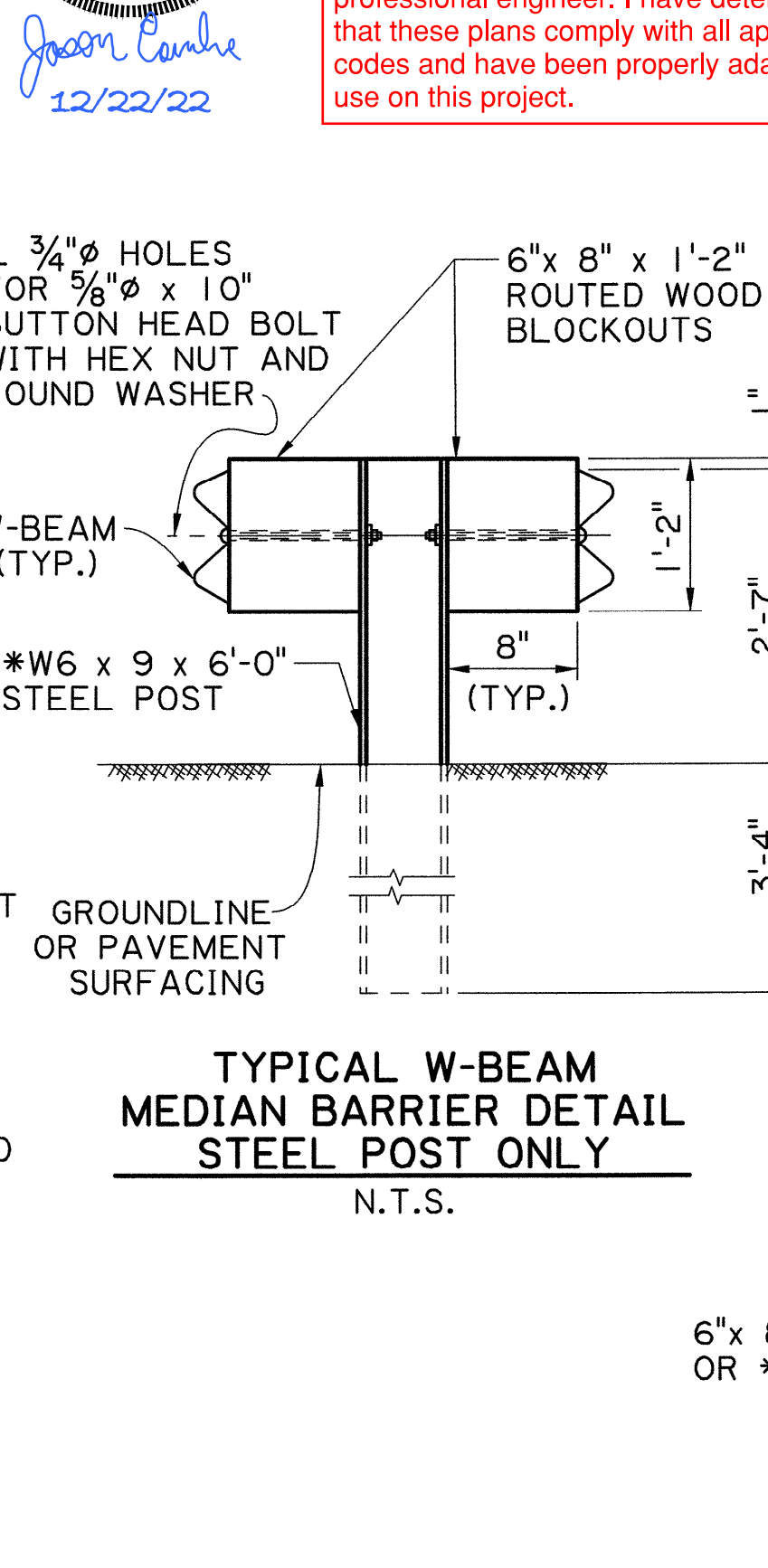
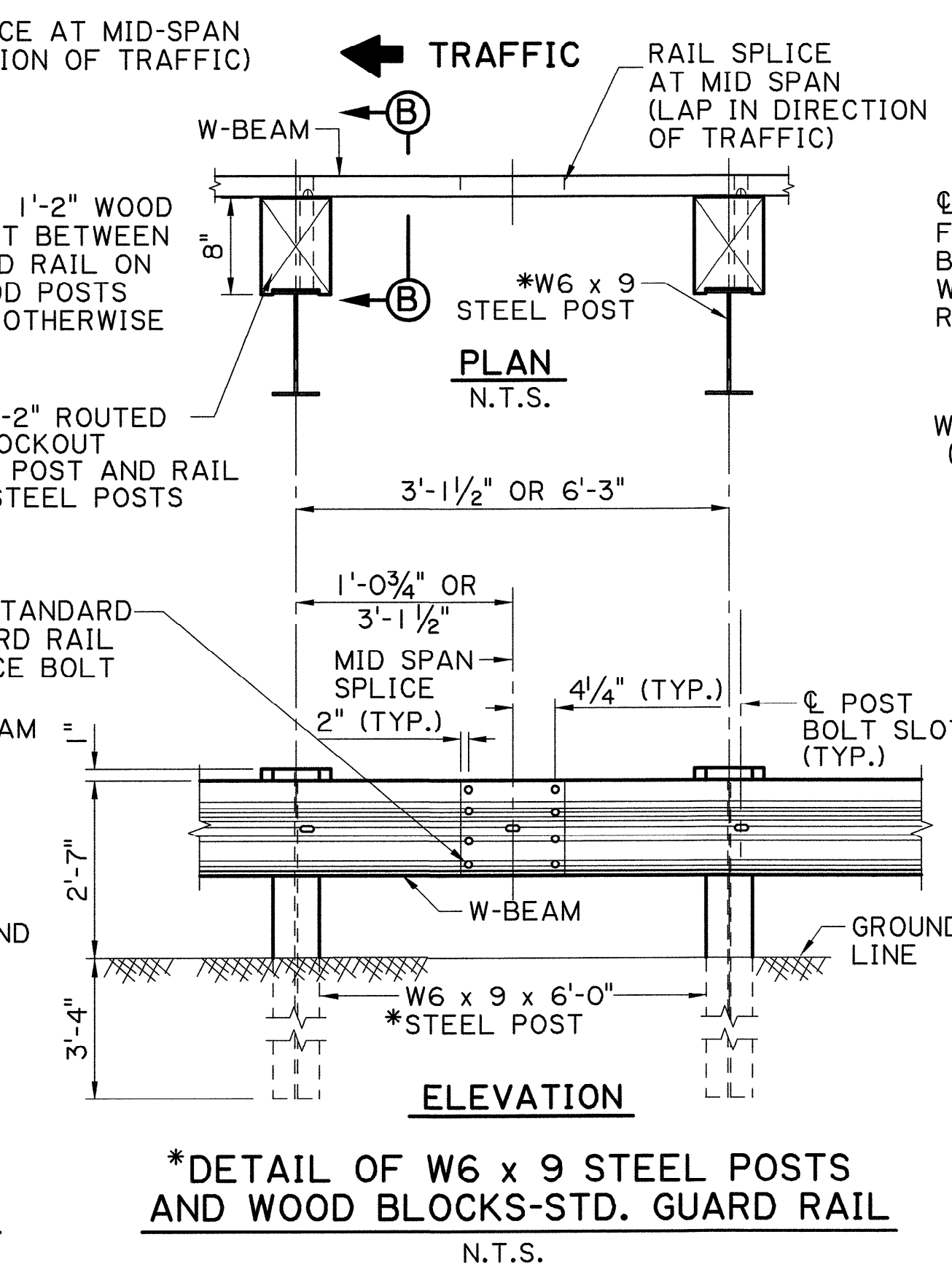
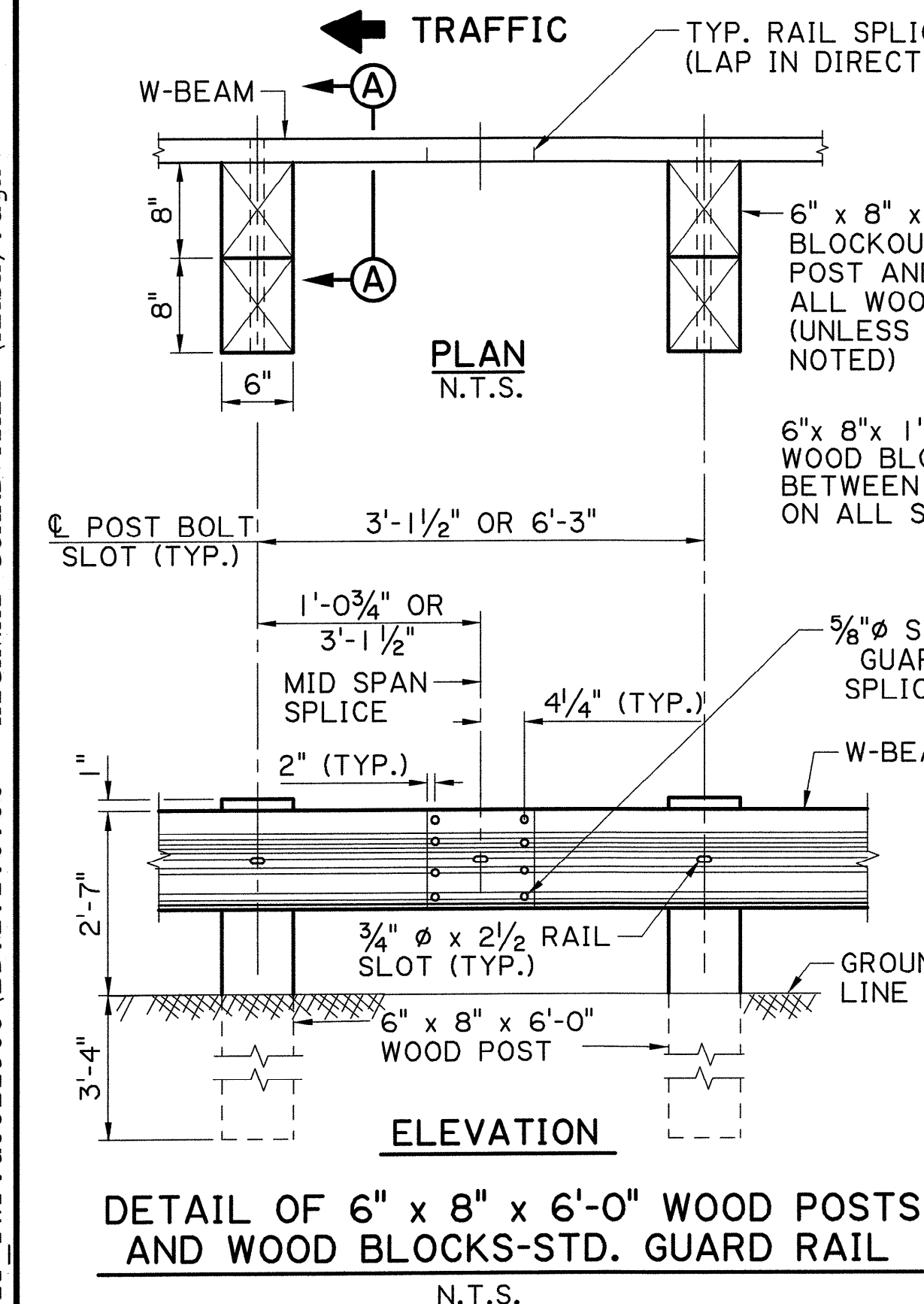
TABLE 1: ELEMENT SUMMARY TABLE:

PANEL TYPE	NUMBER OF SPACES 'N'	GAUGE	PANEL TYPE	NUMBER OF SPACES 'N'	GAUGE
6'-3" W-BEAM	2	12	6'-3" THRIE-BEAM	2	12
9'-4 1/2" W-BEAM	3	12	12'-6" THRIE-BEAM	4	12
12'-6" W-BEAM	4	12	25'-0" THRIE-BEAM	8	12
15'-7 1/2" W-BEAM	5	12	THRIE-BEAM TRANSITION	2	10
25'-0" W-BEAM	8	12			

* W6x8.5 MAY BE USED AS AN ALTERNATE.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



SHEET NUMBER 315

DESIGN: P. FOSSIER, P. BRAUNER
 CHECK: K. BRAUNER
 DETAIL: J. DOUCET
 CHECK: K. BRAUNER
 REVIEW: C. GUIDRY

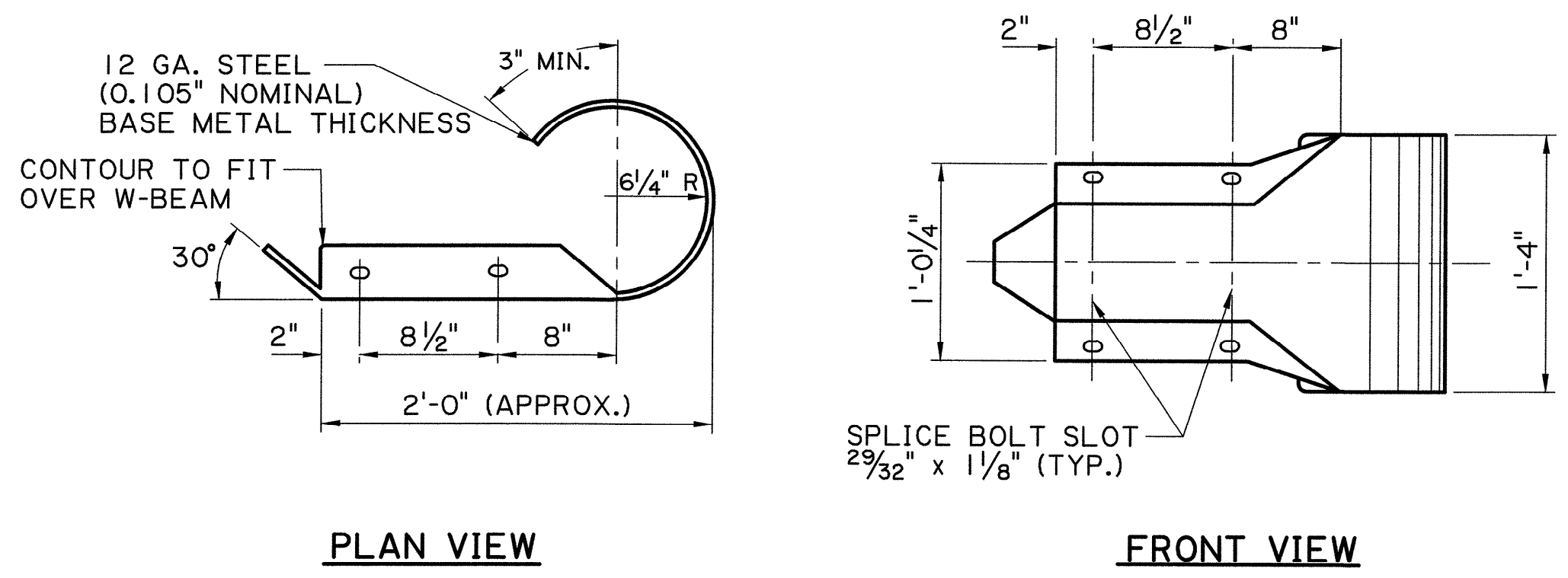
STATE PROJECT: 6 OF 11

STATE OF LOUISIANA
 KURT M. BRAUNER
 License No. 30567
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 12/13/18

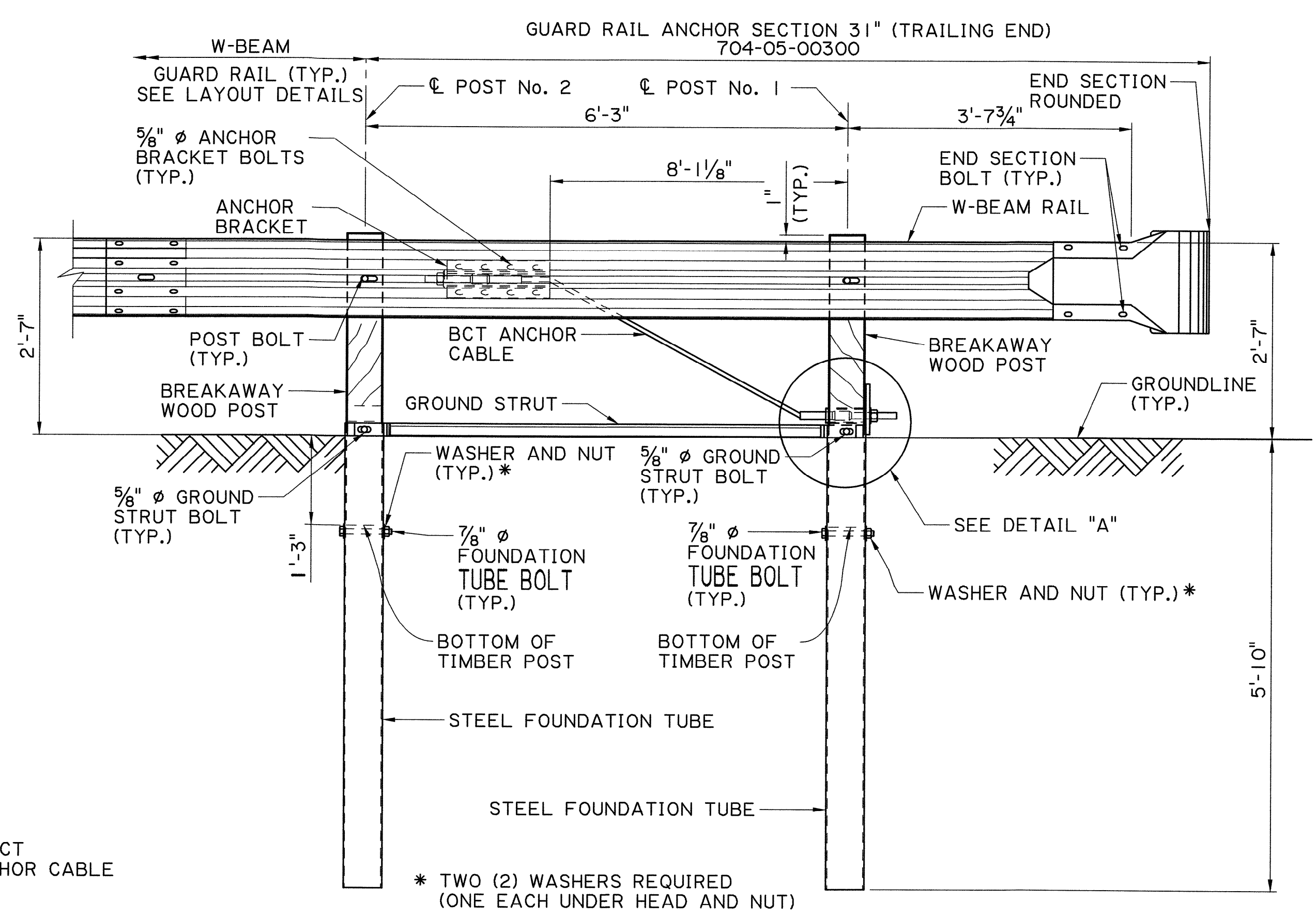
APPROVED BY CHIEF ENGINEER: [Signature]
 DATE: 1/3/19

STATE OF LOUISIANA
 HIGHWAY GUARD RAIL (MASH)
 TYPICAL DETAILS AND SECTIONS
 STANDARD PLAN: BD.1.1.0.06
 GR-MASH-ON

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
 BRIDGE AND STRUCTURAL DESIGN



W BEAM END SECTION ROUNDED N.T.S.

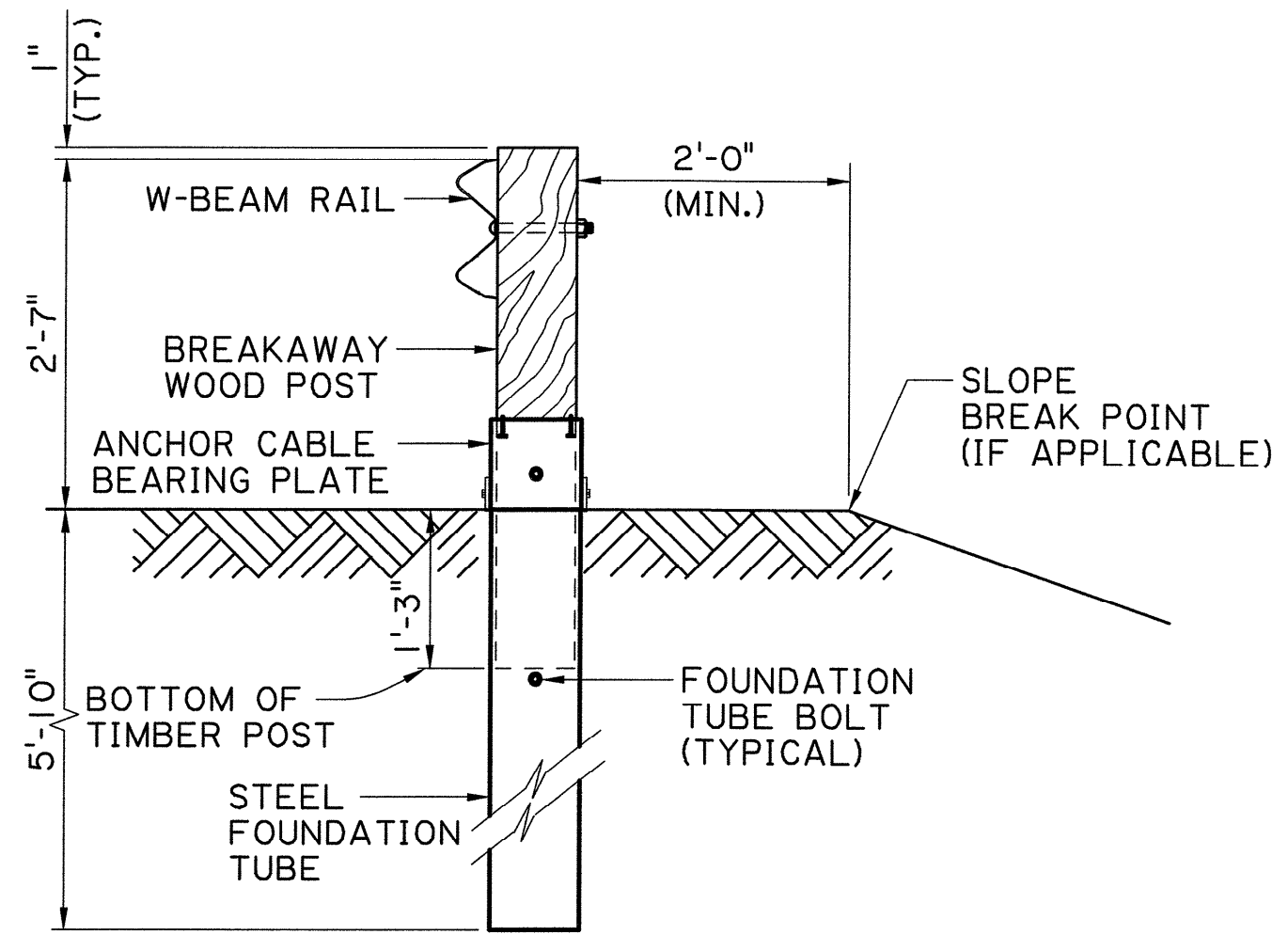


TRAILING END RAIL DETAIL - ELEVATION

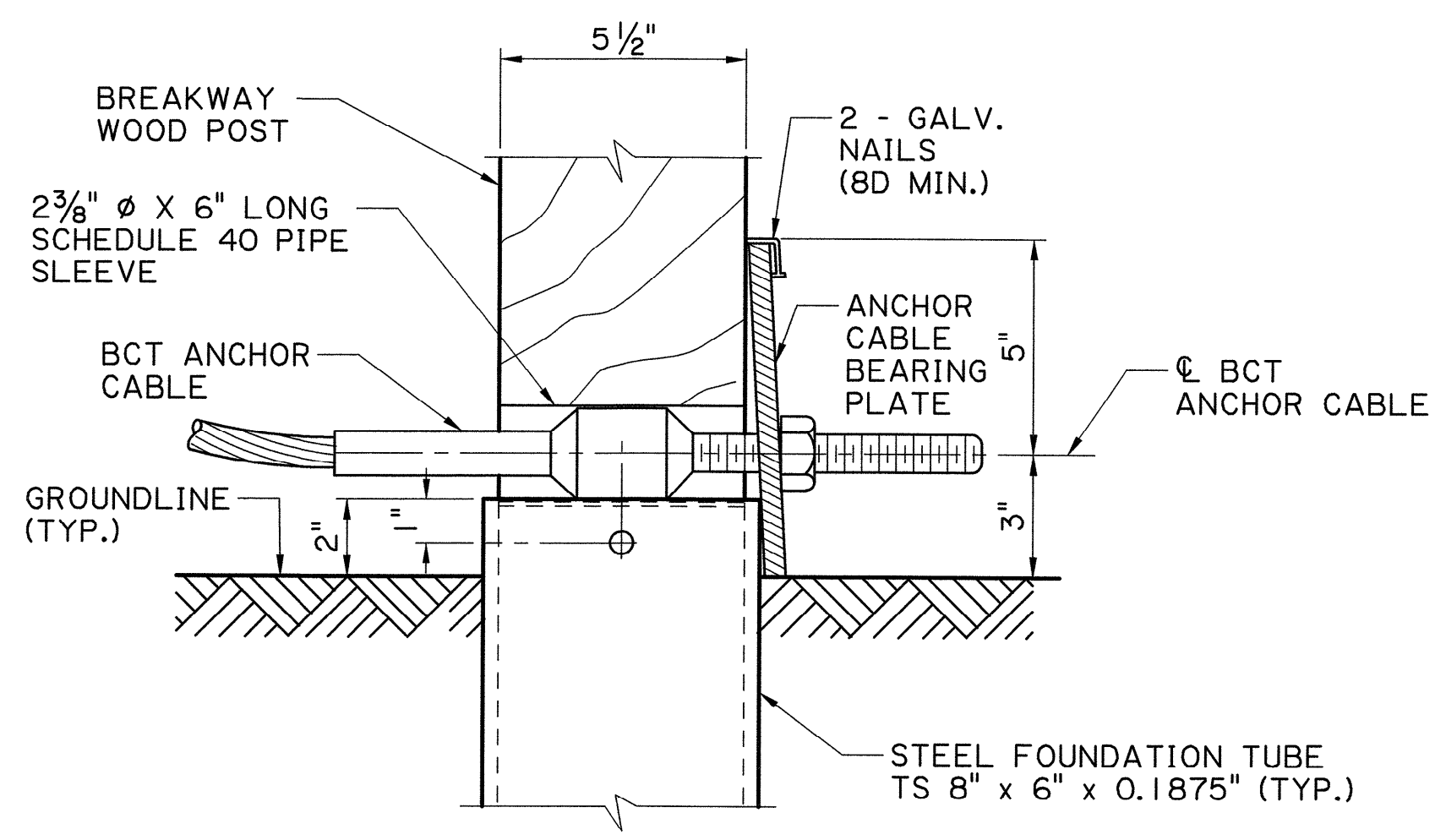
NOTE: FOR OTHER TRAILING END TERMINAL DETAILS, SEE SHT. 8 OF 11. N.T.S.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

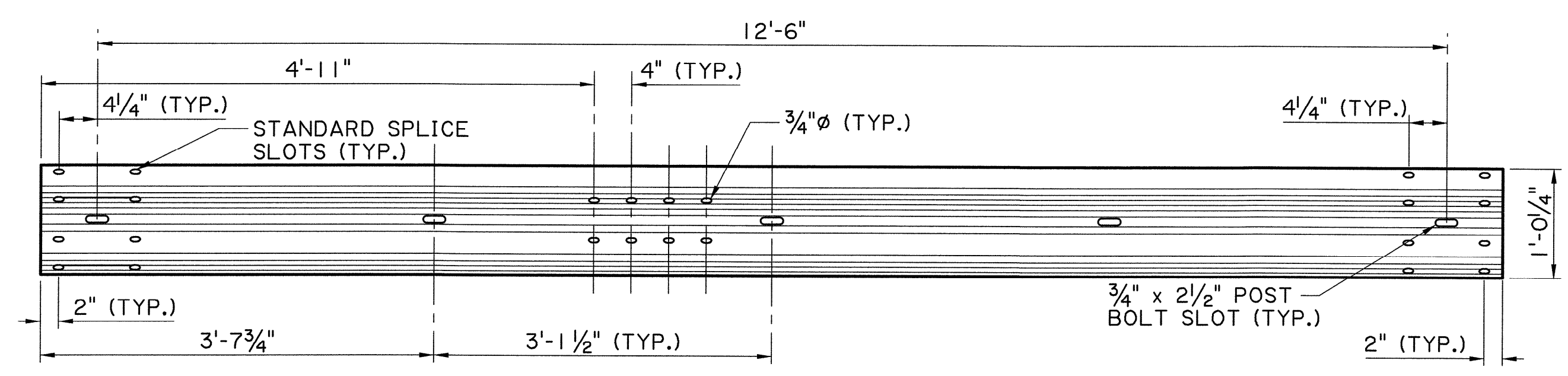


SECTION A-A - POST No. 1 N.T.S.

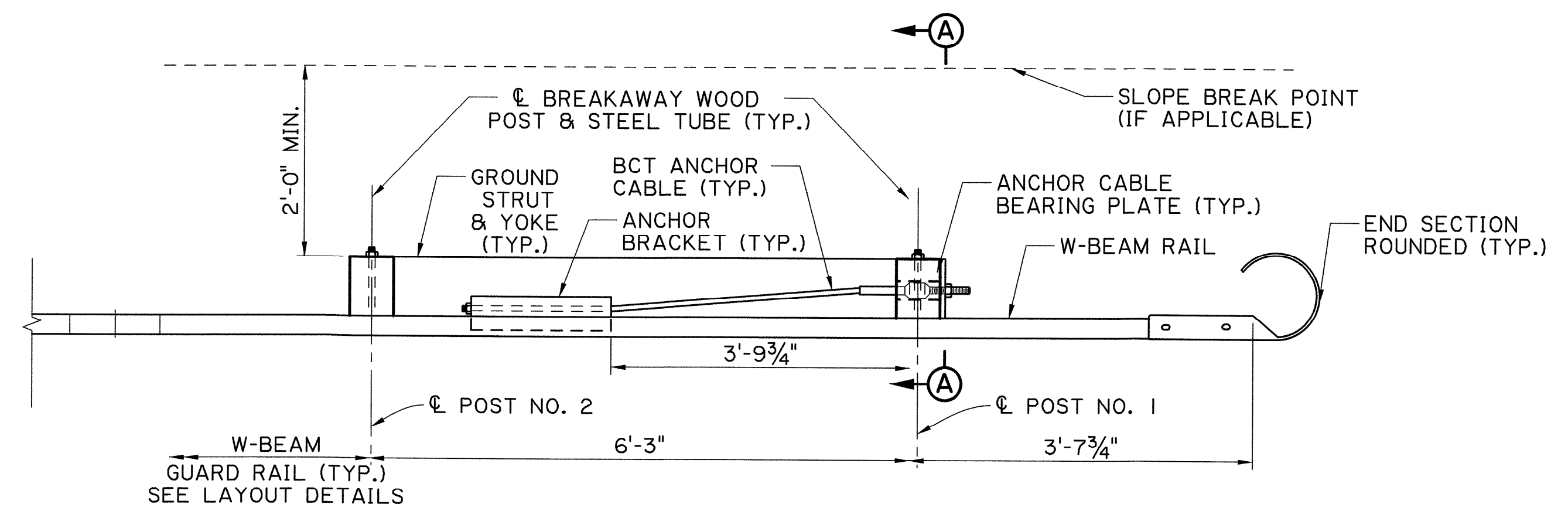


DETAIL "A" - POST No. 1

POST #1 GROUND STRUT NOT SHOWN FOR CLARITY. POST #2 SIMILAR W/O BCT ANCHOR CABLE AND BEARING PLATE. N.T.S.



TYPICAL 12'-6" W-BEAM SECTION, 12 GAUGE, TRAILING END SECTION N.T.S.



TRAILING END RAIL DETAIL - PLAN N.T.S.

SHEET NUMBER		316	
DESIGN	P. FOSSIER	CHECK	K. BRAUNER
DETAIL	J. DOUCET	CHECK	K. BRAUNER
REVIEW	C. GUIDRY	SERIES	7 OF 11
PARISH		CONTROL SECTION	
STATE PROJECT			

APPROVED BY CHIEF ENGINEER: *Christina P. Smith* DATE: 1/3/19

STATE OF LOUISIANA
KURT M. BRAUNER
License No. 30567
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/18/18

STATE OF LOUISIANA
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/22/22

HIGHWAY GUARD RAIL (MASH) TRAILING END DETAILS

BD.1.1.0.07 GR-MASH-ON STANDARD PLAN

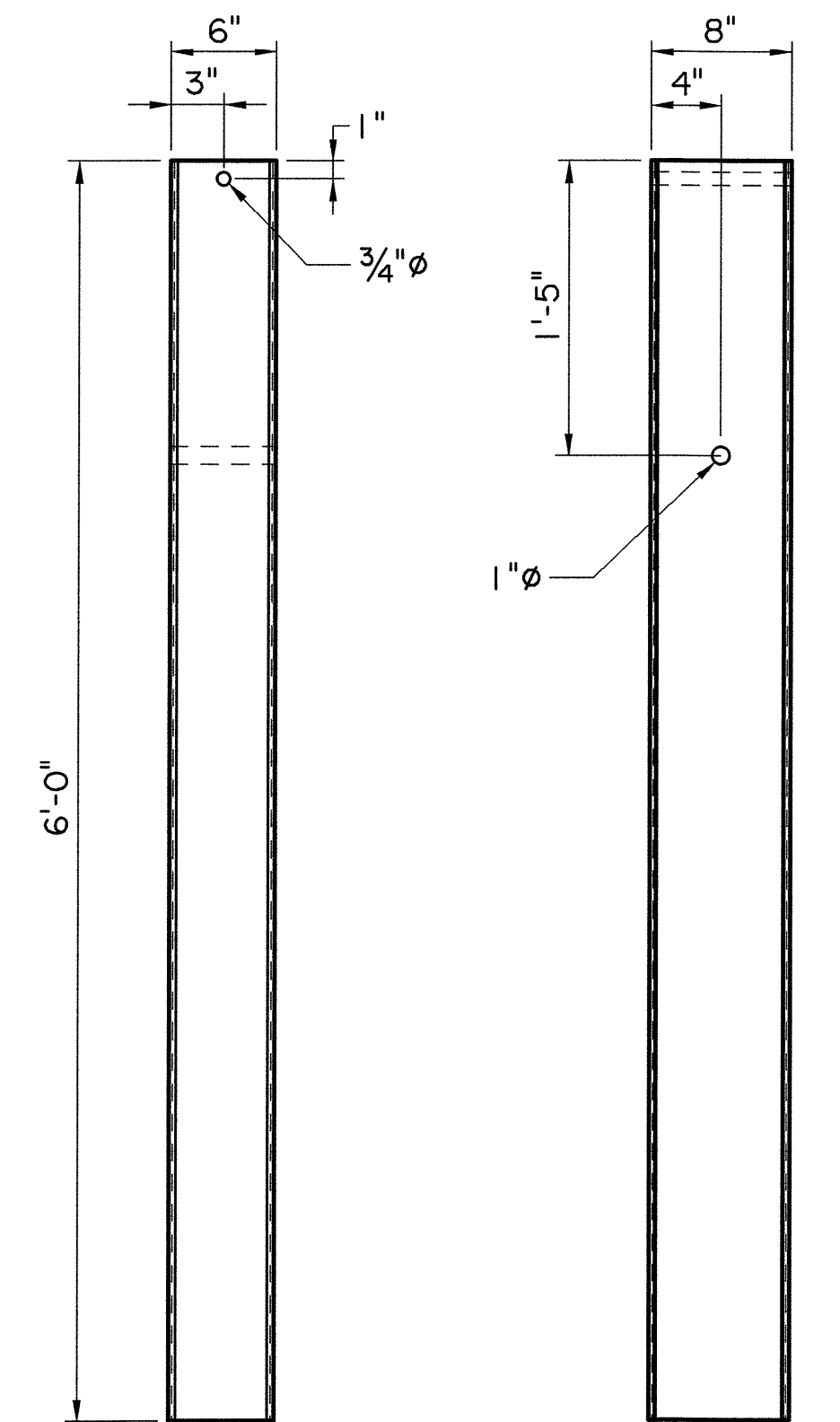
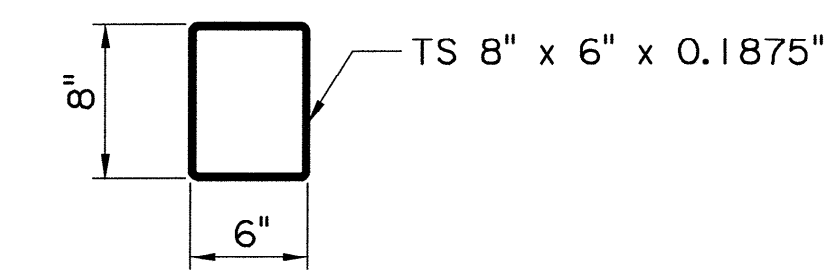
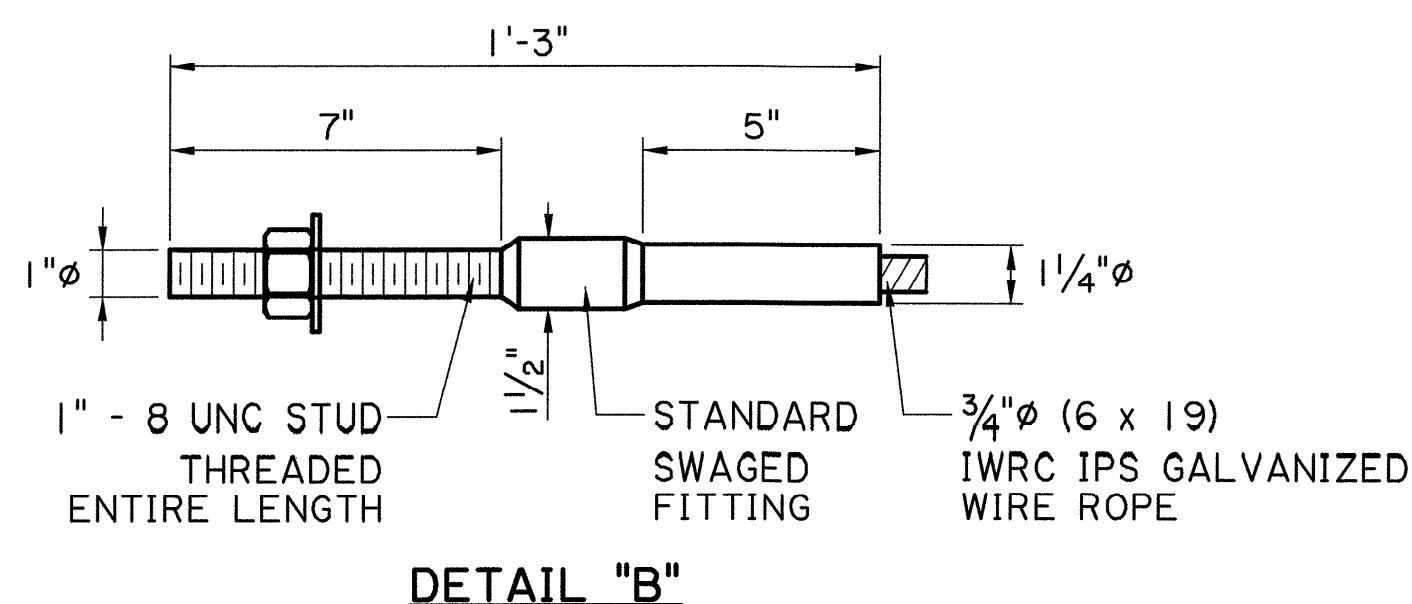
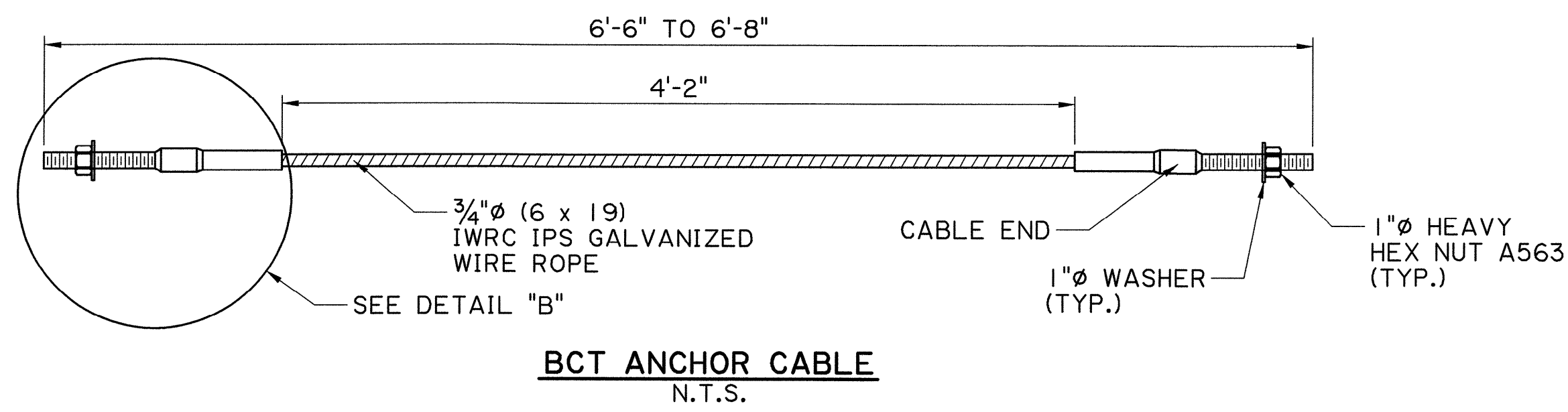
DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

BRIDGE AND STRUCTURAL DESIGN

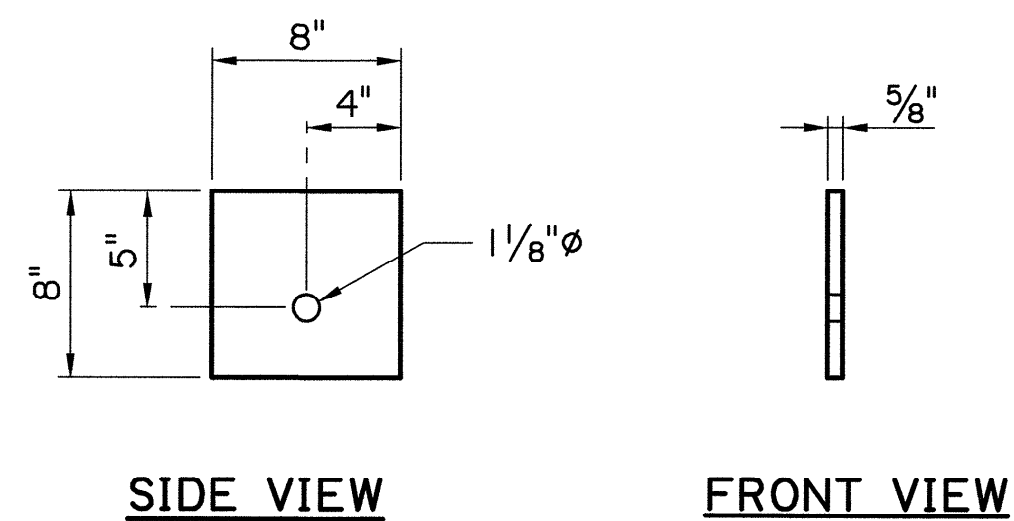
12/13/2018 10:02



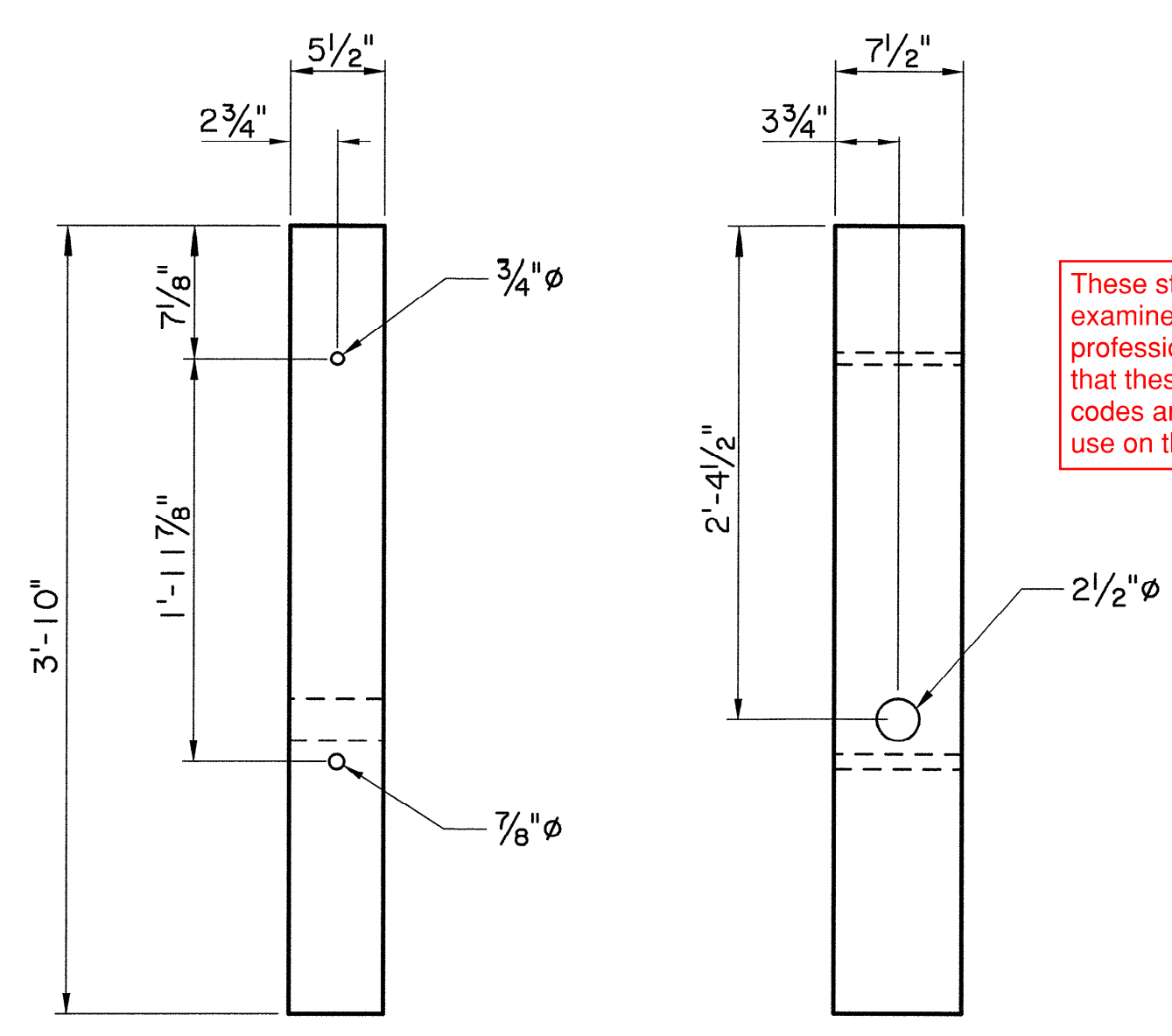
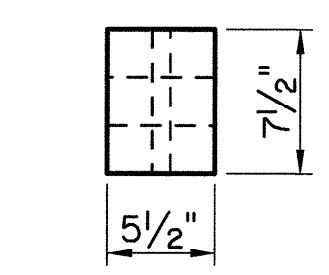
IP_PWP:d0811905\BD.1.1.0.08 - HIGHWAY GUARD RAIL (MASH).dgn



FOUNDATION TUBE
N.T.S.



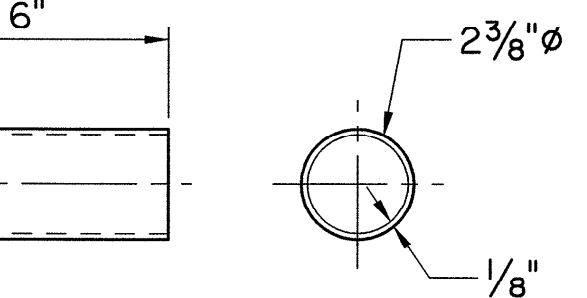
ANCHOR CABLE BEARING PLATE
N.T.S.



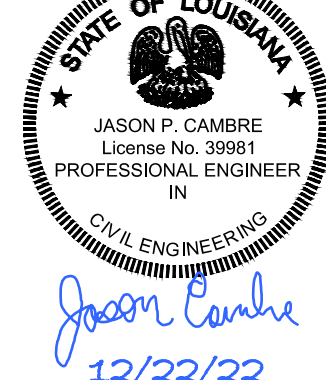
BREAKAWAY WOOD POST
N.T.S.



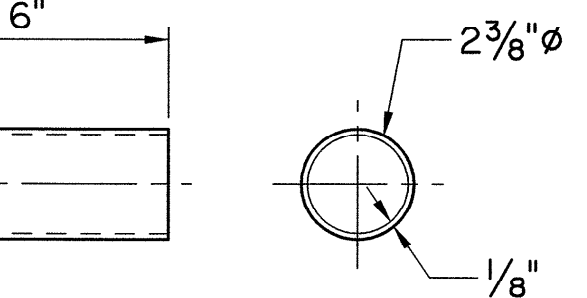
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



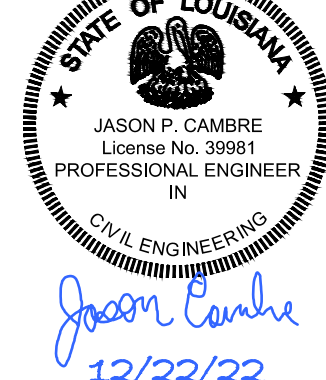
2 3/8\"/>



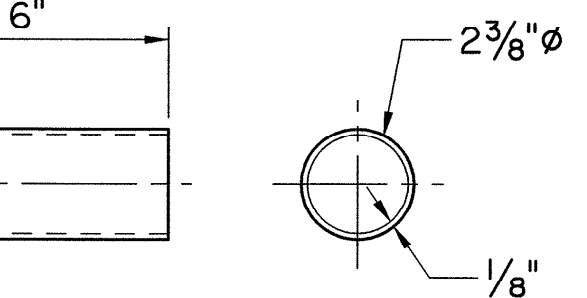
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



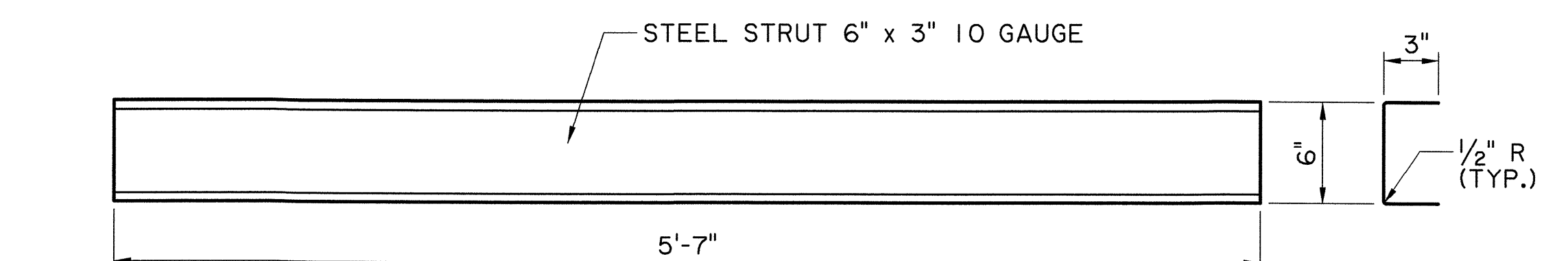
YOKE DETAIL
N.T.S.



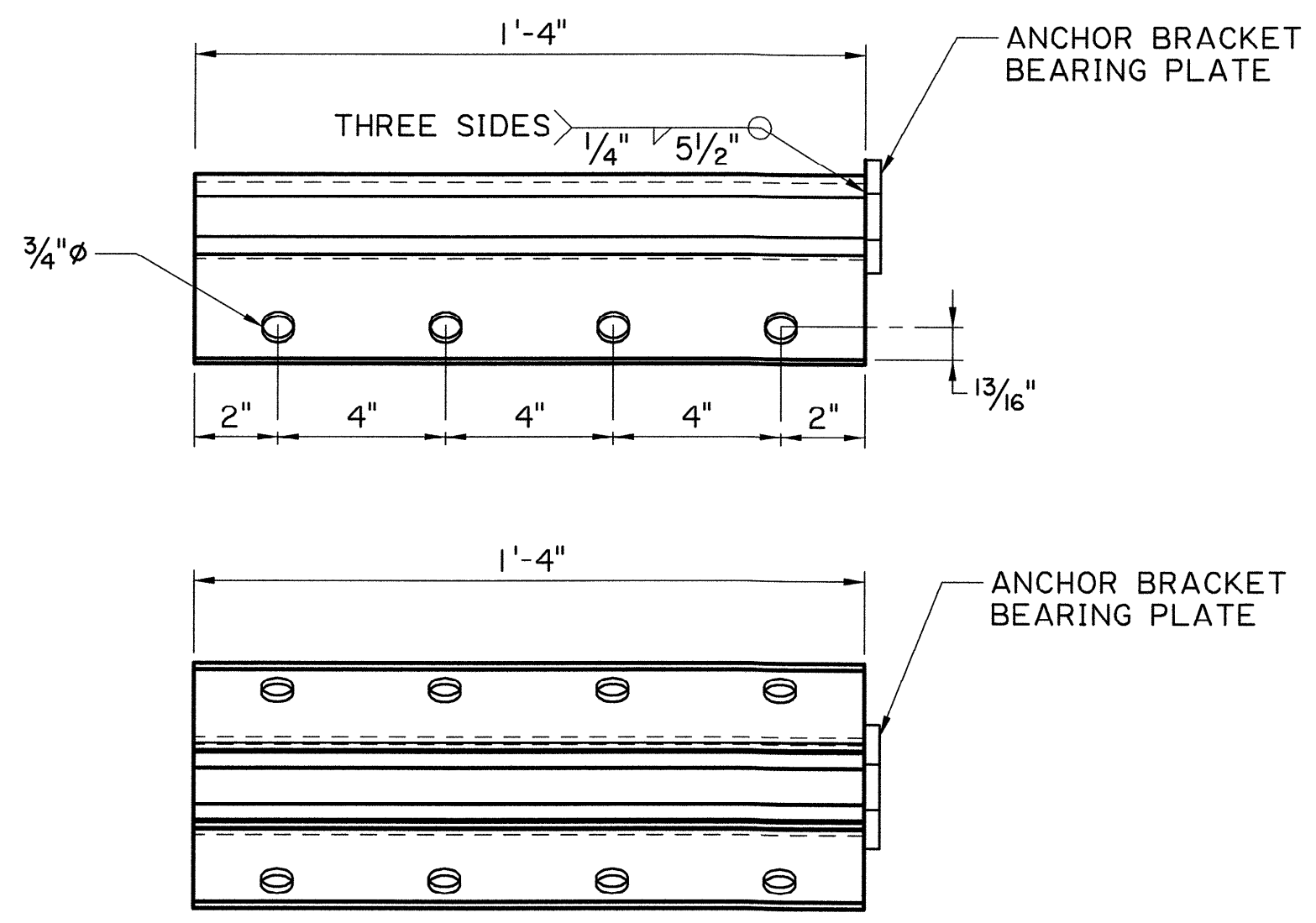
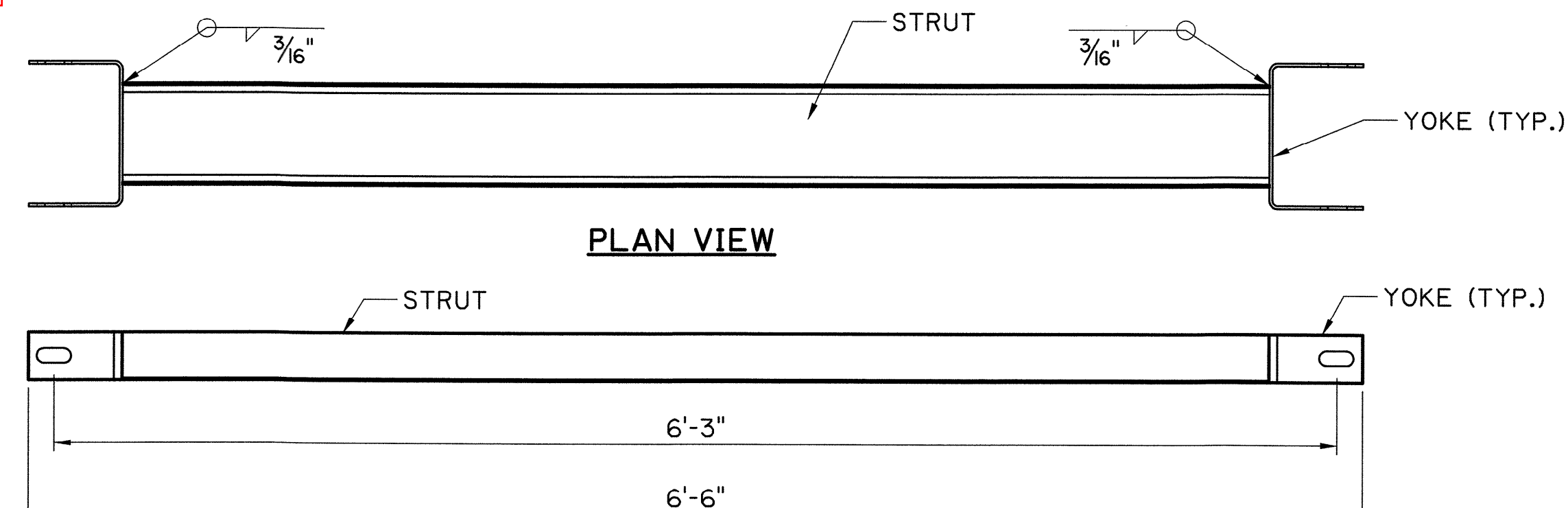
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



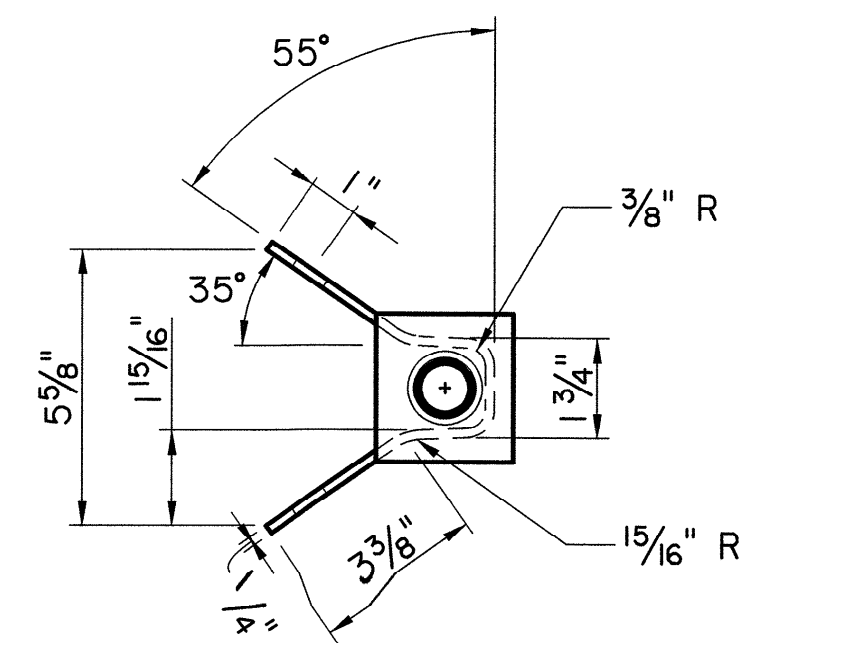
STRUT - PLAN VIEW
N.T.S.



FRONT VIEW
GROUND STRUT DETAIL
N.T.S.



STEEL ANCHOR BRACKET
N.T.S.



ANCHOR BRACKET BEARING PLATE
N.T.S.

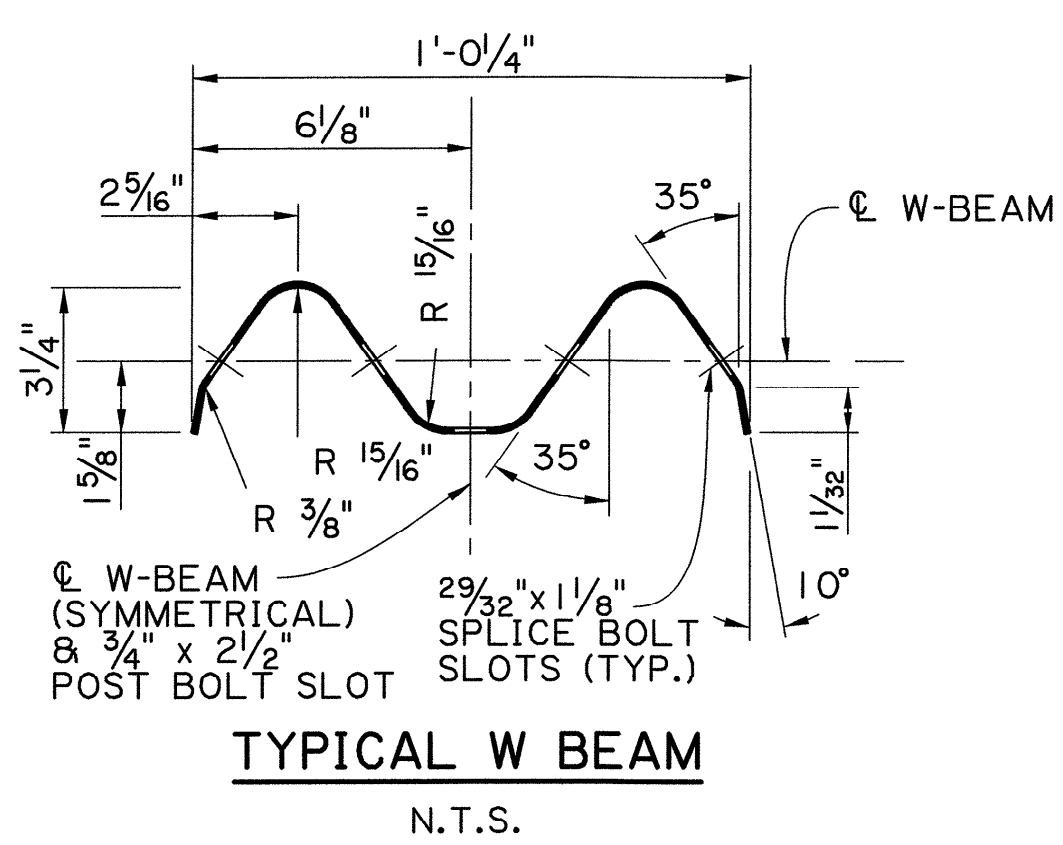
NOTES:

FOUNDATION TUBE BOLTS ARE 7/8" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 7/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

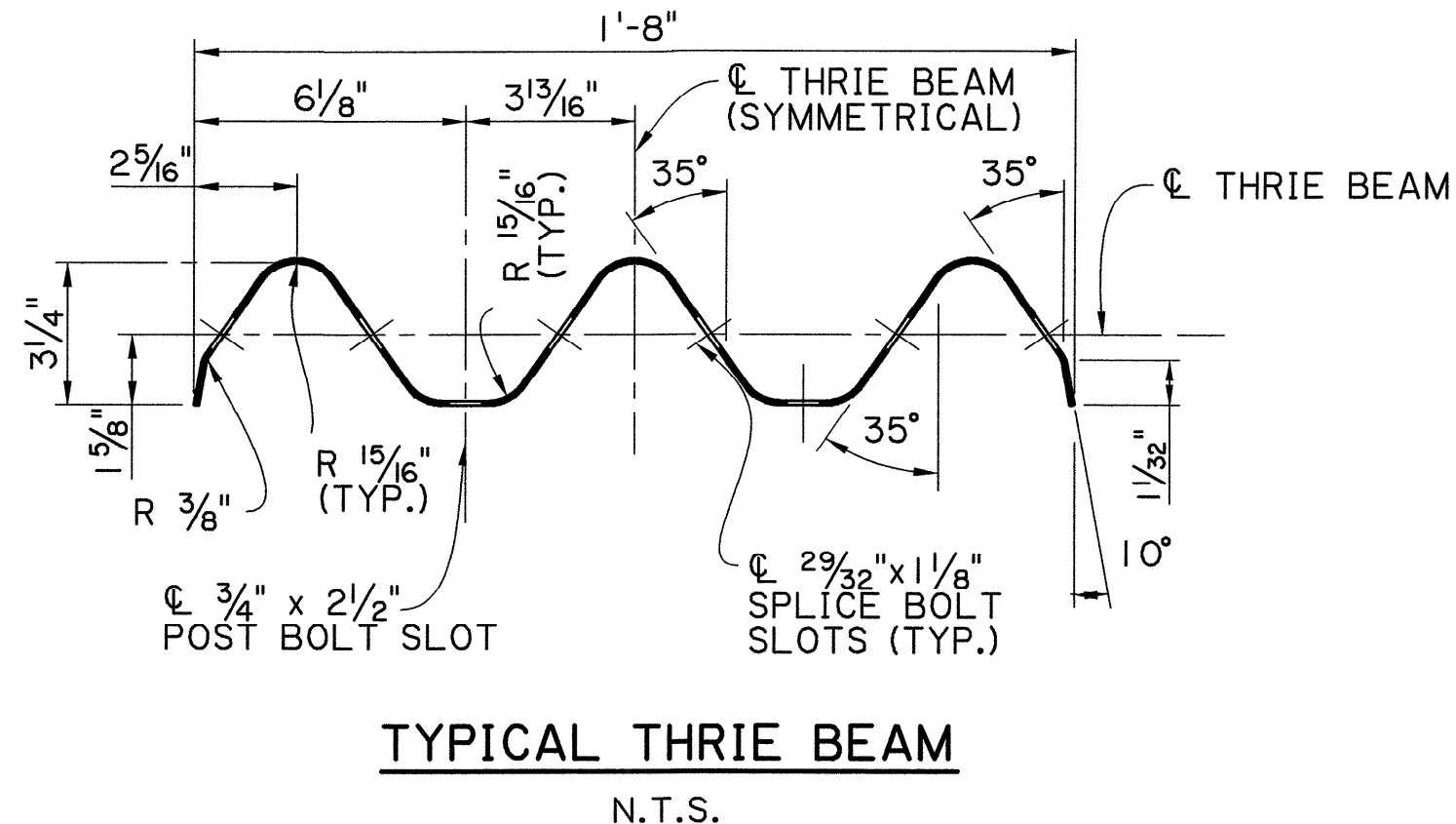
ANCHOR BRACKET AND GROUND STRUT BOLTS ARE 5/8" DIAMETER ASTM A307 HEX HEAD BOLTS AND REQUIRE ASTM A563 A NUTS AND TWO ASTM F844 5/8" DIAMETER FLAT WASHERS EACH. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

SHEET NUMBER	317
DESIGN	P. FOSSIER
CHECK	K. BRAUNER
DETAIL	J. DOUCET
CHECK	K. BRAUNER
REVIEW	C. GUIDRY
SERIES #	8 OF 11
STATE PROJECT	
APPROVED BY: CHIEF ENGINEER	<i>Michael P. Kelly</i>
DATE:	1/31/19
STATE OF LOUISIANA	
HIGHWAY GUARD RAIL (MASH) TRAILING END DETAILS	
BRIDGE AND STRUCTURAL DESIGN	

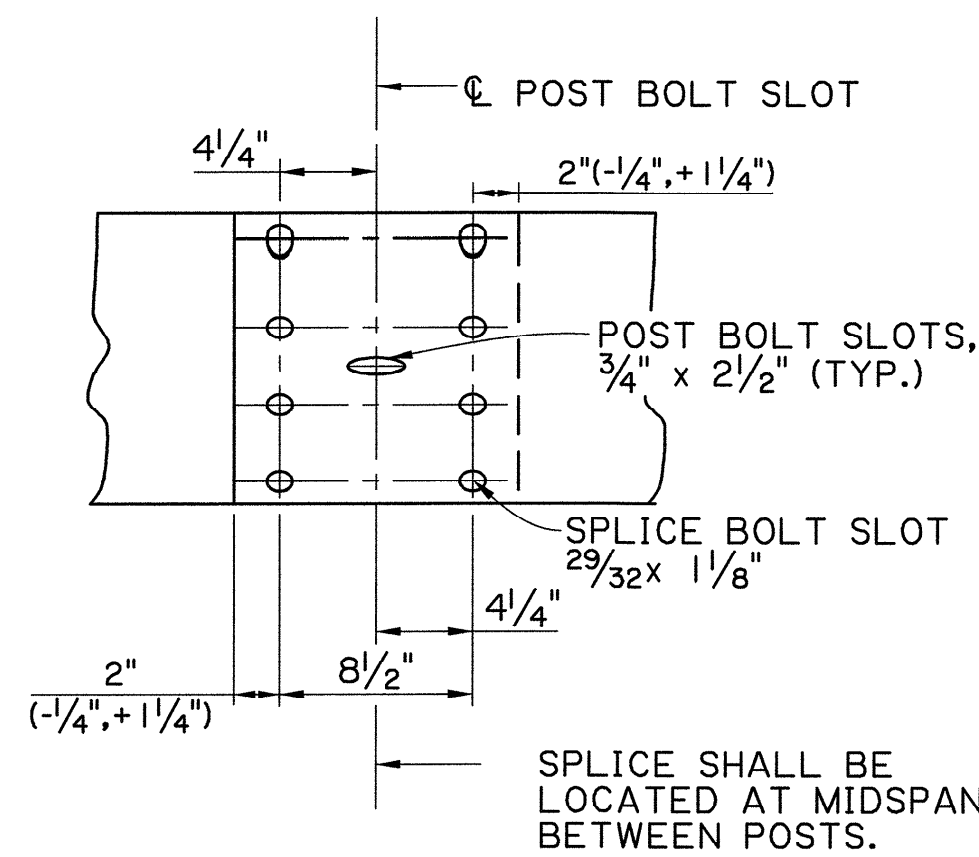
12/13/2018 10:07 IP: P:\P:\d0811905\BD.1.1.0.09 - HIGHWAY GUARD RAIL (MASH).dgn



TYPICAL W BEAM
N.T.S.



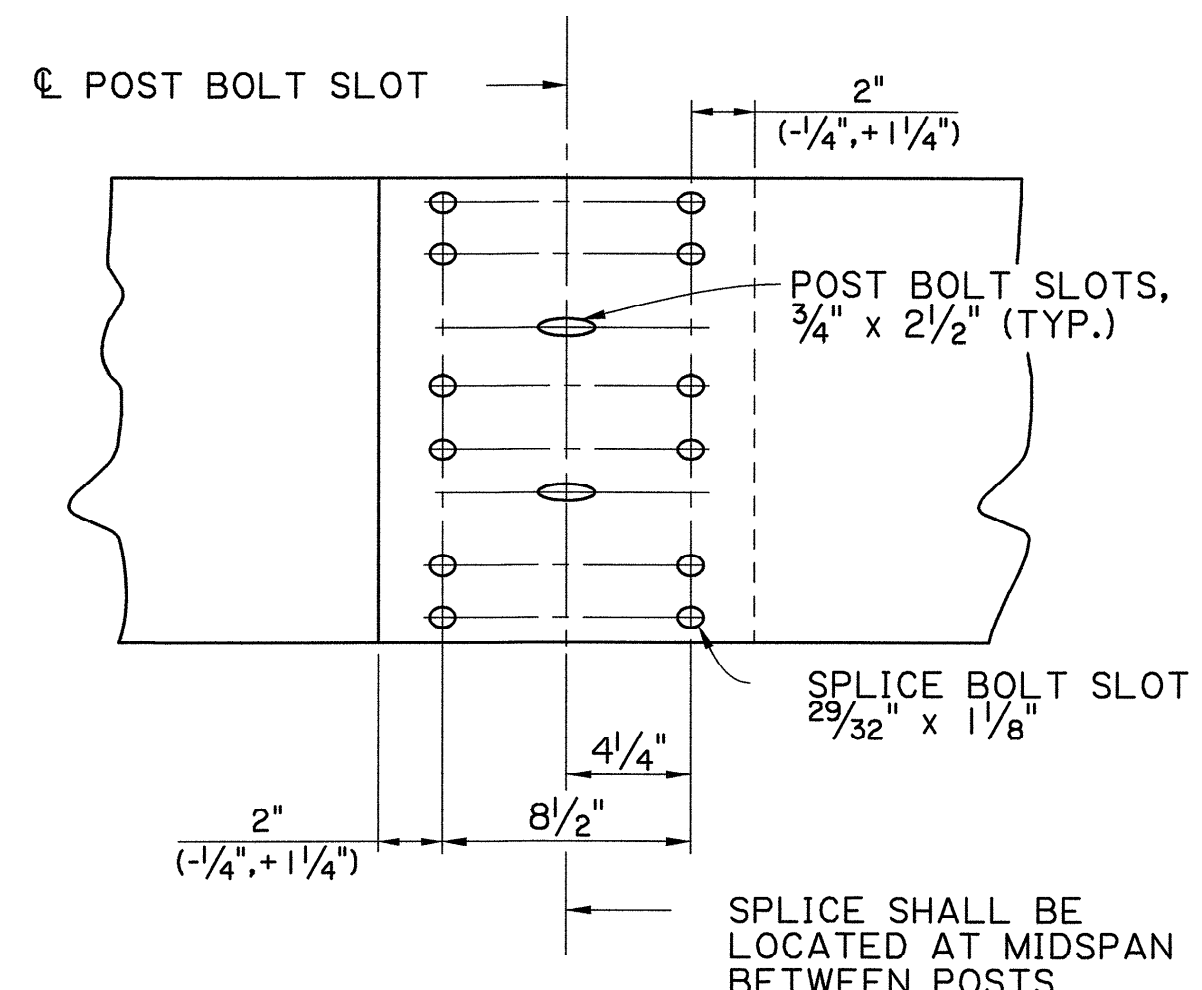
TYPICAL THRIE BEAM
N.T.S.



TYPICAL W-BEAM SPLICE DETAIL - ELEVATION

5/8"Ø x 1 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 5/8"Ø RECESSED HEX NUTS-TOTAL 8 PER SPLICE. LAP IN DIRECTION OF TRAFFIC.

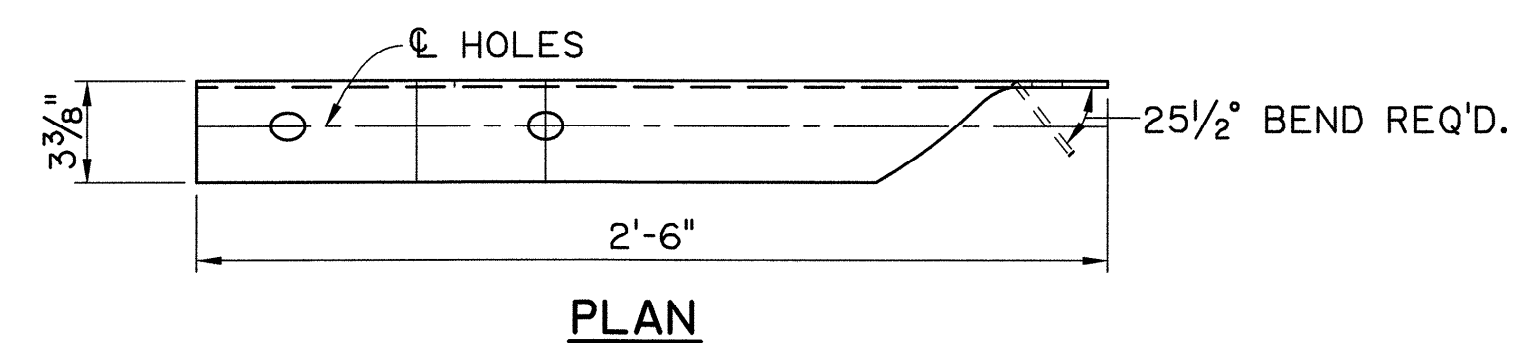
N.T.S.



TYPICAL THRIE BEAM SPLICE DETAIL - ELEVATION

5/8"Ø x 1 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 5/8"Ø RECESSED HEX NUTS-TOTAL 12 PER SPLICE. LAP IN DIRECTION OF TRAFFIC.

N.T.S.



PLAN

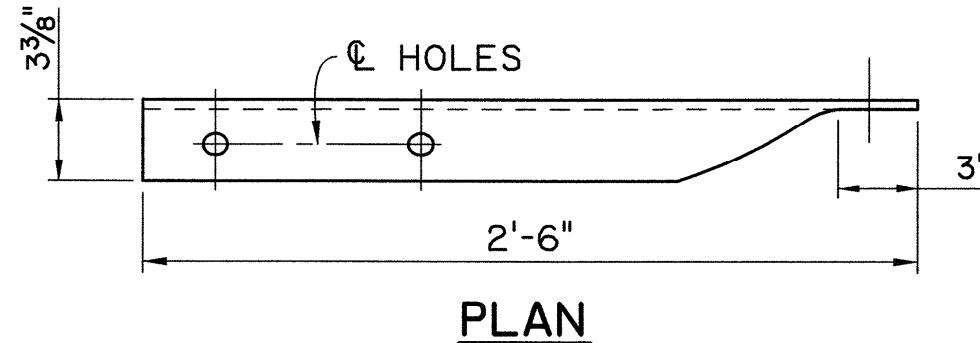
ELEVATION

TYPICAL W BEAM TERMINAL CONNECTOR, 10 GAUGE

N.T.S.

NOTES:

- ALL RAIL COMPONENTS EXCEPT THE W AND THRIE BEAM TERMINAL CONNECTORS AND THE W TO THRIE BEAM TRANSITION SHALL MEET AASHTO M 180, CLASS "A" (12 GAUGE) METAL THICKNESS WITH A TYPE II COATING. THE W BEAM AND THRIE BEAM TERMINAL CONNECTORS AND TRANSITION SECTIONS SHALL BE CLASS "B" (10 GAUGE) METAL THICKNESS WITH TYPE II COATING.

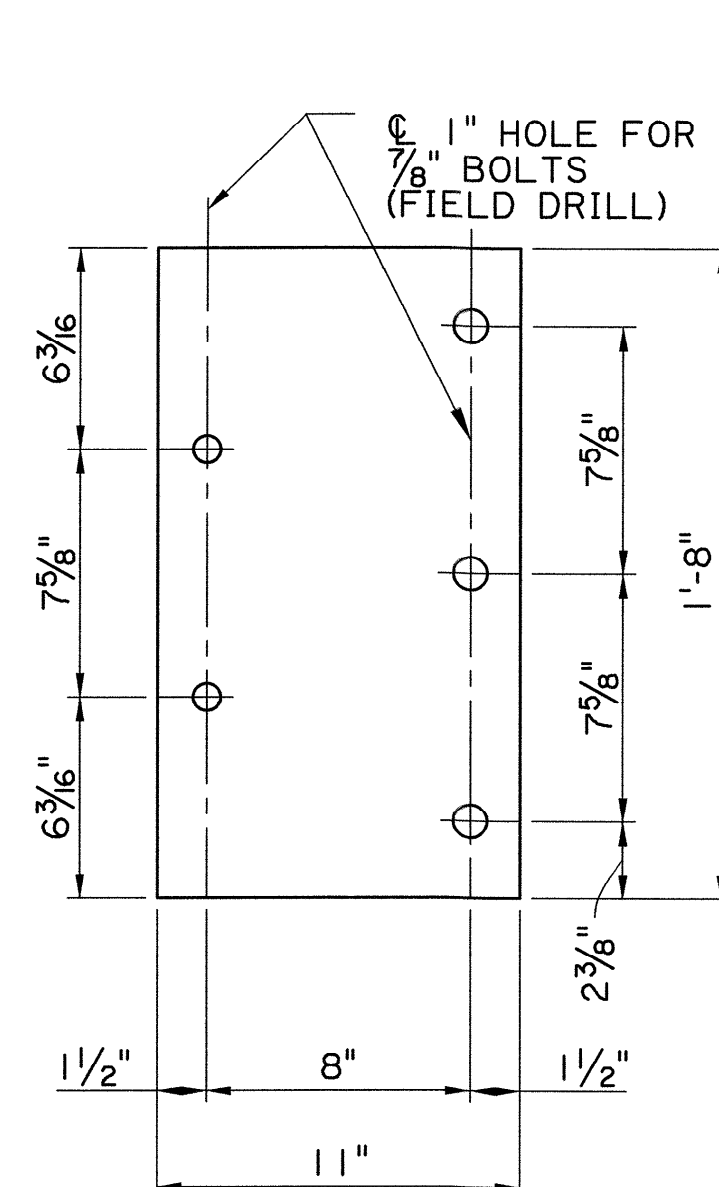


PLAN

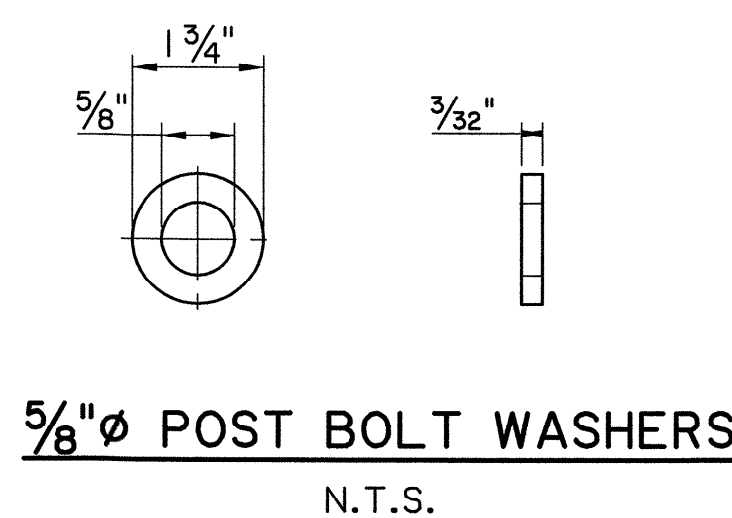
ELEVATION

TYPICAL THRIE BEAM TERMINAL CONNECTOR, 10 GAUGE

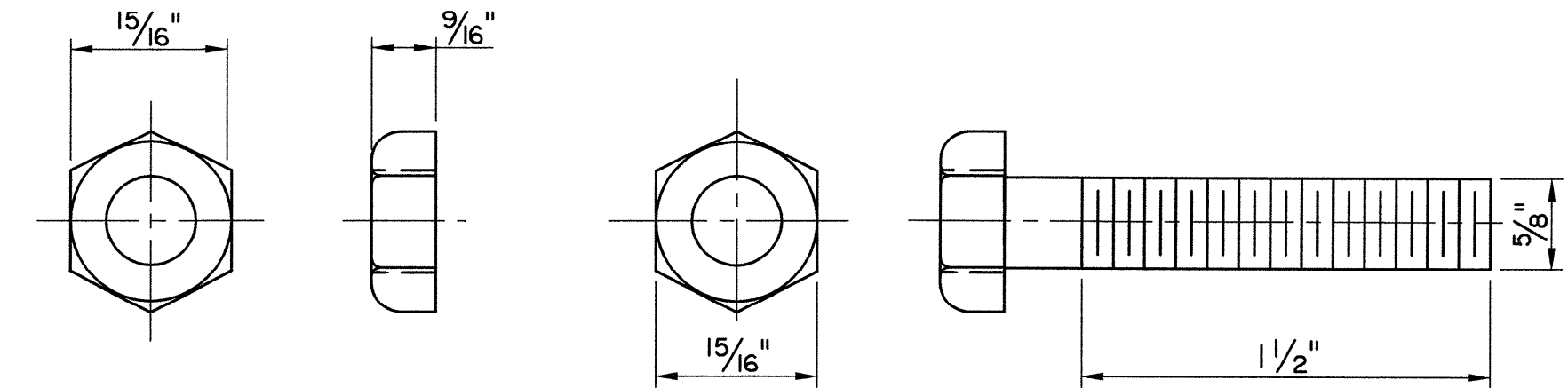
N.T.S.



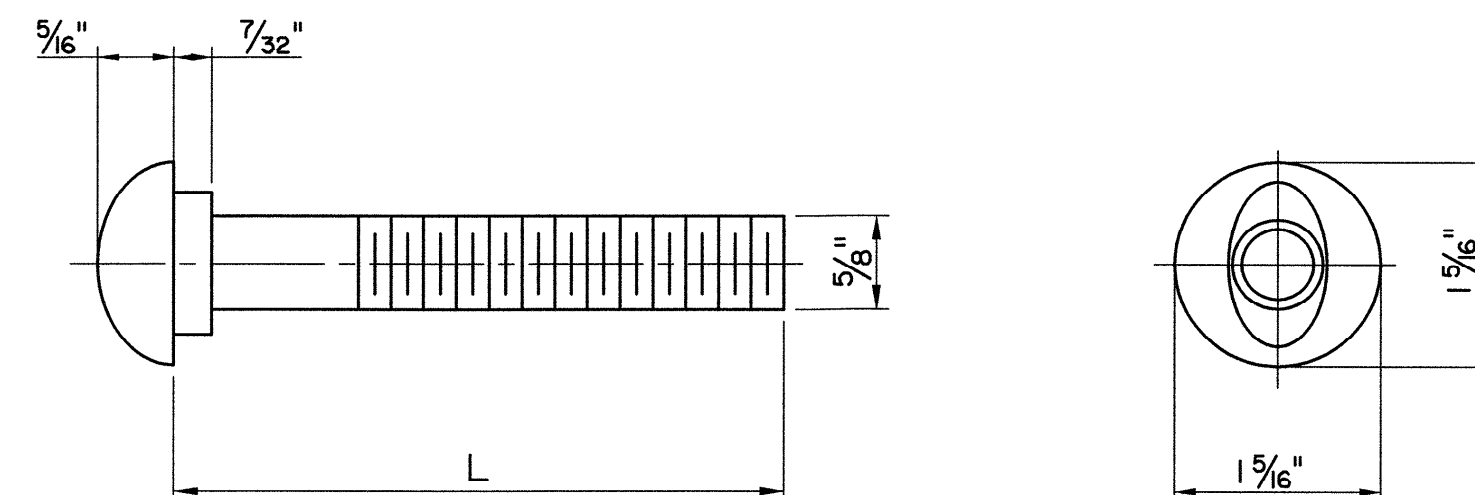
5/8"Ø BEARING PLATE
(FOR ANCHORING THRIE BEAM TO CONCRETE BARRIER RAIL)
N.T.S.



5/8"Ø POST BOLT WASHERS
N.T.S.



NUT
BOLT
5/8"Ø HEX BOLT & HEX NUT
(FOR FASTENING THE ANCHOR BRACKET TO RAIL IN TRAILING END)
N.T.S.



5/8"Ø BUTTON HEAD BOLT
N.T.S.



5/8"Ø RECESS NUT
N.T.S.

L	THREAD LENGTH
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
1'-6"	4"
1'-8"	4"

NOTES:

5/8"Ø BUTTON HEAD BOLTS:

(1 1/4" LENGTH): THIS BOLT IS USED TO SPLICE RAIL ELEMENTS USED IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARD RAIL.

(2" LENGTH): THIS BOLT IS FOR FASTENING RAILS TO STEEL POSTS WHEN USED IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARD RAIL.

(10" LENGTH): THIS BOLT IS USED FOR FASTENING RAILS TO WOOD BLOCK AND STEEL POST IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARD RAIL.

(1'-6" LENGTH): THIS BOLT IS FOR FASTENING WOOD BLOCKS & WOOD POSTS IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARD RAIL.

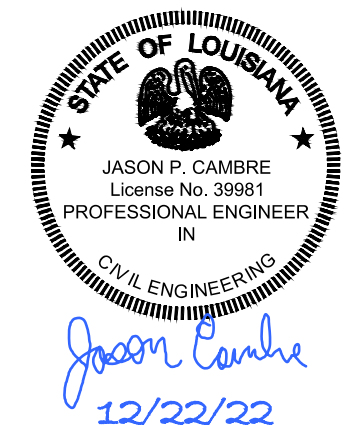
(1'-8" LENGTH): THIS BOLT IS FOR FASTENING NESTED THRIE BEAM TO WOOD BLOCKS AND POST AT THE FIRST TWO POST LOCATIONS IN THE GUARD RAIL TRANSITION AT THE ENDS OF RIGID (CONCRETE) STRUCTURES, UNLESS OTHERWISE SHOWN IN THE PLANS.

5/8" Ø BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 307 GRADE "A" AND NUTS SHALL BE IN ACCORDANCE WITH ASTM A 563 GRADE "A" OR BETTER. BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

STEEL POST & PLATES:

ALL STEEL POSTS AND PLATES SHALL CONFORM TO ASTM A 36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 123, NO PUNCHING, DRILLING OR CUTTING WILL BE PERFORMED AFTER GALVANIZING.

