

## Proposal

Letting Date: January 29, 2025

Bids Close: 9:30 a.m. CST

### **NOTICE TO BIDDERS: ALL BIDS MUST BE SUBMITTED ELECTRONICALLY VIA BID EXPRESS.**

TO FURNISH AND DELIVER ALL MATERIALS AND TO PERFORM ALL WORK IN ACCORDANCE WITH THE CONTRACT, THE PLANS AND THE APPROVED DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2020 EDITION" (USING English UNITS), ON FILE IN THE OFFICE OF THE COMMISSIONER OF TRANSPORTATION EXCEPT AS STATED OTHERWISE IN THE SPECIAL PROVISIONS, WHICH ARE PART OF THIS PROPOSAL, FOR:

**Contract ID:** 250007  
**Prime SP:** 5680-147  
**State Project No.:** 5680-147 (TH 94=064), 8480-43 (TH 94=064)  
**FHWA Project No.:** NHPP I940(058)  
**Location:** In Wilkin and Otter Tail Counties on TH 94 EB from 1.0 Miles West of CSAH 11 to 1.35 Miles South of CSAH 88  
**Type of Work:** Grading, Bituminous Mill & Surfacing, Concrete Surfacing, Unbonded Concrete Overlay, RWIS, and BR 56805  
**Length:** 14.498 Miles

**Starting Date:**  
May 19, 2025

**Completion Date:**  
June 30, 2026

*This Contract Contains Intermediate Completion Dates*

The proposal package is complete and approved for letting.

**Nancy Hanzlik** Digitally signed by Nancy Hanzlik  
Date: 2024.12.24 04:22:12 -06'00'

Nancy P. Hanzlik, Provisions Engineer

JB

BID RIGGING IS A SERIOUS CRIME. IF YOU HAVE ANY INFORMATION CONCERNING COLLUSIVE BIDDING, EVEN A REQUEST TO SUBMIT A COMPLIMENTARY BID, PLEASE CALL THE MINNESOTA ATTORNEY GENERAL'S OFFICE AT Tel: (651) 296-3353 (Twin Cities Calling Area) or (800) 657-3787 (Outside the Twin Cities); (800) 627-3529 (Minnesota Relay)

To request this document in an alternate format, please contact the Office of Equity and Diversity Office at 651-366-4720. You may also send an email to [ADArequest.dot@state.mn.us](mailto:ADArequest.dot@state.mn.us). Please request at least one week in advance.

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**To the Commissioner of Transportation of the State of Minnesota:**

Commissioner: According to the advertisement of the Commissioner of Transportation inviting proposals for the improvement of the section of highway hereinbefore named, and in conformity with the Contract, Plans, Specifications and Special Provisions pertaining thereto, all on file in the office of the Commissioner of Transportation:

(I)(We) hereby certify that (I am)(we are) the only person(s) interested in this proposal as principal(s); that this proposal is made and submitted without fraud or collusion with any other person, firm or corporation at all; that an examination has been made of the site of the work and the Contract form, with the Plans, Specifications and Special Provisions for the improvement.

(I)(We) understand that the quantities of work shown herein are approximate only and are subject to increase or decrease; that all quantities of work, whether increased or decreased within the limits specified in Mn/DOT 1903, are to be done at the unit prices shown on the attached schedule; that, at the time of opening bids, totals only will be read, but that comparison of bids will be based on the correct summation of item totals obtained from the unit prices bid, as provided in Mn/DOT 1301.

(I)(We) propose to furnish all necessary machinery, equipment, tools, labor and other means of construction and to furnish all materials specified, in the manner and at the time prescribed, all according to the terms of the Contract and Plans, Specifications, and the Special Provisions forming a part of this.

(I)(We) further propose to do all Extra Work that may be required to complete the contemplated improvement, at unit prices or lump sums to be agreed upon in writing before starting such work, or if such prices or sums cannot be agreed upon, to do such work on a Force Account basis, as provided in Mn/DOT 1904.

(I)(We) further propose to execute the form of Contract within 10 days after receiving written notice of award, as provided in Mn/DOT 1306.

(I)(We) further propose to furnish a payment bond equal to the Contract amount, and a performance bond equal to the Contract amount, with the aggregate liability of the bond(s) equal to twice the full amount of the Contract, as security for the construction and completion of the improvement according to the Plans, Specifications and Special Provisions as provided in Mn/DOT 1305.

(I)(We) further propose to do all work according to the Plans, Specifications and Special Provisions, and to renew or repair any work that may be rejected due to defective materials or workmanship, before completion and acceptance of the Project by the Commissioner of Transportation.

(I)(We) agree to all provisions of Minnesota Statutes, Section 181.59.

(I)(We) further propose to begin work and to prosecute and complete the same according to the time schedule set forth in the Special Provisions for the improvement.

(I)(We) assign to the State of Minnesota all claims for overcharges as to goods and materials purchased in connection with this Project resulting from antitrust violations that arise under the antitrust laws of the United States and the antitrust laws of the State of Minnesota. This clause also applies to subcontractors and first tier suppliers under this Contract.



**NOTICE TO ALL BIDDERS**

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.



**MINNESOTA DEPARTMENT OF TRANSPORTATION  
NOTICE TO BIDDERS:  
SUSPENSIONS/DEBARMENTS  
THIS NOTICE APPLIES TO STATE-FUNDED AND FEDERALY-FUNDED PROJECTS**

**Do not use suspended or debarred parties as subcontractors or material suppliers on this project!**

Both the federal government and the State of Minnesota suspend and debar vendors. Review the list of suspended and debarred vendors before submitting a bid or a request to sublet. If your bid is based on using a suspended or debarred vendor, you will not be entitled to additional compensation for replacing the suspended or debarred vendor with a qualified vendor.

**State Suspensions and Debarments**

The State of Minnesota's list of suspended and debarred vendors is maintained by the Minnesota Department of Administration, Office of State Procurement, and can be found at this link: <https://mn.gov/admin/osp/government/suspended-debarred/index2.jsp> . This list includes parties suspended and debarred by the Minnesota Department of Transportation and the Minnesota Department of Administration.

**Federal Suspensions and Debarments**

The federal government maintains a searchable database of suspensions and debarments, called the System for Award Management (SAM), which is found at this link: <https://www.sam.gov/SAM/> . You can use the "Search Records" function without registering for an account.

September 29, 2023





# FEDERALLY FUNDED CONSTRUCTION CONTRACTS

## SPECIAL PROVISIONS DIVISION A - LABOR

### February 1, 2006

#### I. PREAMBLE

It is in the public interest that public buildings and other public works projects be constructed and maintained by the best means and the highest quality of labor reasonably available and that persons working on public works projects be compensated according to the real value of the services they perform.<sup>1</sup>

Therefore, the department shall administer this contract pursuant to the **Federal Davis-Bacon and Related Acts, Required Contract Provisions Federal-Aid Construction Contracts, Form-1273, U.S. Department of Labor's Field Operations Handbook, State of Minnesota Statutes and Rules, MN/DOT's Standard Specifications for Construction, MN/DOT's Contract Administration Manual and MN/DOT's State Aid Manual.**

#### II. DEFINITIONS<sup>2</sup>

- A. **Contract**: The written agreement between the contracting authority and the prime contractor setting forth their obligations, including, but not limited to, the performance of the work, the furnishing of labor and materials, the basis of payment, and other requirements contained in the contract documents.
- B. **Contracting Authority**: The political subdivision, governmental body, board, department, commission, or officer making the award and execution of contract as the party of the first part.
- C. **Contractor**: The term "contractor" in these provisions shall include the prime contractor, subcontractor, agent, or other person doing or contracting to do all or part of the work under this contract.<sup>3</sup>
- D. **Department**: The Department of Transportation of the State of Minnesota, or the political subdivision, governmental body, board, commission, office, department, division, or agency constituted for administration of the contract work within its jurisdiction.
- E. **First Tier Subcontractor**: An individual, firm, corporation, or other entity to which the prime contractor sublets part of the contract.
- F. **Independent Truck Owner/Operator (ITO)**: An individual, partnership, or principal stockholder of a corporation who owns or holds a vehicle under lease and who contracts that vehicle and the owner's services to an entity that provides construction services to a public works project.<sup>4</sup>
- G. **Laborer or Mechanic**: A worker in a construction industry labor class identified in or pursuant to Minnesota Rules 5200.1100, Master Job Classifications.<sup>5</sup>
- H. **Plan**: The plan, profiles, typical cross-sections, and supplemental drawings that show the locations, character, dimensions, and details of the work to be done.
- I. **Prime Contractor**: The individual, firm, corporation, or other entity contracting for and undertaking prosecution of the prescribed work; the party of the second part to the contract, acting directly or through a duly authorized representative.

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<sup>1</sup> Minnesota Statute 177.41

<sup>2</sup> MN/DOT Standard Specifications for Construction, Section 1103

<sup>3</sup> Minnesota Statute 177.44, Subdivision 1

<sup>4</sup> Minnesota Rules 5200.1106, Subpart 7(A)

<sup>5</sup> Minnesota Rules 5200.1106, Subpart 5(A)

- J. **Project**: The specific section of the highway, the location, or the type of work together with all appurtenances and construction to be performed under the contract.
- K. **Second Tier Subcontractor**: An individual, firm, corporation, or other entity to which a first tier subcontractor sublets part of the contract.
- L. **Special Provisions**: Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project.
- M. **Specifications**: A general term applied to all directions, provisions, and requirements pertaining to performance of the work.
- N. **Subcontractor**: An individual, firm, corporation, or other entity to which the prime contractor or subcontractor sublets part of the contract.
- O. **Substantially In Place**: Mineral aggregate is deposited on the project site directly or through spreaders where it can be spread from or compacted at the location where it was deposited.<sup>6</sup>
- P. **Trucking Broker**: An individual or business entity, the activities of which include, but are not limited to: contracting to provide trucking services in the construction industry to users of such services, contracting to obtain such services from providers of trucking services, dispatching the providers of the services to do work as required by the users of the services, receiving payment from the users in consideration of the trucking services provided and making payment to the providers for the services.<sup>7</sup>
- Q. **Trucking Firm/Multiple Truck Owner (MTO)**: Any business entity that owns more than one vehicle and hires the vehicles out for services to brokers or contractors on public works projects.<sup>8</sup>
- R. **Work**: The furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the contract upon the contractor. Also used to indicate the construction required or completed by the contractor.

### III. SCOPE – SPECIAL PROVISIONS DIVISION A & CONTRACT

- A. These provisions shall apply to this contract, which is funded in whole or in part with federal funds<sup>9</sup> and state funds.<sup>10</sup>
- B. These provisions shall apply to the prime contractor and all subcontractors contracting to do all or part of the work under this contract.<sup>11</sup>
- C. The provisions established in this document do not necessarily represent all federal, state, and local laws, ordinances, rules and regulations. It is the responsibility of the prime contractor to inform itself and all subcontractors about other regulations that may be applicable to this contract.
- D. The prime contractor is responsible to ensure that each subcontractor performing work under this contract receives copies of all required contract provisions.<sup>12</sup> These provisions shall be incorporated into written subcontracts and must be displayed on the poster board.<sup>13</sup>
- E. The department shall administer this contract in accordance with all applicable federal regulations, state statutes and rules<sup>14</sup>, along with the plans, specifications and provisions, which are incorporated into and found elsewhere in this contract.

<sup>6</sup> Minnesota Rules 5200.1106, Subpart 5(C)

<sup>7</sup> Minnesota Rules 5200.1106, Subpart 7(C)

<sup>8</sup> Minnesota Rules 5200.1106, Subpart 7(B)

<sup>9</sup> 29 CFR Part 5.5(a)

<sup>10</sup> Minnesota Statute 177.41

<sup>11</sup> Minnesota Statute 177.44, Subdivision 1

<sup>12</sup> 29 CFR Part 5.5(a)(6)

<sup>13</sup> Minnesota Statute 177.44, Subdivision 5

- F. An unpublished decision from the Minnesota Court of Appeals affirms the authority of the Minnesota Commissioner of Transportation to enforce the Minnesota Prevailing Wage Law on a case-by-case basis.<sup>15</sup> Therefore, the department shall provide enforcement in a manner consistent with the decision notwithstanding any prior notices on the subject.
- G. For additional information refer to: [www.dot.state.mn.us/const/labor/](http://www.dot.state.mn.us/const/labor/).

#### IV. PAYROLLS AND STATEMENTS

- A. Each week, in which work was performed under this contract, all contractors shall submit a payroll statement to the department.<sup>16</sup> Each statement shall be submitted within seven days after the regular payment date of the payroll period.<sup>17</sup> Each payroll submitted shall include all employees that performed work under this contract and provide at a minimum the following information:<sup>18</sup>
  - 1. Contractor's name, address, and telephone number.
  - 2. State project number.
  - 3. Payroll report number.
  - 4. Project location.
  - 5. Workweek ending date.
  - 6. Name, social security number, and home address for each employee.
  - 7. Labor classification(s) and/or three-digit code for each employee.
  - 8. Hourly straight time and overtime wage rates paid to each employee.
  - 9. Daily and weekly hours worked in each labor classification, including overtime hours for each employee.
  - 10. Authorized legal deductions for each employee.
  - 11. Project gross amount, weekly gross amount and net wages paid to each employee.
- B. Payroll records may be submitted in any form provided it includes all the information contained in **Subpart A (1 - 11)** of this section.<sup>19</sup> However, contractors needing a payroll form may utilize the "front side" of the **U.S. Department of Labor's, WH-347 - Payroll Form**. This form is available by visiting the Labor Compliance website.<sup>20</sup>
- C. All payroll records must be accompanied with a completed and signed **MN/DOT, 21658 - Statement of Compliance Form**.<sup>21</sup>
- D. The prime contractor is responsible for assuring that its payroll records and those of all subcontractors include all employees that performed work under this contract and accurately reflect the hours worked, regular and overtime rates of pay and classification of work performed.<sup>22</sup>
- E. The prime contractor is responsible to maintain all certified payroll records, including those of all subcontractors, throughout the course of a construction project and retain all records for a period of three years after the final contract voucher has been issued.<sup>23</sup>

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<sup>14</sup> Minnesota Rules 8820.3000, Subpart 2

<sup>15</sup> Minnesota Court of Appeals Case Number: C6-97-1582

<sup>16</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section V, Subpart 2(c)

<sup>17</sup> 29 CFR Part 3.4(a)

<sup>18</sup> Minnesota Rules 5200.1106, Subpart 10

<sup>19</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section V, Subpart 2(c)

<sup>20</sup> [www.dot.state.mn.us/const/labor/](http://www.dot.state.mn.us/const/labor/)

<sup>21</sup> Minnesota Rules 5200.1106, Subpart 10

<sup>22</sup> 29 CFR Part 5.5(a)(6)

<sup>23</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section V, Subpart 2(a)

- F. At the end of each pay period, each contractor shall provide every employee, in writing, an accurate detailed earnings statement.<sup>24</sup>
- G. Upon request from the U.S. Department of Labor (U.S. DOL), Federal Highway Administration (FHWA), Minnesota Department of Labor and Industry (MN/DLI) or the Department, the prime contractor shall promptly furnish copies of payroll records for its workers and those of all subcontractors, along with other records, deemed appropriate by the requesting agency to determine compliance with these contract provisions.<sup>25</sup>
- H. At the department's discretion, the project engineer may administer the submission of payroll records according to MN/DOT's Payroll Maintenance Program. The guidelines for the implementation and administration of this program are outlined in the **MN/DOT Contract Administration Manual, Section A(4)(d)**. The program has not been approved for federal-aid contracts administered by local units of government and will not be allowed for such contracts. However, the program may be utilized for local state-aid contracts.
- I. If, after written notice, the prime contractor fails to submit its payroll reports and certification forms and those of any subcontractor, the department may implement the actions prescribed in section **XVI (NON-COMPLIANCE AND ENFORCEMENT)**.