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



SHEET NUMBER	318
DESIGN	P. FOSSIER
CHECK	K. BRAUNER
DETAIL	J. DOUCET
CHECK	K. BRAUNER
REVIEW	C. GUIDRY
SERIES #	9 OF 11
PARISH	
CONTROL SECTION	
STATE PROJECT	

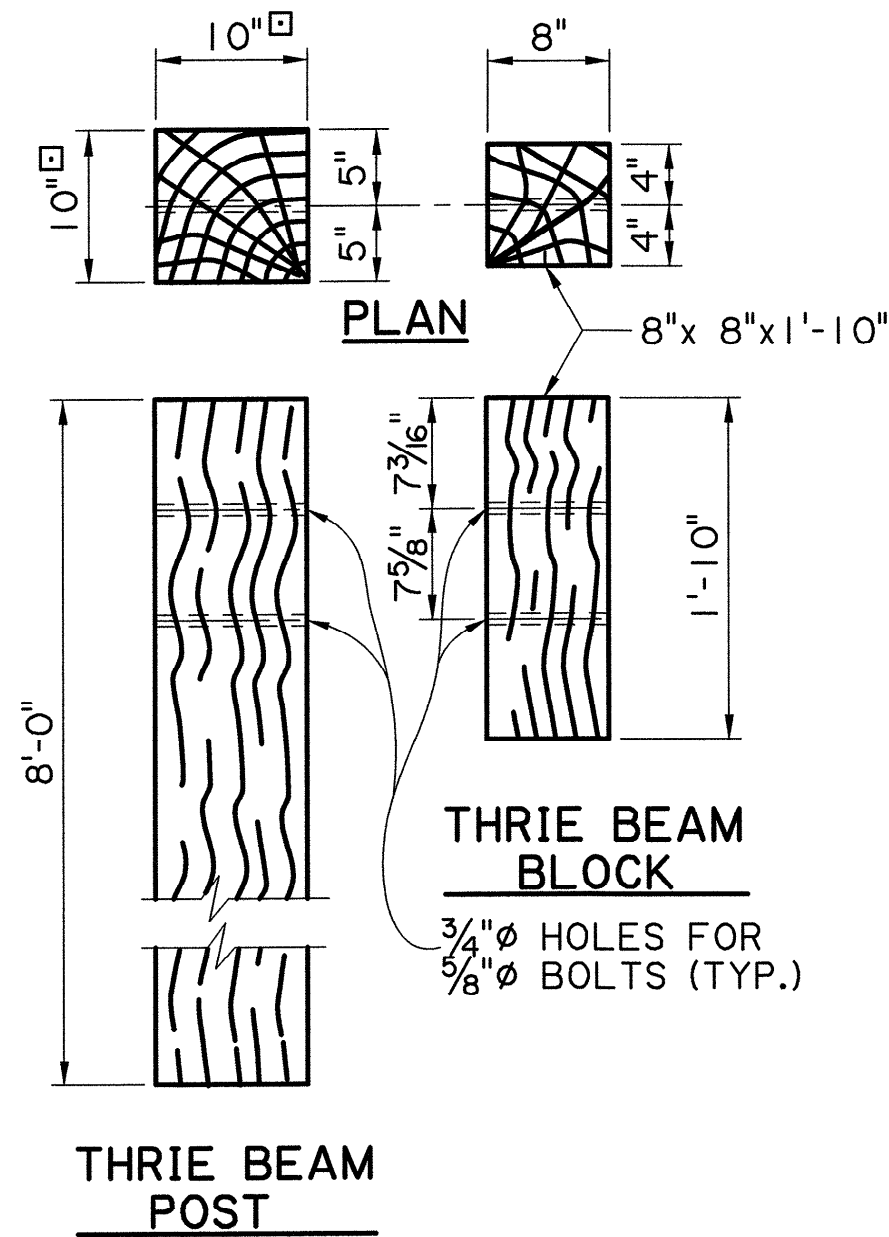
APPROVED BY CHIEF ENGINEER: *Michael P. Harty* DATE: 1/3/19

STATE OF LOUISIANA
KURT M. BRAUNER
License No. 30567
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/18/18

STATE OF LOUISIANA
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/22/22

HIGHWAY GUARD RAIL (MASH) RAIL STRUCTURAL DETAILS
STANDARD PLAN
GR-MASH-ON
BD.1.1.0.09

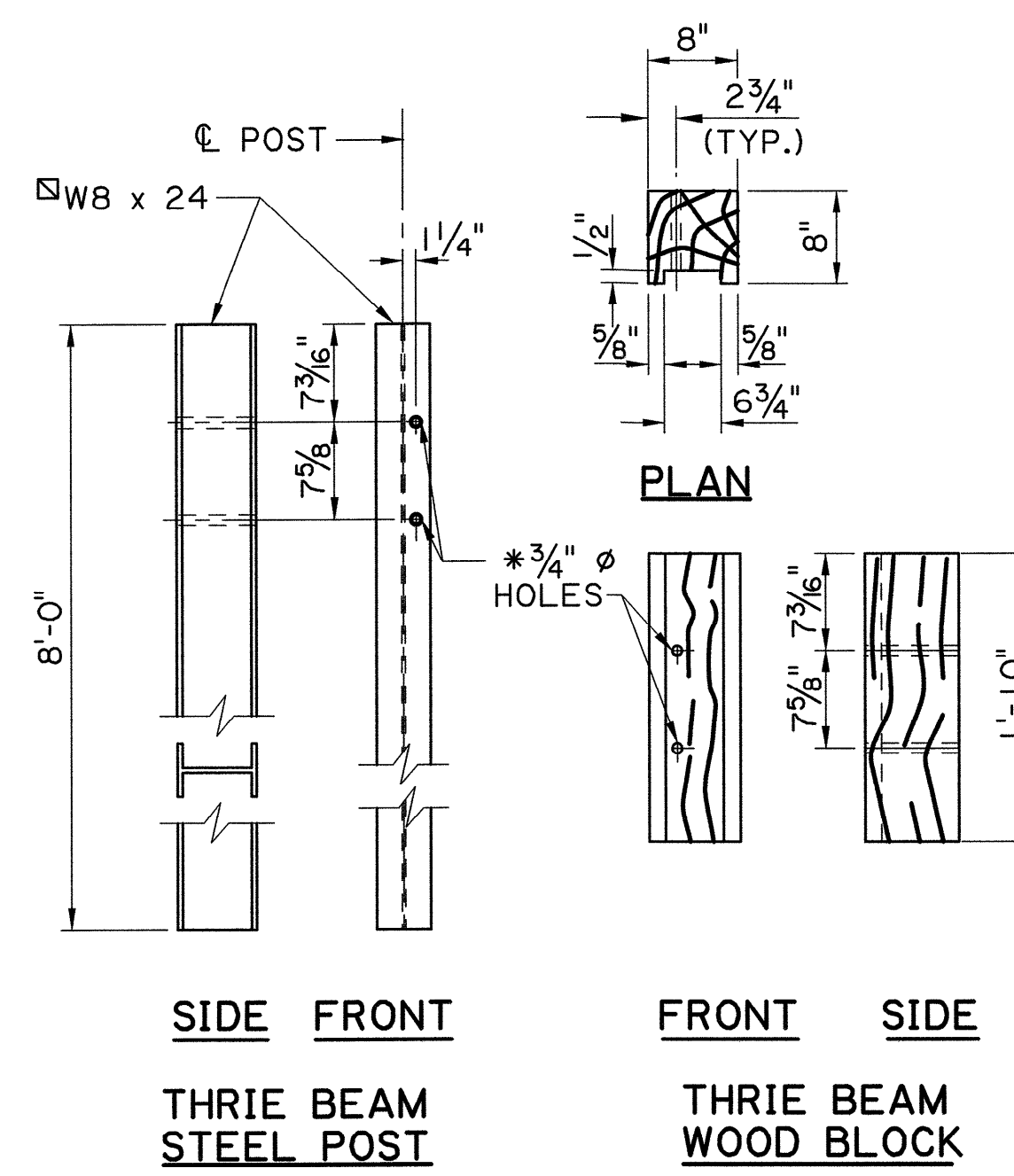
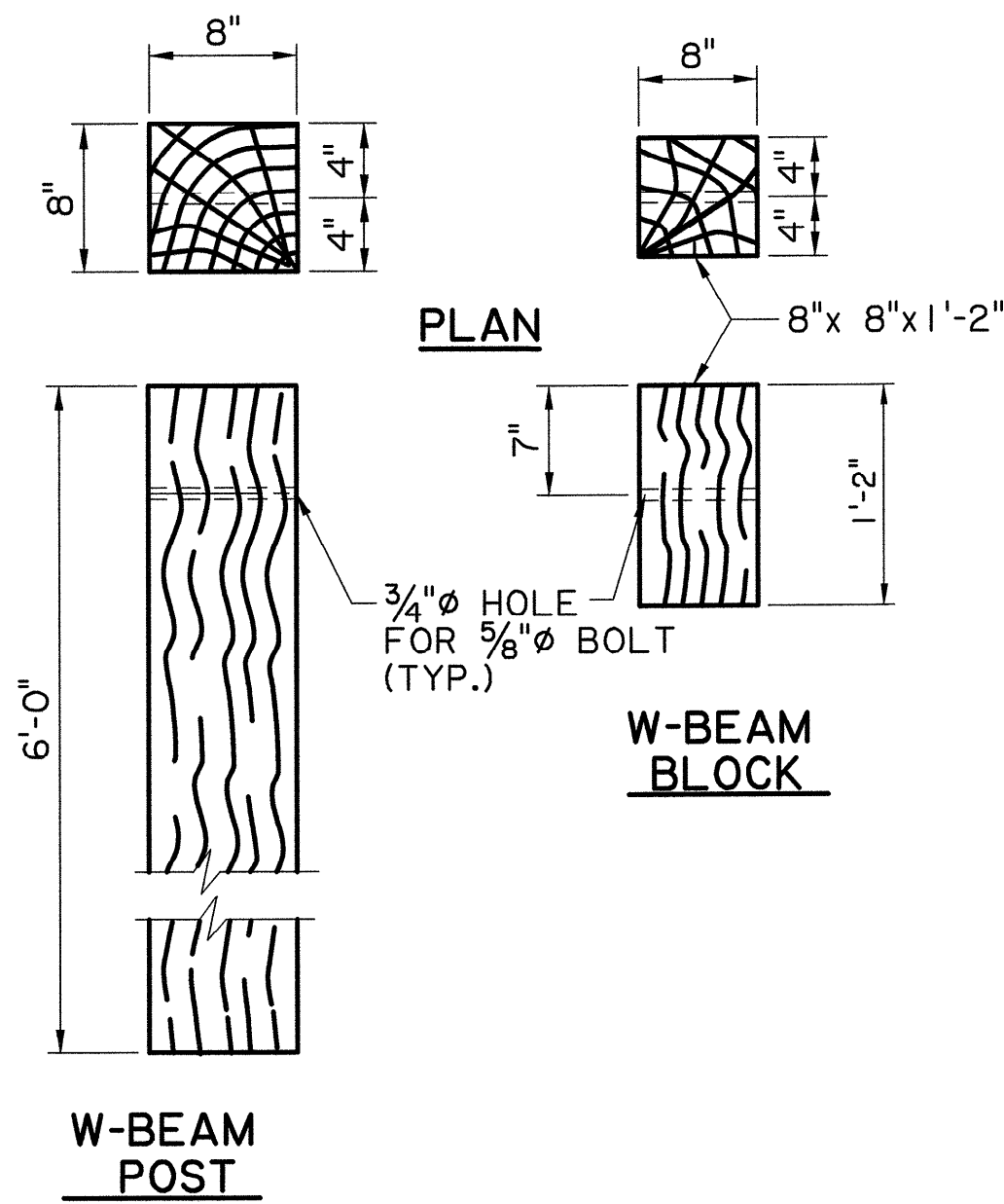
DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
BRIDGE AND STRUCTURAL DESIGN



THRIE BEAM POST IS 8"x 8"x 8'-0"
FOR TRANSITION POST No. 3.

**WOOD POST AND WOOD BLOCK
FOR THRIE BEAM TRANSITION
TO BRIDGE RAIL**

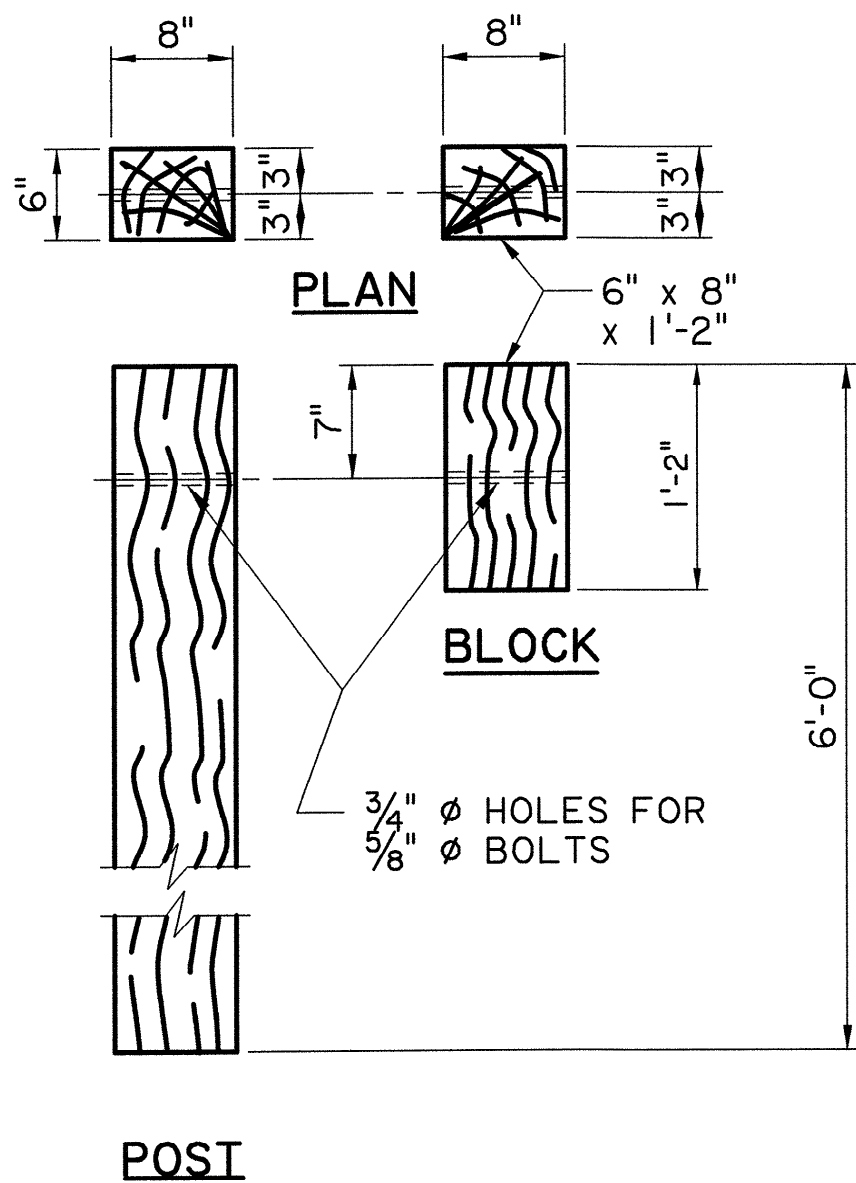
(POST SIZE, BLOCK SIZE AND HOLE LOCATIONS
VARY WITH LOCATION IN TRANSITION, SEE SHT.3)
N.T.S.



THRIE BEAM POST IS W6 x 25 (8'-0")
FOR TRANSITION POST No. 3.

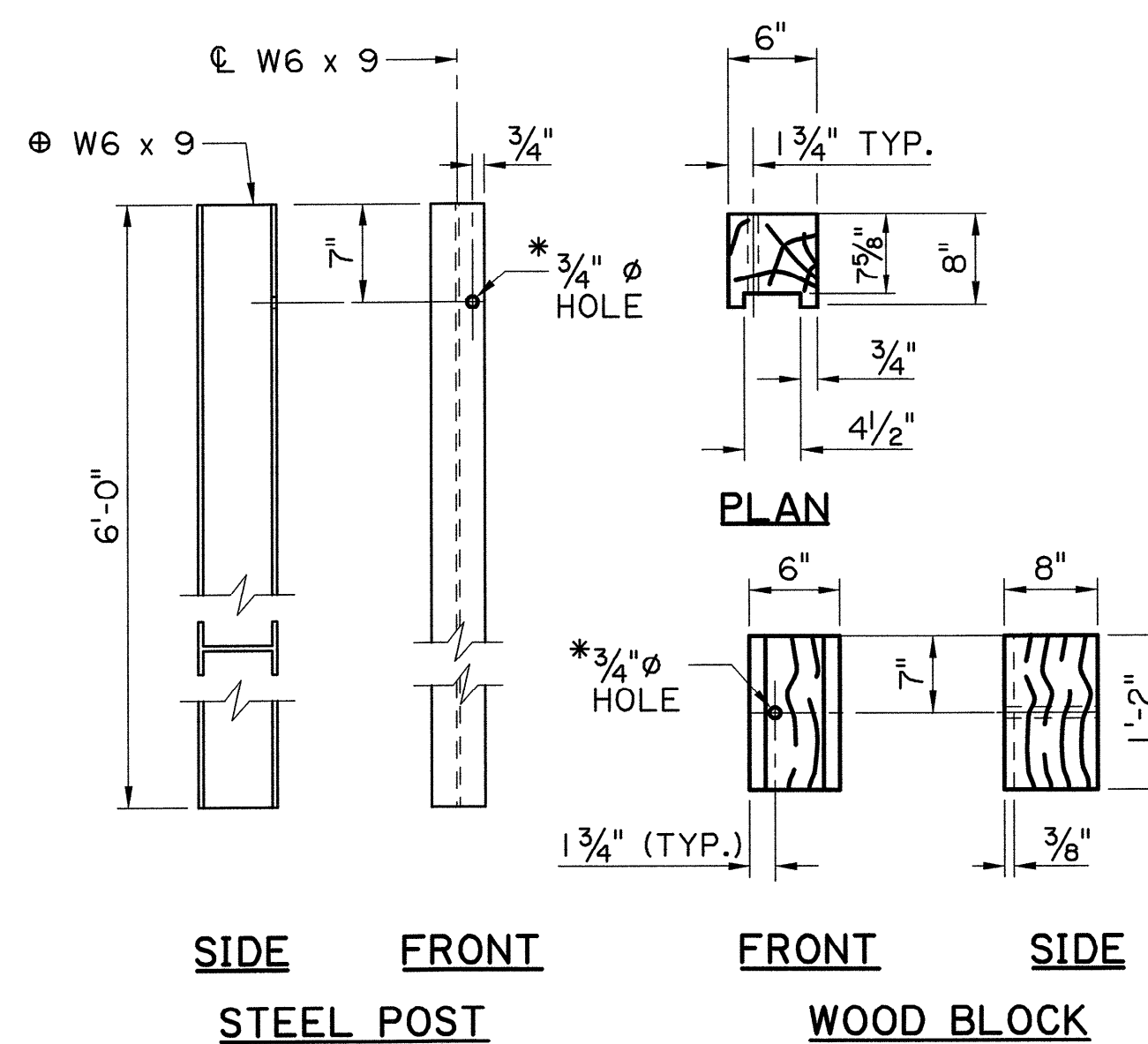
**STEEL POST AND ROUTED WOOD BLOCK FOR
THRIE BEAM TRANSITION TO BRIDGE RAIL**

(POST SIZE, BLOCK SIZE AND HOLE LOCATIONS
VARY WITH LOCATION IN TRANSITION, SEE SHT.3)
N.T.S.



**WOOD POST AND WOOD BLOCK FOR
STANDARD W-BEAM GUARD RAIL**

N.T.S.



**STEEL POST AND ROUTED WOOD BLOCK
FOR STANDARD W-BEAM GUARD RAIL**

N.T.S.

NOTES:

1. A RECYCLED BLOCK ALTERNATE IS ALLOWED AS A SUBSTITUTE FOR THE WOOD BLOCK ON A 1 FOR 1 BASIS IN A STANDARD BLOCKED-OUT SECTION AT NO ADDITIONAL PAYMENT. RECYCLED BLOCKS SHALL NOT BE USED IN TRANSITIONS, END TREATMENTS, OR IN TRAILING END SECTIONS. THE RECYCLED BLOCK SHALL HAVE FHWA HARDWARE ELIGIBILITY AND SHALL MEET AASHTO MASH REQUIREMENTS.
2. A W6 x 8.5 STEEL POST MAY BE USED AS AN ALTERNATE FOR A W6 x 9 POST.
3. POST AND BLOCK HOLES SHALL BE DRILLED ADJACENT TO THE DIRECTION OF THE ON-COMING TRAFFIC.
4. ALL WOOD BLOCKS SHALL BE TOE-NAILED TO WOOD POSTS AND BLOCKS (INCLUDING BLOCK COMBINATIONS) WITH A 16d GALVANIZED NAIL TO PREVENT BLOCK ROTATION. (ONE ON EACH SIDE)

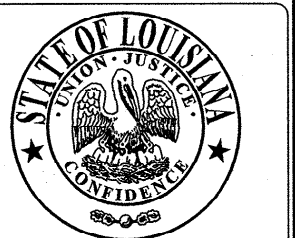


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

DESIGN	FOSSIER	PARISH	CONTROL SECTION	STATE PROJECT
CHECK	P. BRAUNER			
DETAIL	K. BRAUNER			
CHECK	J. DOUCET			
REVIEW	K. BRAUNER			
SERIES #	C. GUIDRY			
	10 OF 11			



APPROVED BY CHIEF ENGINEER:
Jason P. Cambre
DATE: 1/3/19



BD-1.1.0.10

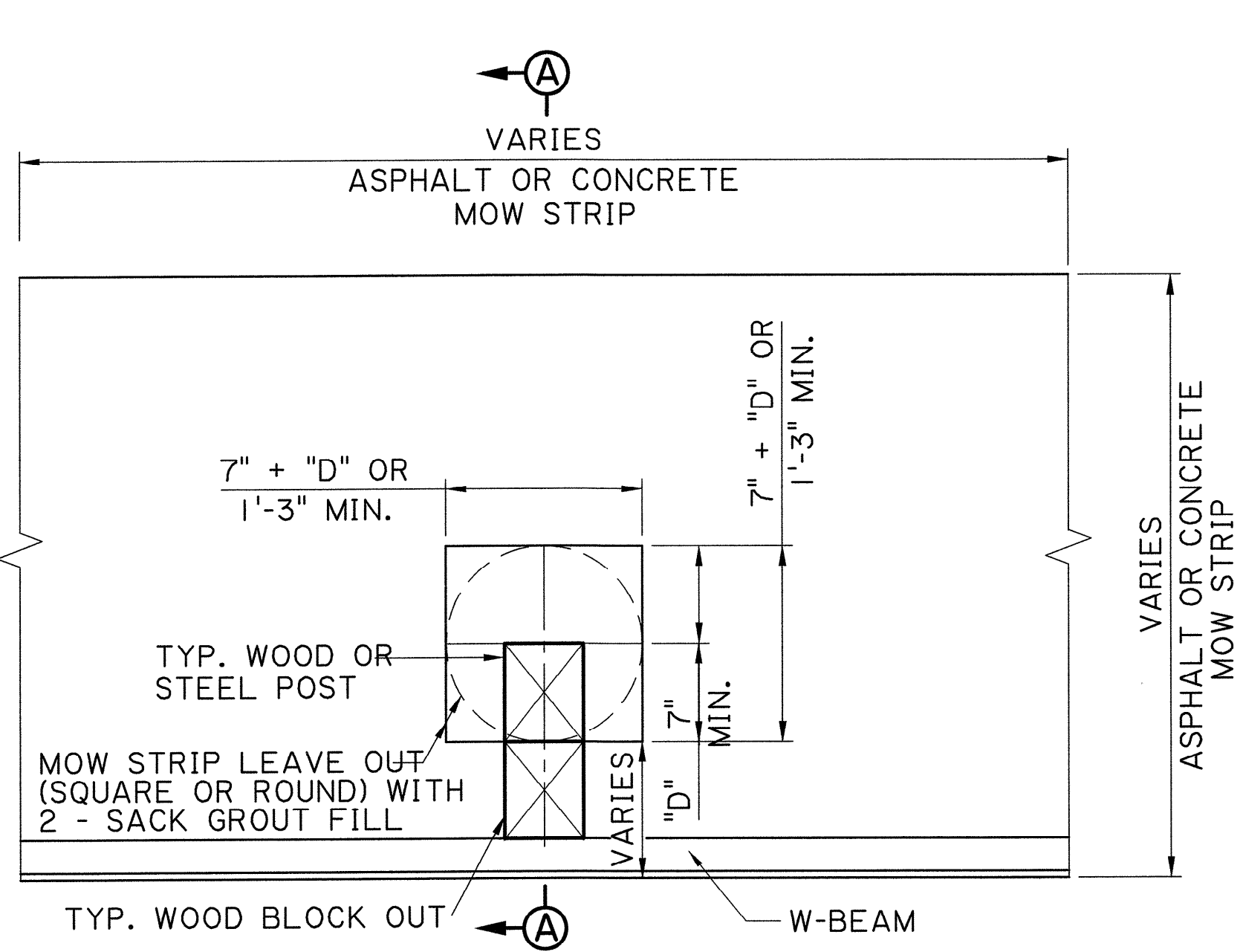
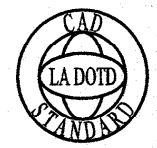
HIGHWAY GUARD RAIL (MASH)
POST AND BLOCK DETAILS

GR-MASH-ON



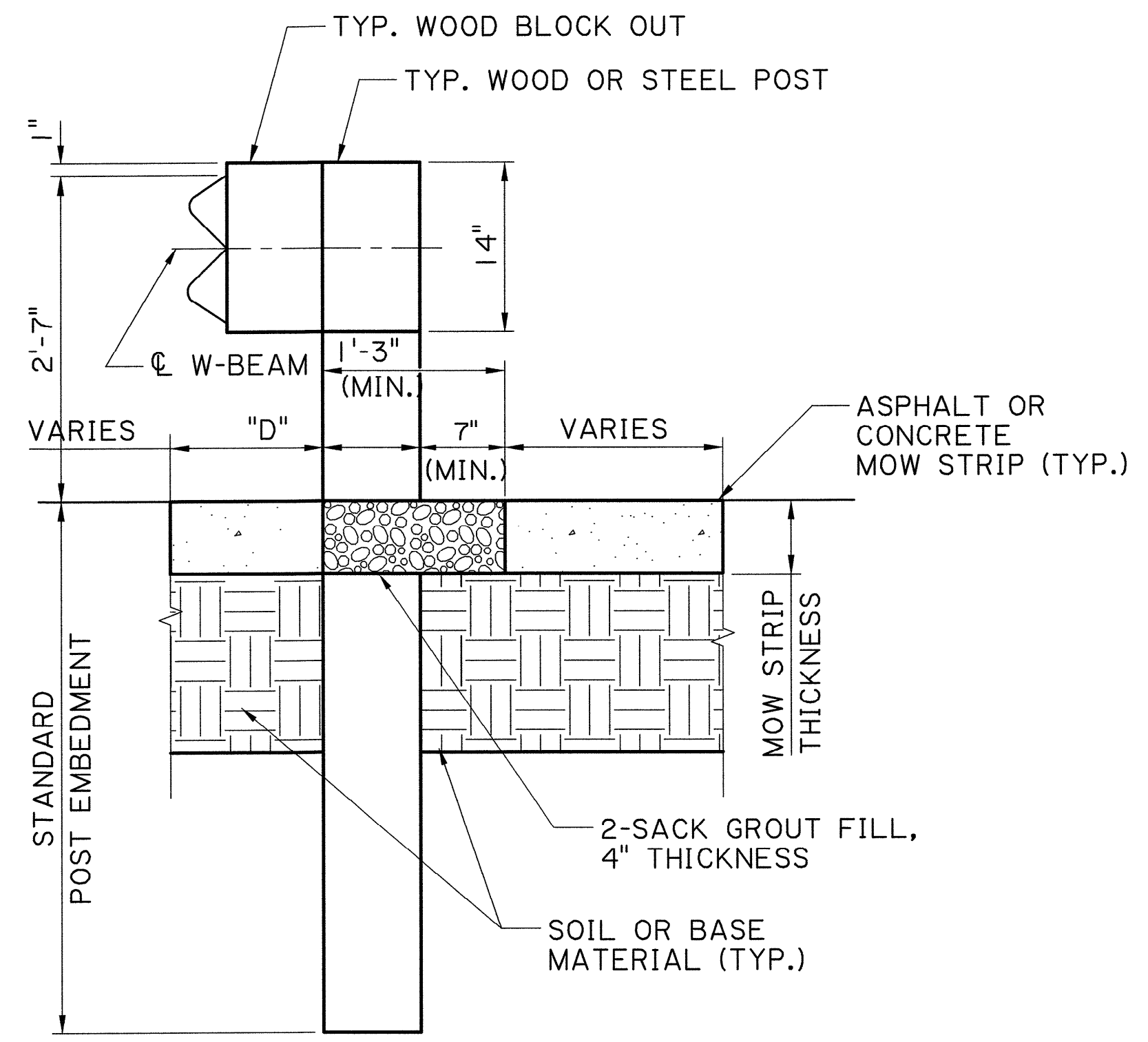
BRIDGE AND STRUCTURAL DESIGN

12/13/2018 10:14 IP_PWP:d0811905\BD.1.1.0.11 - HIGHWAY GUARD RAIL (MASH).dgn

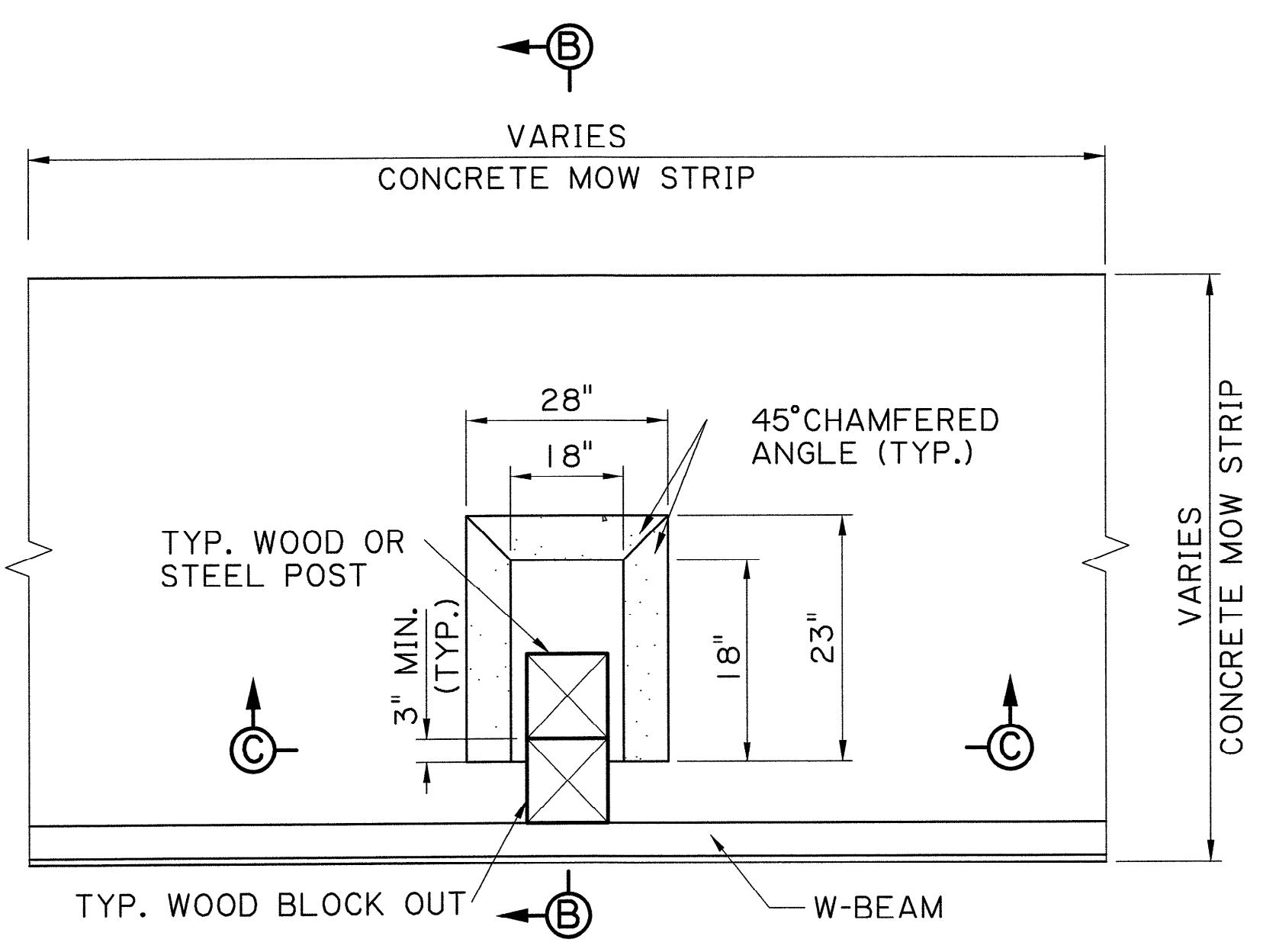


PLAN

GROUT ALTERNATE FOR ASPHALT OR CONCRETE MOW STRIPS
N.T.S.

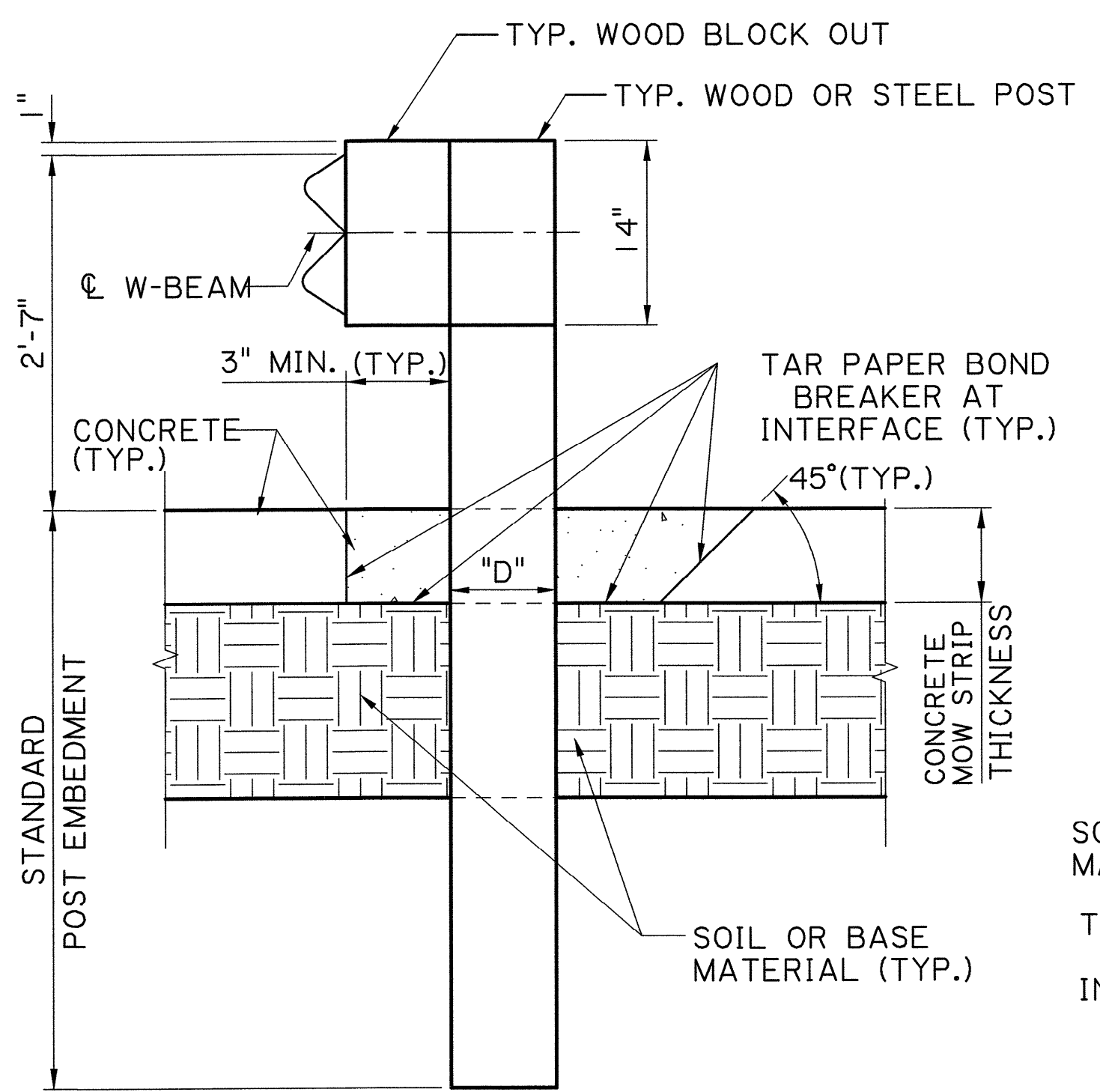


SECTION A-A

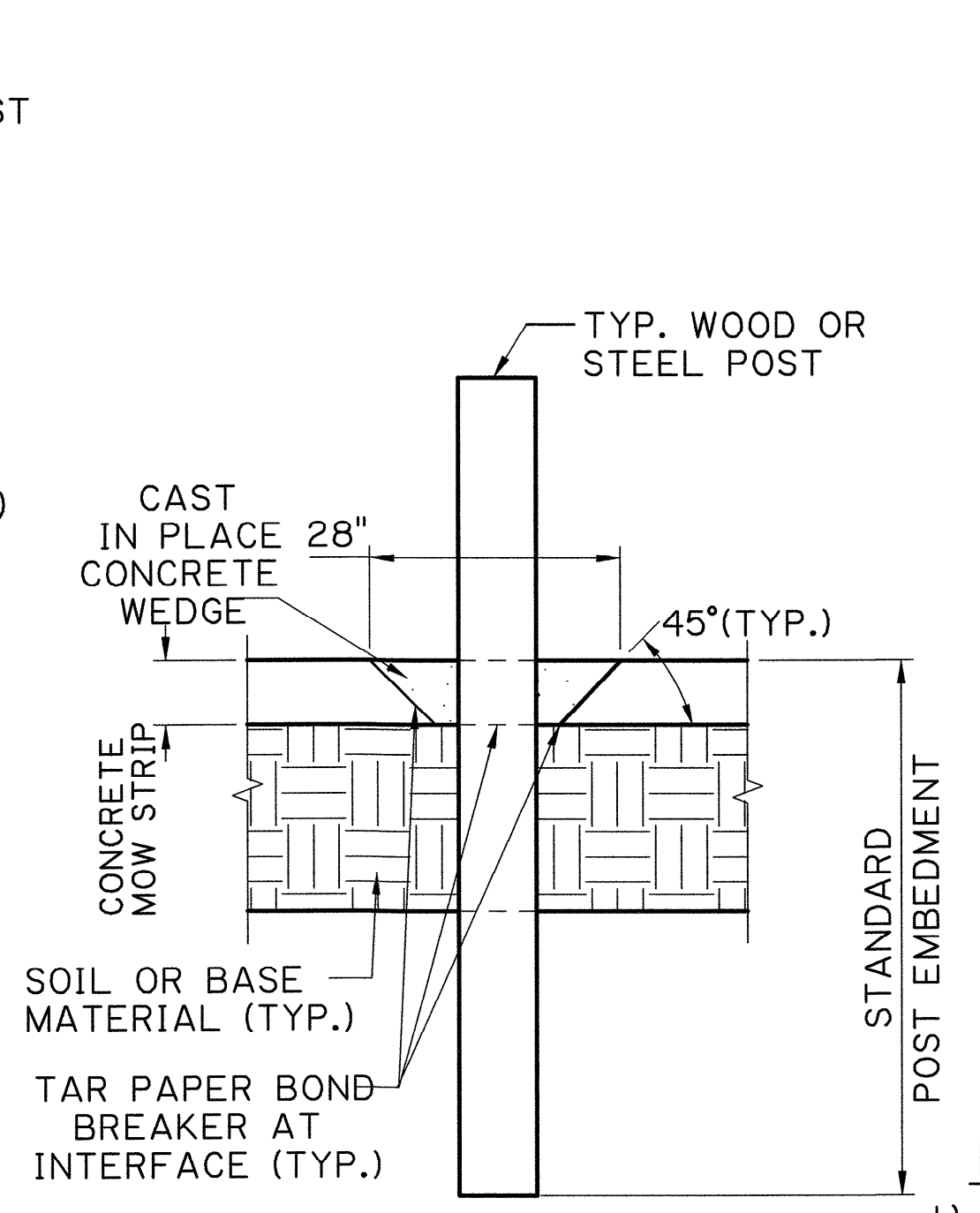


PLAN

CONCRETE WEDGE ALTERNATE FOR CONCRETE MOW STRIPS ONLY
N.T.S.



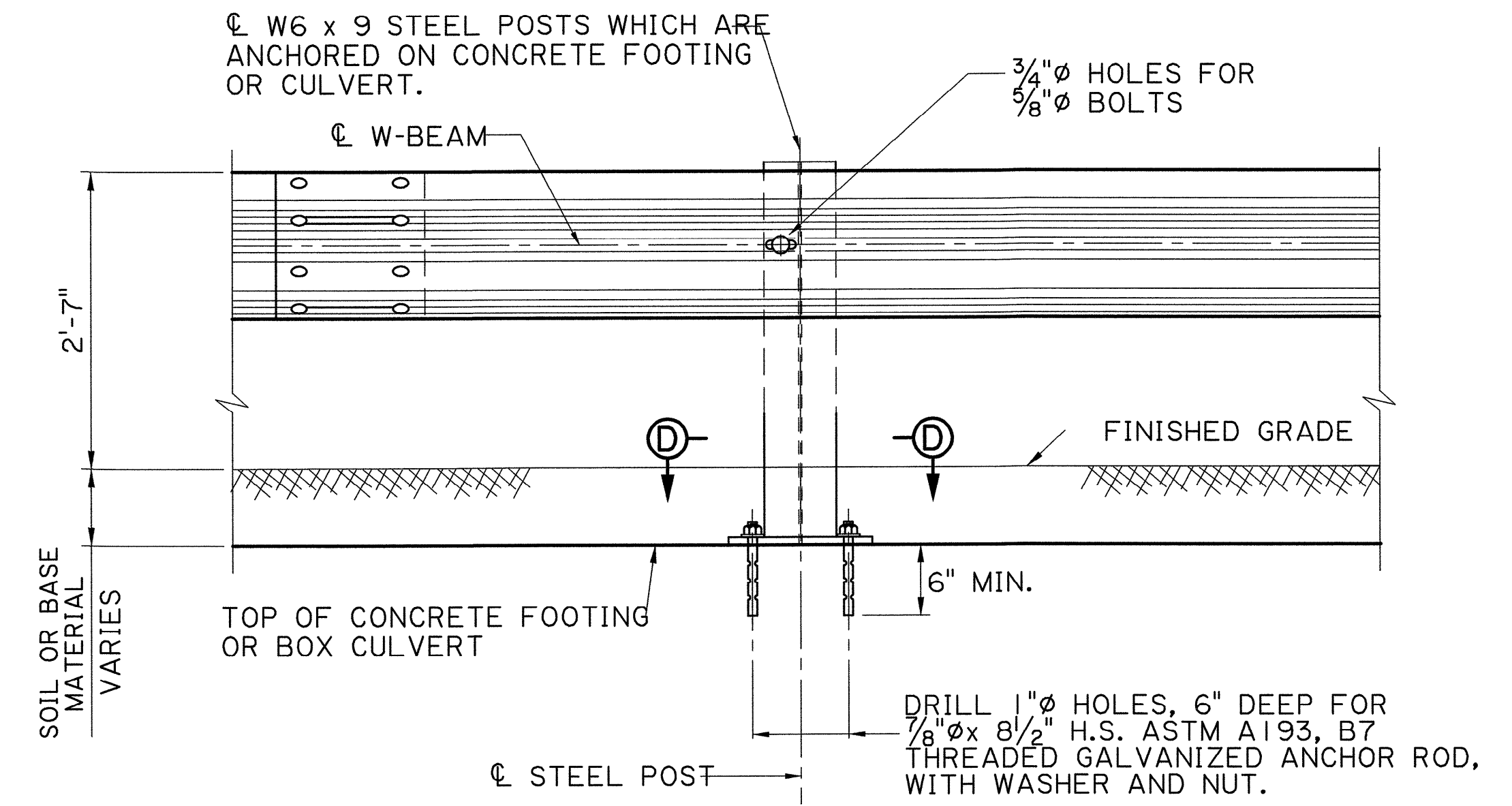
SECTION B-B



SECTION C-C

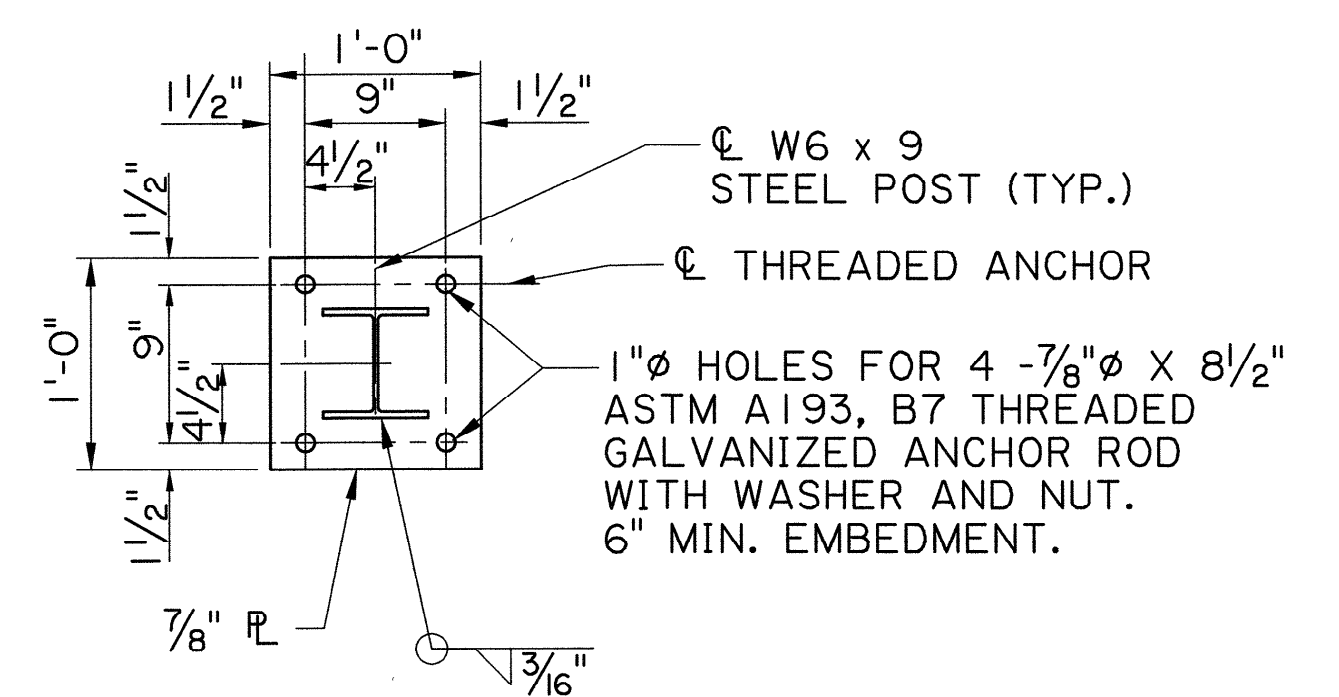
ANCHOR ROD INSTALLATION

ALL HOLES DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. THREADED RODS TO BE ANCHORED USING THE HILTI RE500 EPOXY ANCHORING SYSTEM. PLACE ANCHOR BOLT IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURER'S CURE TIME. COST FOR LABOR, MATERIAL AND INSTALLMENT OF BASE PLATE & ANCHOR ROD TO BE PAID FOR AS PART OF GUARD RAIL PAY ITEM.

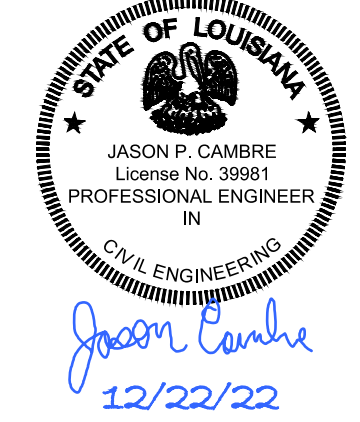


GALVANIZED STEEL BASE PLATE & STEEL POST

SPECIAL POST WITH BASE PLATE TO BE USED WHEN REQUIRED EMBEDMENT OF CONVENTIONAL POST IN SOIL CANNOT BE OBTAINED, FOR BOX CULVERTS OR OTHER CONCRETE FOOTINGS.



SECTION D-D



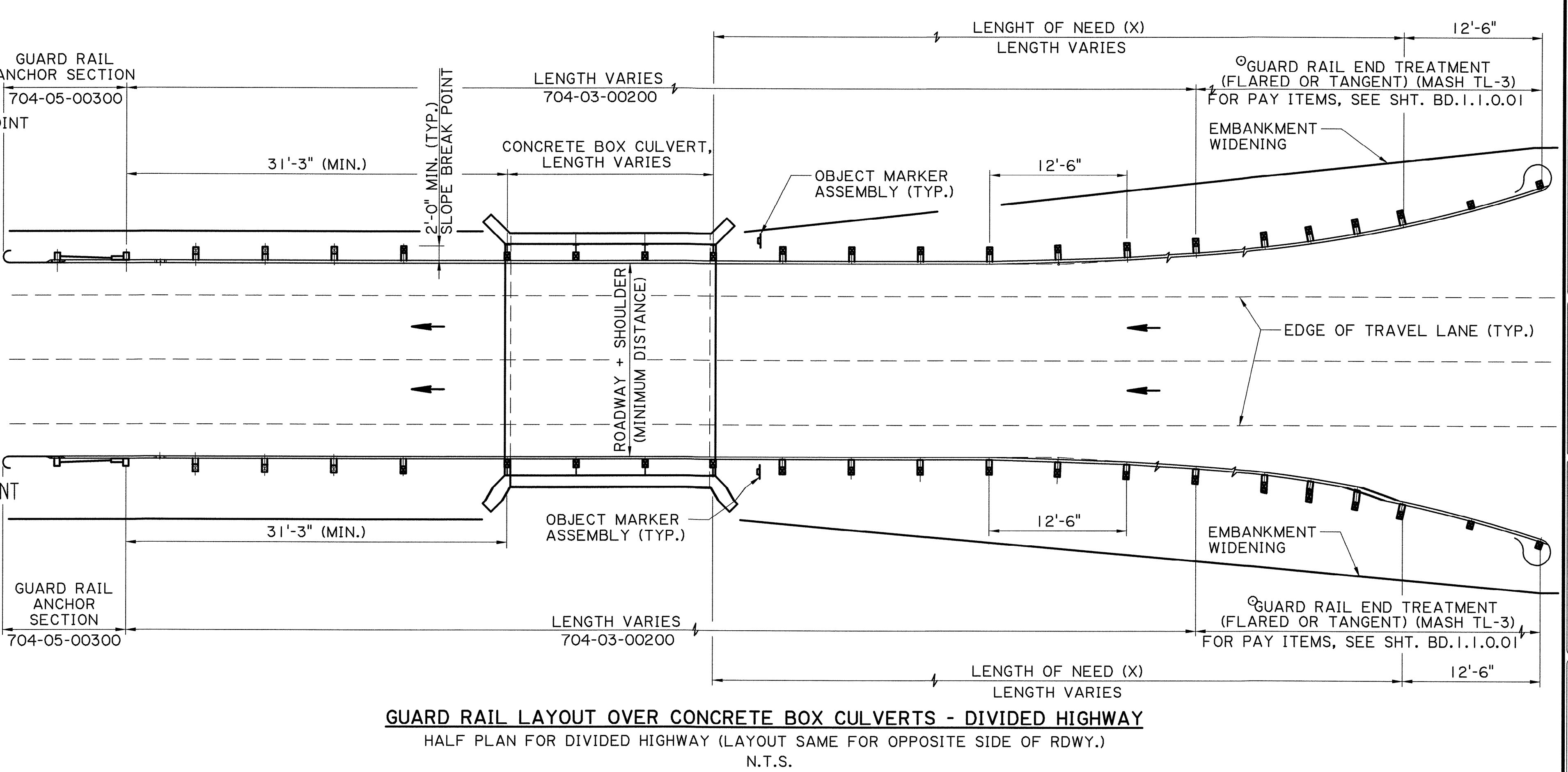
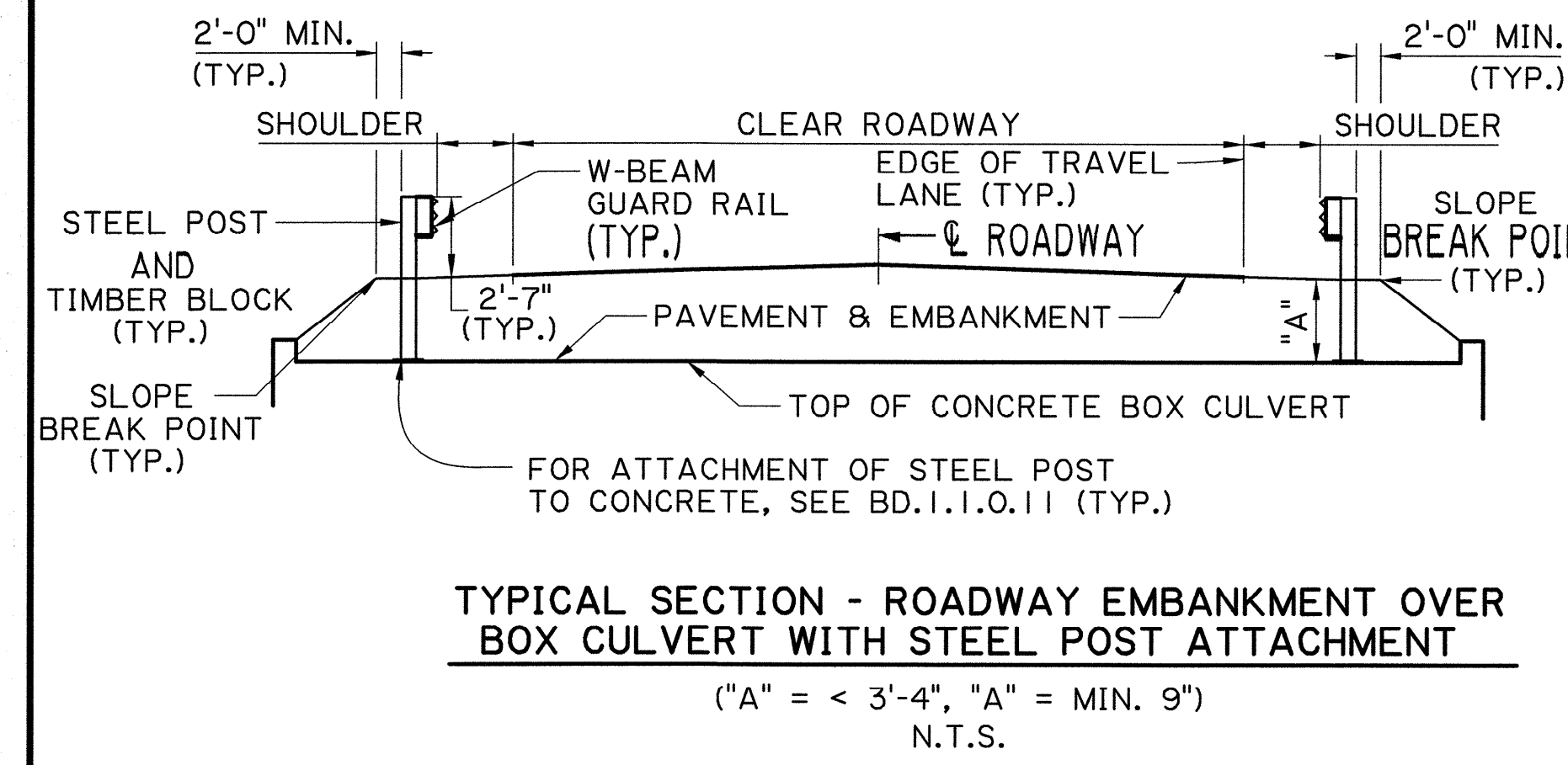
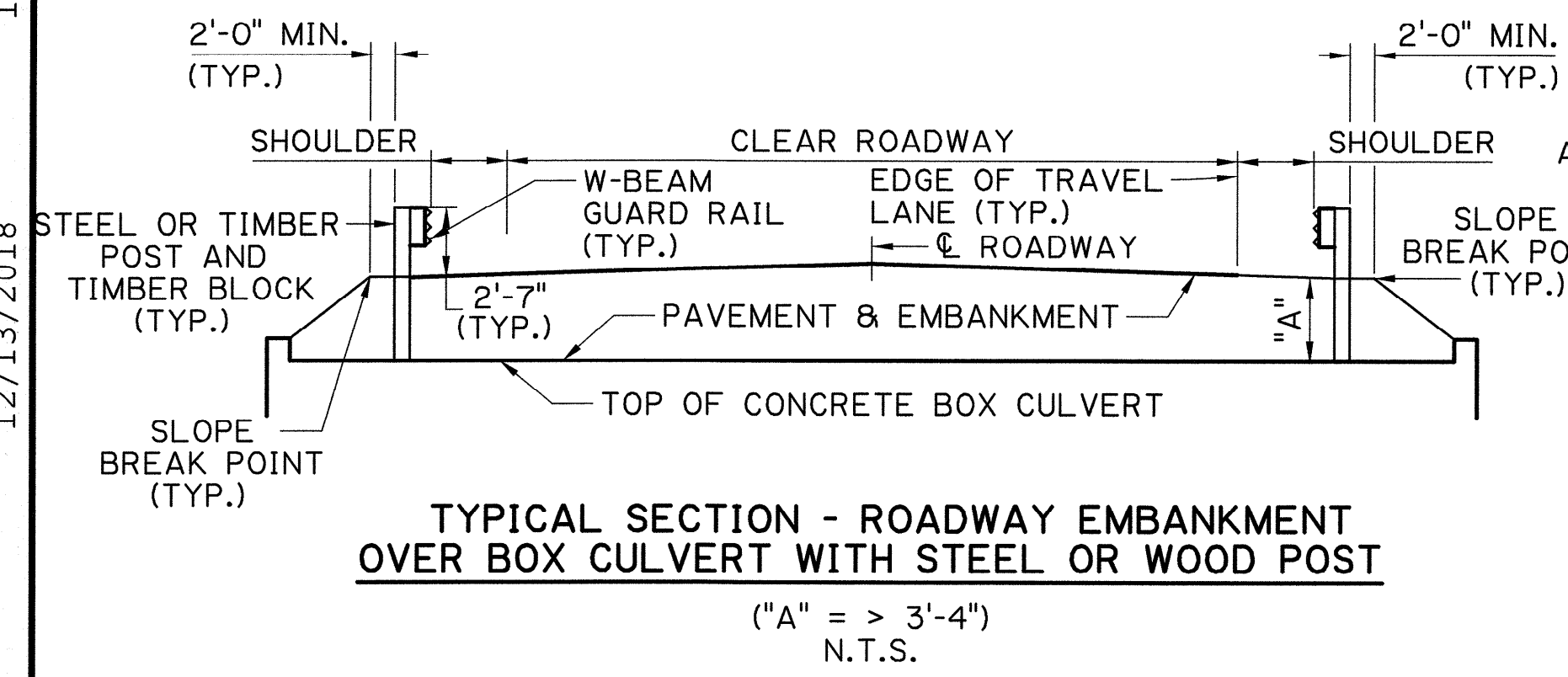
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

MOW STRIP NOTES:

- 1) ALL GUARD RAIL POSTS LOCATED WITHIN CONCRETE OR ASPHALT MOW STRIPS SHALL MEET INSTALLATION REQUIREMENTS SHOWN ON THIS SHEET.
- 2) USE A 2-SACK NON-SHRINK GROUT FILL WITH A MAXIMUM COMPRESSIVE STRENGTH OF 120 PSI FOR GROUT ALTERNATE.
- 3) ALL LABOR AND MATERIALS TO PLACE 2-SACK GROUT FILL (4" THICKNESS) OR CONCRETE WEDGE SHALL BE INCLUDED IN PAYMENT FOR CONCRETE OR ASPHALT PAVING PAY ITEMS.
- 4) CONCRETE PAY ITEM FOR WEDGE ALTERNATE TO BE SAME AS FOR CONCRETE MOW STRIP.

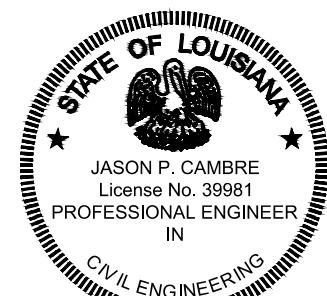
SHEET NUMBER	320	PARISH	CONTROL SECTION	STATE PROJECT	
DESIGN	P. FOSSIER	CHECK	K. BRAUNER	REVIEW	C. GUIDRY
DETAIL	J. DOUCET	CHECK	K. BRAUNER	SERIES #	11 OF 11
APPROVED BY CHIEF ENGINEER: <i>Kurt M. Brauner</i> DATE: 1/13/19					
HIGHWAY GUARD RAIL (MASH) MOW STRIP AND CONCRETE ANCHOR DETAILS					
STANDARD PLAN					
BRIDGE AND STRUCTURAL DESIGN					

10:28
12/13/2018
IP_PWP:d0811905\BD.1.3.0.01 - HIGHWAY GUARD RAIL (MASH) .dgn



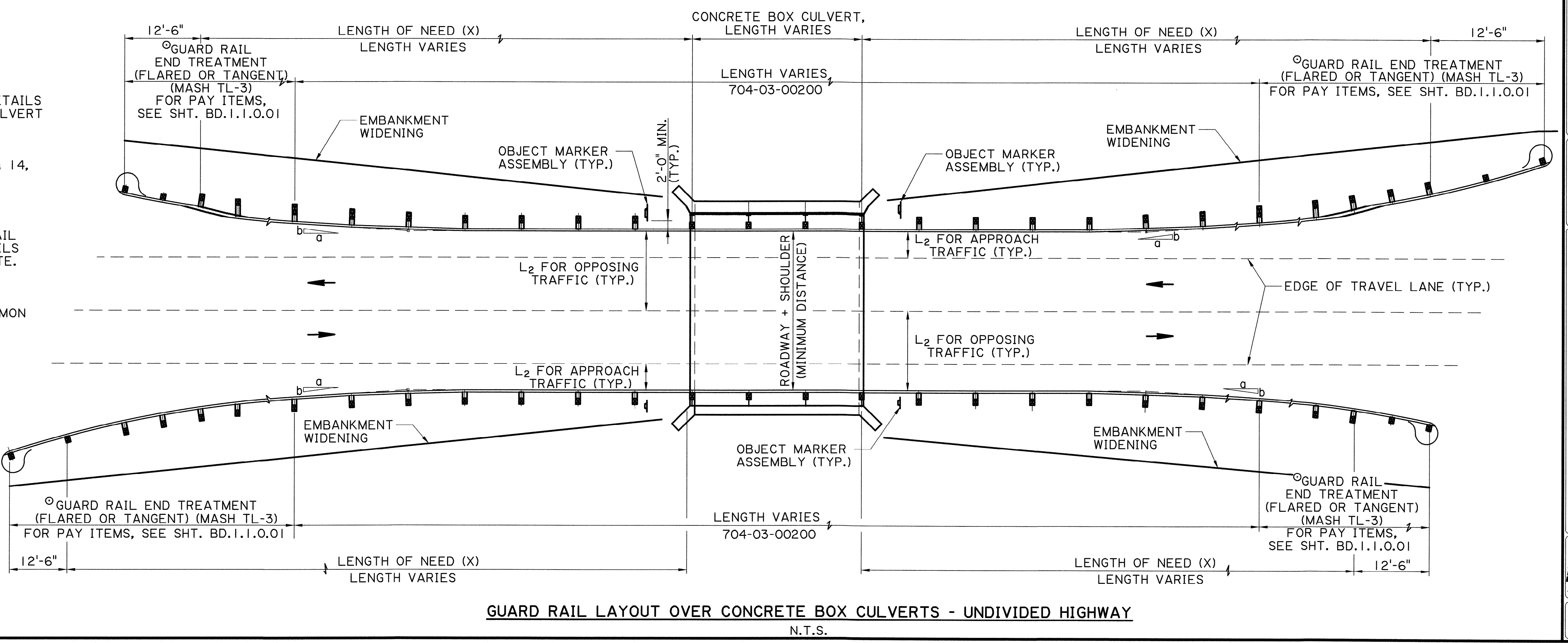
NOTES:

1. LENGTH OF NEED (X) AND PLAN LAYOUT DETAILS ARE TO BE DETERMINED FOR EACH BOX CULVERT AT EACH SPECIFIC SITE.
2. FOR END TREATMENTS SEE NOTES 9, 13, & 14, ON BD.1.1.0.01. FLARED OR TANGENT END TREATMENT MAY BE USED.
3. IN ADDITION TO THESE DETAILS, GUARD RAIL LAYOUT AND EMBANKMENT WIDENING DETAILS ARE REQUIRED FOR EACH BOX CULVERT SITE. SEE OTHER PLAN DETAILS.
4. FOR ALL OTHER DETAILS, REFERENCE COMMON DETAILS, BD.1.1.0.01 - BD.1.1.0.11.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

Jason Cambre
12/22/22



SHEET NUMBER	321
PARISH	
CONTROL SECTION	
STATE PROJECT	
DESIGN	P. FOSSIER
CHECK	K. BRAUNER
DETAIL	J. DOUCET
CHECK	K. BRAUNER
REVIEW	C. GUIDRY
SERIES	1 OF 1

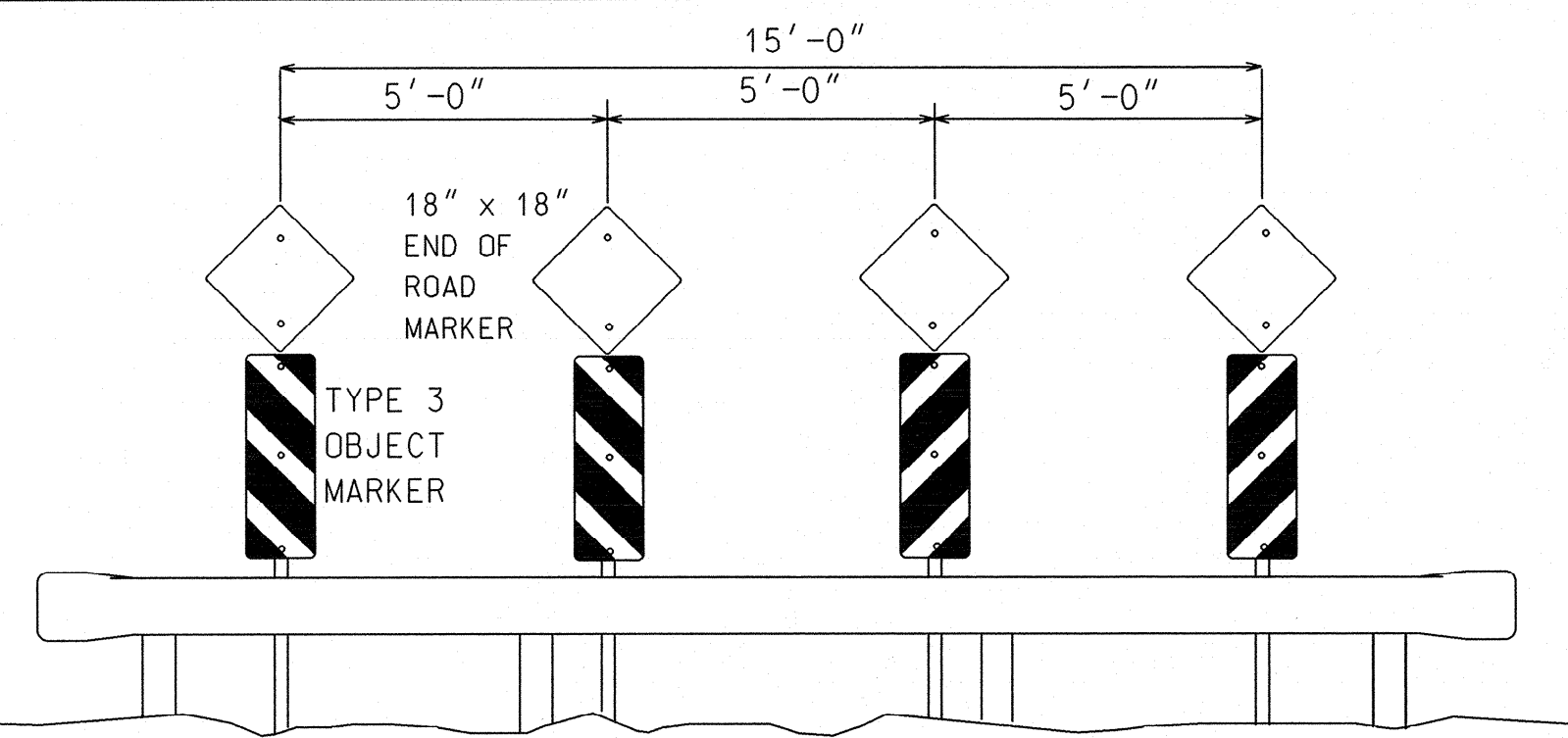
APPROVED BY CHIEF ENGINEER
Jason P. Cambre
DATE: 1/3/19

STATE OF LOUISIANA
KURT M. BRAUNER
License No. 35567
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/12/18

STATE OF LOUISIANA
JASON P. CAMBRE
License No. 39981
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
12/22/22

HIGHWAY GUARD RAIL (MASH)
APPLICATION FOR BOX CULVERT
STANDARD PLAN
BD.1.3.0.01
GR-MASH-BC

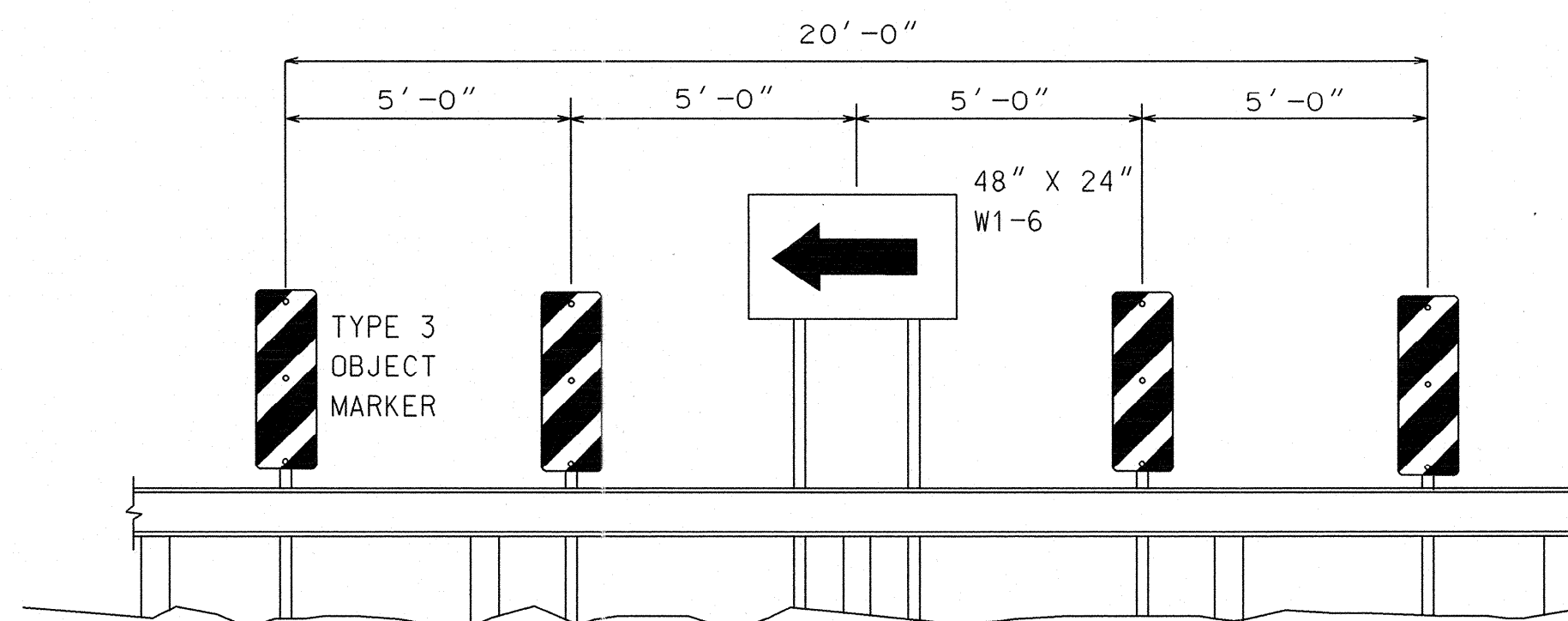
DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
BRIDGE AND STRUCTURAL DESIGN



END-OF-ROADWAY INSTALLATION
DEAD END ROAD INSTALLATION
(TYPE A - WITH GUARD RAIL, TYPE D - WITHOUT GUARDRAIL)

For End of Road installation Object Marker stripes shall slope downward toward the center.

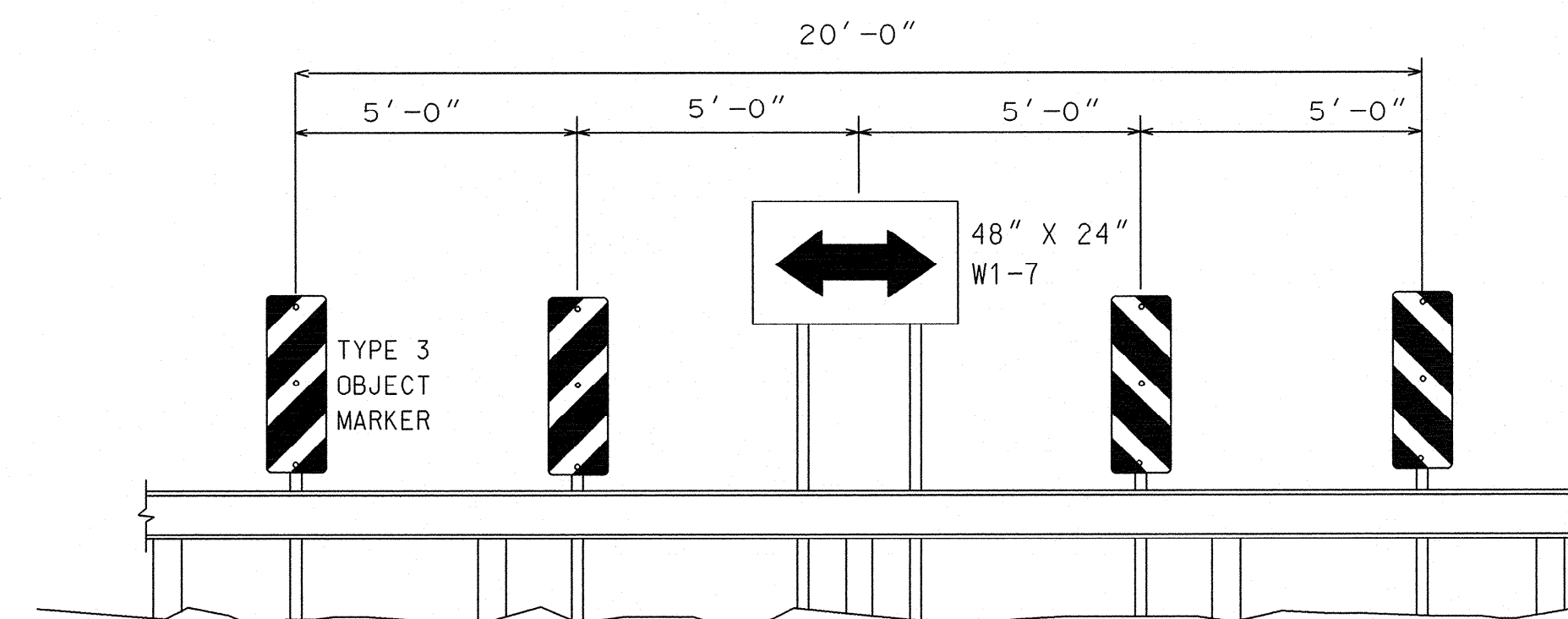
Guardrail to be installed in accordance with guardrail Standard Plans. Typical installation requires 25 ft. of rail with flared end sections.



TURN INSTALLATION
DEAD END ROAD INSTALLATION
(TYPE B - WITH GUARD RAIL, TYPE C - WITHOUT GUARDRAIL)

For Turn installations Object Marker stripes shall slope downward toward the direction of travel.

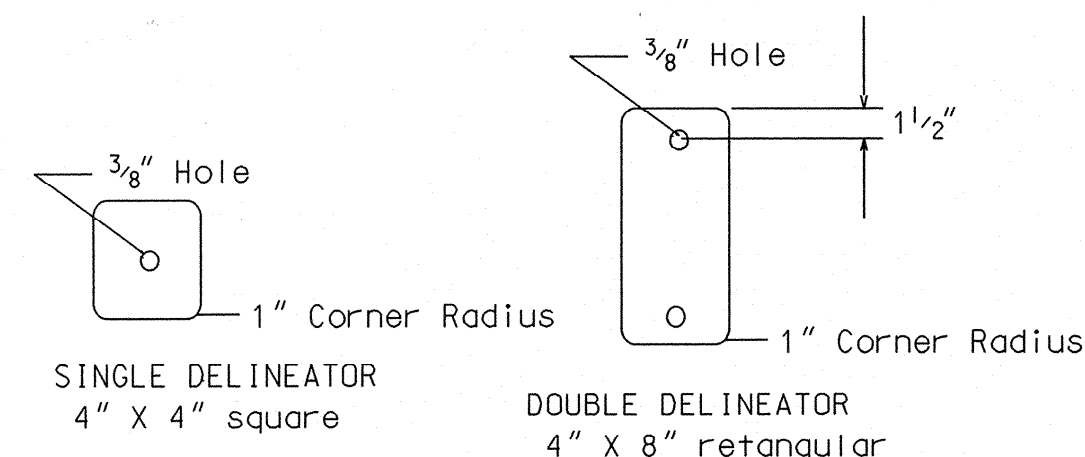
Guard rail to be installed in accordance with guardrail Standard Plans. Typical installation requires 25 ft. of rail with flared end sections.



T-INTERSECTION INSTALLATION
DEAD END ROAD INSTALLATION
(TYPE B - WITH GUARD RAIL, TYPE C - WITHOUT GUARDRAIL)

For T-intersection installations Object Marker stripes shall slope away from center. Guardrail to be installed in accordance with guardrail Standard Plans.

Typical installation requires 25 ft. of rail with flared end sections.



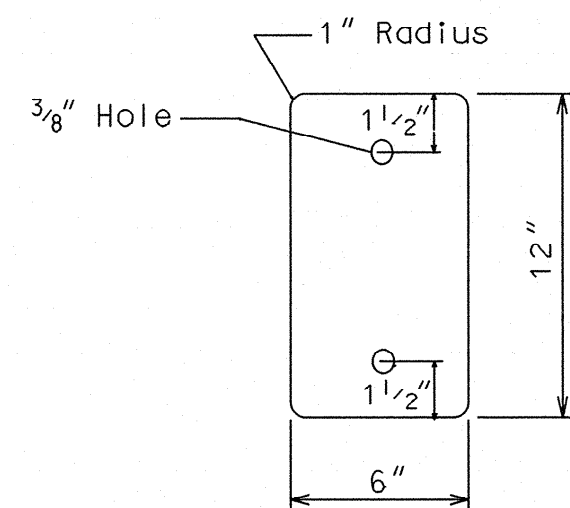
DETAIL OF DELINEATORS

Colors shall be red, white, or yellow. The sheeting shall be in accordance with DOTD Standard Specification

For alternate Delineator/Flexible Post systems see the DOTD Approved Materials List. Alternates shall have an equivalent area of sheeting and shall not be less than 3 in. wide.

The mounting height shall be the same as for Milepost Markers.

Post penetration in ground shall be a minimum of 2 ft.

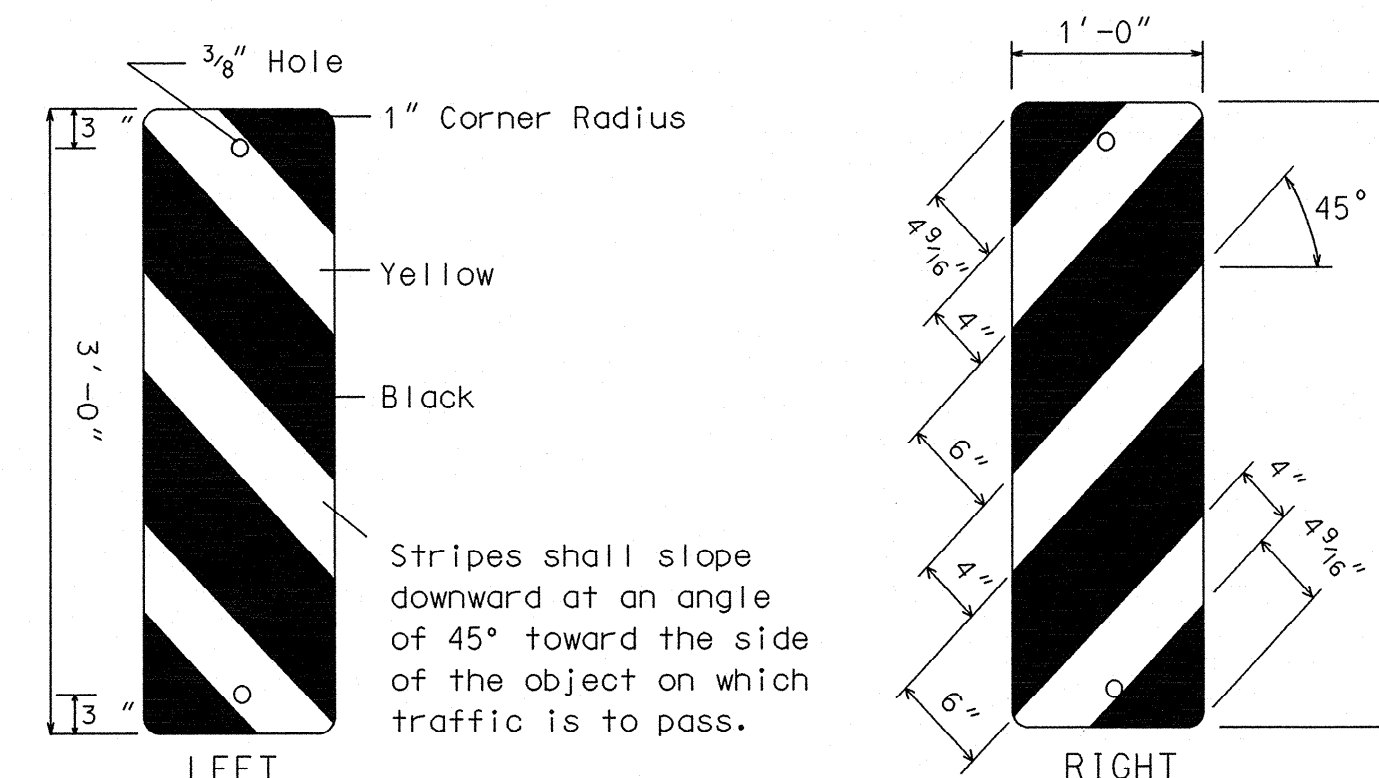


DETAIL OF TYPE 2 OBJECT MARKER

The face shall be yellow. The sheeting shall be in accordance with DOTD Standard Specification. The typical mounting height from the ground line to the bottom of the object marker shall be 36 in.

Post penetration in ground shall be a minimum of 2 ft.

Type 2 Object Markers are typically used in the right-of-way to mark objects for mowing operations.



DETAIL OF TYPE 3 OBJECT MARKER

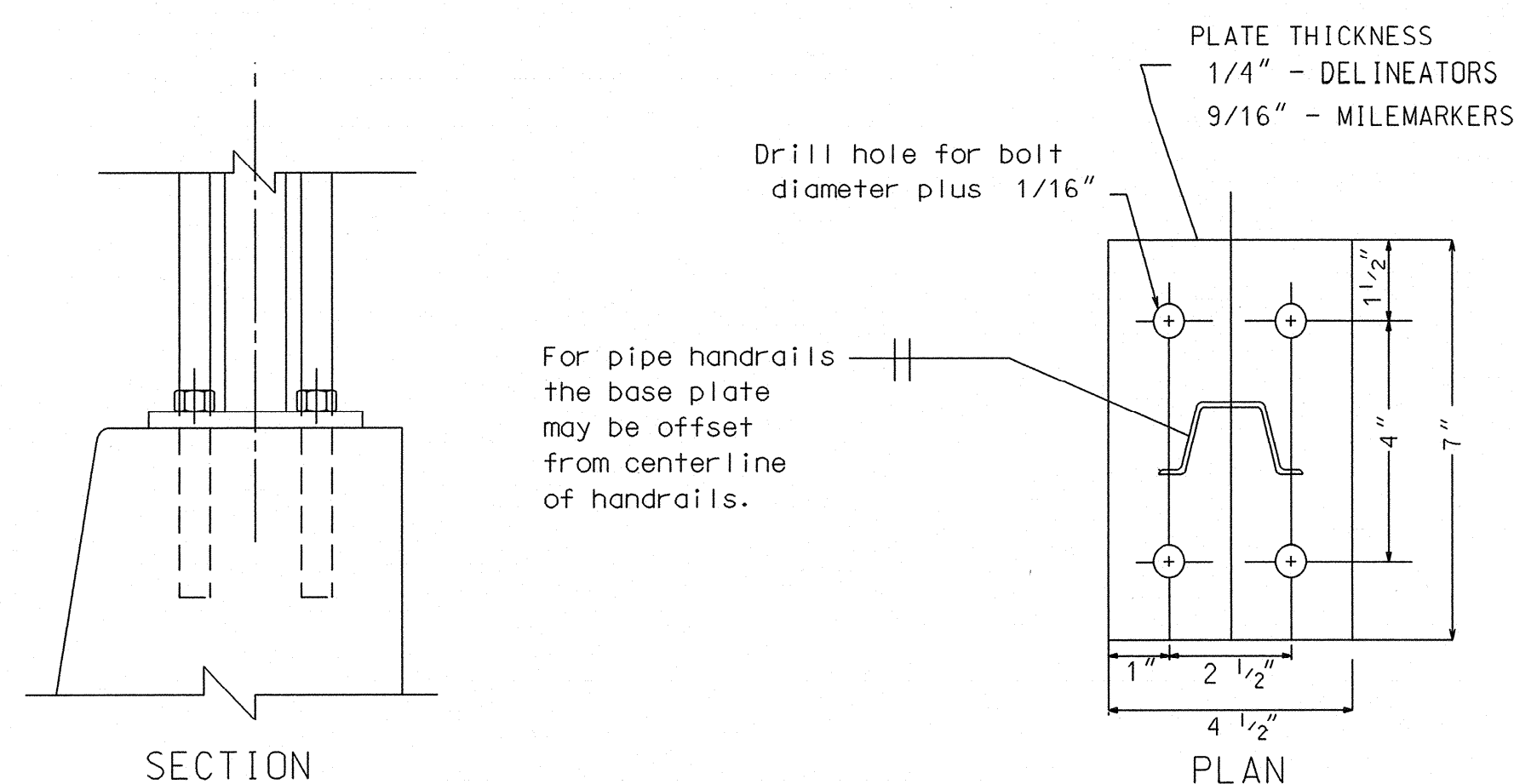
The markings on the Object Markers shall be diagonal, black and yellow stripes. The sheeting shall be in accordance with DOTD Standard Specifications.

Post penetration in ground shall be a minimum of 3 ft.

Type 3 Object Markers are typically used to mark objects in the roadway (travel lanes and shoulder) and to mark guard rail installation (see guard rail Standard Plans).

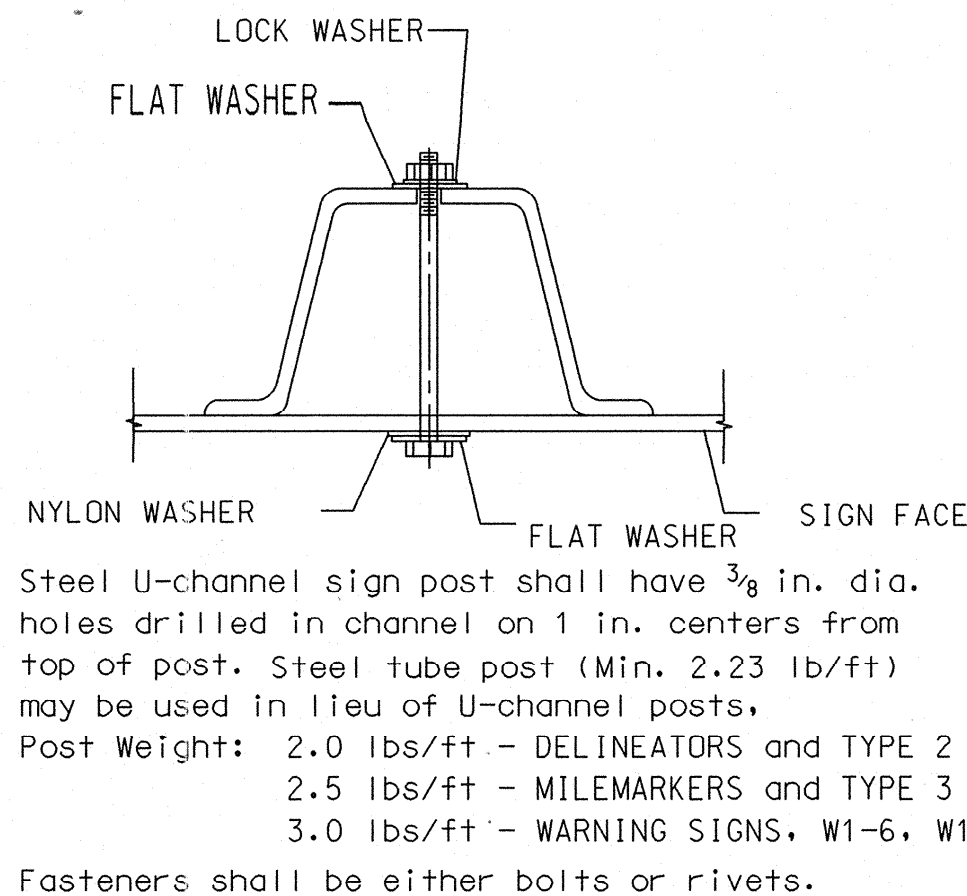
When used for marking objects in the roadway or objects that are 8 ft. or less from the shoulder or curb, the mounting height to the bottom of the object marker should be at least 4 ft. above the surface of the nearest traffic lane.

When used to mark objects more than 8 ft. from the shoulder or curb, the mounting height to the bottom of the object marker should be at least 4 ft. above the ground.



Anchor Bolts
1/4 in. plate - 5/16 in. x 4 in. bolt
3/16 in. plate - 1/2 in. x 5 in. bolt
For bolt anchors see DOTD Approved Materials List.

DETAIL FOR MOUNTING SIGN POST TO CONCRETE BARRIER RAIL



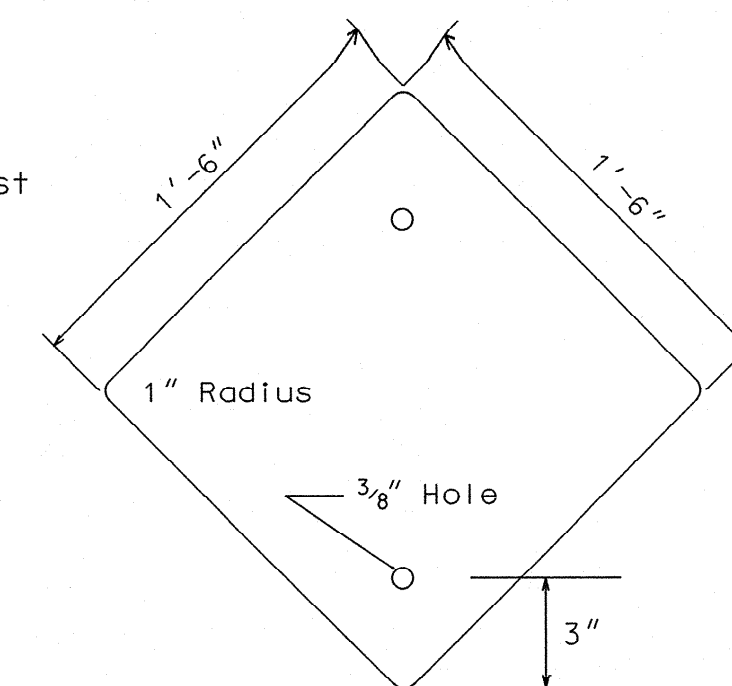
Steel U-channel sign post shall have 3/8 in. dia. holes drilled in channel on 1 in. centers from top of post. Steel tube post (Min. 2.23 lb/ft) may be used in lieu of U-channel posts.
Post Weight: 2.0 lbs/ft - DELINEATORS and TYPE 2 OBJECT MARKERS
2.5 lbs/ft - MILEMARKERS and TYPE 3 OBJECT MARKERS
3.0 lbs/ft - WARNING SIGNS, W1-6, W1-7
Fasteners shall be either bolts or rivets.

Bolts shall be 5/16 in. diameter electroplated steel hex head bolts with one nylon washer, two flat washers, one lock washer, and one vandal resistant hex nut.

Rivets shall be vandal resistant 1/4 in. diameter aluminum blind rivets with smooth, low profile heads on each end.

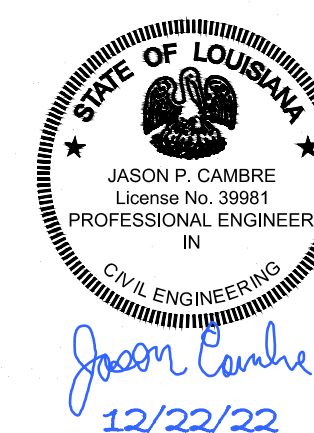
DETAIL FOR MOUNTING SIGN TO U-CHANNEL POST

MOUNTING DETAILS



DETAIL OF END OF ROAD MARKER

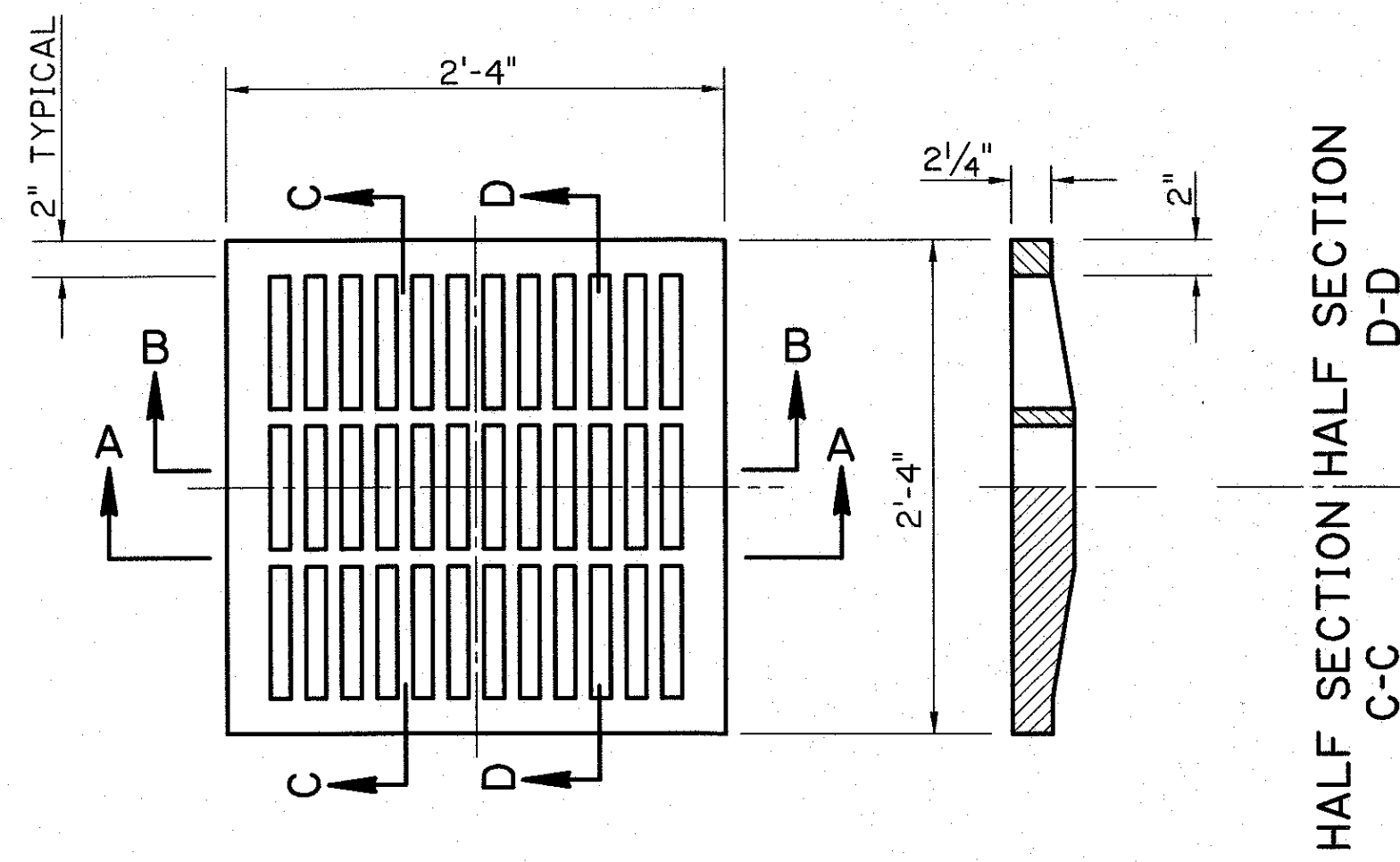
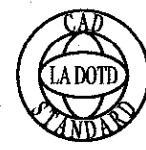
Colors shall be red. The sheeting shall be in accordance with DOTD Standard Specification. The minimum mounting height from the ground line to the bottom of the marker shall be 5 ft. Post penetration in ground shall be a minimum of 3 ft.



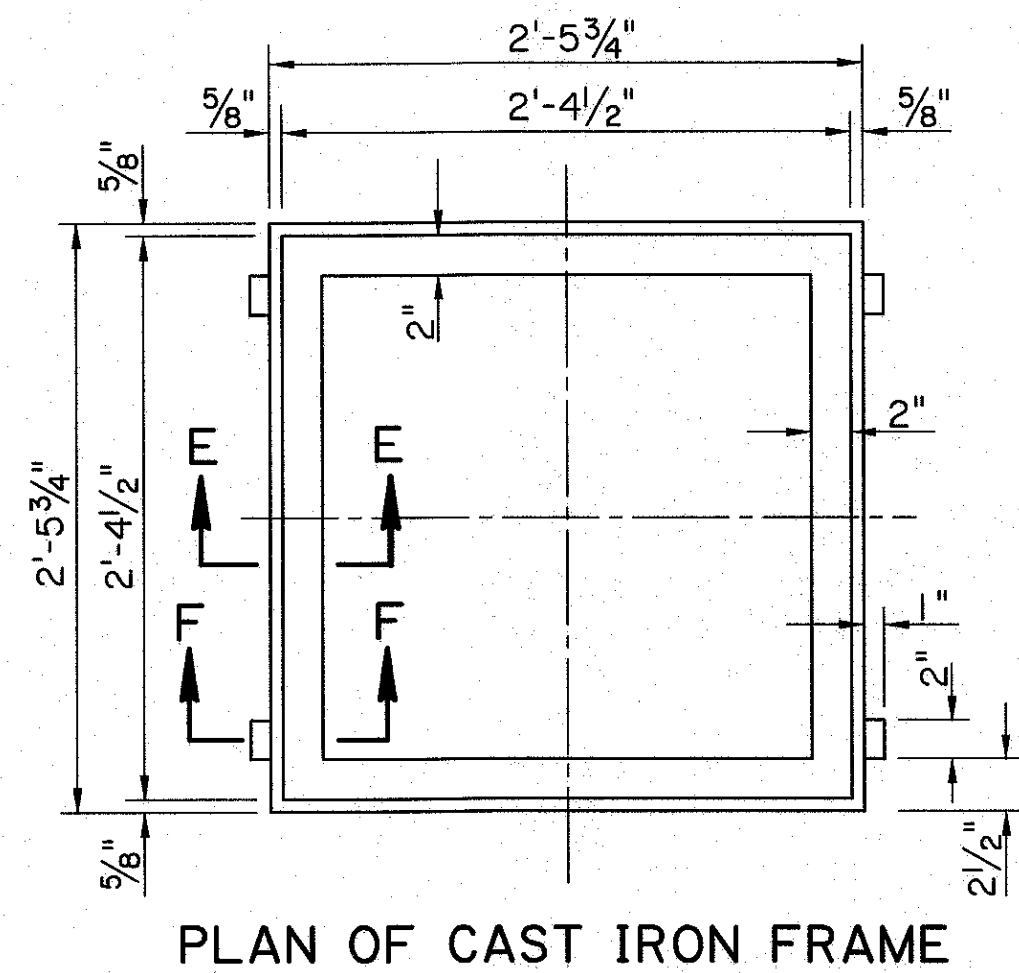
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

Jason Cambre
12/22/22

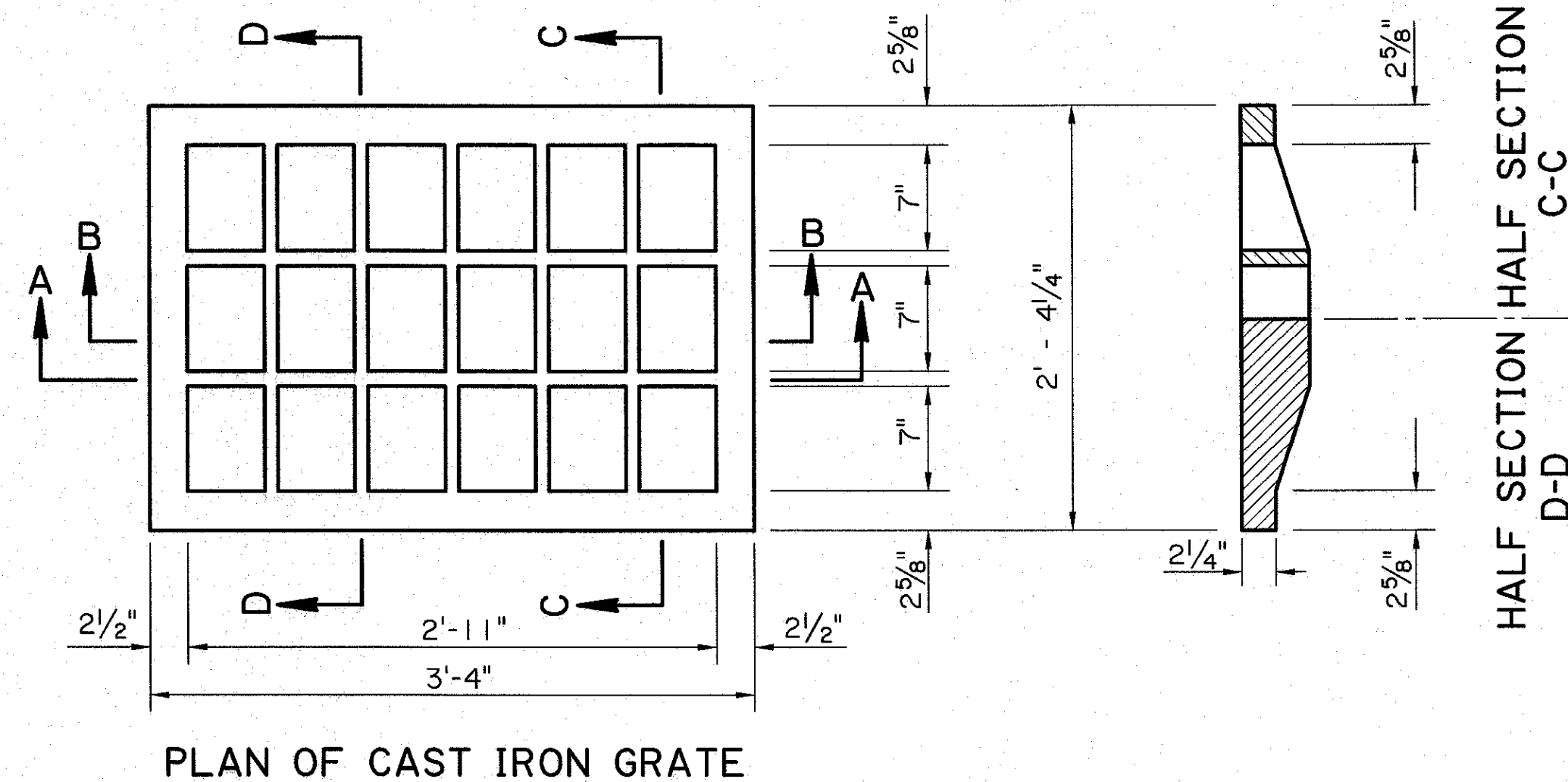
SHEET NUMBER	322
DESIGNED	J. COLVIN
CHECKED	P. ALLAIN
DATE	02/13/2013
REVISION DESCRIPTION	
BY	
DATE	1-7-2014
CHIEF ENGINEER	Aimee P. Williams
STANDARD PLAN	HS-03
TRAFFIC ENGINEERING	



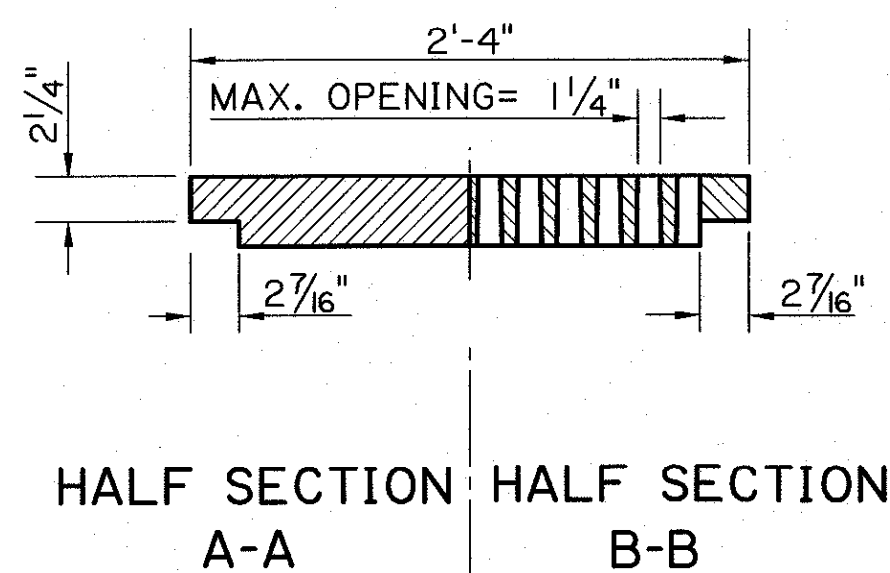
PLAN OF CAST IRON GRATE



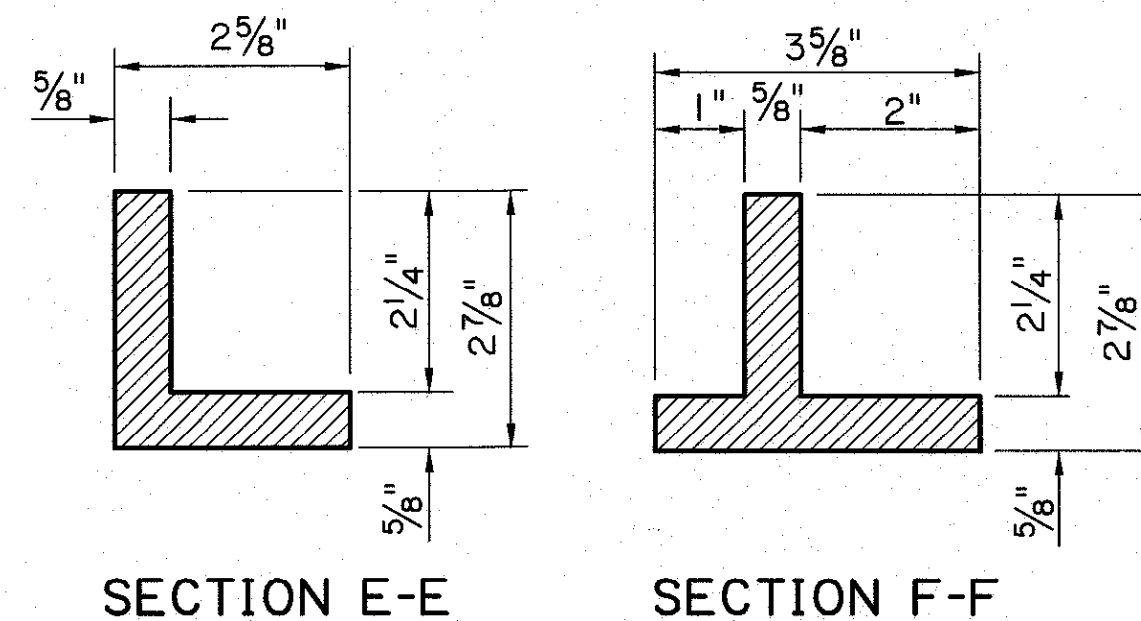
PLAN OF CAST IRON FRAME



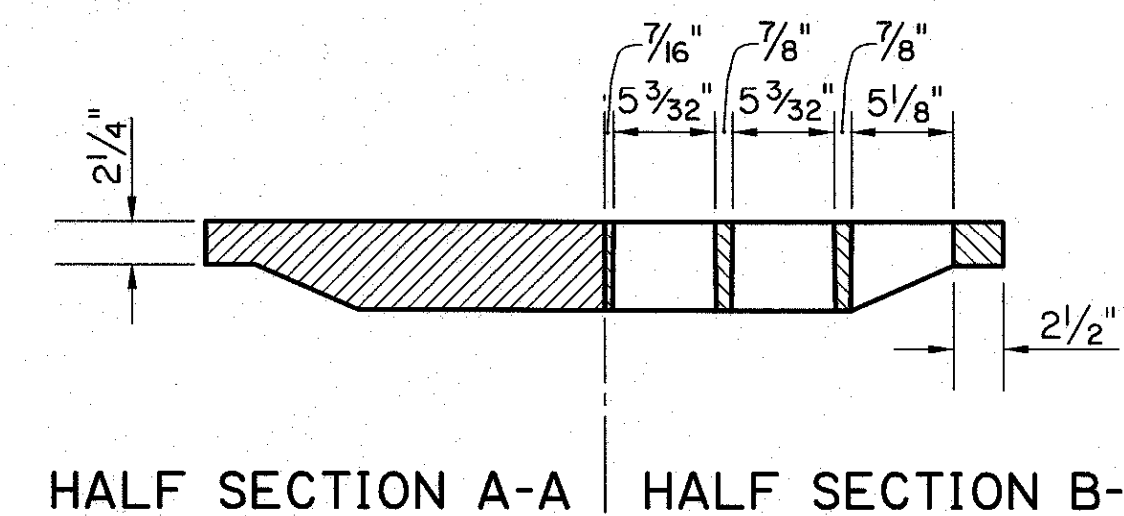
PLAN OF CAST IRON GRATE



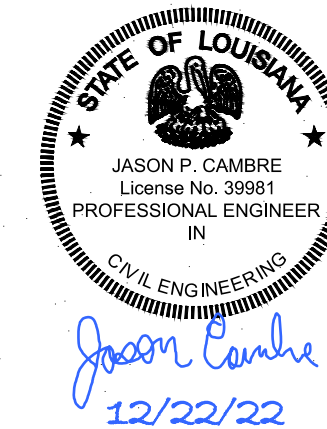
HALF SECTION HALF SECTION A-A B-B



SECTION E-E SECTION F-F



HALF SECTION A-A HALF SECTION B-B



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

Jason Cambre
12/22/22

TYPE "A"

CAST IRON GRATE & FRAME

MIN. OPENING = 290 SQ. IN. AREA

TYPE "B"
CAST IRON GRATE

NOTE: UNLESS OTHERWISE STATED, TYPE "E" FRAME WILL BE USED WITH THIS GRATE.

TYPE "C"

STEEL DRAIN GRATE

- NOTES:
1. GRATES TO BE GALVANIZED AFTER FABRICATION.
 2. UNLESS OTHERWISE STATED, TYPE "E" FRAME IS TO BE USED WITH THESE GRATES. (SEE SHEET 2)
 3. SUPPLIER OF GRATE ALSO IS TO FURNISH PRE-FITTED GRATE FRAME.

WELDED & SEALED DRAIN GRATE

ALL JOINTS FULL DEPTH 1/4" FILLET WELDS WITH SEAL WELDS TOP AND BOTTOM UNLESS NOTED OTHERWISE.

ALL BEARING BARS TO BE SET FLUSH ON GRATE FRAME.

WEIGHT OF DRAIN GRATE = 233 LBS. ± 5%

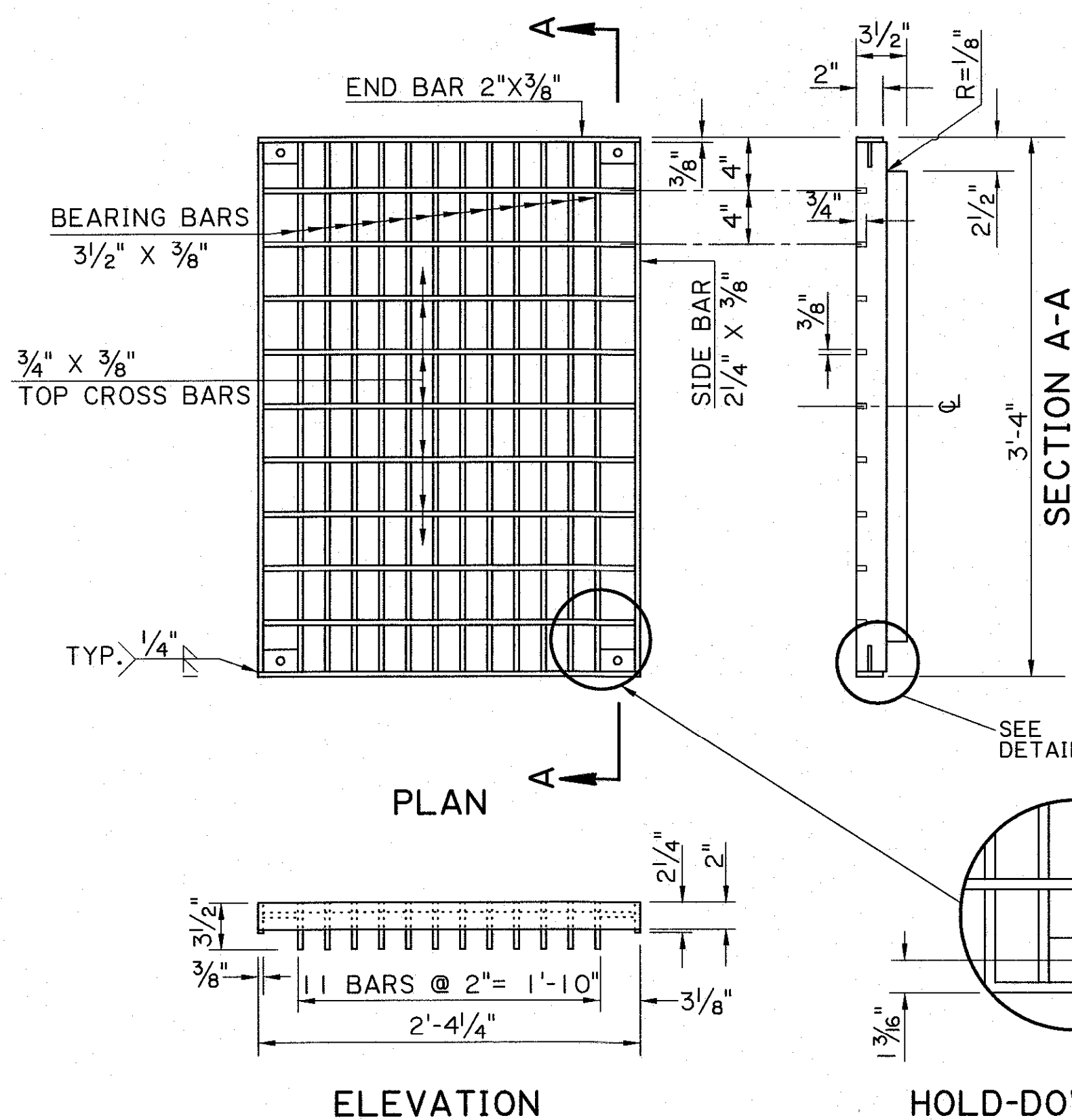
RIVETED RETICULINE DRAIN GRATE (ALTERNATE)

ALL JOINTS FULL DEPTH 1/4" FILLET WELDS WITH SEAL WELDS TOP AND BOTTOM UNLESS NOTED OTHERWISE.

ALL BEARING BARS TO BE SET FLUSH ON GRATE FRAME.

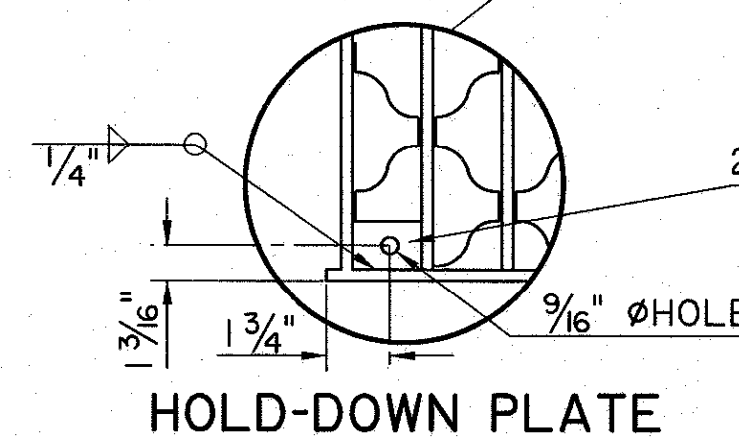
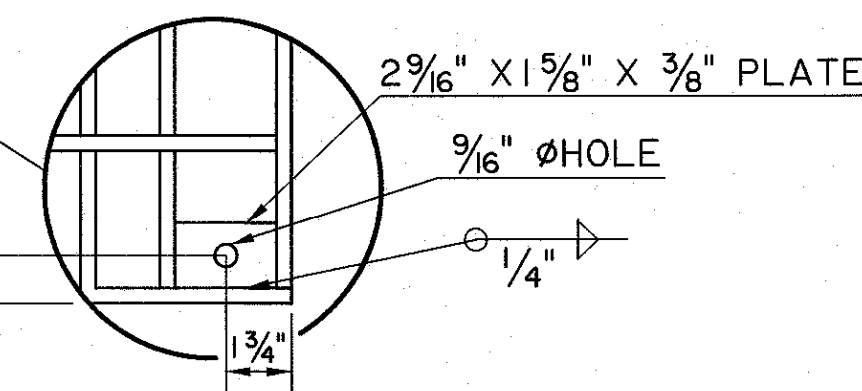
CENTER TO CENTER OF BEARING BARS EQUAL 2 5/16" PLUS BEARING BAR THICKNESS.

WEIGHT OF DRAIN GRATE = 266 LBS. ± 5%

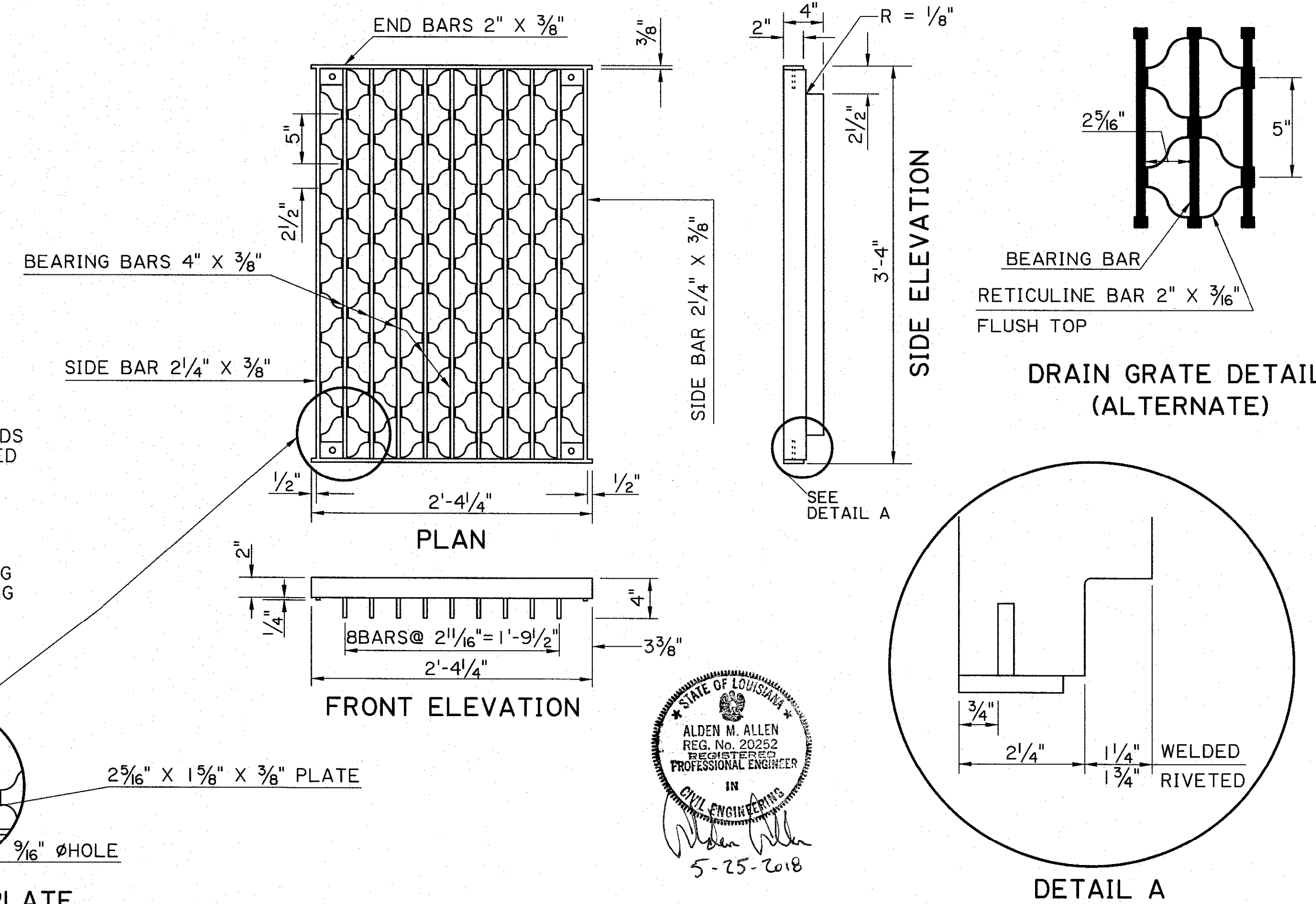


ELEVATION

HOLD-DOWN PLATE



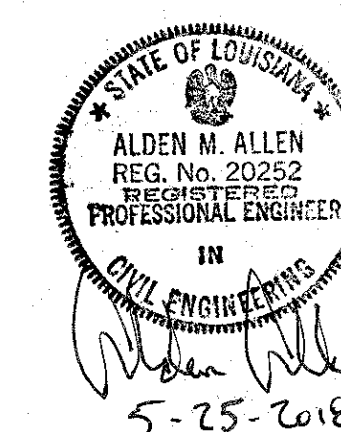
HOLD-DOWN PLATE



PLAN

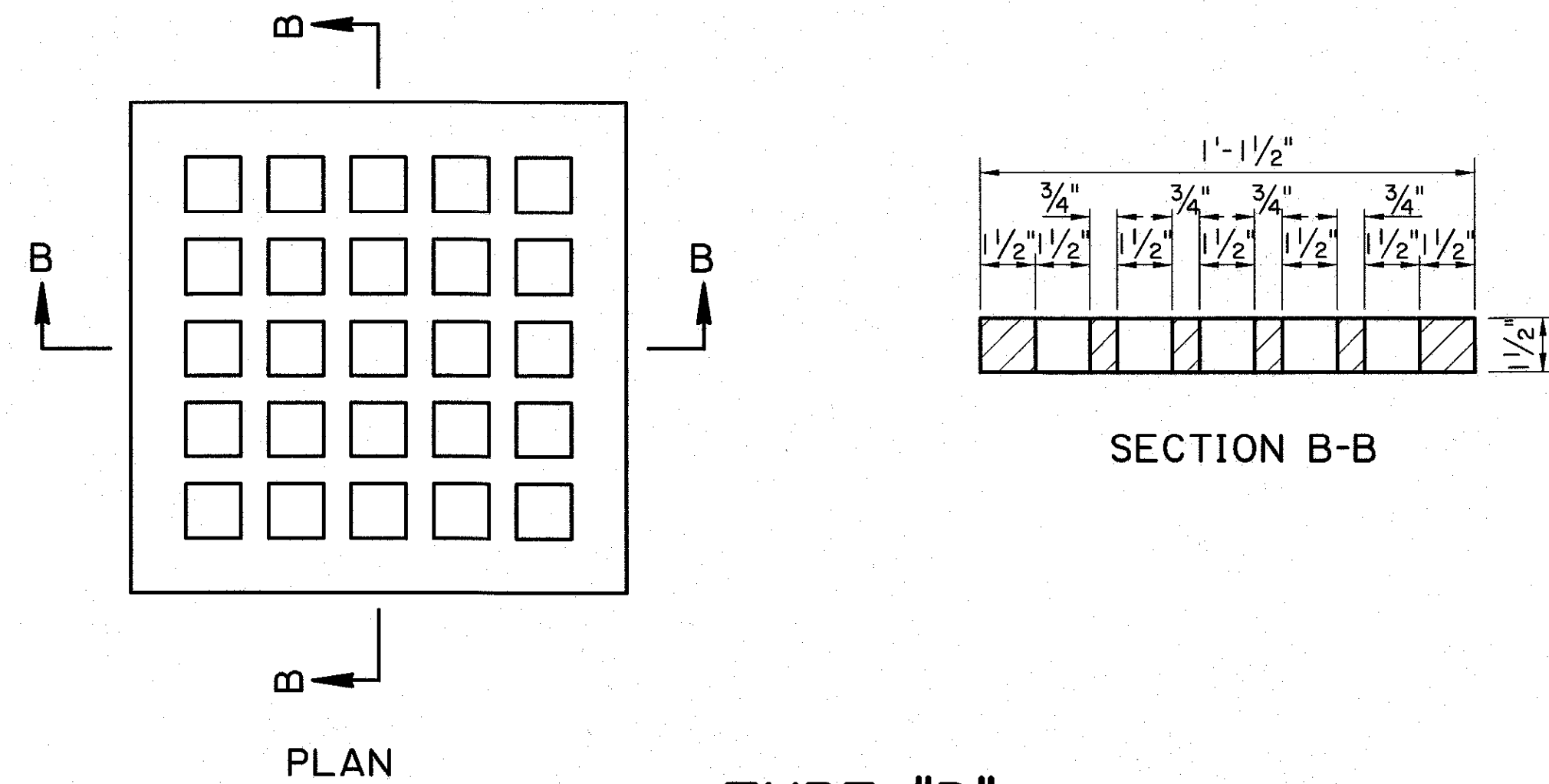
FRONT ELEVATION

DETAIL A



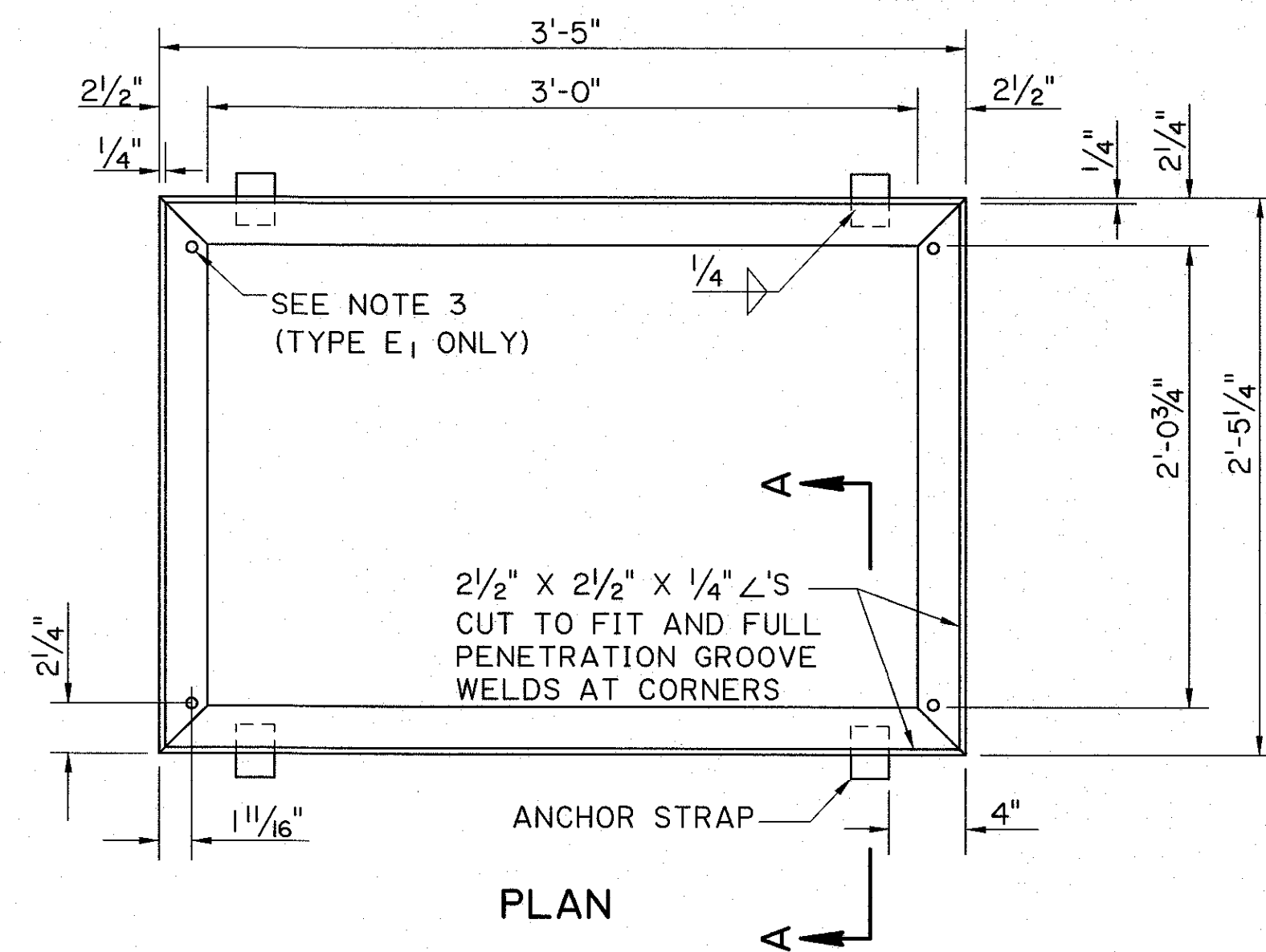
5-25-2018

SHEET NUMBER	323
DESIGNED	AMA
CHECKED	AMA
DATE	9/01/17
REVISION DESCRIPTION	
APPROVED BY	Chief Engineer
DATE	5/25/18
STANDARD PLAN	MC-01
DETAILS OF GRATES, GRATE FRAMES AND COVERS FOR CATCH BASINS AND MANHOLES	
HYDRAULICS SECT.	

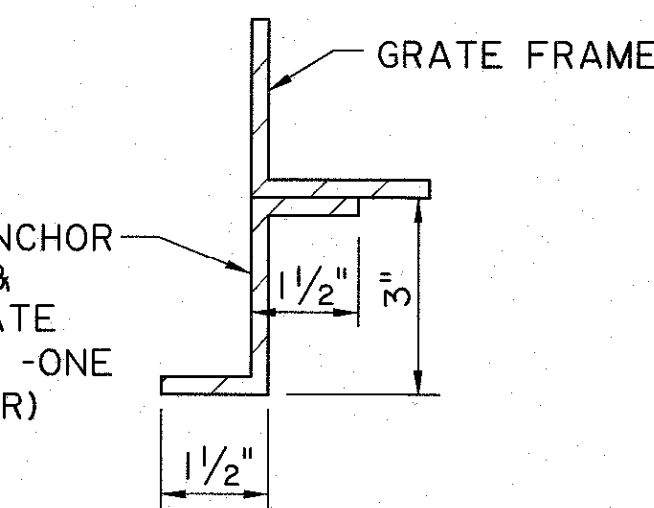


TYPE "D"

CAST IRON GRATE
WEIGHT OF CASTING = 49 LBS



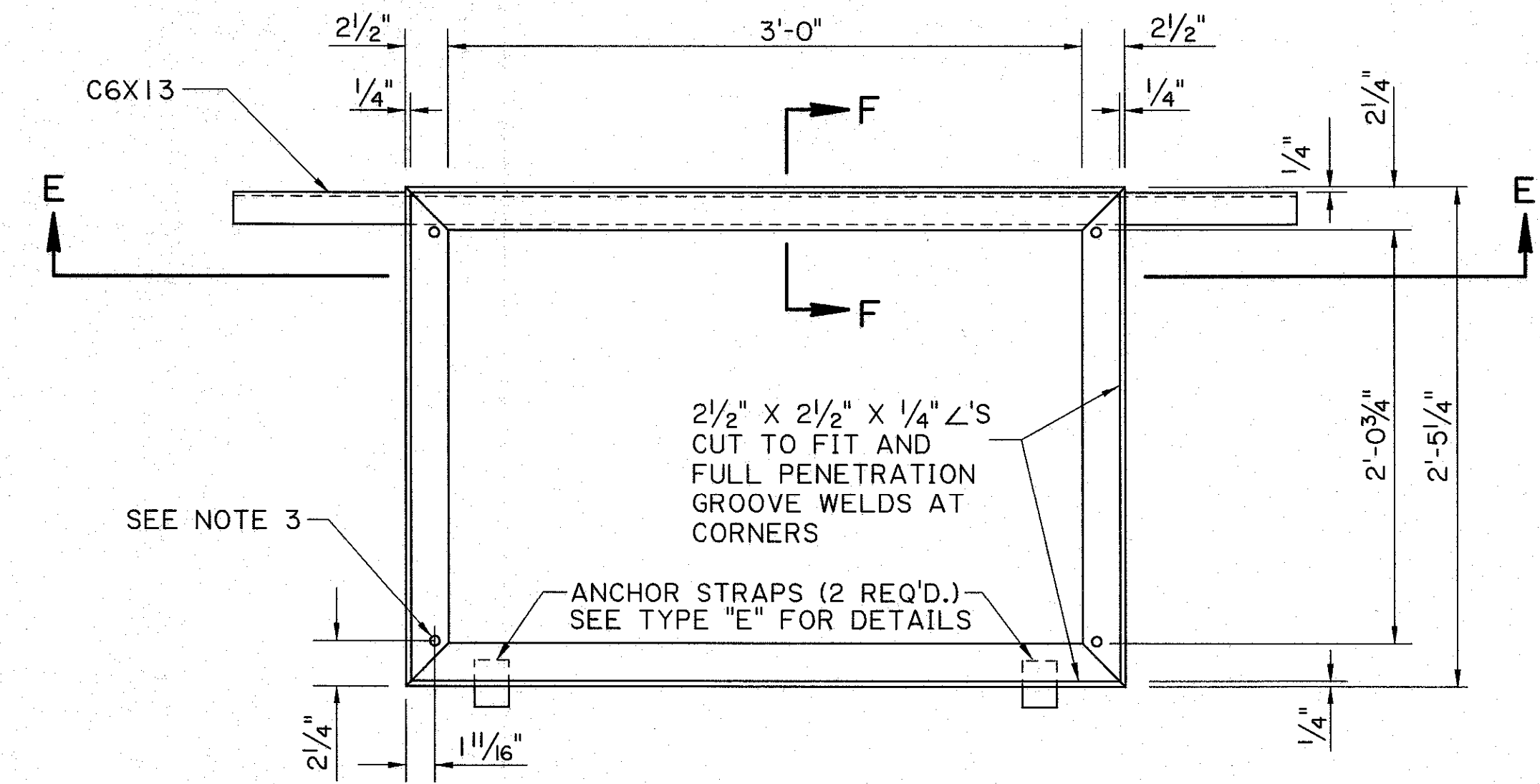
PLAN



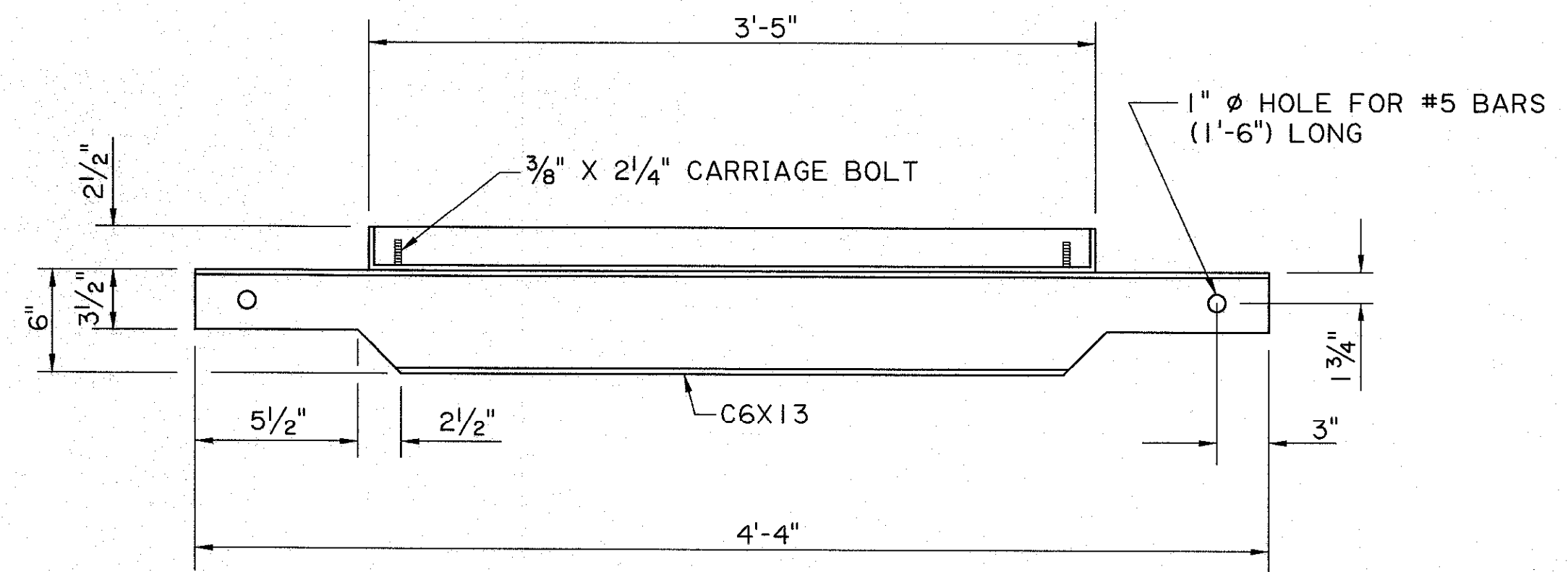
SECTION A-A

TYPE "E" AND "E1"
STEEL GRATE FRAME

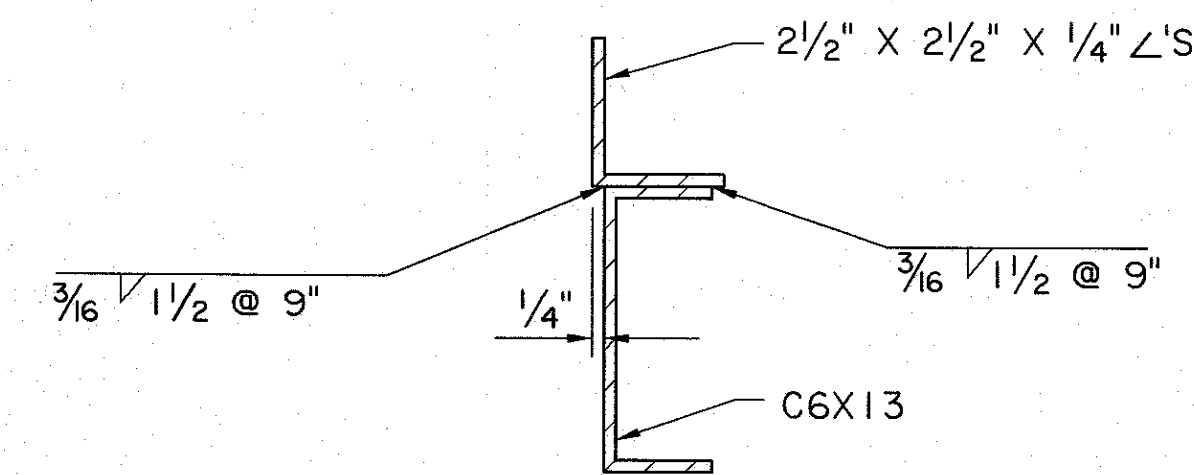
- NOTES:
1. GRATE FRAME TO BE GALVANIZED AFTER FABRICATION
 2. WEIGHT OF GRATE FRAME = 52 LBS
 3. SQUARE PUNCH HOLE PRIOR TO GALVANIZING. ADD A 3/8" ϕ x 2 1/4" LONG -16 UNC ROUND HEAD SQUARE NECK CARRIAGE BOLT WITH JAM NUT, HEX HEAD NUT, AND FLAT WASHER (ALL STAINLESS STEEL) AFTER FRAME IS GALVANIZED.



PLAN



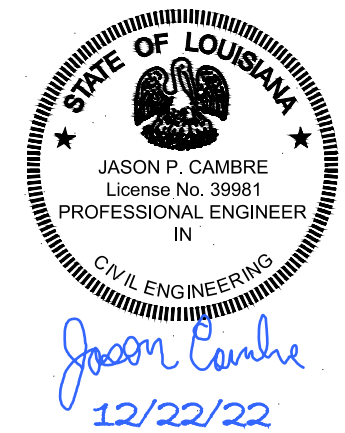
SECTION E-E



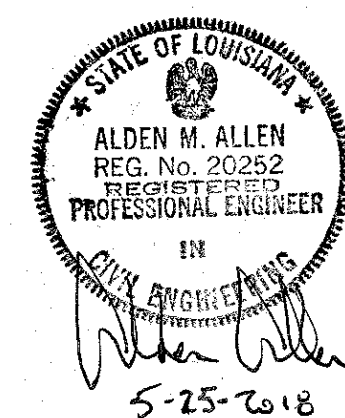
SECTION F-F

TYPE "F"
STEEL GRATE FRAME

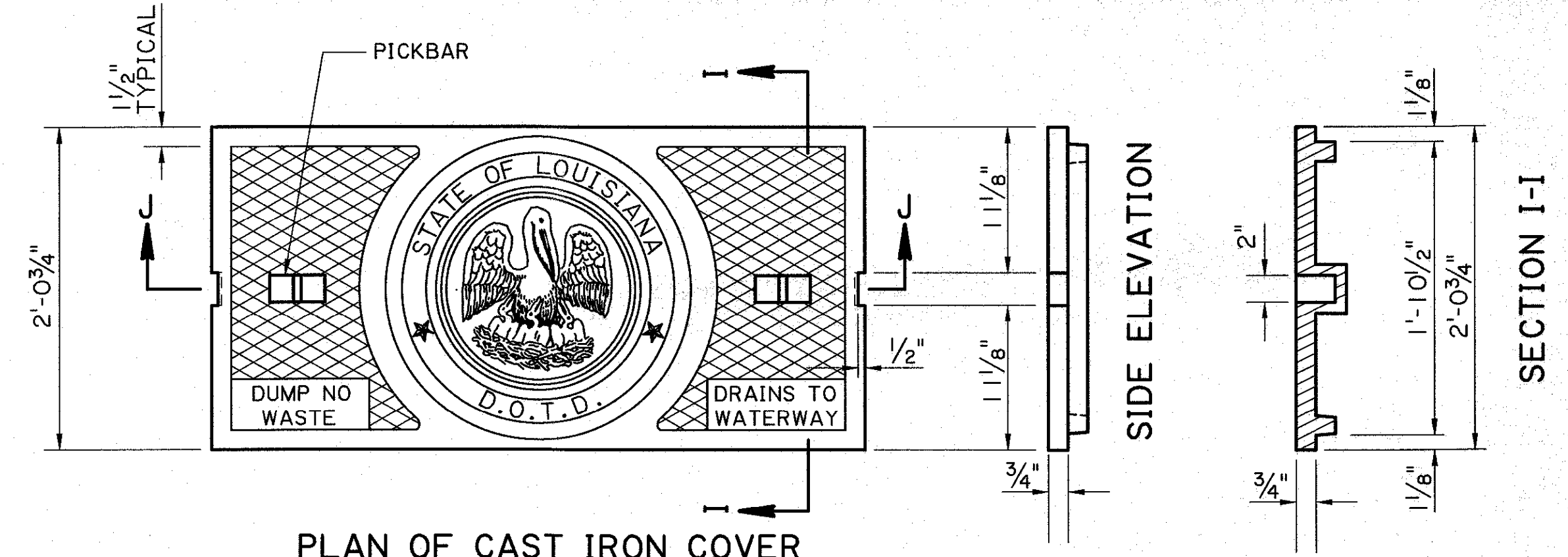
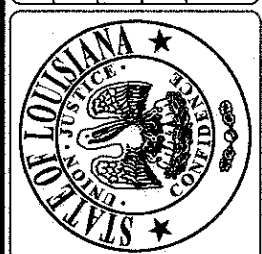
- NOTES:
1. GRATE FRAME TO BE GALVANIZED AFTER FABRICATION
 2. WEIGHT OF GRATE FRAME = 52 LBS \pm 5%
 3. SQUARE PUNCH HOLE PRIOR TO GALVANIZING. ADD A 3/8" ϕ x 2 1/4" LONG -16 UNC ROUND HEAD SQUARE NECK CARRIAGE BOLT WITH JAM NUT, HEX HEAD NUT, AND FLAT WASHER (ALL STAINLESS STEEL) AFTER FRAME IS GALVANIZED.



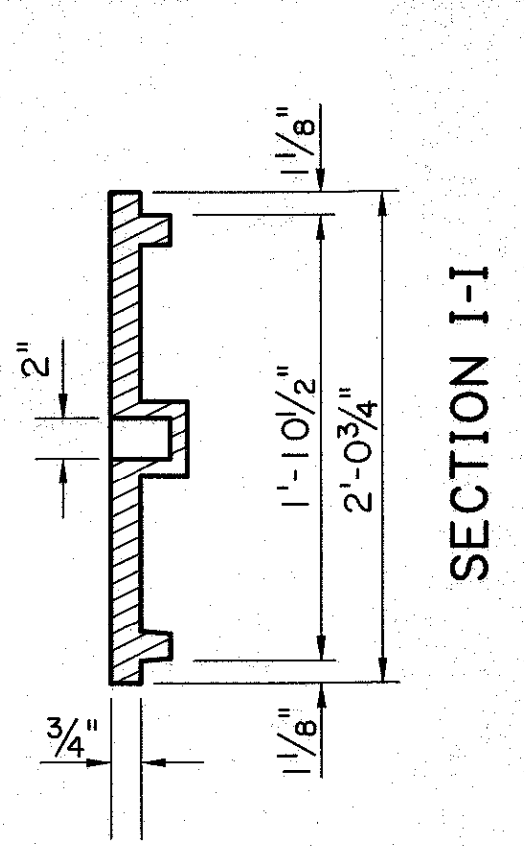
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



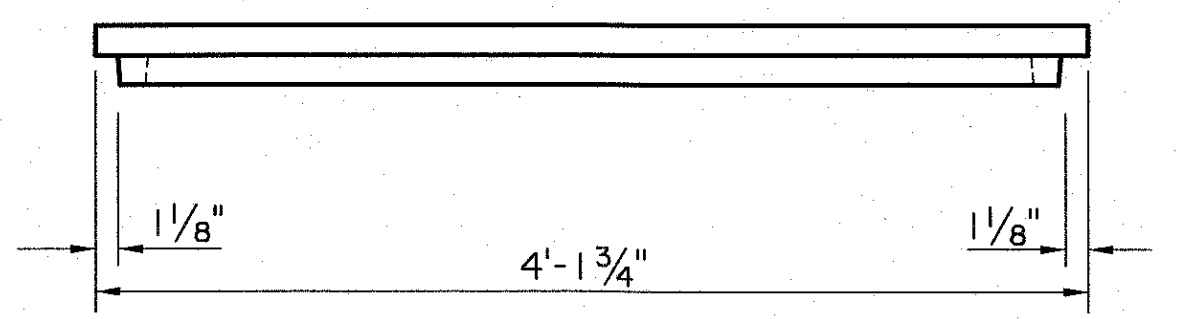
SHEET NUMBER	324
DESIGNED	AMA
CHECKED	AMA
RETAINED	TL
CHECKED	AMA
SERIES NUMBER	9/01/17 2 OF 6
DATE	5/25/18
REVISION DESCRIPTION	
APPROVED BY	CHIEF ENGINEER
DATE	
BY	
REVISION	
DATE	
CHIEF ENGINEER	
DETAILS OF GRATES, GRATE FRAMES AND COVERS FOR CATCH BASINS AND MANHOLES	
STANDARD PLAN	MC-01
HYDRAULICS SECT.	



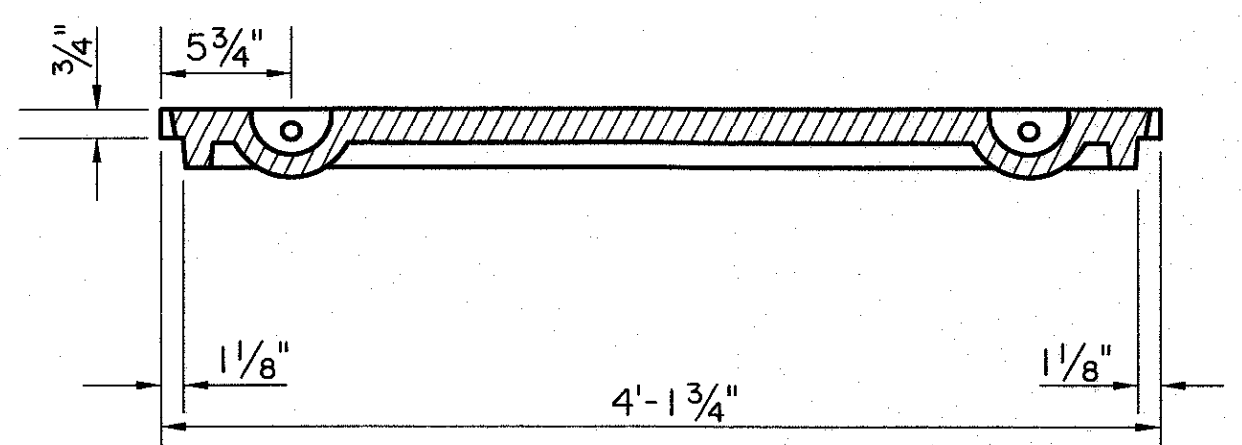
PLAN OF CAST IRON COVER



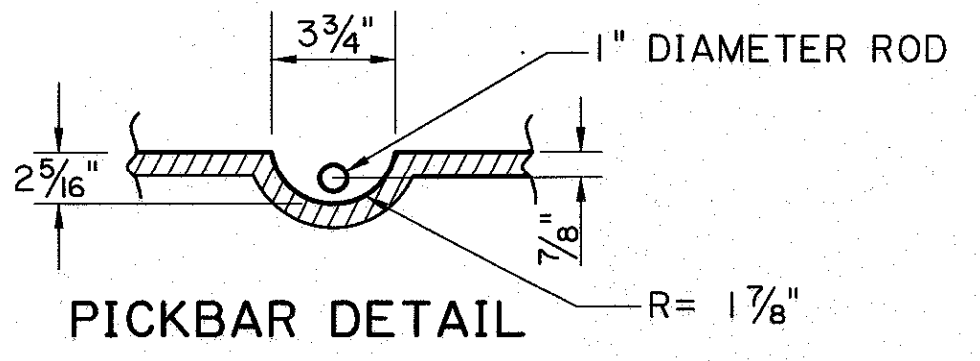
SECTION I-I



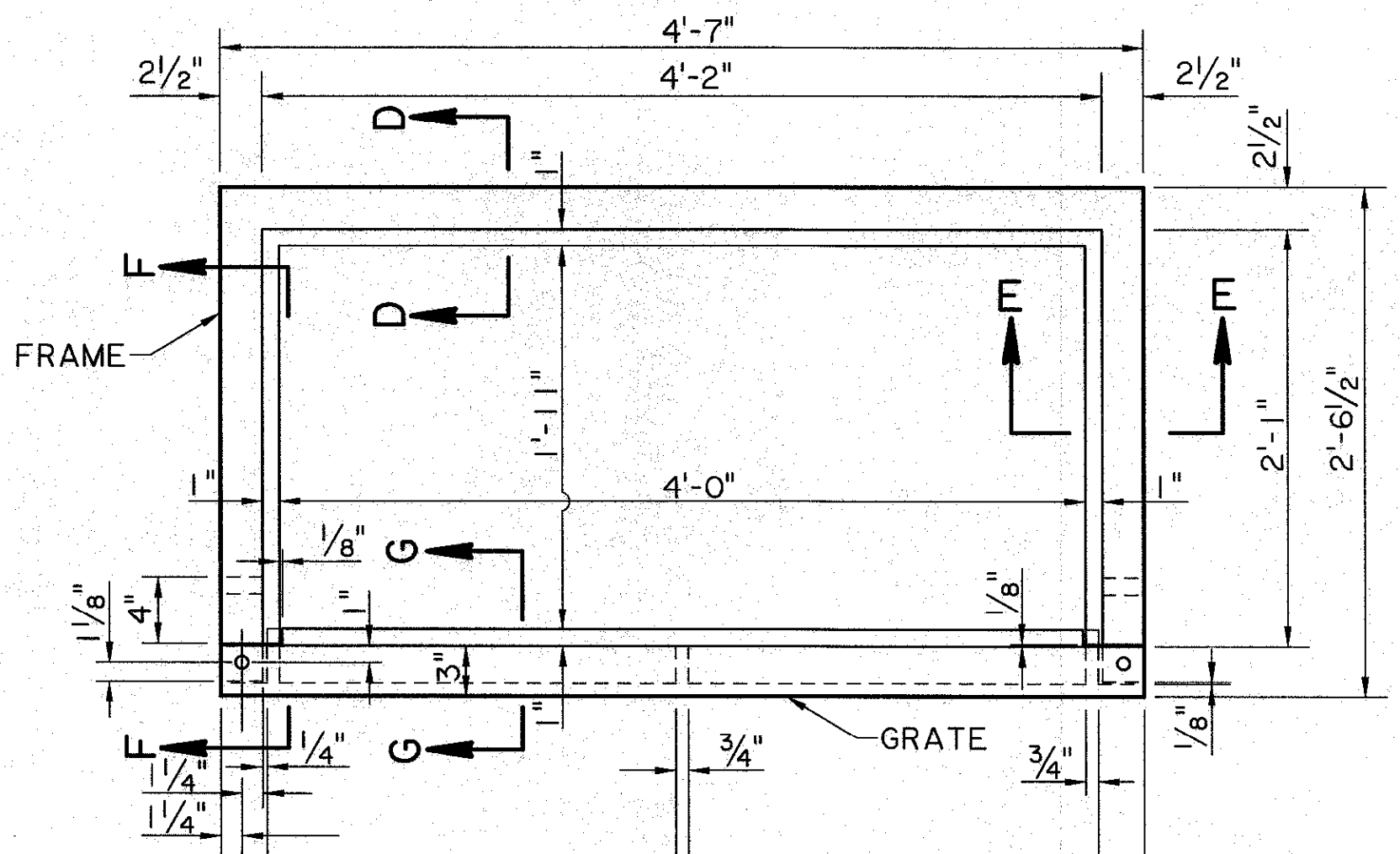
FRONT ELEVATION OF CAST IRON COVER



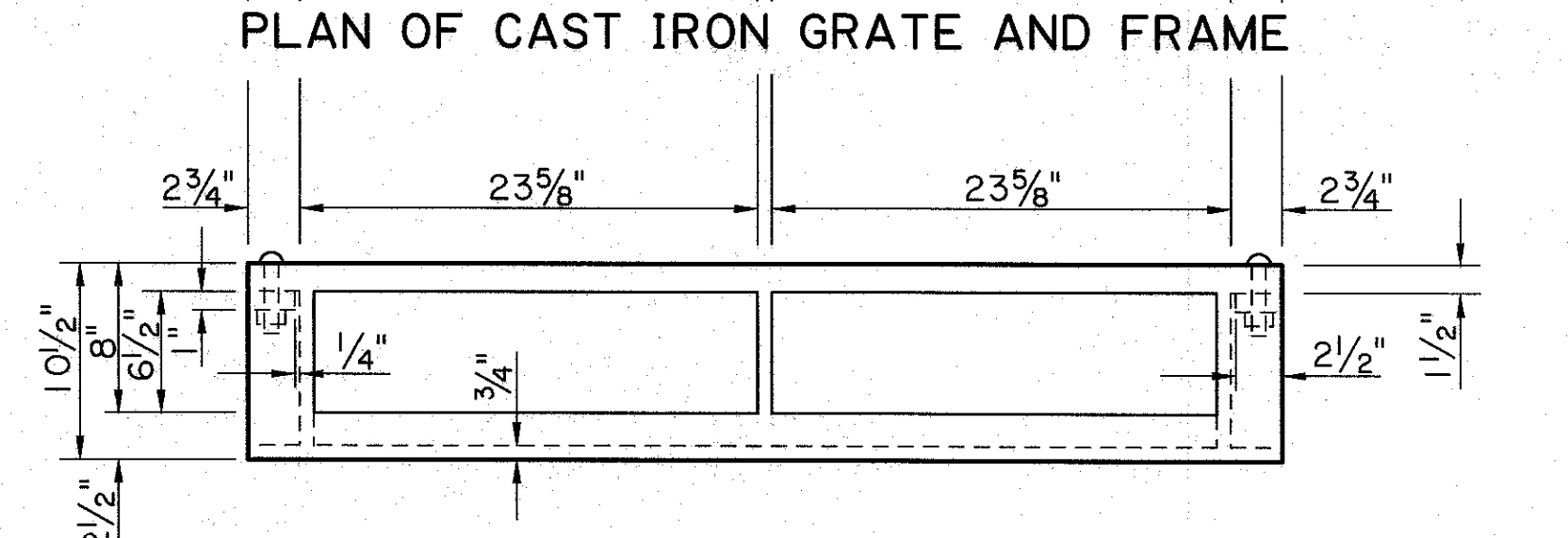
SECTION J-J



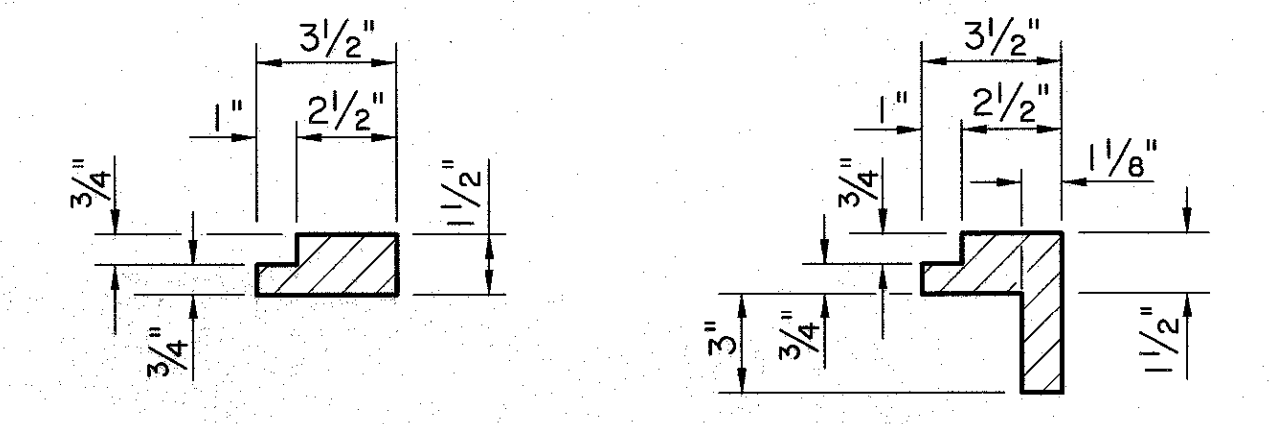
TYPE "H" AND "H₁"
 CAST IRON COVER, GRATE AND FRAME



PLAN OF CAST IRON GRATE AND FRAME



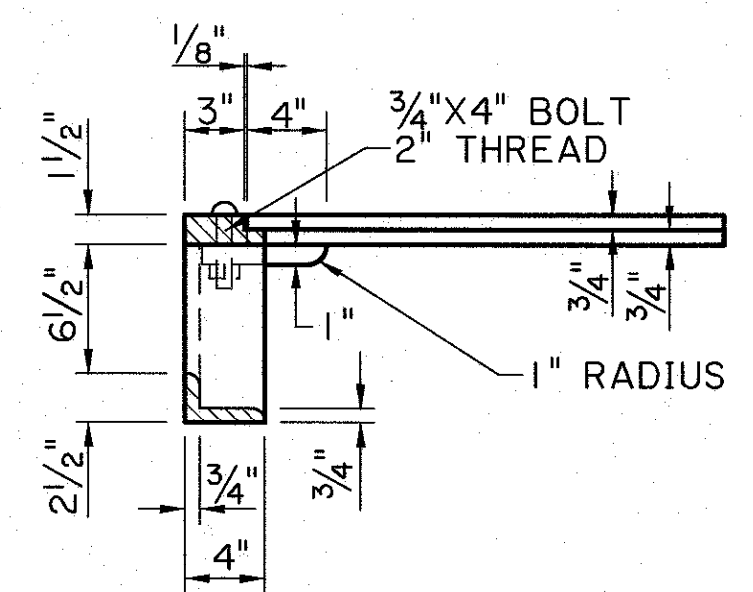
FRONT ELEVATION OF CAST IRON GRATE



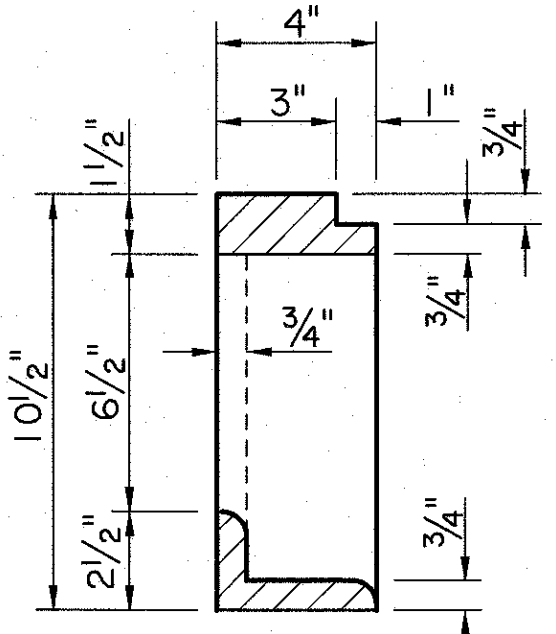
FOR CATCH BASIN "H" FOR PAVED GUTTER "H₁"

SECTION D-D

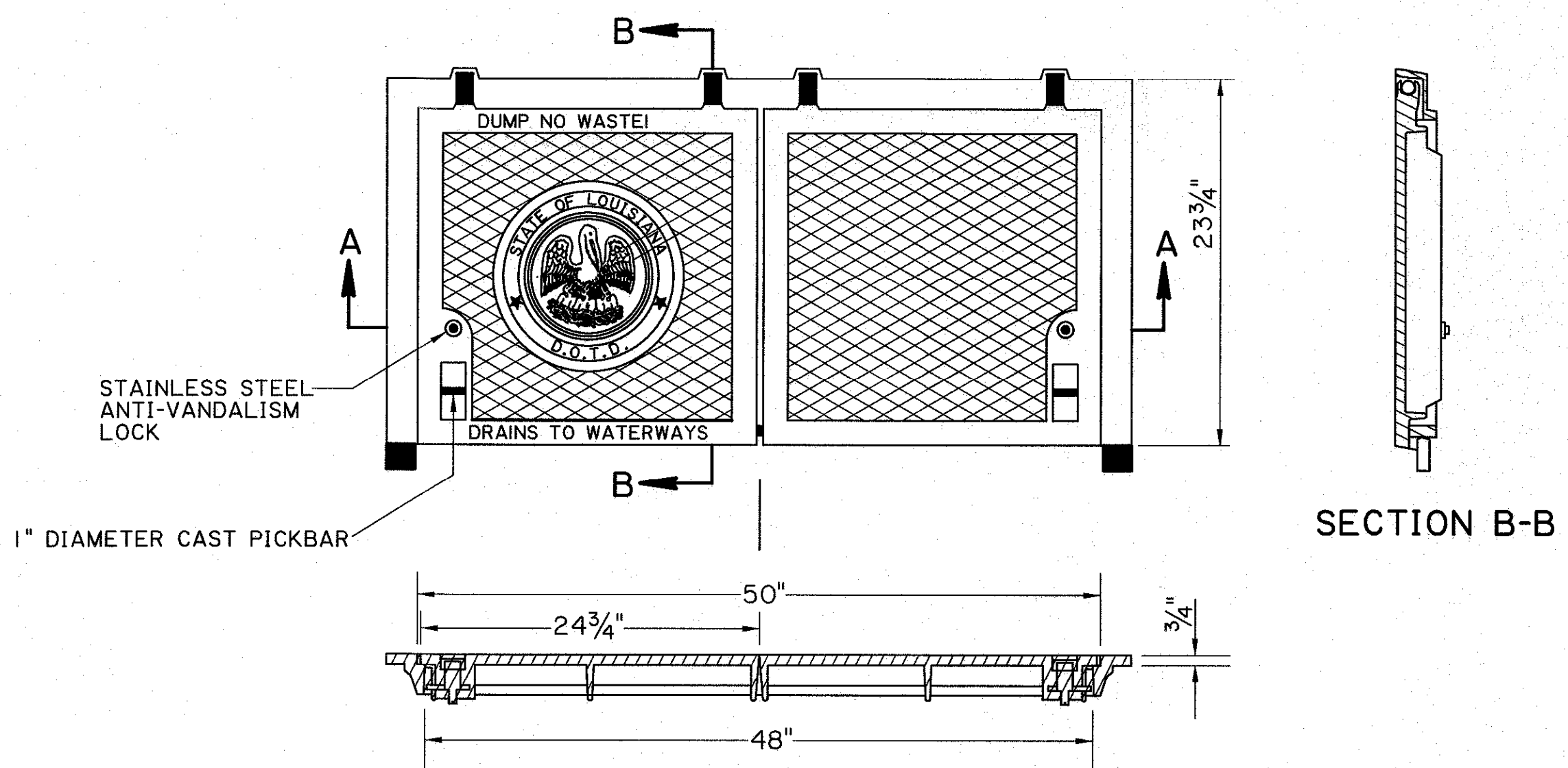
SECTION E-E



SECTION F-F

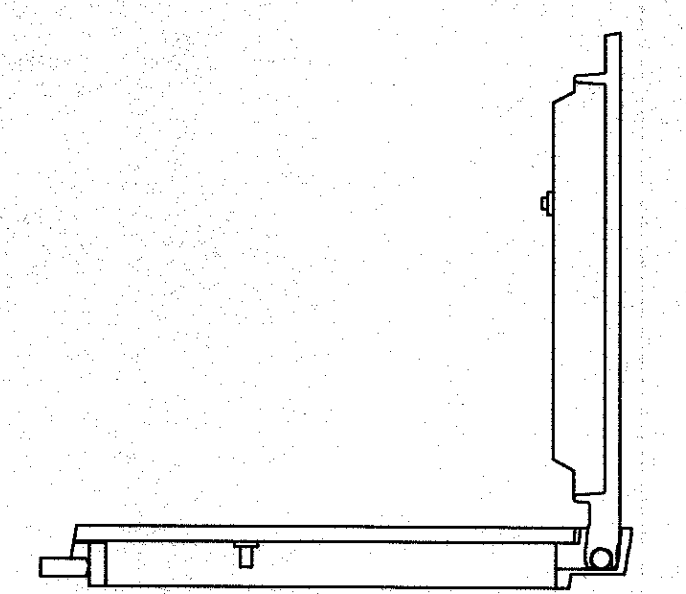


SECTION G-G

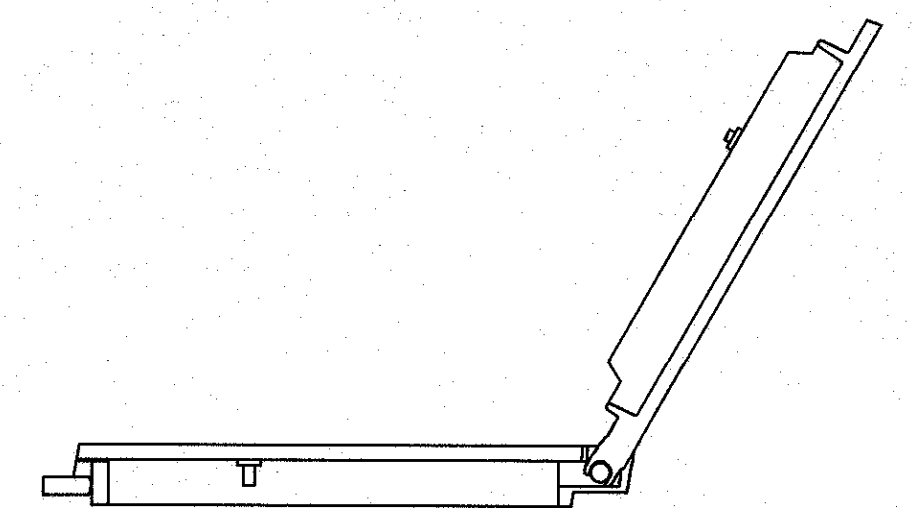


SECTION A-A

SECTION B-B



COVER AT 90 DEGREES SAFETY STOP POSITION



COVER FULLY OPEN TO 120 DEGREES

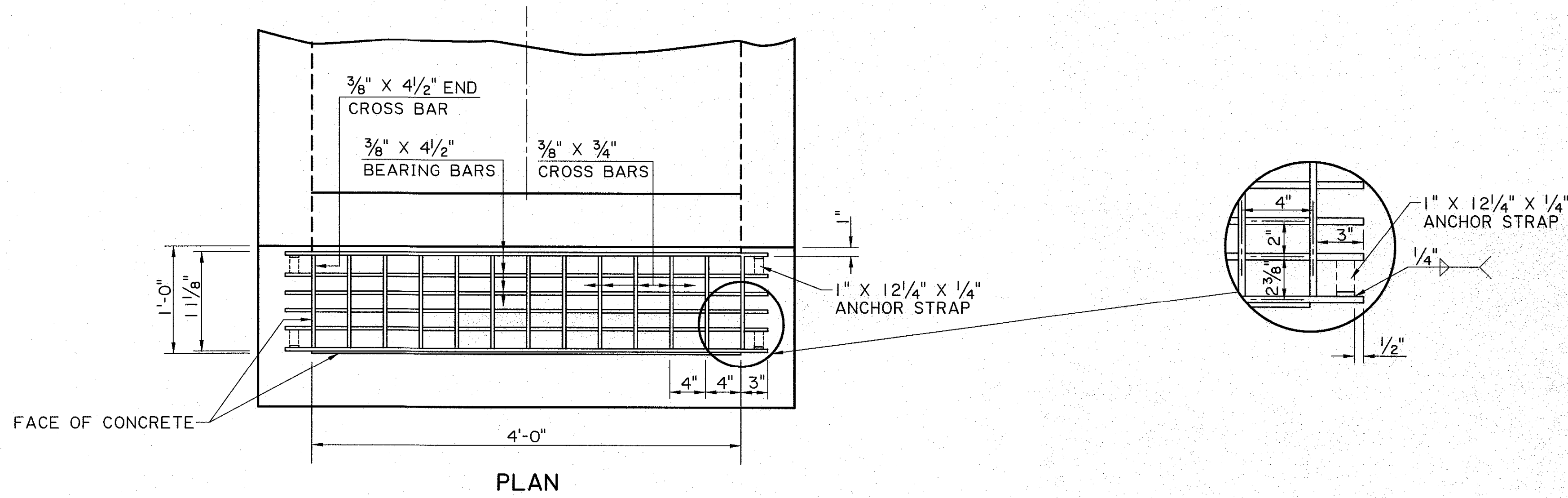
TYPE "H_s"
 CAST IRON COVER AND FRAME SHOWN (SEE GRATE ABOVE)

STATE OF LOUISIANA
 JASON P. CAMBRE
 License No. 39981
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Jason Cambre
 12/22/22

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

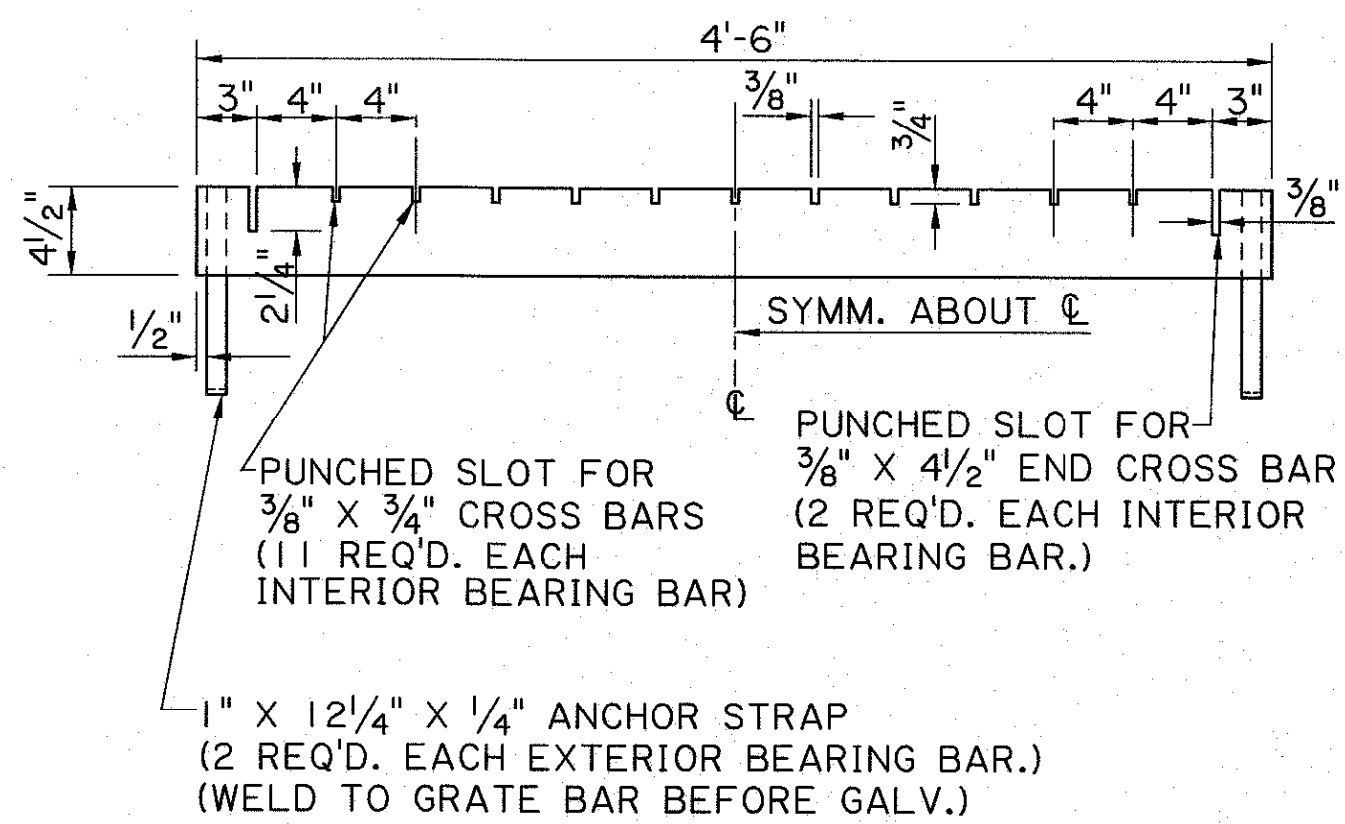
STATE OF LOUISIANA
 ALDEN M. ALLEN
 REG. NO. 20252
 REGISTERED PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Alden Allen
 5-25-2018





FACE OF CONCRETE

PLAN

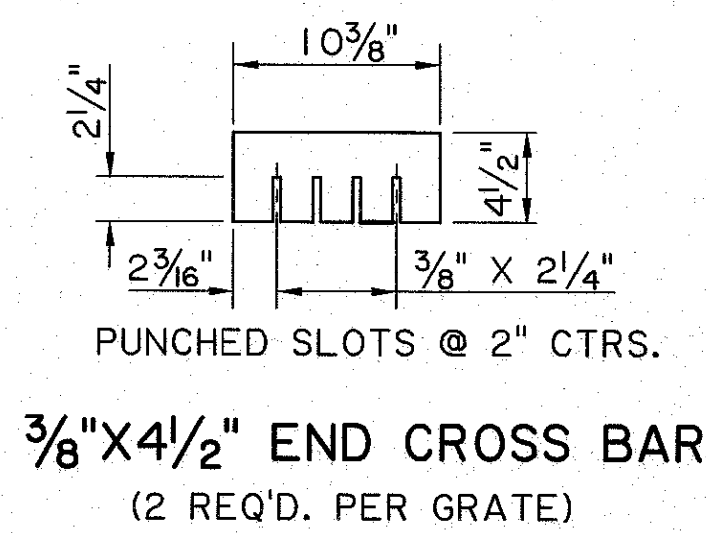


ELEVATION

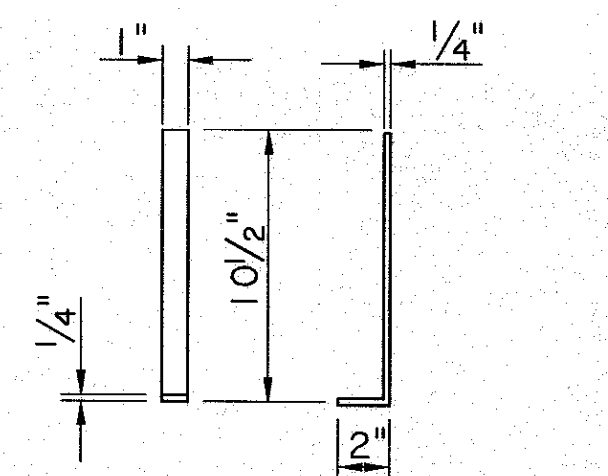
WELDED & SEALED DRAIN GRATE

ALL JOINTS FULL DEPTH 1/4" FILLET WELDS WITH SEAL WELD TOP AND BOTTOM UNLESS NOTED OTHERWISE.

WEIGHT OF DRAIN GRATE = 185 LBS. ± 5%

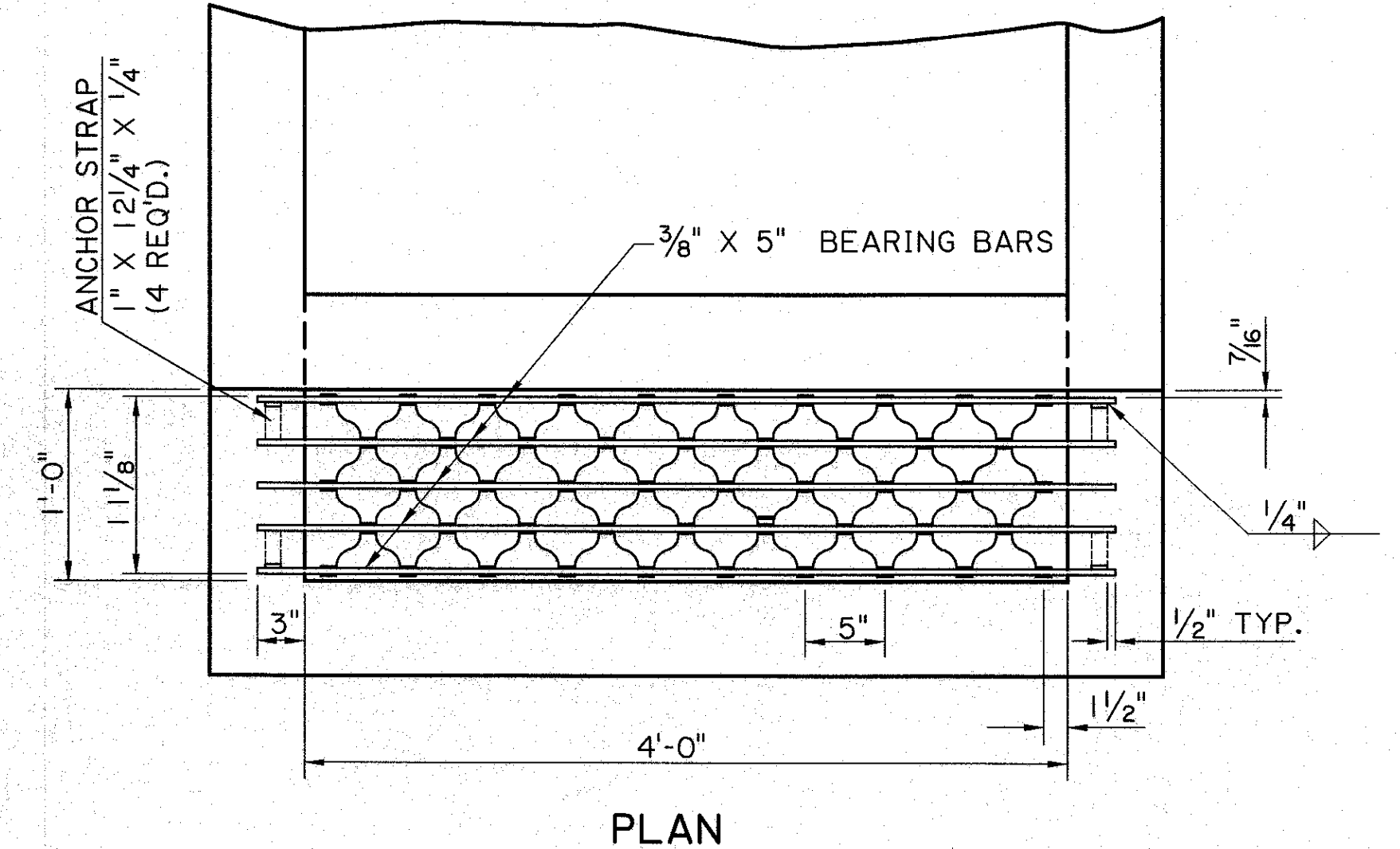


3/8" x 4 1/2" END CROSS BAR (2 REQ'D. PER GRATE)

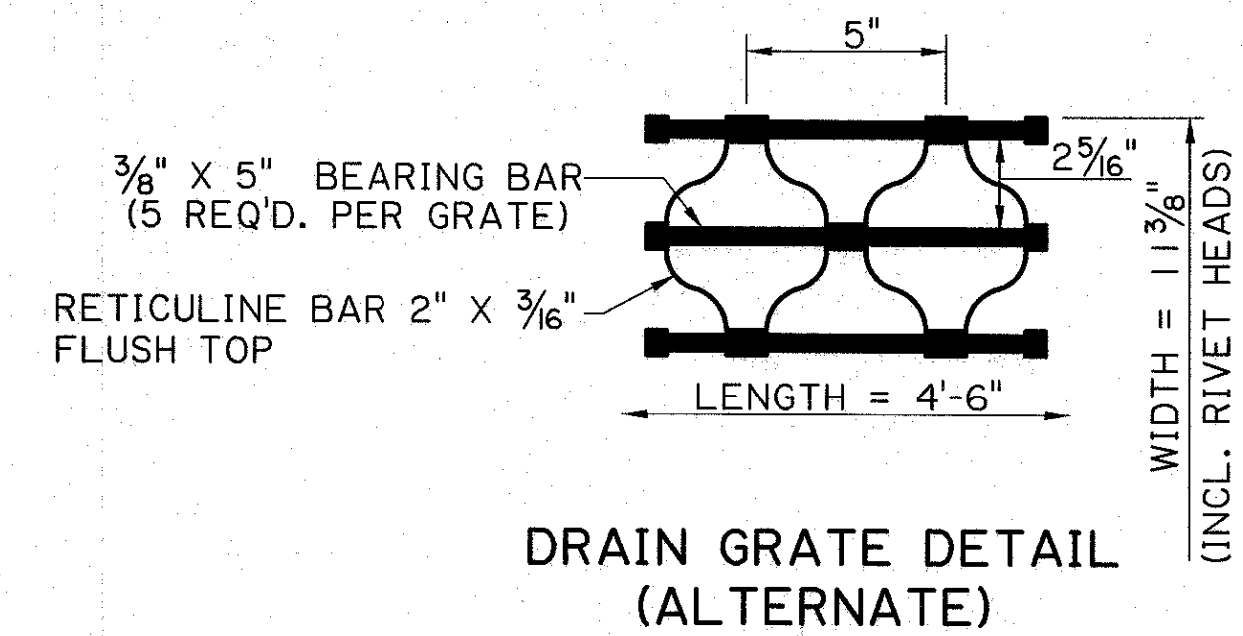


STEEL ANCHOR STRAP (4 REQ'D. PER GRATE)

TYPE " I "
STEEL DRAIN GRATE
GRATE TO BE GALVANIZED AFTER FABRICATION.



PLAN

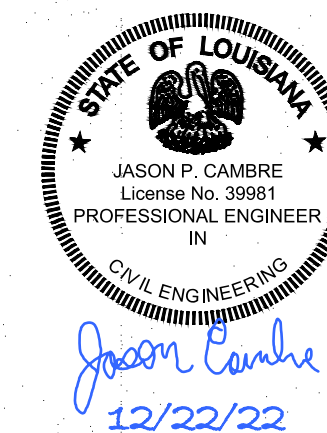


DRAIN GRATE DETAIL (ALTERNATE)

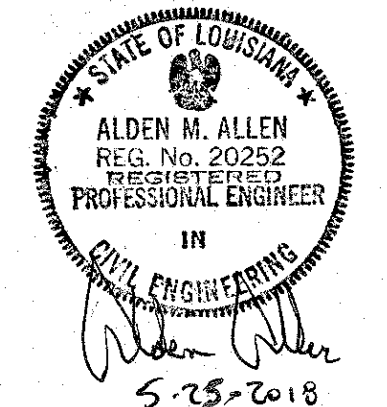
RIVETED RETICULINE DRAIN GRATE (ALTERNATE)

CENTER TO CENTER OF BEARING BARS EQUAL 2 1/16".