## V. WAGE RATES

- A. The prime contractor is responsible to ensure that its workers and those of all subcontractors are compensated according to the U.S. DOL federal general decision(s) and the MN/DLI state prevailing wage determination(s) incorporated into and found elsewhere in this contract, **whichever is greater**. All contractors shall pay each worker the required minimum total hourly wage rate for all hours worked on the project and for the appropriate classification of labor.
  - 1. Federal building, heavy and highway general decisions are specific to the county in which the construction work is being performed; a decision does not cross county or state lines.<sup>26</sup> If a project extends into more than one county or state, the applicable wage decision for each county or state shall be incorporated into and found elsewhere in this contract.
  - 2. State highway and heavy wage determinations are specific to ten separate regions throughout the state of Minnesota. If a project extends into more than one region, the applicable wage decision for each region shall be incorporated into and found elsewhere in this contract.
    - a. If this contract contains multiple highway and heavy wage determinations, there shall be only one standard of hours of labor and wage rates.<sup>27</sup>
  - 3. State commercial wage determinations are specific to the county in which the construction work is being performed. If a project extends into more than one county, the applicable wage determination for each county shall be incorporated into and found elsewhere in this contract.
    - a. If this contract contains multiple commercial wage determinations, there shall be only one standard of hours of labor and wage rates.<sup>28</sup>
- B. Wage rates listed in the federal and/or state wage determination(s) contain two components: the hourly basic rate and the fringe rate; together they equal the total prevailing wage rate. A

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<sup>24</sup> Minnesota Statute 181.032

<sup>25</sup> Minnesota Statute 177.44, Subdivision 7 and Minnesota Rules 5200.1106, Subpart 10

<sup>26</sup> 29 CFR Part 1.7(a)

<sup>27</sup> Minnesota Statute 177.44, Subdivision 4

<sup>28</sup> Minnesota Statute 177.44, Subdivision 4

contractor shall compensate a worker at a minimum, a combination of cash and fringe benefits equaling the total prevailing wage rate.<sup>29</sup>

- C. The applicable certified wage decisions incorporated into and found elsewhere in this contract remain in effect for the life of this contract. The wage decisions do not necessarily represent the workforce that can be obtained at the rates certified by the U.S. DOL or MN/DLI. It is the responsibility of the prime contractor and any subcontractor to inform themselves about local labor conditions and prospective changes or adjustments to the wage rates. No increase in this contract price shall be allowed or authorized due to wage rates that exceed those incorporated into this contract.
- D. A contractor shall not reduce a worker's private, regular rate of pay when the wage rate certified by the U.S. DOL or MN/DLI is less than the worker's normal hourly wage.<sup>30</sup>
- E. From the time a worker is required to report for duty at the project site until the worker is allowed to leave the site, no deductions shall be made from the worker's hours for any delays of less than twenty consecutive minutes.<sup>31</sup>
  - 1. In situations where a delay may exceed twenty consecutive minutes and the contractor requires a worker to remain on the premises or so close to the premises that the worker cannot use the time effectively for the worker's own purposes, the worker is considered "on-call"<sup>32</sup> and shall be compensated in accordance with **Subpart B** of this section, unless the worker is allowed or required to leave the project site.
- F. A contractor making payment to an employee, laborer, mechanic, worker, or truck owner-operator shall not accept a rebate for the purpose of reducing or otherwise decreasing the value of the compensation paid.<sup>33</sup>
- G. Any employee who knowingly permits a contractor to pay less than the total prevailing wage or gives up any part of the compensation to which the employee is entitled may be subject to penalties.<sup>34</sup>

## VI. BONA FIDE FRINGE BENEFITS

- A. A "funded" fringe benefit plan is one that allows the contractor to make irrevocable contributions on behalf of an employee to a financially responsible trustee, third person, fund, plan or program, without prior approval from the U.S. Department of Labor. Types of "funded" fringe benefits may include, but are not limited to: pension, health and life insurance.<sup>35</sup>
- B. An "unfunded" fringe benefit plan or program is one that allows the contractor to furnish an in-house benefit on behalf of an employee. The cost to provide the benefit is funded from the contractor's general assets rather than funded by contributions made to a trustee, third person, fund, plan or program. Types of "unfunded" fringe benefits may include, but are not limited to: holiday plans, vacation plans and sick plans.<sup>36</sup>
- C. Credit toward the total prevailing wage rate shall be determined for each individual employee and is allowed for bona fide fringe benefits that:<sup>37</sup>
  - 1. include contributions irrevocably made by a contractor on behalf of an employee to a financially responsible trustee, third person, fund, plan, or program;

<sup>29</sup> Minnesota Statute 177.42, Subdivision 6

<sup>30</sup> Minnesota Statute 181.03, Subdivision 1(2)

<sup>31</sup> Minnesota Rules 5200.0120, Subpart 1

<sup>32</sup> Minnesota Rules 5200.0120, Subpart 2

<sup>33</sup> Minnesota Rules 5200.1106, Subpart 6

<sup>34</sup> Minnesota Statute 177.44, Subdivision 6

<sup>35</sup> 29 CFR Parts 5.26 and 5.27

<sup>36</sup> 29 CFR Part 5.28

<sup>37</sup> 29 CFR Part 5.23

2. are legally enforceable;
  3. have been communicated in writing to the employee; and
  4. are made available to the employee once he/she has met all eligibility requirements.
- D. No credit shall be allowed for benefits required by federal, state or local law, such as: worker's compensation, unemployment compensation, and social security contributions.<sup>38</sup>
- E. Upon request from the Minnesota Department of Labor and Industry (MN/DLI) or the Department, the prime contractor shall promptly furnish copies of fringe benefit records for its workers and those of all subcontractors, along with other records, deemed appropriate by the requesting agency to determine compliance with these contract provisions.<sup>39</sup>
- F. In addition to the requirements set forth in **Subpart C** of this section, it is the responsibility of the prime contractor and any subcontractor to inform themselves about other federal and state fringe benefit regulations that may be applicable to this contract.
- G. Contractors shall submit a completed and signed **MN/DOT, 21658 - Statement of Compliance Form**, identifying any fringe contributions made on behalf of a worker.<sup>40</sup> The form must be submitted in accordance with section **IV (PAYROLLS AND STATEMENTS), Subparts A and C**.
- H. Pursuant with *Minnesota Statute 181.74, Subdivision 1*, a contractor that is obligated to deposit fringe benefit contributions on behalf of its employees into a financially responsible trustee, third person, fund, plan, or program and fails to make timely contributions may be guilty of a gross misdemeanor. A contractor found in violation of the above-mentioned statute shall compel the department to take such actions as prescribed in section **XVI, (NON-COMPLIANCE AND ENFORCEMENT)**.

## VII. OVERTIME

- A. A contractor shall not permit or require a worker to work in excess of 40 hours per week unless the worker is compensated at a rate not less than 1-1/2 times the basic hourly rate as determined by the United States Secretary of Labor.<sup>41</sup>
- B. A contractor shall not permit or require a worker to work longer than the prevailing hours of labor unless the worker is paid for all hours in excess of the prevailing hours at a rate of at least 1-1/2 times the hourly basic hourly rate of pay.<sup>42</sup> The prevailing hours of labor is defined as not more than 8 hours per day or more than 40 hours per week.<sup>43</sup>
- C. In addition to the requirements set forth in **Subparts A and B** of this section, it is the responsibility of the prime contractor and any subcontractor to inform themselves about other federal and state overtime regulations that may be applicable to this contract.

## VIII. LABOR CLASSIFICATIONS

- A. All contractors shall refer to the federal general decision or the state wage determination incorporated into and found elsewhere in this contract to obtain an applicable job classification. Workers must be classified and compensated for the actual work performed regardless of the worker's skill level.<sup>44</sup> The prime contractor shall ensure that all contractors adhere to the following requirements:

<sup>38</sup> 29 CFR Part 5.29(f)

<sup>39</sup> Minnesota Statute 177.44, Subdivision 7 and Minnesota Rules 5200.1106, Subpart 10

<sup>40</sup> Minnesota Rules 5200.1106, Subpart 10

<sup>41</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 7

<sup>42</sup> Minnesota Statute 177.44, Subdivision 1

<sup>43</sup> Minnesota Statute 177.42, Subdivision 4

<sup>44</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 1(a)

1. Prior to performing work under this contract, all contractors shall review the federal general decision and complete a **U.S. DOL, SF-1444 - Request for Authorization of Additional Classification and Wage Rate Form** for any labor classification missing from the decision and submit it to the MN/DOT Labor Compliance Unit for processing.<sup>45</sup>
2. If a contractor cannot determine an appropriate job classification, state law requires that the worker be assigned a job classification that is the "same or most similar".<sup>46</sup> Contractors should refer to the Master Job Classification List<sup>47</sup> to obtain an applicable labor classification. Clarification regarding labor classifications should be directed to the MN/DLI or the MN/DOT Labor Compliance Unit.

## **IX. INDEPENDENT CONTRACTORS, OWNERS, SUPERVISORS AND FOREMAN**

- A. An independent contractor performing work as a laborer or mechanic is subject to the contract prevailing wage requirements<sup>48</sup> for the classification of work performed and shall adhere to the requirements established in sections **IV (PAYROLLS AND STATEMENTS); V (WAGE RATES); VI (FRINGE BENEFITS); VII (OVERTIME) and VIII (LABOR CLASSIFICATIONS)**. In order to ensure compliance, the department may examine the subcontract agreement to determine if the bid price submitted covers the applicable prevailing wage rate for the number of hours worked, along with other records, deemed appropriate by the department.<sup>49</sup>
- B. Pursuant with state regulations, owners, supervisors and foreman performing work under the contract<sup>50</sup> shall be compensated in accordance with section **V (WAGE RATES)**. Furthermore, the prime contractor and any subcontractor shall adhere to the requirements established in sections **IV (PAYROLLS AND STATEMENTS); VI (FRINGE BENEFITS); VII (OVERTIME) and VIII (LABOR CLASSIFICATIONS)**.
- C. Pursuant with federal regulations, the contract labor provisions do not apply to owners, supervisors or foreman whose duties are primarily associated with bona fide administrative, executive or clerical positions. These individuals are not deemed to be laborers or mechanics.<sup>51</sup>
  1. However, working owners, supervisors and/or foreman who devote more than 20 percent of their time during a workweek to laborer or mechanic duties are considered laborers or mechanics for the time so spent and are subject to the requirements established in sections **IV (PAYROLLS AND STATEMENTS); V (WAGE RATES); VI (FRINGE BENEFITS); VII (OVERTIME) and VIII (LABOR CLASSIFICATIONS)**.

## **X. APPRENTICES, TRAINEES AND HELPERS**

- A. An apprentice is not subject to the federal and/or state wage decisions incorporated into and found elsewhere in this contract, provided the contractor can demonstrate compliance with **Subparts (1 - 4)** of this section:<sup>52</sup>
  1. The apprentice is performing the work of his/her trade.
  2. The apprentice is registered with the U.S. DOL Bureau of Apprenticeship and Training or MN/DLI Division of Voluntary Apprenticeship.
  3. The apprentice is compensated according to the rate specified in the program for the level of progress.

<sup>45</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 2

<sup>46</sup> Minnesota Statute 177.44, Subdivision 1

<sup>47</sup> Minnesota Rules 5200.1100

<sup>48</sup> 29 CFR Part 5.2(o) and Minnesota Statute 177.41

<sup>49</sup> Minnesota Statute 177.44, Subdivision 7 and Minnesota Rules 5200.1106, Subpart 10

<sup>50</sup> Minnesota Statute 177.44, Subdivision 1

<sup>51</sup> 29 CFR Part 5.2(m)

<sup>52</sup> Minnesota Rules 5200.1070

4. The ratio of apprentices to journeyman workers on the project is not greater than the ratio permitted for the contractor's entire work force under the registered program.<sup>53</sup>
- B. A trainee is not subject to the federal general decision incorporated into and found elsewhere in this contract, provided the contractor can demonstrate compliance with **Subparts (1 - 4)** of this section:<sup>54</sup>
1. The trainee is performing the work of his/her trade.
  2. The trainee is registered with the U.S. DOL Employment and Training Administration.
  3. The trainee is compensated according to the rate specified in the program for the level of progress.
  4. The ratio of trainees to journeyman workers on the project is not greater than the ratio permitted under the program.
  5. All hours worked in excess of the prescribed hours allowed under the program and/or this contract shall be paid at the journeyman wage rate incorporated into and found elsewhere in this contract.
  6. A trainee is not exempt under state law; the contractor shall assign the trainee a job classification that is the "same or most similar"<sup>55</sup> and compensate the trainee for the actual work performed regardless of the trainee's skill level, unless the trainee is:<sup>56</sup>
    - a. employed and registered in a bona-fide apprenticeship program; or
    - b. employed in the first 90 days of probationary employment as an apprentice, is not registered in the apprenticeship program, but has been certified by the proper government authorities to be eligible for probationary employment as an apprentice.
- C. A helper may perform work only if the helper classification is specified and defined in the federal general decision incorporated into and found elsewhere in this contract or is approved pursuant to the federal conformance procedure:<sup>57</sup>
1. A helper is not exempt under state law; a contractor shall assign the helper a job classification that is the "same or most similar"<sup>58</sup> and compensate the helper for the actual work performed regardless of the helper's skill level.<sup>59</sup>
- D. If a contractor fails to demonstrate compliance with the terms established in **Subparts A - C** of this section, the contractor shall compensate the worker not less than the applicable total prevailing wage rate for the actual work performed.<sup>60</sup>

## XI. SUBCONTRACTING PART OF THIS CONTRACT<sup>61</sup>

- A. If the prime contractor intends to sublet any portion of this contract, it shall complete and submit a **MN/DOT, TP-21834, Request To Sublet Form** to the project engineer 10 days prior to the first day of work for any subcontractor.
- B. The prime contractor shall not subcontract any portion of this contract without prior written consent from the project engineer.

<sup>53</sup> MN/DOLI Division of Apprenticeship – April 6, 1995 Memorandum from Jerry Briggs, Director

<sup>54</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 4(b)

<sup>55</sup> Minnesota Statute 177.44, Subdivision 1

<sup>56</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 1(a)

<sup>57</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 4(c)

<sup>58</sup> Minnesota Statute 177.44, Subdivision 1

<sup>59</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 1(a)

<sup>60</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 4(a)(b)(c)

<sup>61</sup> MN/DOT Standard Specifications for Construction, Section 1801



- C. The prime contractor's organization shall perform work amounting to not less than 40 percent of the total original contract cost. However, contracts with Disadvantaged Business Enterprise (DBE) or Targeted Group Business (TGB) established goals, or both, the contractor's organization shall perform work amounting to not less than 30 percent of the total original contract cost.
- D. A first tier subcontractor shall not subcontract any portion of its work under this contract unless approved by the prime contractor and the project engineer. In addition, a first tier subcontractor may only subcontract up to 50% of its original subcontract.
- E. A second tier subcontractor shall not subcontract any portion of its work under this contract.
- F. Written consent to subcontract any portion of this contract does not relieve the prime contractor of liabilities and obligations under the contract and bonds.
- G. Contractors shall not subcontract with or purchase materials or services from a debarred or suspended person.<sup>62</sup>

## **XII. POSTER BOARDS**

- A. The prime contractor shall construct and display a poster board, which contains all required posters, is legible and is accessible to all workers from the first day of work until the project is 100 percent complete.<sup>63</sup> The prime contractor is not allowed to place a poster board at an off-site location.
  - 1. The prime contractor can obtain the required posters by contacting MN/DOT at (651) 366-3091. The prime contractor will need to furnish its name, mailing address, the type of posters (federal-aid) and the quantity needed.

## **XIII. EMPLOYEE INTERVIEWS**

- A. At any time the prime contractor shall permit representatives from the U.S. DOL, FHWA, MN/DLI, or the Department to interview its workers and those of any subcontractor during working hours on the project.<sup>64</sup>

## **XIV. TRUCKING / OFF-SITE FACILITIES**

- A. The prime contractor is responsible to ensure that its workers and those of all subcontractors are compensated in accordance with the federal wage decision incorporated into and found elsewhere in this contract for the following work duties:
  - 1. The processing or manufacturing of material, including the hauling of material to and from an immediately adjacent, dedicated off-site facility.<sup>65</sup>
  - 2. The hauling of any or all stockpiled or excavated materials on the project work site to other locations on the same project.<sup>66</sup>
- B. The prime contractor is responsible to ensure that its workers and those of all subcontractors, are compensated in accordance with the state wage determination incorporated into and found elsewhere in this contract for the following work duties:
  - 1. The processing or manufacturing of material, including the hauling of material to and from a prime contractor's material operation that is not a separate commercial establishment.<sup>67</sup>

<sup>62</sup> Minnesota Statute 161.315, Subdivision 3(3)

<sup>63</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 1(a)

<sup>64</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section V, Subpart 2(g)

<sup>65</sup> 29 CFR Part 5.2(l)(2)

<sup>66</sup> 29 CFR Part 5.2(j)(1)

<sup>67</sup> ALJ Findings of Fact, Conclusions of Law, and Recommendation, Conclusions (7), Case #12-3000-11993-2

2. The processing or manufacturing of material, including the hauling of material to and from an off-site material operation that is not considered a commercial establishment.<sup>68</sup>
  3. The hauling of any or all stockpiled or excavated materials on the project work site to other locations on the same project even if the truck leaves the work site at some point.<sup>69</sup>
  4. The delivery of materials from a non-commercial establishment to the project and the return haul.<sup>70</sup>
  5. The delivery of materials from another construction project site to the public works project and the return haul, either empty or loaded. Construction projects are not considered commercial establishments.<sup>71</sup>
  6. The hauling required to remove any materials from the project to a location off the project site and the return haul, either empty or loaded from other than a commercial establishment.<sup>72</sup>
  7. The delivery of mineral aggregate materials from a commercial establishment, which is deposited "substantially in place" and the return haul, either empty or loaded.<sup>73</sup>
- C. The work duties prescribed in **Subpart A (1 - 2) and Subpart B (1 - 7)** of this section do not represent all possible hauling activities and/or other work duties that may be performed under this contract. It is the responsibility of the prime contractor to inform itself and all subcontractors about other applicable job duties that may be subject to this contract labor provisions.
- D. A contractor acquiring trucking services from an ITO, MTO and/or Truck Broker to perform and/or provide "covered" hauling activities shall comply with the payment of the certified state truck rental rates,<sup>74</sup> which are incorporated into and found elsewhere in this contract.
1. Each month, in which hauling activities were performed under this contract, the prime contractor and all subcontractors shall submit a **MN/DOT, TP-90550 - Month-End Trucking Report** and **MN/DOT, TP-90551 - Statement of Compliance Form**, along with each ITOs, MTOs and/or Truck Brokers reports to the department.<sup>75</sup> The specifications regarding the dates for submission can be found near the bottom of the **MN/DOT, TP-90551 - Statement of Compliance Form**.
- E. A Truck Broker contracting to provide trucking services in the construction industry may charge a reasonable broker fee to the provider of trucking services.<sup>76</sup> The prime contractor and any subcontractor contracting to receive trucking services shall not assess a broker fee.
- F. A contractor with employee truck drivers shall adhere to the requirements established in **Sections IV (PAYROLLS AND STATEMENTS); V (WAGE RATES); VI (FRINGE BENEFITS); VII (OVERTIME) and VIII (LABOR CLASSIFICATIONS)**.
- G. If after written notice, the prime contractor fails to submit its month-end trucking reports and certification forms and those of any subcontractor, MTO and/or Truck Broker, the department may take such actions as prescribed in section **XVI, (NON-COMPLIANCE AND ENFORCEMENT)**.

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<sup>68</sup> Minnesota Rules 5200.1106, Subpart 3B(2)

<sup>69</sup> Minnesota Rules 5200.1106, Subpart 3B(1)

<sup>70</sup> Minnesota Rules 5200.1106, Subpart 3B(2)

<sup>71</sup> Minnesota Rules 5200.1106, Subpart 3B(3)

<sup>72</sup> Minnesota Rules 5200.1106, Subpart 3B(4)

<sup>73</sup> Minnesota Rules 5200.1106, Subpart 3B(5)(6)

<sup>74</sup> Minnesota Rules 5200.1106, Subpart 1

<sup>75</sup> Minnesota Rules 5200.1106, Subpart 10

<sup>76</sup> Minnesota Rules 5200.1106, Subpart 7(C)

## XV. CHILD LABOR

- A. No worker under the age of 18 is allowed to perform work on construction projects.<sup>77</sup>
- B. In accordance with state law, a worker under the age of 18, employed in a corporation totally owned by one or both parents that is supervised by the parent(s), may perform work on construction projects.<sup>78</sup> However, if this contractor is subject to the federal Fair Labor Standards Act, a worker under the age of 18 is not allowed to perform work in a hazardous occupation.<sup>79</sup>
- C. To protect the interests of the department, the project engineer may remove a worker that appears to be under the age of 18 from the construction project until the contractor or worker can demonstrate proof of age<sup>80</sup> and compliance with all applicable federal and/or state regulations.<sup>81</sup>

## XVI. NON-COMPLIANCE AND ENFORCEMENT

- A. The prime contractor shall be liable for any unpaid wages to its workers or those of any subcontractor, ITO, MTO and/or Truck Broker.<sup>82</sup>
- B. If it is determined that a contractor has violated federal and/or state prevailing wage laws, or any portion of this contract, the department may implement, after written notice, one or more of the following sanctions:
  - 1. Withhold or cause to be withheld from the prime contractor under this contract, or any other federally funded contract with the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay workers employed by the prime contractor or any subcontractor the full amount of wages required by this contract.<sup>83</sup>
  - 2. Withhold or cause to be withheld from the prime contractor such amounts in considerations or assessments against the prime contractor, whether arising from this contract or other contract with the department.<sup>84</sup>
  - 3. The department may reject a bid from a prime contractor that has demonstrated continued or persistent noncompliance with the prevailing wage law on previous or current contracts with the department.<sup>85</sup>
  - 4. The department may take the prosecution of the work out of the hands of the prime contractor, place the contractor in default and terminate this contract for failure to demonstrate compliance with these provisions.<sup>86</sup>
- C. Any contractor who violates the state prevailing wage law is guilty of a misdemeanor and may be fined not more than \$300 or imprisoned not more than 90 days or both. Each day that the violation continues is a separate offense.<sup>87</sup>
- D. All required documents and certification reports are legal documents; willful falsification of the documents may result in civil action and/or criminal prosecution<sup>88</sup> and may be grounds for debarment proceedings.<sup>89</sup>

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<sup>77</sup> Minnesota Rules 5200.0910, Subpart F

<sup>78</sup> Minnesota Rules 5200.0930, Subpart 4

<sup>79</sup> 29 CFR Part 570.2(a)(ii)

<sup>80</sup> Minnesota Statute 181A.06, Subdivision 4

<sup>81</sup> MN/DOT Standard Specifications for Construction, Section 1701

<sup>82</sup> MN/DOT Standard Specifications for Construction, Section 1801

<sup>83</sup> Required Contract Provisions Federal-Aid Construction Contracts Form-1273, Section IV, Subpart 6

<sup>84</sup> MN/DOT Standard Specifications for Construction, Section 1906

<sup>85</sup> Minnesota Statute 161.32, Subdivision 1(d)

<sup>86</sup> MN/DOT Standard Specifications for Construction, Section 1808

<sup>87</sup> Minnesota Statute 177.44, Subdivision 6

<sup>88</sup> Minnesota Statutes 16B, 161.315, Subdivision 2, 177.43, Subdivision 5 177.44, Subdivision 6, 609.63

<sup>89</sup> Minnesota Statute 161.315



**NOTICE TO BIDDERS**  
**TRAFFIC CONTROL**  
**PREVAILING WAGE COVERAGE**

The following defines the United States Department of Labor's interpretation of contract labor provision coverage for employees who work for traffic control companies and /or perform traffic control duties.

**Non-covered Supplier Designated Duties:**

Employees of bona fide "Material Persons/Suppliers" are not covered. A Material Person/Supplier is limited to supply, delivery, and routine maintenance (once a week) of barricades, cones, flashers, etc. to the job site.

The following functions, except as qualified in "6." below, do not come under the prevailing wage requirements of the contracts:

1. Supply and delivery of traffic control devices such as barricades, cones, barrels, flashers and signboards.
2. Routine and periodic maintenance service (usually once a week).
3. Removal of equipment from job site.
4. In connection with delivery, they may drop the equipment at a central stockpile location or at various locations along the project. Employees of company may set-up the equipment as long as such set-up is by dropping barrels and cones from the back of a moving truck.
5. Maintenance would consist of inspecting and cleaning the equipment, replacing broken or lost equipment, replacing barricades knocked down or out of line, and changing light bulbs and barricades.
6. If an employee spends more than 20% of their workweek performing the above duties on a Davis-Bacon (Federal-Aid) project or other Davis-Bacon (Federal-Aid) projects, prevailing wage rates would apply for the time so spent.

**Covered Contractor or Subcontractor Duties:**

The following functions are covered under the contract labor provisions. Any contractor performing these duties will need to be listed on a Request to Sublet form and their employees performing the duties will need to be listed on a Certified Payroll form and submitted following the appropriate procedures.

Related and continuing traffic control services such as, but not limited to:

1. Moving barricades and barriers as construction work progresses.
2. Moving barricades for lane closures and changes.
3. Painting traffic lines.
4. Sandblasting to remove traffic lines.
5. Applying and removing traffic tape.
6. Setting up barrels or barricades other than those dropped from the back of a moving truck.
7. Digging postholes to erect temporary warning signs (only).
8. Erection of advance temporary warning signs.
9. Placing temporary signboards.

On Federal-aid Projects (only) when there is no appropriate classification listed under either the state or federal wage determinations, a classification wage rate will be negotiated using the procedures under FHWA 1273, REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS, Part IV. PAYMENT OF PREDETERMINED MINIMUM WAGE, Subp. 2. Classifications.

Superseded General Decision Number: MN20240234

State: Minnesota

Construction Types: Heavy and Highway

Counties: Becker, Big Stone, Clay, Douglas, Grant, Mahnomen, Otter Tail, Pope, Stevens, Swift, Traverse and Wilkin Counties in Minnesota.

#### Heavy and Highway Construction Projects

Please refer to Minnesota Rules 5200.1100, 5200.1101, and 5200.1102 for definitions of labor classifications on this wage determination, and direct any questions regarding such classifications to the Branch of Construction Wage Determinations.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none"><li>◆ Executive Order 14026 generally applies to the contract.</li><li>◆ The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.</li></ul>
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none"><li>◆ Executive Order 13658 generally applies to the contract.</li><li>◆ The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours performing on that contract in 2025.</li></ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

State: Minnesota

Construction Types: Heavy and Highway

Counties: Becker, Big Stone, Clay, Douglas, Grant, Mahnommen, Otter Tail, Pope, Stevens, Swift, Traverse and Wilkin Counties in Minnesota.

#### Heavy and Highway Construction Projects

Please refer to Minnesota Rules 5200.1100, 5200.1101, and 5200.1102 for definitions of labor classifications on this wage determination, and direct any questions regarding such classifications to the Branch of Construction Wage Determinations.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none"><li>◆ Executive Order 14026 generally applies to the contract.</li><li>◆ The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.</li></ul>
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none"><li>◆ Executive Order 13658 generally applies to the contract.</li><li>◆ The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours performing on that contract in 2024.</li></ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at



Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025

SAMN2024-004 11/18/2024

	Rates	Fringes
ARTICULATED HAULER.....	\$ 33.58	26.79
BOILERMAKER.....	\$ 46.00	31.93
BOOM TRUCK.....	\$ 30.21	22.55
BRICKLAYER.....	\$ 35.88	23.20
CARPENTER.....	\$ 36.49	28.29
CEMENT MASON.....	\$ 45.17	24.22
ELECTRICIAN.....	\$ 46.00	30.00
FLAG PERSON.....	\$ 27.50	20.74
GROUND PERSON.....	\$ 40.14	0.00
HEATING AND FROST INSULATORS.....	\$ 17.50 **	0.00
IRONWORKER.....	\$ 41.19	35.68
LABORER: Common or General (GENERAL LABOR WORK).....	\$ 32.23	22.88
LABORER: Landscape (GARDENER, SOD LAYER AND NURSERY OPERATOR).....	\$ 25.00	0.00
LABORER: Skilled (ASSISTING SKILLED CRAFT JOURNEYMAN).....	\$ 32.23	22.88
LANDSCAPING EQUIPMENT (INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS).....	\$ 25.00	2.00
LINEMAN.....	\$ 36.26	6.93
MILLWRIGHT.....	\$ 44.38	28.92
OFF-ROAD TRUCK.....	\$ 51.13	3.48
PAINTER (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT		

<http://www.dol.gov/whd/govcontracts>.

Modification Number      Publication Date  
0                              12/13/2024

SAMN2024-004 11/18/2024

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LABORER: Skilled (ASSISTING SKILLED CRAFT JOURNEYMAN).....	\$ 32.23	22.88
LANDSCAPING EQUIPMENT (INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS).....	\$ 25.00	2.00
LINEMAN.....	\$ 36.26	6.93
MILLWRIGHT.....	\$ 44.38	28.92
OFF-ROAD TRUCK.....	\$ 51.13	3.48
PAINTER (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS).....	\$ 32.38	25.28

MARKINGS).....\$ 32.38 25.28

PAVEMENT MARKING OR MARKING  
REMOVAL EQUIPMENT ((ONE OR  
TWO PERSON OPERATORS);  
SELF-PROPELLED TRUCK OR  
TRAILER MOUNTED UNITS).....\$ 35.00 13.24

Piledriver (INCLUDING  
VIBRATORY DRIVER OR EXTRACTOR  
FOR PILING AND SHEETING  
OPERATIONS).....\$ 45.71 29.73

PIPEFITTER/STEAMFITTER.....\$ 47.91 20.04

PIPELAYER (WATER, SEWER AND  
GAS).....\$ 35.73 22.88

PLUMBER.....\$ 44.78 23.04

POWER EQUIPMENT OPERATOR:  
(Highway/Heavy Group 2).....\$ 34.94 26.79  
HELICOPTER PILOT; CONCRETE PUMP; ALL CRANES WITH OVER 135-FOOT  
BOOM, EXCLUDING JIB; DRAGLINE, CRAWLER, HYDRAULIC BACKHOE  
(TRACK OR WHEEL MOUNTED) AND/OR OTHER SIMILAR EQUIPMENT WITH  
SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S  
RATED CAPACITY INCLUDING ALL ATTACHMENTS; GRADER OR MOTOR  
PATROL; PILE DRIVING; TUGBOAT 100 H.P. AND OVER WHEN LICENSE  
REQUIRED

POWER EQUIPMENT OPERATOR:  
(Highway/Heavy Group 3).....\$ 33.92 26.79  
ASPHALT BITUMINOUS STABILIZER PLANT; CABLEWAY; CONCRETE MIXER,  
STATIONARY PLANT; DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR  
STATIONARY); DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR  
WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE  
CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED  
CAPACITY INCLUDING ALL ATTACHMENTS; DREDGE OR ENGINEERS,  
DREDGE (POWER) AND ENGINEER; FRONT END LOADER, FIVE CUBIC  
YARDS AND OVER INCLUDING ATTACHMENTS; LOCOMOTIVE CRANE  
OPERATOR; MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING  
MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE; MECHANIC ON POWER  
EQUIPMENT; TRACTOR, BOOM TYPE; TANDEM SCRAPER; TRUCK CRANE,  
CRAWLER CRANE; TUGBOAT 100 H.P. AND OVER