WEIGHT OF DRAIN GRATE = 176 LBS. ± 5%



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



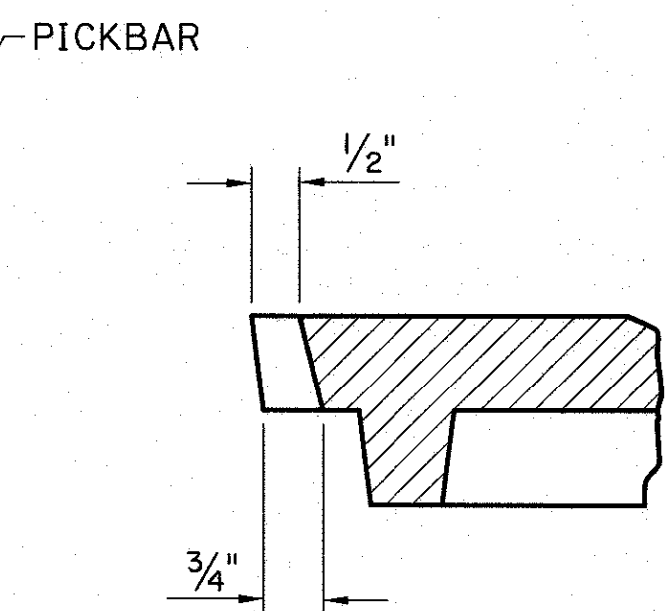
SHEET NUMBER	326
DESIGNED	AMA
CHECKED	AMA
DATE	9/01/17
PROJECT	4 OF 6
REVISION DESCRIPTION	BY DATE
1	5/25/18
2	
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DETAILS OF GRATES, GRATE FRAMES AND COVERS FOR CATCH BASINS AND MANHOLES

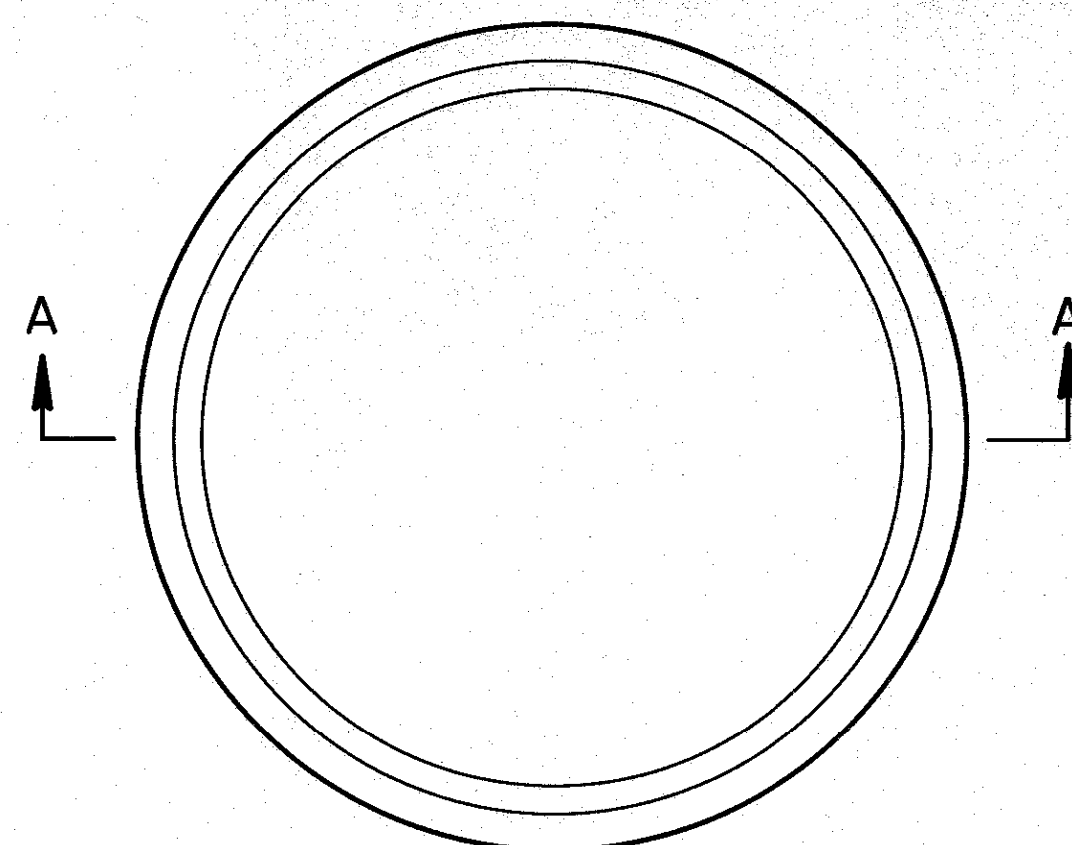




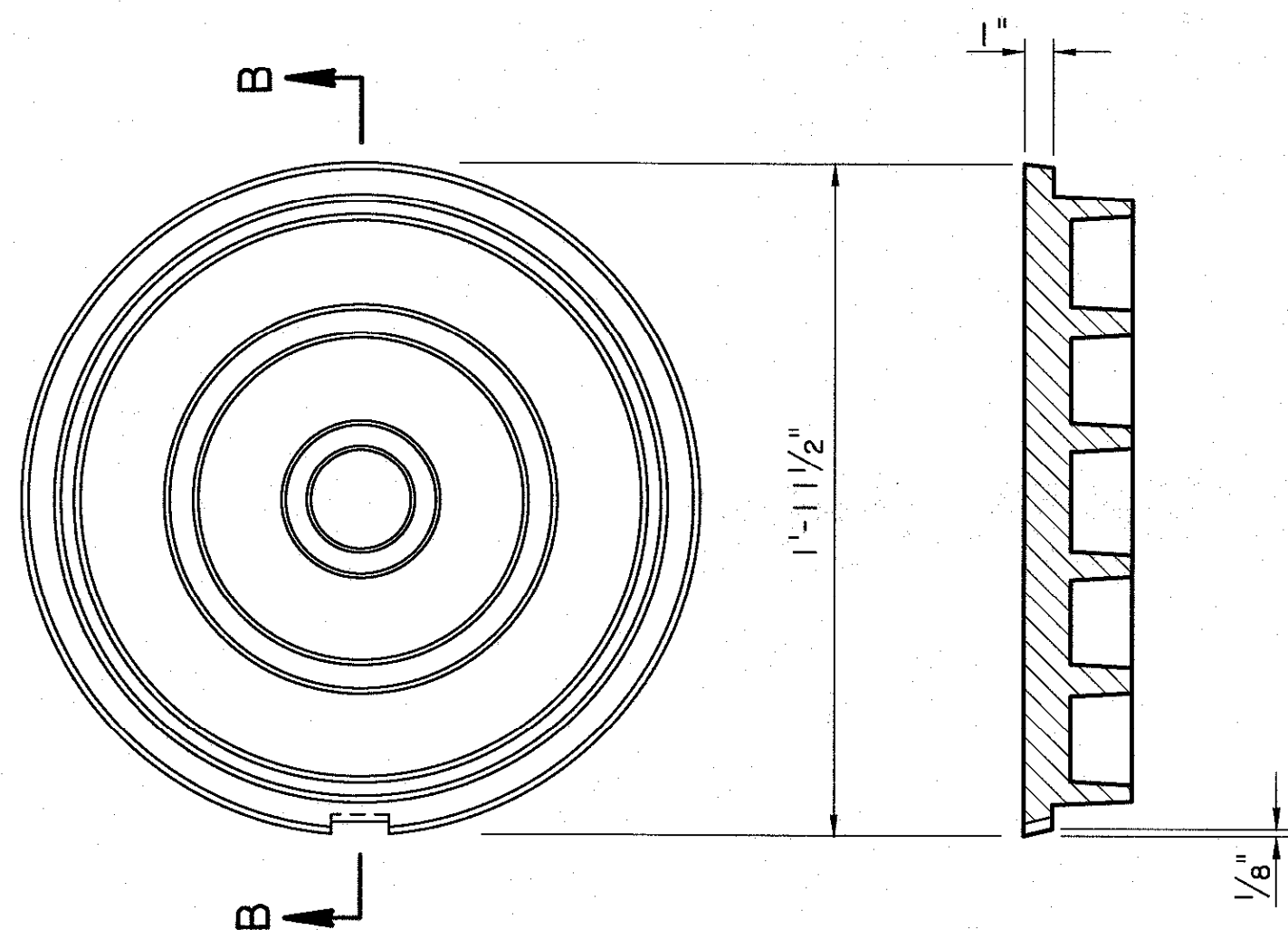
PLAN OF CAST IRON COVER



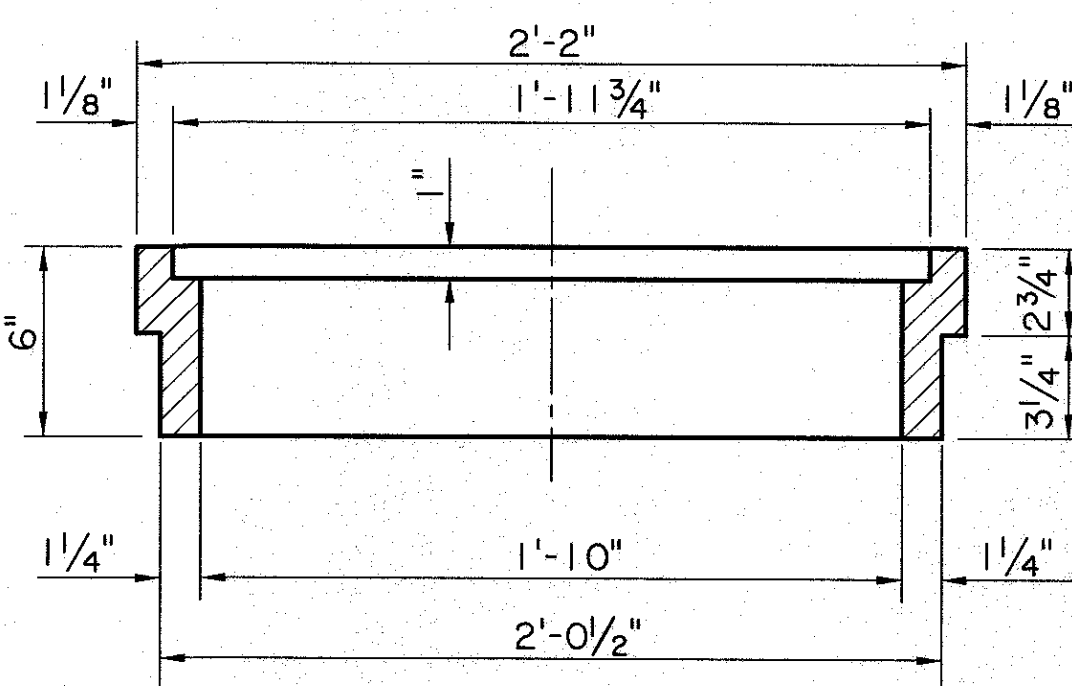
PICKSLOT DETAIL



PLAN OF CAST IRON FRAME



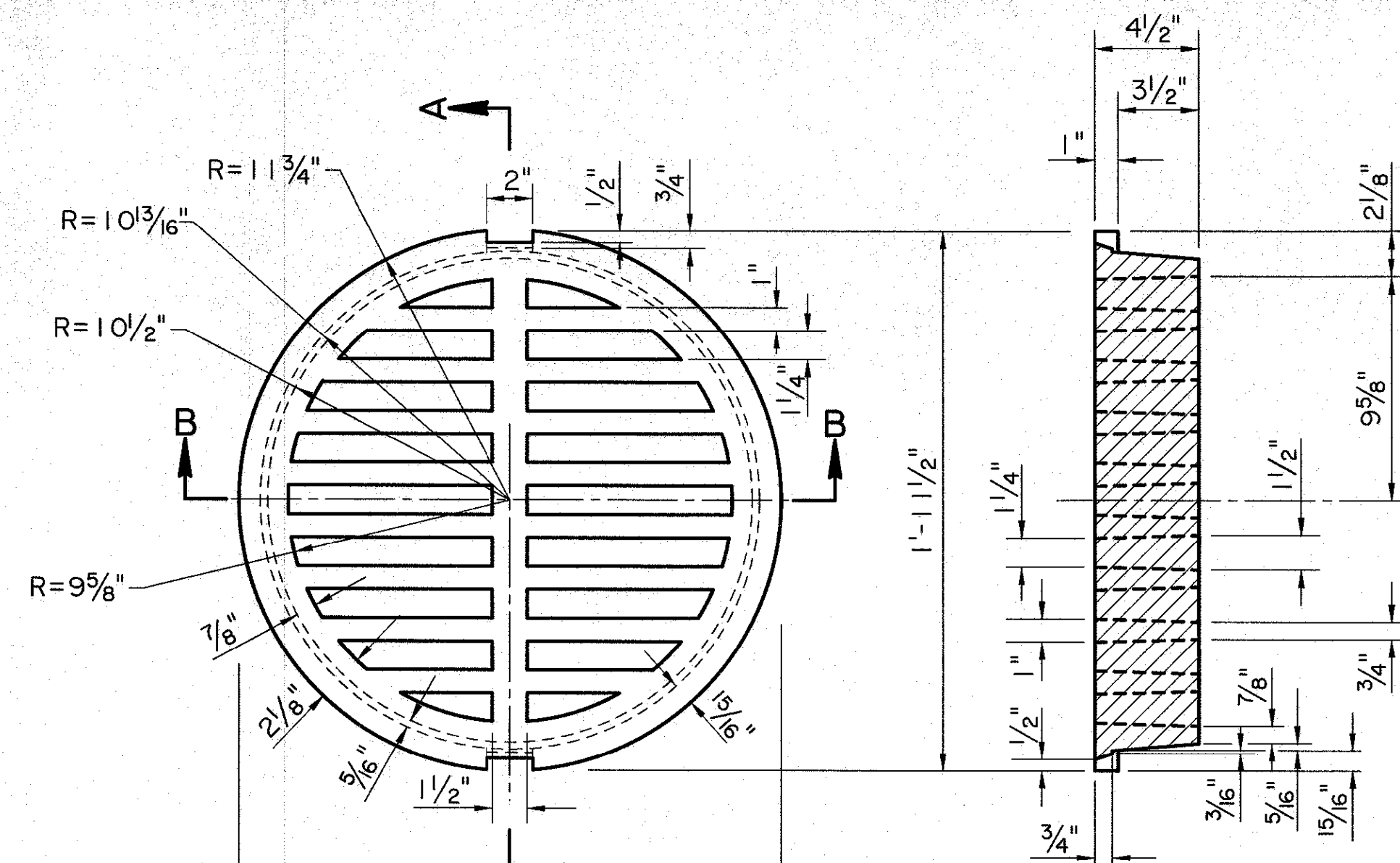
BOTTOM OF CAST IRON COVER



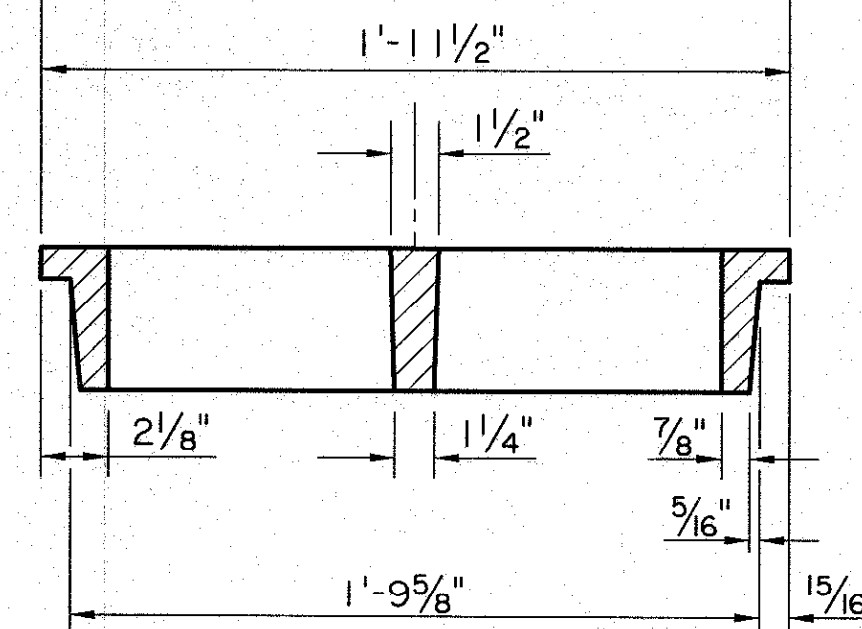
SECTION A-A

TYPE "K"

CAST IRON COVER & FRAME
PICKBAR DETAIL LEFT TO FABRICATOR



PLAN

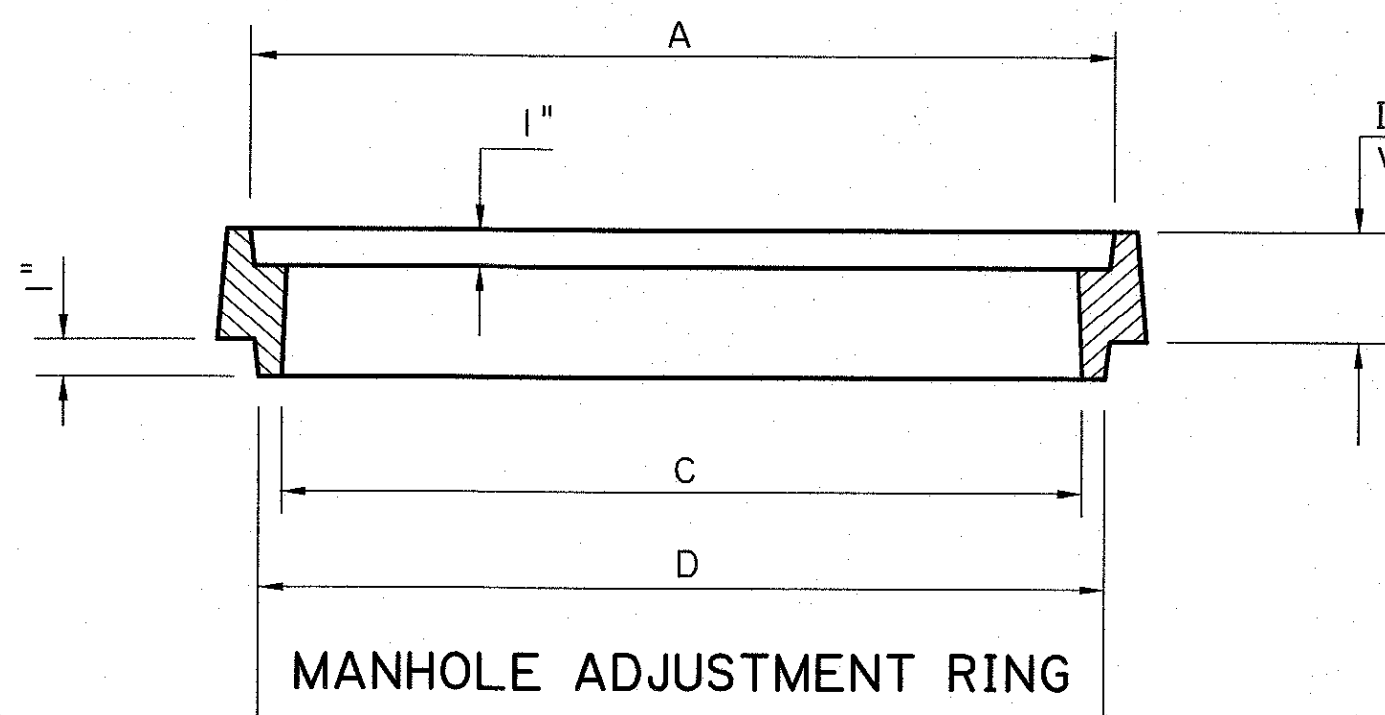


SECTION B-B

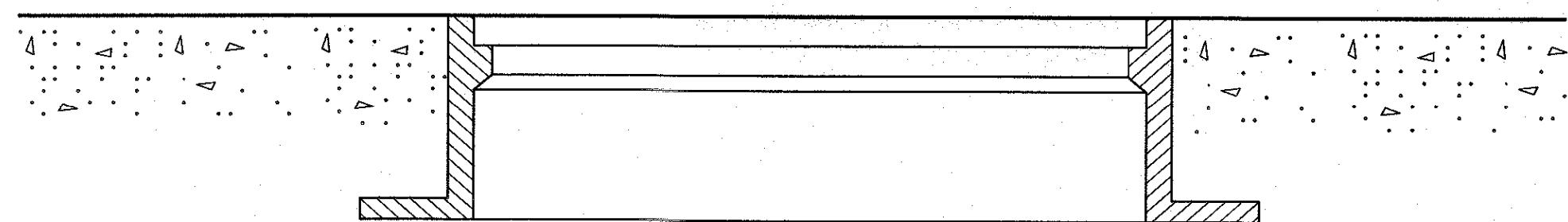
TYPE "K₁"

CAST IRON GRATE

- NOTES: 1. APPROX. WEIGHT OF CAST IRON COVER = 250 LBS.
2. TO BE USED WITH TYPE "K" CAST IRON FRAME.



MANHOLE ADJUSTMENT RING

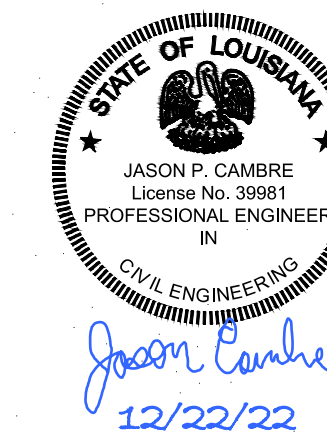


EXISTING GRATE SEAT

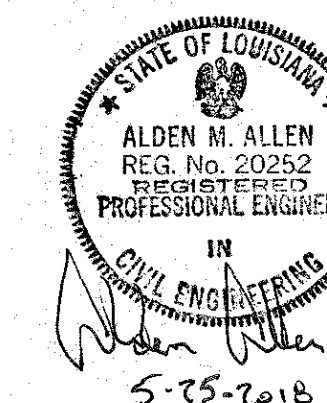
MANHOLE ADJUSTMENT RINGS		
A (IN.)	C (IN.)	D (IN.)
23 1/2	22 1/4	23 1/2
23 3/4	22 1/2	23 3/4

MANHOLE ADJUSTMENT RING

CAST IRON OR STEEL



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



SHEET NUMBER 327

DESIGNED AMA CHECKED AMA DETAILED TL CHECKED AMA

PARISH CONTROL SECTION STATE PROJECT

DATE 9/01/17

SERIES NUMBER 5 OF 6

REVISION DESCRIPTION BY DATE

APPROVED BY DATE 5/25/18

CHIEF ENGINEER

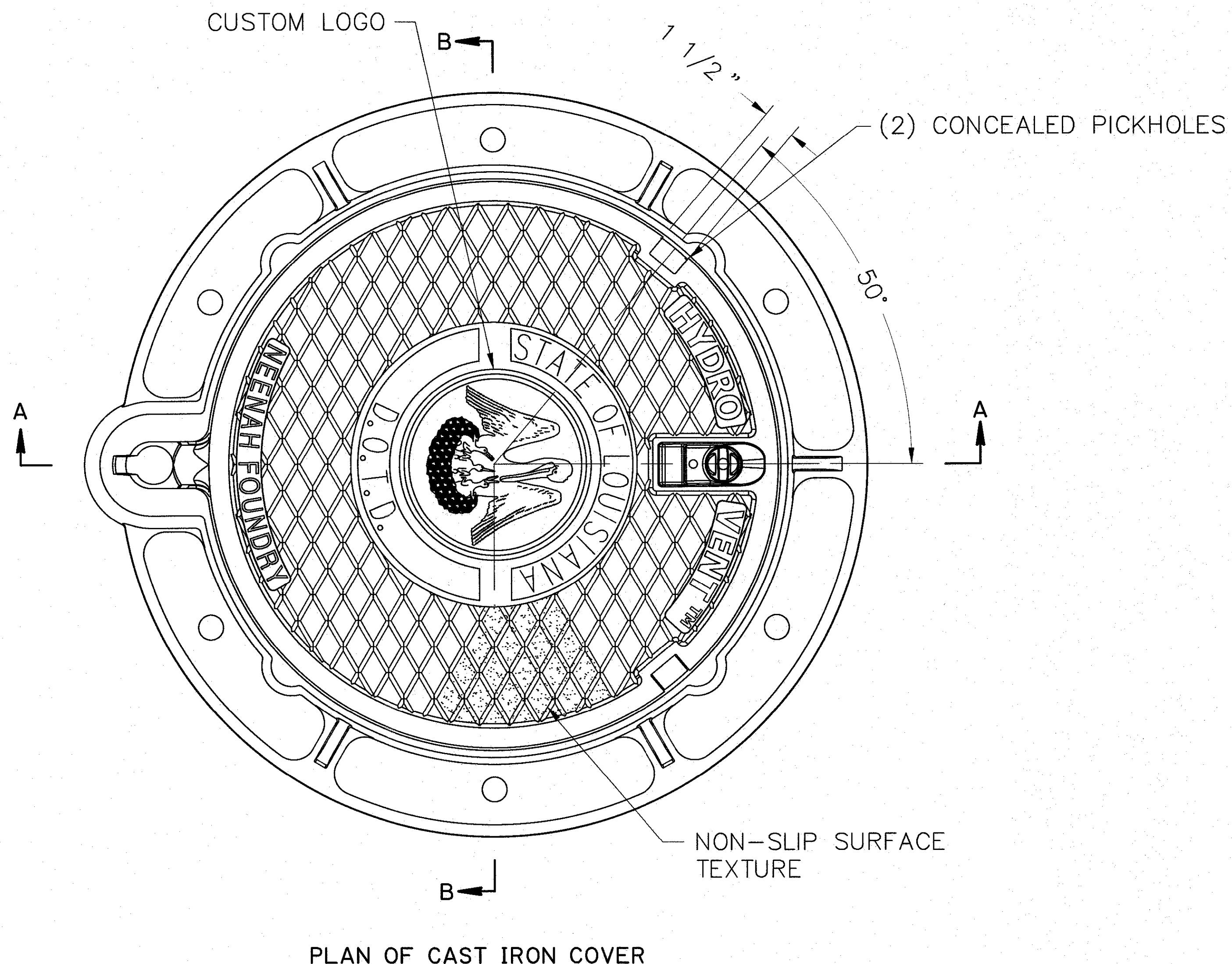
STATE OF LOUISIANA

DETAILS OF GRATES, GRATE FRAMES AND COVERS FOR CATCH BASINS AND MANHOLES

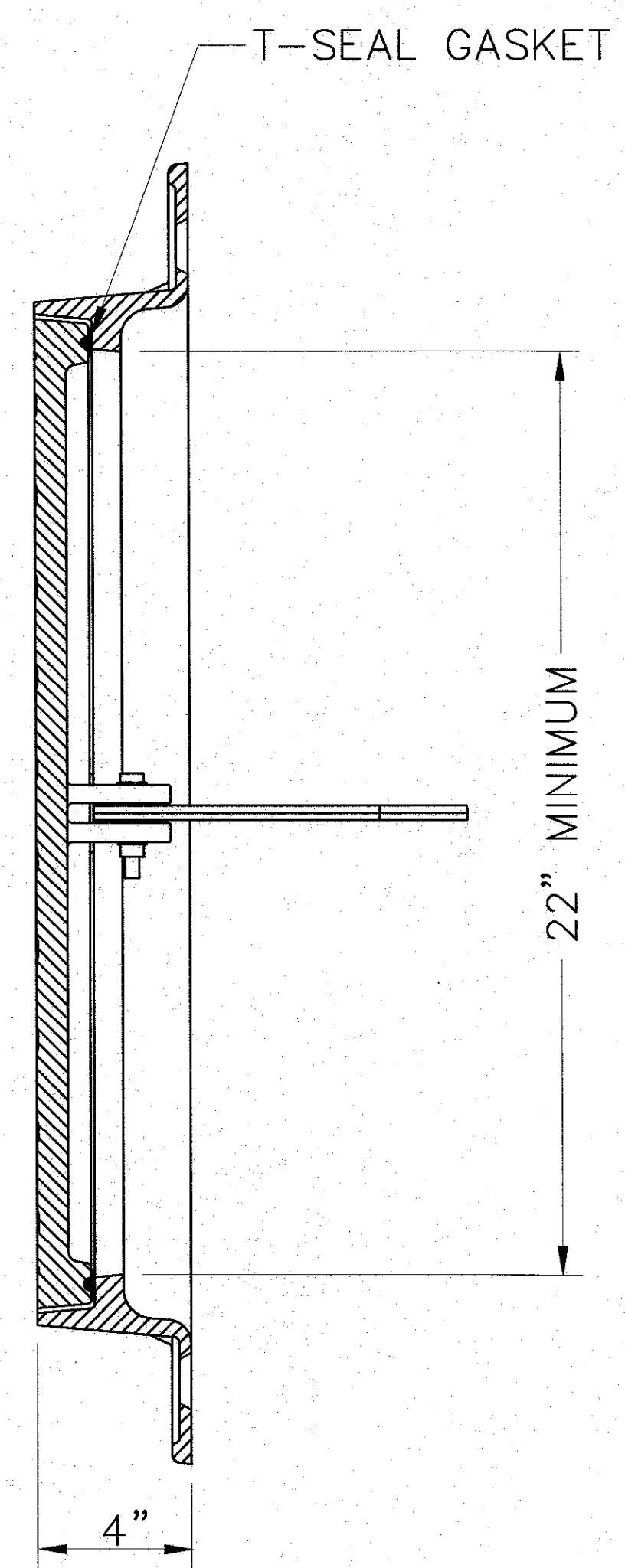
STANDARD PLAN INC-01

DOTD HYDRAULICS SECT.

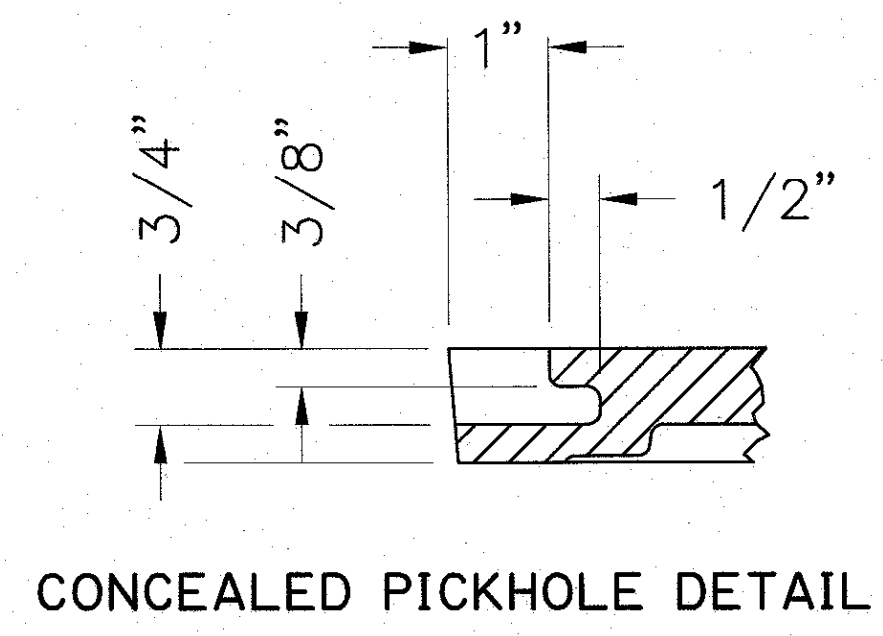
SHEET NUMBER	328
DESIGNED	AMA
CHECKED	AMA
DATE	12/01/17
APPROVED BY	CHIEF ENGINEER
DATE	5/25/18
REVISION DESCRIPTION	
BY	
DATE	
CHIEF ENGINEER	<i>Michael P. Keith</i>
PARISH	
CONTROL SECTION	
STATE PROJECT	
SERIES NUMBER	6 OF 6
STANDARD PLAN	MC-01
DETAILS OF GRATES, GRATE FRAMES AND COVERS	
FOR CATCH BASINS AND MANHOLES	
HYDRAULICS SECT.	



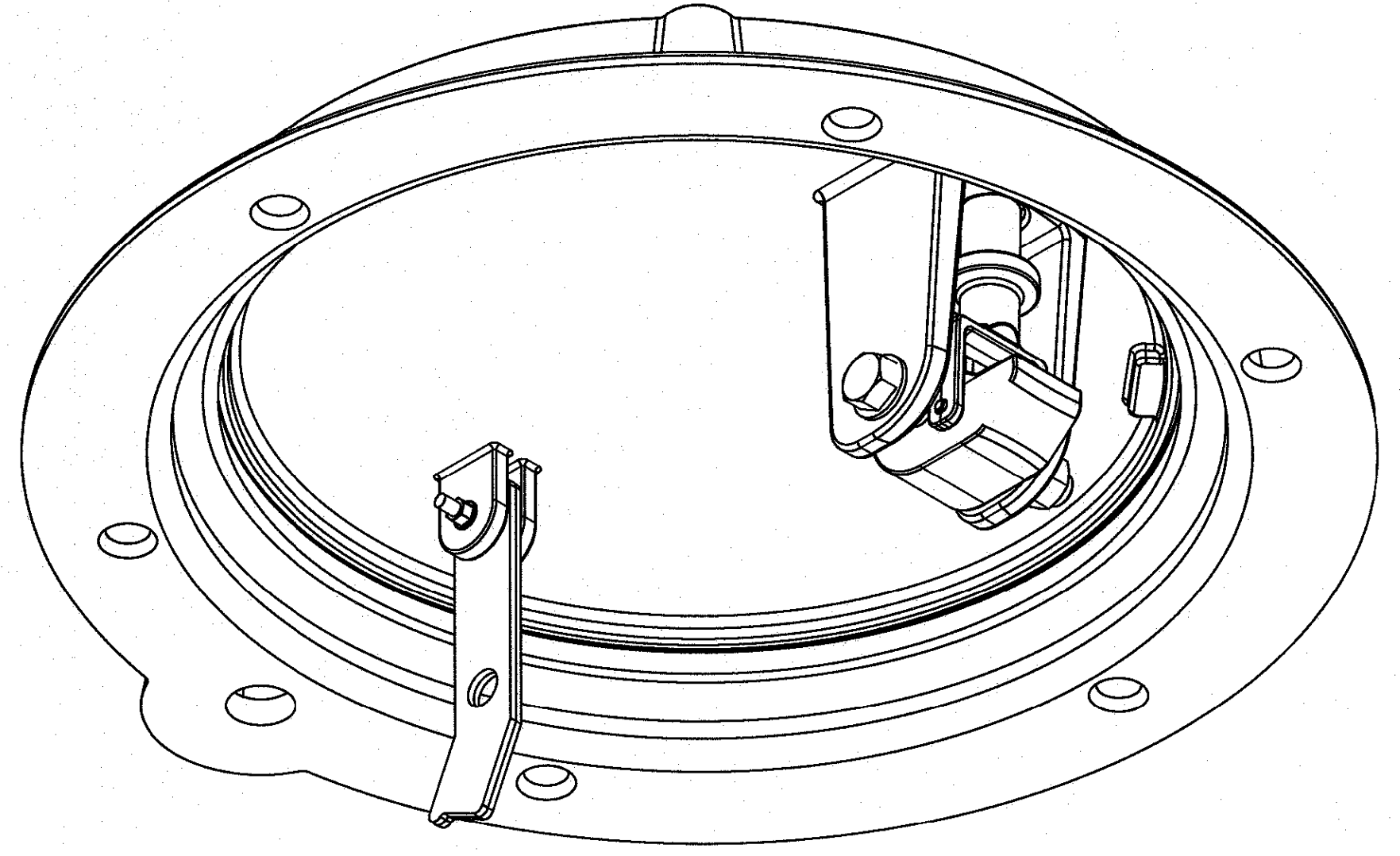
PLAN OF CAST IRON COVER



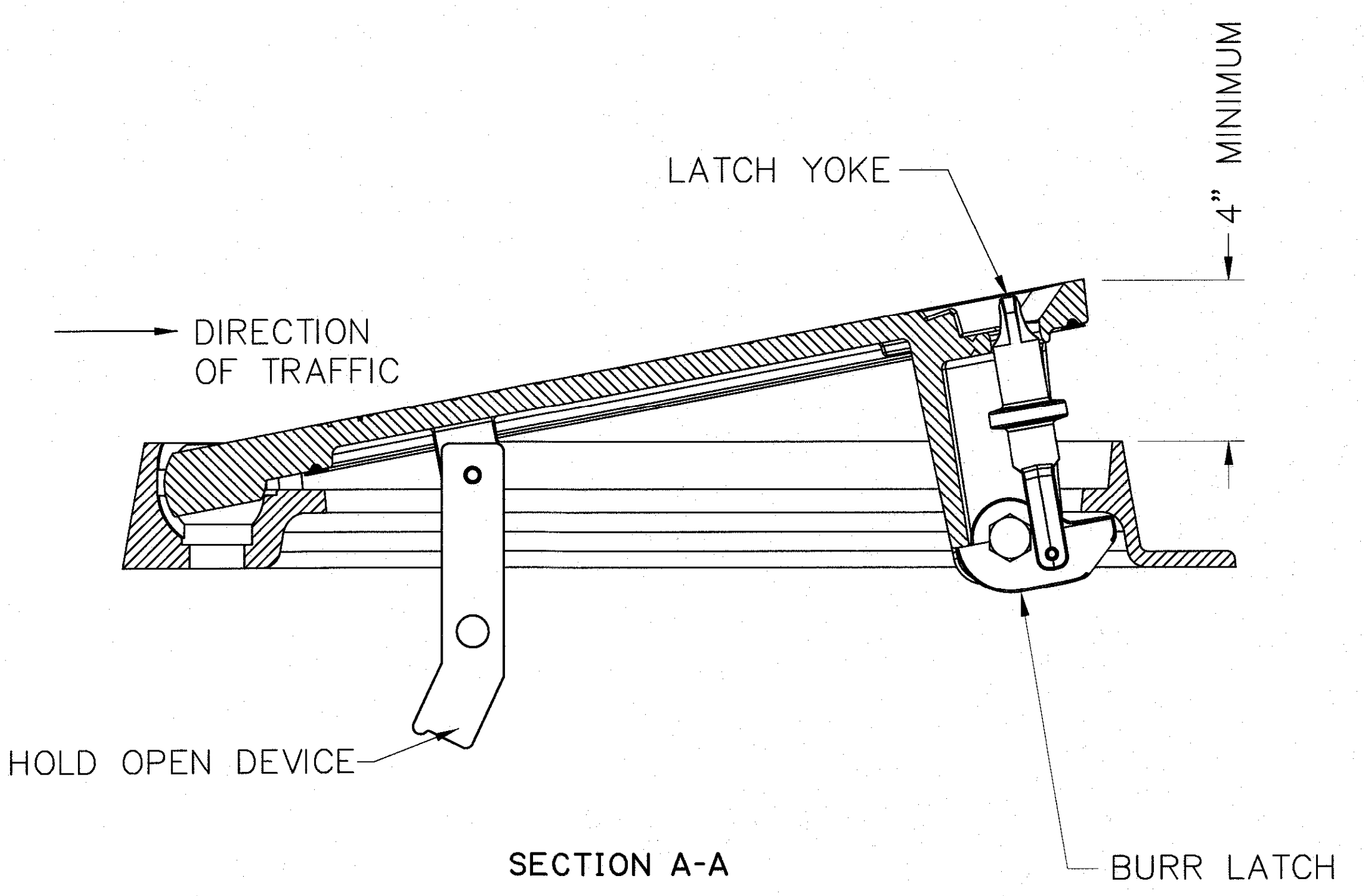
SECTION B-B



CONCEALED PICKHOLE DETAIL

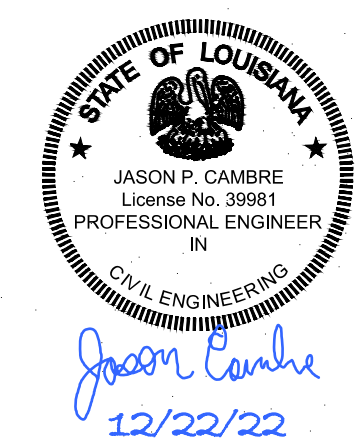


ISOMETRIC BOTTOM VIEW

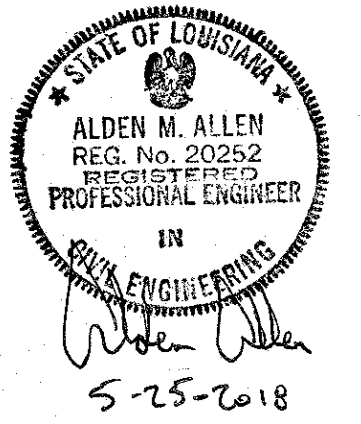


SECTION A-A

VENTING MANHOLE
CAST IRON COVER AND FRAME
 NEENAH FOUNDRY 1650-HV SHOWN
 EJ STORMSURGE 24 APPROVED BUT
 NOT SHOWN

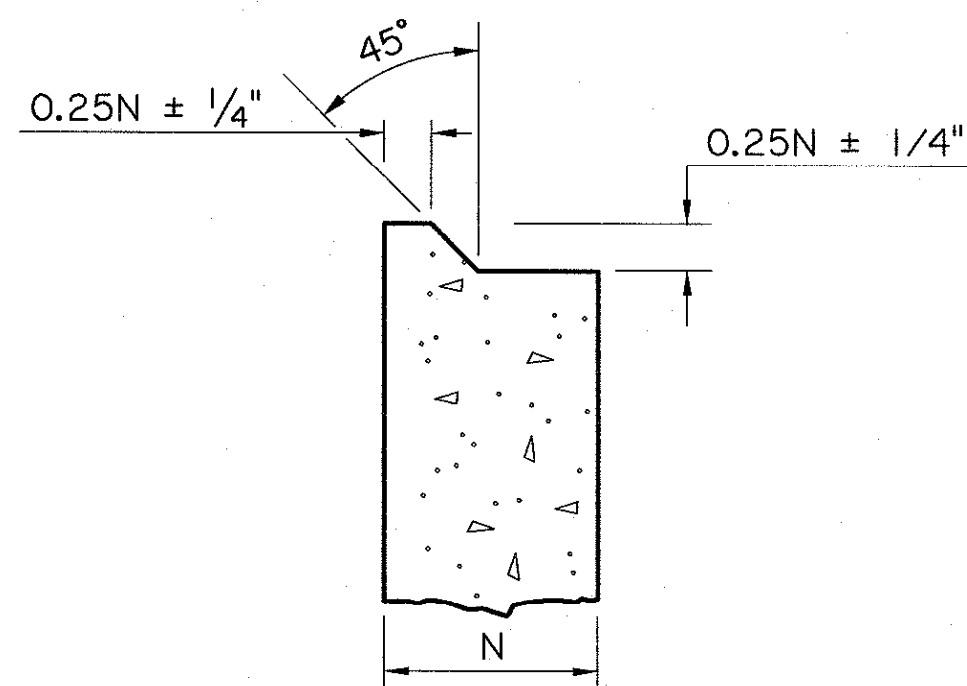


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



GENERAL NOTES:

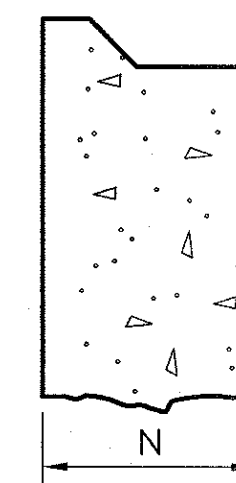
- 1) THIS STRUCTURE MEETS ALL DOTD HYDRAULIC PERFORMANCE CRITERIA WHEN USED IN ACCORDANCE WITH THE DOTD HYDRAULICS MANUAL AND ALL DOTD HYDRAULIC DESIGN POLICIES.
- 2) PROVIDE PRECAST UNITS AS THE LOWER PORTION OF A COMPOSITE STRUCTURE. PROVIDE CAST-IN-PLACE CONCRETE FOR THE TOP 1'-6" OF THE STRUCTURE, EXCEPT THAT STRUCTURES NOT EXPOSED TO TRAFFIC LOADS MAY BE COMPLETELY PRECAST.
- 3) DESIGN IS TO BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION, 2017, AND THE LATEST LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
- 4) CONFORM TO 1016.06 AND 805 FOR CONCRETE. USE DEFORMED REINFORCING STEEL AND CONFORM TO 806.
- 5) FINISH CAST-IN-PLACE CONCRETE IN ACCORDANCE WITH OTHER STANDARD PLANS AND 805.
- 6) FORM PIPE OPENINGS ONLY AS REQUIRED FOR INTERSECTING PIPES. PROVIDE OPENING DIMENSIONS TO ACCOMMODATE PIPE DIAMETER AND SKEW ANGLE. PROVIDE OPENING DIMENSION THAT IS 4±1/2 INCH LARGER THAN OUTSIDE PIPE DIMENSION.
- 7) RESILIENT CONNECTORS OR CONCRETE COLLARS ARE REQUIRED FOR CONNECTIONS OF ALL PIPE SIZES (EXCEPT YARD DRAIN PIPE AND UNDERDRAINS) WITH COST TO BE INCLUDED IN THE COST OF THE PRECAST STRUCTURE.



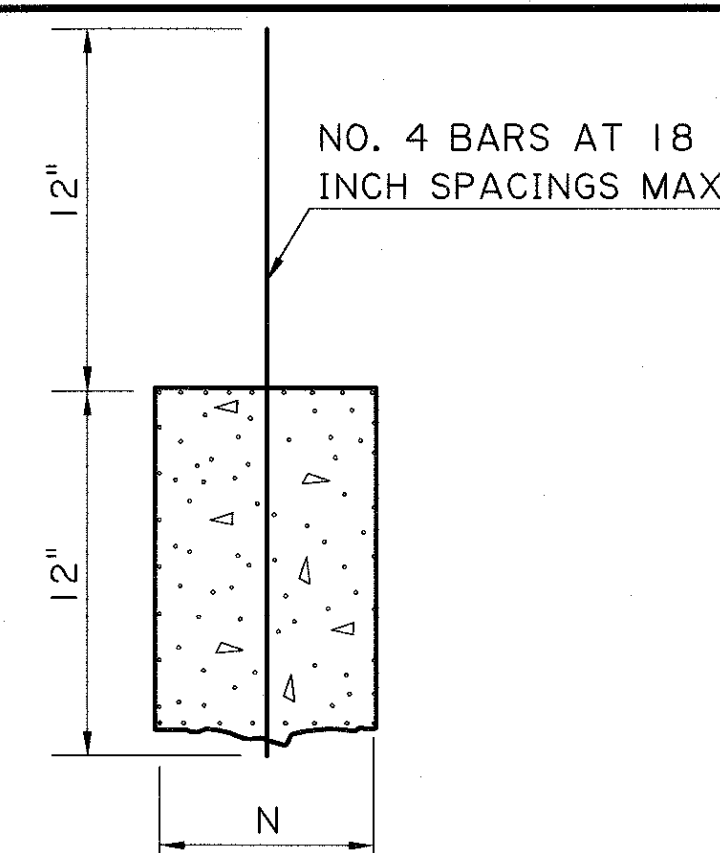
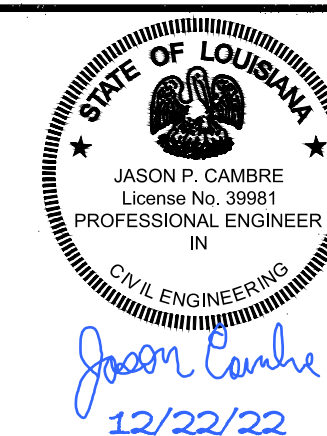
**JOINT DETAIL A
PRECAST/PRECAST**

1. SEAL JOINTS BETWEEN PRECAST UNITS WITH FLEXIBLE GASKET MATERIAL IN ACCORDANCE WITH 1016.
2. WRAP UNIT AT JOINT WITH A 12-INCH WIDTH OF GEOTEXTILE FABRIC IN ACCORDANCE WITH 1019.

USE DIMENSIONS FROM JOINT DETAIL "A"



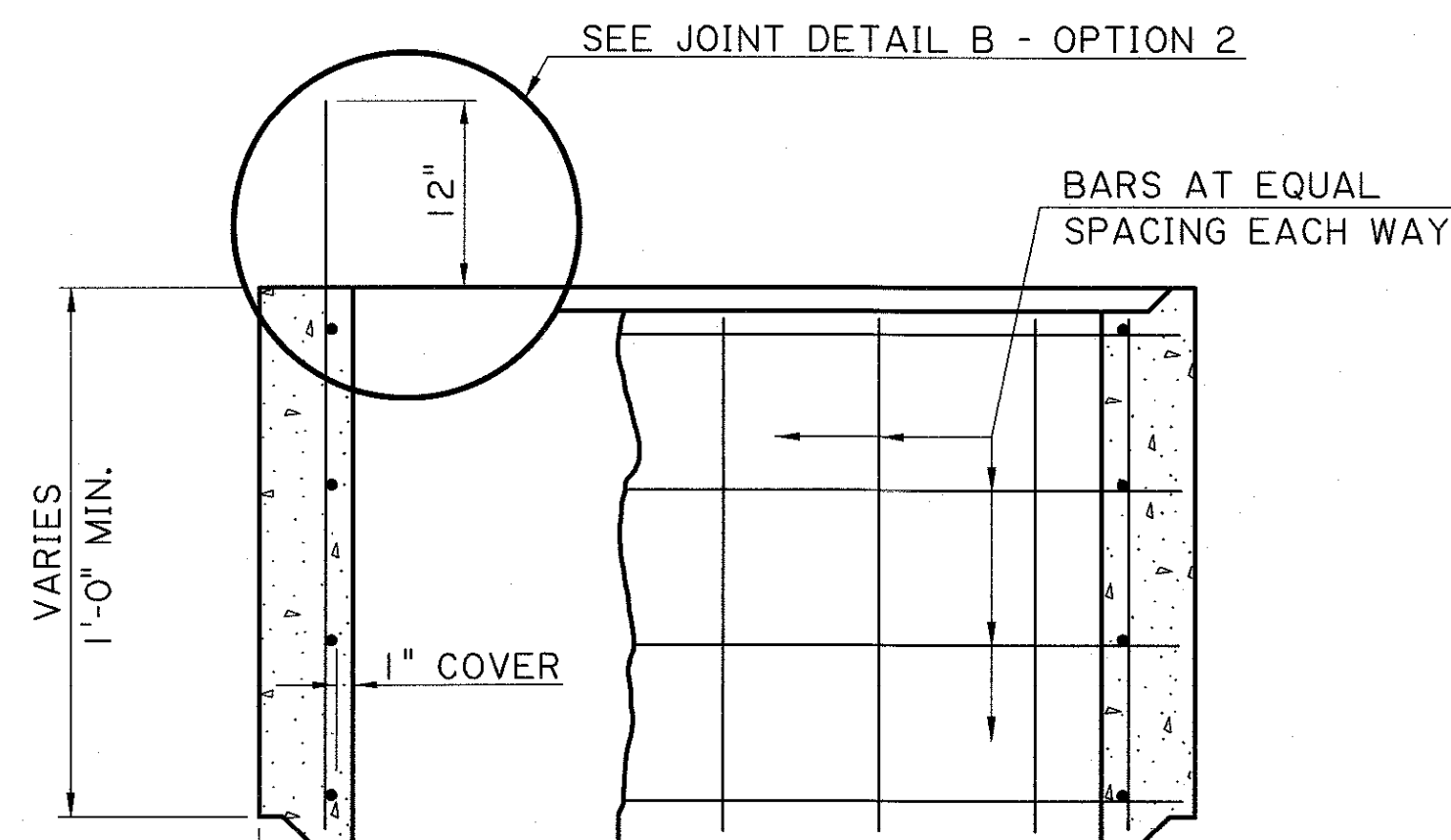
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



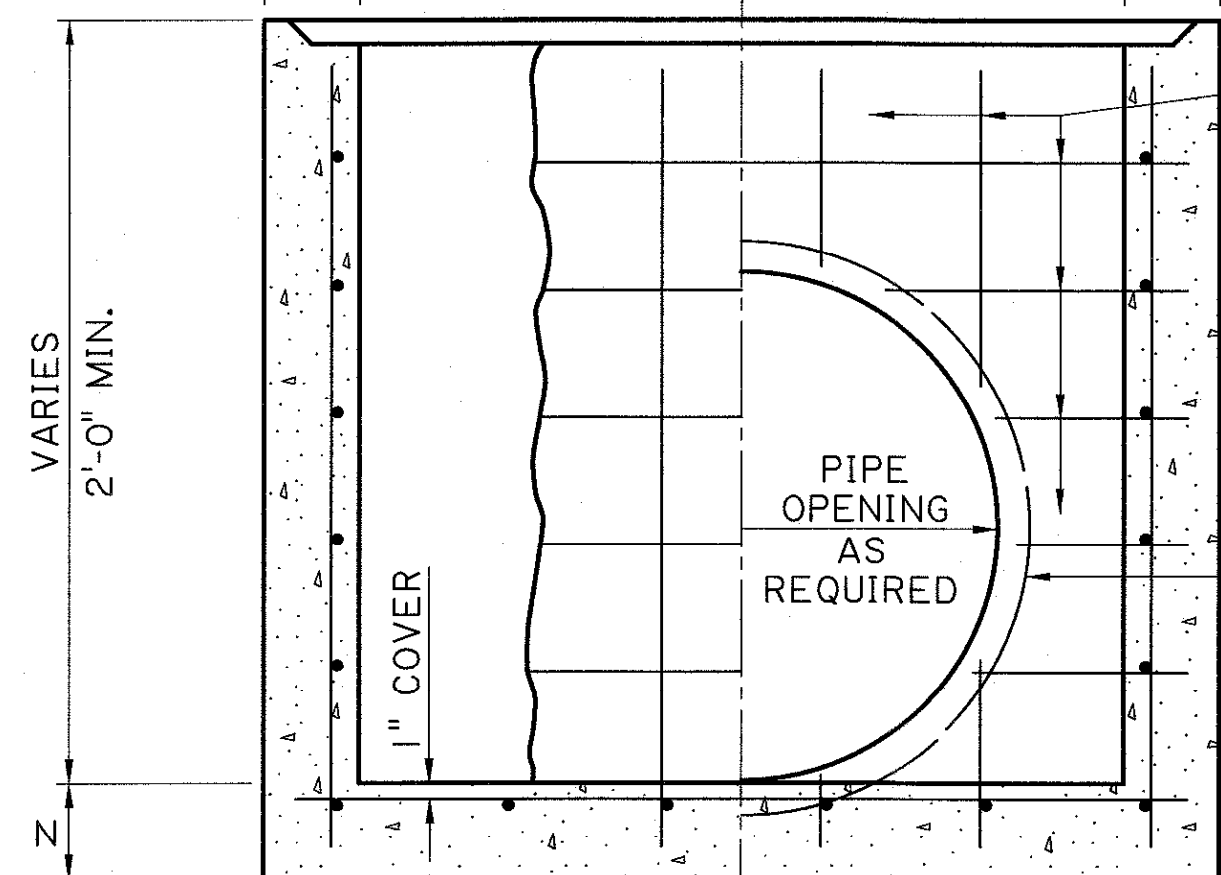
**JOINT DETAIL B - OPTION 1
CAST-IN-PLACE/PRECAST**

**JOINT DETAIL B - OPTION 2
CAST-IN-PLACE/PRECAST**

IN OPTIONS 1 AND 2, COAT PRECAST CONCRETE JOINT SURFACE AND A MAXIMUM OF 2 INCHES OF REINFORCING STEEL WITH TYPE V, GRADE 2 OR GRADE 3 RESIN CONFORMING TO 1017. APPLY RESIN AND PLACE CONCRETE IN ACCORDANCE WITH RESIN MANUFACTURER'S RECOMMENDATIONS.



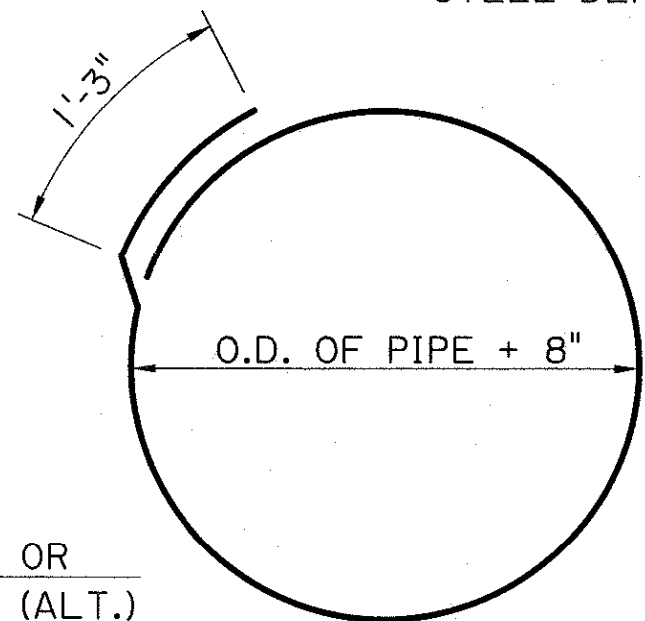
OPTIONAL RISER UNIT



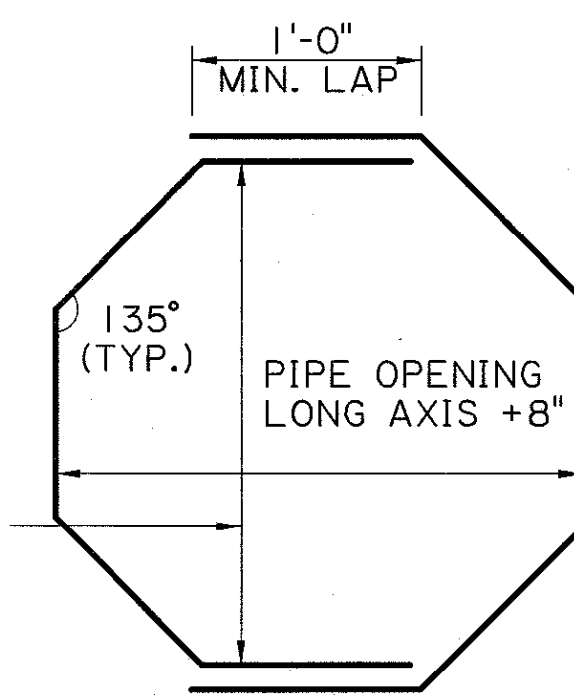
**BASE UNIT
SECTION B-B**

Δ #4 HOOP MAY BE USED WHEN PIPE IS CIRCULAR AND CONNECTS TO THE CATCH BASIN AT +/- 90 (DEGREE) ANGLE. #4 HOOP (ALT.) SHALL BE USED FOR NON-CIRCULAR (ELLIPTICAL) PIPES AND ALL PIPES THAT ENTER THE CATCH BASIN AT A SKEWED ANGLE.

PIPE OPENING SHORT AXIS +8"



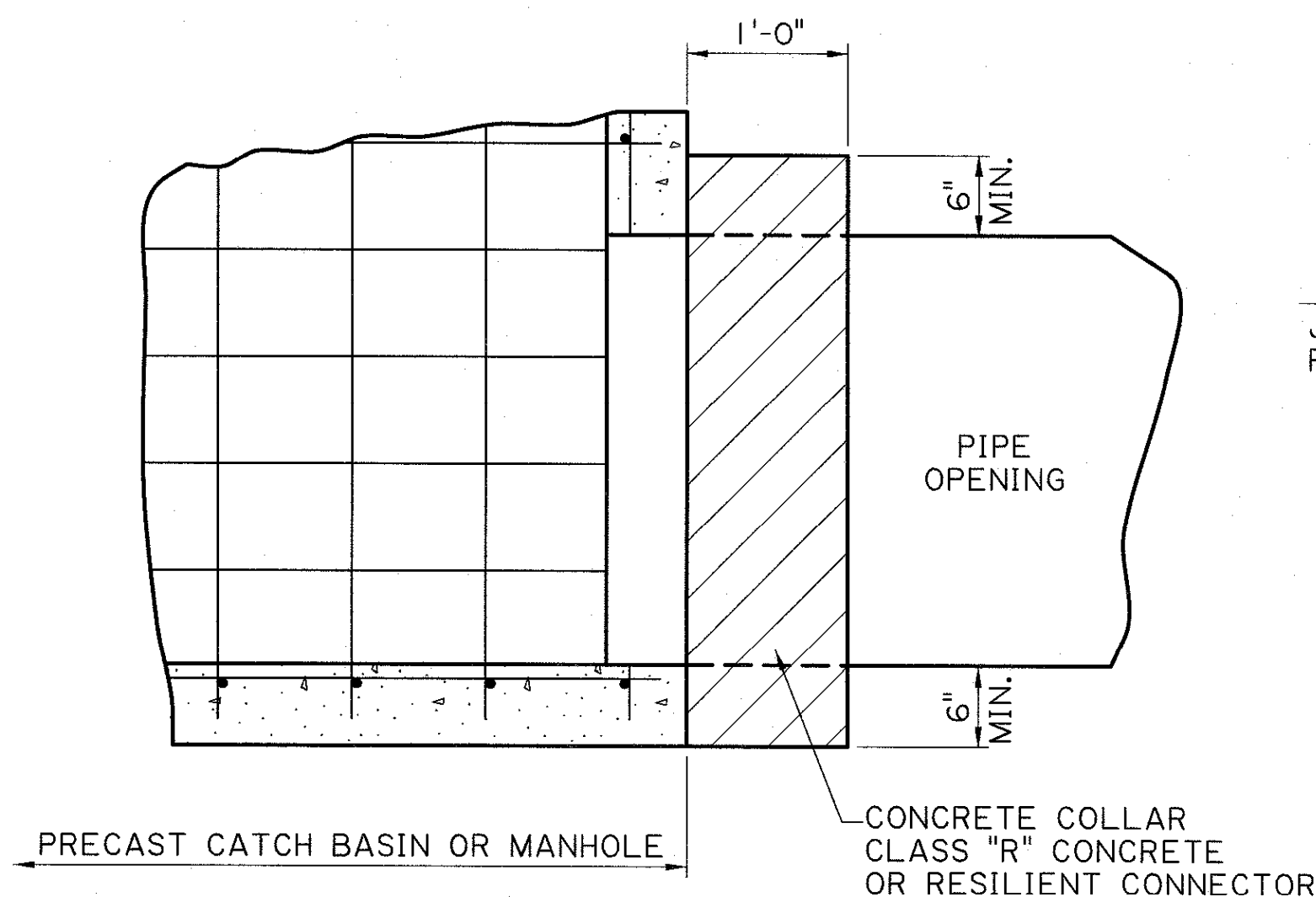
Δ #4 HOOP



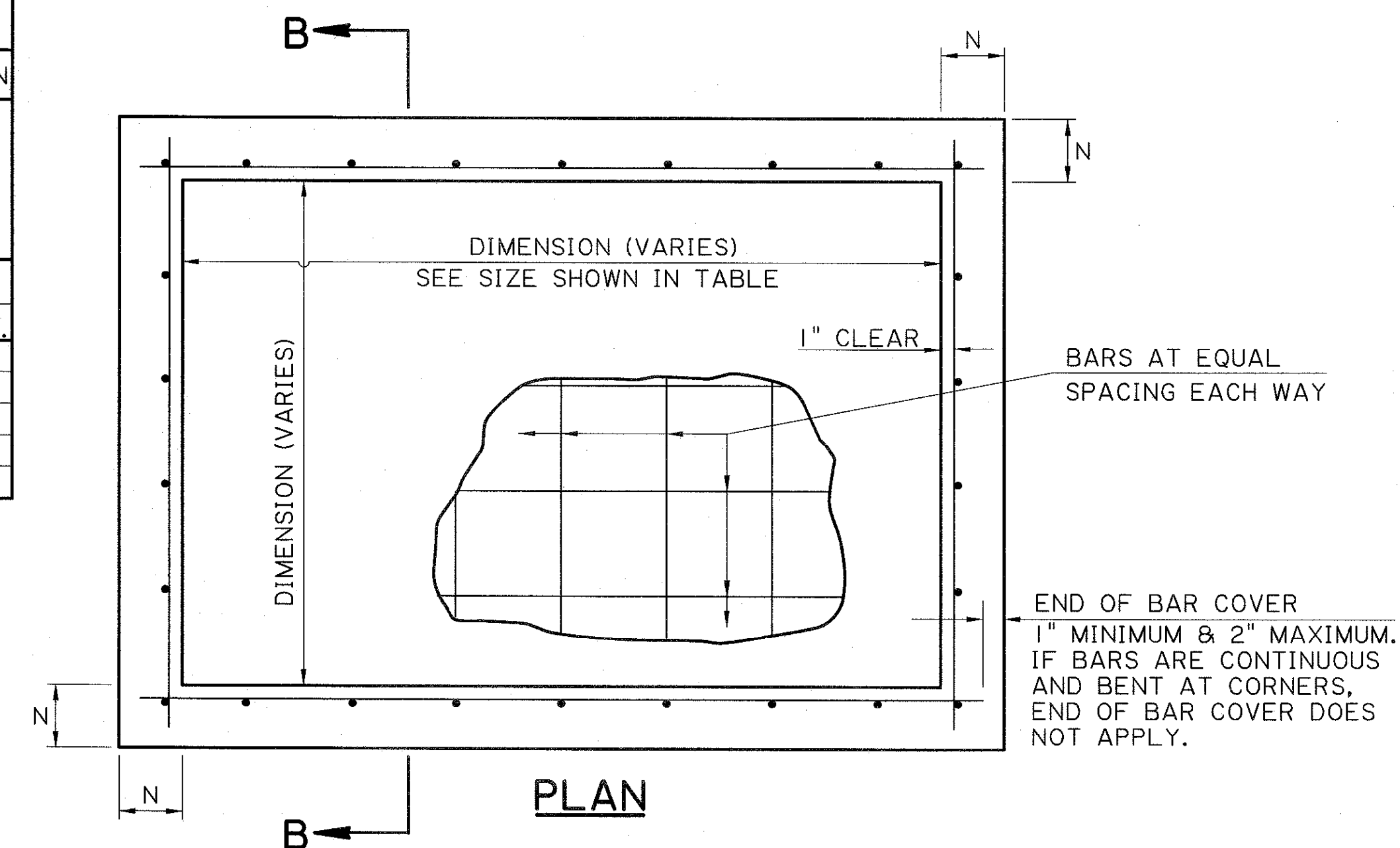
Δ #4 HOOP (ALT.)

MAXIMUM HEIGHT	N	4' MAX. DIMENSION				6' MAX. DIMENSION			8' MAX. DIMENSION			10' MAX. DIMENSION		
		TYPICAL SIZES [3'x3' 4'x4']				TYPICAL SIZES [6'x4' 6'x6']			TYPICAL SIZES [8'x4' 8'x6' 8'x8']			TYPICAL SIZES [10'x4' 10'x6' 10'x8' 10'x10']		
FT.	IN.	BAR SIZE	SPAC.* IN.	As IN ² /FT.	BAR SIZE	SPAC.* IN.	As IN ² /FT.	BAR SIZE	SPAC.* IN.	As IN ² /FT.	BAR SIZE	SPAC.* IN.	As IN ² /FT.	
8	4	4	6	0.40										
8	6	4	9	0.27	4	8	0.30	4	5.5	0.44	5	5.5	0.68	
14	6	4	9	0.27	4	6	0.40	5	5	0.74	5	3.25	1.14	
20	6	4	7	0.34	4	4.5	0.53							

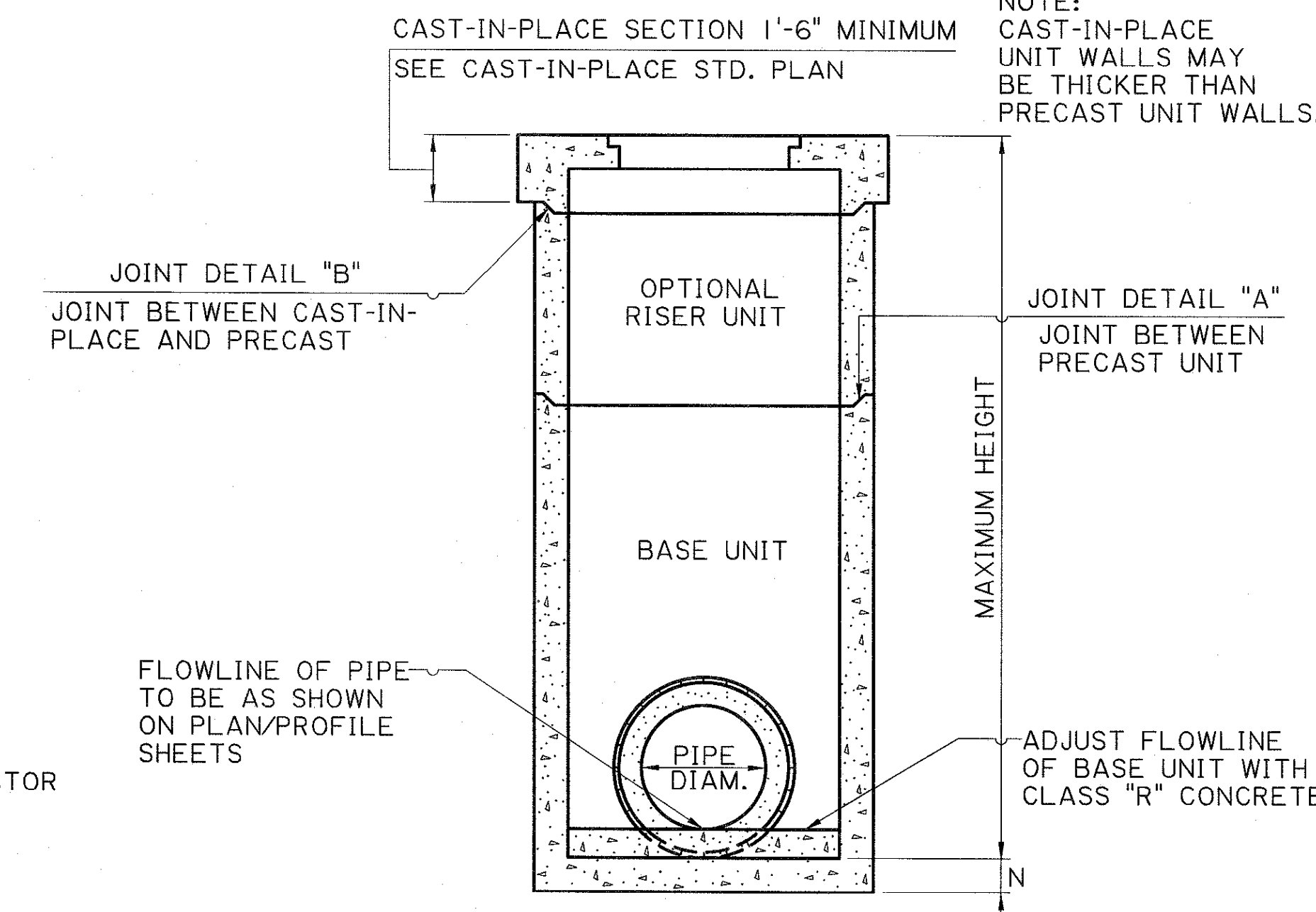
○ OTHER SIZES ARE ACCEPTABLE AS LONG AS THE DIMENSIONS DO NOT EXCEED THE MAXIMUM DIMENSIONS.
 * BAR SPACING APPLIES TO BOTH DIRECTIONS AND AT ALL LOCATIONS.
 ✕ BAR SIZES AND SPACING MAY DIFFER FROM VALUES SHOWN, BUT THE AREA OF STEEL (As) SHALL BE EQUAL TO OR GREATER THAN VALUE SHOWN, AND BAR SPACING SHALL NOT EXCEED 1.5 TIMES THE WALL THICKNESS. THE AREA OF STEEL (As) MAY BE PROVIDED WITH STEEL DEFORMED WELDED WIRE FABRIC.



PIPE CONNECTION DETAIL



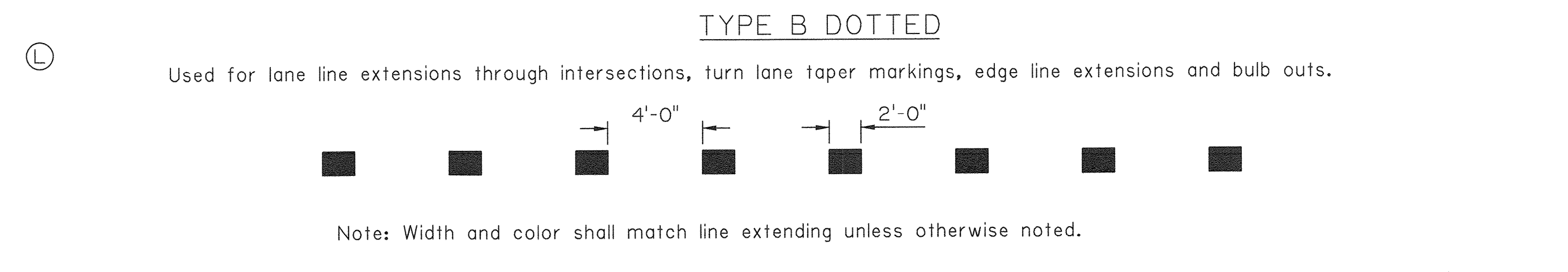
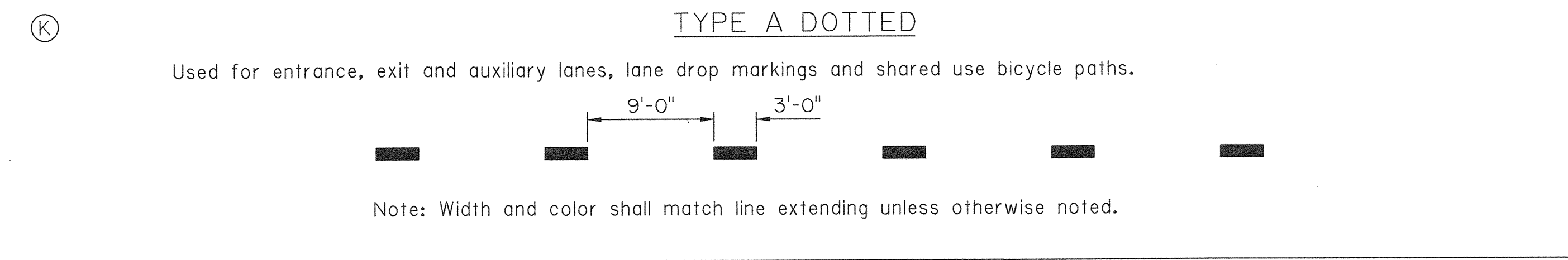
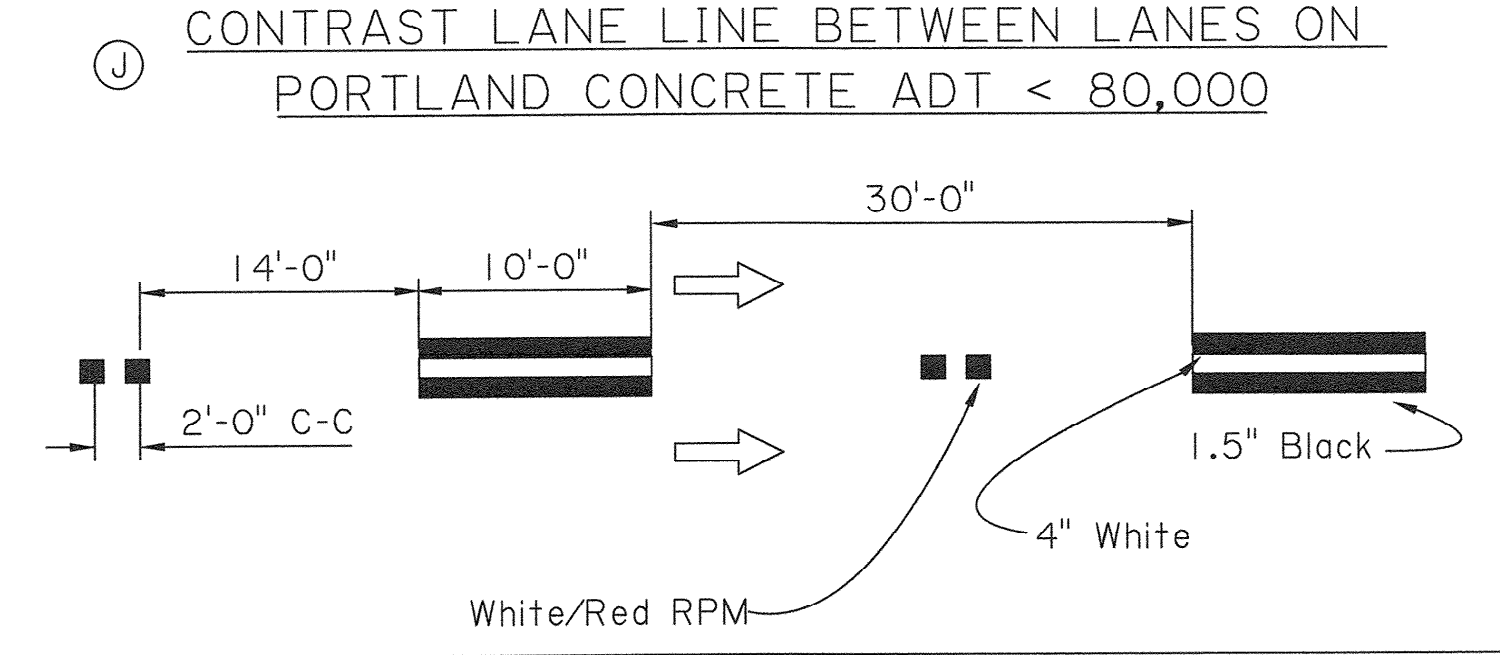
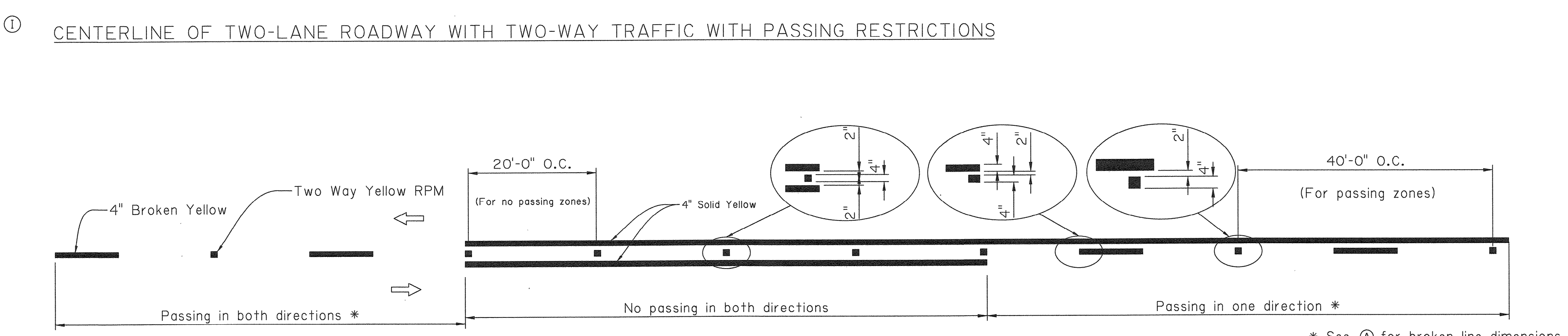
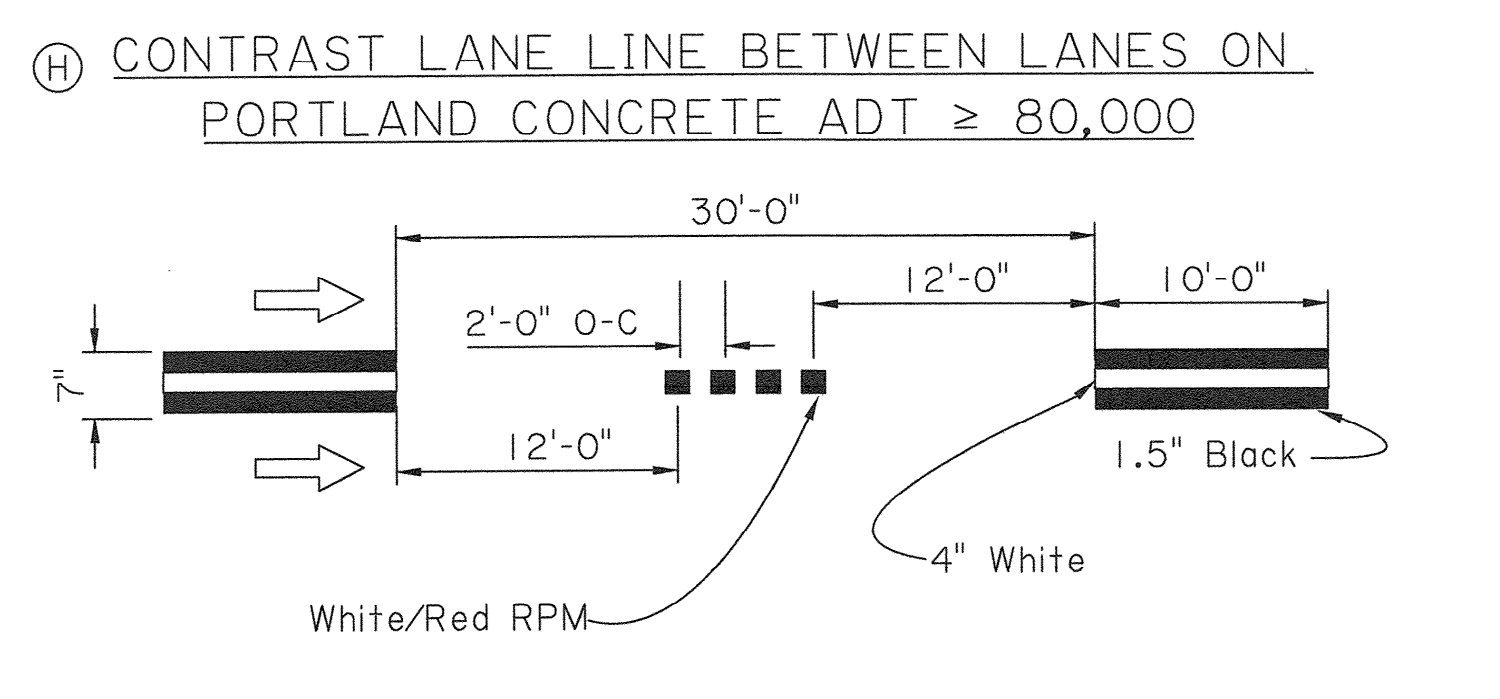
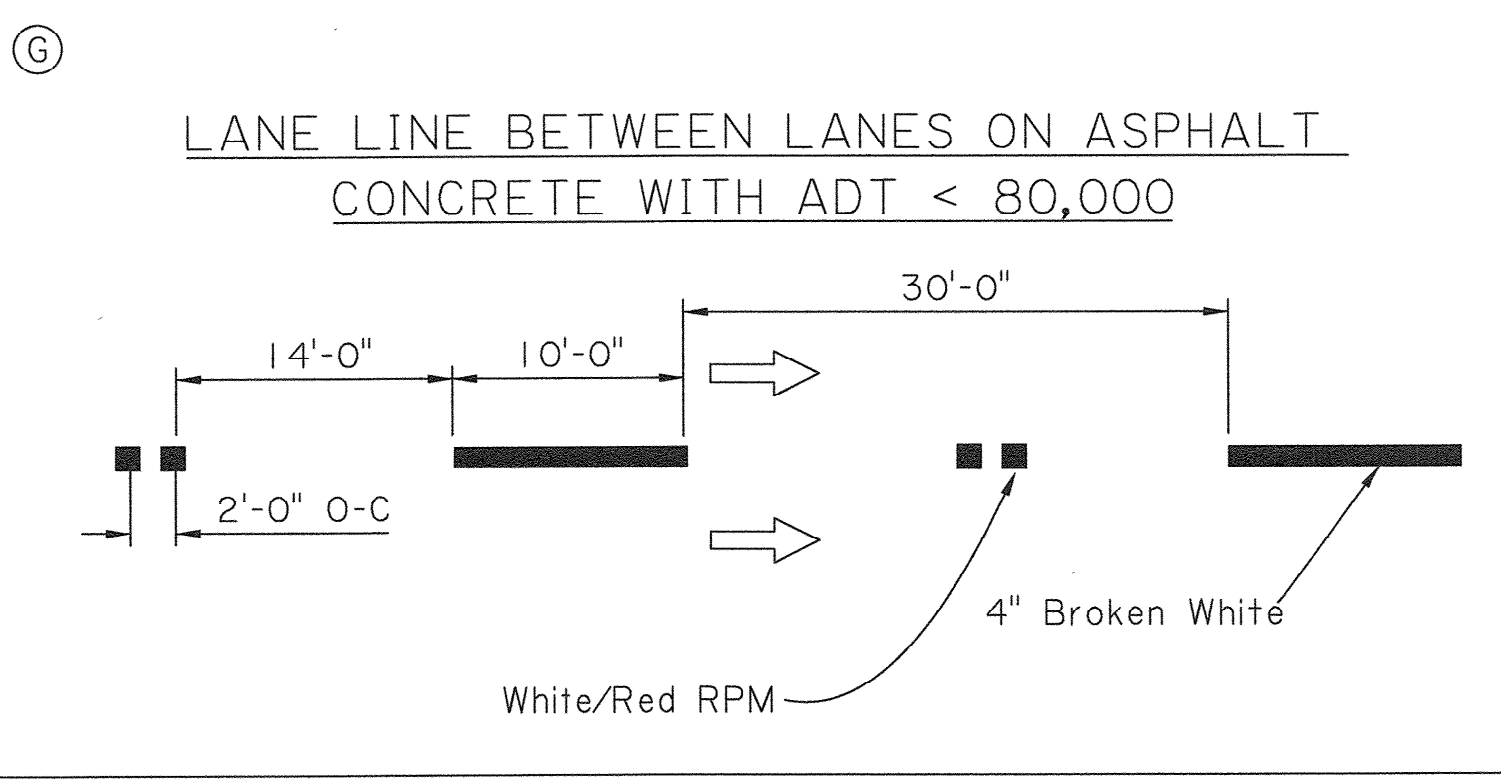
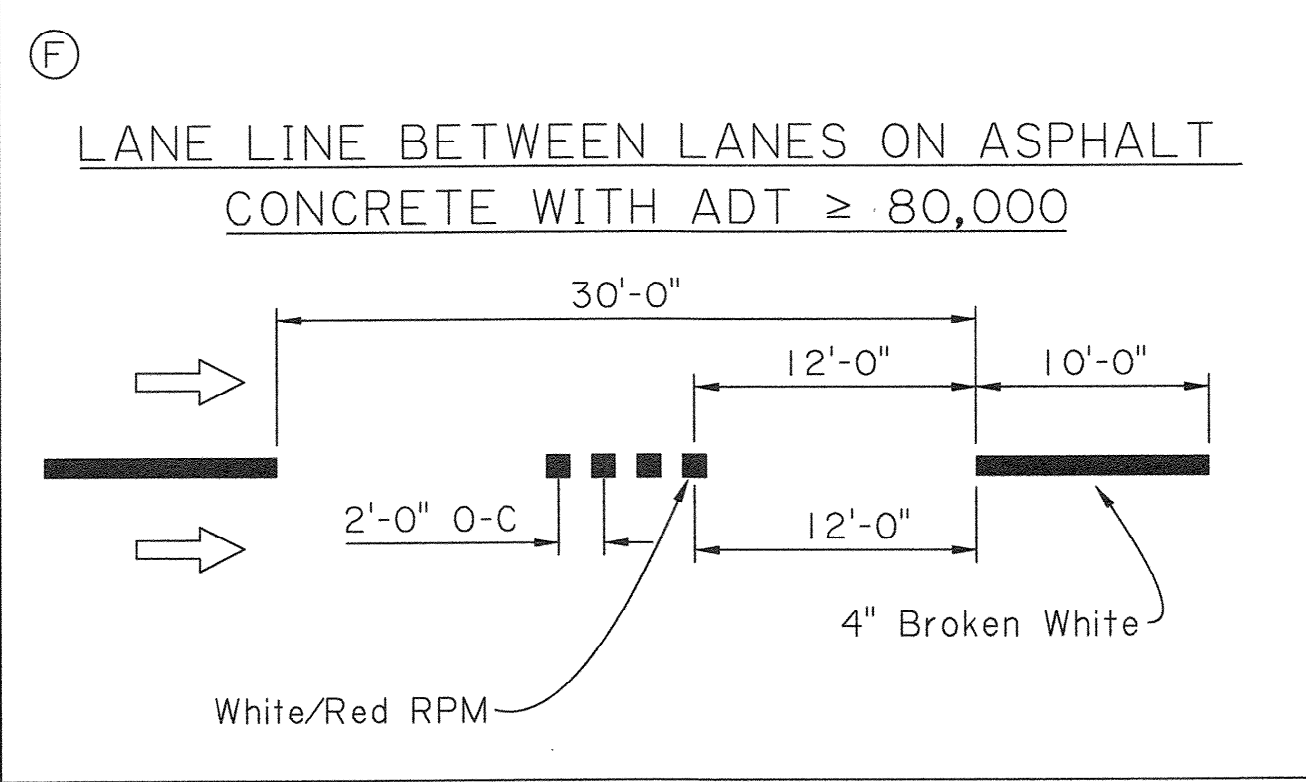
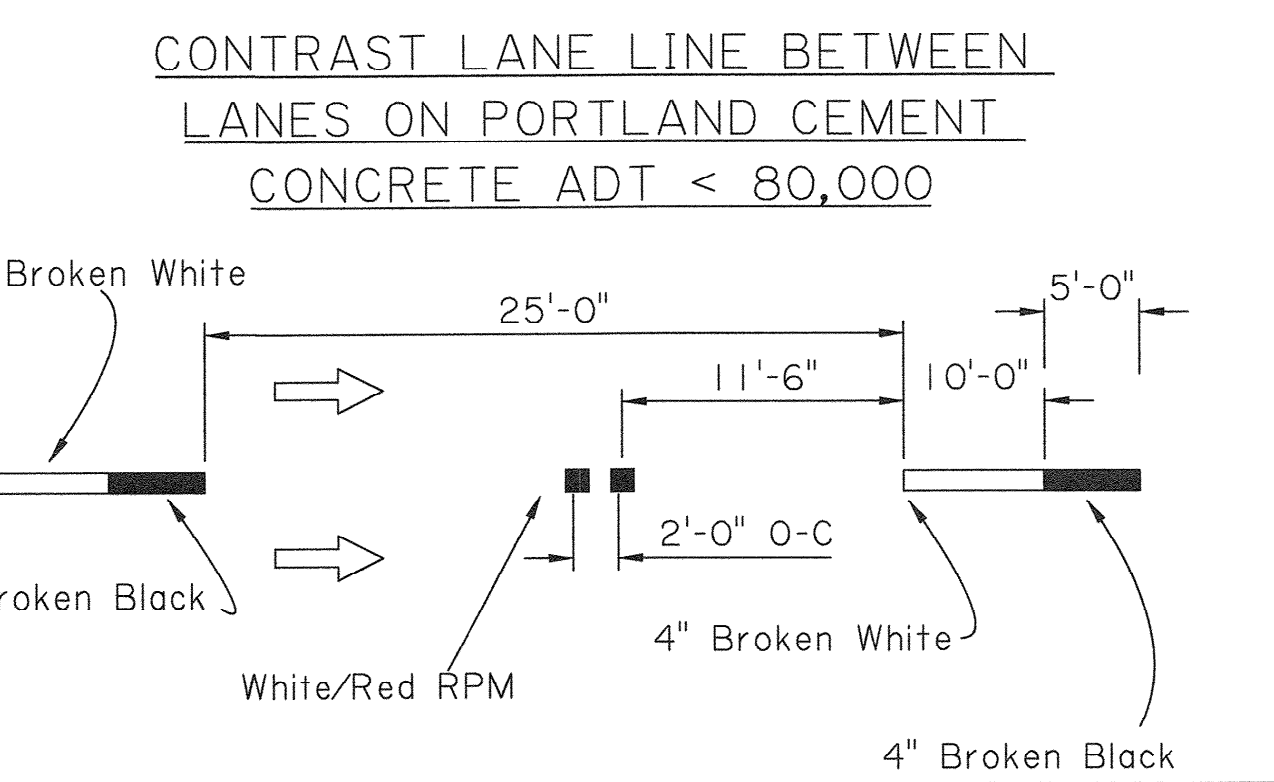
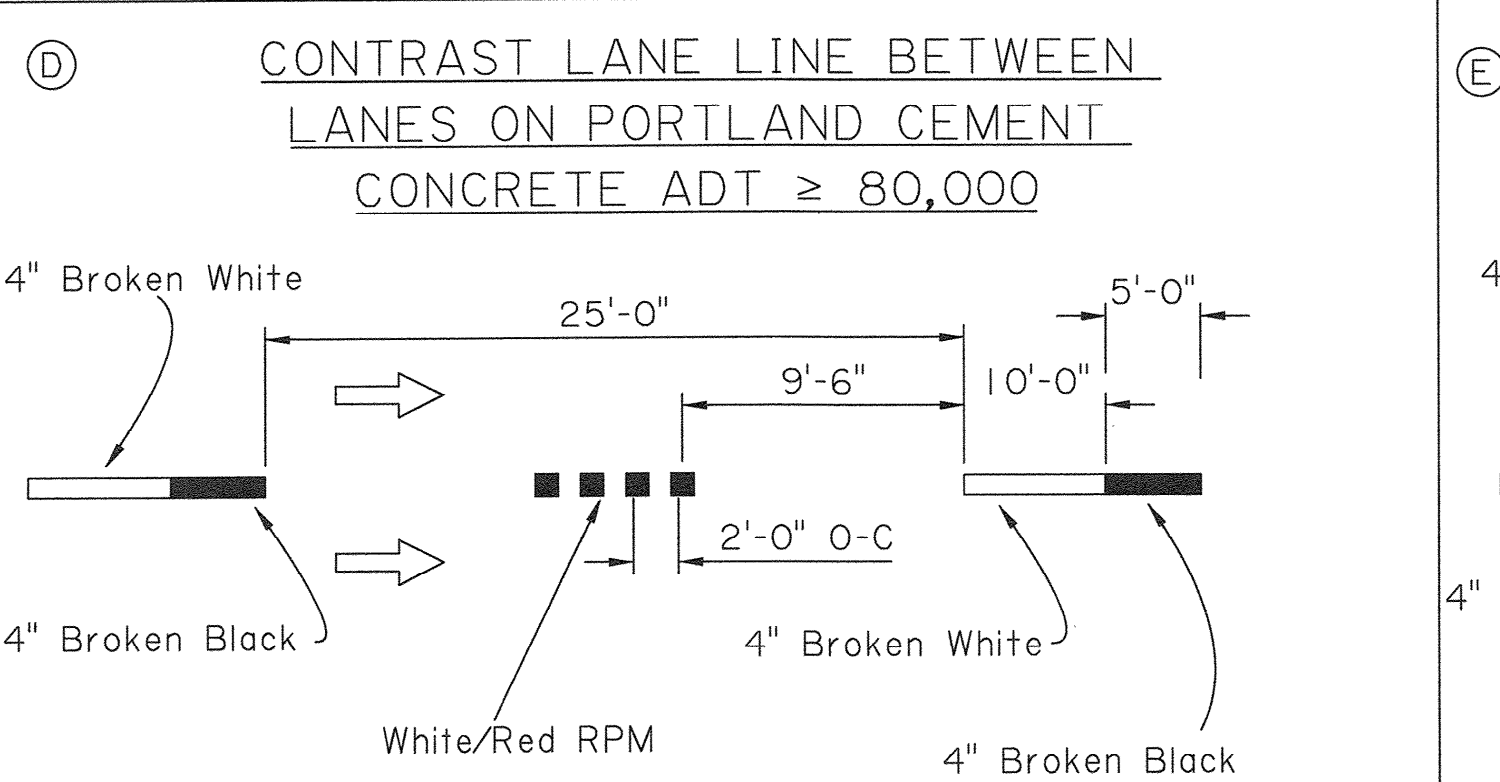
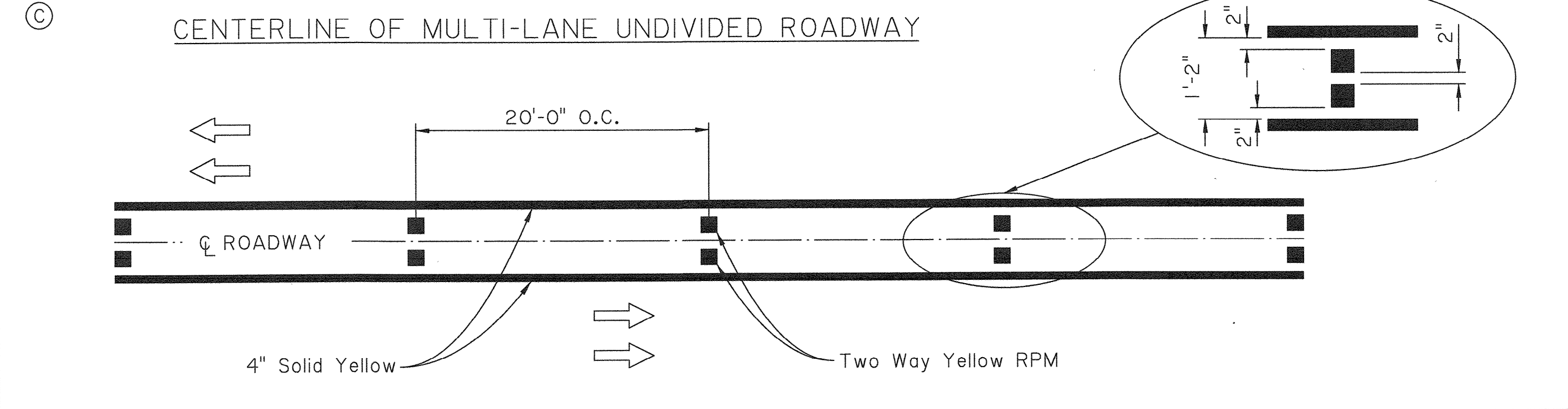
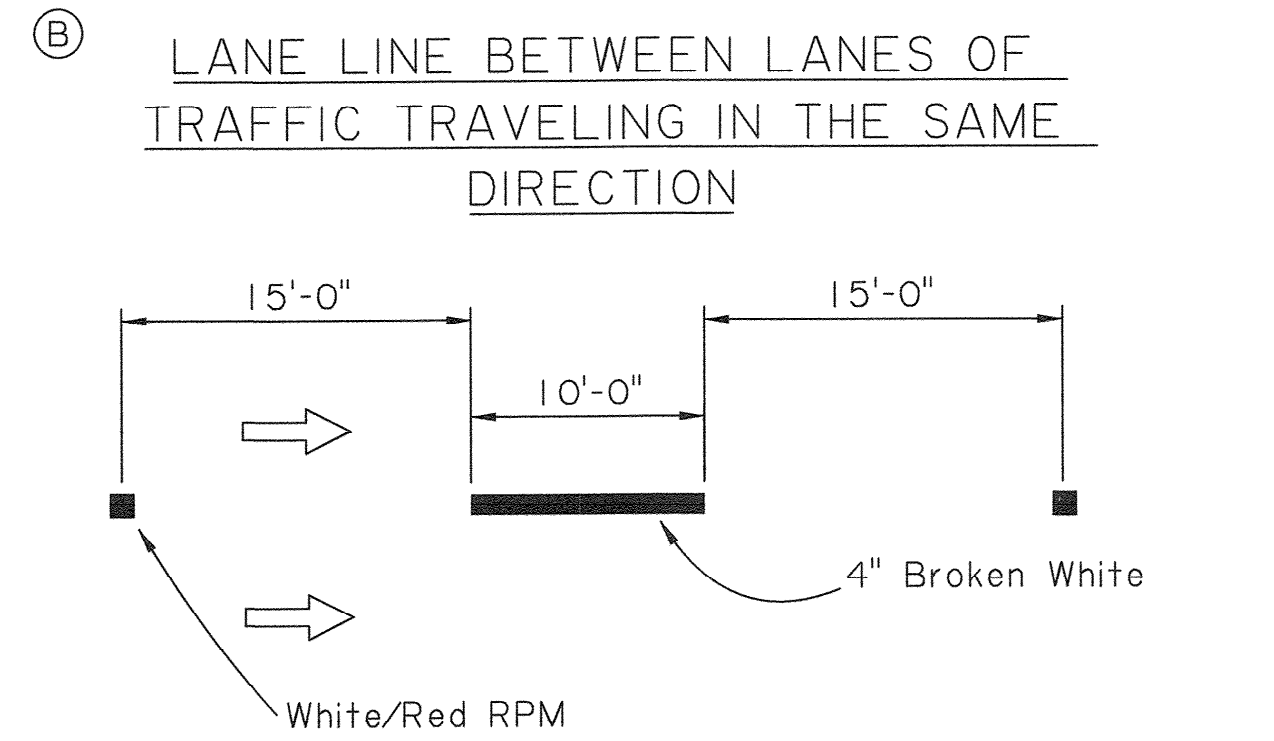
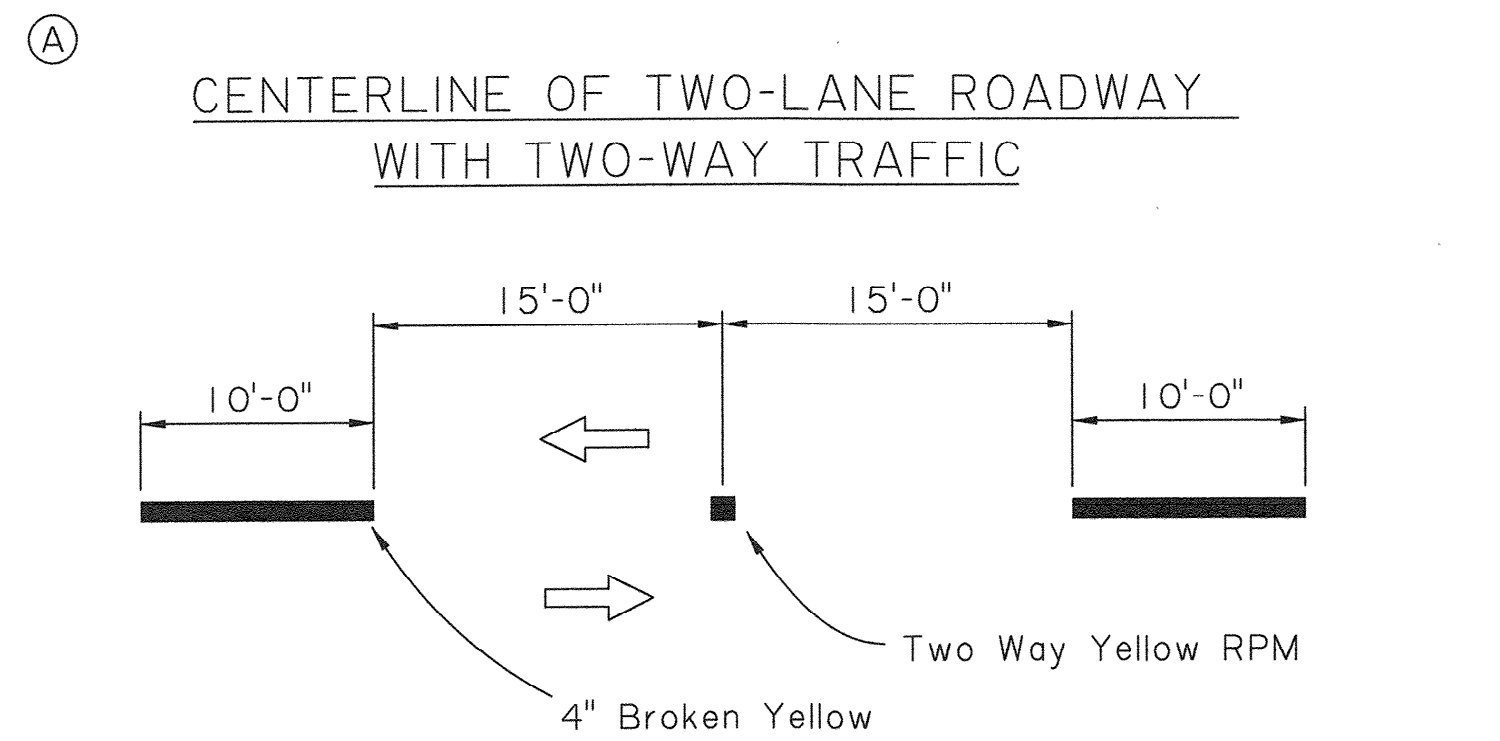
PLAN



ELEVATION

TYPICAL COMPOSITE STRUCTURE

SHEET NUMBER	329
PARISH	
CONTROL SECTION	
DATE PROJECT	
DESIGN	
CHECK	
DETAIL	
CHECK	
REVIEW	
SERIES #	
MITRA HASHEMIEH REG. NO. 28546 REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING 7/20/2021	
HYDRAULICS	
XUYONG WANG REG. NO. 32508 REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING 7/20/2021	
STRUCTURAL	
APPROVED BY CHIEF ENGINEER:	
DATE: 7/26/2021	
PRECAST CATCH BASINS AND MANHOLES STANDARD PLAN PC-01	
HYDRAULICS SECTION	



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

Jason Cambre
12/22/22

Gary N. LeBlanc
2-27-19

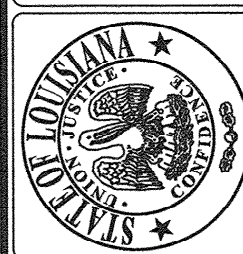
* See (A) for broken line dimensions.