POWER EQUIPMENT OPERATOR:  
(Highway/Heavy Group 4).....\$ 33.58 26.79  
AIR TRACK ROCK DRILL; AUTOMATIC ROAD MACHINE (CMI OR SIMILAR);  
BACKFILLER OPERATOR; CONCRETE BATCH PLANT OPERATOR; BITUMINOUS  
ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER);  
BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING  
PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES  
(OPERATOR AND SCREED PERSON); BROKK OR R.T.C. REMOTE CONTROL  
OR SIMILAR TYPE WITH ALL ATTACHMENTS; CAT CHALLENGER TRACTORS  
OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS;  
CHIP HARVESTER AND TREE CUTTER; CONCRETE DISTRIBUTOR AND  
SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE,  
AND SPRAY MACHINE; CONCRETE MIXER ON JOBSITE; CONCRETE MOBIL;  
CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING  
AND SCREENING PLANT; CURB MACHINE; DIRECTIONAL BORING MACHINE;  
DOPE MACHINE (PIPELINE); DRILL RIGS, HEAVY ROTARY OR CHURN OR  
CABLE DRILL; DUAL TRACTOR; ELEVATING GRADER; FORK LIFT OR  
STRADDLE CARRIER; FORK LIFT OR LUMBER STACKER; FRONT END, SKID  
STEER OVER 1 TO 5 C YD; GPS REMOTE OPERATING OF EQUIPMENT;  
HOIST ENGINEER (POWER); HYDRAULIC TREE PLANTER; LAUNCHER

PAVEMENT MARKING OR MARKING  
REMOVAL EQUIPMENT ((ONE OR  
TWO PERSON OPERATORS);  
SELF-PROPELLED TRUCK OR  
TRAILER MOUNTED UNITS).....\$ 35.00 13.24

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SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S  
RATED CAPACITY INCLUDING ALL ATTACHMENTS; GRADER OR MOTOR  
PATROL; PILE DRIVING; TUGBOAT 100 H.P. AND OVER WHEN LICENSE  
REQUIRED

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(Highway/Heavy Group 3).....\$ 33.92 26.79  
ASPHALT BITUMINOUS STABILIZER PLANT; CABLEWAY; CONCRETE MIXER,  
STATIONARY PLANT; DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR  
STATIONARY); DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR  
WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE  
CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED  
CAPACITY INCLUDING ALL ATTACHMENTS; DREDGE OR ENGINEERS,  
DREDGE (POWER) AND ENGINEER; FRONT END LOADER, FIVE CUBIC  
YARDS AND OVER INCLUDING ATTACHMENTS; LOCOMOTIVE CRANE  
OPERATOR; MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING  
MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE; MECHANIC ON POWER  
EQUIPMENT; TRACTOR, BOOM TYPE; TANDEM SCRAPER; TRUCK CRANE,  
CRAWLER CRANE; TUGBOAT 100 H.P AND OVER

POWER EQUIPMENT OPERATOR:  
(Highway/Heavy Group 4).....\$ 33.58 26.79  
AIR TRACK ROCK DRILL; AUTOMATIC ROAD MACHINE (CMI OR SIMILAR);  
BACKFILLER OPERATOR; CONCRETE BATCH PLANT OPERATOR; BITUMINOUS  
ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER);  
BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING  
PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES  
(OPERATOR AND SCREED PERSON); BROKK OR R.T.C. REMOTE CONTROL  
OR SIMILAR TYPE WITH ALL ATTACHMENTS; CAT CHALLENGER TRACTORS  
OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS;  
CHIP HARVESTER AND TREE CUTTER; CONCRETE DISTRIBUTOR AND  
SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE,  
AND SPRAY MACHINE; CONCRETE MIXER ON JOBSITE; CONCRETE MOBIL;  
CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING  
AND SCREENING PLANT; CURB MACHINE; DIRECTIONAL BORING MACHINE;  
DOPE MACHINE (PIPELINE); DRILL RIGS, HEAVY ROTARY OR CHURN OR  
CABLE DRILL; DUAL TRACTOR; ELEVATING GRADER; FORK LIFT OR  
STRADDLE CARRIER; FORK LIFT OR LUMBER STACKER; FRONT END, SKID  
STEER OVER 1 TO 5 C YD; GPS REMOTE OPERATING OF EQUIPMENT;  
HOIST ENGINEER (POWER); HYDRAULIC TREE PLANTER; LAUNCHER  
PERSON (TANKER PERSON OR PILOT LICENSE); LOCOMOTIVE; MILLING,  
GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE; MULTIPLE

PERSON (TANKER PERSON OR PILOT LICENSE); LOCOMOTIVE; MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE; MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS; PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE; PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY; PIPELINE WRAPPING, CLEANING OR BENDING MACHINE; POWER PLANT ENGINEER, 100 KWH AND OVER; POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES; PUGMILL; PUMPCRETE; RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS; SCRAPER; SELF-PROPELLED SOIL STABILIZER; SLIP FORM (POWER DRIVEN) (PAVING); TIE TAMPER AND BALLAST MACHINE; TRACTOR, BULLDOZER; TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING; TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER; TUB GRINDER, MORBARK, OR SIMILAR TYPE; WELL POINT DISMANTLING OR INSTALLATION

POWER EQUIPMENT OPERATOR:

(Highway/Heavy Group 5).....\$ 31.71 26.79  
 AIR COMPRESSOR, 600 CFM OR OVER; BITUMINOUS ROLLER (UNDER EIGHT TONS); CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED); FORM TRENCH DIGGER (POWER); FRONT END, SKID STEER UP TO 1C YD; GUNITE GUNALL; HYDRAULIC LOG SPLITTER; LOADER (BARBER GREENE OR SIMILAR TYPE); POST HOLE DRIVING MACHINE/POST HOLE AUGER; POWER ACTUATED AUGER AND BORING MACHINE; POWER ACTUATED JACK; PUMP; SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR); SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER; SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER; STUMP CHIPPER AND TREE CHIPPER; TREE FARMER (MACHINE)

POWER EQUIPMENT OPERATOR:

(Highway/Heavy Group 6).....\$ 31.06 26.79  
 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER; CONVEYOR; DREDGE DECK HAND; FIRE PERSON OR TANK CAR HEATER; GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING); GREASER (TRACTOR); LEVER PERSON; OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT); POWER SWEEPER; SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS; TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING

SHEET METAL WORKER.....\$ 27.00 3.33

Survey Field Technician

(OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS).....\$ 21.39 14.90

TRAFFIC CONTROL PERSON

(TEMPORARY SIGNAGE).....\$ 23.04 17.10

TRUCK DRIVER (Group 1).....\$ 28.92 21.35

MECHANIC; TRACTOR TRAILER DRIVER; TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)

MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS; PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE; PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY; PIPELINE WRAPPING, CLEANING OR BENDING MACHINE; POWER PLANT ENGINEER, 100 KWH AND OVER; POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES; PUGMILL; PUMPCRETE; RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS; SCRAPER; SELF-PROPELLED SOIL STABILIZER; SLIP FORM (POWER DRIVEN) (PAVING); TIE TAMPER AND BALLAST MACHINE; TRACTOR, BULLDOZER; TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING; TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER; TUB GRINDER, MORBARK, OR SIMILAR TYPE; WELL POINT DISMANTLING OR INSTALLATION

POWER EQUIPMENT OPERATOR:

(Highway/Heavy Group 5).....\$ 31.71 26.79  
AIR COMPRESSOR, 600 CFM OR OVER; BITUMINOUS ROLLER (UNDER EIGHT TONS); CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED); FORM TRENCH DIGGER (POWER); FRONT END, SKID STEER UP TO 1C YD; GUNITE GUNALL; HYDRAULIC LOG SPLITTER; LOADER (BARBER GREENE OR SIMILAR TYPE); POST HOLE DRIVING MACHINE/POST HOLE AUGER; POWER ACTUATED AUGER AND BORING MACHINE; POWER ACTUATED JACK; PUMP; SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR); SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER; SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER; STUMP CHIPPER AND TREE CHIPPER; TREE FARMER (MACHINE)

POWER EQUIPMENT OPERATOR:

(Highway/Heavy Group 6).....\$ 31.06 26.79  
CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER; CONVEYOR; DREDGE DECK HAND; FIRE PERSON OR TANK CAR HEATER; GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING); GREASER (TRACTOR); LEVER PERSON; OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT); POWER SWEEPER; SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS; TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING

SHEET METAL WORKER.....\$ 27.00 3.33

Survey Field Technician

(OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS).....\$ 21.39 14.90

TRAFFIC CONTROL PERSON

(TEMPORARY SIGNAGE).....\$ 23.04 17.10

TRUCK DRIVER (Group 1).....\$ 28.92 21.35  
MECHANIC; TRACTOR TRAILER DRIVER; TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)

TRUCK DRIVER (Group 2).....\$ 35.66 18.07  
FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

TRUCK DRIVER (Group 2).....\$ 35.66                   18.07  
FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

TRUCK DRIVER (Group 3).....\$ 31.93                   25.00  
BITUMINOUS DISTRIBUTOR DRIVER; BITUMINOUS DISTRIBUTOR (ONE  
PERSON OPERATION); THREE AXLE UNITS

TRUCK DRIVER (Group 4).....\$ 31.93                   25.00  
BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER); DUMP  
PERSON; GREASER; PILOT CAR DRIVER; RUBBER-TIRED, SELF-  
PROPELLED PACKER UNDER 8 TONS; TWO AXLE UNIT; SLURRY OPERATOR;  
TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER); TRACTOR  
OPERATOR, UNDER 50 H.P.

UNDERGROUND AND OPEN DITCH  
LABORER (EIGHT FEET BELOW  
STARTING GRADE LEVEL).....\$ 29.00                   20.74  
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WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

\*\*\*\*\*  
\*\* Workers in this classification may be entitled to a higher  
minimum wage under Executive Order 14026 (\$17.75) or 13658  
(\$13.30). Please see the Note at the top of the wage  
determination for more information. Please also note that the  
minimum wage requirements of Executive Order 14026 are not  
currently being enforced as to any contract or subcontract to  
which the states of Texas, Louisiana, or Mississippi, including  
their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
for Federal Contractors applies to all contracts subject to the  
Davis-Bacon Act for which the contract is awarded (and any  
solicitation was issued) on or after January 1, 2017. If this  
contract is covered by the EO, the contractor must provide  
employees with 1 hour of paid sick leave for every 30 hours  
they work, up to 56 hours of paid sick leave each year.  
Employees must be permitted to use paid sick leave for their  
own illness, injury or other health-related needs, including  
preventive care; to assist a family member (or person who is  
like family to the employee) who is ill, injured, or has other  
health-related needs, including preventive care; or for reasons  
resulting from, or to assist a family member (or person who is  
like family to the employee) who is a victim of, domestic  
violence, sexual assault, or stalking. Additional information  
on contractor requirements and worker protections under the EO  
is available at  
<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within  
the scope of the classifications listed may be added after  
award only as provided in the labor standards contract clauses  
(29CFR 5.5 (a) (1) (iii)).  
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The body of each wage determination lists the classifications  
and wage rates that have been found to be prevailing for the  
type(s) of construction and geographic area covered by the wage  
determination. The classifications are listed in alphabetical  
order under rate identifiers indicating whether the particular

TRUCK DRIVER (Group 3).....\$ 31.93                    25.00  
BITUMINOUS DISTRIBUTOR DRIVER; BITUMINOUS DISTRIBUTOR (ONE  
PERSON OPERATION); THREE AXLE UNITS

TRUCK DRIVER (Group 4).....\$ 31.93                    25.00  
BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER); DUMP  
PERSON; GREASER; PILOT CAR DRIVER; RUBBER-TIRED, SELF-  
PROPELLED PACKER UNDER 8 TONS; TWO AXLE UNIT; SLURRY OPERATOR;  
TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER); TRACTOR  
OPERATOR, UNDER 50 H.P.

UNDERGROUND AND OPEN DITCH  
LABORER (EIGHT FEET BELOW  
STARTING GRADE LEVEL).....\$ 29.00                    20.74  
-----

WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

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

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The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

#### Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for



rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

#### Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

#### Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

#### Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

#### State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and

this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

#### Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

#### Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

#### State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

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#### WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to [davisbaconinfo@dol.gov](mailto:davisbaconinfo@dol.gov) or by mail to:

Branch of Wage Surveys  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to [BCWD-Office@dol.gov](mailto:BCWD-Office@dol.gov) or by mail to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to [dba.reconsideration@dol.gov](mailto:dba.reconsideration@dol.gov) or by mail to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

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Branch of Wage Surveys  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to [BCWD-Office@dol.gov](mailto:BCWD-Office@dol.gov) or by mail to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

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Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210.

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END OF GENERAL DECISION"

END OF GENERAL DECISION"

MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE FUNDED CONSTRUCTION PROJECTS



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

**Construction Type: Highway and Heavy**

**Region Number: 04**

Counties within region:

- BECKER-03
- BIG STONE-06
- CLAY-14
- DOUGLAS-21
- GRANT-26
- MAHNOMEN-43
- OTTERTAIL-56
- POPE-61
- STEVENS-75
- SWIFT-76
- TRAVERSE-78
- WILKIN-84

Effective: 2024-11-18

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate. *Note: Overtime pay after eight (8) hours on the project must be paid even if the worker does not exceed forty (40) hours in the work week.*

Violations on MnDOT highways and road projects should be reported to:

Department of Transportation  
Office of Construction  
Transportation Building MS650  
John Ireland Blvd  
St. Paul, MN 55155  
(651) 366-4209

All other prevailing wage violations and questions should be sent to:

Department of Labor and Industry  
Prevailing Wage Section  
443 Lafayette Road N  
St Paul, MN 55155  
(651) 284-5091  
[DLI.PrevWage@state.mn.us](mailto:DLI.PrevWage@state.mn.us)

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
<b>LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)</b>					
101	LABORER, COMMON (GENERAL LABOR WORK)	2024-11-18	32.23	22.88	55.11
		2025-05-01	34.50	24.26	58.76

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2024-11-18	32.23	22.88	55.11
		2025-05-01	34.50	24.26	58.76
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2024-11-18	25.00	0.00	25.00
104	FLAG PERSON	2024-11-18	27.50	20.74	48.24
105	WATCH PERSON	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DLLPREVWAGE@STATE.MN.US">DLLPREVWAGE@STATE.MN.US</a>			
106	BLASTER	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DLLPREVWAGE@STATE.MN.US">DLLPREVWAGE@STATE.MN.US</a>			
107	PIPELAYER (WATER, SEWER AND GAS)	2024-11-18	35.73	22.88	58.61
		2025-05-01	38.00	24.26	62.26
108	TUNNEL MINER	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DLLPREVWAGE@STATE.MN.US">DLLPREVWAGE@STATE.MN.US</a>			
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2024-11-18	29.00	20.74	49.74
110	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	2024-11-18	21.39	14.90	36.29
111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	2024-11-18	23.04	17.10	40.14
112		2024-11-18	22.15	12.77	34.92



LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
	QUALITY CONTROL TESTER (FIELD AND COVERED OFF-SITE FACILITIES; TESTING OF AGGREGATE, ASPHALT, AND CONCRETE MATERIALS); LIMITED TO MN DOT HIGHWAY AND HEAVY CONSTRUCTION PROJECTS WHERE THE MN DOT HAS RETAINED QUALITY ASSURANCE PROFESSIONALS TO REVIEW AND INTERPRET THE RESULTS OF QUALITY CONTROL TESTERS. SERVICES PROVIDED BY THE CONTRACTOR.				
<b>SPECIAL EQUIPMENT (201 - 204)</b>					
201	ARTICULATED HAULER	2024-11-18	33.58	26.79	60.37
		2025-05-05	34.60	29.17	63.77
202	BOOM TRUCK	2024-11-18	30.21	22.55	52.76
203	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	2024-11-18	25.00	2.00	27.00
204	OFF-ROAD TRUCK	2024-11-18	51.13	3.48	54.61
205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2024-11-18	35.00	13.24	48.24
<b>HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR</b>					
<b>GROUP 2</b>		2024-11-18	34.94	26.79	61.73
		2025-05-05	36.03	29.17	65.20
302	HELICOPTER PILOT (HIGHWAY AND HEAVY ONLY)				
303	CONCRETE PUMP (HIGHWAY AND HEAVY ONLY)				
304	ALL CRANES WITH OVER 135-FOOT BOOM, EXCLUDING JIB (HIGHWAY AND HEAVY ONLY)				

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
305				
				DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR OTHER SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)
306				GRADER OR MOTOR PATROL
307				PILE DRIVING (HIGHWAY AND HEAVY ONLY)
308				TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)
<b>GROUP 3</b>	2024-11-18	33.92	26.79	60.71
	2025-05-05	34.96	29.17	64.13
309				ASPHALT BITUMINOUS STABILIZER PLANT
310				CABLEWAY
311				CONCRETE MIXER, STATIONARY PLANT (HIGHWAY AND HEAVY ONLY)
312				DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)
313				DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
314				DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER
315				FRONT END LOADER, FIVE CUBIC YARDS AND OVER INCLUDING ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)
316				LOCOMOTIVE CRANE OPERATOR
317				MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE
318				MECHANIC . WELDER ON POWER EQUIPMENT (HIGHWAY AND HEAVY ONLY)
319				TRACTOR . BOOM TYPE (HIGHWAY AND HEAVY ONLY)
320				TANDEM SCRAPER
321				TRUCK CRANE . CRAWLER CRANE (HIGHWAY AND HEAVY ONLY)
322				TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)
<b>GROUP 4</b>	2024-11-18	33.58	26.79	60.37
	2025-05-05	34.60	29.17	63.77
323				AIR TRACK ROCK DRILL
324				AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
325				BACKFILLER OPERATOR
326				CONCRETE BATCH PLANT OPERATOR (HIGHWAY AND HEAVY ONLY)
327				BITUMINOUS ROLLERS, RUBBER TIED OR STEEL DRUMMED (EIGHT TONS AND OVER)
328				BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)
329				BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS
330				CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS
331				CHIP HARVESTER AND TREE CUTTER
332				CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE
333				CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
334	CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)			
335	CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT			
336	CURB MACHINE			
337	DIRECTIONAL BORING MACHINE			
338	DOPE MACHINE (PIPELINE)			
339	DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)			
340	DUAL TRACTOR			
341	ELEVATING GRADER			
342	FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)			
343	FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)			
344	FRONT END, SKID STEER OVER 1 TO 5 C YD			
345	GPS REMOTE OPERATING OF EQUIPMENT			
346	HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)			
347	HYDRAULIC TREE PLANTER			
348	LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)			
349	LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)			
350	MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE			
351	MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS (HIGHWAY AND HEAVY ONLY)			
352	PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE			
353	PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY(HIGHWAY AND HEAVY ONLY)			
354	PIPELINE WRAPPING, CLEANING OR BENDING MACHINE			
355	POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)			
356	POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES			
357	PUGMILL			
358	PUMPCRETE (HIGHWAY AND HEAVY ONLY)			
359	RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)			
360	SCRAPER			
361	SELF-PROPELLED SOIL STABILIZER			
362	SLIP FORM (POWER DRIVEN) (PAVING)			
363	TIE TAMPER AND BALLAST MACHINE			
364	TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)			
365	TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)			
366	TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)			
367	TUB GRINDER, MORBARK, OR SIMILAR TYPE			
368	WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)			
<b>GROUP 5</b>	2024-11-18	31.71	26.79	58.50

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
		2025-05-05	32.64	29.17	61.81
369	AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)				
370	BITUMINOUS ROLLER (UNDER EIGHT TONS)				
371	CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)				
372	FORM TRENCH DIGGER (POWER)				
373	FRONT END, SKID STEER UP TO 1C YD				
374	GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)				
375	HYDRAULIC LOG SPLITTER				
376	LOADER (BARBER GREENE OR SIMILAR TYPE)				
377	POST HOLE DRIVING MACHINE/POST HOLE AUGER				
378	POWER ACTUATED AUGER AND BORING MACHINE				
379	POWER ACTUATED JACK				
380	PUMP (HIGHWAY AND HEAVY ONLY)				
381	SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)				
382	SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER				
383	SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER				
384	STUMP CHIPPER AND TREE CHIPPER				
385	TREE FARMER (MACHINE)				
<b>GROUP 6</b>		2024-11-18	31.06	26.79	57.85
		2025-05-05	31.95	29.17	61.12
387	CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER				
388	CONVEYOR (HIGHWAY AND HEAVY ONLY)				
389	DREDGE DECK HAND				
390	FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)				
391	GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)				
392	GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)				
393	LEVER PERSON				
394	OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)				
395	POWER SWEEPER				
396	SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS				
397	TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING				
<b>TRUCK DRIVERS</b>					
<b>GROUP 1</b>		2024-11-18	28.92	21.35	50.27
601	MECHANIC . WELDER				
602	TRACTOR TRAILER DRIVER				
603					

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)					
<b>GROUP 2</b>		2024-11-18	35.66	18.07	53.73
604	FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK				
<b>GROUP 3</b>		2024-11-18	31.93	25.00	56.93
605	BITUMINOUS DISTRIBUTOR DRIVER				
606	BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607	THREE AXLE UNITS				
<b>GROUP 4</b>		2024-11-18	31.93	25.00	56.93
608	BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)				
609	DUMP PERSON				
610	GREASER				
611	PILOT CAR DRIVER				
612	RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS				
613	TWO AXLE UNIT				
614	SLURRY OPERATOR				
615	TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)				
616	TRACTOR OPERATOR, UNDER 50 H.P.				
<b>SPECIAL CRAFTS</b>					
701	HEATING AND FROST INSULATORS	2024-11-18	17.50	0.00	17.50
702	BOILERMAKERS	2024-11-18	46.00	31.93	77.93
		2025-01-01	48.35	31.93	80.28
703	BRICKLAYERS	2024-11-18	35.88	23.20	59.08
704	CARPENTERS	2024-11-18	36.49	28.29	64.78
		2025-01-01	36.49	28.29	64.78
		2025-05-01	41.69	28.29	69.98
705	CARPET LAYERS (LINOLEUM)	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DLLPREVWAGE@STATE.MN.US">DLLPREVWAGE@STATE.MN.US</a>			
706	CEMENT MASONS	2024-11-18	45.17	24.22	69.39
707	ELECTRICIANS	2024-11-18	46.00	30.00	76.00
		2025-07-01	50.86	30.00	80.86

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
711	GROUND PERSON	2024-11-18	40.14	0.00	40.14
712	IRONWORKERS	2024-11-18	41.19	35.68	76.87
713	LINEMAN	2024-11-18	36.26	6.93	43.19
714	MILLWRIGHT	2024-11-18	44.38	28.92	73.30
		2025-01-01	44.38	28.92	73.30
		2025-05-01	48.13	29.41	77.54
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2024-11-18	32.38	25.28	57.66
		2025-05-01	34.98	25.28	60.26
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2024-11-18	45.71	29.73	75.44
		2025-01-01	45.71	29.73	75.44
		2025-05-01	49.46	30.23	79.69
717	PIPEFITTERS . STEAMFITTERS	2024-11-18	47.91	20.04	67.95
719	PLUMBERS	2024-11-18	44.78	23.04	67.82
721	SHEET METAL WORKERS	2024-11-18	27.00	3.33	30.33
723	TERRAZZO WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DL.PREVWAGE@STATE.MN.US">DL.PREVWAGE@STATE.MN.US</a>			
724	TILE SETTERS	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DL.PREVWAGE@STATE.MN.US">DL.PREVWAGE@STATE.MN.US</a>			
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DL.PREVWAGE@STATE.MN.US">DL.PREVWAGE@STATE.MN.US</a>			
727	WIRING SYSTEM TECHNICIAN	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DL.PREVWAGE@STATE.MN.US">DL.PREVWAGE@STATE.MN.US</a>			
728	WIRING SYSTEMS INSTALLER	FOR RATE CALL 651-284-5091 OR EMAIL <a href="mailto:DL.PREVWAGE@STATE.MN.US">DL.PREVWAGE@STATE.MN.US</a>			

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
729	ASBESTOS ABATEMENT WORKER	FOR RATE CALL 651-284-5091 OR EMAIL <u><a href="mailto:DLI.PREVWAGE@STATE.MN.US">DLI.PREVWAGE@STATE.MN.US</a></u>			
730	SIGN ERECTOR	FOR RATE CALL 651-284-5091 OR EMAIL <u><a href="mailto:DLI.PREVWAGE@STATE.MN.US">DLI.PREVWAGE@STATE.MN.US</a></u>			





Dec. 18, 2023

## Notice of truck rental rate certification and effective date

The Department of Labor and Industry (DLI) commissioner has certified the minimum truck rental rates for state-funded highway projects effective Dec. 18, 2023. This certification follows the publication of the Notice of Truck Rental Rate Determination in the State Register on Nov. 27, 2023, and the informal conference held pursuant to Minnesota Rules, part 5200.1105 on Dec. 11, 2023.

According to Minnesota Rules, part 5200.1105, the purpose of the informal conference was for DLI to obtain further input regarding the determined rates prior to the certification. No written input regarding the determination was received by DLI prior to the informal conference.

The truck rental rate is determined for each equipment type by adding the average hourly cost of operating the vehicle to the certified prevailing-wage rate for the driver. The average hourly operating costs are determined by voluntary survey of truck owner operators, trucking contractors and trucking firms. Cost data used in DLI's analysis must be representative of five trucking firms of various size and five independent truck owner operators for each type of truck.

The determination of the minimum truck rental rates by region are as follows.

### Three-axle units

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$58.61	\$37.35	\$95.96
	Increase May 1, 2024	\$61.54	\$37.35	\$98.89
Region 2	Certification date	\$51.97	\$37.35	\$89.32
	Increase May 1, 2024	\$54.57	\$37.35	\$91.92
Region 3	Certification date	\$45.02	\$37.35	\$82.37
Region 4	Certification date	\$51.97	\$37.35	\$89.32

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
	Increase May 1, 2024	\$54.57	\$37.35	\$91.92
Region 5	Certification date	\$39.50	\$37.35	\$76.85
Region 6	Certification date	\$54.16	\$37.35	\$91.51
Region 7	Certification date	\$46.65	\$37.35	\$84.00
Region 8	Certification date	\$32.16	\$37.35	\$69.51
Region 9	Certification date	\$56.36	\$37.35	\$93.71
Region 10	Certification date	\$55.96	\$37.35	\$93.31

## Four or more axle units

Region	Effective date	604 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$58.71	\$51.50	\$110.21
	Increase May 1, 2024	\$61.65	\$51.50	\$113.15
Region 2	Certification date	\$52.11	\$51.50	\$103.61
	Increase May 1, 2024	54.72	\$51.50	\$106.22
Region 3	Certification date	\$38.51	\$51.50	\$90.01
Region 4	Certification date	\$53.73	\$51.50	\$105.23
Region 5	Certification date	\$44.00	\$51.50	\$95.50
Region 6	Certification date	\$54.26	\$51.50	\$105.76

Region 7	Certification date	\$46.20	\$51.50	\$97.70
Region 8	Certification date	\$43.75	\$51.50	\$95.25
Region 9	Certification date	\$56.46	\$51.50	\$107.96
Region 10	Certification date	\$56.06	\$51.50	\$107.56

## Tractor

Region	Effective date	602 driver rate	Operating cost	Tractor-only truck rental rate	Plus trailer operating cost	Tractor trailer rental rate
Region 1	Certification date	\$59.29	\$54.96	\$114.25	\$11.46	\$125.71
	Increase May 1, 2024	\$62.25	\$54.96	\$117.21	\$11.46	\$128.67
Region 2	Certification date	\$52.66	\$54.96	\$107.62	\$11.46	\$119.08
	Increase May 1, 2024	\$55.29	\$54.96	\$110.25	\$11.46	\$121.71
Region 3	Certification date	\$48.35	\$54.96	\$103.31	\$11.46	\$114.77
Region 4	Certification date	\$38.30	\$54.96	\$93.26	\$11.46	\$104.72
Region 5	Certification date	\$42.00	\$54.96	\$96.96	\$11.46	\$108.42
Region 6	Certification date	\$39.50	\$54.96	\$94.46	\$11.46	\$105.92
Region 7	Certification date	\$45.40	\$54.96	\$100.36	\$11.46	\$111.82
Region 8	Certification date	\$48.45	\$54.96	\$103.41	\$11.46	\$114.87
Region 9	Certification date	\$48.75	\$54.96	\$103.71	\$11.46	\$115.17

Region 10	Certification date	\$48.45	\$54.96	\$103.41	\$11.46	\$114.87
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The current operating costs and truck rental rates may be reviewed by accessing DLI's website at <https://dli.mn.gov/business/employment-practices/prevaling-wage-minimum-truck-rental-rates>. Questions about the truck rental rates or the informal conference notice below can be answered by calling 651-284-5192.

The minimum truck rental rate for these four types of trucks in the State's 10 highway and heavy construction areas will be effective for all highway and heavy construction projects financed in whole or part with state funds advertised for bid on or after the day the notice of certification is published in the *State Register*.

Sincerely,

Nicole Blissenbach

DLI commissioner

NOTICE TO BIDDERS  
WORK UNDER THE CONTRACT  
July 8, 2016

Pursuant to Special Provisions Divisions A-Labor, bidders are advised that “work under the contract” for the purposes of performing on a MnDOT contract generally means, “ all construction activities associated with the public works project, including any required hauling activities on the site of, or to or from a public works project and work conducted pursuant to a contract...regardless of whether the construction activity or work is performed by the prime contractor, subcontractor, trucking broker, trucking firms, independent contractor, or employee or agent of any of the foregoing entities, and regardless of which entity or person hire or contracts with another.” *J.D. Donovan, Inc. vs. Minnesota Department of Transportation*, 878 N.W.2d 1 (2016) quoting Minn. R. 5200.1106, subp. 2(A).

Bidders are further advised that pursuant to the Minnesota Supreme Court’s decision in *J.D. Donovan, Inc. vs. Minnesota Department of Transportation*, 878 N.W.2d 1 (2016), “work under the contract” excludes hauling oil offsite in hauling activities **not** to, from, or on the project work site.

For the purposes of the Prevailing Wage Act, a laborer must be “doing or contracting to do all or part of the work under a contract.” Minn. Stat. § 177.44, subd. 1. Therefore, the Prevailing Wage Act does **not** apply to hours worked when hauling oil offsite in hauling activities not to, from, or on the project work site.



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## **DIVISION S**

### **S-1      CONTACT INFORMATION**

Direct questions about this Project, including pre-bid questions, to Jesse Miller at 218-846-3625 and [jesse.miller@state.mn.us](mailto:jesse.miller@state.mn.us).

### **S-2      SPECIAL PROVISIONS RELATING TO TRIBAL EMPLOYMENT**

**REVISED 06/30/22**

The Department promotes and encourages Indian employment on transportation Projects on or near reservations, consistent with 23 USC §140 (d).

S-2.1      This Project is on or near a reservation. The Contractor must work with the tribal government to use Indian labor in performing Contract Work. The Contractor must contact the Tribal employment rights officer, Liz Andersen or Kim St. Clair, from the White Earth Tribe, at 218-935-3699 and [liz.andersen@whiteearth-nsn.gov](mailto:liz.andersen@whiteearth-nsn.gov) or 218-935-6268 and [kim.stclair@whiteearth-nsn.gov](mailto:kim.stclair@whiteearth-nsn.gov) to identify Indian employment opportunities.