- GENERAL NOTES:**
- 4" Edge lines shall be placed on all roadways.
 - Place edge lines, centerlines and lane lines to avoid longitudinal joints as directed by the project engineer.
 - Edge lines in a curb and gutter section should be kept out of the gutter and clear from debris.
 - If rumble strips are used, striping details remain unchanged.
 - Centerlines shall be placed on roadways with a traveled way width of 16 feet or greater.
 - Where the clear width of a bridge is less than the clear width of the roadway, reflectorized pavement markers shall be placed adjacent to the edge line at 20' centers.
 - ⇒ indicates the direction of travel (not a pavement marker).
 - For non-interstate striping, use one Raised Reflectorized Pavement Marker.
 - White Reflectorized Pavement Marker faces same direction traffic and red faces opposing traffic.

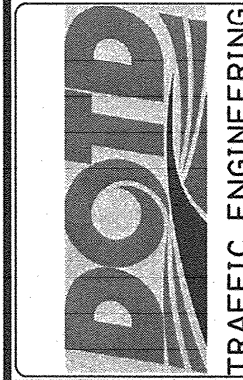
DESIGNED	G. LeBLANC
CHECKED	J. COLVIN
DETAILED	K. WILLIAMS
CHECKED	G. LeBLANC
DATE	
SHEET	

DATE 2/28/19

APPROVED BY CHIEF ENGINEER
William P. Gault



PM-01
Centerline and Edgeline Markings
PAVEMENT MARKING DETAILS



GENERAL PROVISIONS

- All temporary traffic control (TTC) devices used shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges, the MUTCD, and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices where applicable.
- Materials used for TTC shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges and, when applicable, the LADOTD AML.
- Placement of TTC devices shall not commence without the approval of the Engineer and until work is about to begin, unless they are covered.
- No lane closures, lane shifts, diversions or detours shall occur without the approval of the Engineer.
- Responsibility is hereby placed upon the contractor for the installation, maintenance and operation of all TTC devices called for in these plans or required by the Engineer for the protection of the traveling public as well as all LADOTD and construction personnel.
- The contractor shall also be responsible for the maintenance of all permanent signs, pavement markings, and traffic signals left in place as essential to the safe movement and guidance of traffic within the project limits unless noted in the plans.
- The DTOE shall serve as a technical advisor to the Engineer for all traffic control matters.
- The Chief Construction Engineer or his appointed designee shall approve all signs and situations not addressed in the plans based on the recommendations of the Project Engineer and the DTOE. All changes shall be noted in all project traffic control diaries.
- The Chief Construction Engineer or his appointed designee shall approve all design speeds of diversions or shifts, if it differs from design plans, based on the recommendations of the Project Engineer and the DTOE.
- All temporary traffic control plans shall comply with the Transportation Management Plan.
- Any additional signs shown in the MUTCD and required by the Engineer shall be installed under Item 713-01-00100.
- Neither work activity nor storage of equipment, vehicles, TMAs, or materials shall occur within the buffer space.
- When a work area has been established on one side of the roadway only, there shall be no conflicting operations or parking on the opposite shoulder within 500 feet of the work area.
- A lighting plan shall be submitted to the Engineer 30 days prior to night work for approval. (See section 105.20 of the Louisiana Standard Specifications for Roads and Bridges.)
- Parking of vehicles or unattended equipment or storage of materials, within the clear zone shall not be permitted unless protected by guardrail or barriers. If the clear zone is not defined on the plan sheets, the Engineer shall verify.
- Immediately upon removal of existing guardrail, the contractor shall install and maintain an NCHRP Report 350 or MASH approved device to protect the blunt end of the bridge or column until new guardrail is installed. After removal of the existing guardrail, new guardrail should be installed within seven (7) days. On non-NHS routes with shoulders less than 8 feet wide: If an NCHRP 350 Report Test Level 3 or MASH device is required but the field conditions of the roadway cannot support a Test Level 3 device, then a Test Level 2 device can be substituted in its place upon approval by the Engineer. If utilized, a TMA is allowed for a maximum of 72 hours.
- All costs associated with crash devices are to be included in Item 713-01-00100.
- Sight distance should be considered when placing traffic control devices.
- On all mainline Interstates, a minimum of 1.5 feet of paved shoulder on the left and right side shall be maintained at all times.

- On Interstates, a minimum of 11 foot lanes shall be maintained. On all other roadways, a 10 foot minimum travel lane should be maintained where practical.
- TTC Standards are not drawn to scale.
- The contractor shall develop an internal traffic control plan approved by the Engineer prior to each phase.
- Truck restrictions such as (but not limited to) restricting lanes, oversize loads or times of travel, may be required for narrow lanes or other field conditions.

PAVEMENT MARKINGS (see AML)

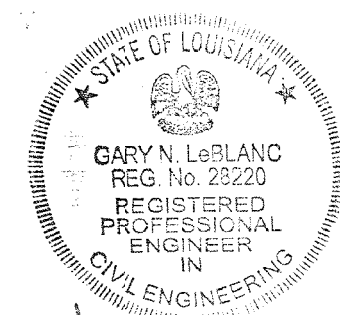
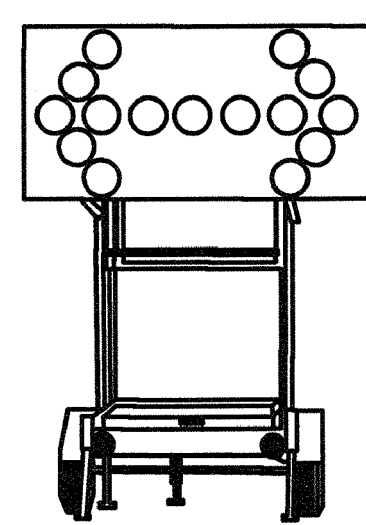
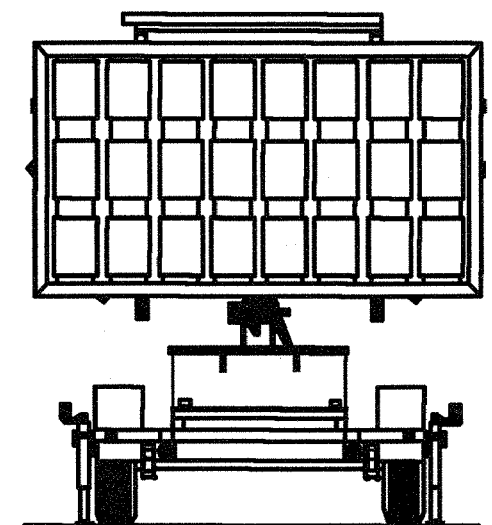
- All pavement markings within the limits of the project or adjacent to the project limits that are in conflict with the project signing or the required traffic movements shall be removed from the pavement by blast cleaning or grinding. (Existing striping shall not be painted over with black paint or covered with tape.)
- If special pavement markings are needed, they shall be reflectorized, removable and accompanied by the proper signage.
- Temporary Raised Pavement Markers may be added to supplement temporary striping in areas of transition, in tapers, in diversions and in other areas of need as shown in the plans or as directed by the Engineer.
- Materials and placement of temporary pavement markings shall conform to Section 713 of the Louisiana Standard Specifications for Roads and Bridges. If no pay item exists for temporary markings, they shall be installed under item 713-01-00100.
- Temporary markings installed in the permanent configuration shall comply with LADOTD pavement marking standard plans, MUTCD and/or the permanent striping plans.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- PCMS shall be used on all Interstate Highways. PCMS shall be used on all other roadways (where space is available) with an ADT greater than 20,000.
- When used in advance of a lane closure or a lane shift, the PCMS should be placed on the right hand side of the road a minimum distance of 2 miles in advance of the taper for interstates and to be determined by the Engineer on other highways.
- For interstates and multi-lane highways, if vehicles are queuing beyond the 2 mile PCMS, an additional PCMS should be placed on the right hand side of the road approximately 5 miles in advance of the taper or at the end of the queue, whichever is greater.
- PCMS messages shall be approved by the DTOE. Messages shall be no more than 3 lines and 2 screens.
- Messages shall display only traffic operational, regulatory, warning, and guidance information. PCMS messages shall not display advertising or safety messages. Messages should only convey information concerning the problem/situation, location, and recommended driver action.
- PCMS should be placed as far from the traveled lane as possible. They shall be shielded by guardrail or barriers. If this is not possible they shall be delineated with a min. 3 drum taper spaced at 20ft with a 4th drum alongside the PCMS.
- If the PCMS encroaches on the improved shoulder then the contractor shall install a shoulder closure.
- When the PCMS is not displaying a work zone appropriate message pertaining to the ongoing construction project it shall be shielded by guard rail or barriers, or removed from the clear zone.



Jason Cambre
12/22/22



Gary N. LeBlanc
6-27-18

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

SPEED LIMITS

- The Engineer may approve a 10 mph drop in the speed limit for posted speeds of 45 mph or greater and for any construction, maintenance or utility operation that requires one or more of the following:
 - (A) The condition of the traveled way is degraded due to milled surfaces or uneven travel lane lines greater than 1.5 inches.
 - (B) Work is in progress in the immediate vicinity of the travel way requiring lane closures or lane width reductions less than 11 feet.
 - (C) Workers present on the shoulder within 2 feet of the edge of the traveled way without barrier protection.
- The reduced speed zone shall only apply to those portions of the project limits affected. The Engineer may allow SPEED LIMIT WHEN FLASHING signs to supplement reduced speed zones.
- If the speed limit is reduced, speed limit signs shall be placed:
 - (A) beyond major intersections;
 - (B) at one mile intervals in rural areas;
 - (C) at half mile intervals in urban areas.
- At the end of the reduced speed zone, a speed limit sign displaying the original speed limit prior to construction shall be installed.
- For all other speed limit reductions not listed above, the Project Engineer and the DTOE shall recommend the speed reduction to the Chief Construction Engineer or his appointed designee for approval.
- If the speed limit is reduced more than 10 mph, placement of the signs shall be re-evaluated according to the MUTCD.

FLASHING ARROW BOARDS

- All Flashing Arrow Boards shall be 4 feet by 8 feet and Type C.
- Flashing Arrow Boards should be placed on the shoulder. When there is no shoulder or median area, the arrow board shall be placed within the closed lane behind the channelizing devices and as close to the beginning of the taper as practical.
- Flashing arrow boards shall be delineated with retroreflective TTC devices.
- At no time shall the arrow board encroach in the traveled way. When Flashing Arrow Board signs are not being used, they shall be shielded by guard rail or barriers, or removed.
- Arrow boards shall only be used for lane reduction tapers and shall not be used for lane shifts.

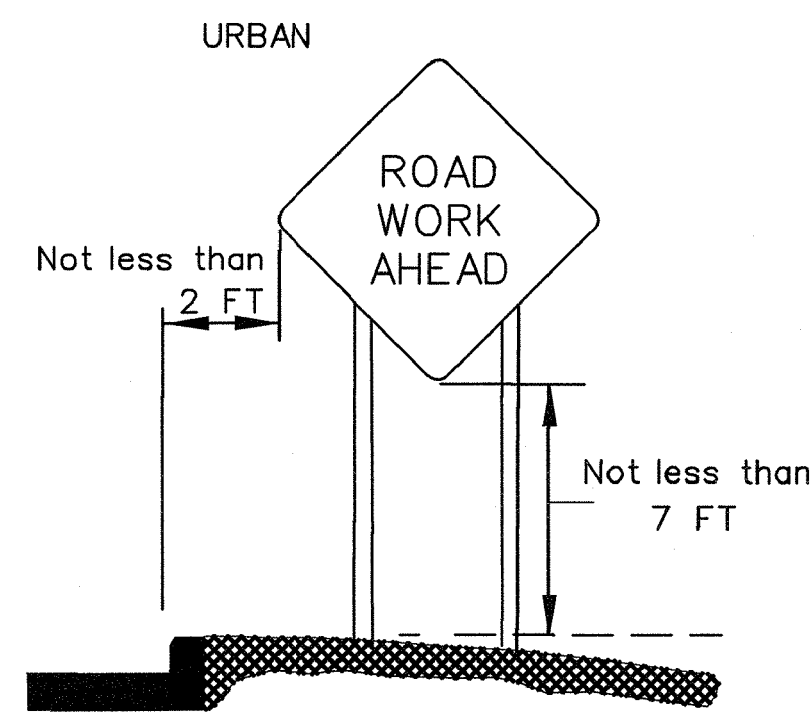
ABBREVIATIONS

- AASHTOAmerican Association of State Highway and Transportation Officials
- ADTAverage Daily Traffic
- AGCI.....Associated General Contractors of America
- AMLApproved Materials List
- ANSIAmerican National Standards Institute
- ATSSA.....American Traffic Safety Services Association
- B.O.P.Beginning of Project
- DTOEDistrict Traffic Operations Engineer
- E.O.P.End of Project
- LADOTDLouisiana Department of Transportation and Development
- MASHAASHTO Manual for Assessing Safety Hardware
- MUTCDManual on Uniform Traffic Control Devices
- NCHRP.....National Cooperative Highway Research Program
- NHSNational Highway System
- PCMSPortable Changeable Message Sign
- TMATruck Mounted Attenuator
- TMCTraffic Management Center
- TTCTemporary Traffic Control
- TTC Standards ..Temporary Traffic Control Standard Plans

SHEET NUMBER	331				
DESIGNED G. LEBLANC	CHECKED J. COLVIN	PARISH	CONTROL SECTION	STATE PROJECT	
DETAILED C. FAKOURI	CHECKED G. LEBLANC				
SERIES NUMBER					
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DATE	
				7/2/18	
APPROVED BY: <i>[Signature]</i> CHIEF ENGINEER					
TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET					
TTC-00 (A)					

SIGNS

- All signs used for temporary traffic control shall follow the plans, the LADOTD TTC Standards and the MUTCD.
- Signs shown in the TTC illustrations are typical and may vary with each specific condition.
- One Type B High Intensity light shall be used to supplement the first sign (or pair of signs) that gives warning about a lane closure during nighttime operations (See AML).
- Mesh rollup signs shall not be allowed on any project.
- Contractor shall use caution not to damage existing signs which remain in place. Any LADOTD signs damaged by work operations shall be replaced by the contractor under item 713-01-00100.
- All signs (permanent and temporary) shall be removed or completely covered with a strong, lightweight, opaque material when no longer applicable. (Burlap is not an acceptable material to cover signs).
- At no time shall signs warning against a particular operation be left in place once the operation has been completed or where the condition has been removed.
- Warning signs used for temporary traffic controls shall meet the following guidelines unless otherwise noted in the plans:
 - (A) size shall be 48 inches by 48 inches.
 - (B) see the Louisiana Standard Specifications for Roads and Bridges and the AML for sheeting information.
 - (C) lateral distance of signs shall be a minimum of 6 feet from the edge of shoulder or edge of pavement if no shoulder exists and 2 feet from the back of curb in urban areas (see diagram).
- When portable sign frames are not in use, they shall be moved to an area inaccessible to traffic and not visible to the driver.
- Left side mounted signs will not be required for roadways with a center left turn lane and for undivided roadways.
- Vinyl rollup signs may be used if work zone is in place for 12 hours or less, there are no more than 2 lanes in each direction and if signs meet all size, color, retroreflectivity and NCHRP 350 Report or MASH requirements.
- All signs shall be visible to the drivers (i.e. no obstructions such as on street parking or other traffic control devices shall block the sign).
- On divided highways, signs shall be placed on the right and the left as shown on the TTC standards.
- 1 foot portable sign stands may be used if the work zone is in place for 14 hours or less and there are no more than 2 lanes in each direction.
- Sign posts:
 - Signs measuring 10 square feet or less shall be mounted on 1 rigid post
 - Signs over 10 square feet shall be mounted on 2 rigid posts
 - Signs over 20 square feet shall be mounted on at least 3 rigid posts
- Rigid sign supports shall be driven to a minimum depth of 3 feet. (If splicing is required, see Allowable Lap Splice U-channel Post.)
- For sign height, see the Rural and Urban diagrams:

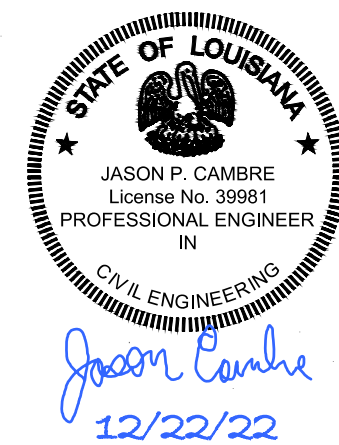


LANE CLOSURES

- All proposed lane, road or shoulder closures shall be reviewed by the DTOE and approved by the Engineer.
- Two lane, two-way highways shall have a maximum work area of two miles; all other roadways shall have a four mile maximum work area.
- A queue analysis shall be performed prior to approval of lane closures on all Interstates according to Section 6A.1 of the Traffic Engineering Manual.
- Closure plans and times shall be turned in to the Engineer for review according to the following:
 - (A) 5 working days minimum if traffic control plan has been approved or is contained in the plans.
 - (B) 10 working days minimum and a traffic control plan must be submitted for lane closures not addressed in the plans.
- Weekly updates to the DTOE, Project Engineer, the LADOTD TMC operator and the regional TMC operator (if applicable) will be required for all ongoing lane closures to update the closure status.
- Daily updates to the DTOE, Project Engineer and TMC operator (if applicable) will be required for all projects where active closures are in place.

FLAGGERS

- All flaggers shall be qualified.
- The contractor shall be responsible for training or assuring that all flaggers are qualified to perform flagging duties.
- A Qualified Flagger is one that has completed courses such as those offered by ATSSA or other courses approved by the LADOTD Work Zone Task Force. The contractor shall be responsible for getting the flagger course approved.
- When utilized, a flagger shall use a minimum 18 inch octagonal shape sign on a minimum 6 foot stop/slow paddle and wear ANSI Class 2 Lime Green vest during day time operations and ANSI Class 3 Lime Green ensemble during night operations.
- In all flagging operations, the flagger must be visible from the flagger advance warning sign.
- Flaggers shall not be used on the Interstate.



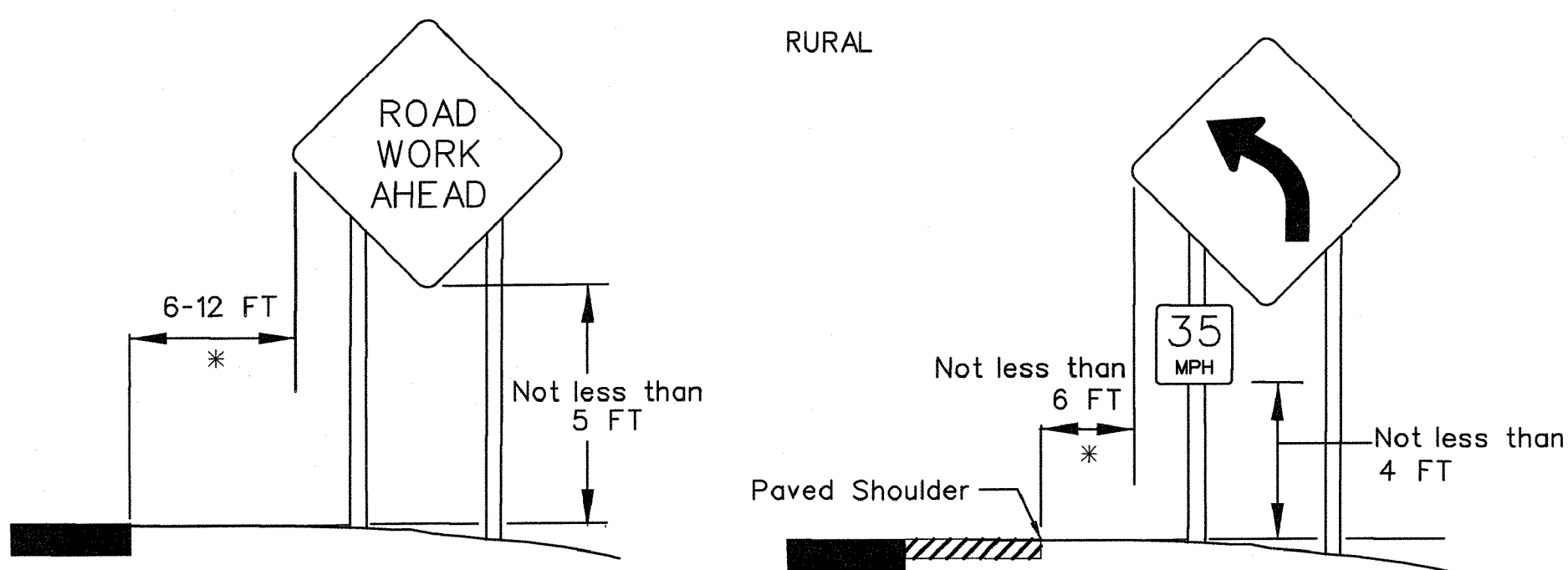
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

PEDESTRIAN CONSIDERATIONS

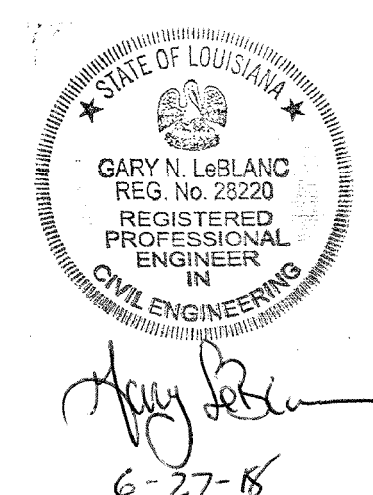
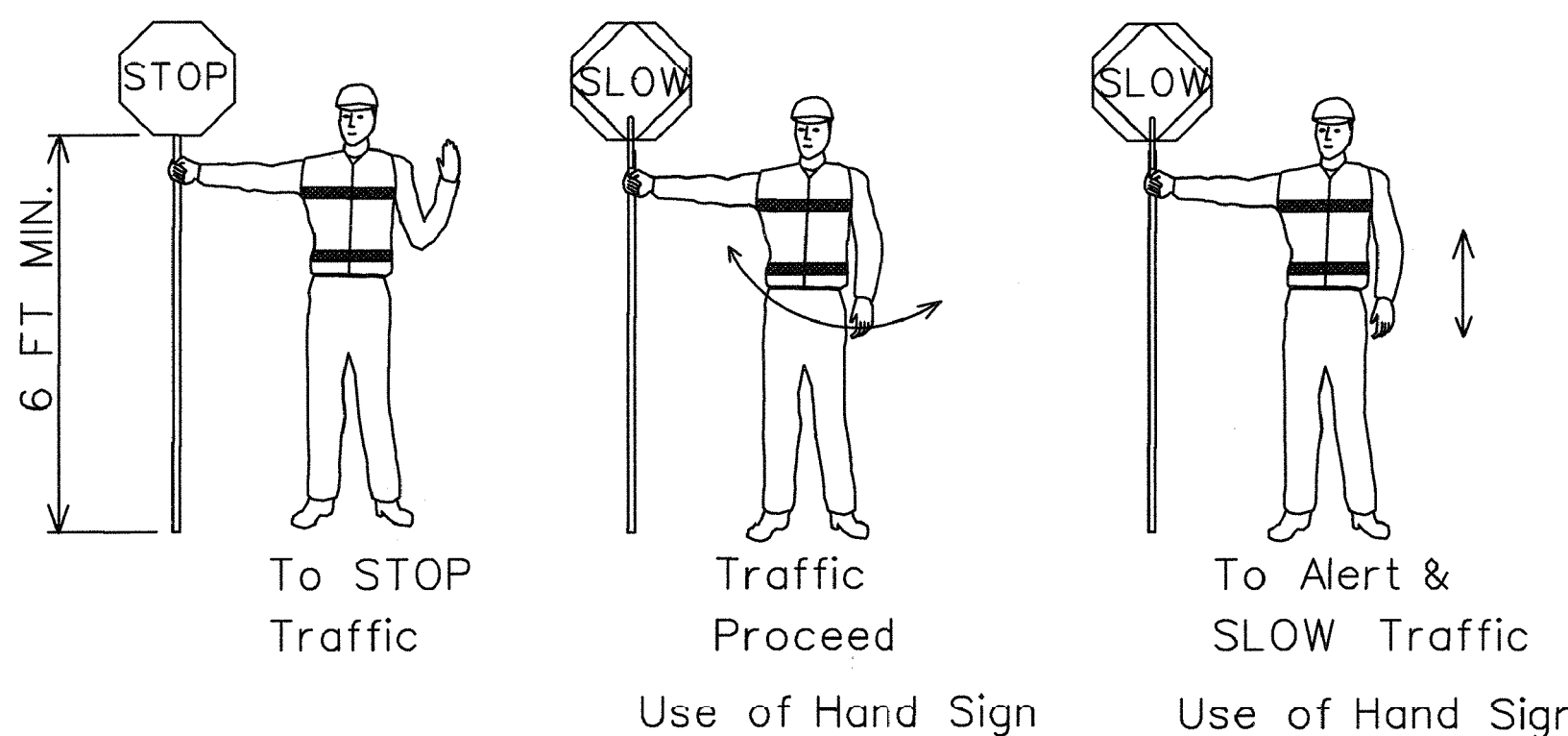
- If the TTC zone affects the movement of pedestrians, adequate pedestrian access and walkways shall be provided either through the TTC zone or a designated alternate route.
- Pedestrians should be provided with a convenient and accessible path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or footpath(s).
- Advance notification of sidewalk closures shall be provided by the maintaining agency.

REFERENCES

- The contractor shall be responsible for understanding all rules and requirements in the current edition of the following documents:
 - 1) Louisiana Standard Specifications for Roads and Bridges. <http://www.dotd.la.gov/highways/specifications/>
 - 2) Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). <http://mutcd.fhwa.dot.gov/>
 - 3) LADOTD Approved Materials List (AML) Manual. http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/Pages/Menu_QPL.aspx
 - 4) LADOTD Traffic Engineering Manual http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/Misc%20Documents/Traffic%20Engineering%20Manual.pdf
 - 5) National Cooperative Highway Research Program (NCHRP) Report 350: "Guidelines for Work Zones Traffic Control Devices". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_350-a.pdf
 - 6) NCHRP Report 475: "A Procedure for Assessing and Planning Nighttime Highway Construction and Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_475.pdf
 - 7) NCHRP Report 476: "Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_476.pdf
 - 8) NCHRP Report 498: "Illumination Guidelines for Nighttime Highway Work". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_498.pdf
 - 9) American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide.
 - 10) American Traffic Safety Services Association (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices and Features.
 - 11) U.S. Department of Transportation Federal Highway Administration Traffic Control Handbook for Mobile Operations at Night. <http://www.dot.state.il.us/blr/1023.pdf>



* If lateral distance is not practical, the sign may be placed no less than 2 feet.

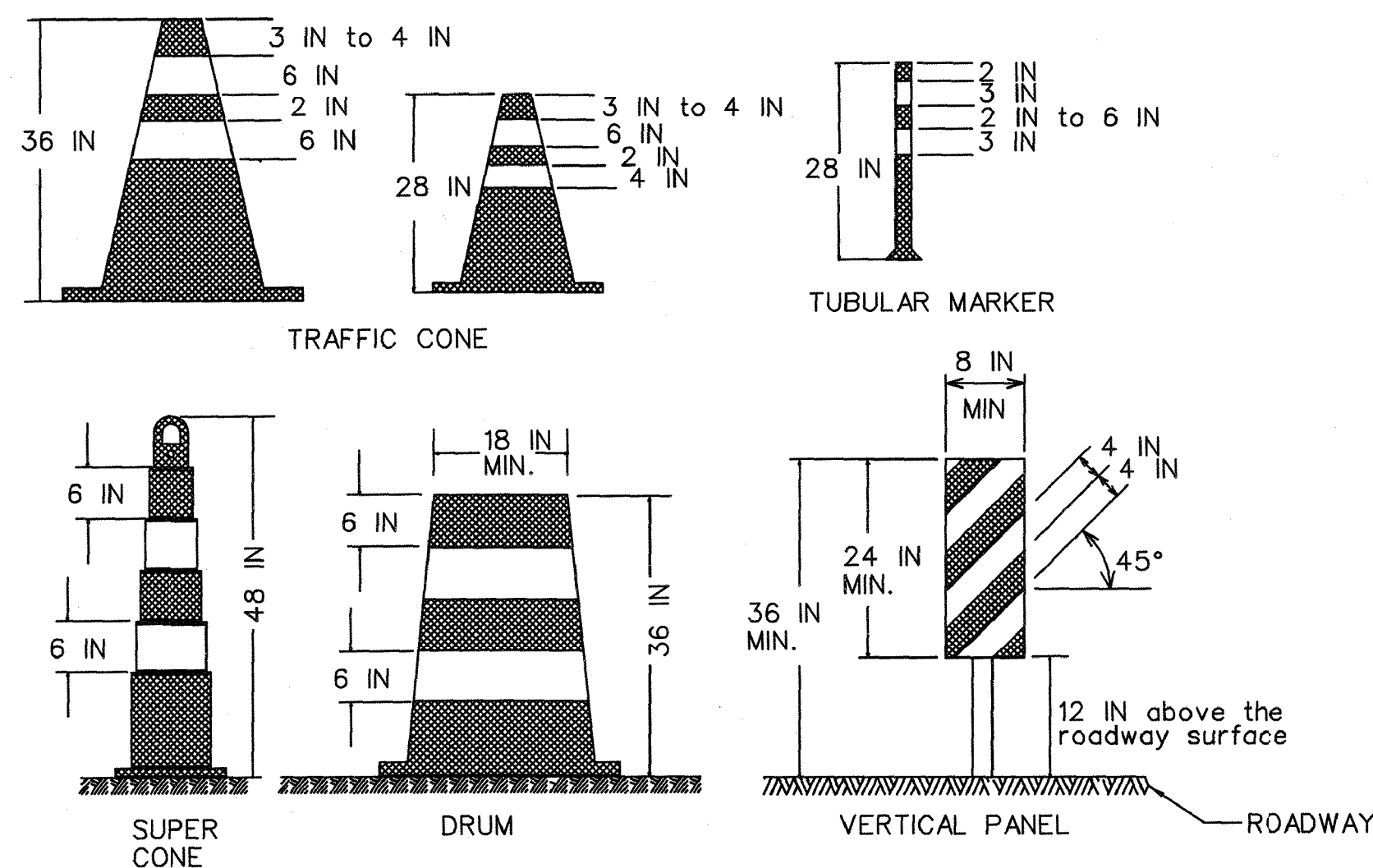


ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

SHEET NUMBER	332								
DESIGNED	G. LeBLANC	CHECKED	J. COLVIN	PARISH		CONTROL SECTION		STATE PROJECT	
DETAILED	C. FAKOURI	CHECKED	G. LeBLANC						
		SERIES NUMBER							
				APPROVED BY		REVISION OR CHANGE ORDER DESCRIPTION		DATE	7/2/18
				CHIEF ENGINEER					
TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET TTC-00 (B)									

CHANNELIZING DEVICES

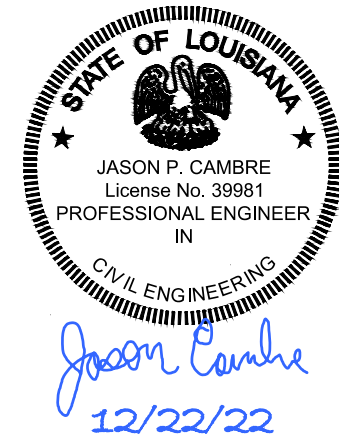
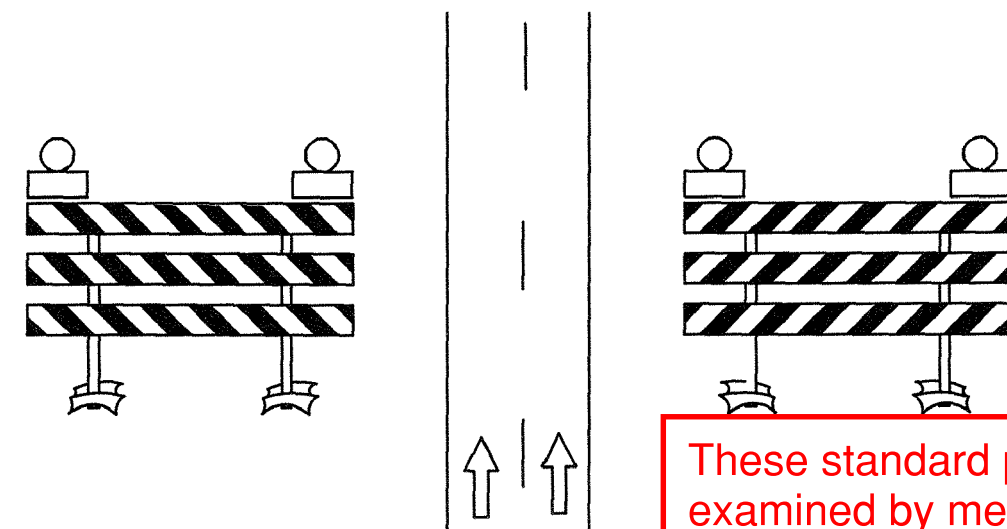
- The following devices may be used as channelizing devices: Tubular Markers, Vertical Panels, Cones, Drums and Super Cones.
- 28 inch traffic cones are not allowed on:
 - Interstates
 - Highways with speeds greater than 40 mph.
- During nighttime operations, 28 inch and 36 inch cones are not allowed.
- Retroreflective material pattern used on super cones shall match that used on drums.
- Tangent Areas:**
 - Standard Spacing: See Standard Device Spacing and Buffer Space table.
 - Daylight Operations: Drums and super cones are spaced at standard spacing. All other devices are at 1/2 standard spacing.
 - Nighttime Operations: Drums and supercones at standard spacing are the only devices allowed.
- Taper Areas:**
 - Standard Spacing: See Standard Device Spacing and Buffer Space table.
 - Daylight Operations: Drums are spaced at standard spacing. All other devices are 1/2 standard spacing.
 - Nighttime Operations: Drums (at standard spacing) are the only devices allowed.
- Type C steady burn lights shall be used on all channelizing devices in the taper as well as the first two devices in the tangent at night, (see the AML).
- Typical channelizing device lateral placement (do not include when it is used as a divider for opposing directions of traffic) shall be 2 feet off the lane line in the closed lane or shoulder.
- Devices may be adjusted laterally to accommodate ongoing work in the immediate vicinity but must be returned to the closed lane after the work activity has moved.
- Channelizing devices on the lane line shall be of the same type.
- Channelizing devices in each taper shall be of the same type.



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CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

TYPE III BARRICADES

- Only Type III Barricades shall be used.
- All barricades shall use Type 3 High Intensity Sheeting on both sides of the barricade.
- All barricades shall be a minimum of 8 feet in length and must meet NCHRP Report 350 or MASH requirements.
- When used for overnight closures, two Type B High Intensity Lights shall supplement all barricades that are placed in a closed lane or that extend across a highway. Two Type A Low Intensity Lights may be used in urban areas if approved by the Engineer (See AML).
- When signs and lights are to be mounted to a barricade, they must meet NCHRP Report 350 or MASH requirements.
- A truck with a TMA may be substituted for a barricade when workers are present.
- Barricades shall be placed:
 - at the beginning of a closed lane or shoulder and at 1,000 foot intervals where no active work is ongoing and the lane must remain closed. A minimum of 2 barricades shall be placed if the lane or shoulder closure is less than 2,000 feet. (One barricade shall be placed at the beginning of the lane closure after the buffer space and one shall be placed in the middle of the lane closure.)
 - before each or group of unfilled holes or holes filled with temporary material.
 - before uncured concrete.
 - in the closed lane on each side of every intersection and crossover. (Do not block sight distance.)
 - in front of piles of material (dirt, aggregate, broken concrete), culverts and equipment which is near the work zone.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

TTC for DROP-OFFS

NON-INTERSTATE

Average Drop-off	Current Posted Speed (Prior to Construction)	
	> 45 MPH	≤ 45 MPH
≤ 3 IN	Low Shoulder Sign (Optional)	Low Shoulder Sign (Optional)
> 3 IN & ≤ 6 IN	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device	Shoulder Drop Off Sign
> 6 IN & ≤ 10 IN	No Shoulder Sign, Edge Lines & Vertical Panel	No Shoulder Sign & Channelizing Device
> 10 IN	Concrete Barrier (if drop off is < 12 FT from edge of travel lane) & Edge Lines	No Shoulder Sign & Vertical Panel

INTERSTATE

Average Drop-off	Requirement
≤ 2 IN	Low Shoulder Sign (Optional)
> 2 IN & ≤ 6 IN	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device
> 6 IN	Concrete Barrier (if drop off is < 12 FT from edge of travel lane), Shoulder Drop Off Sign, & Edge Lines

- If a portable concrete barrier will be required then the deflection shall be considered in the design.
- For Interstate ramps, refer to non-Interstate drop offs.

STANDARD DEVICE SPACING AND BUFFER SPACE

SPEED LIMIT (prior to construction) MPH	MERGING TAPER LENGTH (L) Lane Width (FT)				STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	9	10	11	12	Along Taper	Along Tangent	
25	94	105	115	125	20	40	155
30	135	150	165	180	30	60	200
35	184	205	225	245	35	70	250
40	240	267	294	320	40	80	305
45	405	450	495	540	40	80	360
50	450	500	550	600	40	80	425
55	495	550	605	660	40	80	495
60	540	600	660	720	40	80	570
65	585	650	715	780	40	80	645
70	630	700	770	840	40	80	730
75	675	750	825	900	40	80	820

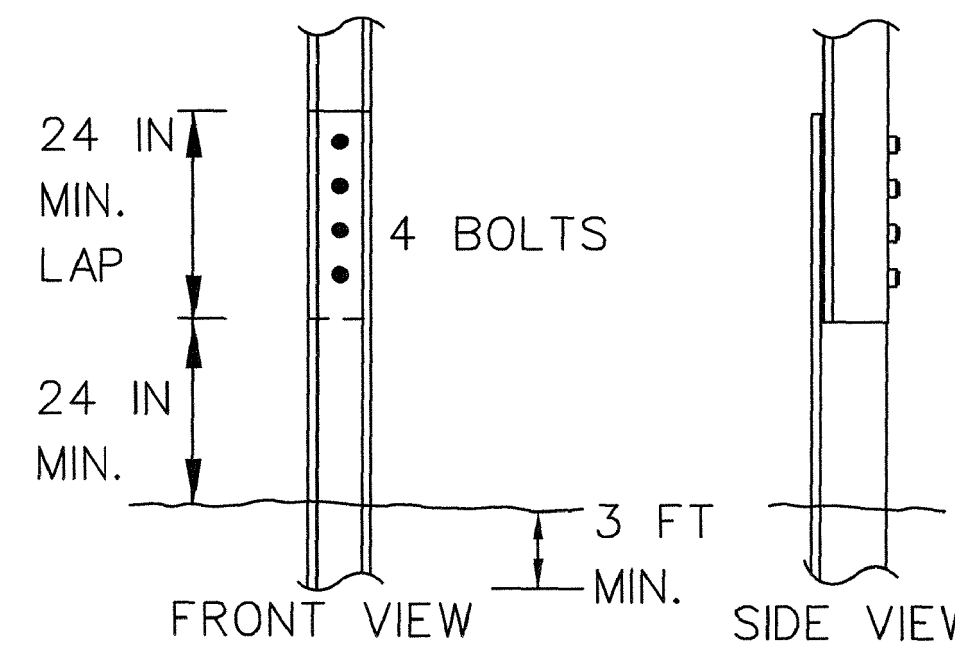
SPEED LIMIT (prior to construction) MPH	SHIFTING TAPER LENGTH (1/2)(L) Lane Shift (FT)						STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	2	4	6	8	10	12	Along Taper	Along Tangent	
25	11	21	32	42	52	63	20	40	155
30	15	30	45	60	75	90	30	60	200
35	21	41	62	82	102	123	35	70	250
40	27	54	80	107	134	160	40	80	305
45	45	90	135	180	225	270	40	80	360
50	50	100	150	200	250	300	40	80	425
55	55	110	165	220	275	330	40	80	495
60	60	120	180	240	300	360	40	80	570
65	65	130	195	260	325	390	40	80	645
70	70	140	210	280	350	420	40	80	730
75	75	150	225	300	375	450	40	80	820

SPEED LIMIT (prior to construction) MPH	SHOULDER TAPER LENGTH (1/3)(L) Shoulder Width (FT)						STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	2	4	6	8	10	12	Along Taper	Along Tangent	
25	7	14	21	28	35	42	20	40	155
30	10	20	30	40	50	60	30	60	200
35	14	28	41	55	68	82	35	70	250
40	18	36	54	72	89	107	40	80	305
45	30	60	90	120	150	180	40	80	360
50	34	67	100	134	167	200	40	80	425
55	37	74	110	147	184	220	40	80	495
60	40	80	120	160	200	240	40	80	570
65	44	87	130	174	217	260	40	80	645
70	47	94	140	187	234	280	40	80	730
75	50	100	150	200	250	300	40	80	820

- All termination and flagger tapers are 100 feet. (MIN. 6 channelizing devices per lane equally spaced 20 feet apart.)
- See TTC Standards for flagger taper.
- See MUTCD for taper formulas.

ALLOWABLE LAP SPLICE FOR U-CHANNEL POST

U-Channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches. The bottom edge of the upper section of the splice shall be a minimum of 24 inches above the ground. The spliced sections shall be secured with at least four 5/16 inch diameter hex bolts spaced equally along the splice.



SHEET NUMBER 333

DESIGNED BY: G. LEBLANC
CHECKED BY: J. COLVIN

CONTROL SECTION: C. FAKOURI
CHECKED BY: G. LEBLANC

PARISH: STATE PROJECT: DATE: 7/2/13

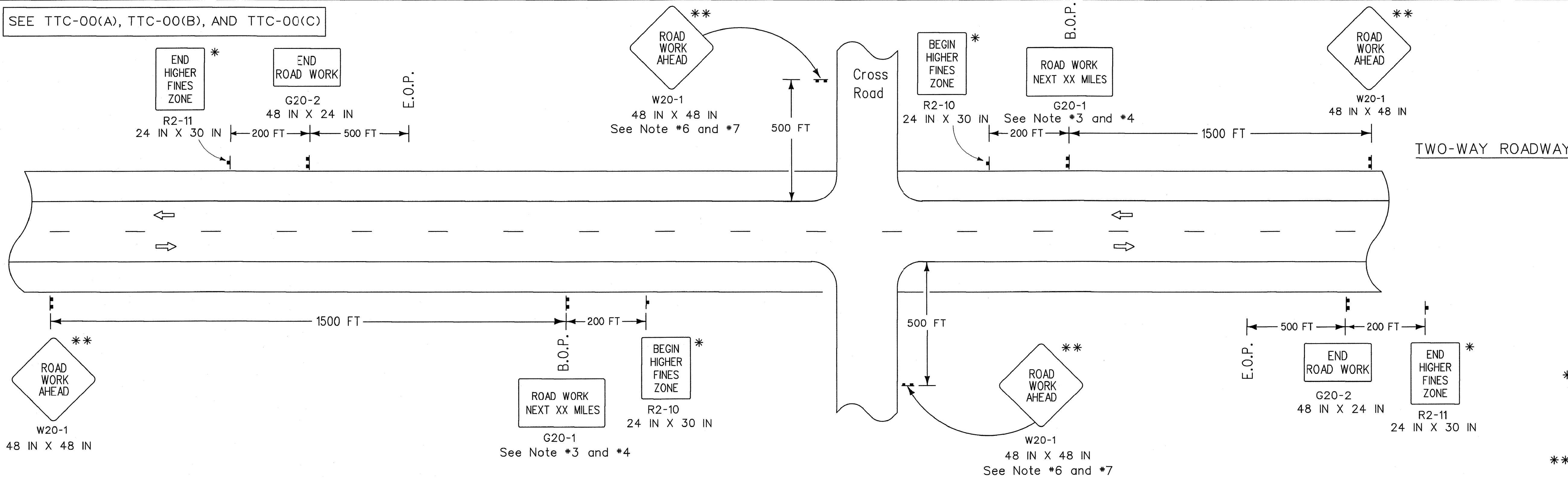
REVISION OR CHANGE ORDER DESCRIPTION: APPROVED BY: CHIEF ENGINEER: DATE: 12/22/22

STATE OF LOUISIANA REGISTERED PROFESSIONAL ENGINEER CIVIL ENGINEERING

STATE OF LOUISIANA REGISTERED PROFESSIONAL ENGINEER CIVIL ENGINEERING

TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET TTC-00 (C)

DOTD TRAFFIC ENGINEERING



* For divided roadways with speeds \geq 50 mph use larger sign, 36 IN X 48 IN.
 ** Any sign of the W20-1 series may be used.

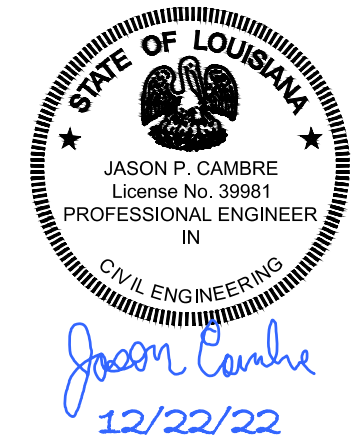
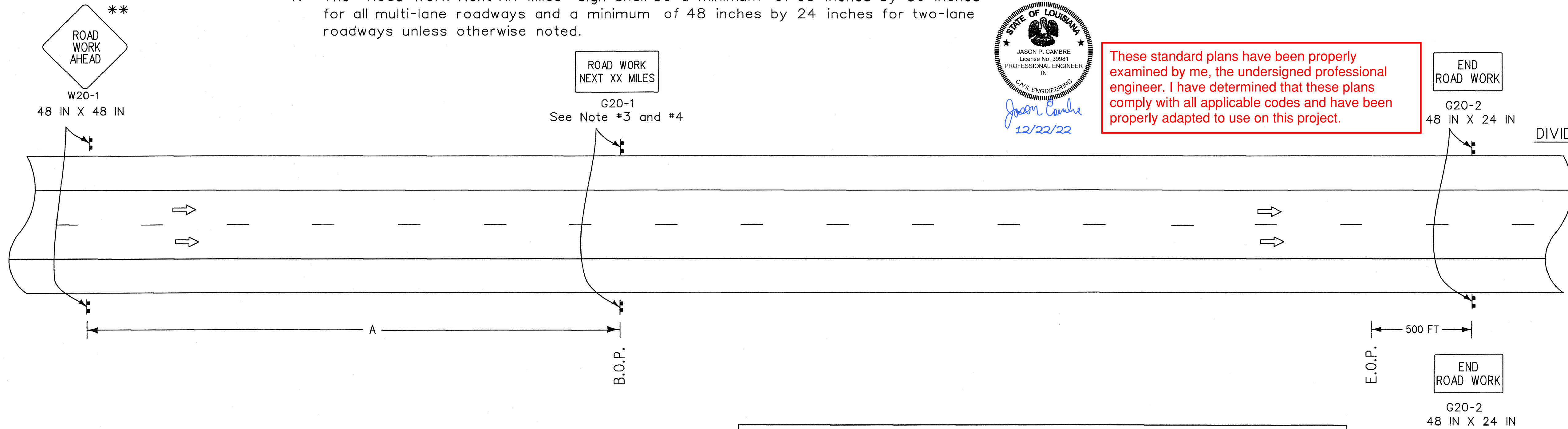
NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and other Temporary Traffic Control Sheets as appropriate.

1. This layout represents the minimum traffic controls required for placement of "Road Work Next XX Miles" and "End Road Work" signs.
2. This layout does not replace other TTC Standard Sheets, but is intended as a supplement to the required signing.
3. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits. This sign may be omitted if work zone is less than 0.5 miles.
4. The "Road Work Next XX Miles" sign shall be a minimum of 60 inches by 36 inches for all multi-lane roadways and a minimum of 48 inches by 24 inches for two-lane roadways unless otherwise noted.
5. The "End Road Work" sign shall be placed 500 feet past the End of Project (E.O.P.) limits.
6. If "Road Work Ahead" sign is used on a cross road to warn of road work on another route, then "End Road Work" sign is not required.
7. When projects are separated by less than 1 mile, they shall be signed as one project; this may require coordination.

LEGEND

- ▬ Traffic Sign
- ⇒ Direction of Travel



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



SPEED LIMIT (prior to construction)	SPACING
\leq 40 mph	1500 FT
45 mph	2640 FT
$>$ 45 mph	5280 FT

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• Sign spacing to be adjusted for Horizontal and Vertical curves.
 • For work outside of the traveled way, see TTC-01 and TTC-02.

DESIGNED BY: G. LEBLANC
 CHECKED BY: J. COLVIN
 DETAILED BY: C. FAKOURI
 CHECKED BY: G. LEBLANC

PARISH: _____ CONTROL SECTION: _____ STATE PROJECT: _____

DATE: 7/2/18

REVISION OR CHANGE ORDER DESCRIPTION: _____ BY: _____

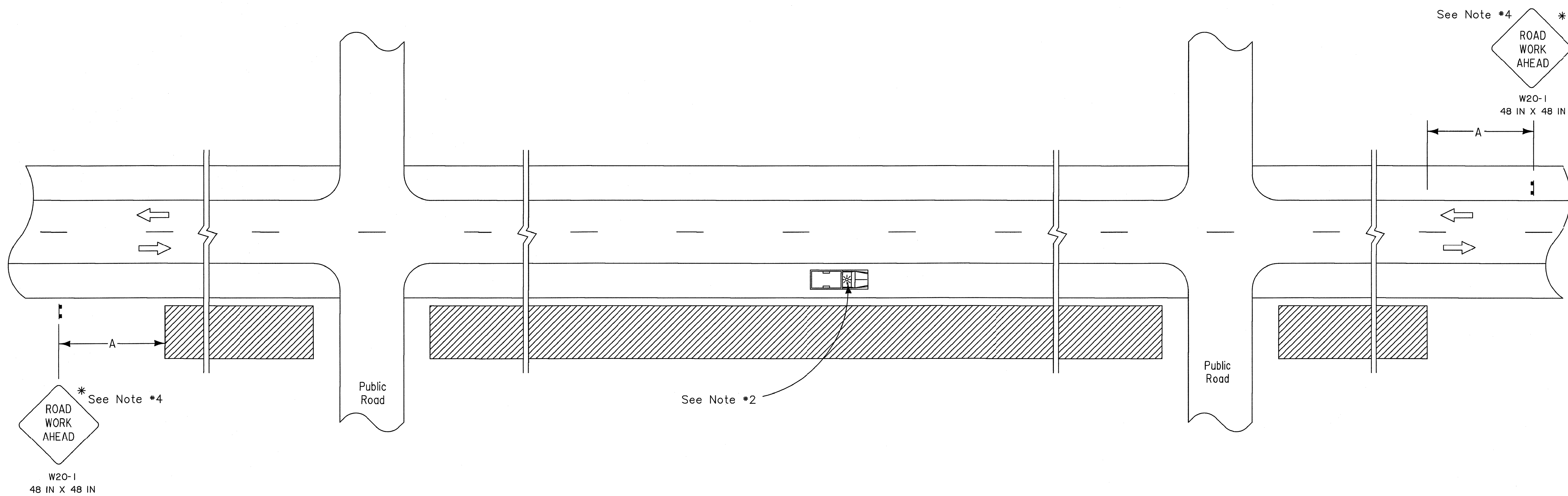
APPROVED BY: _____ CHIEF ENGINEER: _____

STATE OF LOUISIANA REGISTERED PROFESSIONAL ENGINEER CIVIL ENGINEERING

TEMPORARY TRAFFIC CONTROL LAYOUT FOR PLACEMENT OF ROAD WORK NEXT XX MILES AND END ROAD WORK SIGNS

TTC-00 (D)

DOTD TRAFFIC ENGINEERING



LEGEND

- Traffic Sign
- Work Area
- Direction of Travel
- Truck with Amber Light

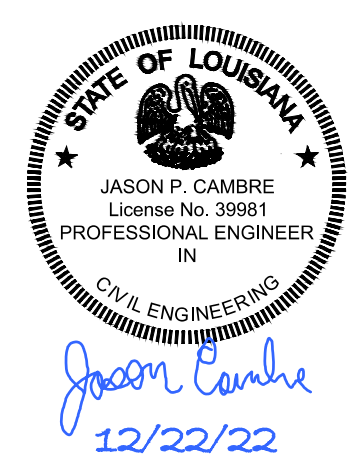
SPEED LIMIT (prior to construction)	SPACING 'A'
≤ 40 mph	500 FT
45-50 mph	1000 FT
≥ 55 mph	1500 FT

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B) and TTC-00(C).

1. This layout represents the minimum traffic controls required for workers and equipment operating more than 15 feet from the travel way.
2. If the operation results in equipment or other vehicles being parked closer than 15 feet to the travelway, but not within the roadway, each vehicle shall have an amber light.
3. When a work area has been established on one side of the roadway only, there shall be no parking on the opposite shoulder within 500 feet of the work area.
4. Other signs may be used in place of the "Road Work Ahead" sign, such as W21-8 (Mowing), W21-7 (Utility), or W21-6 (Survey) when applicable.

* Any sign of the W20-1 series may be used.



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

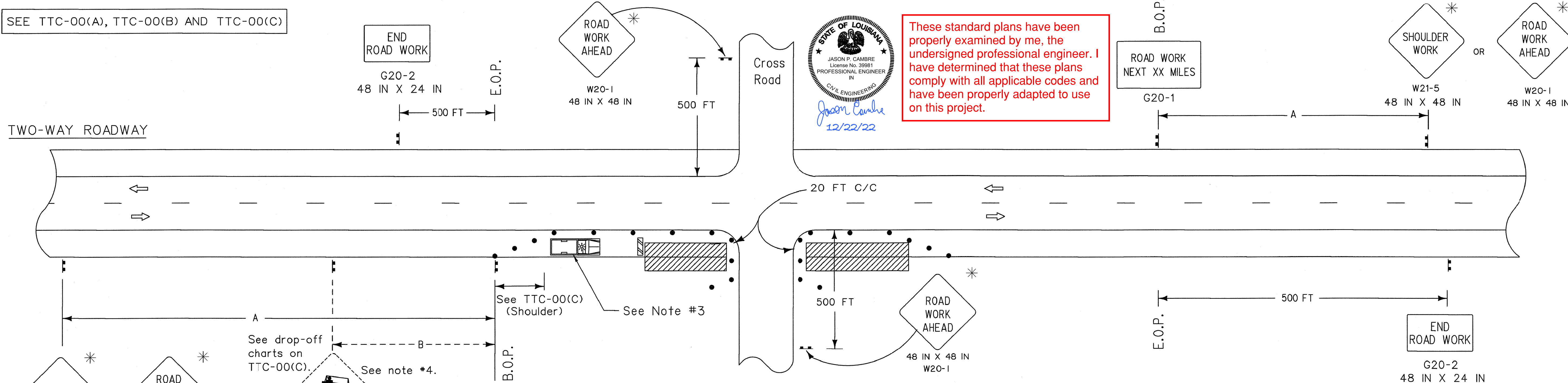


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 ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
 CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

DESIGNED	G. LEBLANC	PARISH	CONTROL SECTION	STATE	PROJECT
CHECKED	J. COLVIN				
DETAILS	C. FAKOURI				
CHECKED	G. LEBLANC				
SERIES NUMBER					
APPROVED BY	DATE: 7/2/18				
CHIEF ENGINEER					
TEMPORARY TRAFFIC CONTROL FOR WORK GREATER THAN 15 FEET FROM THE TRAVELLED WAY					
TTC-01					
TRAFFIC ENGINEERING					

SEE TTC-00(A), TTC-00(B) AND TTC-00(C)

TWO-WAY ROADWAY



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

STATE OF LOUISIANA
 JASON P. CAMBRE
 LICENSE NO. 39891
 PROFESSIONAL ENGINEER IN
 CIVIL ENGINEERING
 12/22/22

SHEET NUMBER	336
DESIGNED BY	G. LEBLANC
CHECKED BY	J. COLVIN
DATE	7/2/18
REVISION OR CHANGE ORDER DESCRIPTION	
APPROVED BY	Michael J. Hays
CHEF ENGINEER	

NOTES

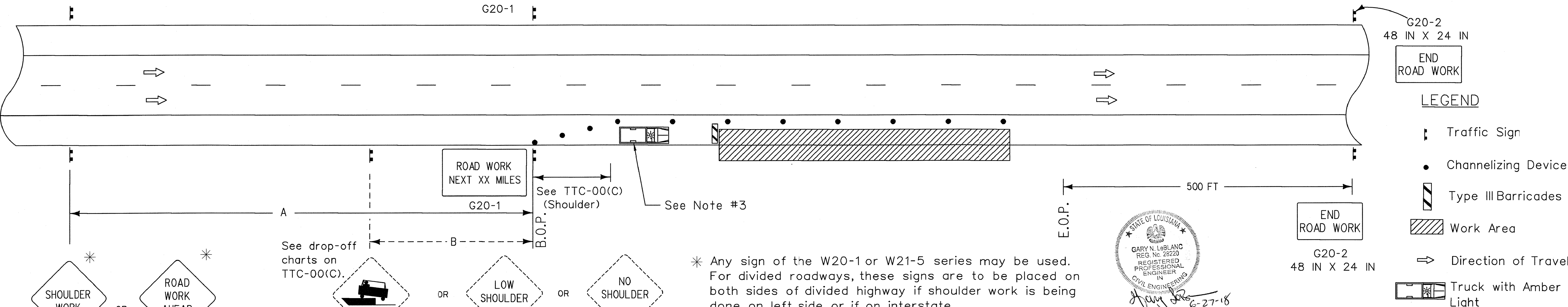
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C)

1. This layout represents the minimum traffic controls required for workers and equipment operating less than 15 feet from the traveled way for more than one hour. Less than one hour, see figure TA-4 of the MUTCD.
2. No signs or barricades are required for equipment operating or work in progress greater than 15 feet from the traveled way. (See TTC-01).
3. Work or equipment confined to a spot location (less than 200 feet) shall be marked by channelizing devices spaced at 25 feet or by a vehicle with an amber light visible to traffic. Work extending more than 200 feet of roadway length shall be marked with appropriate devices spaced as noted on TTC-00(C).
4. Applicable drop-off sign options are defined on TTC-00(C).
5. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits. This sign may be omitted if work zone is less than 0.5 miles.
6. A vehicle with a flashing amber light and a truck mounted attenuator shall be used on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus 100 feet.

SPEED LIMIT (prior to construction)	SPACING	
	'A'	'B'
≤ 40 mph	500 FT	250 FT
45-50 mph	1000 FT	350 FT
≥ 55 mph	1500 FT	500 FT
Expressway/Interstate	2500 FT	1000 FT

- See TTC-00(C) for minimum taper length and maximum device spacing for shoulder closure tapers.
- If horizontal curve radius is less than 300 feet, device spacing shall be 25 feet.

DIVIDED ROADWAY



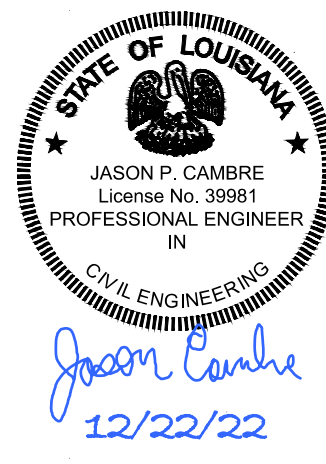
LEGEND

- ☒ Traffic Sign
- Channelizing Devices
- ▨ Type III Barricades
- ▨ Work Area
- ➡ Direction of Travel
- ☒ Truck with Amber Light

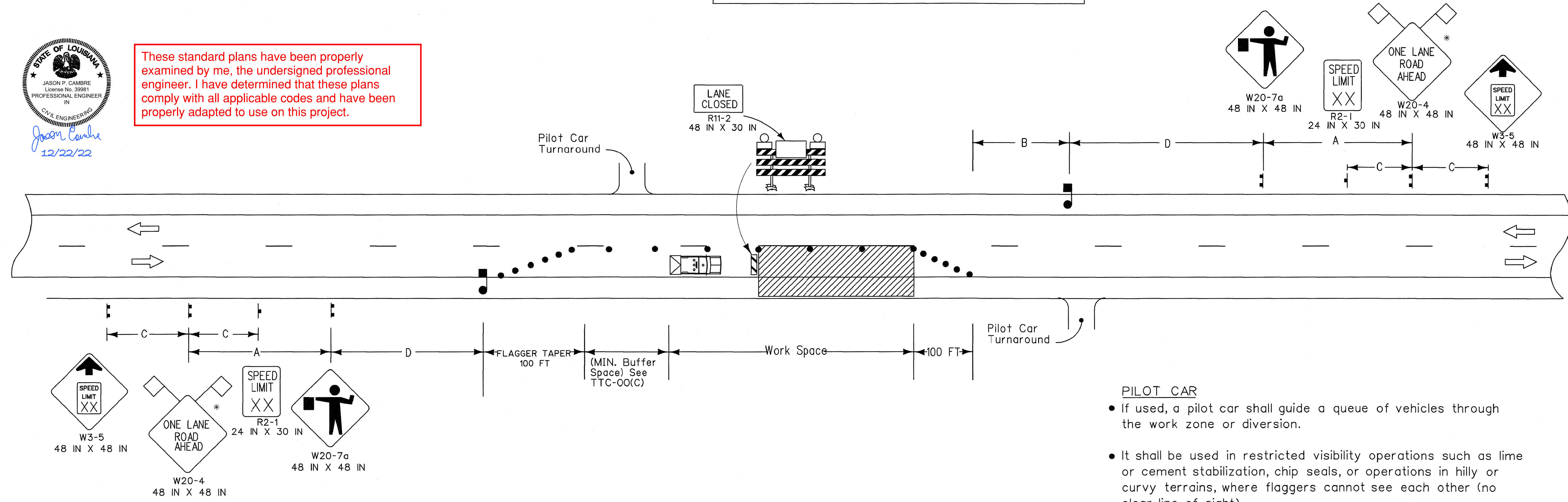
STATE OF LOUISIANA
 GARY N. LEBLANC
 REG. NO. 28220
 REGISTERED PROFESSIONAL ENGINEER IN
 CIVIL ENGINEERING
 6-27-18

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
 ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
 CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

STATE OF LOUISIANA
 TEMPORARY TRAFFIC CONTROL LAYOUT FOR WORK LESS THAN 15 FEET FROM THE TRAVELED WAY
 DOTD
 TRAFFIC ENGINEERING
 TTC-02



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



NOTES

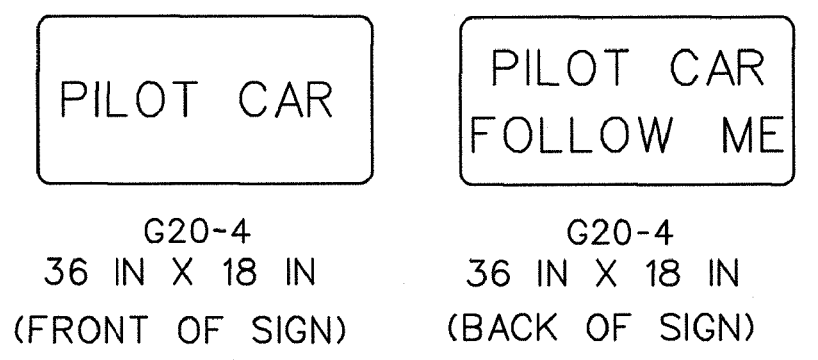
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C) and TTC-00(D).

- This layout represents the minimum traffic controls required for lane closures on two-lane roads with two-way traffic greater than 1600 feet from an intersection. For this type of closure either a flagger or a pilot car will be required. For advance signing see TTC-00(D).
- To prevent vehicles from entering the work area against the flow of traffic, an additional flagger shall be stationed at each intersection, major driveway, railroad crossing, or crossing within the work area.
- For projects in rural areas the distance between flaggers shall not exceed:
 - (A) 2.5 miles for ADT < 2,500
 - (B) 2.0 miles for 2,500 < ADT < 5,000
 - (C) 1.5 miles for ADT > 5,000
- The flagger station shall be near the beginning of the taper and shall have adequate sight distance to be visible to oncoming traffic. If sight distance cannot be achieved, the distance between flaggers may be extended for a short duration.
- Visual or radio contact shall be required between flaggers at all times. The flagger shall be visible from the flagger sign.
- A vehicle with a flashing amber light and a truck mounted attenuator shall be used on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus 100 feet.

- If a pilot car is required then the contractor is not required to have channelizing devices in the tangent section.
- If work zone is less than 1600 feet from an intersection see TTC-03.

PILOT CAR

- If used, a pilot car shall guide a queue of vehicles through the work zone or diversion.
- It shall be used in restricted visibility operations such as lime or cement stabilization, chip seals, or operations in hilly or curvy terrains, where flaggers cannot see each other (no clear line-of-sight).
- The operation of the pilot vehicle shall be coordinated with flagging operations or other controls at each end of the one-lane section and all major driveways and street intersections.
- The pilot car sign should be mounted 7 feet above roadway in a position visible to oncoming and following traffic.
- The pilot car shall have an amber beacon light.
- The sign mounted on the vehicle shall be two-sided.

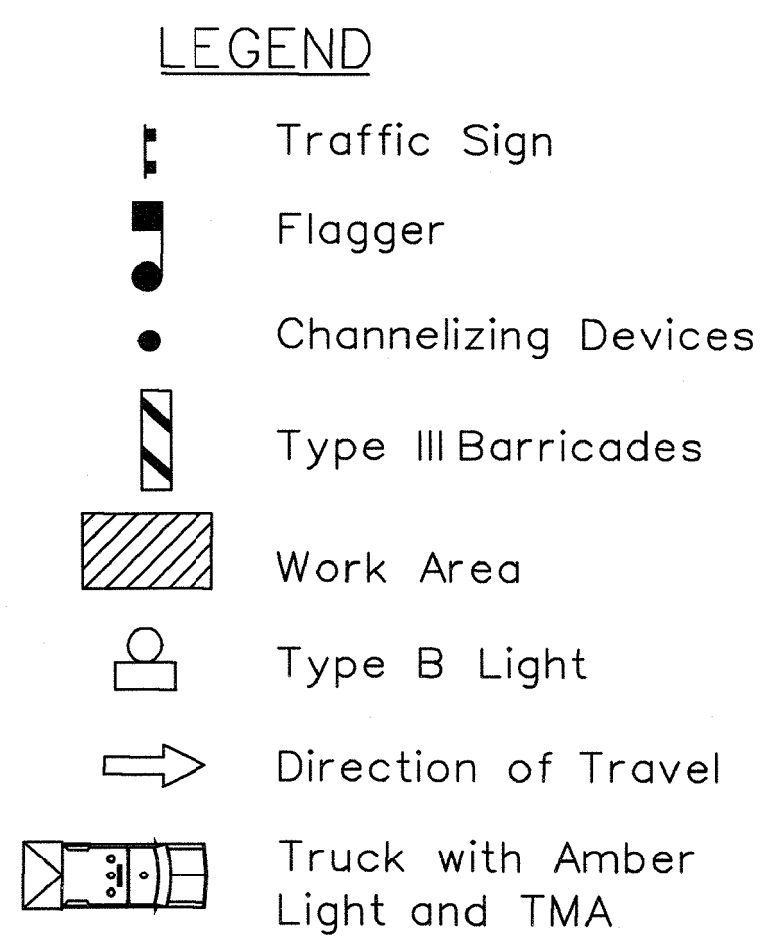


SPEED LIMIT (prior to construction)	SPACING			
	'A'	'B'	'C'	'D'
≤ 40 mph	500 FT	100 FT	N/A	125 FT
45-50 mph	1000 FT	350 FT	500 FT	350 FT
≥ 55 mph	1500 FT	500 FT	800 FT	500 FT

* Any sign of the W20-4 series may be used.



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ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.



SHEET NUMBER **337**

DESIGNED BY: G. LEBLANC
CHECKED BY: J. COLVIN
DATE: 7/2/18

REVISION OR CHANGE ORDER DESCRIPTION: [Blank]
DATE: [Blank]
BY: [Blank]

PARISH: [Blank]
CONTROL SECTION: [Blank]
STATE PROJECT: [Blank]

TEMPORARY TRAFFIC CONTROL LAYOUT FOR LANE CLOSURES ON TWO LANE ROADS WITH TWO-WAY TRAFFIC (FLAGGING OPERATIONS) **TTC-04**

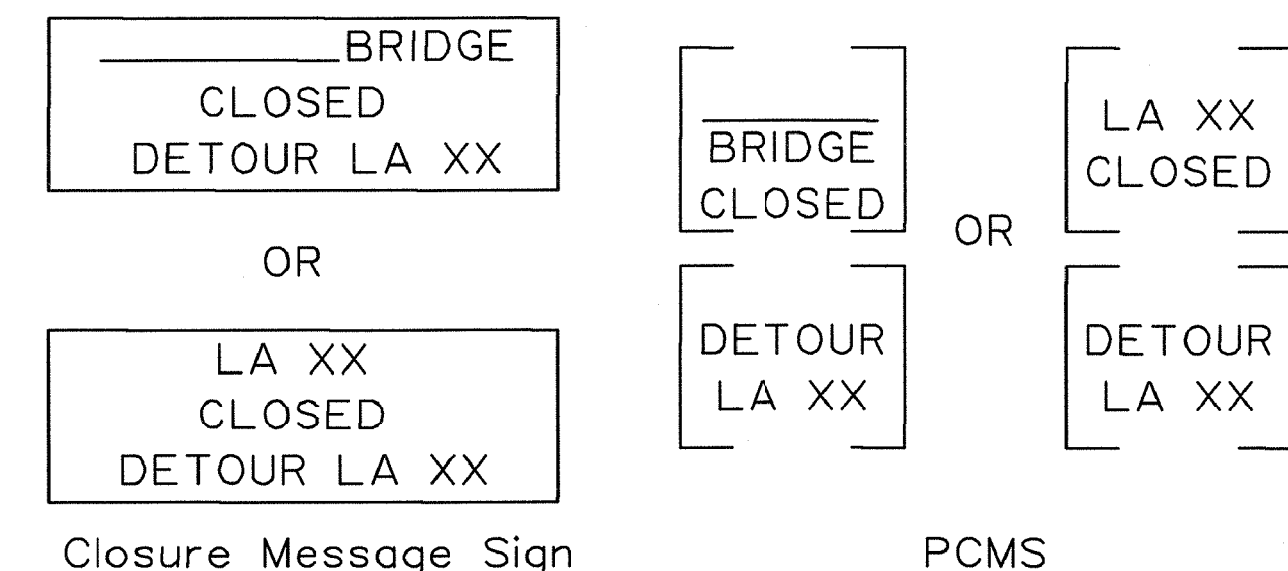
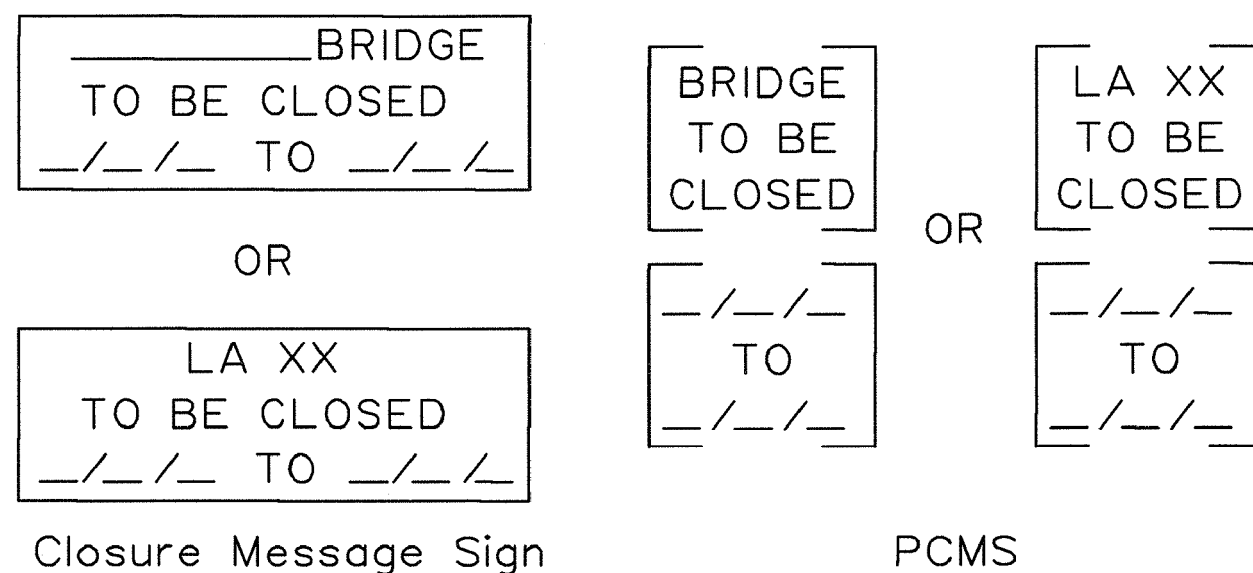
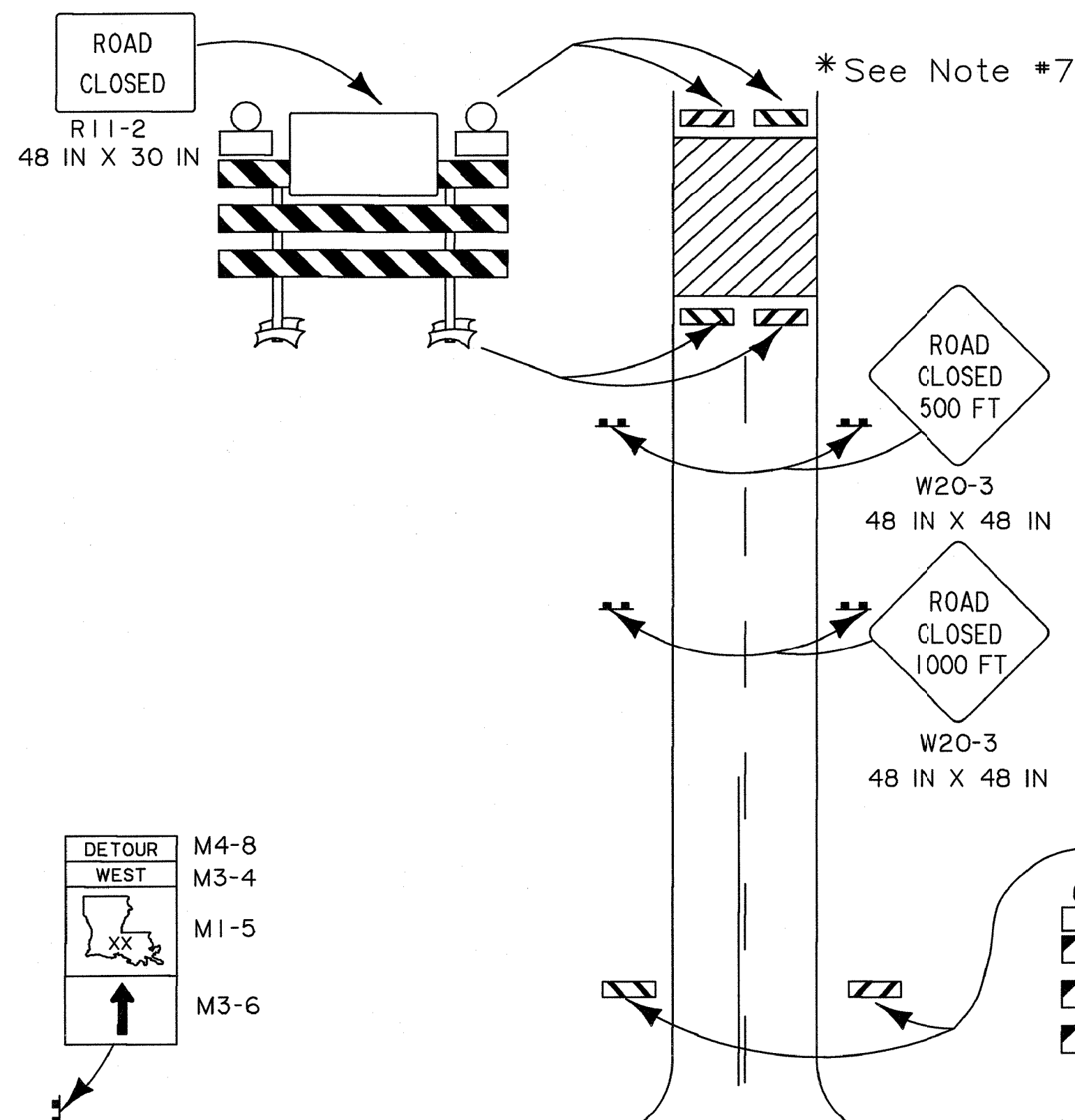
DOTD TRAFFIC ENGINEERING

SHEET NUMBER	338
DESIGNED BY	G. LEBLANC
CHECKED BY	J. COLVIN
CONTROL SECTION	C. FAKOURI
STATE PROJECT	G. LEBLANC
SERIES NUMBER	

ADVANCE WARNING SIGN DURING ROAD CLOSURE

See Note #4 and #8

See Note #4 and #8



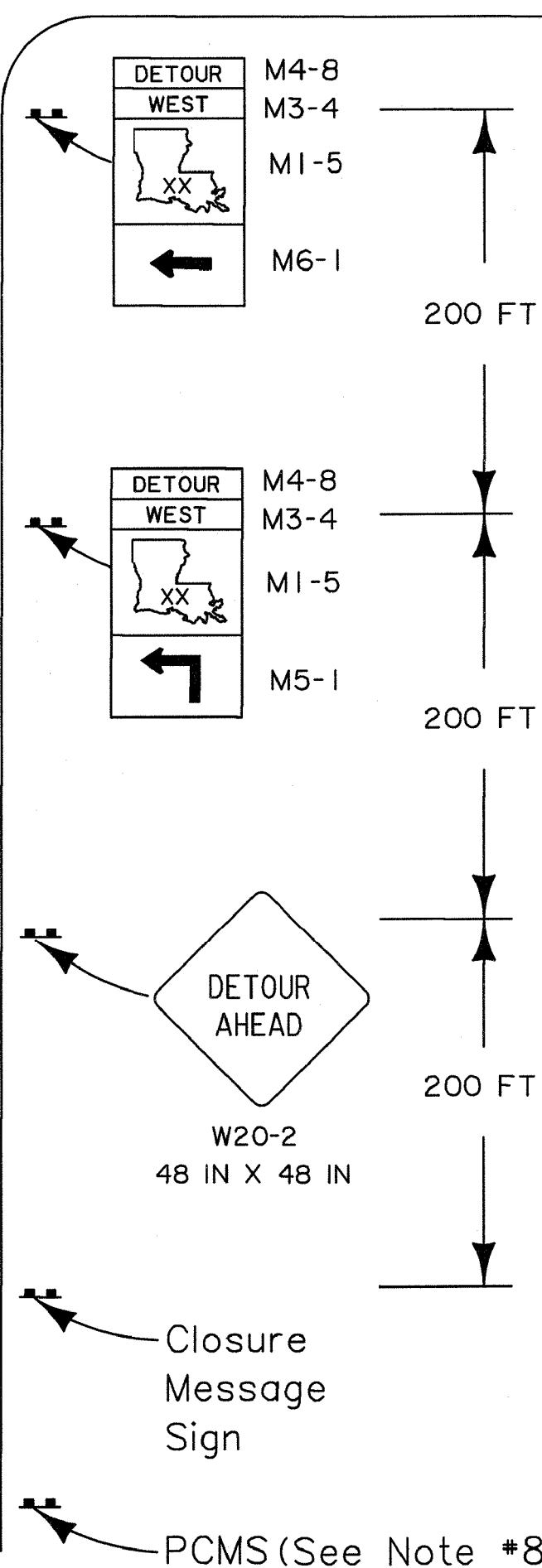
NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B) and TTC-00(C).

1. This layout represents the generic traffic controls required for road closure on a two-lane roadway. A specific detour plan with all required signs and routes is required for all detours.
2. Any signs in conflict with detour signing shall be removed or covered.
3. Closure Message Sign or PCMS shall be placed 7 days prior to road closure on all approaches to the closure. This sign shall be placed no farther than 50 FT from the work area to be closed.
4. Closure Message Sign or PCMS shall be placed on all approaches to the closure for the duration of the road closure. Minimum letter size on static signs shall be 8 inches.
5. Detour routes shall only be state-maintained routes, unless the project manager has made an agreement with the road owner.
6. Not all detour signs are shown. The DTOE shall approve all detours. The contractor shall be responsible for placing and maintaining all detour signs. There should be a sign at every decision point.
7. The signing is to be mirrored in the opposite direction.
8. PCMS shall be used in addition to the closure message sign on all highways with an ADT greater than 20,000. Place at a location approved by the Engineer.
9. A complete detour map shall be included with the set of plans. If there are changes in the routing, then the contractor will need to submit to the Engineer for approval.

(Place no more than 50 FT from intersecting roadway.)

PCMS (See Note #8)
Closure Message Sign

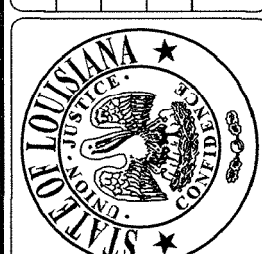


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

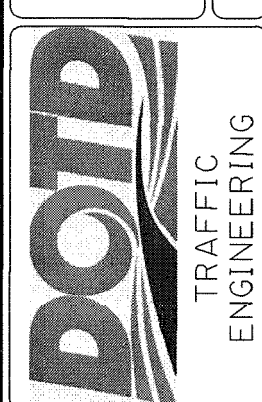
ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

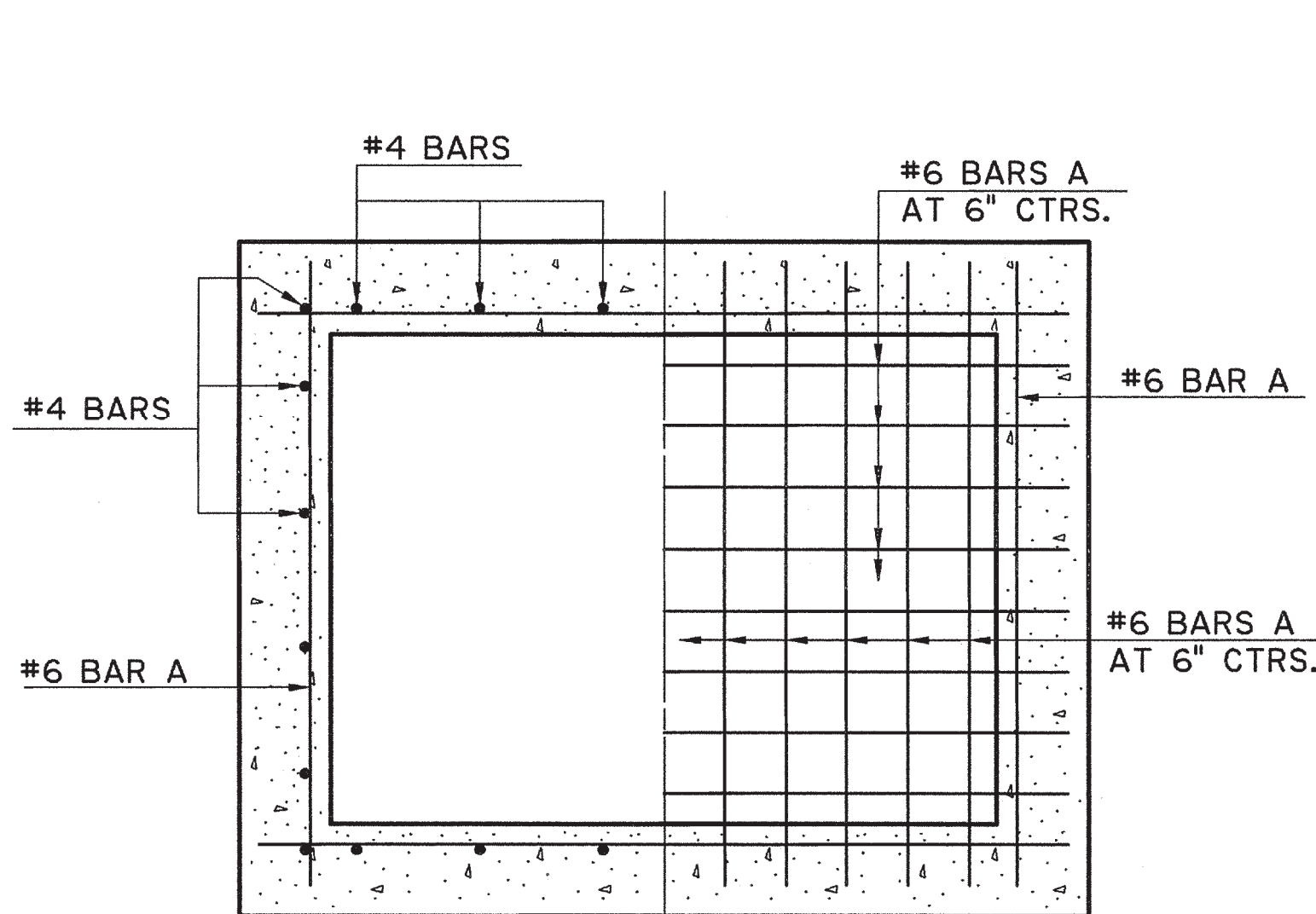
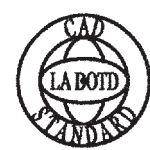


NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	7/2/18		



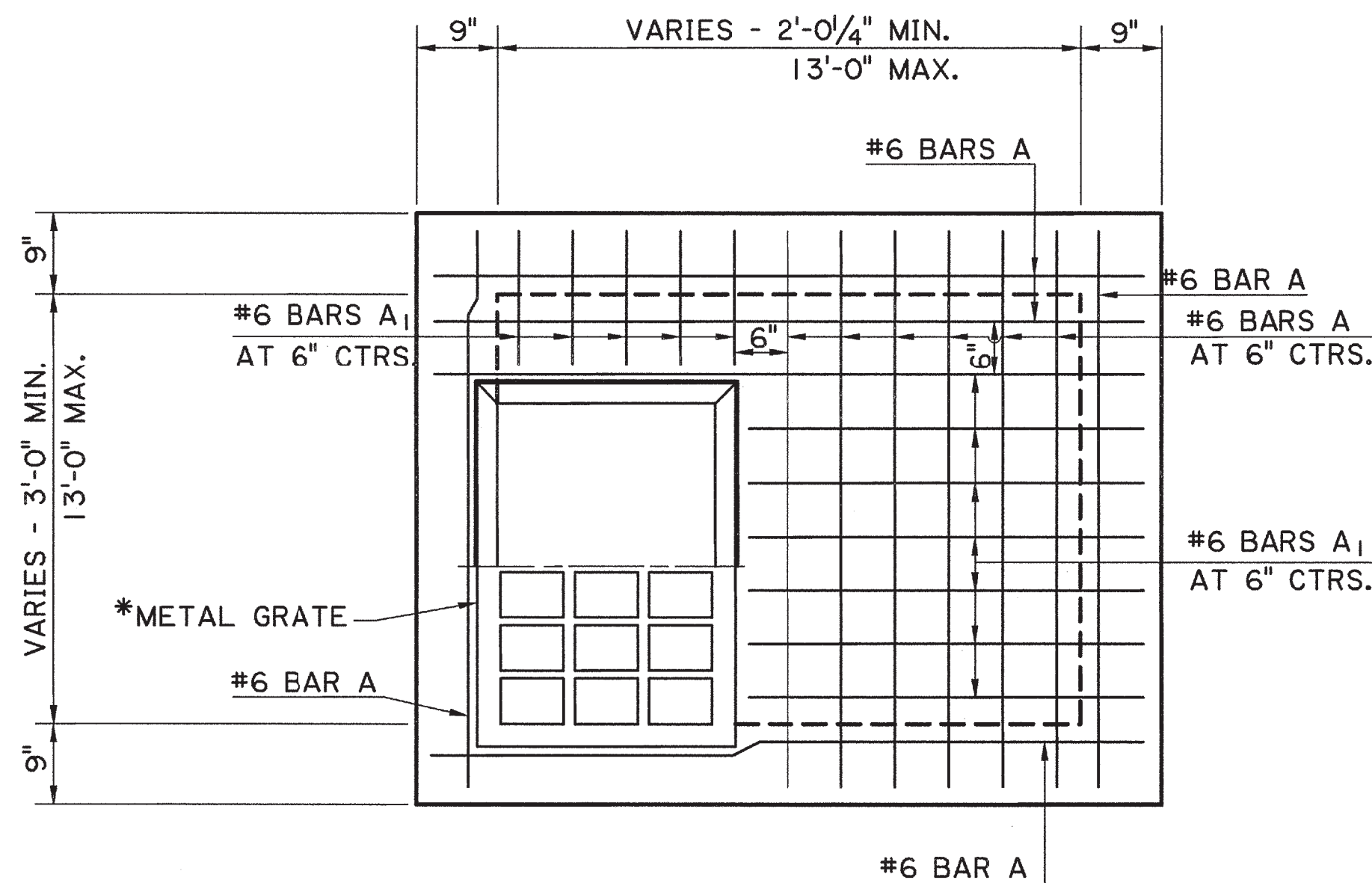
TEMPORARY TRAFFIC CONTROL FOR ROAD CLOSURES
TTC-16





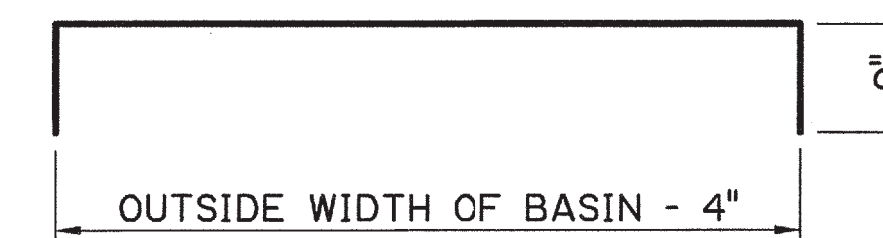
SECTIONAL PLAN

(SHOWING BOTTOM SLAB & WALLS)

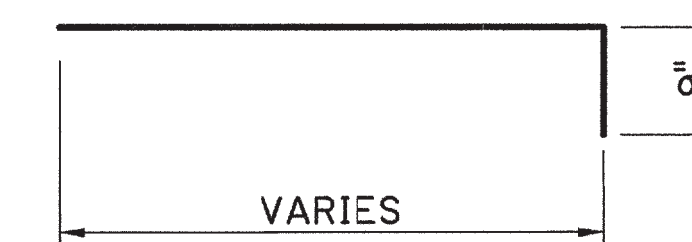


PLAN

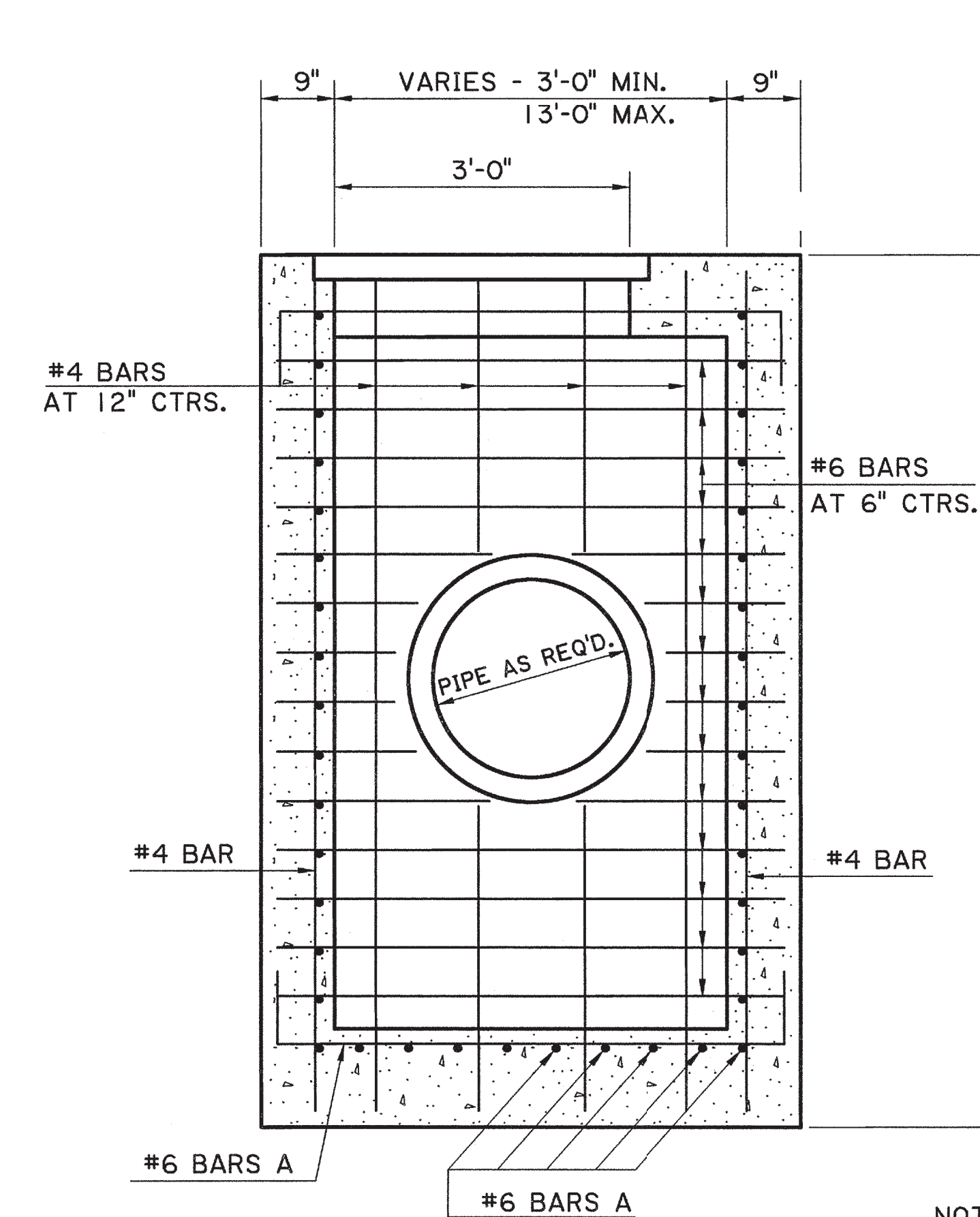
* GRATE TO BE TYPE "B" or "C". TYPE "B" SHOWN. (SEE GENERAL NOTES.)



#6 BARS A

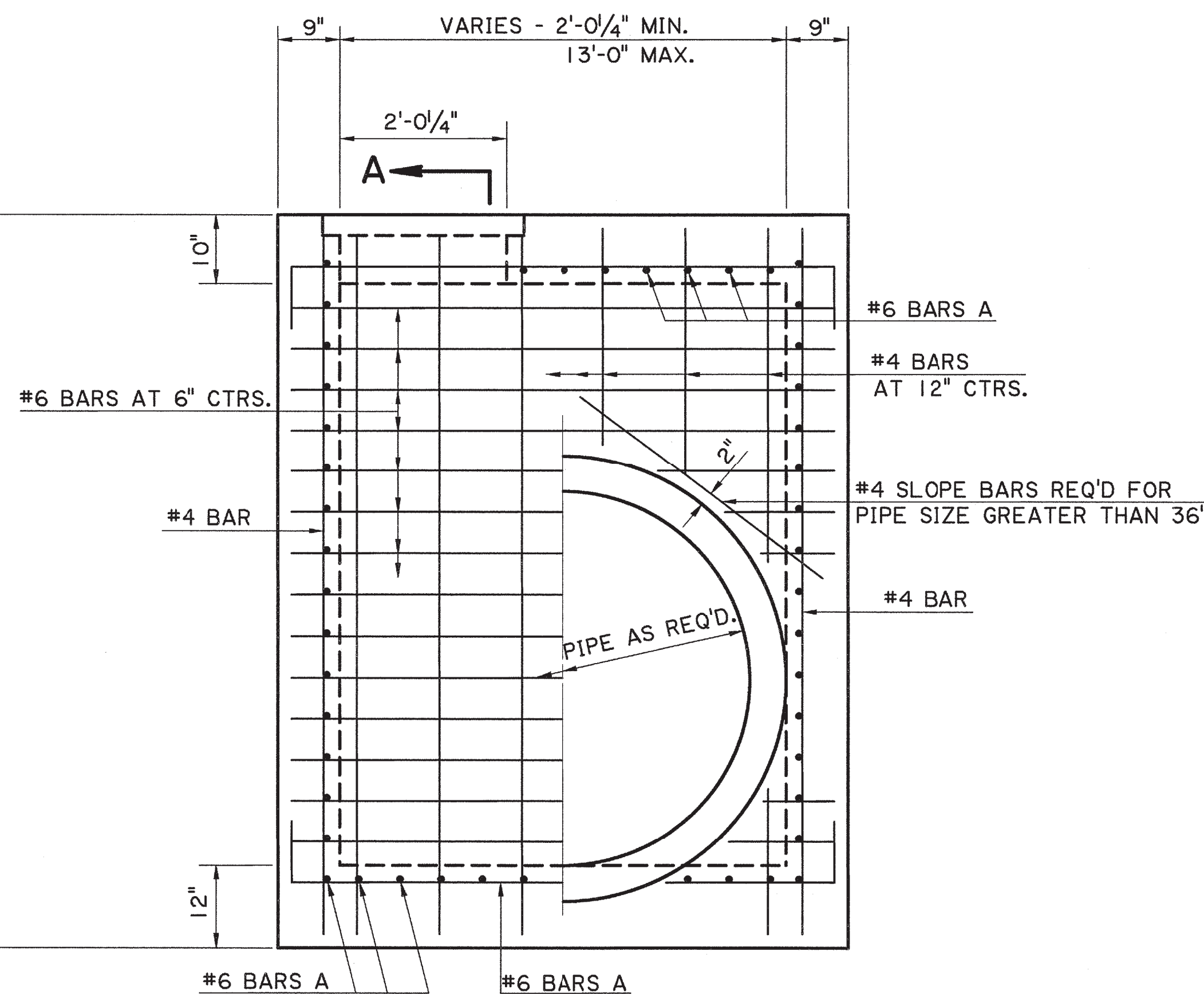


#6 BARS A₁

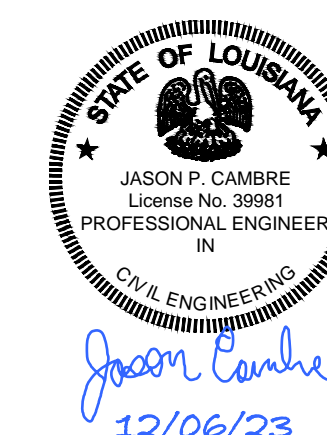


SECTION A-A

NOTE: PIPE SIZE & LOCATION VARIES. CUT REINFORCING STEEL TO CLEAR, AS REQUIRED.



ELEVATION



These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

GENERAL NOTES:

- 1) THIS CATCH BASIN SHOULD ONLY BE USED OUTSIDE OF THE TRAVEL LANE.
- 2) CATCH BASIN IS DESIGNED ACCORDING TO 4TH ED. 2007 AASHTO LRFD PROCEDURES. SECTION 702 OF THE CURRENT DOT STANDARD SPECIFICATIONS SHALL APPLY.
- 3) REINFORCING STEEL SHALL BE GRADE 60. DIMENSIONS ARE TO BAR CENTERS. MINIMUM COVER FOR REINFORCING BARS SHALL BE 2 IN. CLEAR UNLESS SHOWN OTHERWISE.
- 4) TYPE "B" GRATE IS TO BE USED WHERE NO PEDESTRIAN TRAFFIC AND NO VEHICULAR TRAFFIC IS EXPECTED. (DITCHES, ETC.)
- 5) TYPE "C" GRATE IS TO BE USED WHERE PEDESTRIAN TRAFFIC AND/OR LIGHT VEHICULAR TRAFFIC IS EXPECTED. (DRIVEWAYS, SHOULDERS, ETC.)
- 6) FOR DETAILS OF GRATE AND SEAT, SEE STD. PLAN MC-01 (TYPE B OR C).
- 7) SEE PLANS FOR TYPE OF GRATE TO BE USED FOR EACH CATCH BASIN.

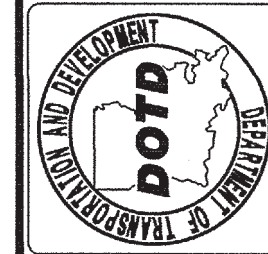
DESIGNED	PAA
CHECKED	KAJ
DATE	5-20-91
SHEET	1 OF 1

PARISH	
FEDERAL PROJECT	
STATE PROJECT	

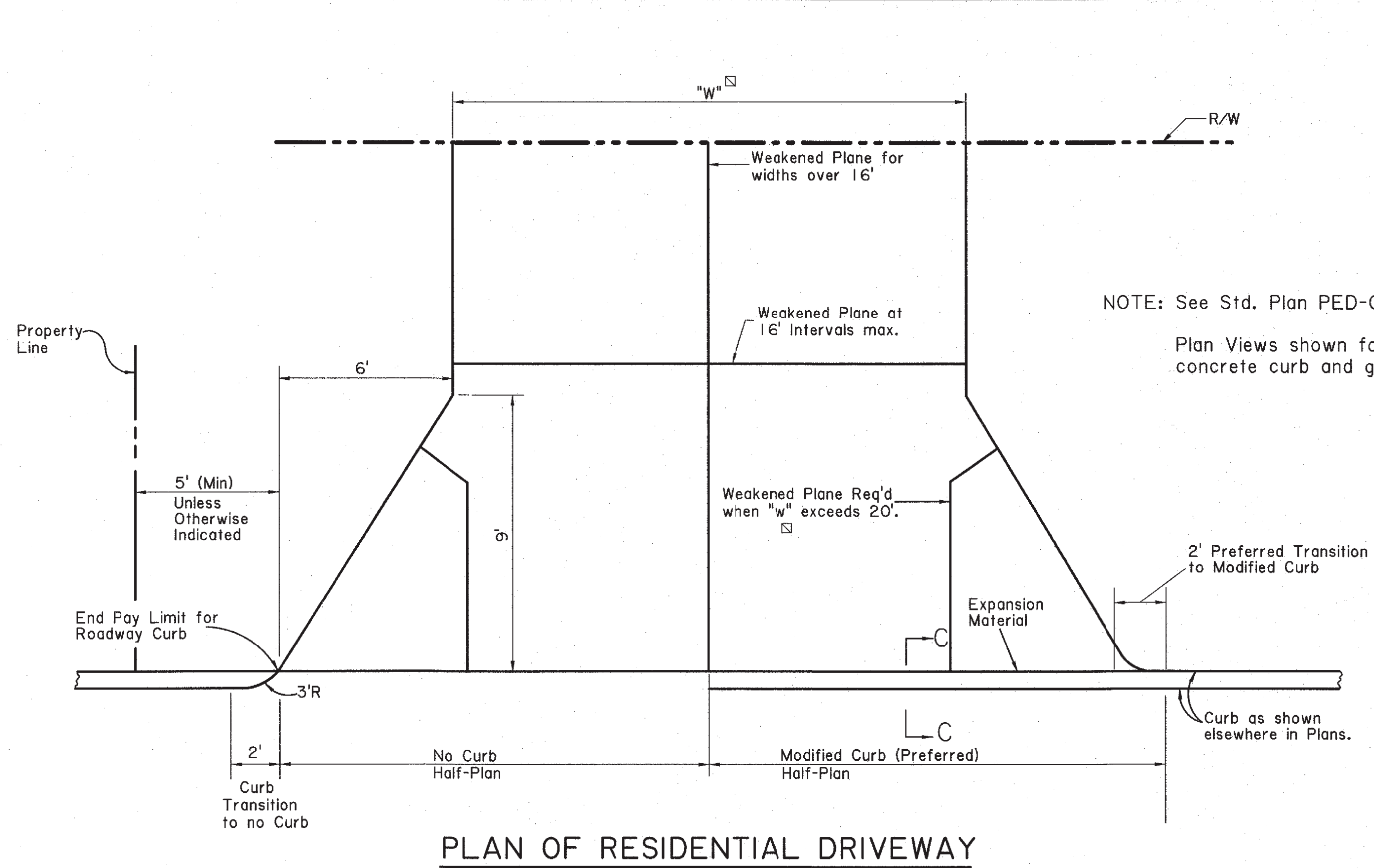
NO.	DATE	BY	REVISION DESCRIPTION
3	7-15-11	JCM	Rev. to AASHTO LRFD procedures, Rev. Size 13'-0" WMR
2	8-14-00	JCM	New sheet added
1	8-18-98	JCM	Changed sheet border & added name



OPEN TOP CATCH BASIN
 Max. Size: 13'-0" X 13'-0"
 Max. Depth: 12'
 To be used with Std. Plan MC-01
 CB-SD02



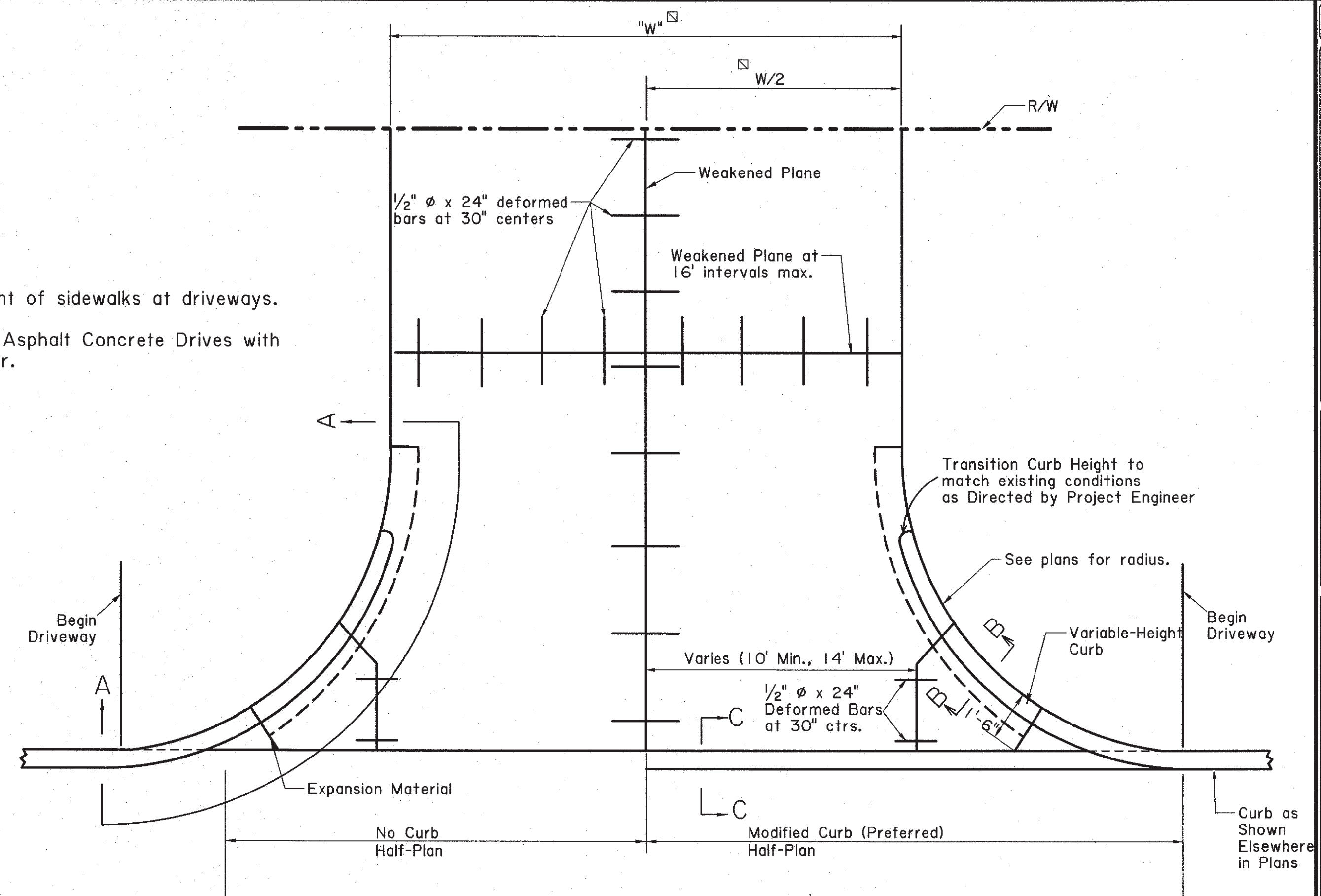
11/7/2017 08:22



PLAN OF RESIDENTIAL DRIVEWAY

NOTE: Modified Curb to be Paid for as Normal Curb and will be used as shown in the plans or when directed by Project Engineer.
Radii transition shape may be used in lieu of flare.

NOTE: See Std. Plan PED-01 for treatment of sidewalks at driveways.
Plan Views shown for PCC Drives. Asphalt Concrete Drives with concrete curb and gutter are similar.



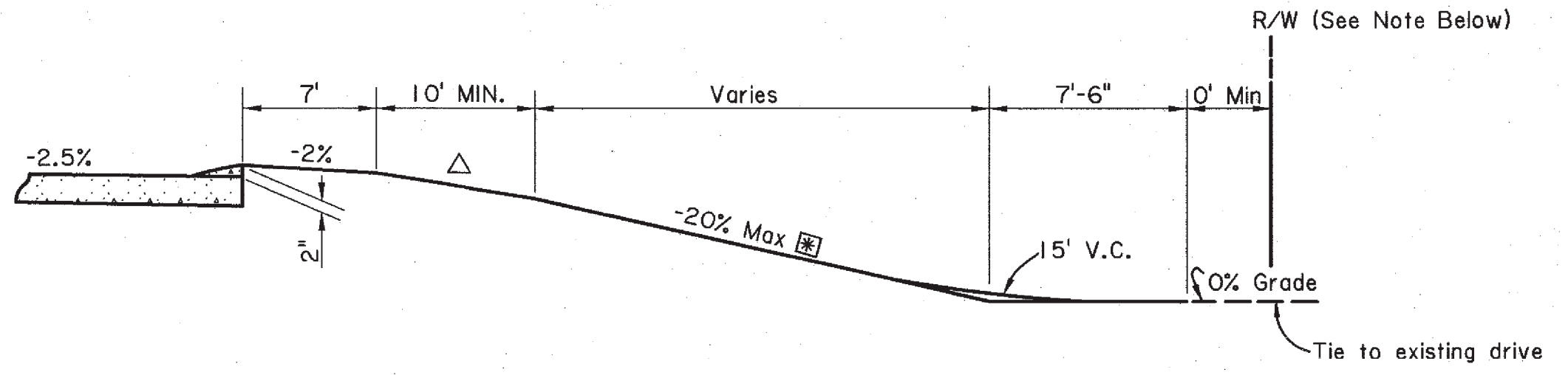
PLAN OF COMMERCIAL DRIVEWAY

NOTE: Modified Curb to be paid for as Normal Curb and will be used as shown in the plans or when directed by Project Engineer.

When Curb is Required along Radii of Driveway, Payment for Toe Wall and Curb will be included in the price for Driveway items.

When Curb is not Required along Radii, Transition Curb as shown on Residential Driveway.

□ "W" = Width as per plans

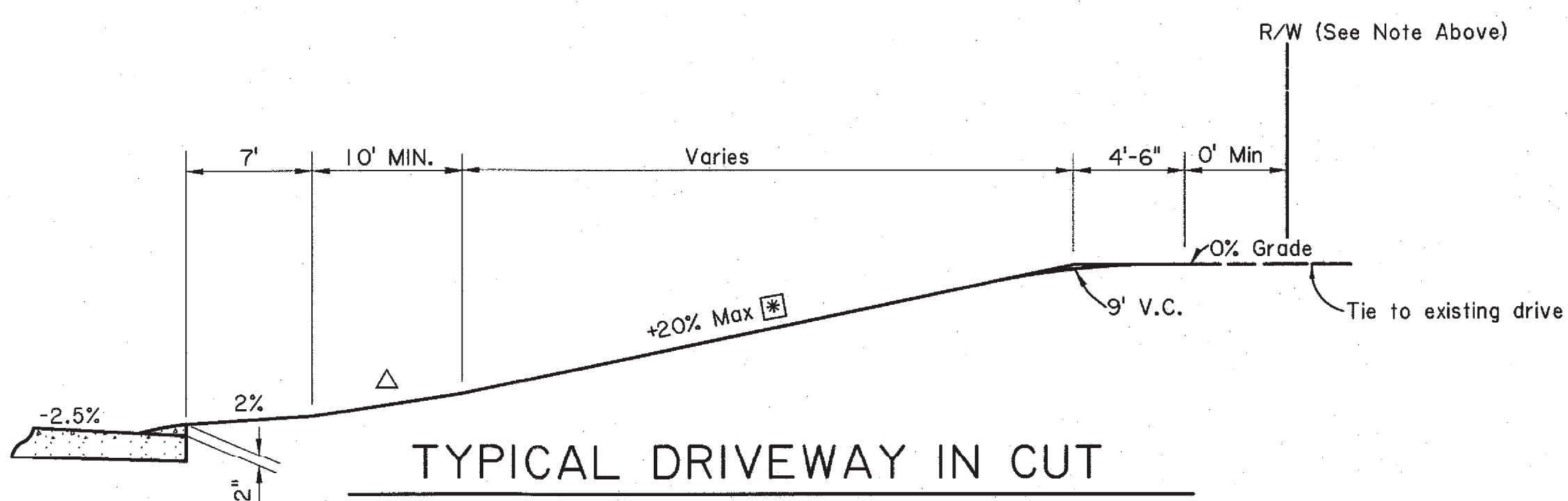


TYPICAL DRIVEWAY IN FILL

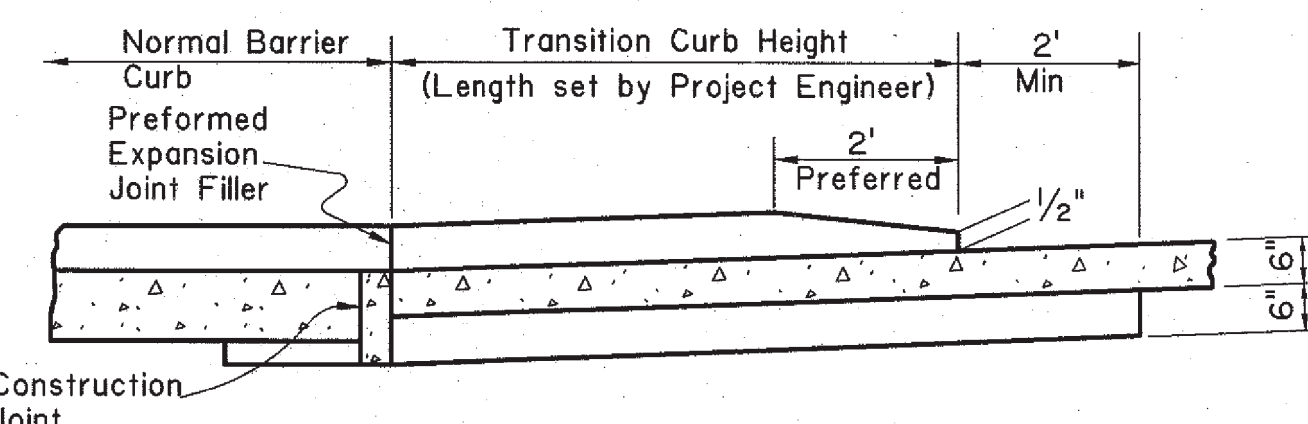
NOTE: Driveway Grades shown are Maximum. If R/W is not sufficient to construct Driveway, R/W Agreement or Construction Servitude should be secured to permit Construction of Driveway as shown.

⊠ 25% Max Grade may be used in Special Cases, provided that Vertical Curve Lengths are increased accordingly.

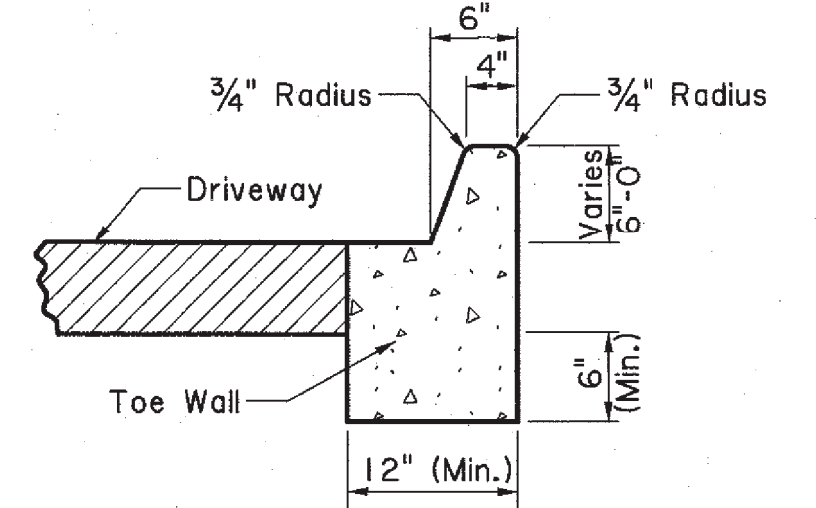
△ Maximum change in grade shall be 10% for Crests and 9% for Sags for any combination of grades without Vertical Curves. These Maximum Grade changes should be at least 10' apart.



TYPICAL DRIVEWAY IN CUT

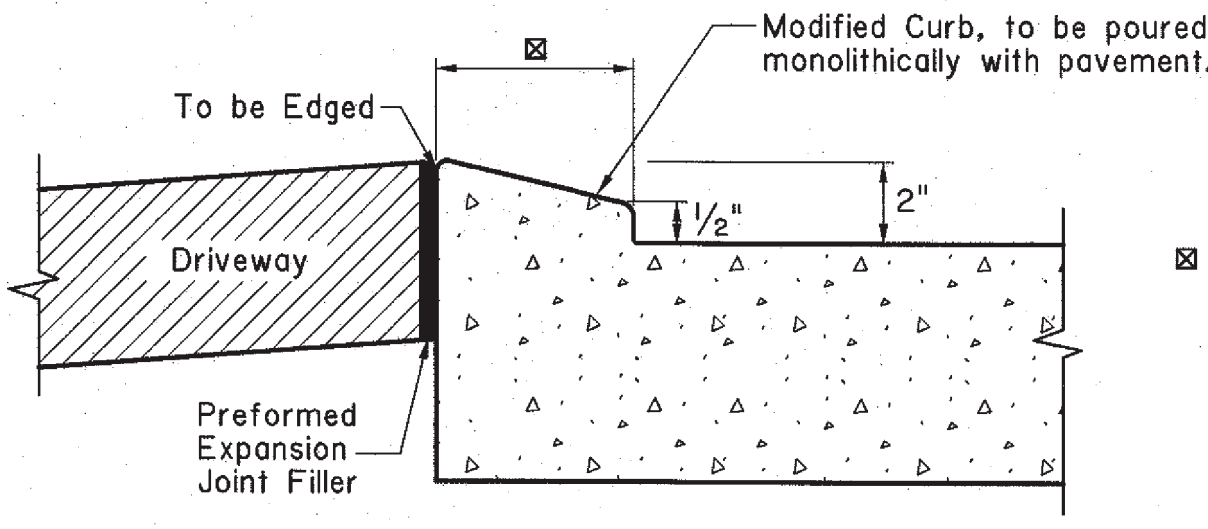


SECTION A-A
(Weakened Plane not shown.)



SECTION B-B

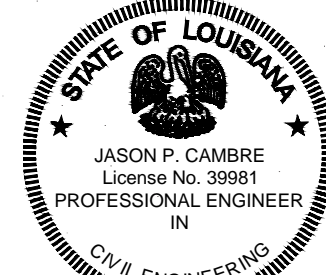
NOTE: For PCC Driveway, Curb, Toe Wall & Driveway to be poured monolithically.



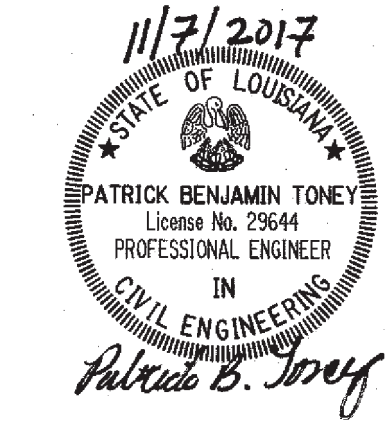
SECTION C-C

NOTE: See Std. Plan CP-01 for Curb construction

⊠ 6" to match Barrier Curb
12" to match Mountable Curb



Jason Cambre
12/06/23

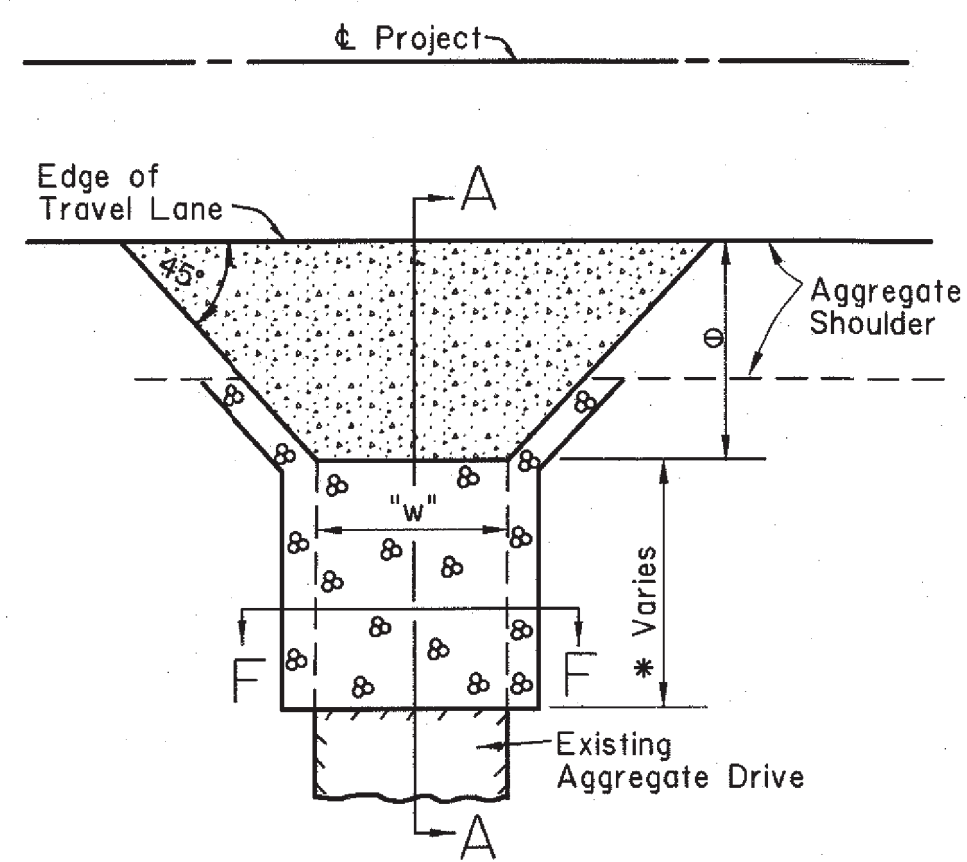


11/7/2017

Patrick B. Toney

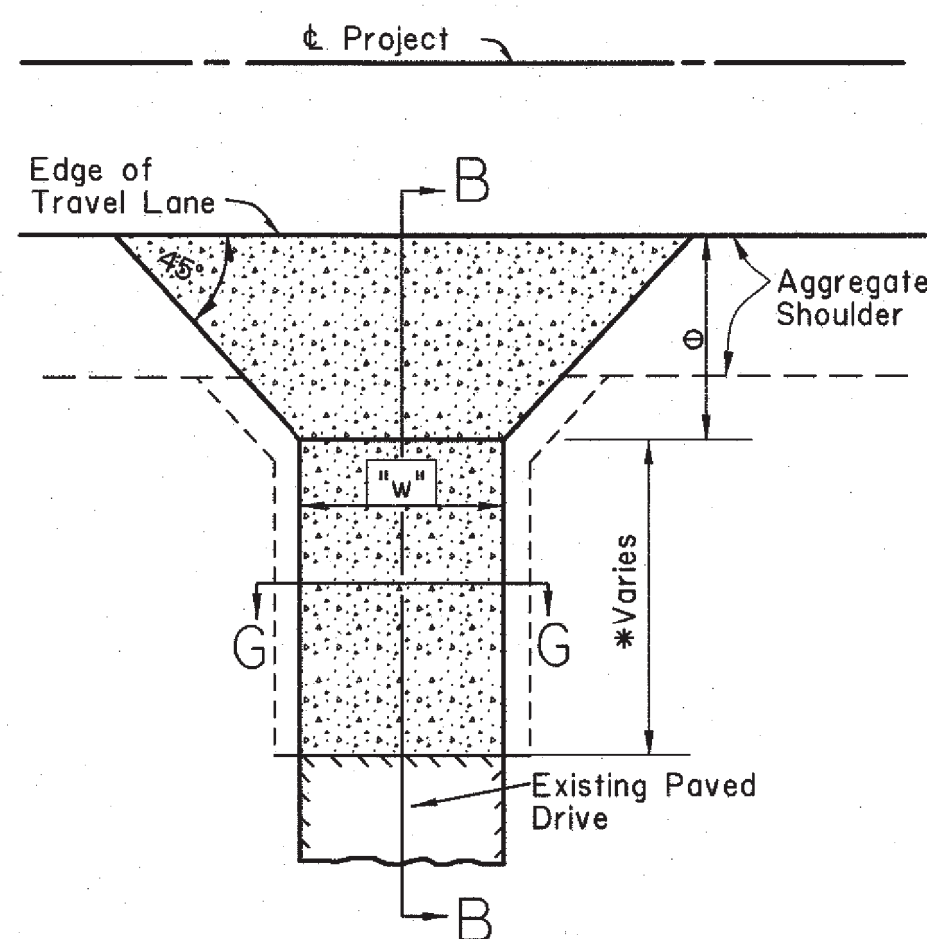
These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

SHEET NUMBER	340	DESIGNED BY	P. TONEY	CHECKED BY	D. SMITH	DATE	11/7/17
PARISH		CONTROL SECTION		DATE			
PROJECT		NO.		REVISION DESCRIPTION			
DRIVEWAYS ON CURBED ROADWAYS							
STANDARD PLAN DW-01							
ROAD DESIGN							



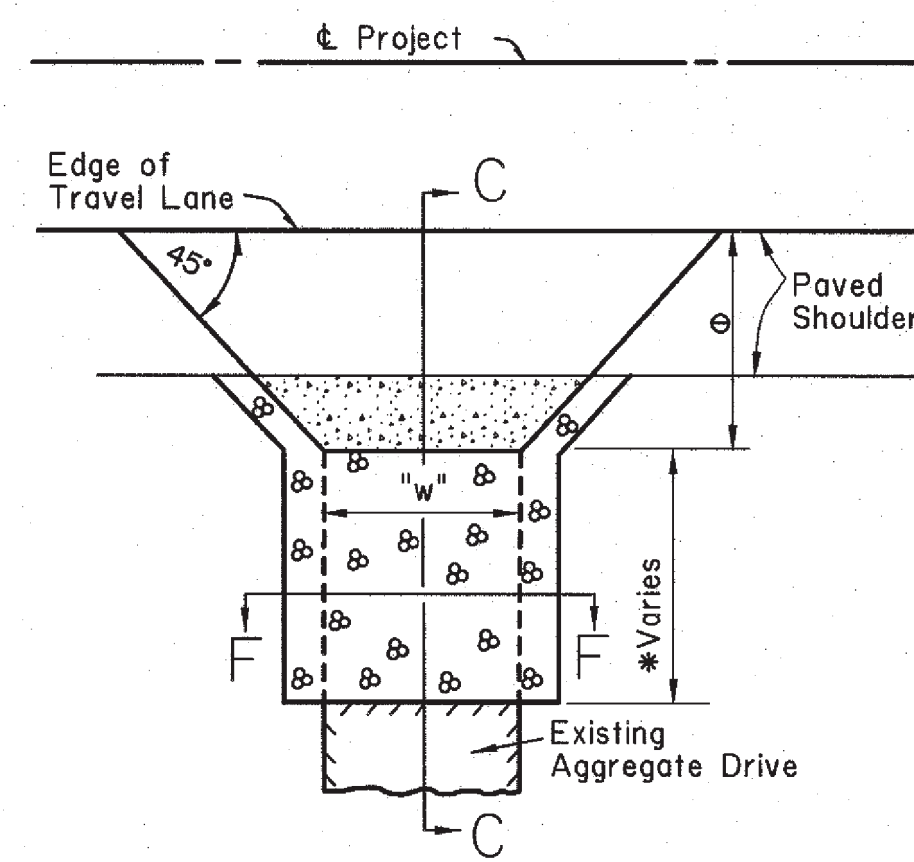
TYPE "A"

Paved Drive Along Aggregate Shoulder



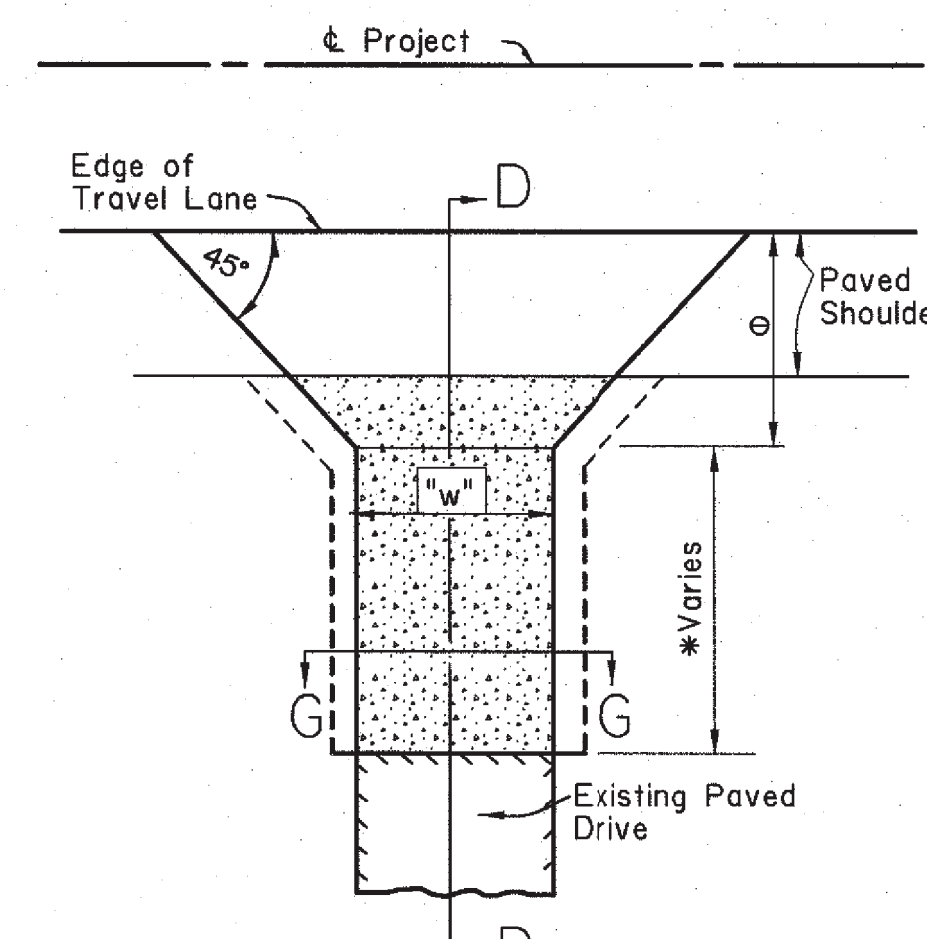
TYPE "B"

Paved Drive Along Aggregate Shoulder Connecting Existing Paved Drive



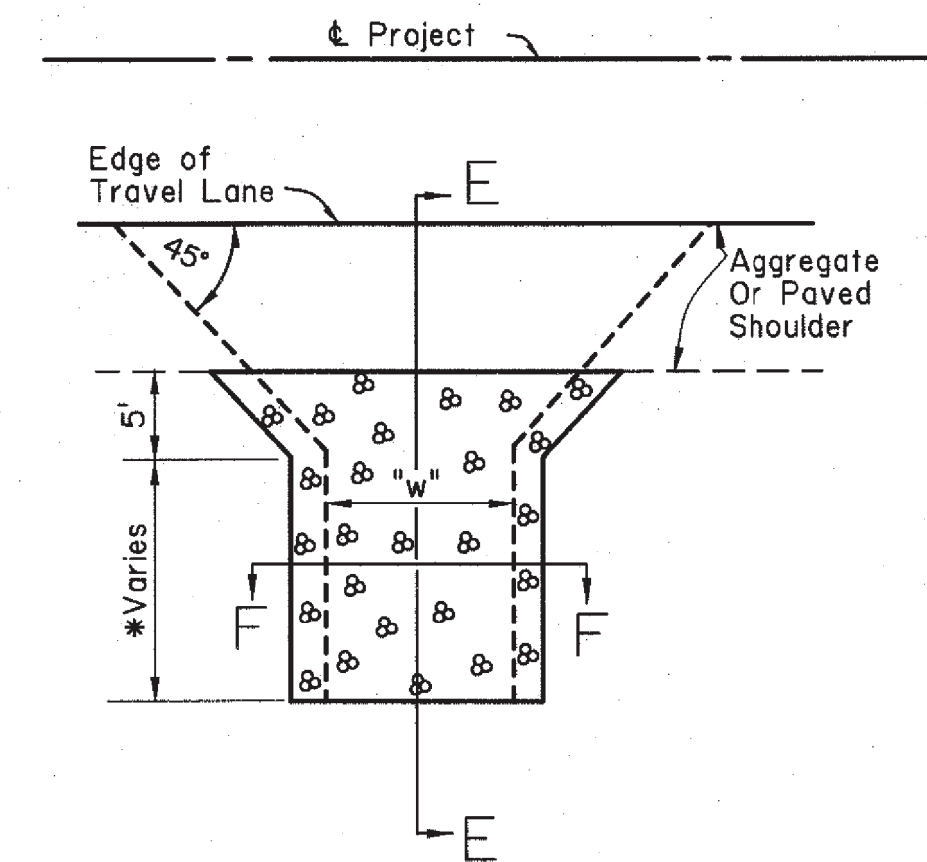
TYPE "C"

Paved Drive Along Paved Shoulder



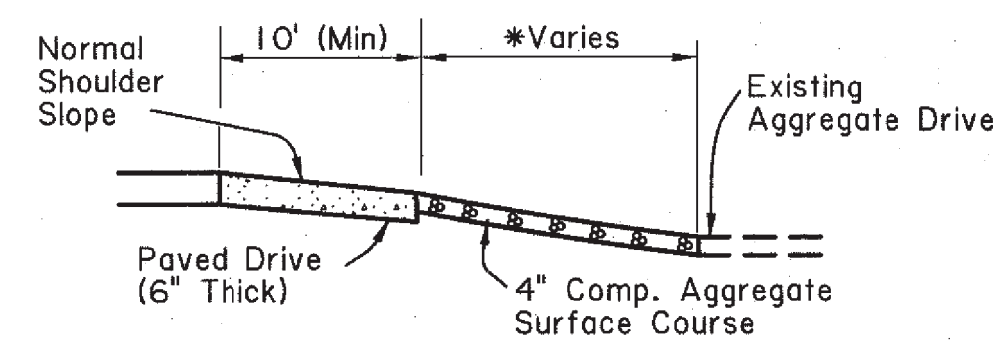
TYPE "D"

Paved Drive Along Paved Shoulder Connecting Existing Paved Drive

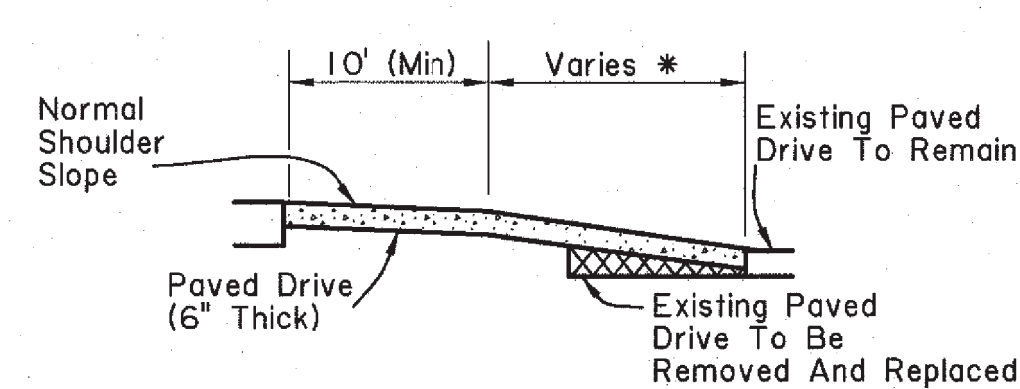


TYPE "E"

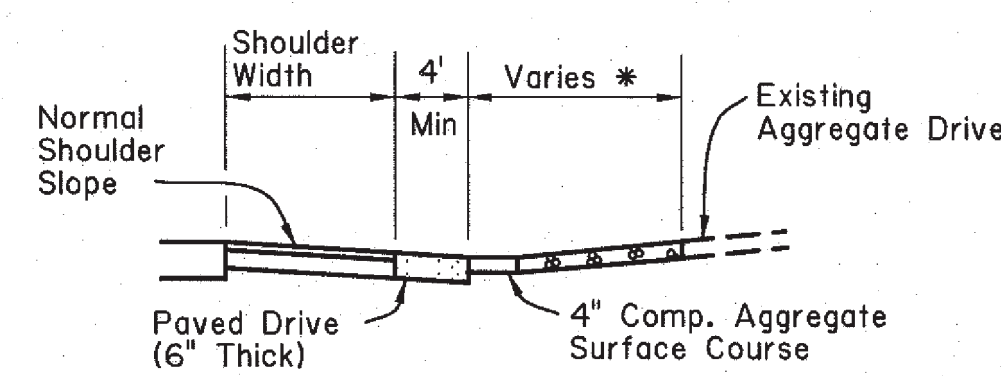
Aggregate Surface Course Drive To Be Used At Locations Where Drive Does Not Connect To Residence Or Commercial Establishments



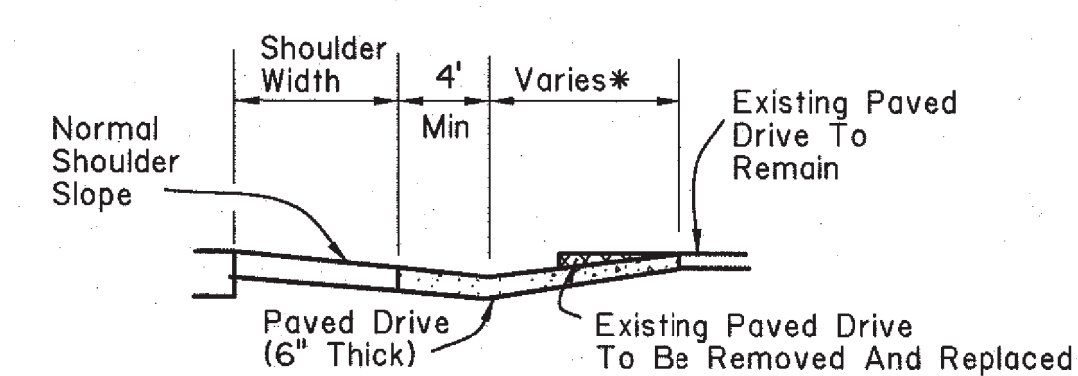
SECTION A-A



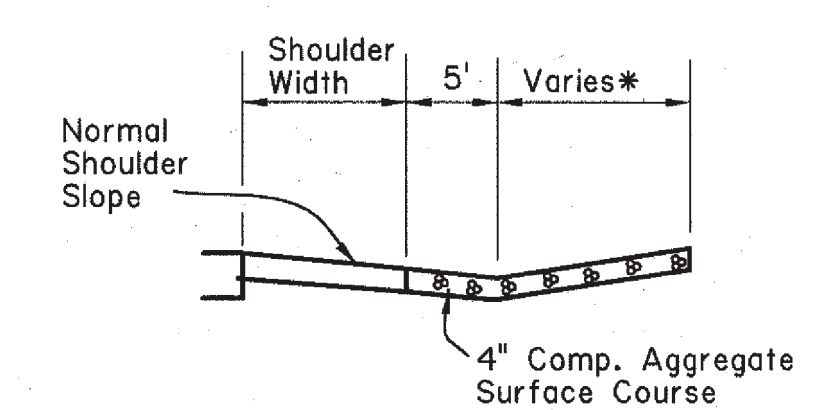
SECTION B-B



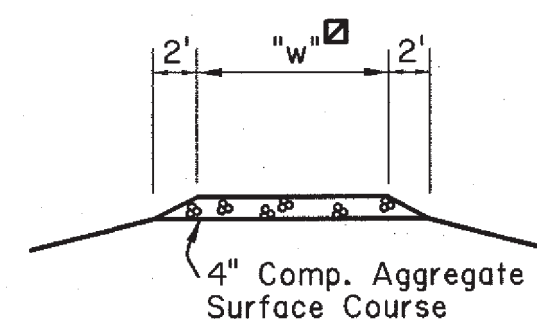
SECTION C-C



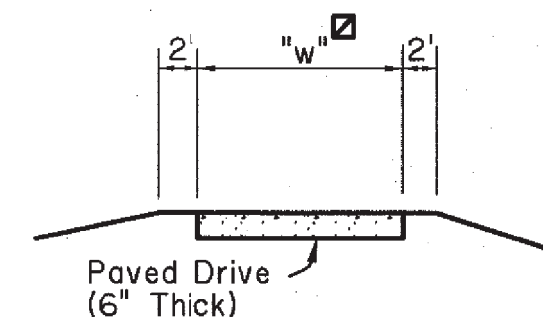
SECTION D-D



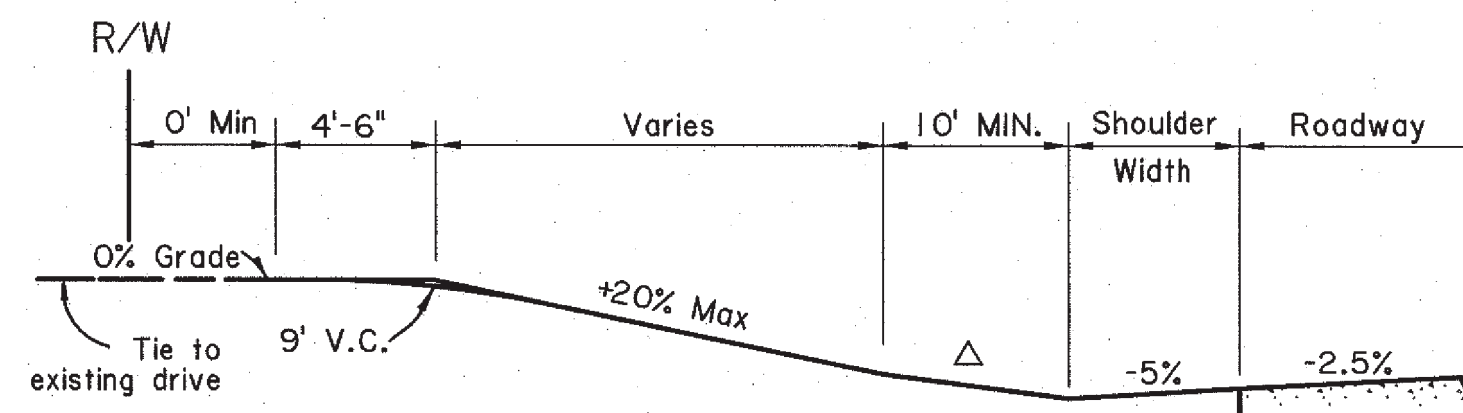
SECTION E-E



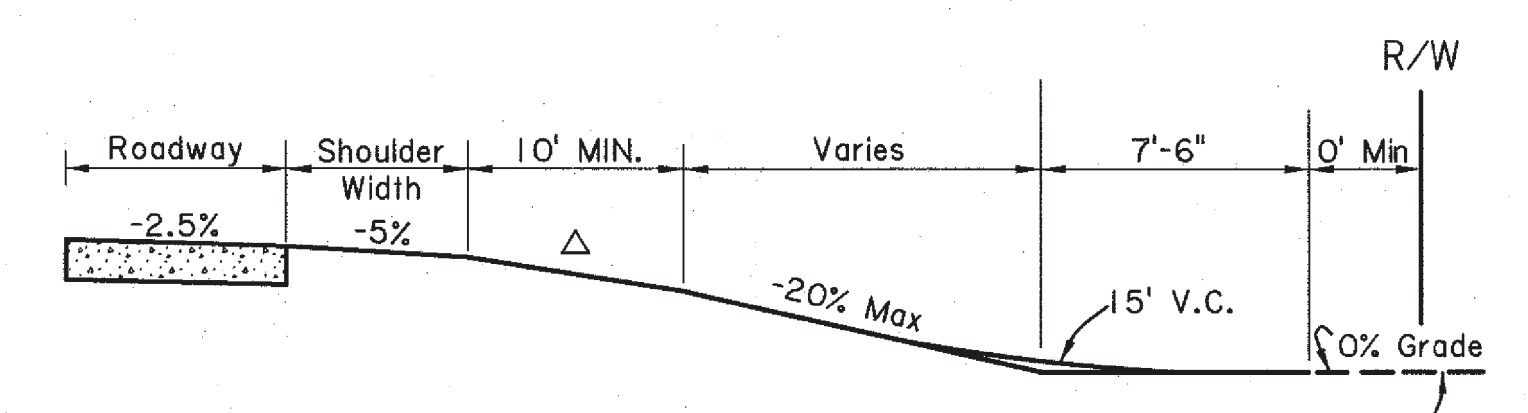
SECTION F-F



SECTION G-G



TYPICAL DRIVEWAY IN CUT



TYPICAL DRIVEWAY IN FILL

□ "W" = Width as per plans

NOTES:

1. PORTLAND CEMENT CONCRETE DRIVES WILL BE CONSTRUCTED TO REPLACE OR CONNECT TO EXISTING CONCRETE DRIVES. ALL OTHER DRIVES ARE TO BE ASPHALT CONCRETE, EXCEPT AGGREGATE SURFACE COURSE IS TO BE USED ON INFREQUENTLY USED DRIVES WHICH DO NOT CONNECT TO RESIDENCES OR COMMERCIAL ESTABLISHMENTS.
- * 2. SEE PLANS: APPLIES WHERE EXISTING DRIVE IS TO BE REMOVED FOR ROADWAY CONSTRUCTION AND/OR TO ACHIEVE VERTICAL GEOMETRY REQUIREMENTS.
- ⊕ 3. PAVEMENT SHALL EXTEND 10' MIN FROM EDGE OF PAVED ROADWAY SURFACE (TRAVEL LANE) FOR SINGLE-FAMILY RESIDENTIAL/NON-COMMERICAL AGRICULTURE TYPE CONNECTIONS, AND 25' FOR TRAFFIC GENERATOR (COMMERCIAL) TYPE CONNECTIONS, OR AS PER THE PLANS. PAVED DRIVEWAY FLARE SHALL EXTEND 4' MINIMUM FROM EDGE OF PAVED SHOULDER. RADII TRANSITION SHAPE MAY BE USED IN LIEU OF FLARE.
4. WHEN PAVED DRIVES ARE PLACED IN TWO LIFTS, BINDER COURSE MAY BE USED IN THE FIRST LIFT.
5. COMPACTION OF SUBGRADE AND GRADING WORK FOR CONSTRUCTION OF THE PAVED DRIVES SHALL BE SATISFACTORY TO THE ENGINEER AND PAYMENT SHALL BE INCLUDED IN THE DRIVEWAY ITEMS.
- △ 6. MAXIMUM DRIVEWAY GRADE SHALL BE 20% (25% FOR SPECIAL CASES). MAXIMUM BREAK IN GRADE WITHOUT A VERTICAL CURVE SHALL BE 10% FOR CRESTS AND 9% FOR SAGS, AT NOT LESS THAN 10' INTERVALS.

NOTES FOR OVERLAY PROJECTS:

1. WHEN PAVED DRIVES ARE PLACED IN TWO LIFTS, BINDER COURSE MAY BE USED IN THE FIRST LIFT.
2. DRIVE WIDTHS AND FLARE DIMENSIONS TO BE ADJUSTED TO MATCH EXISTING CONDITIONS AS DIRECTED BY THE PROJECT ENGINEER.
3. LENGTH OF OVERLAY TRANSITION TO BE SET BY PROJECT ENGINEER TO ACHIEVE A SUITABLE CONNECTION FOR EXISTING DRIVE.

LEGEND

- PAVED
- AGGREGATE
- REMOVAL

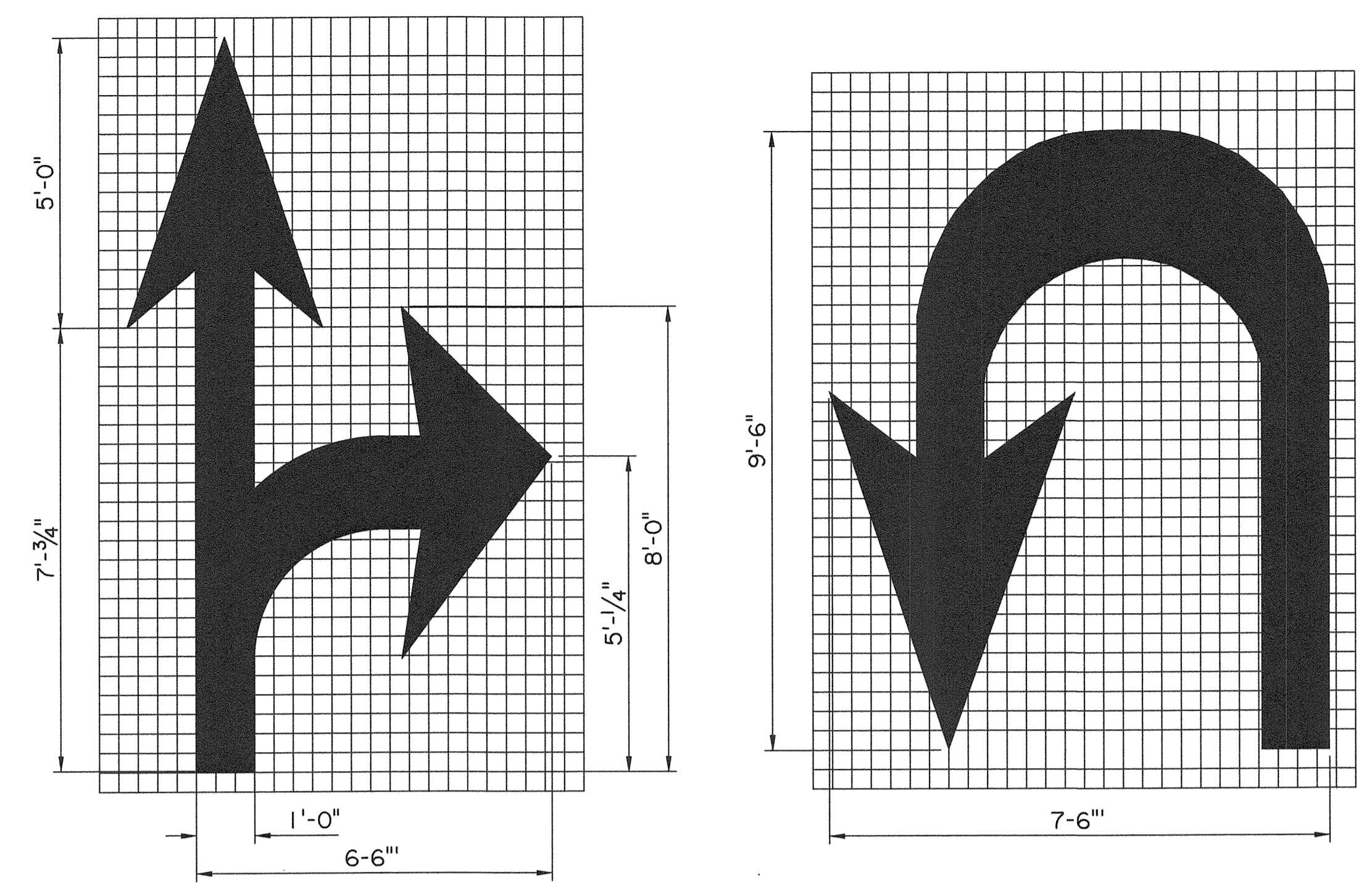


These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.



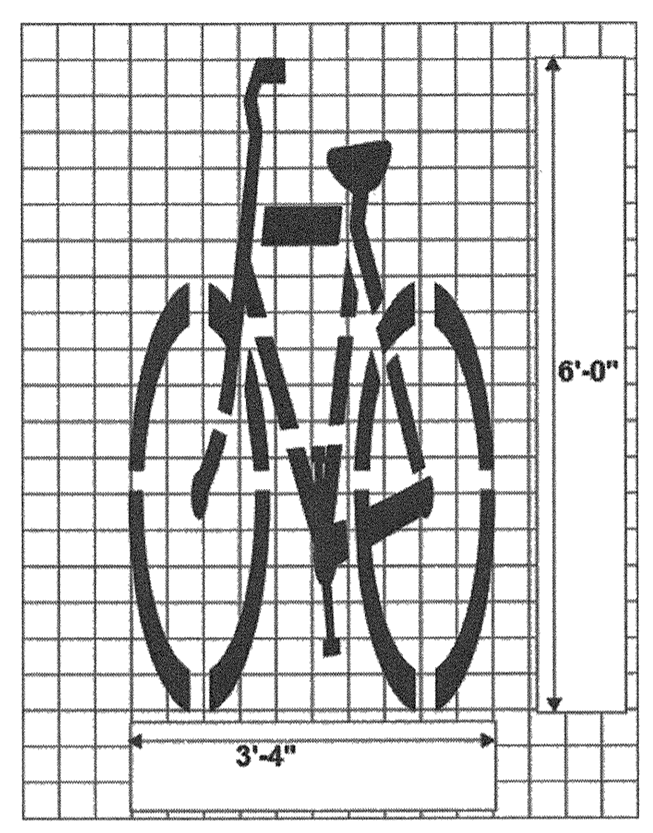
SHEET NUMBER	341
DESIGNED BY	P. TONEY
CHECKED BY	D. SMITH
DATE	11/7/17
REVISION DESCRIPTION	
BY	
DATE	
APPROVED BY	Jason P. Williams
CHIEF ENGINEER	
NO.	
DATE	
STATE OF LOUISIANA	
DRIVEWAYS ON NON-CURBED ROADWAYS	
STANDARD PLAN DW-02	
ROAD DESIGN	

(A) TURN ARROW AND ONLY WORD MARKING

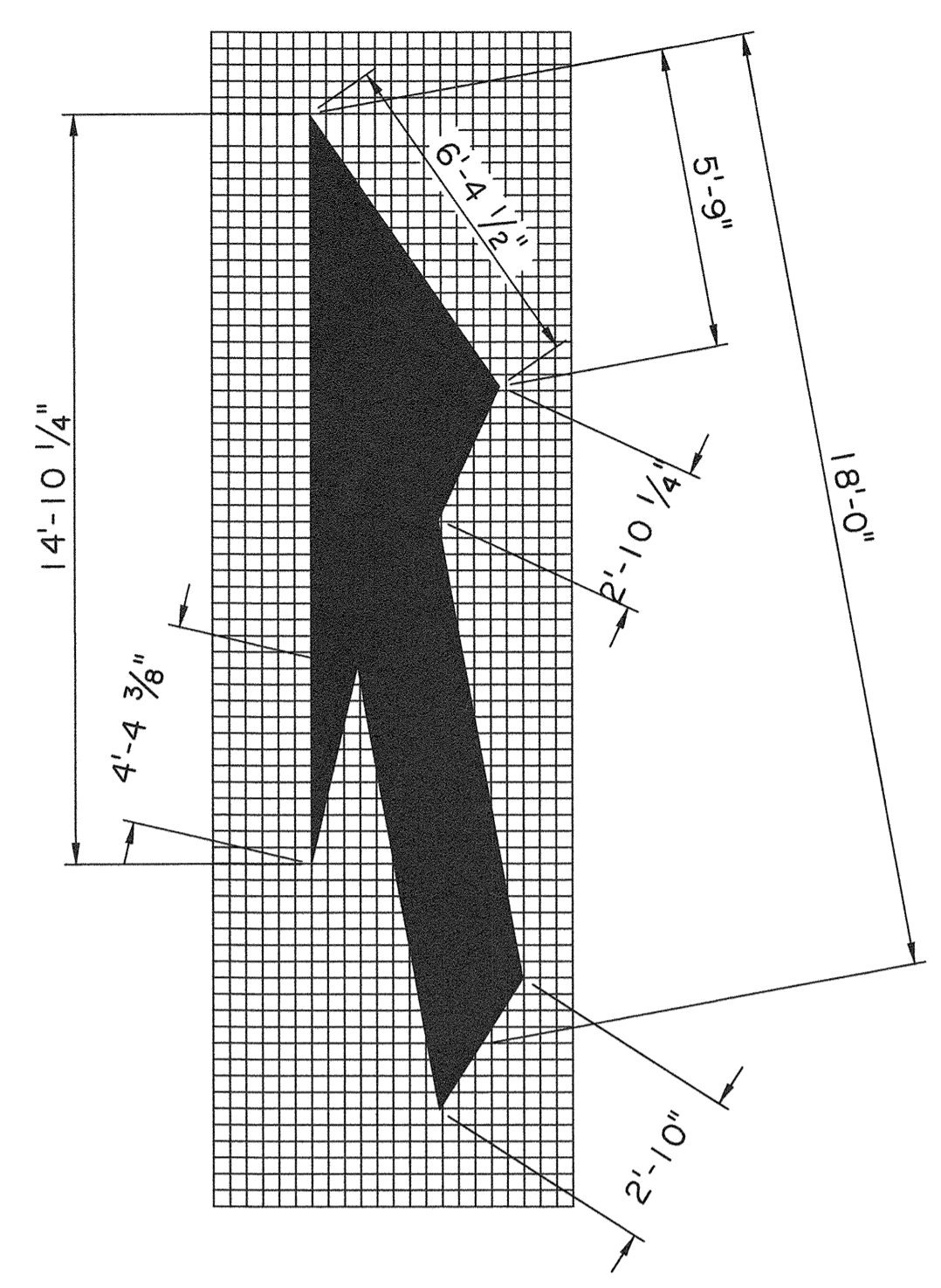


*For left turn arrow, use mirror image.

(B) BIKE SYMBOL

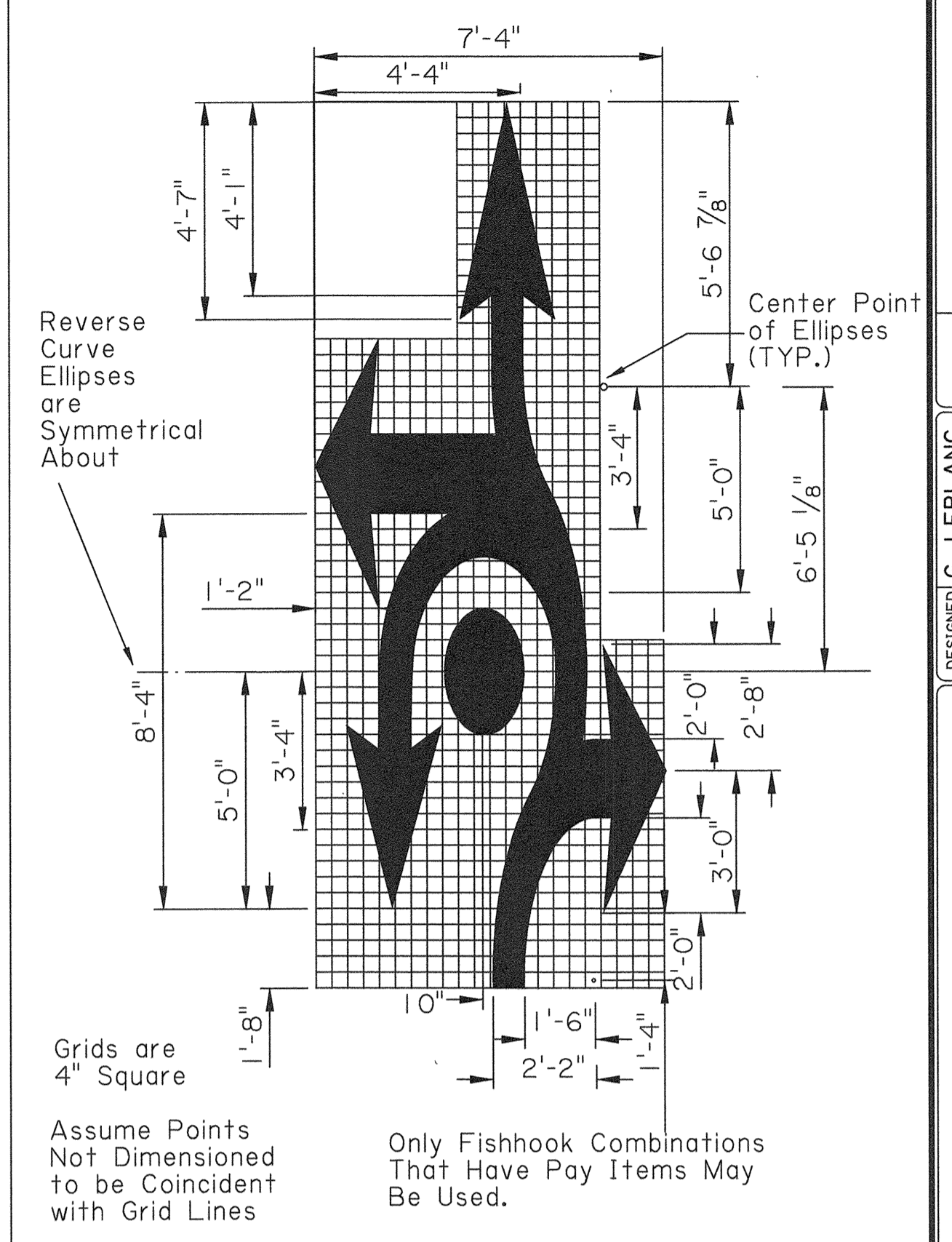


(C) LANE REDUCTION ARROW

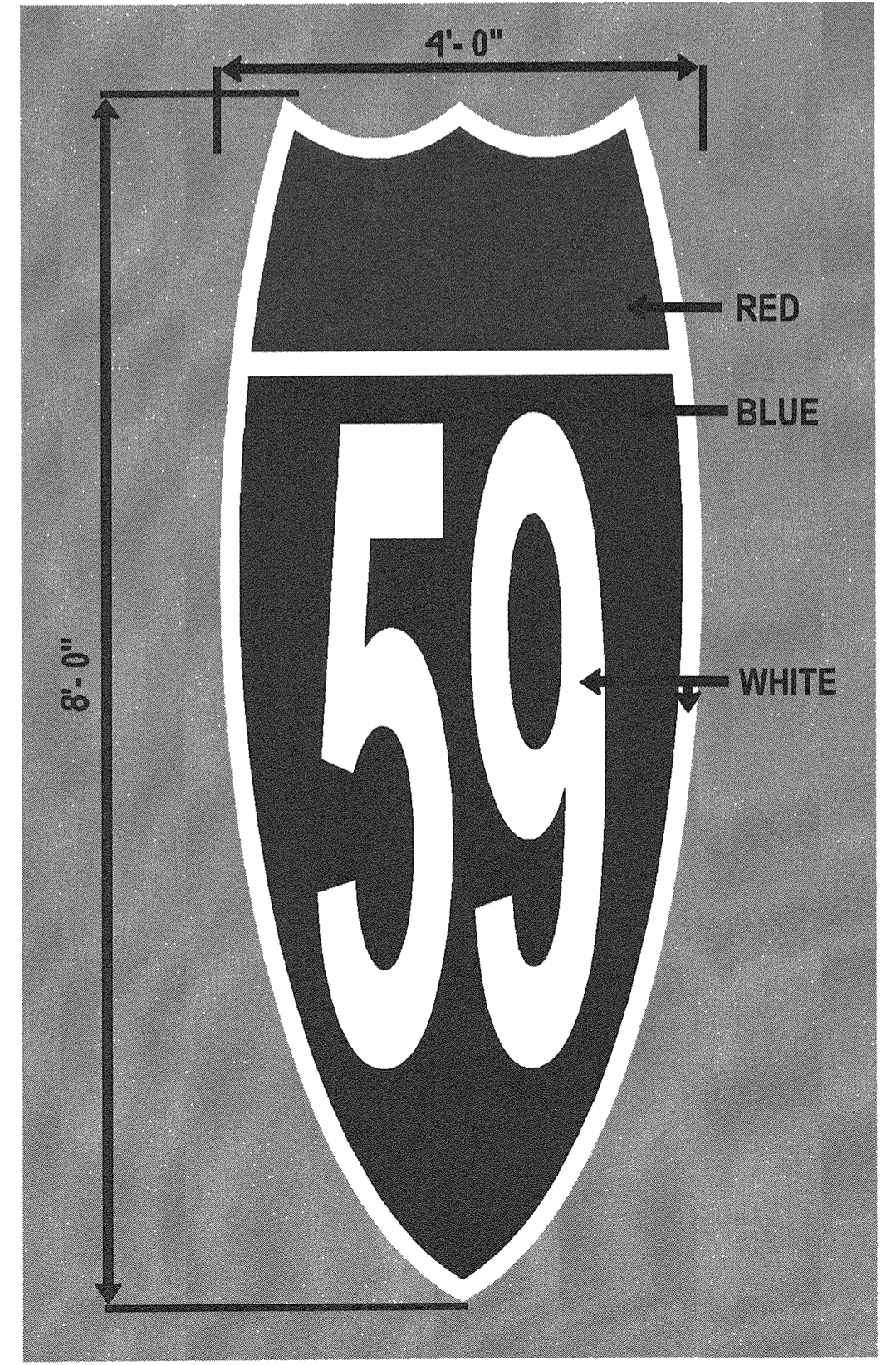


*For left lane reduction, use mirror image.

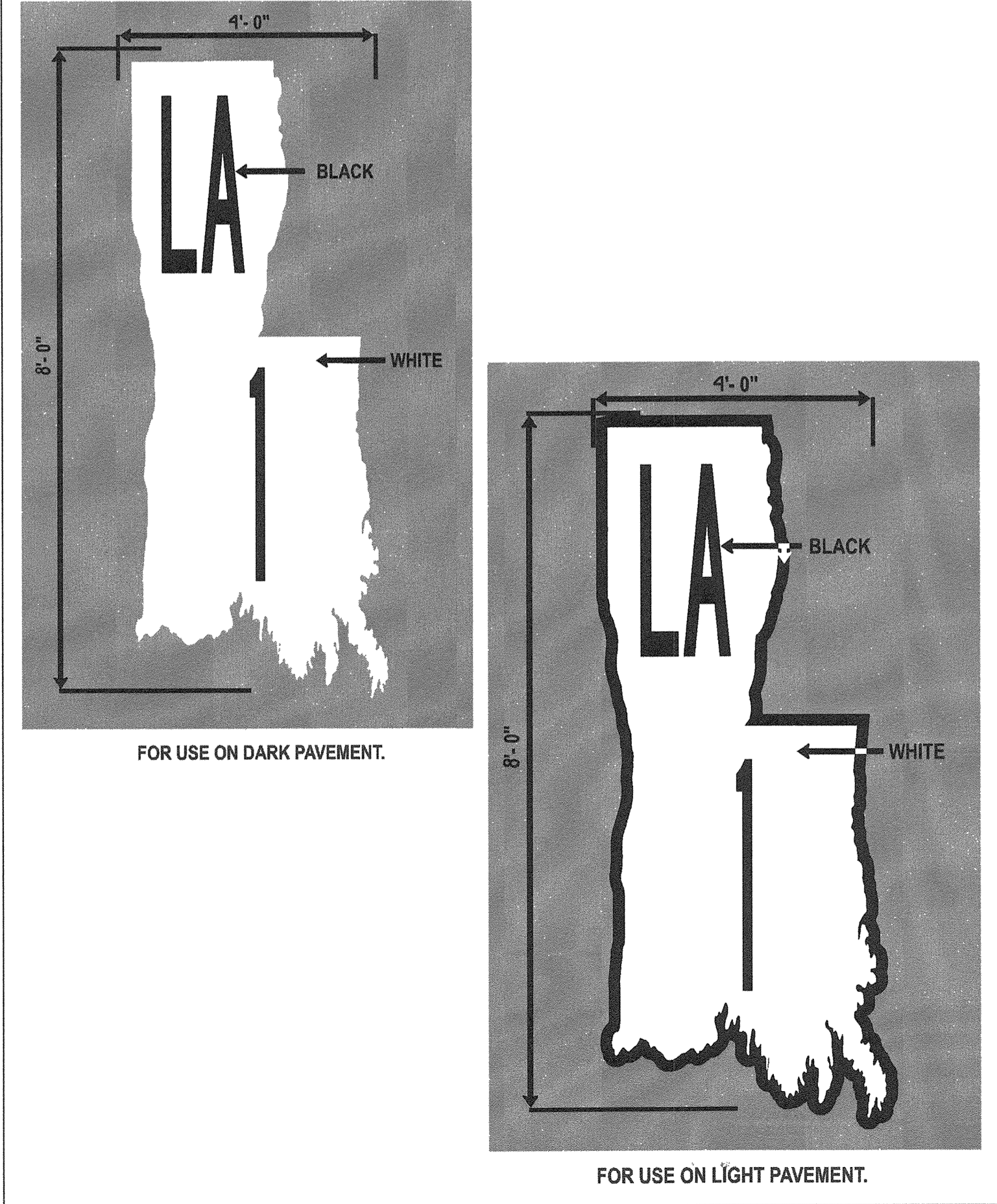
(D) DIRECTIONAL ARROWS FOR ROUNDABOUTS (FISHHOOK)



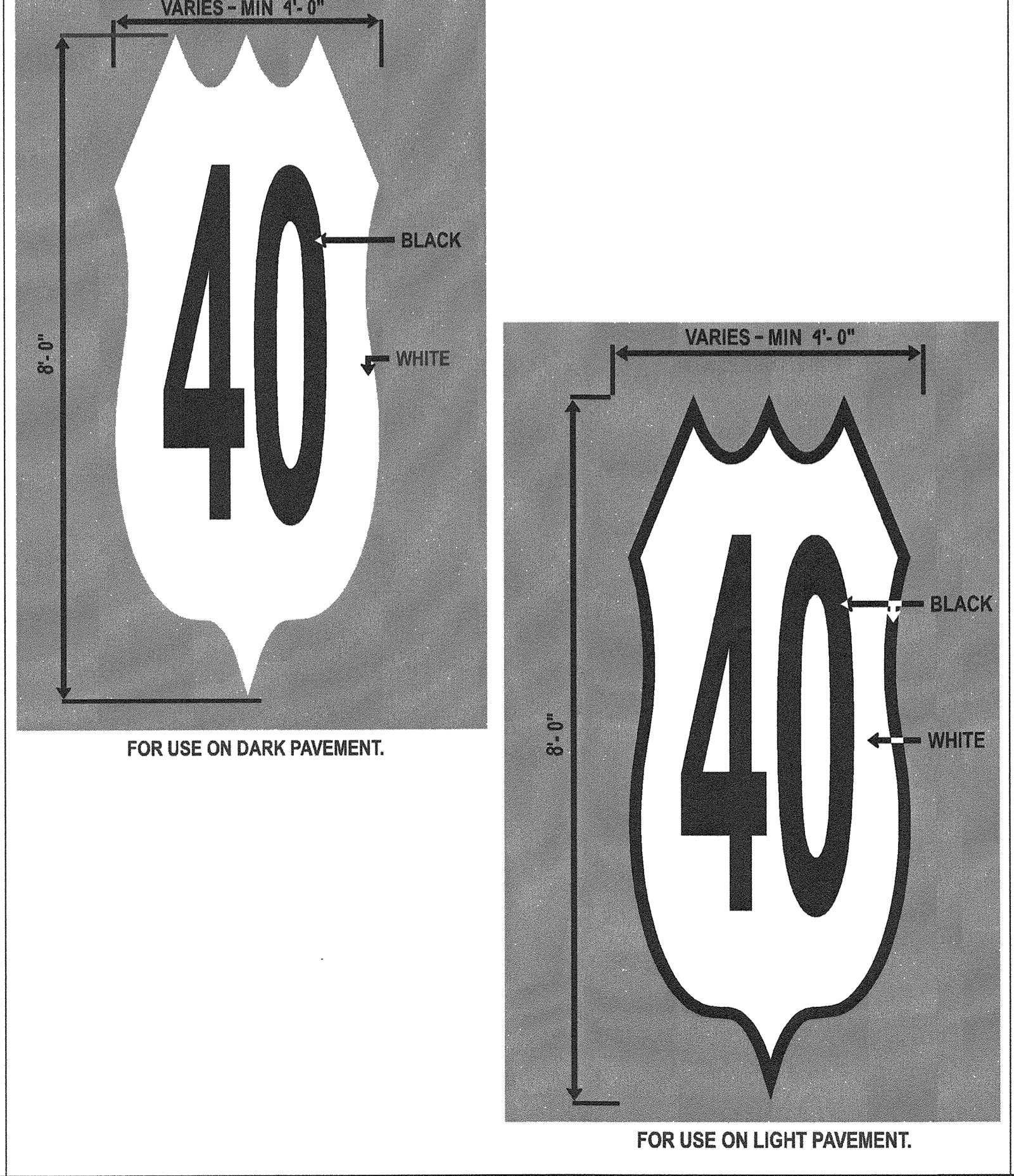
(E) INTERSTATE SHIELD for Non-Interstate Use



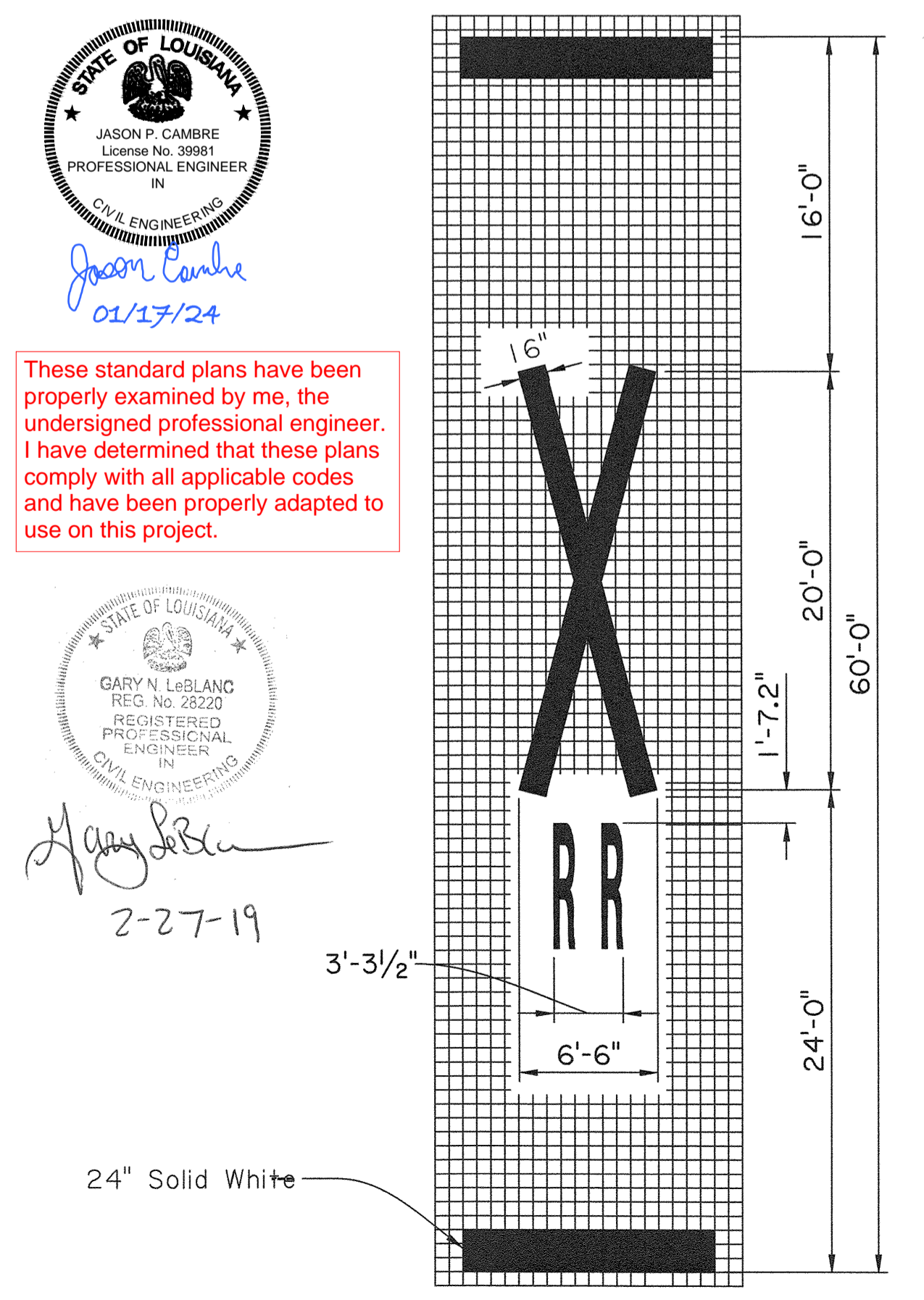
(F) STATE HIGHWAY SHIELDS for Non-Interstate Use



(G) STATE HIGHWAY SHIELDS for Non-Interstate Use



(H) RAILROAD CROSSING PAVEMENT MARKINGS



STATE OF LOUISIANA
 JASON P. CAMBRE
 License No. 29981
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 01/17/24

These standard plans have been properly examined by me, the undersigned professional engineer. I have determined that these plans comply with all applicable codes and have been properly adapted to use on this project.