S-2.2      The Department advises the Contractor to consider Indians for designated On-the-Job Training (OJT) positions. OJT positions can be in Highway heavy trades classifications (such as heavy Equipment operators, truck drivers, carpenters, laborers, cement masons, iron workers, electricians, painters, pipefitters and plumbers).

See S-47 (2041) ON-THE-JOB TRAINING PROGRAM for OJT goals.

S-2.3      If the Contractor or Subcontractor is not in compliance with these Special Provisions, the Department will address the noncompliance with the Contractor or Subcontractor and the Tribal employment rights officer. The Contractor must meet with the Tribal employment rights officer to discuss Indian employment issues if requested by the tribe.

The Contractor must submit the Indian Employment Tracking Form, <http://www.dot.state.mn.us/civilrights/indian-employment.html>, to the Department's Office of Civil Rights no later than 90 Calendar Days after receipt of the semi-final estimate as defined in MnDOT 1908.2 and as per 1516.3(7) Completion of Work. If the Contractor fails to submit the form, the Engineer may assess a Monetary Deduction, in accordance with the Contract. The form must list all Indians who were hired for the Project, by the Contractor or a Subcontractor, after being referred by one of the federally-recognized tribal TERO offices in Minnesota.

S-2.4      If the Contractor is considering suspending or terminating an employee referred by the Tribal employment rights officer, the Contractor must notify the Tribal employment rights officer to seek assistance in resolving the problem prior to releasing the employee. Nothing in these Special Provisions is intended to interfere with the Contractor's ability to dismiss any employee for cause including, but not limited to, lack of adequate skills or training, inability to perform because of State or Federal law, or breach of the Contractor's safety standards or other standards of conduct.

S-2.5      Indian employment requirements supplement, but do not replace, other equal opportunity requirements.

### **S-3            PROTECTION OF FISH AND WILDLIFE RESOURCES**

**REVISED 06/28/24**

#### **S-3.1            Compliance with Environmental Documentation**

The Project is located in an area with protected fish & wildlife resources and/or threatened & endangered species. The Contractor must protect these resources in accordance with State and Federal regulations and must implement all applicable avoidance and minimization measures (AMMs).

The Environmental Document for this Project is available. See S-26 (1712) PROTECTION AND RESTORATION OF PROPERTY.

##### **A            BAT PROTECTION**

The Project is located in an area inhabited by one or more protected bat species. The Contractor must ensure all operators, employees, and Contractors working in areas of known or presumed bat habitat are aware of environmental commitments and avoidance and minimization measures (AMMs) to protect both bats and their habitat. The Contractor must notify Project Subcontractors during the preconstruction meeting.

Contractor must direct temporary lighting, if used, away from wooded areas during the bat active season (April 1 to November 14, inclusive).

Contractor must immediately report (within 24 hours) all bat sightings, live or dead, to the Department's wildlife ecologist, <https://www.dot.state.mn.us/environment/wildlife.html>.

##### **A.1            Tree Clearing Requirements**

Restrict all activities to avoid tree clearing. No tree clearing allowed.

##### **A.2            Bridge and Culvert Requirements**

Contractor must inspect Bridges and Culverts, including expansion joints to determine if bats or bat signs are present before beginning Work during the bat active season (April 1 to November 14, inclusive).

Contractor must immediately report (within 24 hours) all bat sightings, live or dead, to the Department's wildlife ecologist, <https://www.dot.state.mn.us/environment/wildlife.html>.

##### **B            BALD EAGLE PROTECTION**

Bald Eagles are protected by the Bald and Golden Eagle Protection Act. No Bald Eagle nests are known within the project limits. However, if a Bald Eagle nest is discovered during Project activities, Contractor must stop Work and immediately report Bald Eagle nests to the Department's wildlife ecologist, <https://www.dot.state.mn.us/environment/wildlife.html>. Contractor must not Work within 300 feet of a Bald Eagle nest at any time. This includes foot traffic, vehicle parking, and/or equipment or material staging.

##### **C            MIGRATORY BIRD PROTECTION**

Contractor must cover soil stockpiles when any surface of a stockpile is not in use for 48 hours or longer, Contractor must prevent bird nesting by either covering that surface with fabric or tarps or by grading that surface to a slope no steeper than 65 degrees.

Contractor must inspect Bridges, Culverts, and other Structures (buildings, sheds, garages, etc.), to determine if nesting birds are present before beginning Work.

If a nest or nests are encountered that have eggs and/or live young, photograph the nest, stop Work in that location and immediately contact the Department's wildlife ecologist to determine next steps, <https://www.dot.state.mn.us/environment/wildlife.html>.

The following locations are known to have migratory birds: Bridge 56805. Swallows present.

Contractor must prevent birds from establishing active nests (those containing eggs or live young) until such time as the construction activities are completed, or no longer threaten the nests.

Contractor must remove inactive nests from the previous nesting season and remove nests that are being established but before they are active (i.e., before they have eggs or young).

This action requires frequent inspections and nest removals to prevent nests from being constructed and becoming active. Allow no more than two Calendar days between inspections and removals. Daily inspections and removals may be needed in areas with frequent bird use. Nest removal must start prior to April 15.

#### **S-4                    USE OF ADHESIVE ANCHORS**

Unless specifically permitted in the Contract documents, do not use adhesive anchors in sustained tension. Contractor may use adhesive anchors, in a non-direct tensile application, such as metal rail attachment.

#### **S-5                    EQUAL EMPLOYMENT OPPORTUNITY**

**REVISED 10/14/22**

The Equal Employment Opportunity (EEO) Special Provisions contain the EEO rules and regulations for federal and/or state funded highway construction Projects in Minnesota.

The source of funding determines which EEO regulations and workforce participation goals apply to a specific Project:

- If the Project contains any federal funding, and has a total dollar value exceeding \$10,000, federal EEO regulations and workforce participation goals apply. The Minnesota Department of Transportation's Office of Civil Rights (MnDOT's Office of Civil Rights) monitors and reviews these Projects on behalf of the Federal Highway Administration (FHWA), under federal law (23 U.S.C. § 140) and its accompanying rules (23 C.F.R. § 230). The FHWA allows MnDOT's Office of Civil Rights to apply the state's workforce participation goals to federally funded construction Contracts.
- If the Project contains any state funding, and has a total dollar value exceeding \$100,000, state EEO regulations and workforce participation goals apply. MnDOT's Office of Civil Rights monitors and reviews these Projects in conjunction with the Minnesota Department of Human Rights under state law (Minn. Stat. § 363A.36) and its accompanying rules (Minn. R. 5000.3520 - .3530).

- If the Project contains any state and federal funding, and meets the total dollar value thresholds outlined above, both federal and state EEO regulations, and workforce participation goals apply. MnDOT's Office of Civil Rights monitors and reviews these Projects via a single review and monitoring process that meets federal and state requirements.

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY**

**23 U.S.C. § 140, 23 C.F.R. § 230, 41 C.F.R. § 60, Minn. Stat. § 363A.36, Minn. R. 5000.3520 - .3530**

A. The Contractor's attention is directed to the following:

1. Required Contract Provisions: Federal-Aid Construction Contracts Attachment (FHWA 1273) can be found here: [https://edocs-public.dot.state.mn.us/edocs\\_public/DMResultSet/download?docId=19624648](https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=19624648)
2. Equal Employment Opportunity (EEO) State and Federal Laws, Policies and Rules Attachment: Minnesota Affirmative Action Requirements (Pages 1-2); Violence-Free and Respectful Workplace (Pages 3-7); Specific Federal Equal Employment Opportunity Responsibilities (Pages 8-11); Standard Federal and State Equal Employment Construction Contract Specifications (Pages 12-15); Equal Opportunity Clause (Pages 16-17) can be found here: [https://edocs-public.dot.state.mn.us/edocs\\_public/DMResultSet/download?docId=19624471](https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=19624471)

B. The Contractor's compliance with 41 C.F.R. § 60-4, and Minn. Stat. § 363A.36 and its accompanying rules shall be based on the following: implementation of the Equal Opportunity Clause (Pages 16-17); adherence to the specific affirmative action obligations of the state and federal authorities outlined in these EEO Special Provisions and the Equal Employment Opportunity (EEO) State and Federal Laws, Policies and Rules Attachment; and good faith efforts to meet the applicable workforce participation goals detailed below.

C. Highway construction Contracts in excess of \$100,000 in state funds and/or \$10,000 in federal funds are subject to the workforce participation goals for minorities and women established by the Commissioner of the Minnesota Department of Human Rights (MDHR) under Minn. R. 5000.3520. The FHWA allows MnDOT's Office of Civil Rights to apply the state's workforce participation goals to federally funded construction Contracts. The Contractor's attention is directed to the following:

1. Workforce participation goals are percentages of total labor hours that minorities and women should perform in each trade on the Project. Compliance is measured against the total labor hours performed. The Contractor must ensure that labor hours for minorities and women remain substantially uniform in each trade for the duration of the Project.
2. Workforce participation goals are applied on a county-by-county basis.
3. For Projects spanning more than one county, the workforce participation goals of the assigned county apply. For statewide Projects, the highest workforce participation goals of any county located within the covered work area apply.

4. If the applicable workforce participation goals will not be met, the Contractor and any Subcontractor with estimated labor hours on the Project (except independent trucking operators) must demonstrate that specific and significant actions to recruit, hire, and retain minorities and women are being taken. The Contractor is responsible for ensuring Subcontractors are making these requisite good faith efforts.

D. The transfer of minorities and/or women, including employees and trainees, from different Projects or among Contractors for the sole purpose of meeting the workforce participation goals violates 41 C.F.R. § 60-4, and Minn. Stat. § 363A.36 and its accompanying rules. Such action is a breach of Contract.

E. The Contractor is directed to the following written notification requirements concerning Subcontracts:

1. If the Project is federally funded: The Office of Federal Contract Compliance Programs must receive written notification of any construction Subcontract over \$10,000 executed at any tier within ten (10) working days of the Contract award.
2. If the Project is state funded: The Office of Equity and Inclusion for Minnesota Businesses, a division of MDHR, must receive written notification of any construction Subcontracts over \$100,000 executed at any tier within ten (10) working days of the Contract award.

The written notification must provide the following information: Name, address, telephone number, and employee identification number of the Subcontractor; estimated amount of the Subcontract; Project location; and estimated start and end dates.

#### **NOTICE TO CONTRACTOR AND SUBCONTRACTORS: REPORTING REQUIREMENTS**

**23 U.S.C. § 140, 23 C.F.R. § 230, Minn. Stat. § 363A.36, Minn. R. 5000.3520 - .3530**

Workforce participation goals are applied on a county-by-county basis. For Projects spanning more than one county, the workforce participation goals of the assigned county apply. For statewide Projects, the highest workforce participation goals of any county located within the covered work area apply.

The workforce participation goals for this Project are:

Minority: 12%

Women: 9%

#### **PRE-AWARD**

- A. The Contractor must complete and submit a Workforce Plan if the low bid amount is \$5,000,000 or more.
- B. The Workforce Plan includes the following documents:
  1. Project Information Form: To be completed by the Contractor;
  2. Contractor Workforce Commitment Form: To be completed by the Contractor and any Subcontractors with estimated labor hours on the Project;



3. Workforce Hours – Project Overview Form: To be completed by the Contractor; and
4. Total Company Workforce Report: To be completed by the Contractor and any Subcontractors upon request.
  - a. The Total Company Workforce Report can be found here: [mndot.gov/civilrights/forms.html](https://mndot.gov/civilrights/forms.html).

The Contractor must select the regional Workforce Plan template that corresponds with Project location. The Workforce Plan templates can be found here: [mndot.gov/civilrights/bid-results.html](https://mndot.gov/civilrights/bid-results.html).

C. Approval of the Workforce Plan by MnDOT’s Office of Civil Rights (OCR) is a condition of Contract award.

D. Approval is contingent upon the following:

1. Completion and submission of the Workforce Plan within five (5) business days of the bid opening. The five-day (5) period begins the first full business day after the bid opening date;
2. Completion and submission of all responses to specific Workforce Plan inquiries made by MnDOT’s Office of Civil Rights of the Contractor or any of its Subcontractors with estimated labor hours on the Project; and
3. Ability of the Contractor or any of its Subcontractors with estimated labor hours on the Project to demonstrate that specific and significant actions to recruit, hire, and retain minorities and/or women are being taken if the applicable workforce participation goals will not be met.

E. Failure to complete and submit the Workforce Plan will result in the bid being rejected for failure to meet a condition precedent.

F. The execution of a collective bargaining agreement granting a union exclusive referral rights does not preclude compliance with the requirements of this section. As such, the inability of a union to provide candidates for employment relieves neither the Contractor nor any of its Subcontractors with estimated labor hours on the Project of the requirement to demonstrate that specific and significant actions to recruit, hire, and retain minorities and/or women are being taken if the applicable workforce participation goals will not be met.

#### POST-AWARD

A. The Contractor is directed to the following requirements concerning payroll submission:

1. The Contractor and its Subcontractors must complete and submit payroll weekly via the Civil Rights Labor Management System (CRL). Workforce participation goals are percentages of total labor hours captured through Contractor payroll submission.

2. All Contractors working on federal-aid highway construction Contracts of at least \$10,000 during the last week of July must report their workforce by job category, gender, and ethnicity. MnDOT's Office of Civil Rights compiles this data into a single report for the FHWA. Information on how to submit the required data can be found here: [mndot.gov/civilrights/federal-aid-highway-construction-contractors-annual-eeo-report.html](https://mndot.gov/civilrights/federal-aid-highway-construction-contractors-annual-eeo-report.html).

Failure to meet these post-award reporting requirements may result in the imposition of Contract sanctions, including withholding of progress payments.

B. MnDOT's Office of Civil Rights determines whether Contractors on highway construction Projects are meeting state and federal laws, rules, and regulations relating to EEO by conducting annual compliance reviews. Accordingly, it reserves the right to audit the Contractor or any of its Subcontractors.

C. Information concerning specific reporting requirements for On-the-Job Training and Tribal Employment is accessible via reference to the Index for Division S.

#### FINAL CLEARANCE

Pursuant to MnDOT Standard Specifications for Construction, Section 1516.3, "Completion of the Work, note (7)", the Contractor must notify the Engineer and MnDOT Office of Civil Rights when work is complete. MnDOT's Office of Civil Rights will issue a Final Clearance letter under MnDOT Standard Specifications for Construction, Section 1516.3, "Completion of the Work, note (7)".

## **S-6                    ELECTRONIC SUBMISSION OF PAYROLLS AND STATEMENTS AND BIDDERS LISTS FOR FEDERALLY FUNDED PROJECTS**

**REVISED 08/08/22**

These provisions govern: (1) how the Contractor and all Subcontractors must submit all certified payroll reports; (2) how the Contractor must submit electronic Subcontractor data; (3) how the Contractor and Subcontractors will demonstrate compliance with payment requirements; and (4) how Apparent Low Bidders must submit the Bidder/Quoter List. The Contractor must submit electronic payrolls through the AASHTOWare Project Civil Rights and Labor (CRL) system. These provisions supersede the requirements for paper submissions in SPECIAL PROVISIONS DIVISION A – LABOR and FHWA-1273, Section IV, paragraphs 3(b)(1) and 3(b)(2). These provisions supersede the DBE Consolidated Good Faith Efforts Form Parts E, F, G, and H; and the Contractor Payment Form provided in the DBE Special Provisions.

The Department will not provide additional compensation to ensure compliance with these provisions.

The MnDOT Contractor (Vendor) Lookup search engine, available at <https://transport.dot.state.mn.us/reference/refvender.aspx>, allows Contractors to search for vendors, Subcontractors, and suppliers to ensure that they are in the CRL system.