STATE OF LOUISIANA
 GARY N. LEBLANC
 REG. No. 28220
 REGISTERED PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 2-27-19

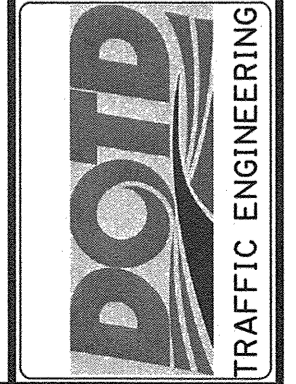
DESIGNED	G. LEBLANC	PARISH	
CHECKED	J. COLVIN	CONTROL SECTION	
DATE		STATE PROJECT	
DATE		DATE	

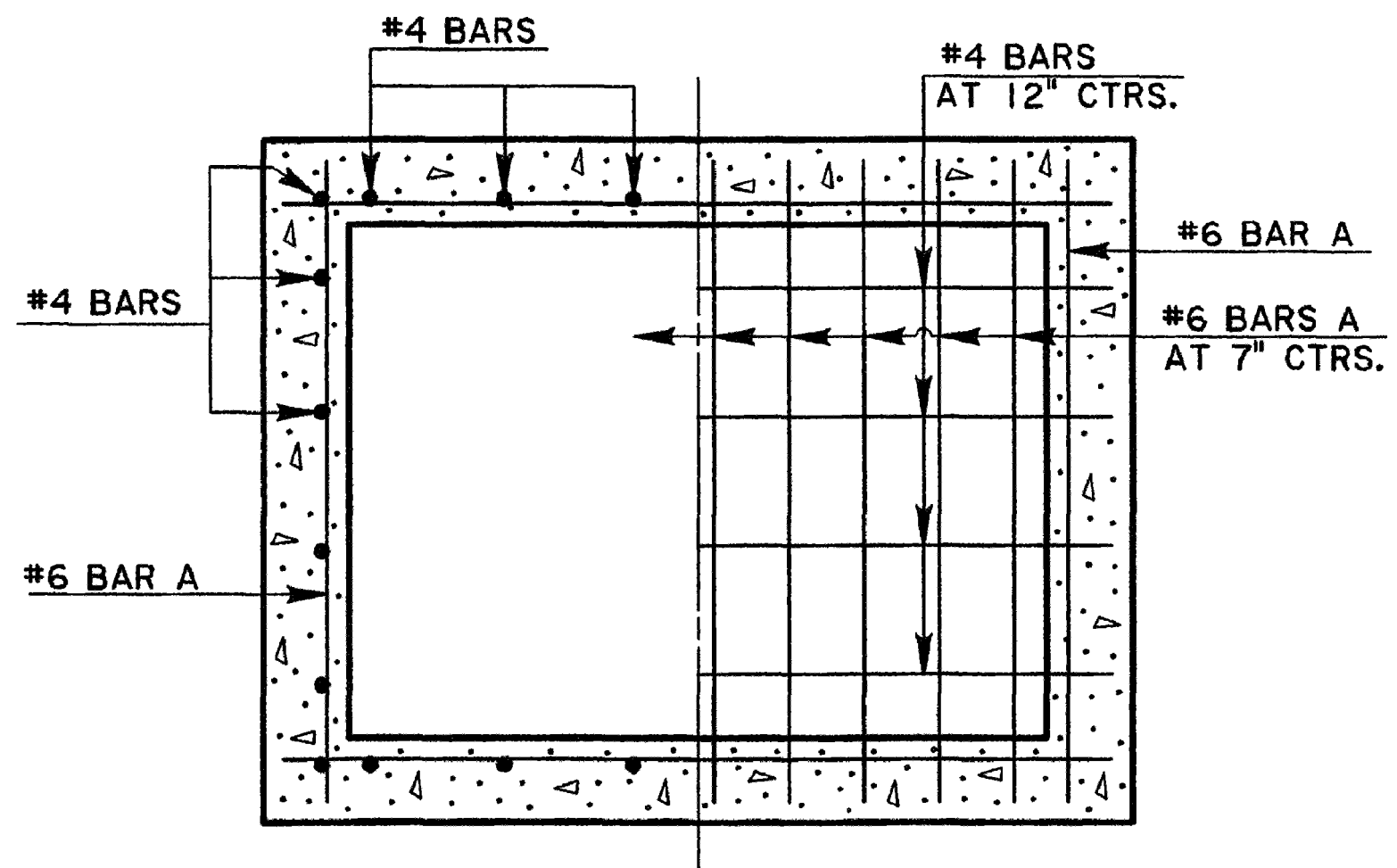
DATE 2/28/19

APPROVED BY CHIEF ENGINEER
Justin P. Kelly

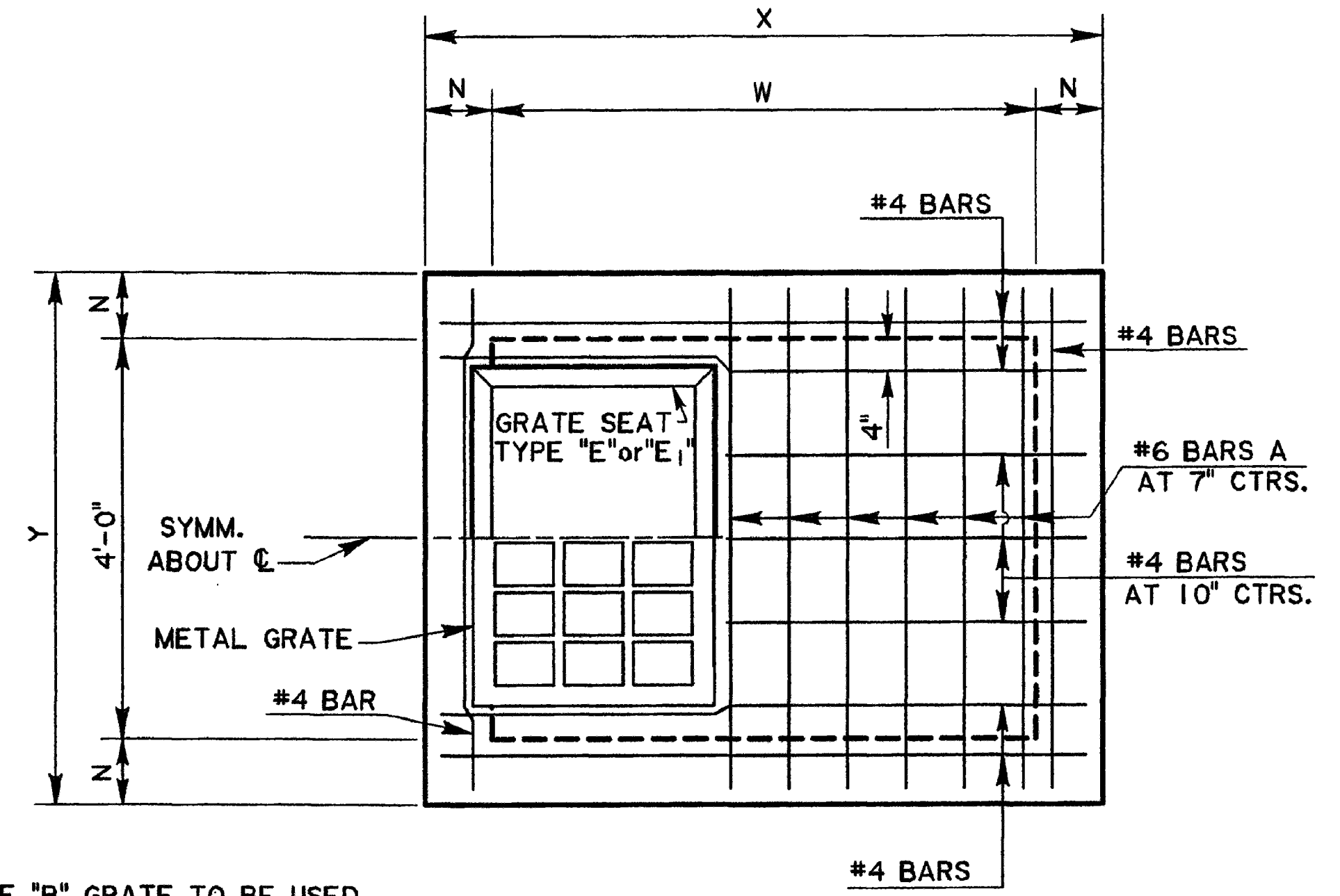


PM-02
 Pavement Word and Symbol Markings for Non-Interstate Use
 PAVEMENT MARKING DETAILS





SECTIONAL PLAN
(SHOWING BOTTOM SLAB & WALLS)

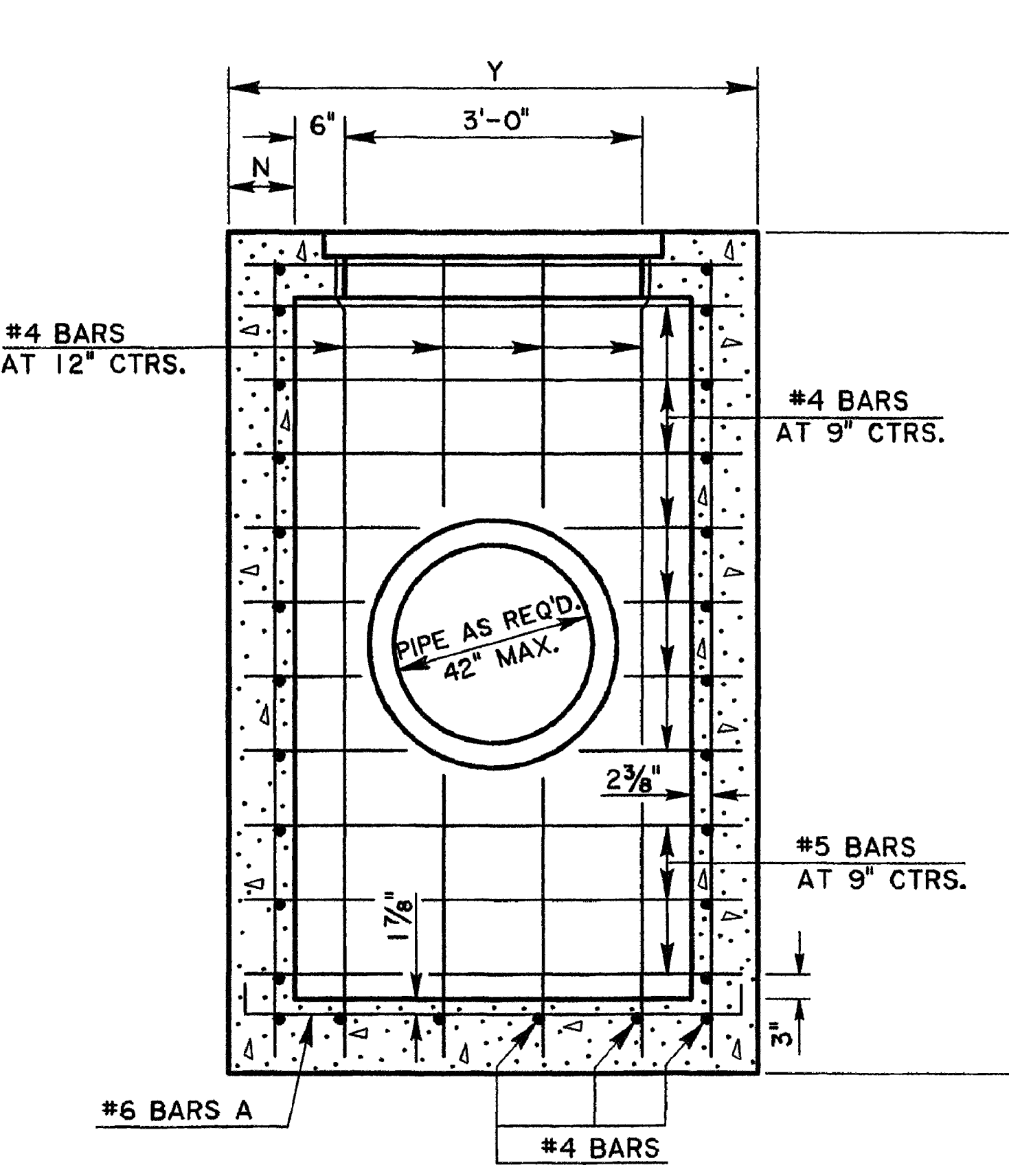


PLAN
GRATE TO BE TYPE "B" or "C".
TYPE "B" SHOWN.

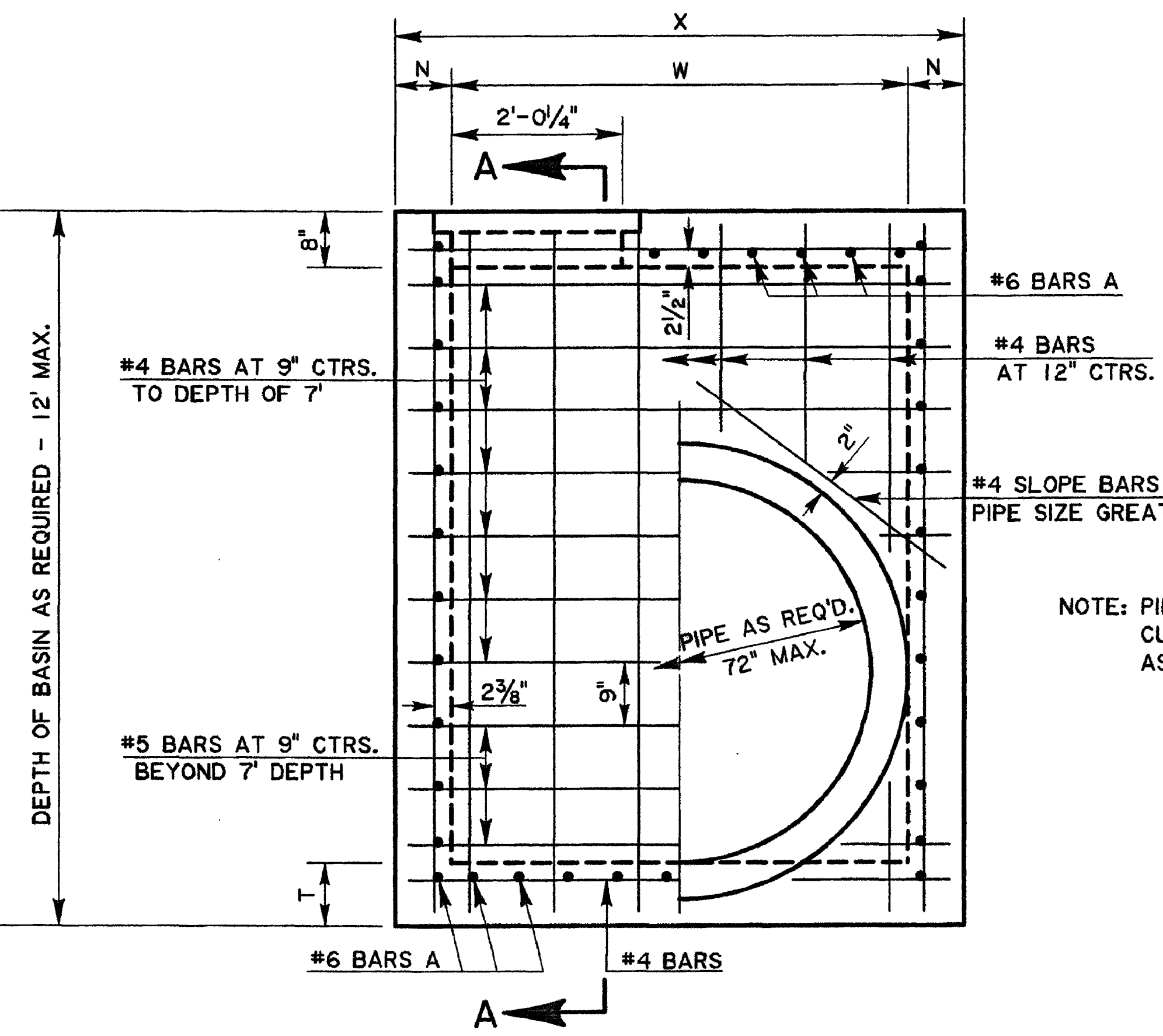
NOTE: TYPE "B" GRATE TO BE USED WHERE NO PEDESTRIAN TRAFFIC IS EXPECTED.
TYPE "C" GRATE TO BE USED WHERE PEDESTRIAN TRAFFIC IS EXPECTED.

TRUNK PIPE	DEPTH TO 8'					DEPTH 8' TO 12'				
	N	T	W	X	Y	N	T	W	X	Y
42	7	9	4-3	5-5	5-2	8	9	4-3	5-7	5-4
48	7	9	4-10	6-0	5-2	8	9	4-10	6-2	5-4
54	7	9	5-5	6-7	5-2	8	9	5-5	6-9	5-4
60	7	10	6-0	7-2	5-2	8	10	6-0	7-4	5-4
66	7	10	6-7	7-9	5-2	8	10	6-7	7-11	5-4
72	7	10	7-2	8-4	5-2	8	10	7-2	8-6	5-4

NOTE: X AND W DIMENSIONS MAY BE VARIED FOR SKEWED PIPE, BUT W SHALL NOT EXCEED 7'-2".

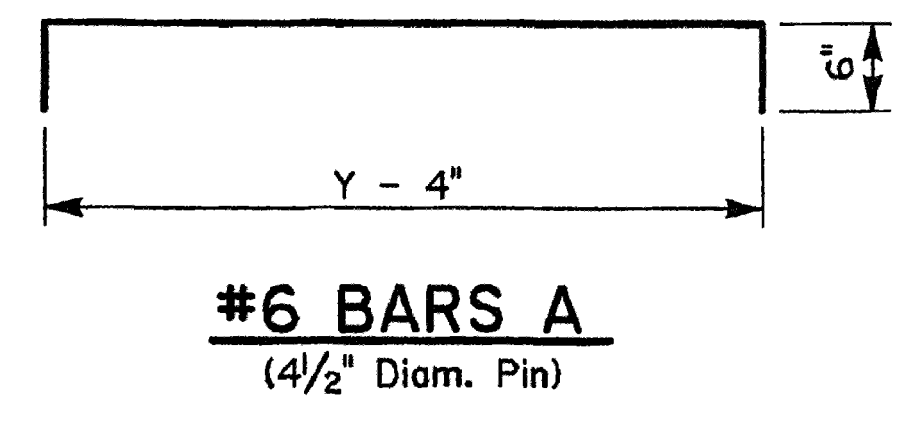


SECTION A-A



ELEVATION

NOTE: PIPE SIZE & LOCATION VARIES.
CUT REINFORCING STEEL TO CLEAR, AS REQUIRED.



GENERAL NOTES:

- SECTION 702 OF THE CURRENT DOTD STANDARD SPECIFICATIONS SHALL APPLY.
- DIMENSIONS RELATING TO REINFORCING STEEL ARE TO BAR CENTERS.
- VERTICAL REINFORCING STEEL MAY BE SPLICED. SPLICE LENGTH IS 35 DIAMETERS.
- FOR DETAILS OF GRATE AND SEAT, SEE STD. PLAN MC-01 (TYPE B or C).
- SEE PLANS FOR TYPE OF GRATE TO BE USED FOR EACH CATCH BASIN.

DESIGNED BY: PAA
CHECKED BY: JCM
DATE: 1-31-97

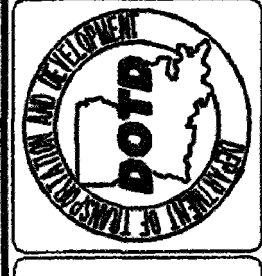
PARISH: FEDERAL PROJECT
STATE PROJECT: 1 OF 1

CONVERTED Metric CB-02M to English CB-02
REVISION DESCRIPTION: BY JCM
DATE: 1-31-97

APPROVED BY: R. E. S. (Signature)
DATE: 1-2-98
CHIEF ENGINEER

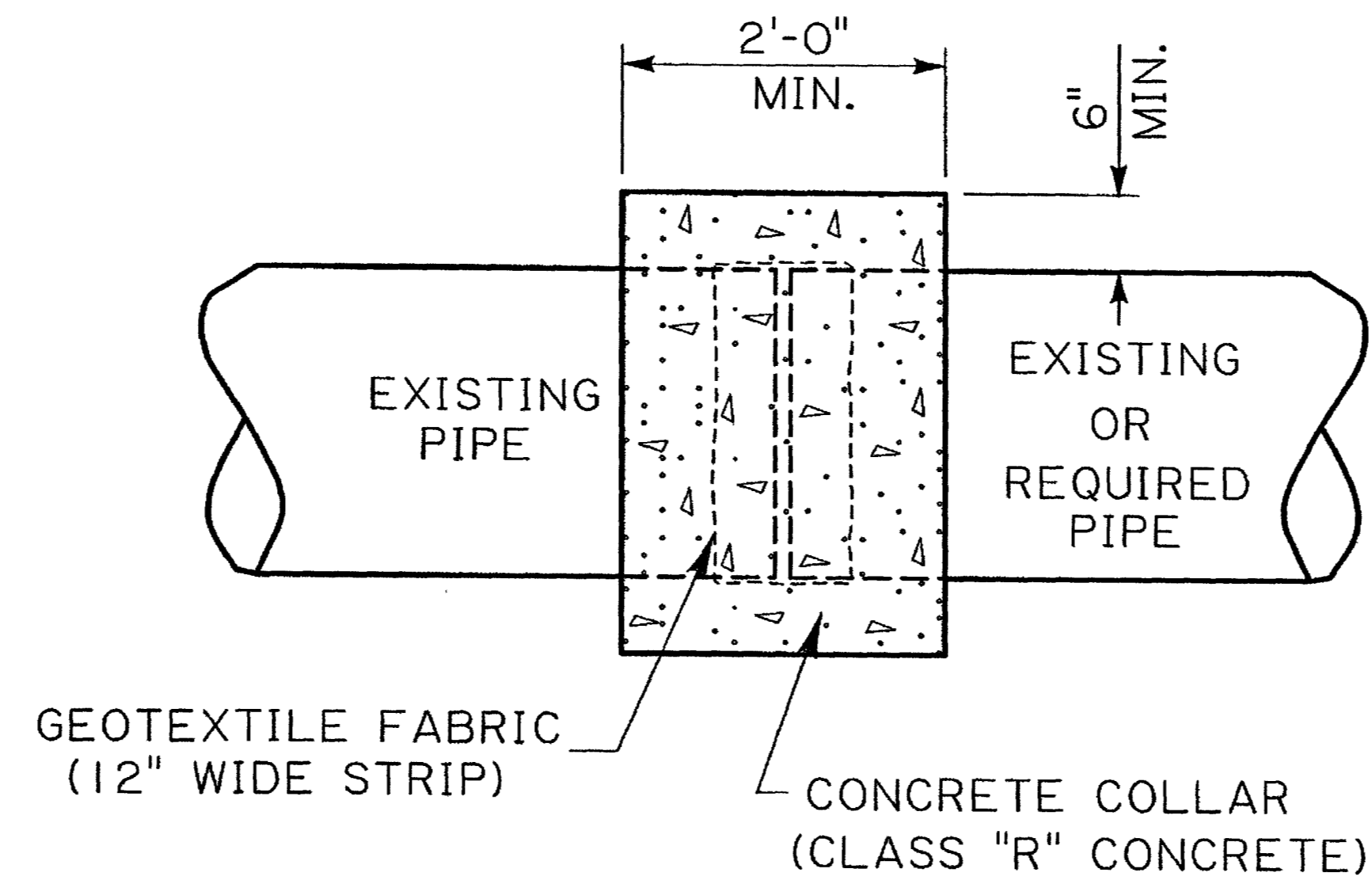


CONCRETE OPEN TOP CATCH BASIN
Max. Pipes: 72" x 42"
Max. Depth: 12'
To Be Used in Conjunction With Std. Plan MC-01
STANDARD PLAN CB-02



CONCRETE COLLAR DETAIL

TO REPAIR EXISTING PIPE JOINT SEPARATION
AND/OR
TO CONNECT EXISTING PIPE TO NEW PIPE



NOTES:

- 1) NEW PIPE EXTENSION SHALL MATCH EXISTING PIPE IN MATERIAL TYPE AND SIZE BASED ON THE LATEST INDUSTRY STANDARDS.

SHEET NUMBER 344

PARISH RAPIDES
CONTROL SECTION 417-02
STATE PROJECT H.O15266

DESIGN CHECK
DETAIL CHECK
REVIEW SERIES #

STATE OF LOUISIANA
MITRA HASHEMIEH
REG. No. 28546
REGISTERED PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
Mitra Hashemieh
5/5/2022

APPROVED BY CHIEF ENGINEER:

Mitra Hashemieh
DATE: 5/4/2022

STATE OF LOUISIANA
CONFIDENTIAL

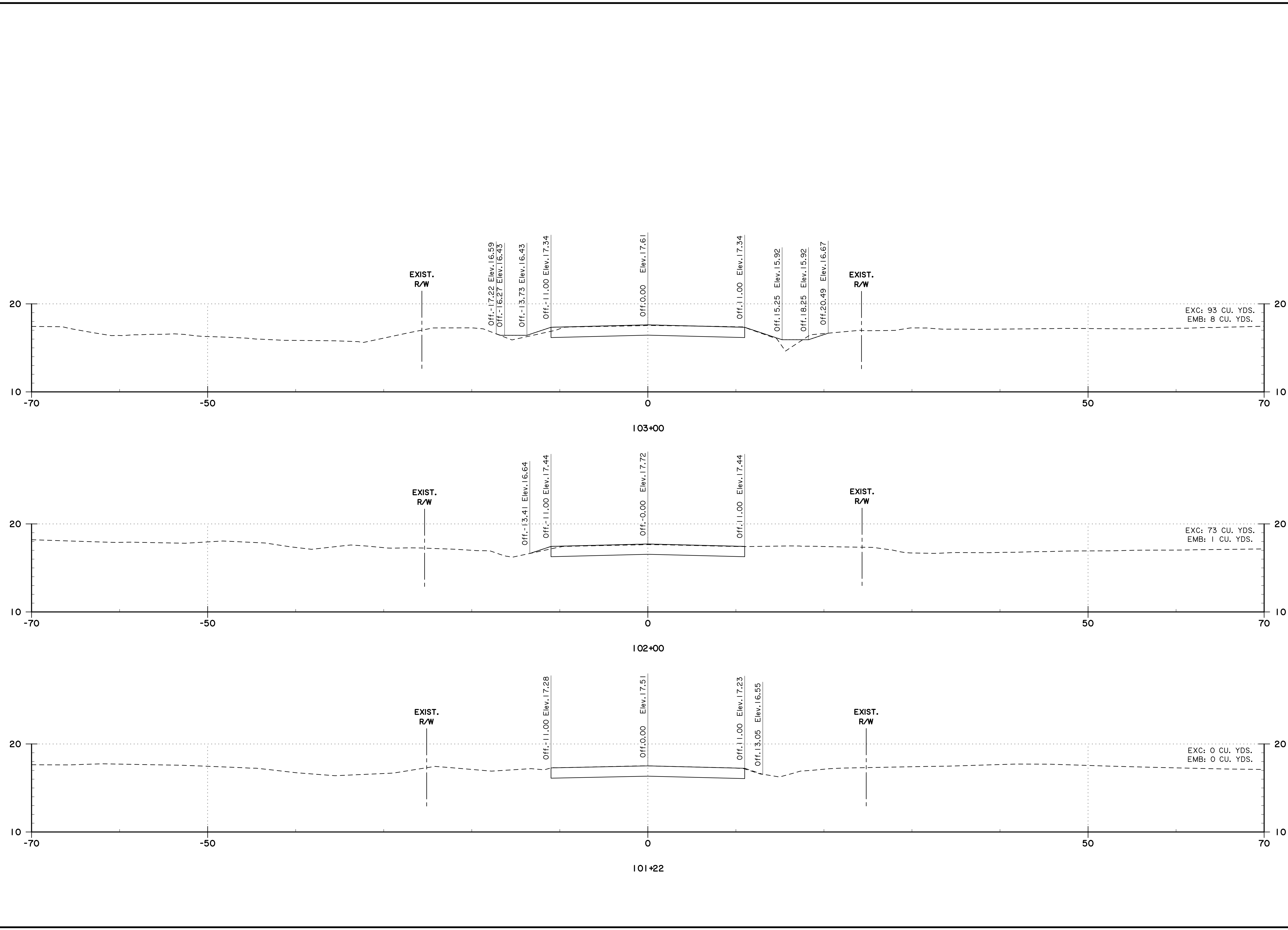
CONCRETE COLLAR DETAIL

STANDARD PLAN COLLAR-01

DOTD
LOUISIANA DEPARTMENT OF
TRANSPORTATION & DEVELOPMENT

HYDRAULICS SECTION

FINAL PLANS



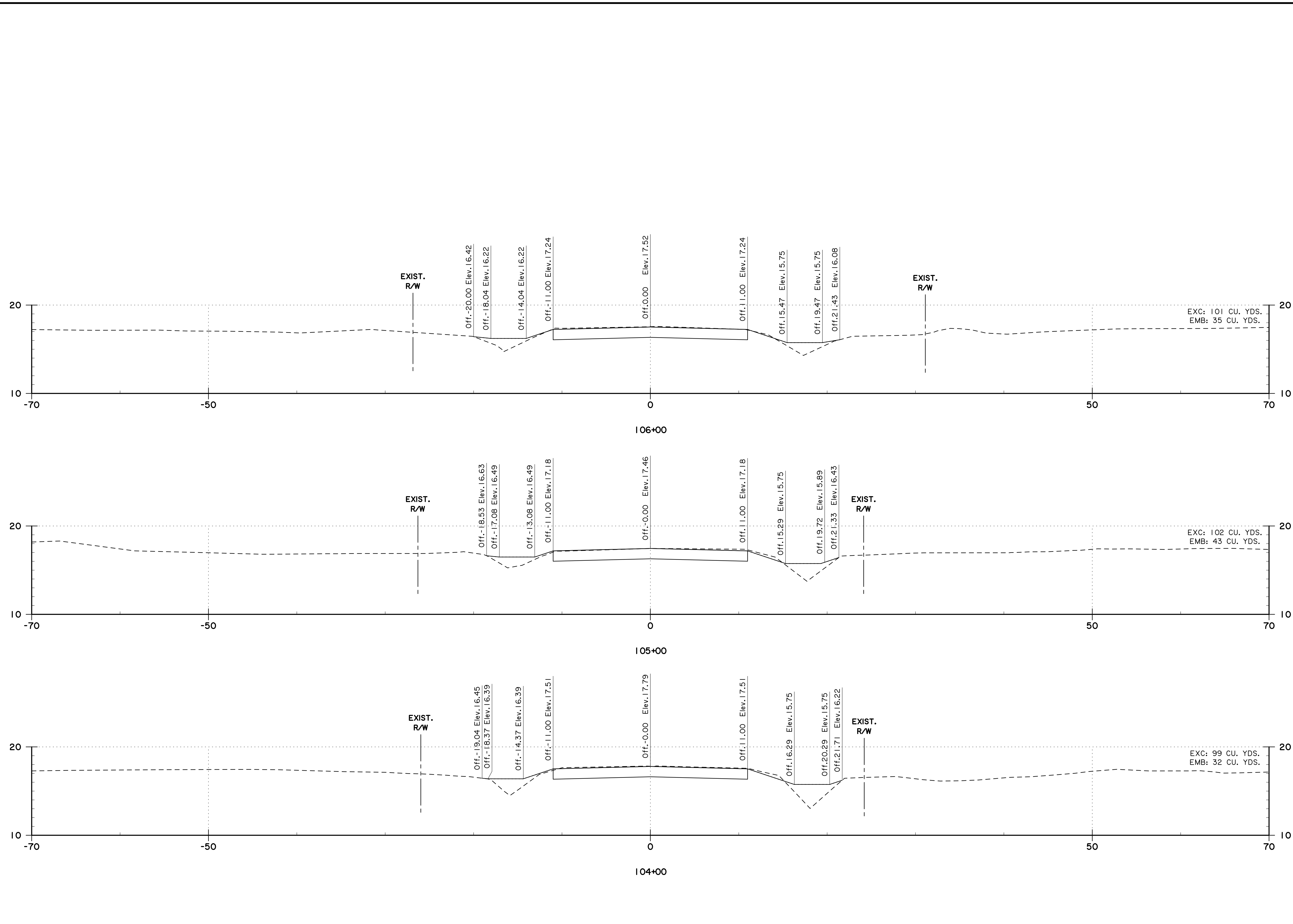
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CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

FINAL PLANS



CROSS SECTIONS
SHARP RD.

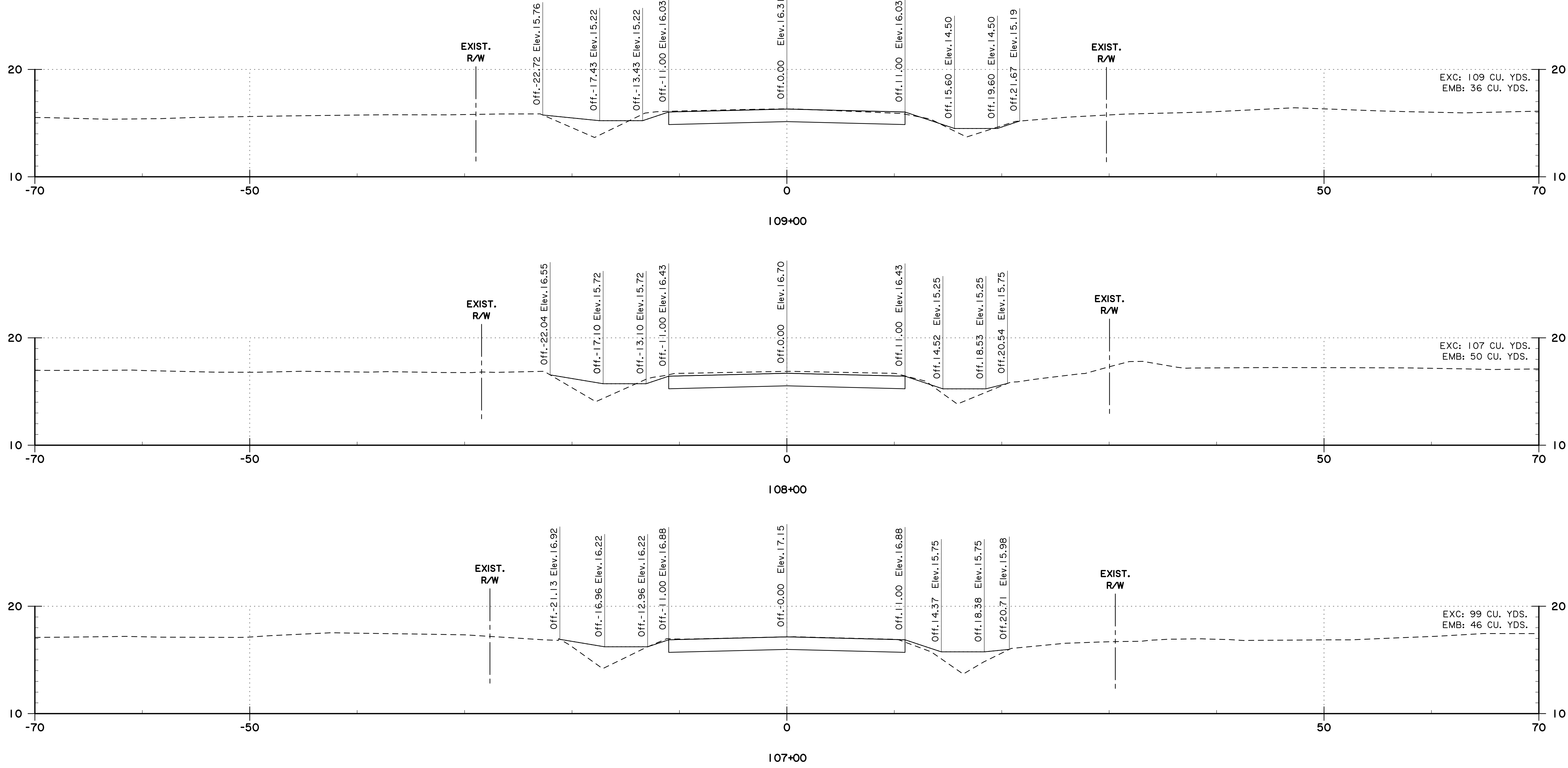
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CHECK: J.LOHMANN
DETAIL: C-NIPPER
CHECK: J.L OHMANN
REVIEW: []
SERIES #

PARISH: ST. TAMMANY
PROJECT NUMBER: EN21000010

1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

FINAL PLANS



SHEET NUMBER	403
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

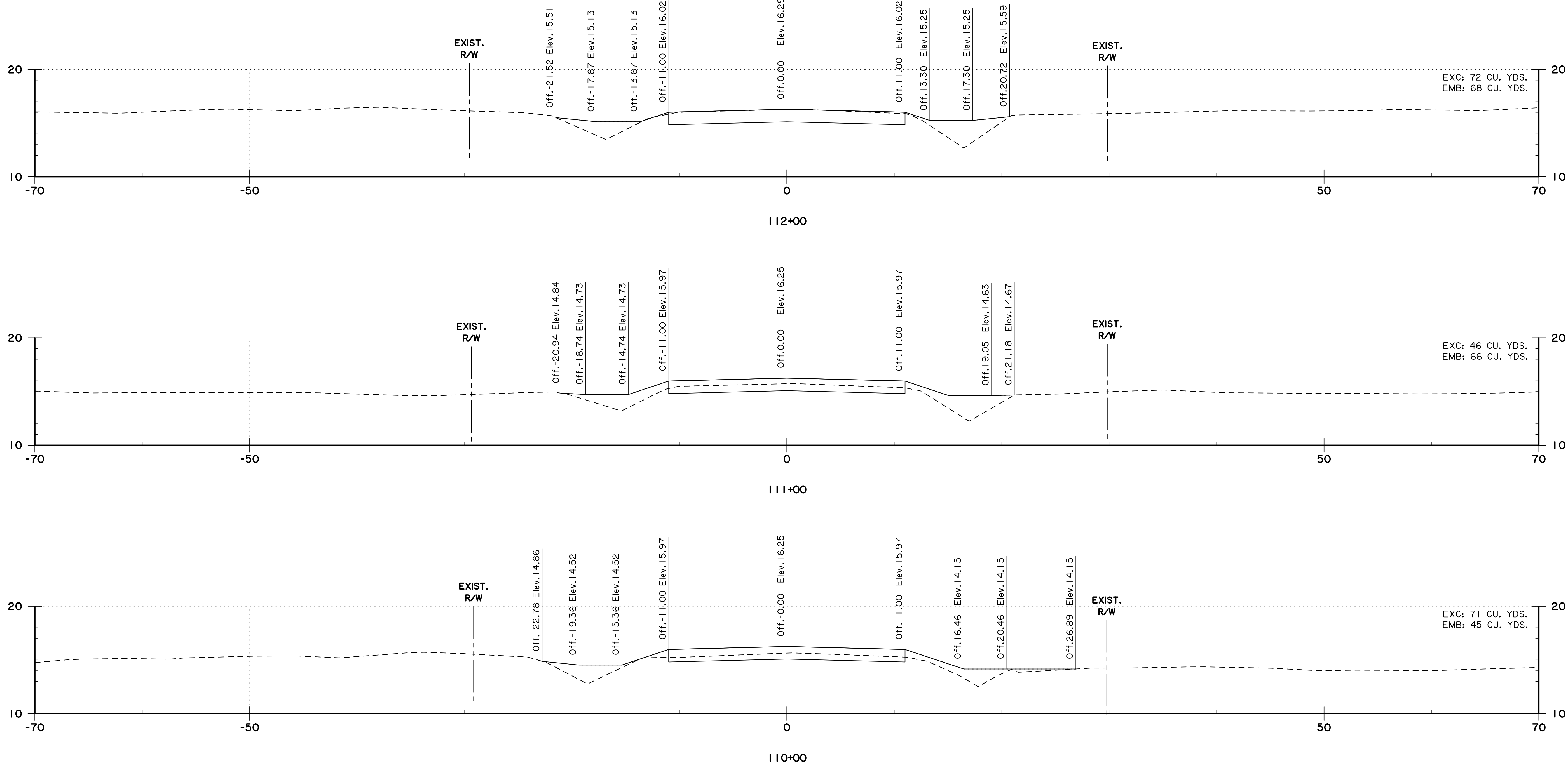
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

STATE OF LOUISIANA
1848

CROSS SECTIONS

SHARP RD.

FINAL PLANS



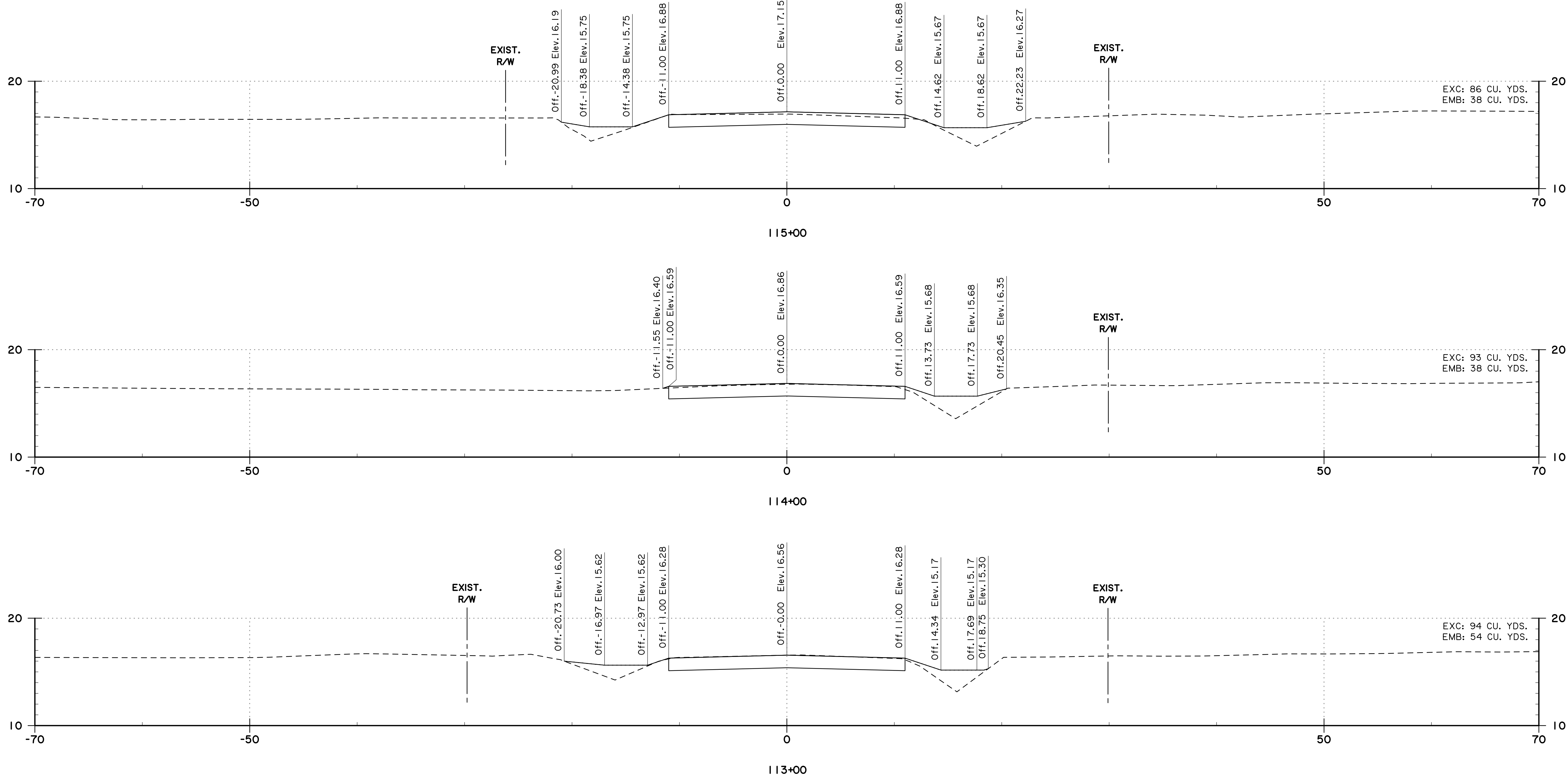
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CHECK	J.LOHMANN	ST. TAMMANY
DETAIL	C-NIPPER	
CHECK	J.L OHMANN	
REVIEW		PROJECT NUMBER
SERIES #		EN21000010


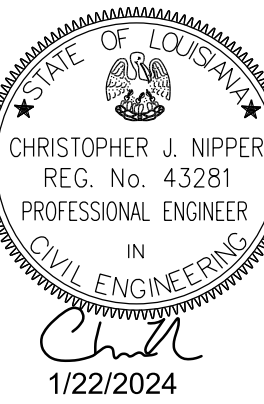
CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
 SHARP RD.

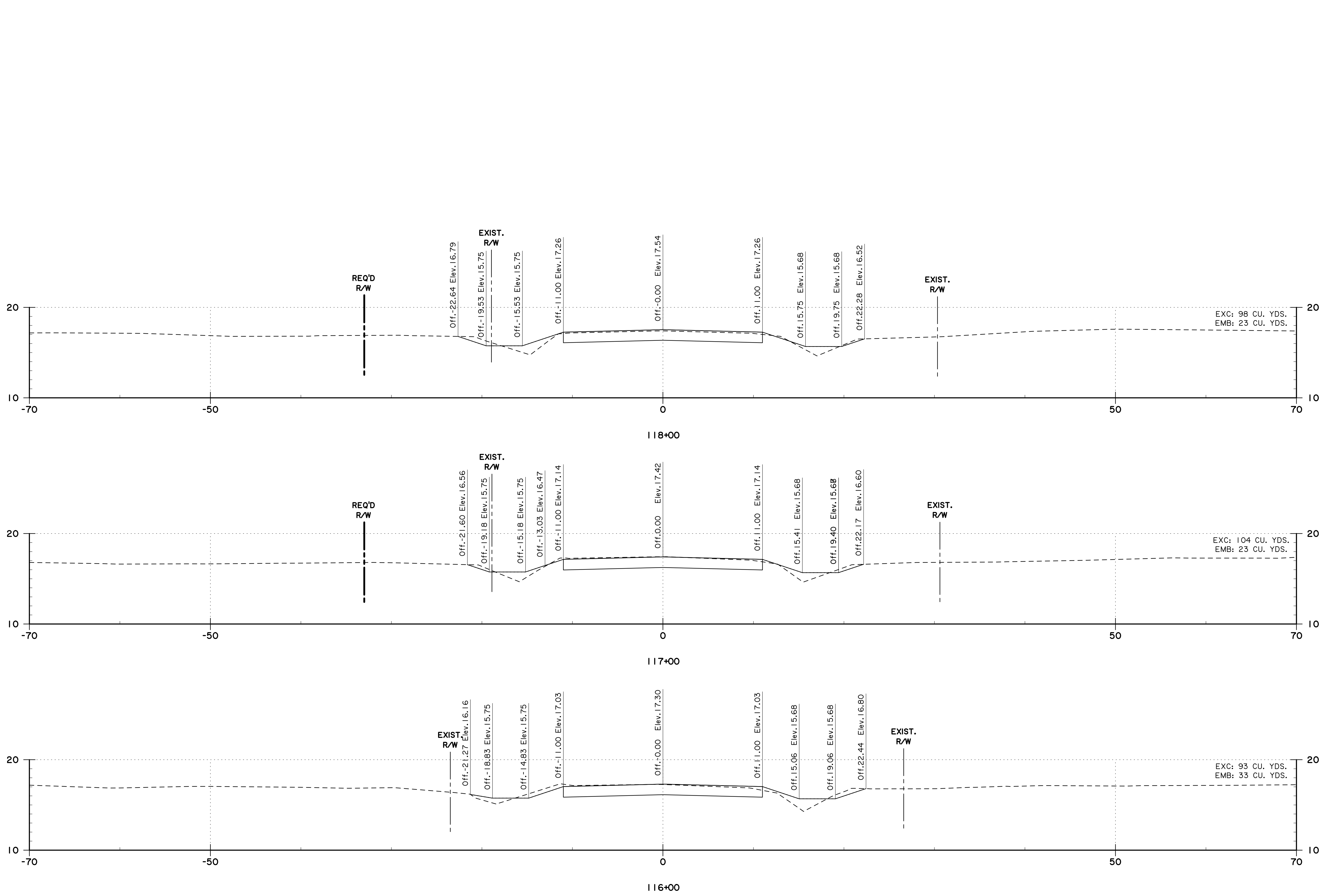
FINAL PLANS



CROSS SECTIONS		SHARP RD.
		
DESIGN: C. NIPPER CHECK: J. LOHMANN DETAIL: C. NIPPER CHECK: J. LOHMANN REVIEW: _____ SERIES #: _____	PARISH: ST. TAMMANY PROJECT NUMBER: EN21000010 SHEET NUMBER: 405	
NO. DATE REVISION OR CHANGE ORDER DESCRIPTION BY		1/22/2024 C. NIPPER



FINAL PLANS



SHEET NUMBER		406
DESIGN		C-NIPPER
CHECK	J.LOHMANN	PARISH
DETAIL	C-NIPPER	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER
REVIEW		EN21000010
SERIES #		

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

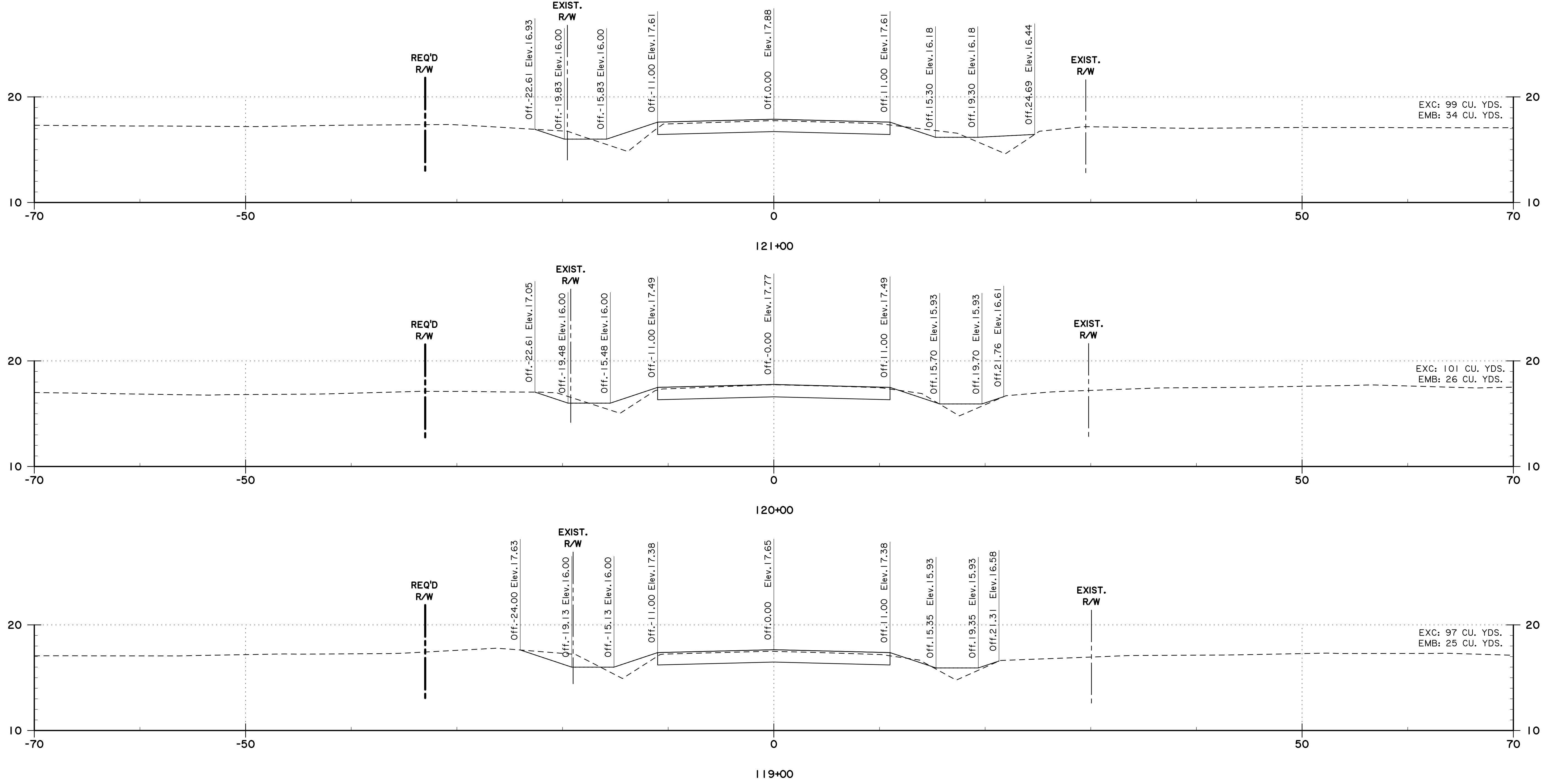
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

STATE OF LOUISIANA
1848

CROSS SECTIONS

SHARP RD.

FINAL PLANS



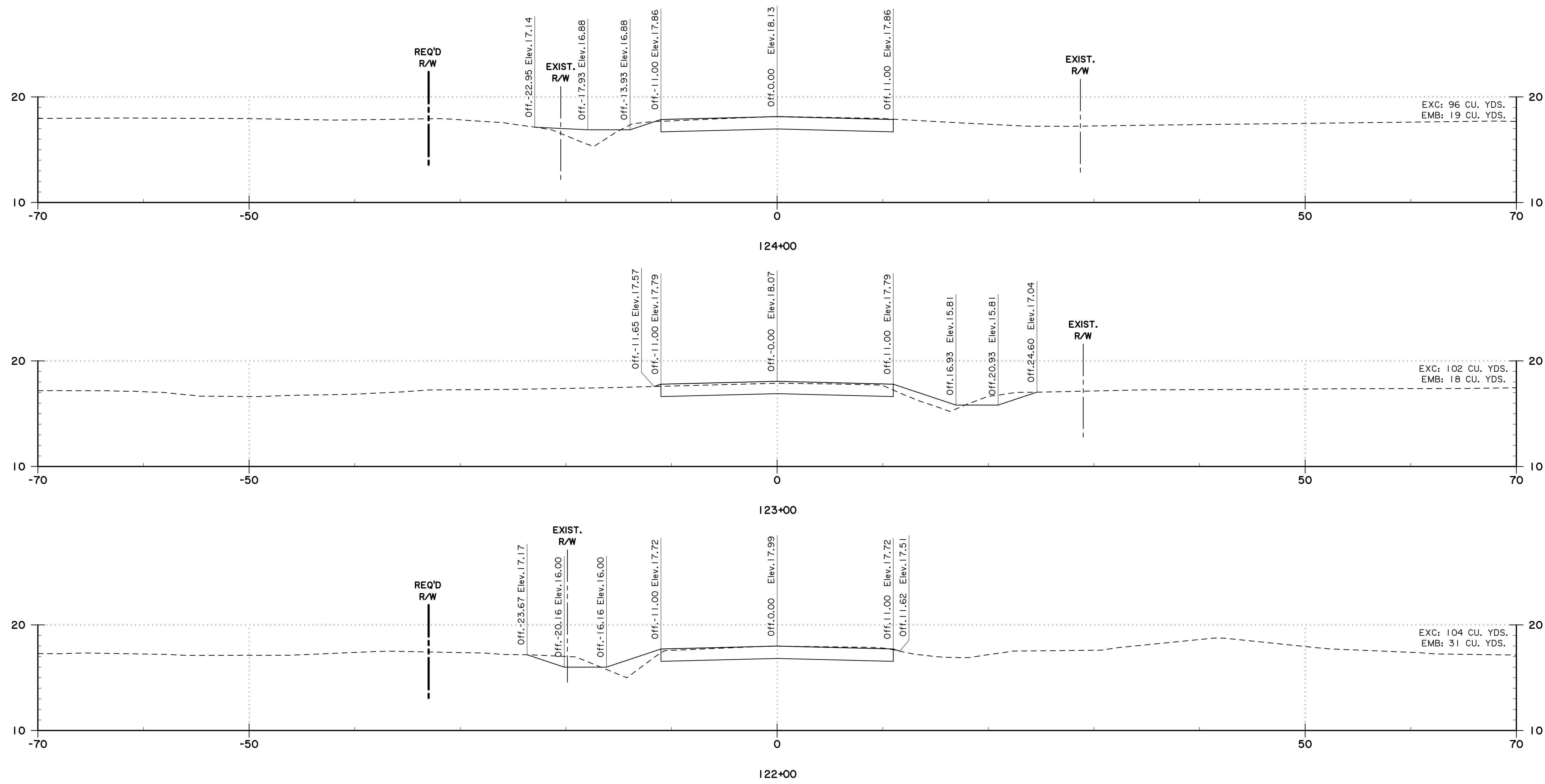
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DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

SHARP RD.

FINAL PLANS



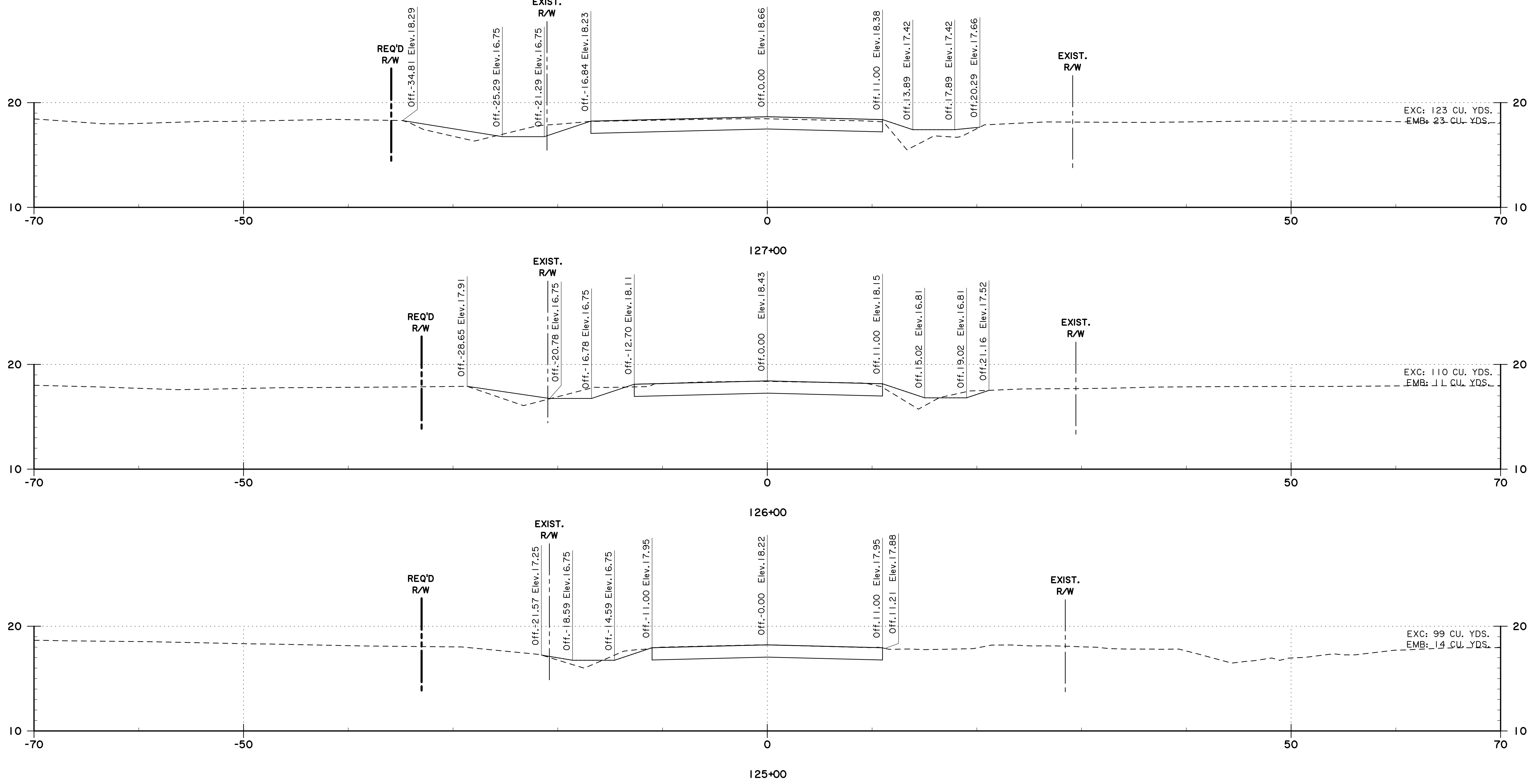
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DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

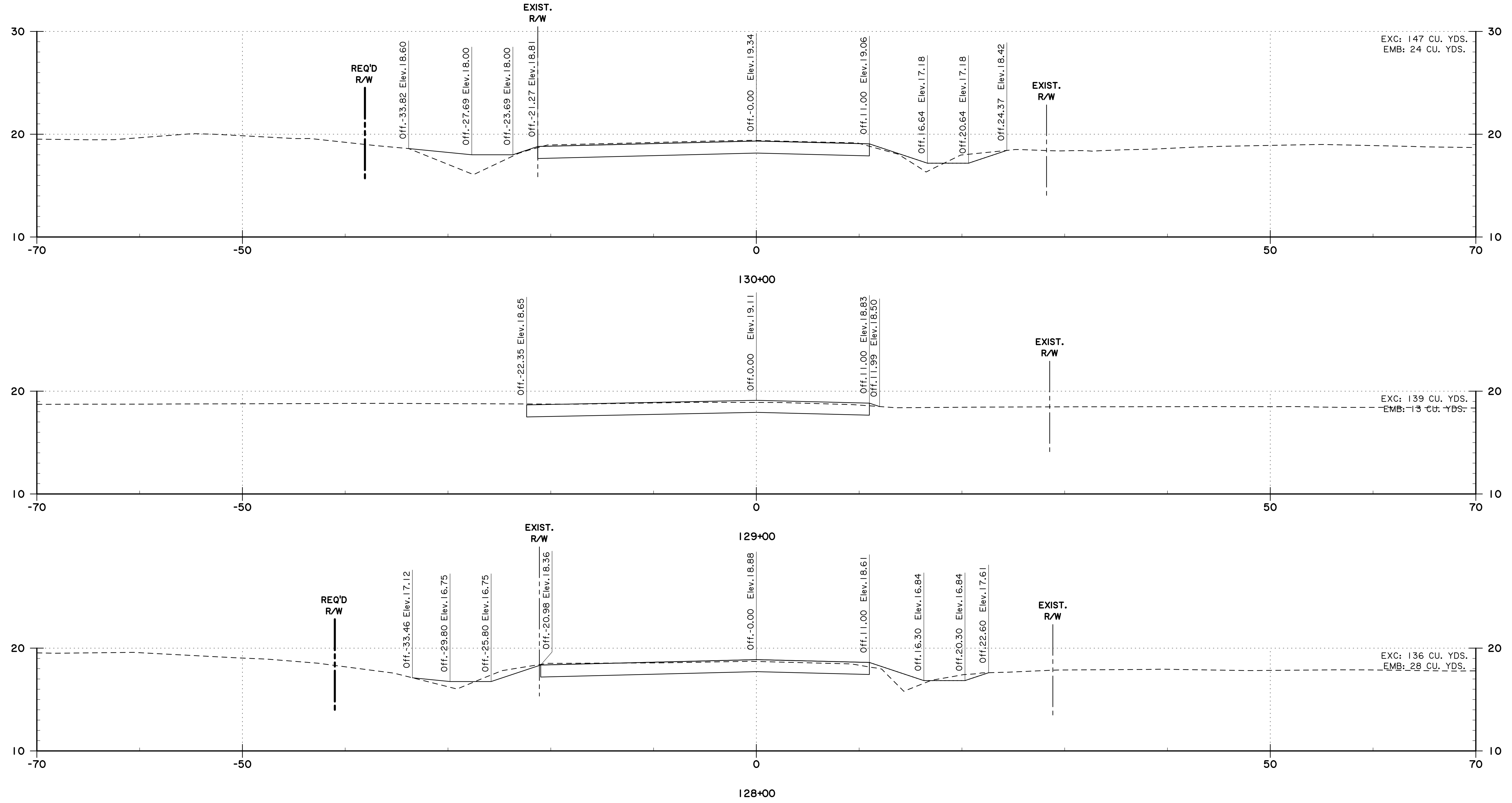
FINAL PLANS



CROSS SECTIONS
SHARP RD.

SHEET NUMBER	409
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010

FINAL PLANS



SHEET NUMBER		410
DESIGN		C. NIPPER
CHECK	J. LOHMANN	PARISH
DETAIL	C. NIPPER	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER
REVIEW		EN21000010
SERIES #		

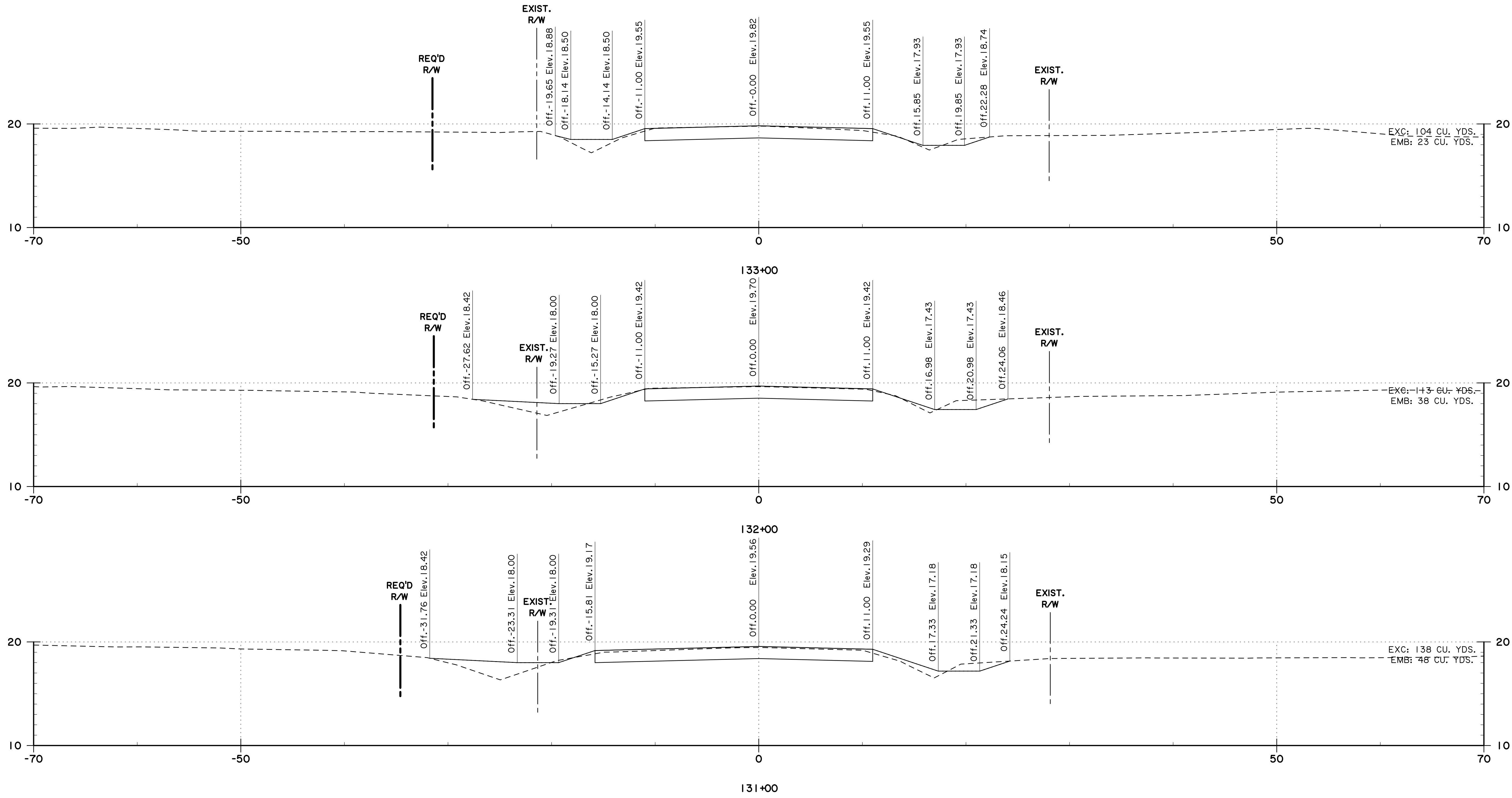
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



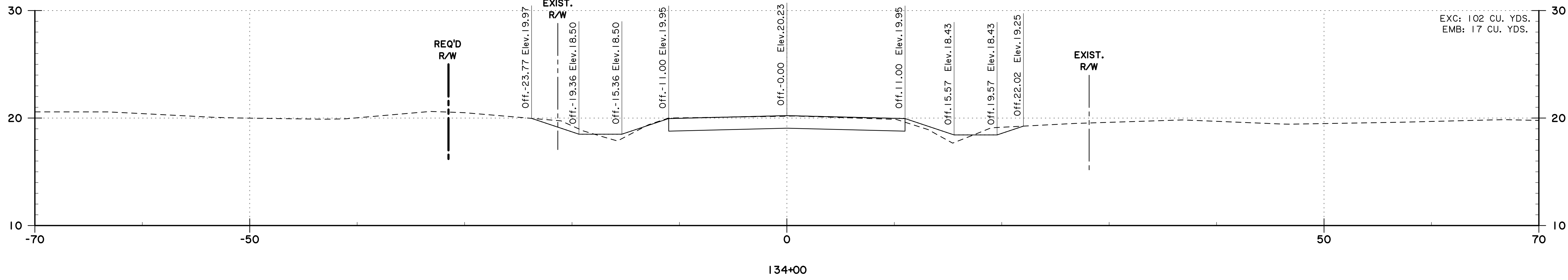
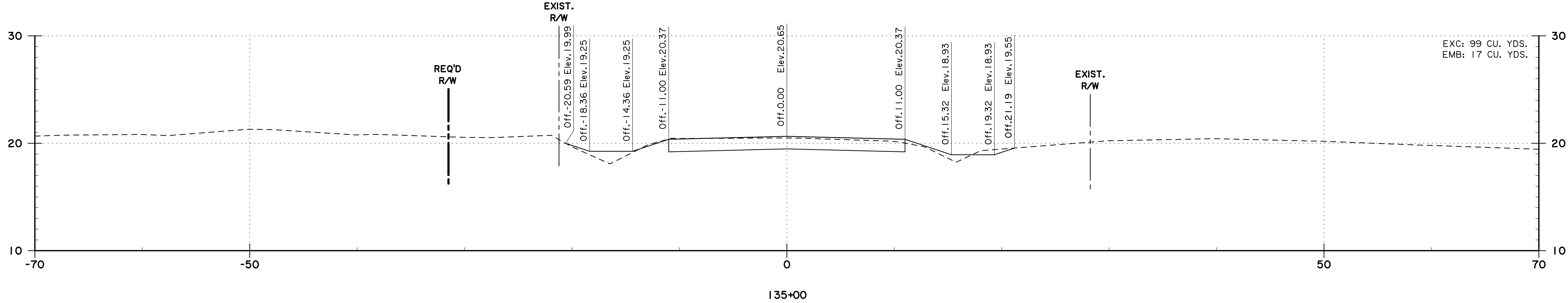
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DESIGN	C. NIPPER	PARISH
CHECK	J. LOHMANN	ST. TAMMANY
DETAIL	C. NIPPER	
CHECK	J. LOHMANN	
REVIEW		PROJECT NUMBER
SERIES #		EN21000010

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

FINAL PLANS



SHEET NUMBER		412	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.L OHMANN		
REVIEW			
SERIES #			

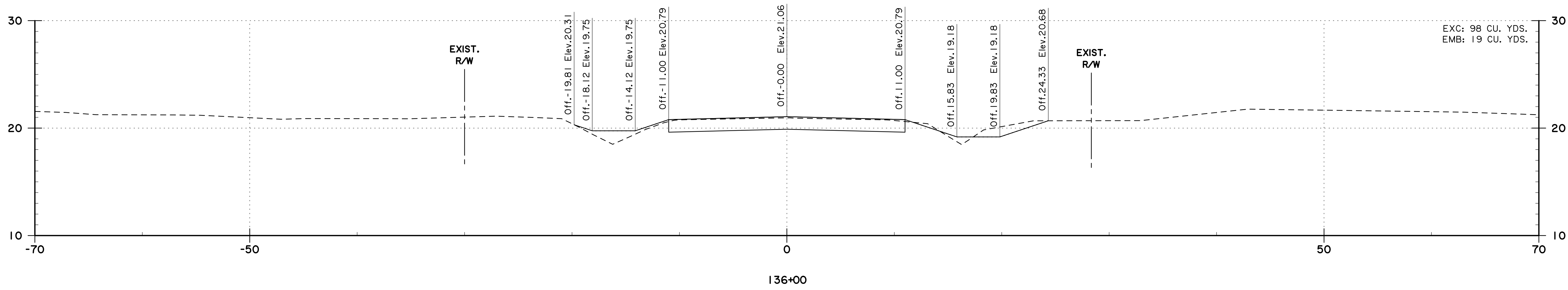
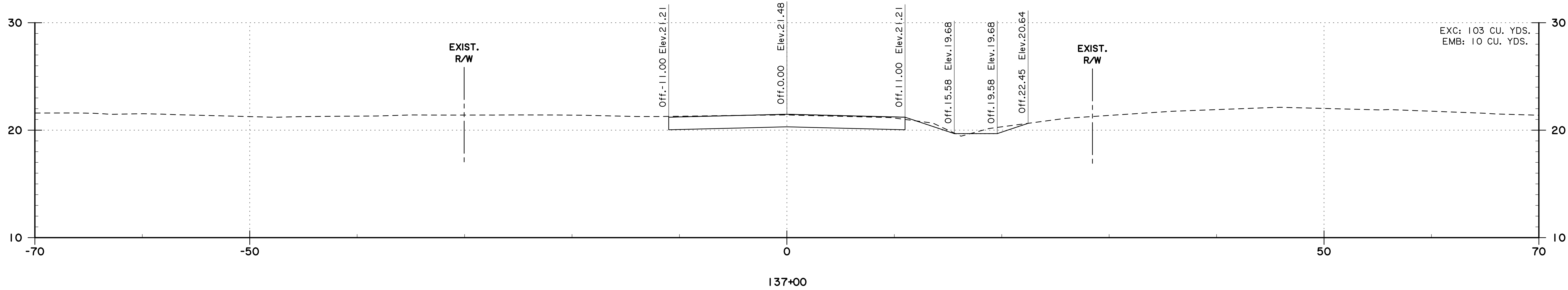
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		413	
DESIGN		C. NIPPER	
CHECK	J. LOHMANN	PARISH	ST. TAMMANY
DETAIL	C. NIPPER	PROJECT NUMBER	EN21000010
CHECK	J. LOHMANN	REVIEW	
REVIEW		SERIES #	

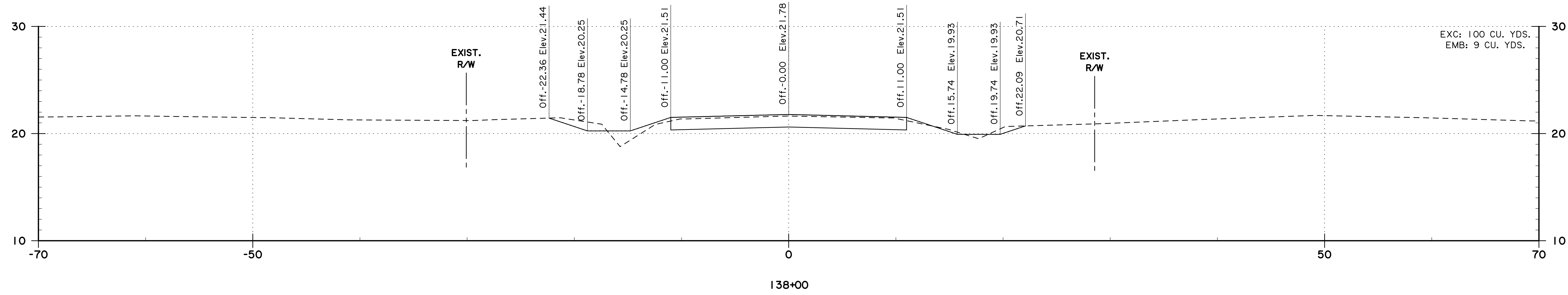
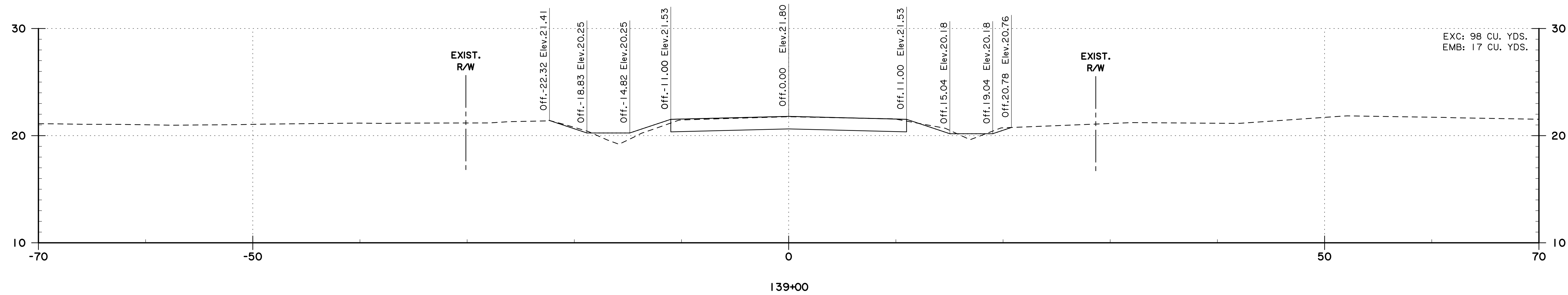
CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		414	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

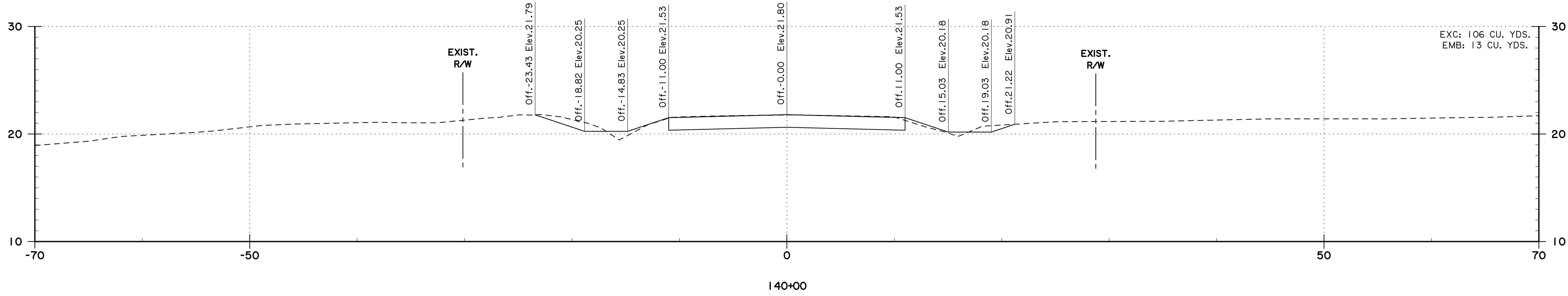
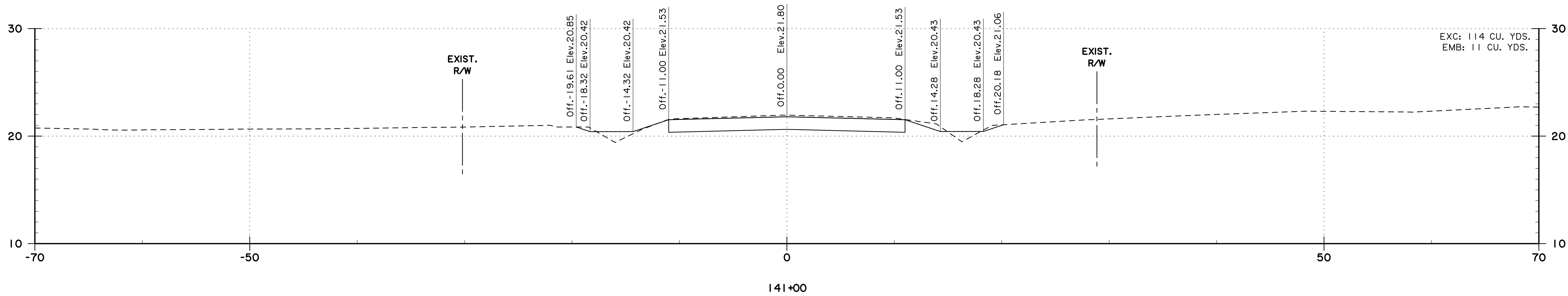
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



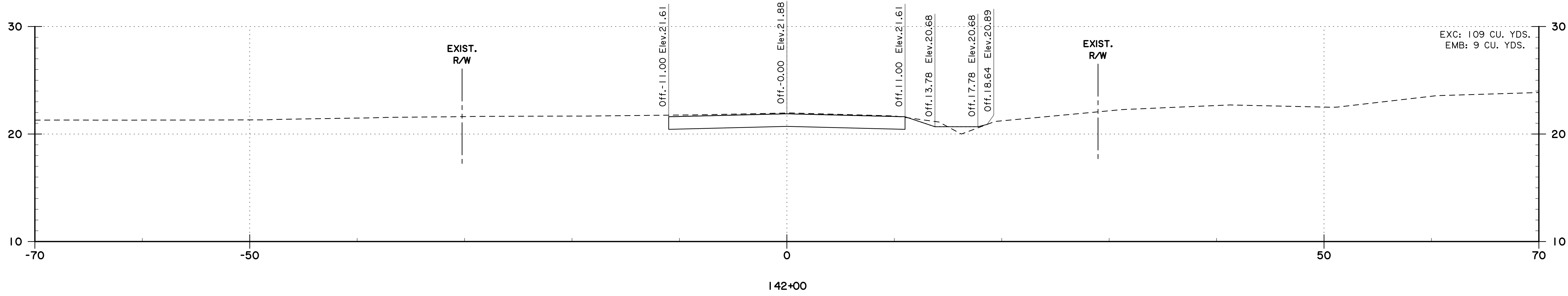
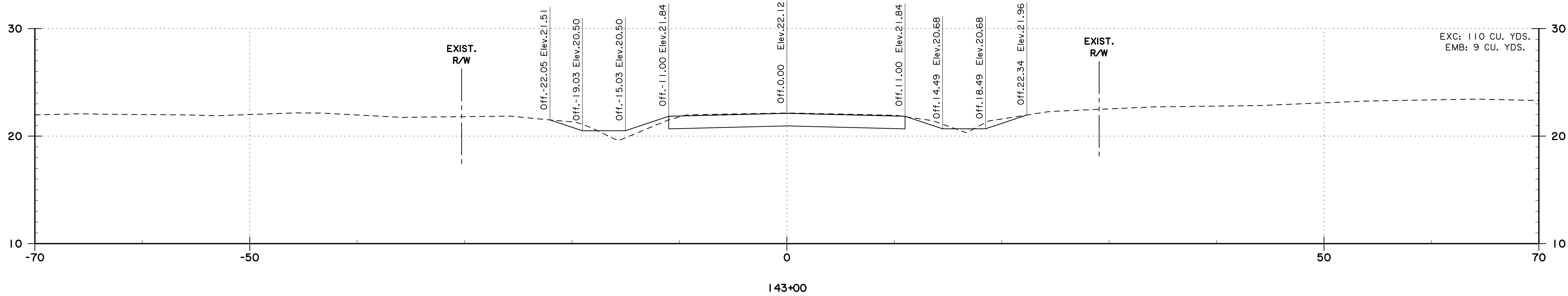
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CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

FINAL PLANS



SHEET NUMBER		416	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

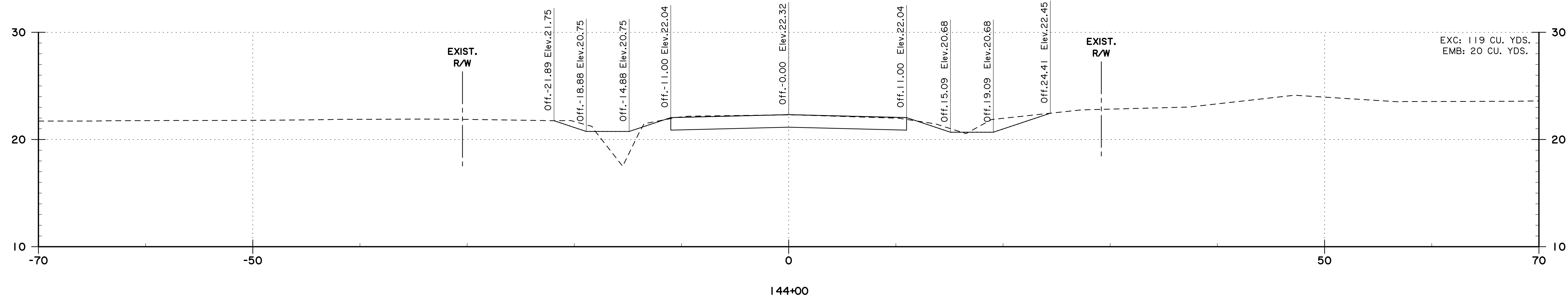
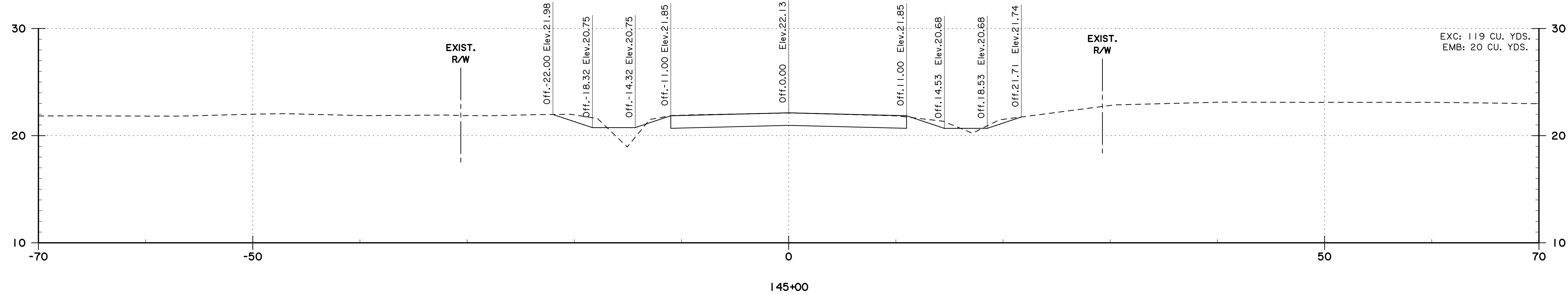
CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
ChN
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

STATE OF LOUISIANA
SHARP RD.

GEC
Gulf Engineers & Consultants

FINAL PLANS



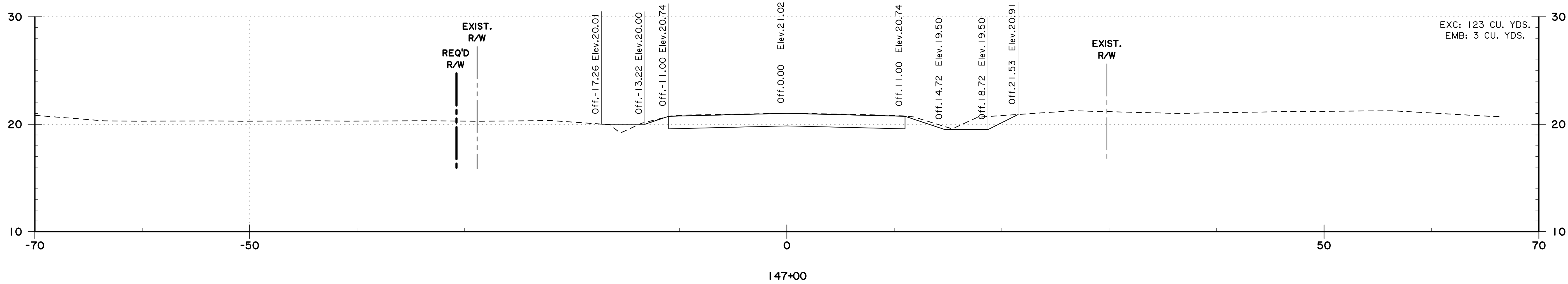
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CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

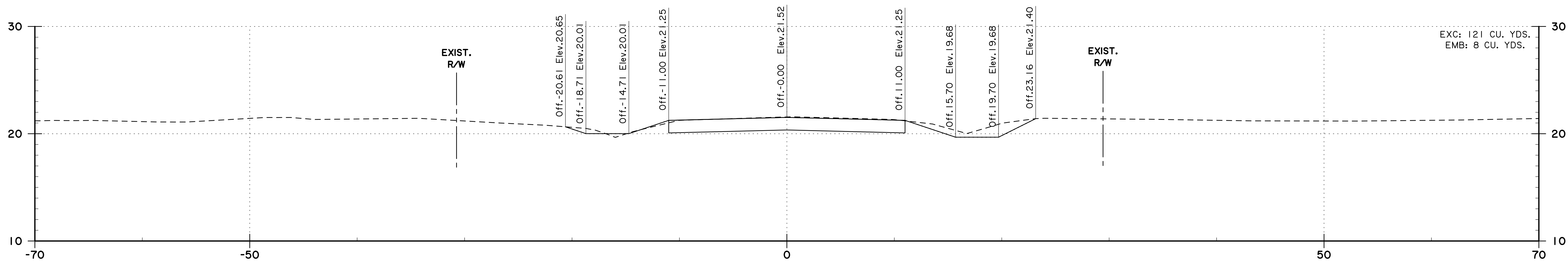
CROSS SECTIONS

SHARP RD.