### **S-6.1                SYSTEM REQUIREMENTS**

The Contractor must submit certified payroll reports (CPRs), Bidder/Quoter List, prompt payment information, and Subcontractor data electronically into CRL. The Department will provide access to CRL. To use CRL, the Contractor must have the following:

- A computer running Windows 7 or newer
- Internet Explorer 11 or Google Chrome
- Microsoft Excel 2007 or newer
- Internet access

The CRL website is located at: <http://www.dot.state.mn.us/const/labor/civil-rights-labor.html>.

The Department will provide login identification (ID) to designated employees of the Contractor and approved Subcontractors entered into the system for the Contract. The Contractor and all Subcontractors must follow the “Vendor Login Access to MnDOT AASHTOWare” located on the website prior to working on the Project. The login ID and password are unique to each designated employee and must not be shared with others.

Manuals, eLearning tools, and other important information are available on the CRL website.

#### S-6.2 CERTIFIED PAYROLL & SUBCONTRACTOR DATA SUBMISSION

The Contractor and all Subcontractors, including multiple truck operators (MTOs), must use CRL to submit CPRs. The Contractor must ensure that all Subcontractors have submitted their Vendor Forms to the Department and have received their login IDs prior to working on the Project. The Contractor must submit Request to Sublet data electronically into CRL prior to Subcontractors performing Work on the Project. The Engineer may at any time require, upon written demand, paper Request to Sublet documents from the Contractor for any Subcontractor(s) working on the Project; MTOs would be submitted on the MTO Request to Sublet form, available at: <http://www.dot.state.mn.us/const/labor/documents/forms/mtosubletform.pdf>.

The Contractor must request from the Engineer the Contract number and Project ID(s) and provide the information to approved Subcontractors working on the Project, including MTOs subject to SPECIAL PROVISIONS DIVISION A – LABOR. The Contractor may use the Contract search engine located at: <http://transport.dot.state.mn.us/reference/refprojectid.aspx>. The Contractor must ensure all Subcontractors and MTOs submit CPRs electronically into CRL. The Contractor must provide assistance to their Subcontractors and MTOs to enter CPR data accurately into the system.

There are four ways to submit certified payrolls electronically into the system:

- Manually add, copy, or modify data into CRL;
- Import payroll data with the CRL payroll spreadsheet XML converter tool available at: <https://xml.cloverleaf.net/spreadsheet/>;
- Convert payroll system program data to Payroll XML and import into CRL. Information on how to convert to Payroll XML may be found at: <https://xml.cloverleaf.net/resourcekit/>; or
- The Contractor may submit, on behalf of a Subcontractor and MTO, a payroll based on a signed, certified paper payroll through the Electronic Proxy Payroll Process.

Month-End Truck Report forms must be submitted directly to the Engineer and not through the electronic system.

The Engineer may at any time require, upon written demand, paper certified payroll reports from any Contractor(s) working on the Project.

**S-6.3 BIDDER/QUOTER LIST REQUIREMENTS**

The Apparent Low Bidder (ALB) is required to submit a Bidder/Quoter List electronically in CRL. The ALB must ensure that all Subcontractors and suppliers are listed in CRL by using the MnDOT Contractor (Vendor) Lookup search engine located at: <https://transport.dot.state.mn.us/reference/refvendor.aspx>. If a company is not listed or if any company information is incorrect, the ALB must ensure that the Subcontractor or supplier submit a Vendor Form, available at: <http://www.dot.state.mn.us/const/labor/documents/forms/contractorform.pdf>. The electronic list is completed by selecting the name of the firm from a prepopulated vendor list. The Contractor must enter the information below for each Subcontractor or supplier who provided a quote or bid to perform Work or supply Materials on the Project:

- Firm name (selected from drop-down list); and
- Bid items/scope of Work the firm will perform and total dollar amount of each bid item.

This requirement applies to all DBE and non-DBE Subcontractors and suppliers. The Bidder/Quoter List is due on the Submission Due Date specified in the DBE Special Provisions. The Contractor must submit the name of the company's authorized signatory. If you need additional assistance, please contact the Department's Office of Civil Rights.

**S-6.4 PAYMENT**

The Contractor shall enter all payments made to the first tier Subcontractor(s) into the Payment area of CRL for each estimate. The first tier Subcontractor will validate their payments received from the Contractor and must enter any payments made to lower tier Subcontractor(s). Lower tier Subcontractors must validate their payments received.

**S-6.5 MINNESOTA GOVERNMENT DATA PRACTICES ACT**

All CRL data are subject to the Minnesota Government Data Practices Act (MGDPA), Minnesota Statutes, Chapter 13. All users of CRL, including Bidders, Contractors, and Subcontractors, must establish security measures to prevent access to not public data or risk facing civil remedies under Minnesota Statutes, section 13.08, for the unauthorized access to or release of not public data.

**S-6.6 APPROVAL OF PAYROLLS**

"Approval" of payrolls within CRL does not indicate that the Department's Labor Compliance Unit has reviewed this data for accuracy or compliance with prevailing wage laws, nor does it indicate approval in writing as discussed in the Standard Specifications. "Approval" of payrolls within CRL only indicates that specific payrolls have been received by the Department's District offices. The Department reserves the right under the Contract and SPECIAL PROVISIONS DIVISION A – LABOR to review payrolls to ensure compliance with State and Federal prevailing wage laws and other applicable labor laws.

**S-7 (1102) ABBREVIATIONS AND MEASUREMENT UNITS**

**RESTORED AND REVISED 06/30/23**

S-7.1 Add the following to Table 1102.1-1 in MnDOT 1102:

Acronym or Short Form	Full Name or Meaning
NPT	American National Standard Taper Pipe Thread
RMC	Rigid Metal Conduit
SMC	Schedule of Materials Control

- S-7.2 Delete the following from Table 1102.1-1 in MnDOT 1102:

Acronym or Short Form	Full Name or Meaning
RSC	Rigid Steel Conduit

## **S-8 (1103) DEFINITIONS**

**RESTORED AND REVISED 06/30/23**

- S-8.1 Delete and replace the definition for “Unit Day” in MnDOT 1103 with the following:

Unit Day  
12:00 a.m. to 11:59 p.m. (0000-2359) or any portion thereof.

- S-8.2 Delete and replace the definition for “Working Day” in MnDOT 1103 with the following:

Working Day  
Any Calendar Day, exclusive of Saturdays, Sundays, and Holidays, on which weather and other conditions not under the control of the Contractor will permit construction operations to proceed with the normal working force engaged in performing critical work.

- S-8.3 Add the following to MnDOT 1103:

Professional Land Surveyor  
The Contract may require that the Contractor provide a Professional Land Surveyor, currently licensed by the State of Minnesota, to perform or supervise certain activities and/or responsibilities related to the Contract.

## **S-9 (1205) EXAMINATION OF PROPOSAL PACKAGE AND SITE OF WORK**

**REVISED 06/30/23**

- S-9.1 Add the following to MnDOT 1205:

Additional information is available to Bidders at:

<http://www.dot.state.mn.us/pre-letting/prov/additional-information.html>

Bridge information for this Project is available at:

Plans of existing Structures are available at the Minnesota Department of Transportation, Bridge Office, 3485 Hadley Ave N, Oakdale, MN, 55128-3307, for review and inspection by Bidders; electronic copies are also available for viewing, printing and downloading on the MnDOT Consumer Access eDOCS (Electronic Document Management System) at [https://edocs-public.dot.state.mn.us/edocs\\_public/Home/](https://edocs-public.dot.state.mn.us/edocs_public/Home/).

**S-10 (1206) PREPARATION AND DELIVERY OF PROPOSAL**

**RESTORED 06/30/23**

S-10.1 Delete and replace MnDOT 1206.1 with the following:

**1206.1 PREPARATION AND DELIVERY**

The Bidder shall use the electronic submittal process. The Bidder shall submit the electronic Proposal in accordance with AASHTOWare Project Bids software and the [Bid Express](http://www.bidx.com) website ([www.bidx.com](http://www.bidx.com)).

The Bidder shall submit its Proposal by the date and time for opening Proposals. Bid Express will not accept Proposals past the date and time of the opening of Proposals.

The Bidder shall submit the Proposal Guaranty electronically through the Project Bids software or via email at [biddocsubmittal.DOT@state.mn.us](mailto:biddocsubmittal.DOT@state.mn.us) by the due date and time of the opening of Proposals.

If a Bidder fails to provide a Unit Price for any Pay Item on the Bid Schedule, except for “Lump Sum” Pay Items, the Department will reject the Proposal.

If a Pay Item in the Proposal requires the Bidder to choose an alternate Pay Item, the Bidder shall indicate its choice in accordance with the Specifications for that Pay Item.

S-10.2 Add the following to MnDOT 1206:

**1206.3 RESPONSIBLE CONTRACTOR**

The Department cannot award a construction Contract in excess of \$50,000 unless the Bidder is a “Responsible Contractor” as defined in Minnesota Statutes §16C.285, subdivision 3.

A Bidder must verify it meets the minimum criteria detailed in the law. A Bidder must submit its verification electronically by completing the “Responsible Contractor” section in the “Officers and Acknowledgements” Folder within the Electronic Bid File. A company officer must certify statements in that section. Bidders only need to complete the electronic verification; DO NOT email, fax, or send paper forms to the Department. The Department will not accept emailed, faxed, or other paper submissions and will only accept electronic verifications.

A Bidder must obtain verification from each Subcontractor it will have a direct contractual relationship with. At the Department’s request, a Bidder must submit signed Subcontractor verifications. A Contractor or Subcontractor must obtain annual verification from each motor carrier with which it has a direct contractual relationship. A motor carrier must give immediate written notice if it no longer meets the minimum responsible Contractor criteria. The requirement for Subcontractor verifications does not apply to:

- Design professionals licensed under Minnesota Statutes §326.06; and
- A business or person that supplies Materials, Equipment, or supplies to a Subcontractor on the Project, including performing delivering and unloading services in connection with the supply of Materials, Equipment, and supplies. But, a business or person must submit a verification if it delivers mineral Aggregate such as sand, Gravel, or stone that will be incorporated into the Work by depositing the Material substantially in place, directly or through spreaders, from the transporting vehicle.

A Bidder or Subcontractor who does not meet the minimum criteria specified in the statute, or who fails to verify compliance with the criteria, is not a “Responsible Contractor” and is ineligible to be awarded the Contract for this Project or to Work on this Project. Submitting a false verification makes the Bidder or Subcontractor ineligible to be awarded a construction Contract for this Project. Additionally, submitting a false statement may lead to Contract termination. If only one Bidder submits a bid, the Department may, but is not required to, award a Contract even if that Bidder does not meet the minimum criteria.

## **S-11            (1208) PROPOSAL GUARANTY**

**RESTORED 06/30/23**

S-11.1        Delete and replace MnDOT 1208 with the following:

The Bidder shall include with its Proposal a Proposal Guaranty that meets the following requirements:

- (1)        Equal to 5 percent of the total amount of the Proposal
- (2)        Made payable to the Department
- (3)        In the form of a bond

A Proposal Guaranty in the form of a bond must meet the following requirements:

- (1)        Issued by a corporation authorized by the Minnesota Department of Commerce to contract as a Surety in the State of Minnesota
- (2)        Conditioned on the execution of the Contract in accordance with 1306, “Execution and Approval of Contract”

## **S-12            (1401) INTENT OF CONTRACT (PARTNERING)**

**RESTORED 06/30/23**

S-12.1        Add the following to MnDOT 1401:

1401.1        PARTNERING  
Partnering is required on this Contract.

The Engineer will send out the pre-construction letter and questionnaire prior to the pre-construction conference. The Contractor must fill out and return the Questionnaire to the Engineer no later than 5 Working Days after receiving the request. An example pre-construction letter and questionnaire can be found in Appendix A, of MnDOT’s “Partnering Field Guide”.

Pre-activity planning discussions will be held prior to each major construction Activity and prior to any minor Activity when required by the Engineer. An example pre-activity discussion checklist can be found in Appendix G, of MnDOT’s “Partnering Field Guide”.

Partnering shall be conducted in accordance with MnDOT’s [“Partnering Field Guide.”](#)

All Work associated with partnering is Incidental, except as otherwise provided in the Contract.

**S-13                    (1507) UTILITY PROPERTY AND SERVICE**

**REVISED 01/27/23**

S-13.1            Delete and replace the second to the last paragraph of MnDOT 1507.1 with the following:

All utilities related to this Project are classified as "Level D," unless the Plans specifically state otherwise. This utility quality level was determined according to the guidelines of CI/ASCE 38-22, entitled to "Standard Guideline for Investigating and Documenting Existing Utilities."

S-13.2            Add the following to MnDOT 1507.2:

(3)            The Contractor shall acquire a Positive Response confirmation from the Department for all proposed excavations when the Gopher State One Call has indicated that proposed excavations may affect the Department's utilities. The Contractor may call the Department's Electrical Services Section (ESS) Dispatch Locating to confirm the status of Department-owned Utility infrastructure. Contractor can contact the Department's Electrical Services Section (ESS) Dispatch Locating at (651) 366-5750 or (651) 366-5751. The Contractor shall be responsible for all damage to Department-owned Utility infrastructure if the Contractor did not acquire a Positive Response confirmation from the Department.

**S-14                    (1601) SOURCE OF SUPPLY AND QUALITY**

**REVISED 06/13/24**

S-14.1            Add the following to MnDOT 1601:

The provisions of the Build America, Buy America (BABA) Act, Public Law No.117-58 §§ 70901-70952, the Buy America law, 23 U.S.C. § 313, 2 CFR Part 184 and 23 CFR § 635.410 require the Contractor to furnish iron and steel materials (including miscellaneous items such as fasteners, nuts, bolts, and washers) and construction materials which will be permanently incorporated on projects funded at least partly with federal funds to be produced in the United States.

1. Iron and Steel. In the case of iron and steel materials, produced in the United States means that all manufactured processes from the initial melting stage through the application of coatings, occur in the United States. Foreign source materials are any domestic products taken out of the United States for any process (e.g., change of chemical content, permanent shape or size, or final finish of product).

All bids must be based on furnishing domestic iron and steel, which includes the application of the coatings.

Prior to performing Work, the Contractor shall submit to the Engineer a certification stating that all iron and steel materials supplied are produced in the United States.



Raw materials such as iron ore, pig iron, processed, pelletized, and reduced iron ore, waste products (including scrap, iron or steel no longer useful in its present form from old automobiles, machinery, pipe, railroad rail, and steel trimmings from mills or product manufacturing) and other raw materials used in the production of iron or steel products may be imported from outside of the United States. Extracting, handling, or crushing the raw materials which are inherent to the transporting of these Materials for later use in the manufacturing process are exempt from the BABA Act.

A de minimis amount of non-compliant iron and steel material may be incorporated in the permanent work on a federal-aid contract provided that the cost of such materials or products does not exceed one-tenth of one percent (0.1%) of the total contract cost or \$2500, whichever is greater. The cost of the non-compliant iron or steel material is defined as its monetary value delivered to the job site and documented by invoices or bill of sale to the Contractor.

2. Construction Materials. BABA Act applies to the following construction materials. Each construction material is followed by a standard for the material to be considered produced in the United States.

Construction materials include any article, material, or supply that is or consists primarily of:

- a) Non-ferrous metals, all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States;
- b) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States;
- c) Glass (including optic glass), all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States;
- d) Fiber optic cable (including drop cable), all manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others;
- e) Optical fiber, all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States;
- f) Lumber, All manufacturing processes, from initial debarking through treatment and planing, occurred in the United States;
- g) Engineered Wood, all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States; or
- h) Drywall, all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

The BABA Act does not apply to: cement, cementitious materials, aggregates such as stone, sand, or gravel, aggregate binding agents or additives, or asphalt.