FINAL PLANS

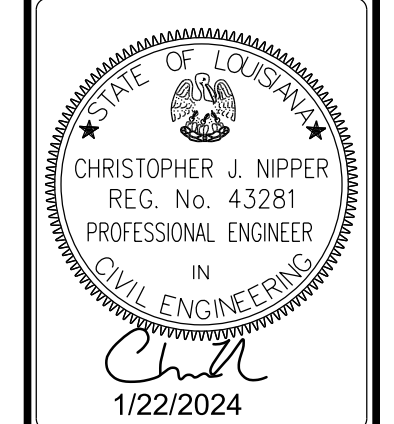


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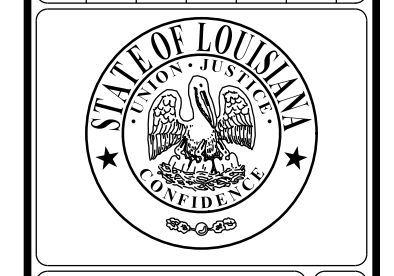


146+00

SHEET NUMBER	418
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010



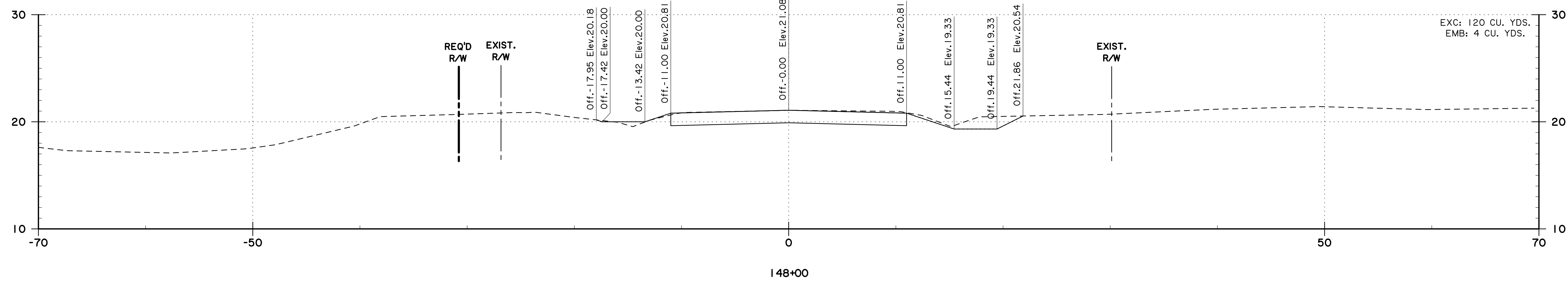
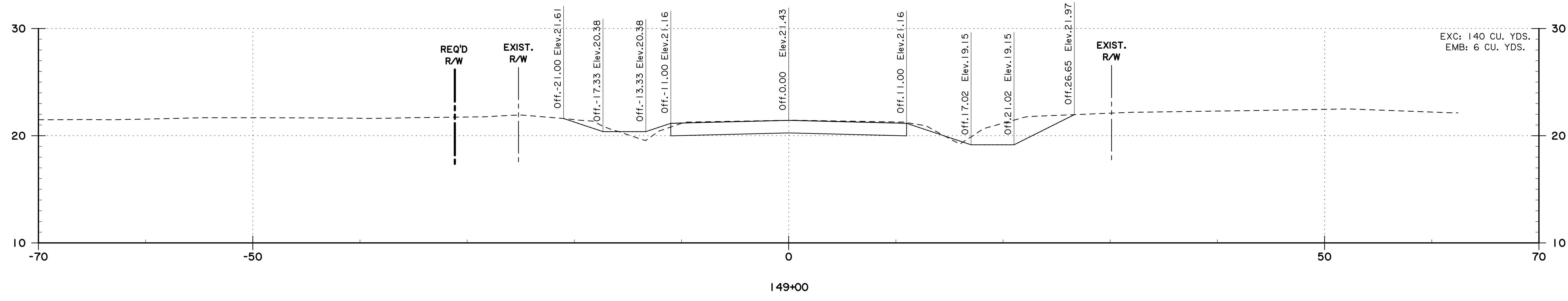
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY



CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		419	
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CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

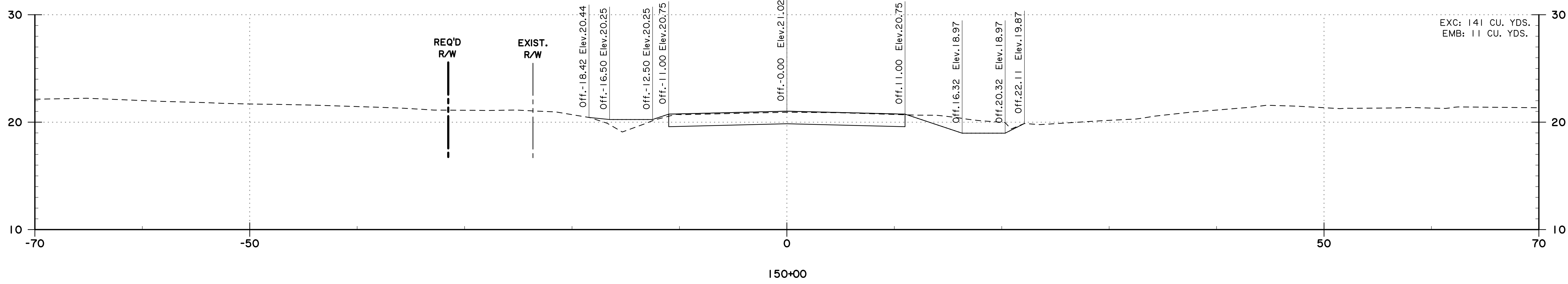
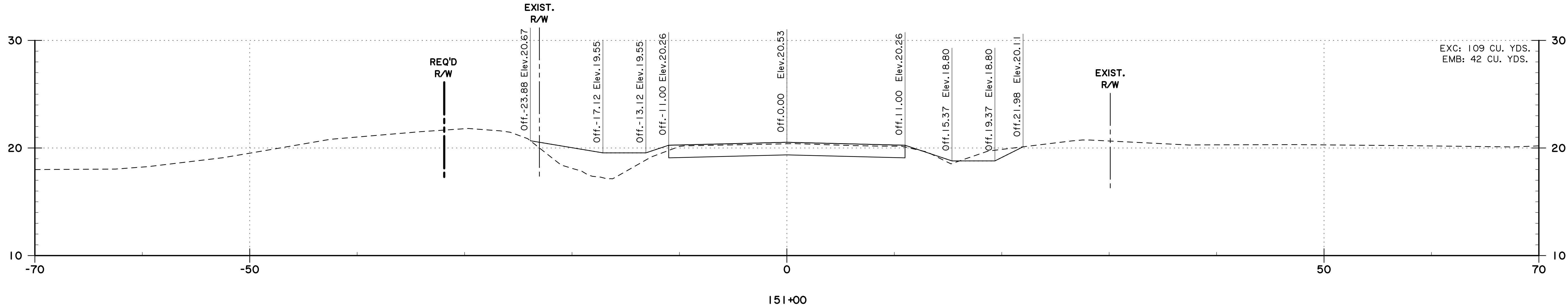
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



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DESIGN	C. NIPPER	PARISH	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

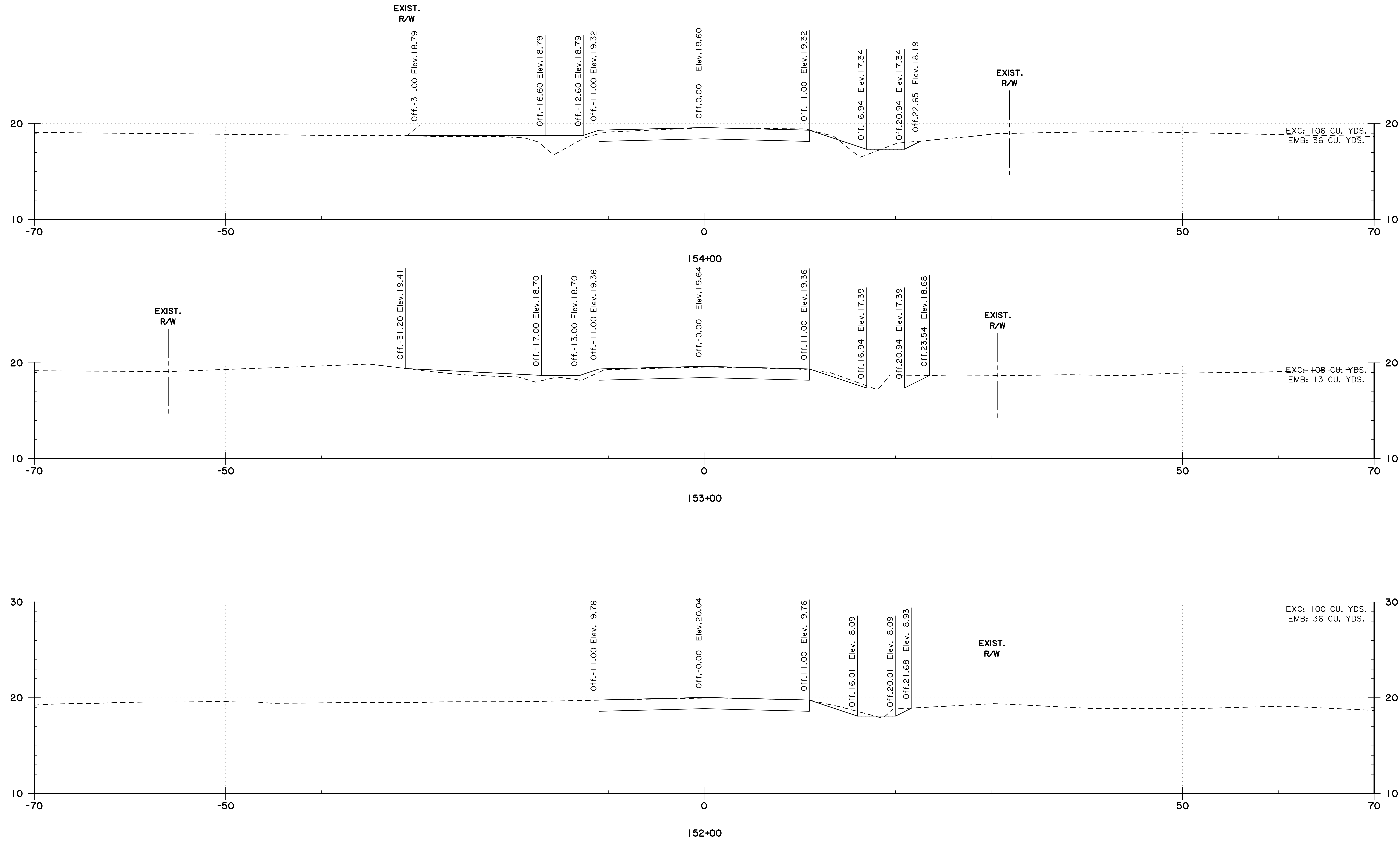
CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING

Ch
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
 SHARP RD.

FINAL PLANS



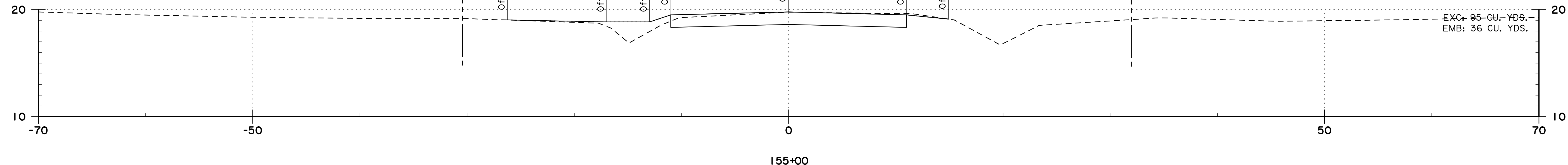
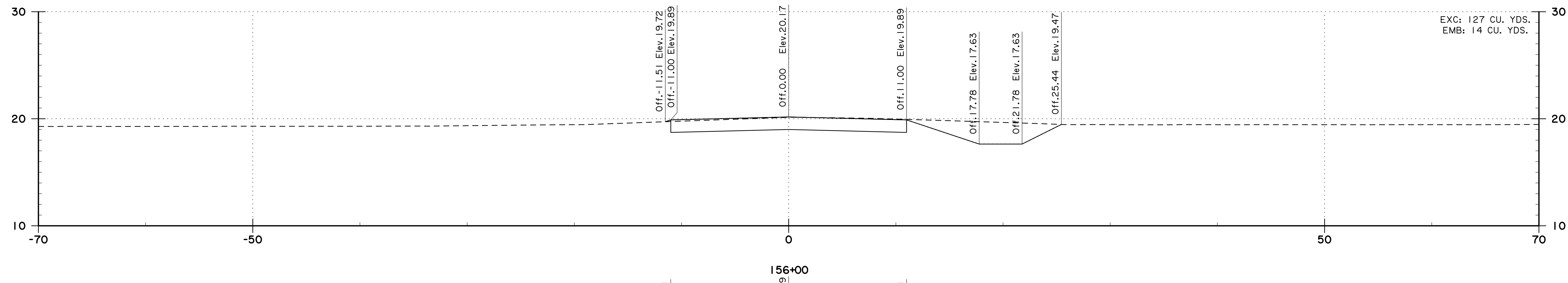
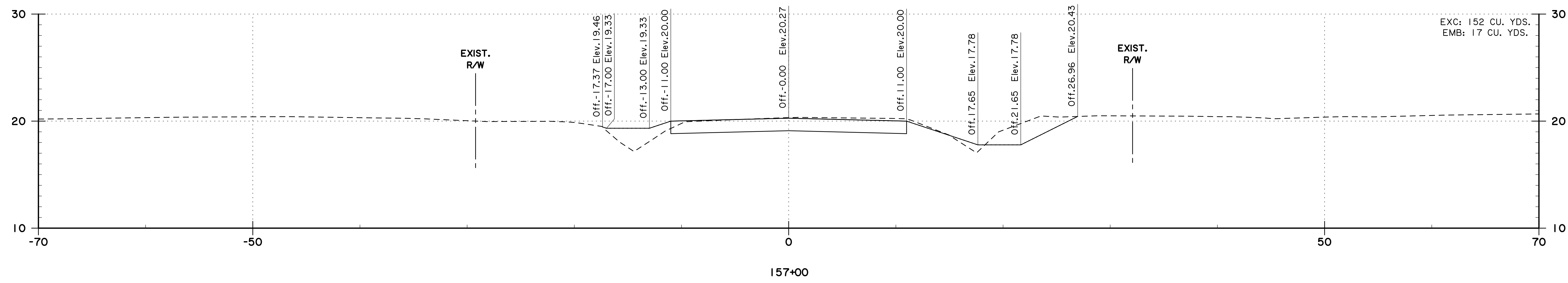
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DETAIL		C. NIPPER	
CHECK		J. LOHMANN	
REVIEW			
SERIES #			
PARISH		ST. TAMMANY	
PROJECT NUMBER		EN21000010	

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

FINAL PLANS



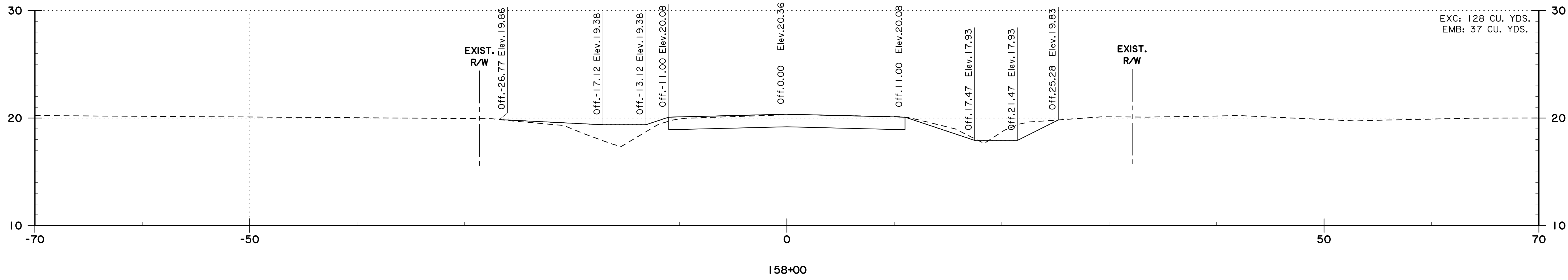
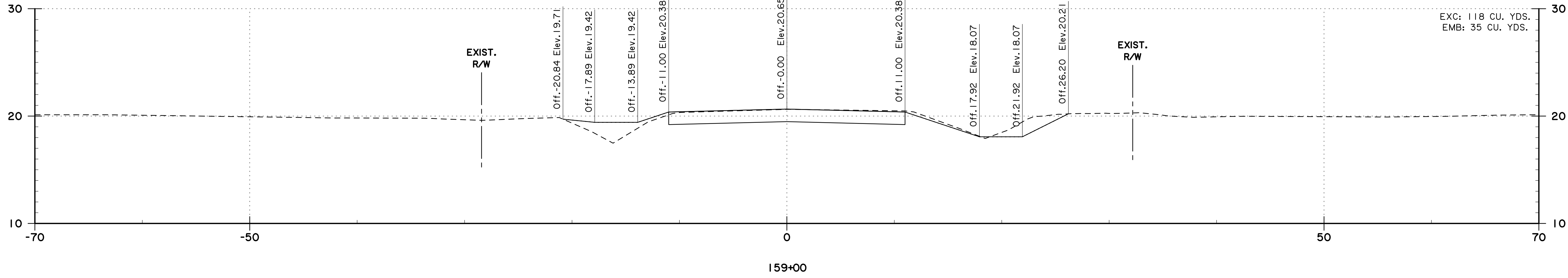
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CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
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 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
 SHARP RD.

FINAL PLANS



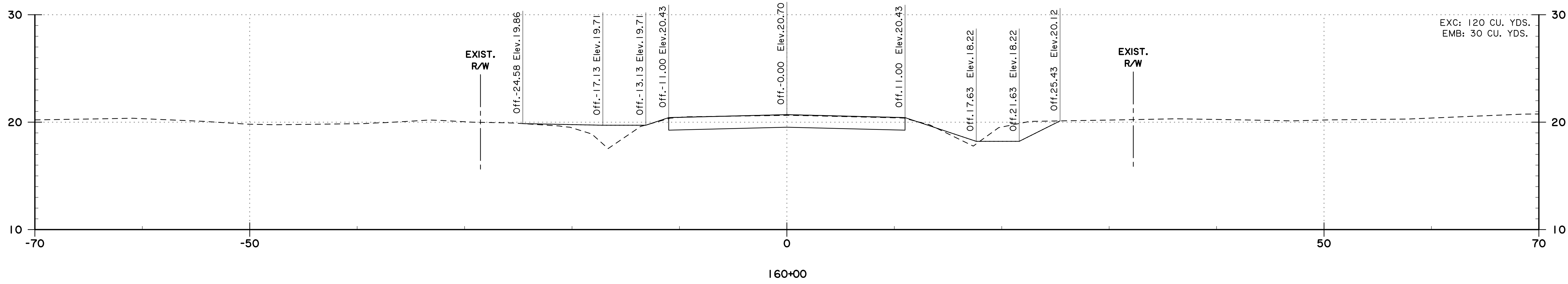
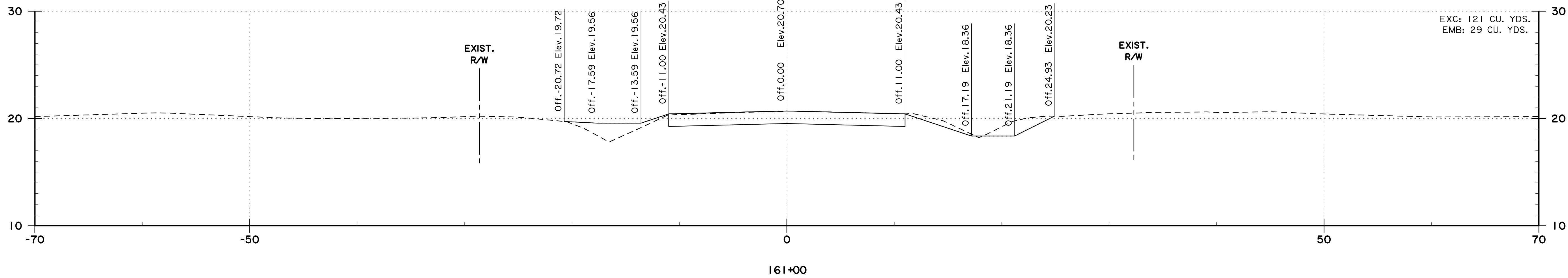
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DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.L OHMANN		
REVIEW			
SERIES #			

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		424	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

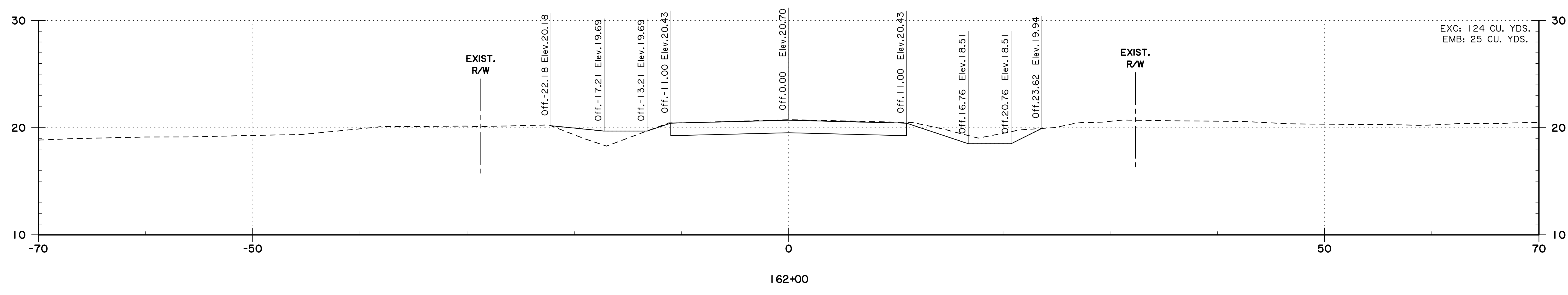
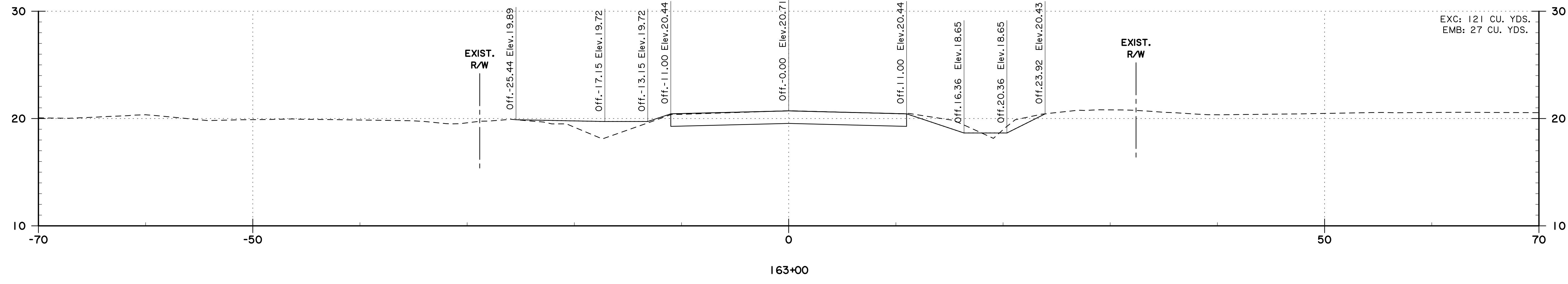
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

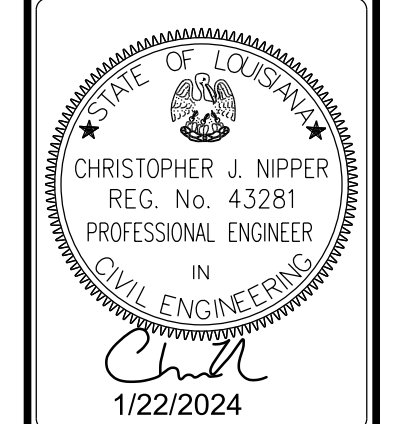
CROSS SECTIONS

SHARP RD.

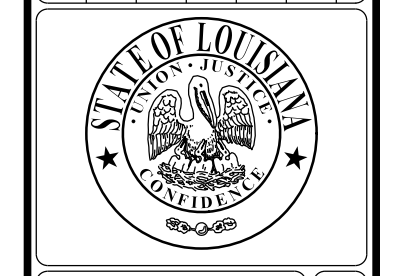
FINAL PLANS



SHEET NUMBER	425
DESIGN	C. NIPPER
CHECK	J. LOHMANN
DETAIL	C. NIPPER
CHECK	J. LOHMANN
REVIEW	
SERIES #	
PARISH	ST. TAMMANY
PROJECT NUMBER	EN21000010



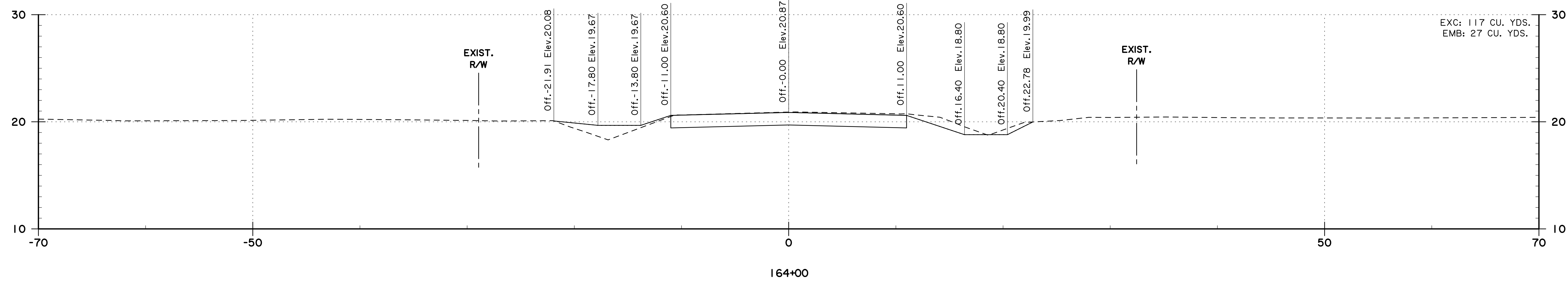
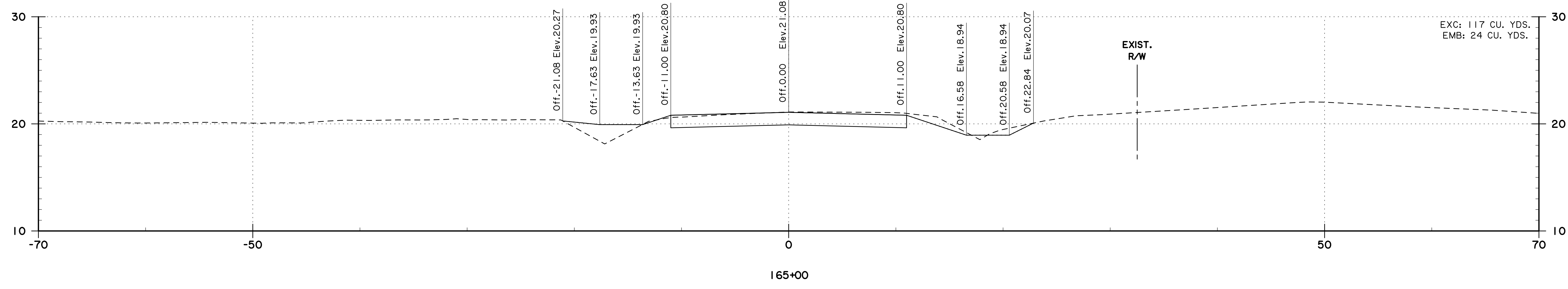
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY



CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		426
DESIGN	C-NIPPER	PARISH
CHECK	J.LOHMANN	ST. TAMMANY
DETAIL	C-NIPPER	
CHECK	J.L OHMANN	
REVIEW		PROJECT NUMBER
SERIES #		EN21000010

CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING

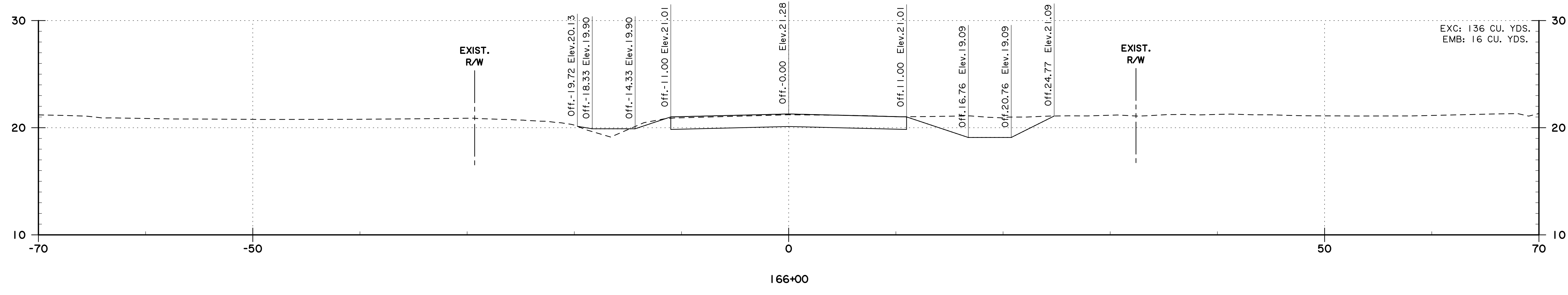
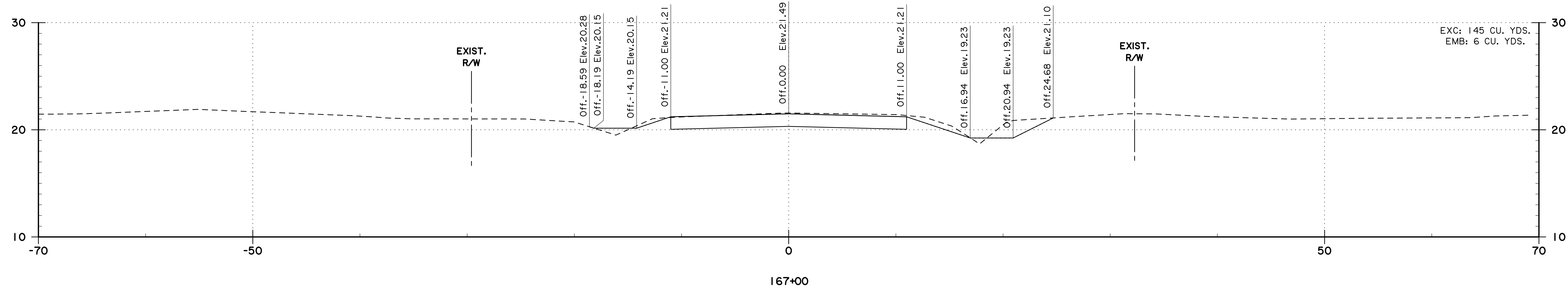
Ch
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		427
DESIGN	C. NIPPER	PARISH
CHECK	J. LOHMANN	ST. TAMMANY
DETAIL	C. NIPPER	
CHECK	J. LOHMANN	
REVIEW		
SERIES #		EN21000010

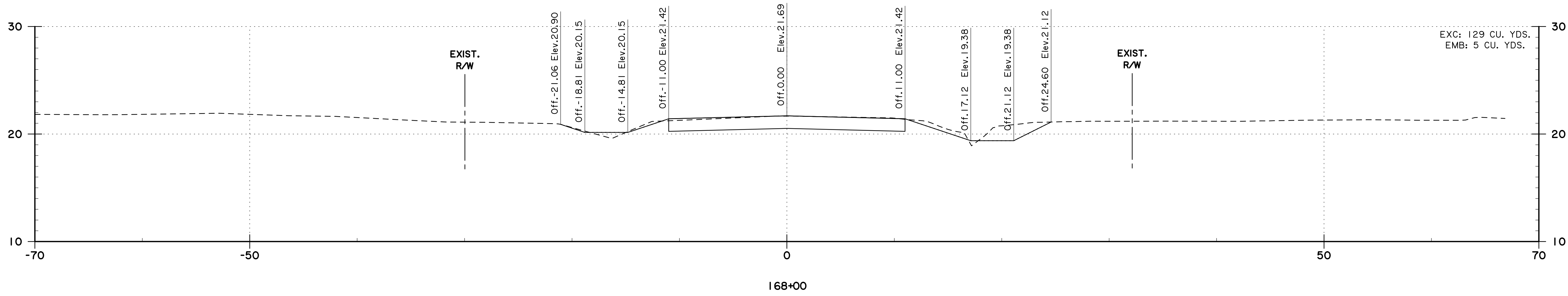
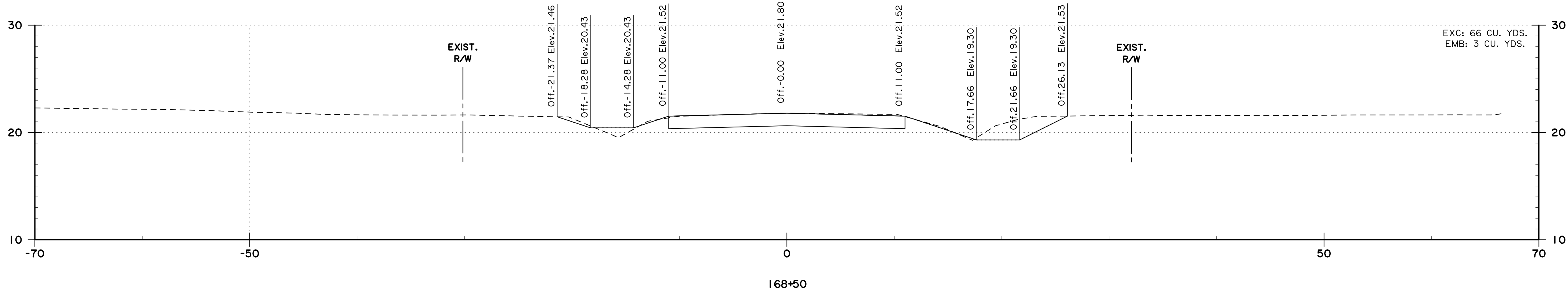
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		428	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN		
DETAIL	C-NIPPER		
CHECK	J.L OHMANN		
REVIEW			
SERIES #		PROJECT NUMBER	EN21000010

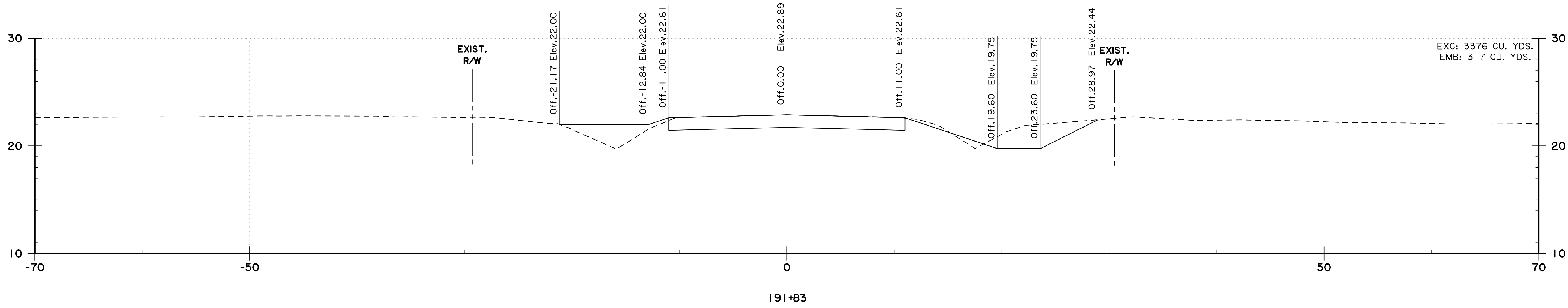
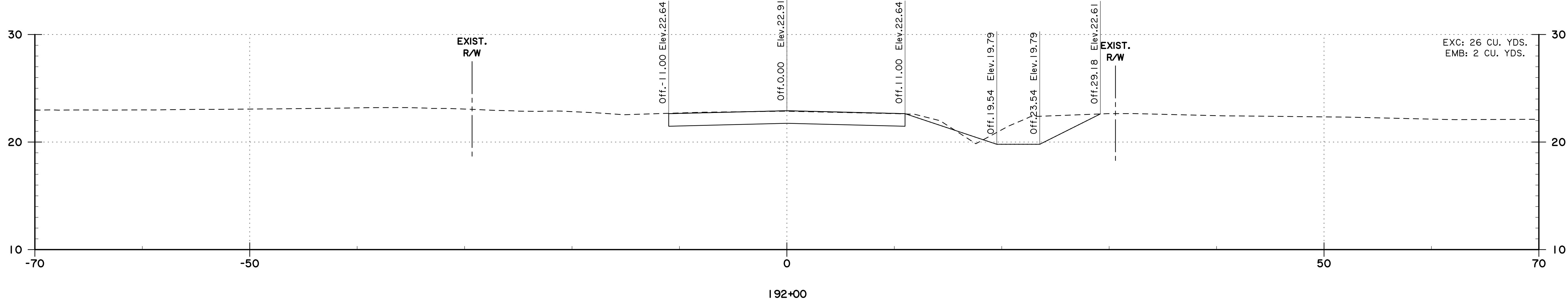
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		429	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

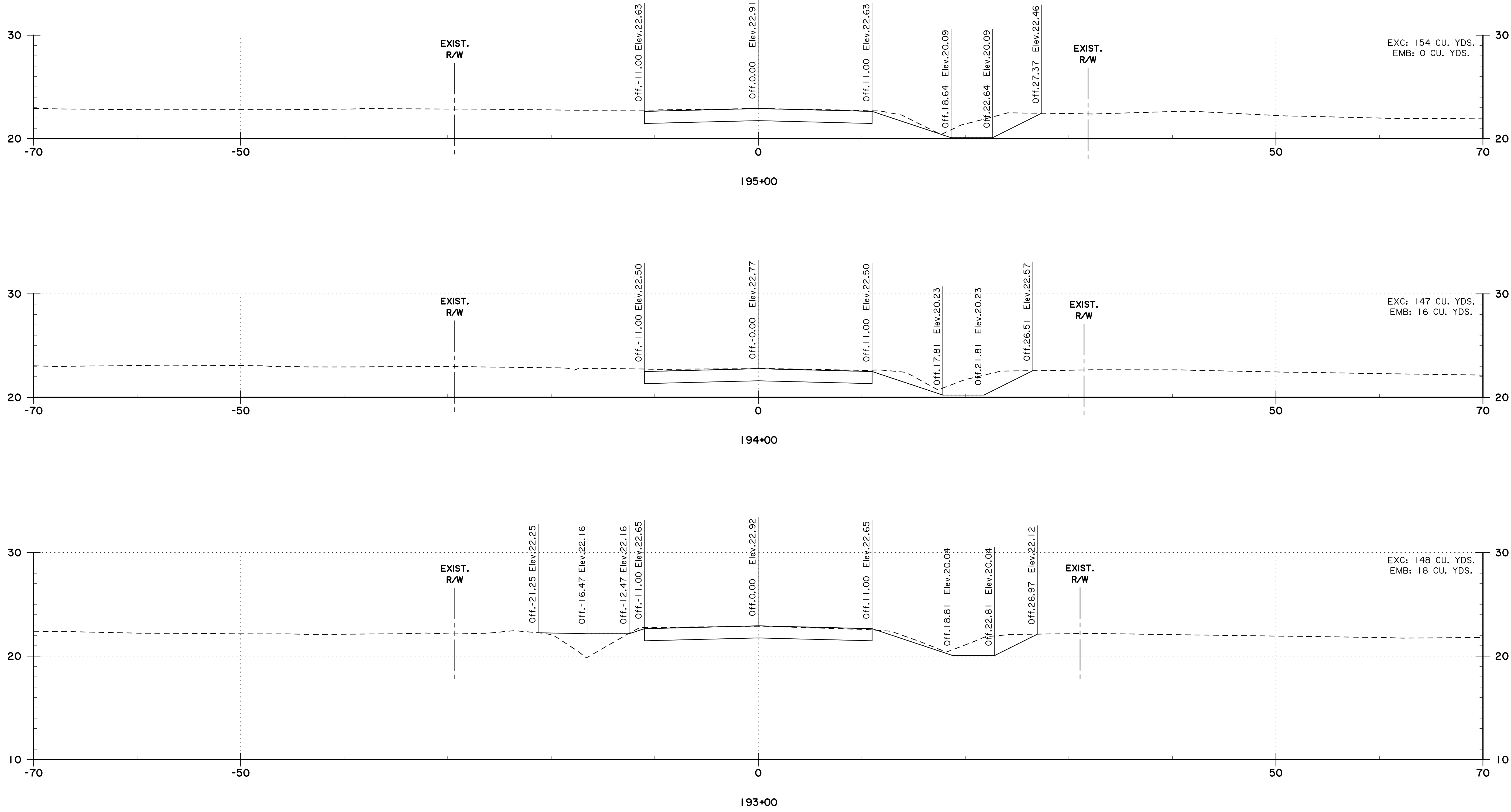
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



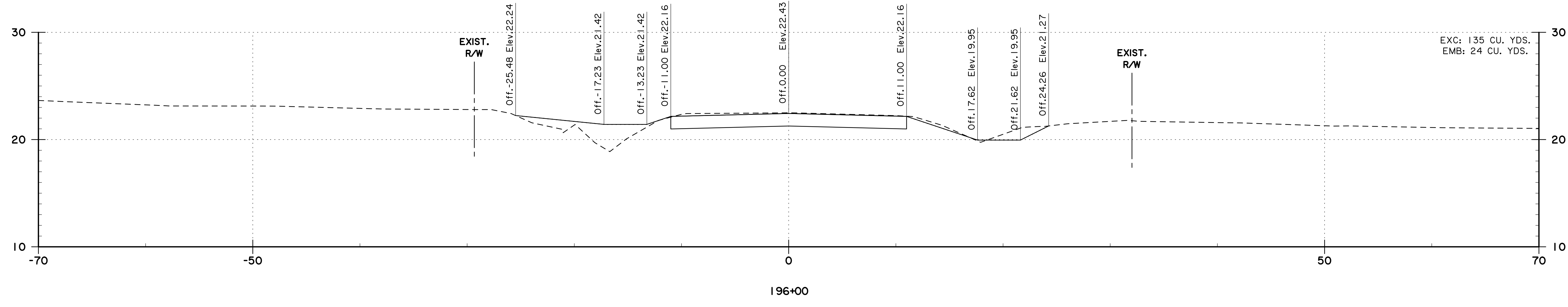
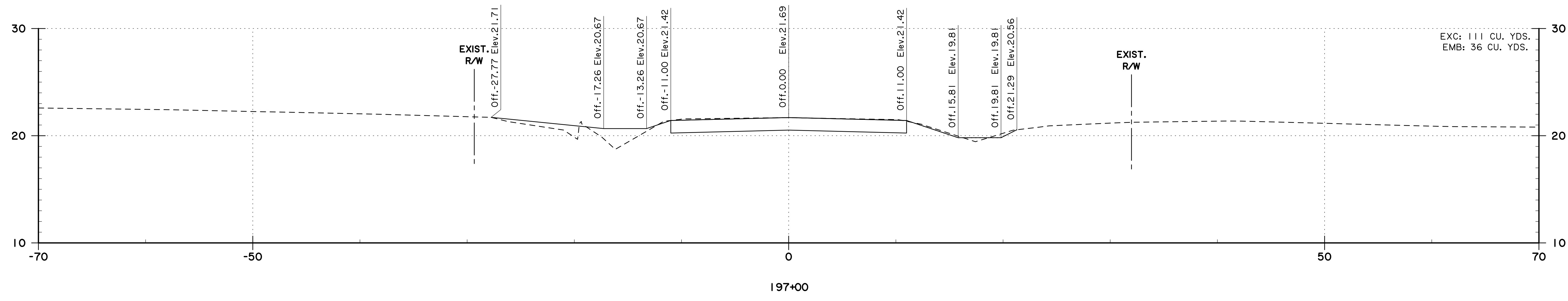
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DESIGN	C-NIPPER	PARISH
CHECK	J.LOHMANN	ST. TAMMANY
DETAIL	C-NIPPER	PROJECT NUMBER
CHECK	J.L OHMANN	EN21000010
REVIEW		SERIES #

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

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SHARP RD.

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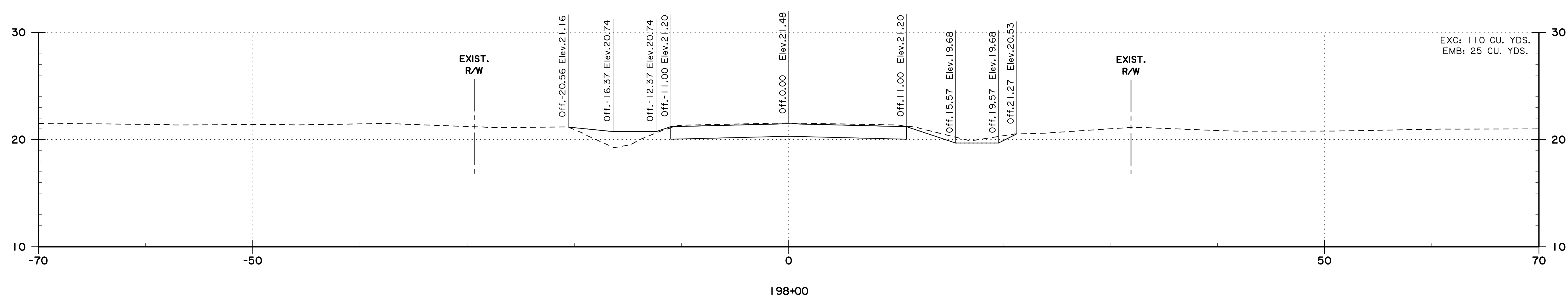
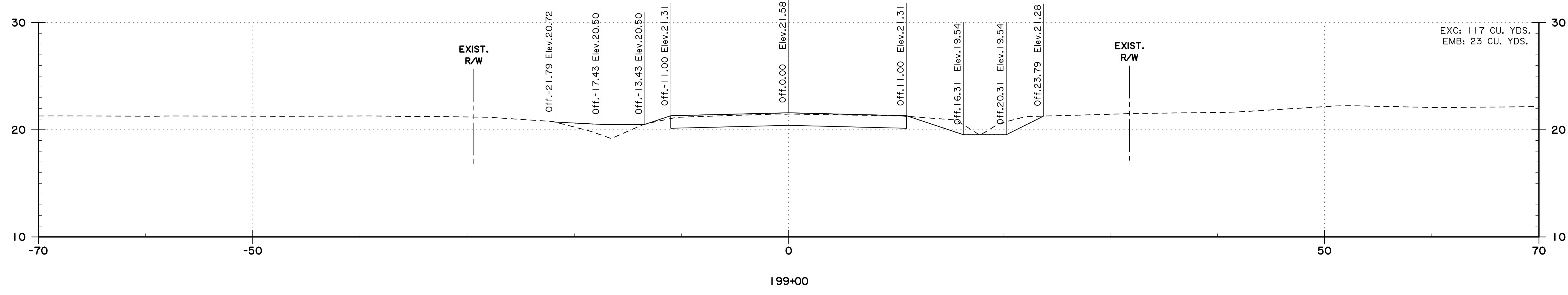
SHEET NUMBER		431	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.L OHMANN		
REVIEW			
SERIES #			

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



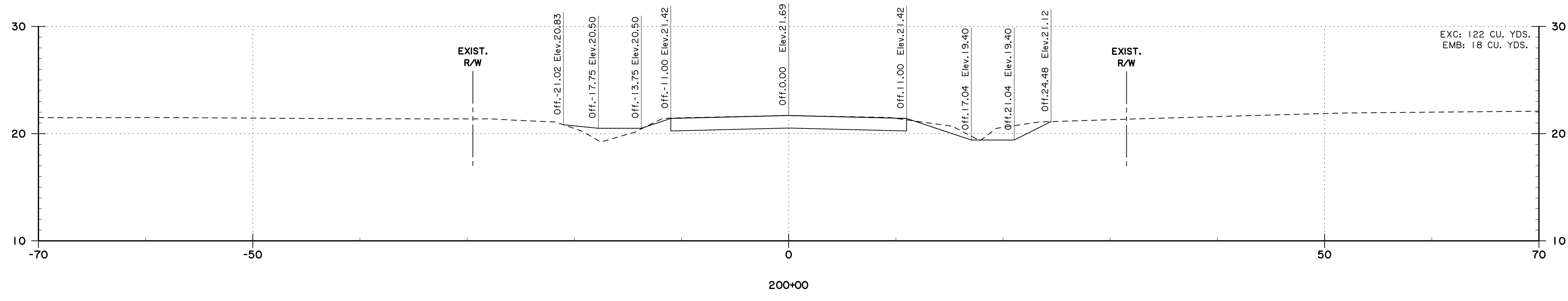
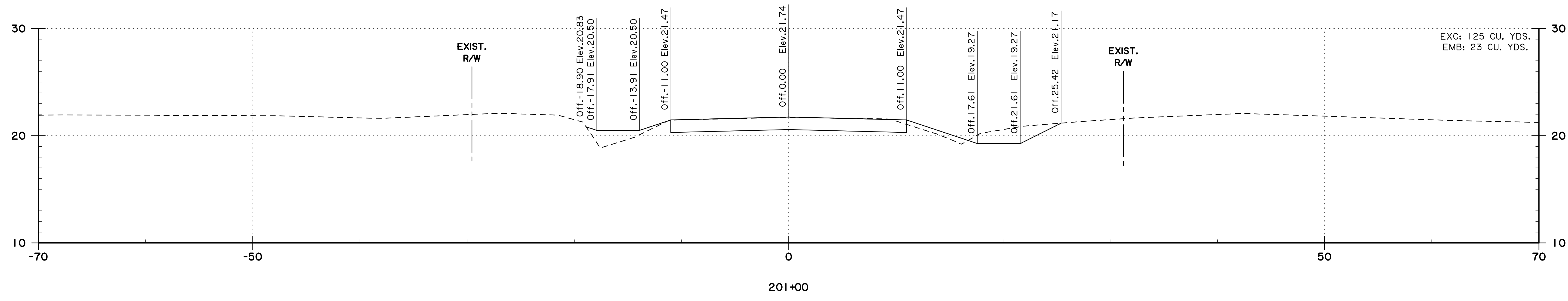
SHEET NUMBER		432
DESIGN	C. NIPPER	PARISH
CHECK	J. LOHMANN	
DETAIL	C. NIPPER	PROJECT NUMBER
CHECK	J. LOHMANN	
REVIEW		EN21000010
SERIES #		

CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
ChN
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
 SHARP RD.

FINAL PLANS



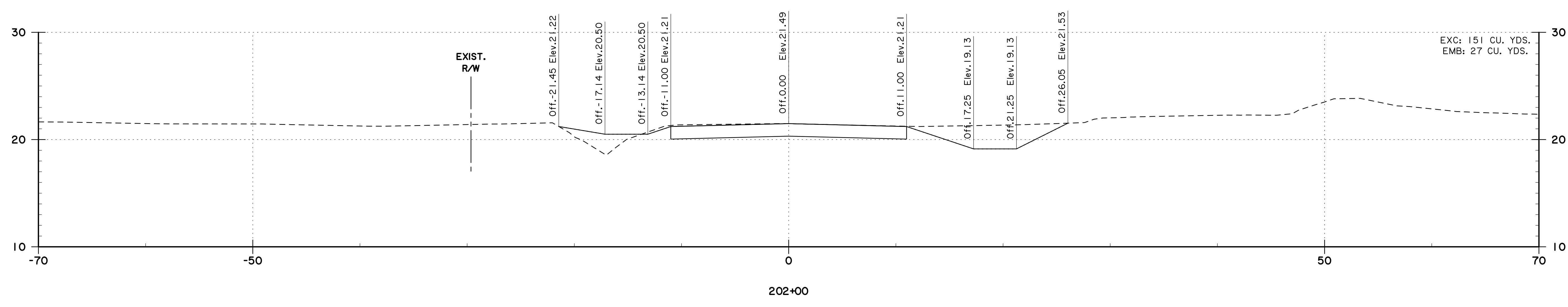
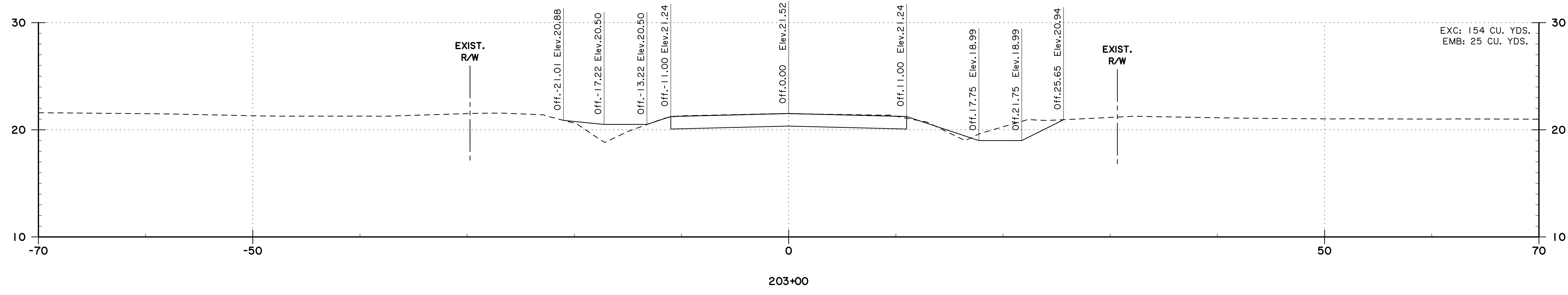
SHEET NUMBER		433	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN		
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #		PROJECT NUMBER	EN21000010

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



CROSS SECTIONS
SHARP RD.

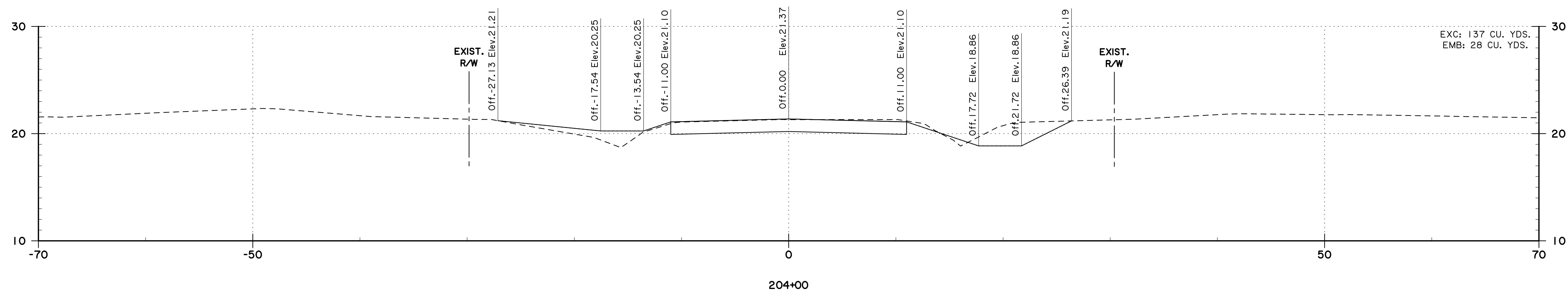
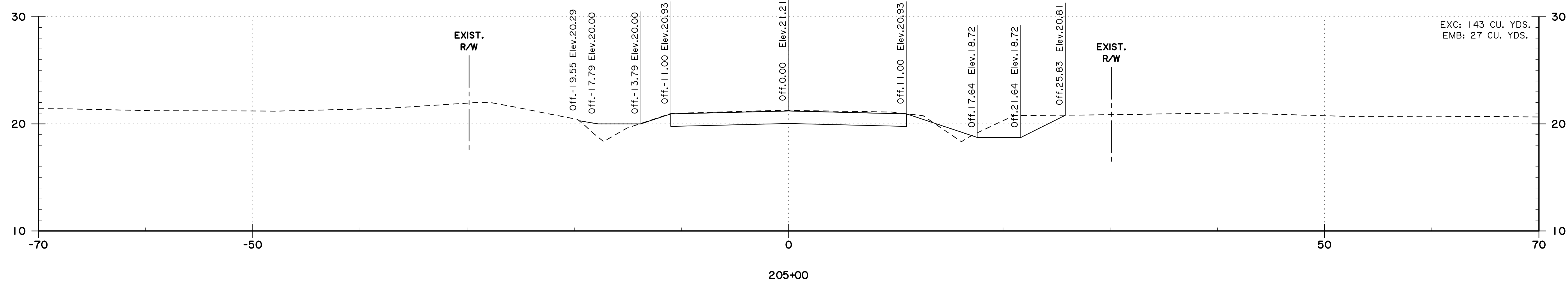
STATE OF LOUISIANA

 1/22/2024

DESIGN	C. NIPPER	PARISH	ST. TAMMANY	SHEET NUMBER	434
CHECK	J. LOHMANN				
DETAIL	C. NIPPER				
CHECK	J. LOHMANN				
REVIEW					
SERIES #					EN21000010

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

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SHEET NUMBER		435	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

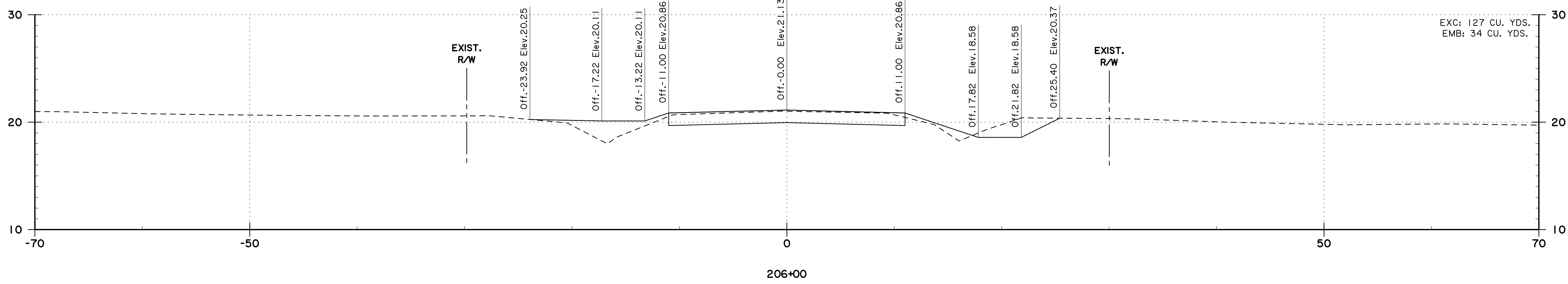
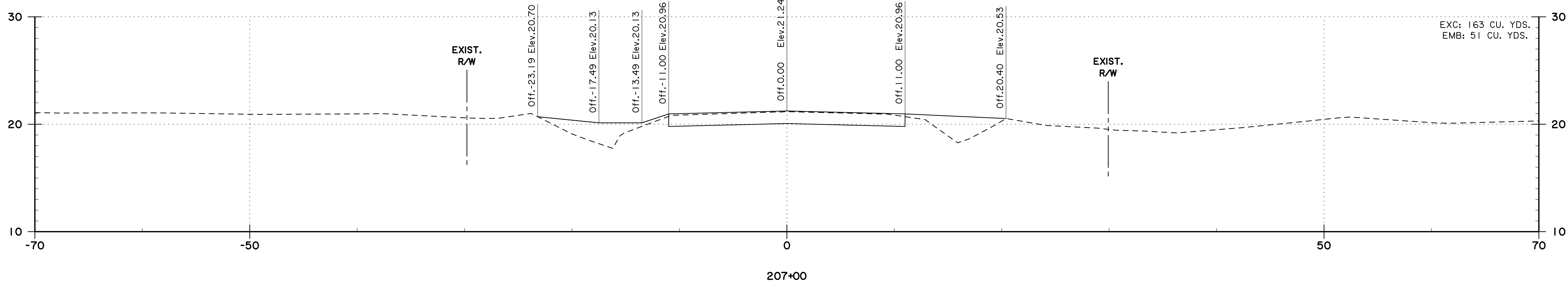
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		436	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

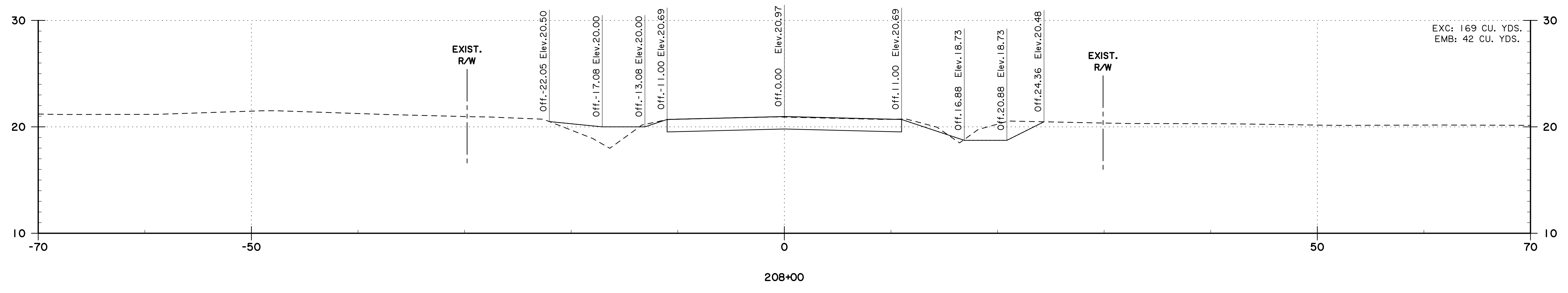
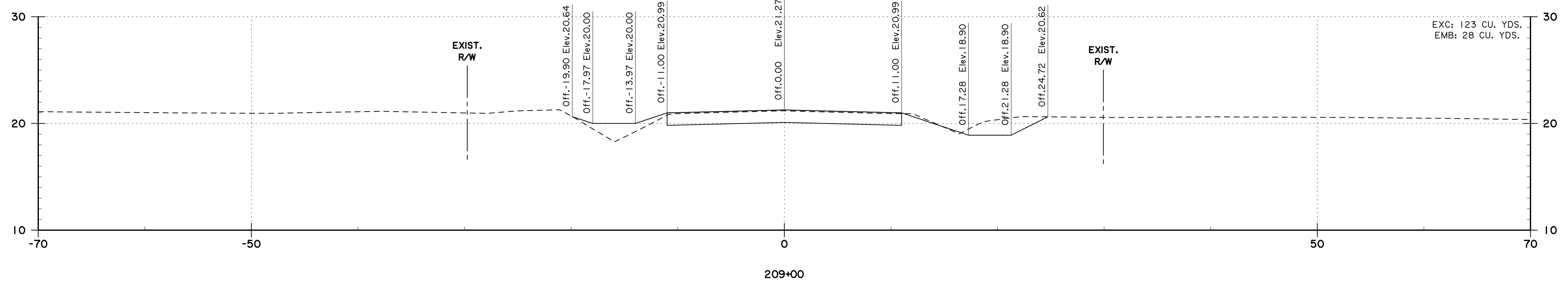
1/22/2024

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CROSS SECTIONS

SHARP RD.

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SHEET NUMBER		437
DESIGN	C. NIPPER	PARISH
CHECK	J. LOHMANN	ST. TAMMANY
DETAIL	C. NIPPER	
CHECK	J. LOHMANN	
REVIEW		PROJECT NUMBER
SERIES #		EN21000010

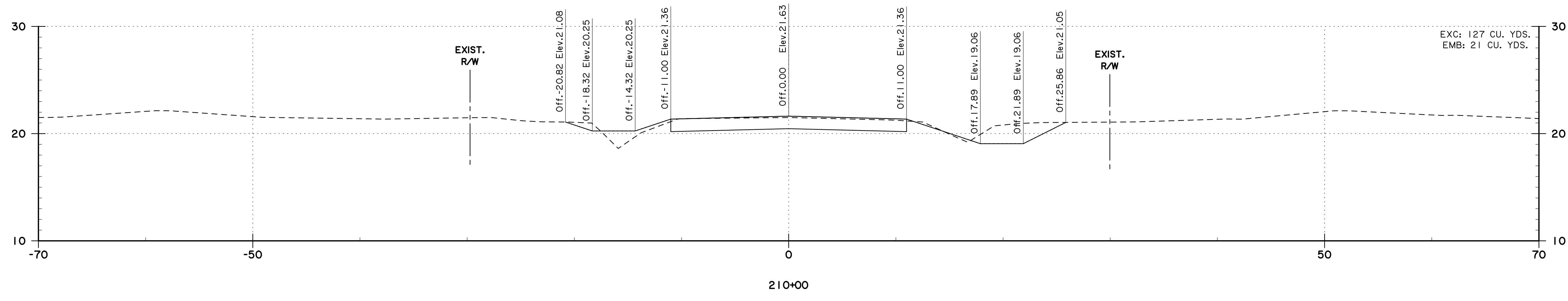
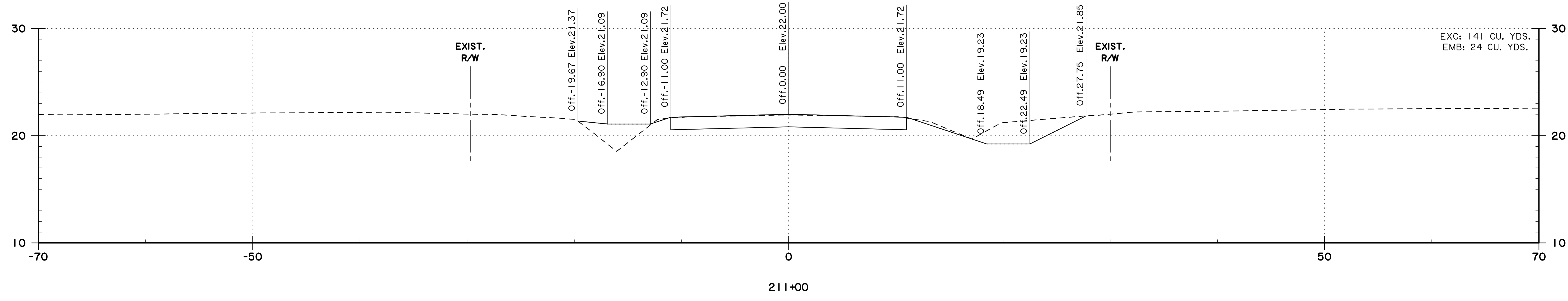
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS

SHARP RD.

FINAL PLANS



SHEET NUMBER		438	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

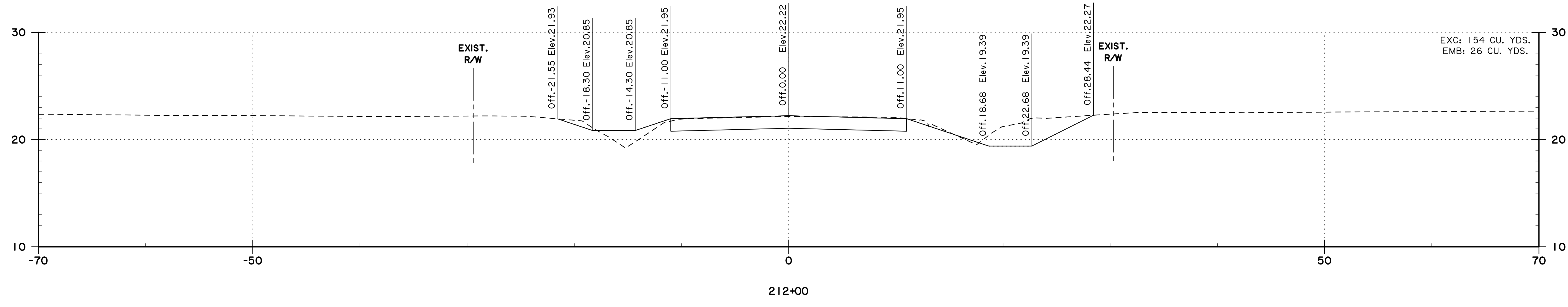
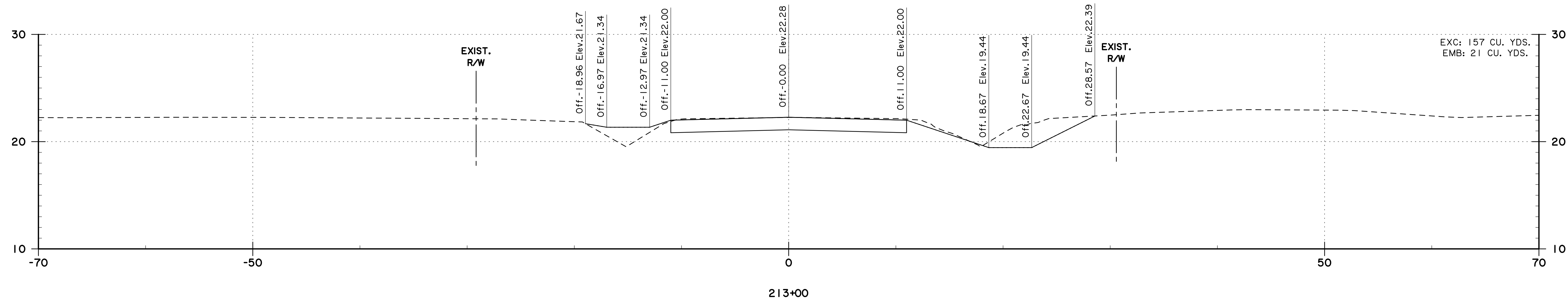
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

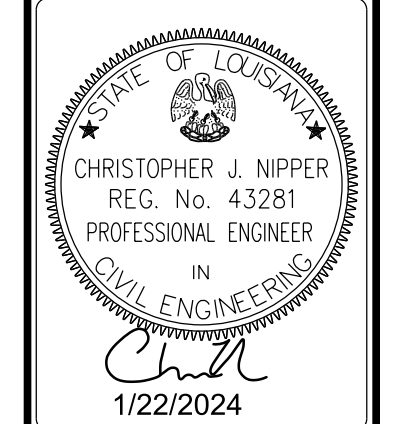
CROSS SECTIONS

SHARP RD.

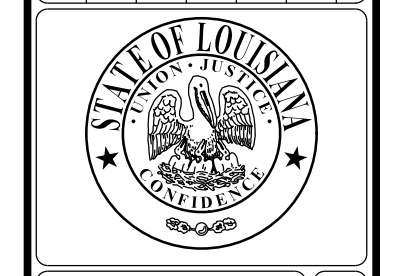
FINAL PLANS



SHEET NUMBER		439
DESIGN	C-NIPPER	PARISH
CHECK	J.LOHMANN	ST. TAMMANY
DETAIL	C-NIPPER	
CHECK	J.L OHMANN	
REVIEW		PROJECT NUMBER
SERIES #		EN21000010



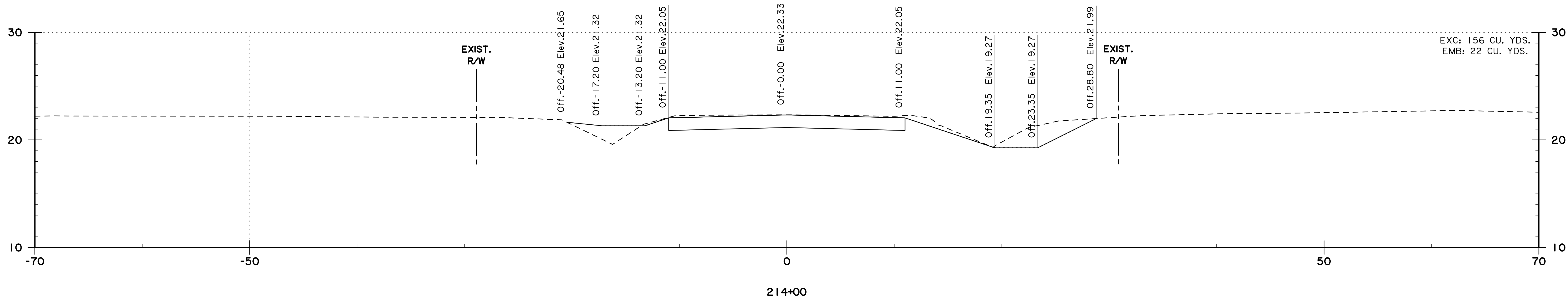
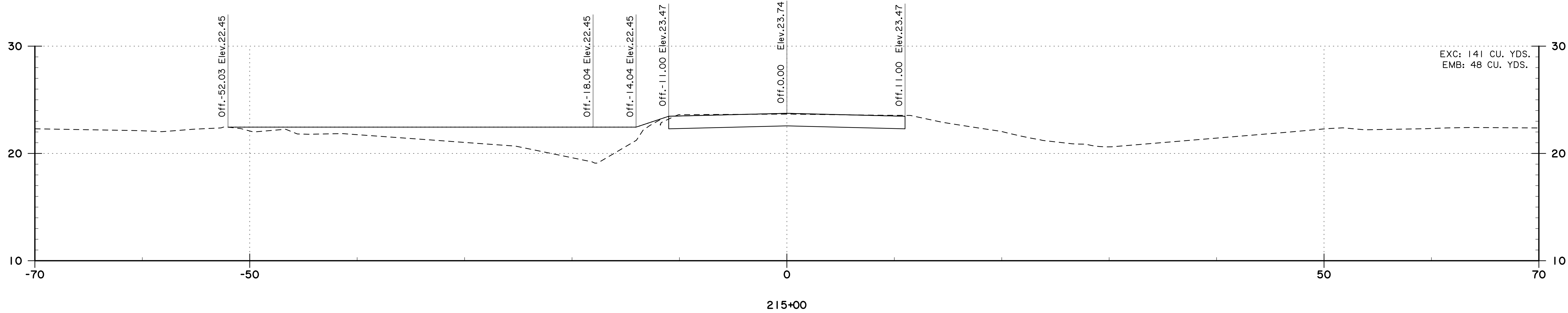
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY



CROSS SECTIONS

SHARP RD.

FINAL PLANS



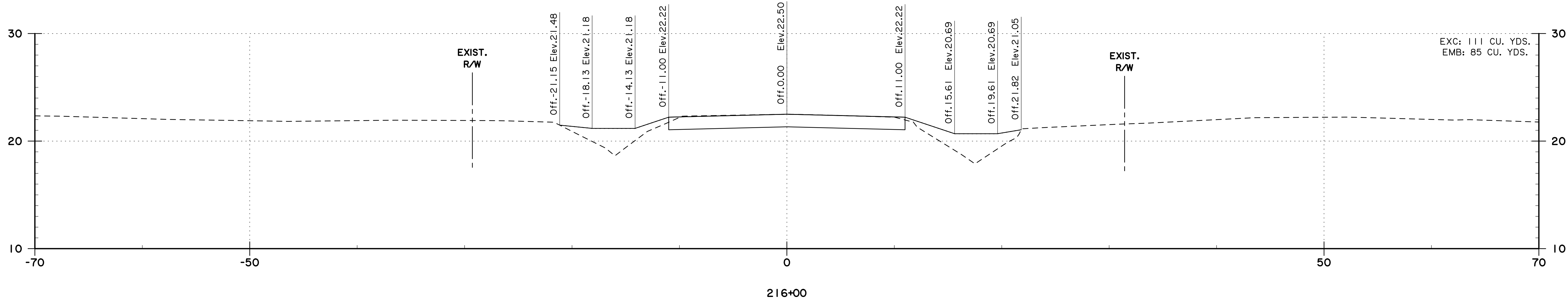
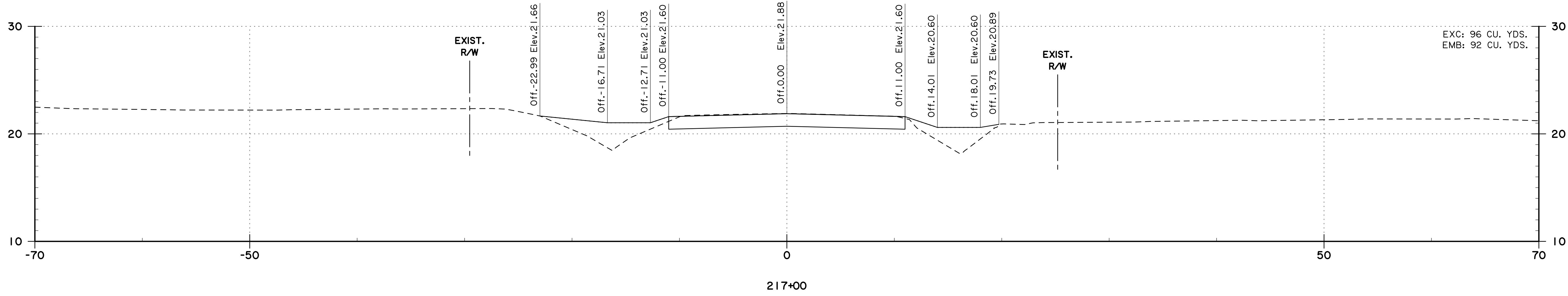
SHEET NUMBER		440	
DESIGN	C. NIPPER	PARISH	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
 REG. No. 43281
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
Chn
 1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
 SHARP RD.

FINAL PLANS



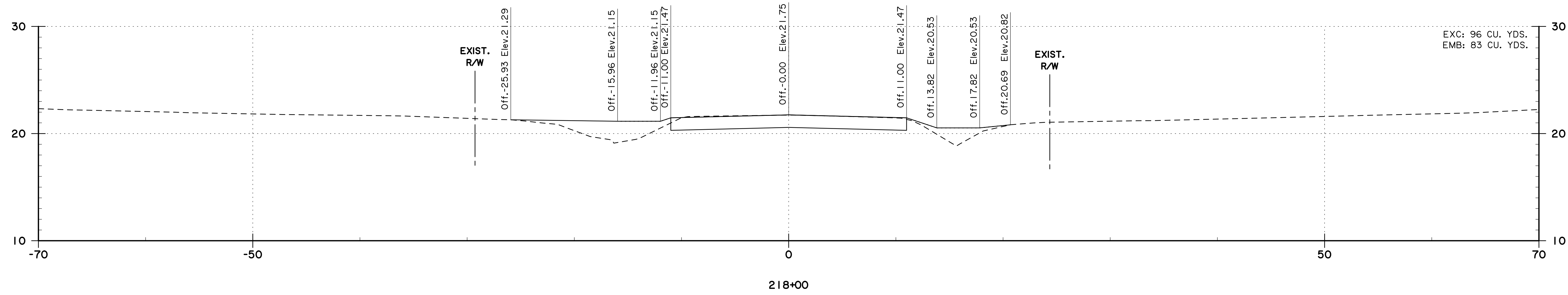
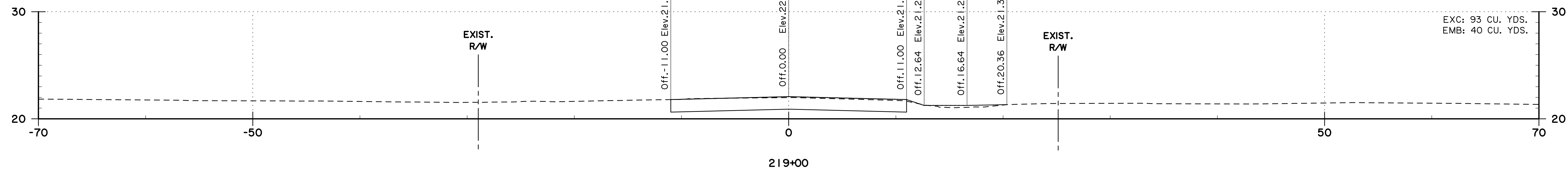
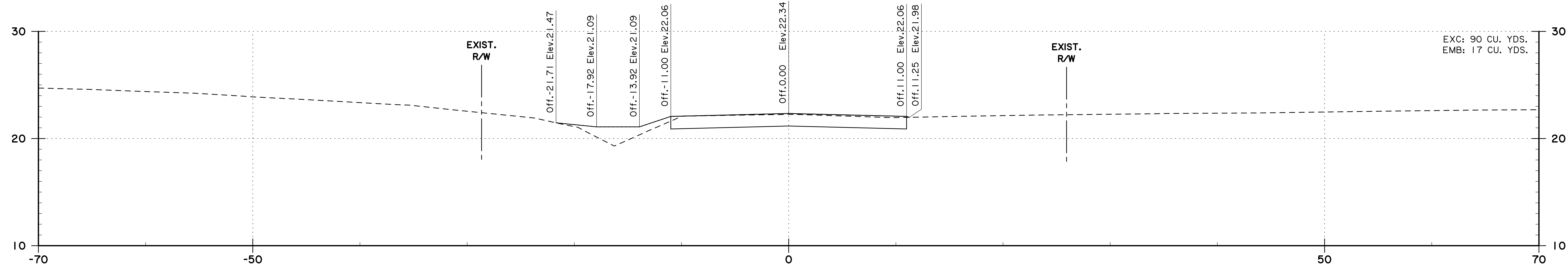
SHEET NUMBER		441	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER		
CHECK	J.LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

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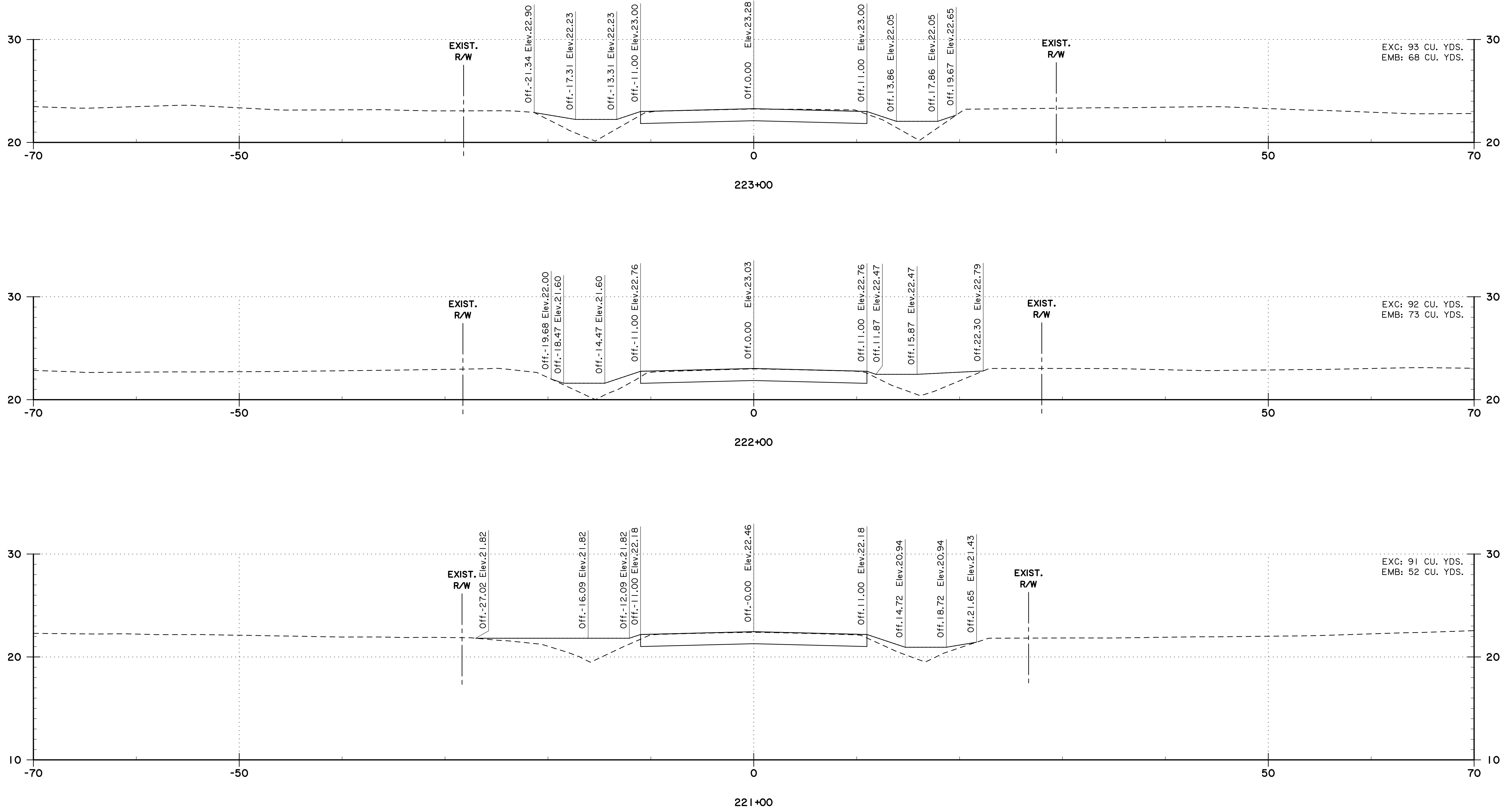


SHEET NUMBER		442	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER	REVISION OR CHANGE ORDER DESCRIPTION	
CHECK	J.LOHMANN	NO.	DATE
REVIEW		BY	
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

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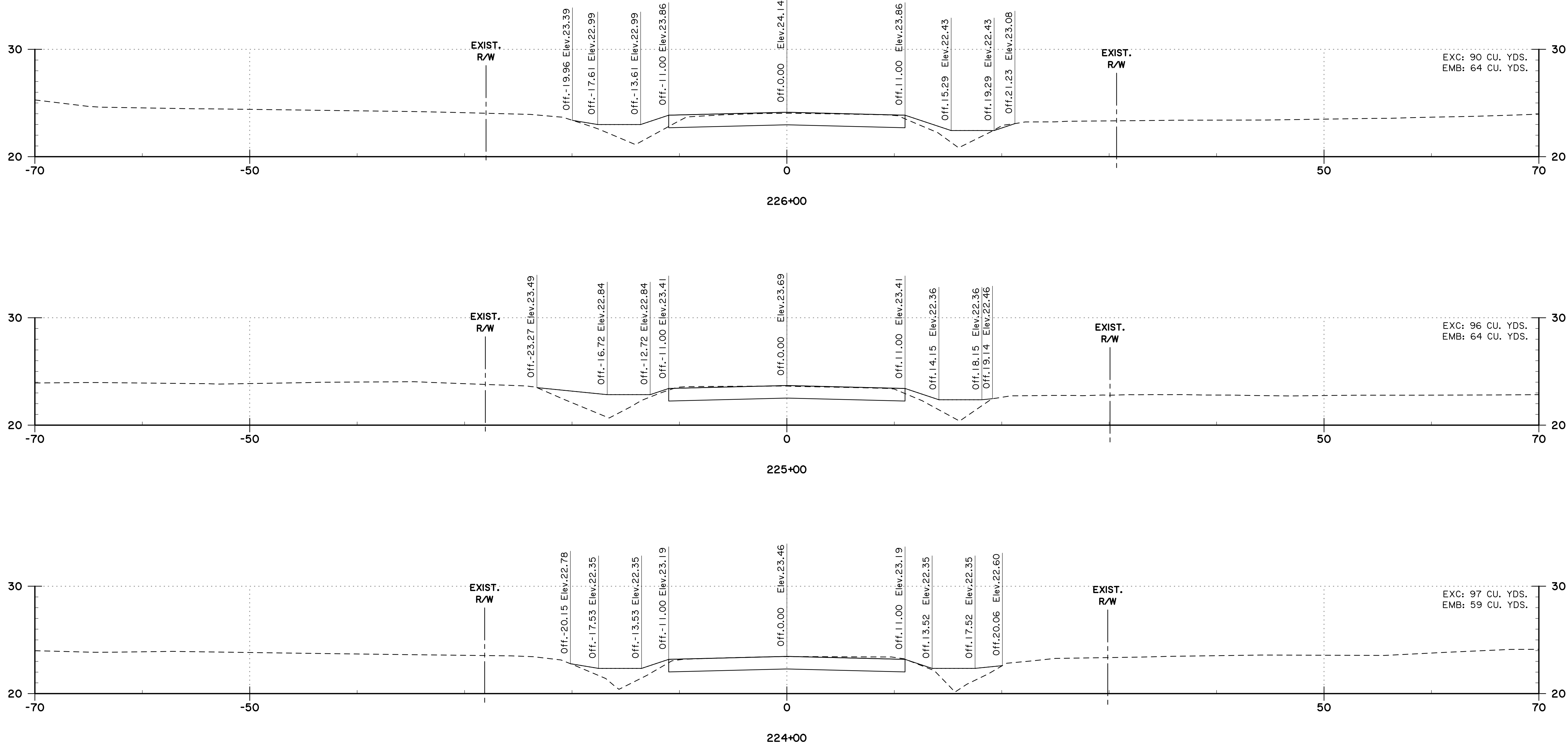
SHEET NUMBER		443	
DESIGN		C-NIPPER	
CHECK	J.LOHMANN	PARISH	ST. TAMMANY
DETAIL	C-NIPPER	PROJECT NUMBER	EN21000010
CHECK	J.L OHMANN	REVIEW	
REVIEW		SERIES #	

Christopher J. Nipper
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

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SHARP RD.

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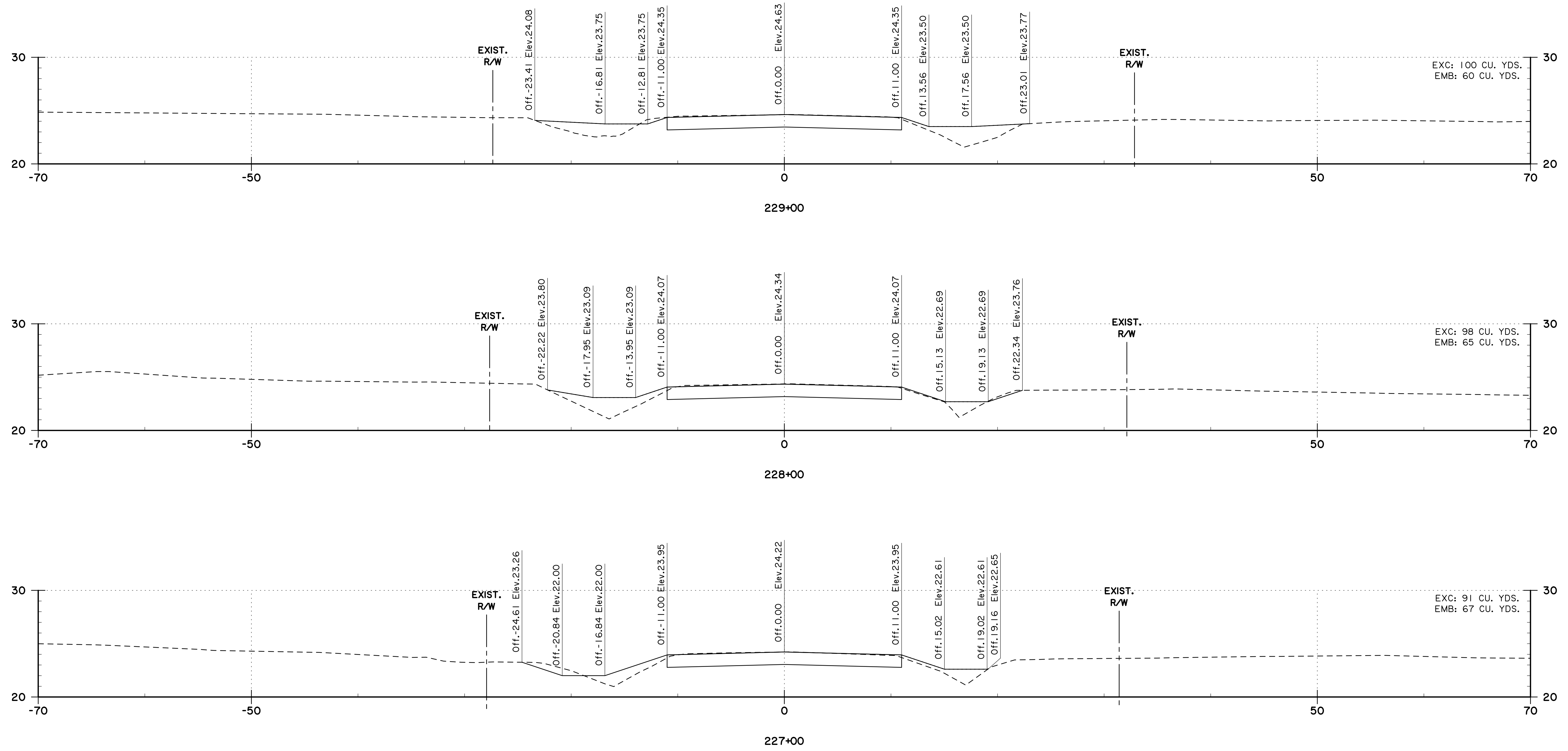
SHEET NUMBER		444
DESIGN		C-NIPPER
CHECK	J. LOHMANN	PARISH
DETAIL	C-NIPPER	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER
REVIEW		EN21000010
SERIES #		

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

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CROSS SECTIONS
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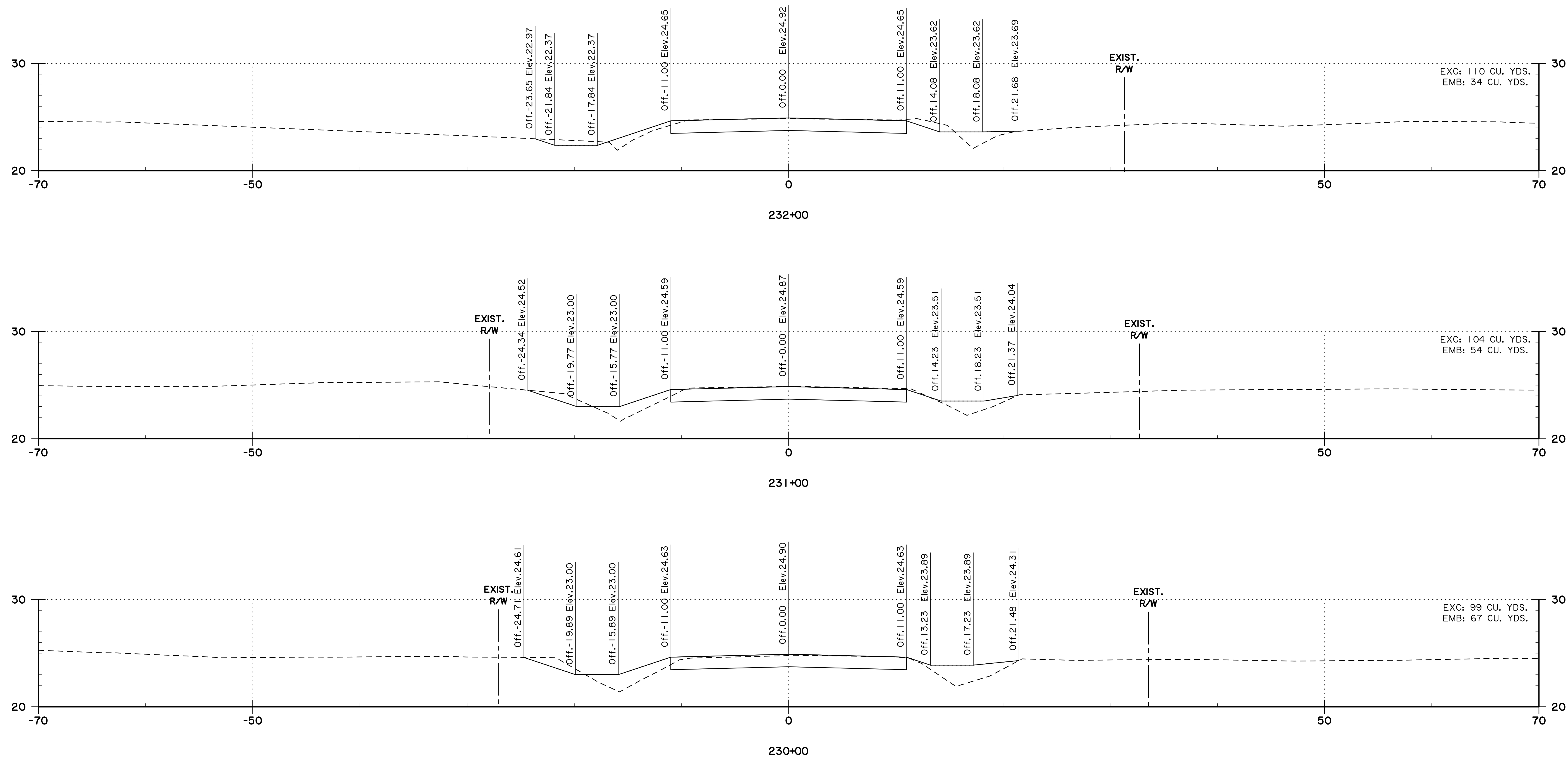
SHEET NUMBER		445
DESIGN		C-NIPPER
CHECK	J.LOHMANN	PARISH
DETAIL	C-NIPPER	ST. TAMMANY
CHECK	J.L OHMANN	PROJECT NUMBER
REVIEW		EN21000010
SERIES #		

CHRISTOPHER J. NIPPER
REG. No. 43281
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/22/2024

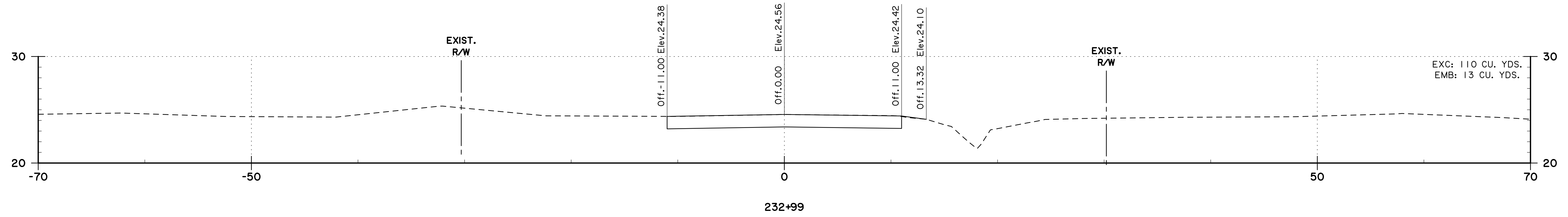
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

CROSS SECTIONS
SHARP RD.

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SHEET NUMBER		446	
DESIGN	C-NIPPER	PARISH	ST. TAMMANY
CHECK	J.LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C-NIPPER	REVISION	
CHECK	J.L OHMANN	SERIES #	
NO.		DATE	BY
CROSS SECTIONS		SHARP RD.	



SHEET NUMBER		447	
DESIGN	C. NIPPER	PARISH	ST. TAMMANY
CHECK	J. LOHMANN	PROJECT NUMBER	EN21000010
DETAIL	C. NIPPER		
CHECK	J. LOHMANN		
REVIEW			
SERIES #			

CHRISTOPHER J. NIPPER
REG. No. 43281
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IN
CIVIL ENGINEERING
1/22/2024

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