With the exception of minor additions of articles, materials, supplies, or binding agents to a construction material, if any of the listed construction materials is combined through a manufacturing process with a second listed material or with a non-listed item, then BABA Act does not apply to those items unless the construction material is combined with iron or steel. If the construction material is combined with iron or steel, the iron and steel material provisions apply.

A de minimis amount of non-compliant construction materials may be incorporated in the permanent work provided that the total value of the non-compliant products does not exceed five percent (5%) of the applicable project costs up to a maximum of \$1,000,000. The applicable project costs are defined as the cost of materials in the project that are subject to a domestic preference requirement, including materials that are within the scope of an existing waiver; for example, manufactured products.

The process of receiving a waiver is provided in the BABA Act and any federal regulation adopted in accordance with this law. The Contractor shall not anticipate that any of these provisions will be waived.

The Contractor is required to submit a Certificate of Compliance prior to incorporating any Materials into the Project containing iron or steel, or construction materials. This shall be accomplished by the Contractor submitting the appropriate Certificate of Compliance to the Department when the Materials are delivered to the project site. The Certifications of Compliance for iron and steel will certify the Materials are considered produced in the United States. The Certifications of Compliance for construction materials will certify that the final two manufacturing processes for the construction materials occurred in the United States. The certificate must be signed and dated by the Prime Contractor's authorized representative, include a BABA Act submittal number, and a statement: The Materials herein referenced are produced in the United States and comply with the requirements of 23 CFR § 635.410, 2 CFR Part 184, Public Law No.117-58 §§ 70901-70952, and 23 U.S.C. § 313.

Supporting documentation to demonstrate compliance with BABA Act provisions (such as mill test reports, manufacturer/supplier certifications, etc.) shall be organized and maintained by the Contractor from the date of delivery until six years after 1516.4, "Final Contract Acceptance".

The Department may review the Contractor's supporting documentation to verify compliance with the BABA Act provisions at any time upon request. The burden of proof to meet the BABA Act provisions rest with the Contractor. If the supporting documentation does not demonstrate to the Department that the iron or steel and construction materials identified in the Certificates of Compliance were produced in the United States, then the iron, steel, or construction materials will be considered unauthorized Work and must be removed and replaced according to 1512.2, "Unauthorized Work".

**S-15            (1602) NATURAL MATERIAL SOURCES**

S-15.1            Add the following to MnDOT 1602:

The expansion of any existing natural material sources, or the creation of new natural material sources, is subject to the requirements of the Farmland Protection Act of 1981 (FPPA or the ACT). Contractor is responsible for coordination to comply with FPPA. Contact the Natural Resources Conservation Service (NRCS) office for the County in which the source is located for further information.

**S-16            (1606) STORAGE OF MATERIALS**

**REVISED 09/27/24**

S-16.1            Add the following to MnDOT 1606:

If the Contractor elects to crush excavated Materials within the Project Limits, the quantity of crushed Material will be limited to only the quantity required for this Project. Unless approved in writing by the Engineer, the Contractor must not crush Materials other than those found within the Project Limits or remove crushed Material from the Project Limits.

The Contractor may request to use space outside of the Project Site, and within the Department's Right-of-Way, for storing materials or placing mobile production plant and Equipment. The Contractor shall submit, in writing, to the Engineer for approval. The submittal shall include the proposed location, description of items that will be stored, erosion control plans, restoration plans, and dates that the space will be used. The use of the additional space and restoration to an acceptable condition will be at no additional cost to the Department. The use of the space shall be approved, in writing, by the Engineer prior to any use. The Engineer may revoke this approval, at any time.

**S-17            (1701) LAWS TO BE OBSERVED**

**RESTORED AND REVISED 06/30/23**

S-17.1            Delete and replace the second paragraph of MnDOT 1701.5B with the following:

For purposes of paying out retainage, a Subcontractor's Work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and final documentation is received. Final documentation includes certified payrolls, Material certifications, haul road releases, pit releases, warranties, operating manuals, product literature, verification of final quantities, and Contractor Affidavit (Form IC134). When the Department has made an incremental acceptance of a portion of the prime Contract, the Work of a Subcontractor covered by that acceptance is deemed to be satisfactorily completed.

S-17.2            Add the following to MnDOT 1701:

1701.6 EQUAL PAY

The Department cannot execute a Contract in excess of \$500,000 with a business that has 40 or more employees on a single day during the prior 12 months in this State or a State where the business has its primary place of business unless the business has an equal pay certificate or has certified in the Electronic Bid File that the business is exempt. Bidders may find more information on the Equal Pay Certificate Requirement in Minnesota Statutes Section 363A.44 or at the [Department of Human Rights, Equal Pay Certificate](https://mn.gov/mdhr/certificates/equalpay) website ([mn.gov/mdhr/certificates/equalpay](https://mn.gov/mdhr/certificates/equalpay)).

1701.7 Compliance with Tax Law Requirements

The Department cannot make final payment to the Contractor until the Contractor demonstrates that it and all its Subcontractors have complied with the Income Tax withholding requirements of Minnesota Statutes, section 290.92 and section 270C.66 for wages paid for Work performed under the Contract. To establish compliance, the Contractor must submit a "Contractor Affidavit" either online or in paper form (IC134) to the Minnesota Department of Revenue. The Contractor will receive a written certification of compliance when the Department of Revenue determines that all withholding tax returns have been filed and all withholding taxes attributable to the Work performed on the Contract have been paid. The Contractor must then provide this written certification to the Department to receive final payment.

Every Subcontractor working on the Project must submit an approved "Contractor Affidavit" from the Minnesota Department of Revenue to the Contractor before the Contractor can file its own Contractor Affidavit. The Contractor is advised to obtain the certification from each Subcontractor as soon as the Subcontractor completes Work on the Project. Experience has shown that waiting until the Project is complete to obtain the forms from all Subcontractors is likely to result in significant additional Work for the Contractor as it will be difficult or impossible to collect all forms.

The Department of Revenue, in association with the Department of Employment and Economic Development, offers a free seminar to help Contractors understand tax law requirements. The Department strongly urges the Contractor and all Subcontractors to attend the "[Employment Taxes & Employer Responsibilities Seminar](#)" or similarly offered classes. You can find a schedule and more information on the [Department of Revenue](#) website ([www.revenue.state.mn.us](http://www.revenue.state.mn.us)).

Complying with this requirement is considered part of the Work under this Contract. The Department will enforce this requirement equally with all other Contract requirements. The Contractor delay in complying with this requirement will cause the Department to delay final payment and Contract Acceptance. The Department may also report non-compliance to the Department of Revenue, which may result in enforcement action by the Department of Revenue.

Contractor Affidavit requirements and Form IC134 can be found on the [Department of Revenue](#) website ([www.revenue.state.mn.us](http://www.revenue.state.mn.us)).

1701.8 Use of Equipment from Certain Telecommunications Supplier Prohibited

By signing this Contract, Contractor certifies that consistent with section 889 of the John McCain National Defense Authorization Act for fiscal year 2019, Public Law 115-233 (Aug. 13, 2018) the Contractor may not use funding covered by this Contract to procure or obtain, or extend, renew, or enter into any Contract to procure or obtain, any Equipment, system, or service that uses "covered telecommunications Equipment or services" (as that term is defined in section 889 of the Act) as a substantial or essential component of any system, or as critical technology as part of any system. The contractor must include this certification as a flow-down clause in any subcontract related to this Contract.

**S-18 (1701) LAWS TO BE OBSERVED (WETLANDS)**

**REVISED 06/30/22**

S-18.1 Add the following to MnDOT 1701:

If the Contractor operations involve the excavation and/or disposal of material off Department Right-of-way, the Contractor is advised of the following:

MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:

- 1) drain, excavate, or fill a wetland, wholly or partially; or
- 2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water.

Unless a signed statement from the property owner is obtained stating that any permit or Wetland Replacement Plan required for the Work is in place, or that a permit or replacement plan is not required; and this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the Work.

The "Landowner Statement and Contractor Responsibility For Work in Wetlands or Public Waters" can be found at <http://www.bwsr.state.mn.us/wca-forms-and-templates>. The Contractor shall provide the Engineer with a copy of the completed "Landowner Statement and Contractor Responsibility For Work in Wetlands or Public Waters" for the excavation and/or disposal site prior to initiating the Work.

**S-19 (1701) LAWS TO BE OBSERVED (BRIDGE)**

**REVISED 10/14/22**

S-19.1 Add the following to MnDOT 1701:

A The Contractor shall only use Subcontractors under the Prequalification Program for the following Work: asbestos abatement and regulated waste removal oversight, asbestos removal, regulated waste removal, and regulated waste disposal and recycling. The manual is available on the following website: <http://www.dot.state.mn.us/environment/buildingbridge/index.html>.

The Contractor shall use only MPCA permitted Combined Solid Waste Disposal Facilities to dispose of all solid waste including demolition debris. Do NOT dispose of demolition debris in a permit-by-rule landfill.

B The Contractor shall:

B.1 Comply with applicable Federal and State regulations in performing all Work.

B.2 Provide the MPCA and the Engineer written notice of intent to demolish or move a Structure - see form "Notification of Intent to Perform a Bridge Demolition for MnDOT Operations" at <http://www.dot.state.mn.us/environment/buildingbridge/index.html>. Provide such notice to the MPCA and the Engineer at least 10 Working Days before any move or demolition.

B.3 In addition to (1) and (2), if the Bridge contains any asbestos, the Contractor shall:

B.3.a Use a Department Prequalified asbestos abatement Subcontractor.

B.3.b If there is over 160 square feet, 260 linear feet, or 35 cubic feet of asbestos on the premises, submit "Notification of Asbestos Related Work", to the MPCA and the Minnesota Department of Health (MDH). Submit notice at least 10 Working Days before commencing abatement activities. The Contractor shall submit a copy of the completed notification to the Engineer at the same time.

B.3.c Submit all required documentation to the MPCA and the MDH, and copy the Engineer on all submittals. Information on MPCA requirements can be found at: [http://www.pca.state.mn.us/programs/asbestos\\_p.html](http://www.pca.state.mn.us/programs/asbestos_p.html). Information on MDH requirements can be found at: <https://www.health.state.mn.us/communities/environment/asbestos/>

B.3.d The Contractor shall provide the Engineer with all Asbestos Containing Material Transportation shipping papers/manifests. Shipping paper guidance can be found at: <http://www.dot.state.mn.us/environment/buildingbridge/disposal.html>.

B.3.e Dispose of all asbestos containing waste in a MPCA-permitted mixed municipal solid waste or Industrial landfill or a landfill permitted to accept asbestos-containing waste as listed under Landfills/Regulated Waste at: <http://www.dot.state.mn.us/environment/buildingbridge/index.html> under Approved Contractors. Do not dispose of asbestos-containing waste in demolition debris landfills.

B.3.f Ensure that the oversight Contractor provides the Engineer with a final report meeting the requirements contained in MnDOT's manual "Asbestos and Regulated Waste Manual for Structure Demolition or Relocations for Construction Projects" available on the following website: <http://www.dot.state.mn.us/environment/buildingbridge/index.html>.

B.3.g If the Contractor encounters additional asbestos Materials or regulated wastes that is not noted in the assessment report summary, the Contractor shall notify the Engineer who shall suspend Work. Abatement of the additional asbestos Materials or regulated wastes will be paid for as Extra Work in accordance with 1402.5.

B.4 Comply with the requirements specified in MnDOT's manual "Asbestos and Regulated Waste Manual for Structure Demolition or Relocations for Construction Projects" available on the following website: <http://www.dot.state.mn.us/environment/buildingbridge/index.html>.

C The Contractor shall comply with all applicable Department policies, and all applicable laws, rules, and regulations governing removing and recycling/disposing of any regulated wastes including:

- (1) Treated Wood
- (2) Lead Paint
- (3) Lead Plates
- (4) Polychlorinated biphenols (PCB's)
- (5) Mercury

When shipping any of these wastes, the Contractor must comply with USDOT packaging and transportation requirements. The Contractor shall provide the Engineer with all shipping papers or manifests.

The Contractor shall provide the Engineer with copies of disposal or recycling records.

D Failure to comply with the notification provisions in this section will be deemed a material breach of Contract. If a regulatory agency imposes monetary sanctions on the Department that are based, in whole or in part, upon the acts or omissions of the Contractor, the Contractor agrees to INDEMNIFY the Department and to hold the Department harmless for the same, except to the extent that any sanctions were caused by the Department's own negligence.

**S-20                    (1701) LAWS TO BE OBSERVED (CULTURAL RESOURCES – FEDERALLY AND STATE FUNDED)**

**REVISED 04/14/23**

S-20.1            Add the following to MnDOT 1701:

A            For any Project that the Department funds or conducts, or that is located in Department Right-of-way, including owned or leased Natural Materials Resources, the following terms will apply:

A.1            The Department is responsible for obtaining a Cultural Resources Unit (CRU) findings letter.

A.2            Contractor will notify the Engineer if the Contractor intends to use any material from a proposed excavation area on land controlled by the Department. The Engineer must request a review from the Department's CRU before allowing a Contractor to use any material from a proposed excavation area on any land controlled by the Department. The review may take 60 Calendar Days after receipt of request, including up to 45 days for tribal consultation when necessary. If the Department's CRU determines that a survey is needed, the review period may be even longer. Contractor is responsible for ensuring that such reviews do not affect the timely completion of the Project, and for any delays due to the length of the review. Contractor may not base a claim for damages due to delay of Contract on the length of the review.

B            If the Contractor selects the excavation and disposal of material from locations other than the Department's Right-of-way, the following terms will apply:

B.1            A CRU findings letter is not necessary.

B.2            Contractor must comply with Minnesota Statutes § 307.08, Minnesota Private Cemeteries Act, if applicable.

C            If any human remains are encountered within the Project limits, the Contractor shall immediately stop Work in the vicinity, notify the Engineer, and request suspension of Work near the discovery area, in accordance with 1803.3.

**S-21                    (1701) LAWS TO BE OBSERVED (CARGO PREFERENCE ACT, USE OF UNITED STATES - FLAGGED VESSELS)**

S-21.1            Add the following to MnDOT 1701:

The Contractor must comply with requirements of the Cargo Preference Act (46 USC §55305) and its implementing regulations (46 CFR §381).

The requirements of 46 CFR § 381.7 (a) and (b) are incorporated into this Contract by reference. The Contractor must include or incorporate this provision in all subcontracts.

## **S-22            (1705) FEDERAL-AID PROVISIONS (FORM 1273)**

**NEW 08/08/22**

S-22.1        Add the following to MnDOT 1705:

Federal Form 1273. Pursuant to 23 CFR Section 633.102, the required contract provisions contained in FHWA Form 1273 apply to all work performed under this contract by the Contractor's own organization or by a subcontractor at any tier. The Contractor must insert FHWA Form 1273 in each subcontract. The Contractor must also require each subcontractor to include FHWA Form 1273 in its lower-tier subcontracts. FHWA Form 1273 must not be "incorporated by reference" in any tier of subcontract. The Contractor is responsible for compliance with this requirement in any subcontract or lower tier subcontract. The form, entitled *Required Contract Provisions Federal Aid Construction Contracts*, is attached.

## **S-23            (1706) EMPLOYEE HEALTH AND WELFARE**

**RESTORED 06/30/23**

S-23.1        Add the following to MnDOT 1706:

A            The Contractor must not use motor vehicle Equipment that has an obstructed rear view unless either of the following is ensured:

- (1)        The vehicle has a reverse alarm that is audible above the surrounding noise level
- (2)        An observer signals to the operator that it is safe to reverse

B            The Department may assess a Monetary Deduction of \$500 per incident for a violation of safety standards that could result in death or serious injury.

C            The areas of special concern include excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection, confined space safety, blasting operations, and personal safety devices.

D            The Contractor cannot avoid complying with safety standards by paying the deduction.

## **S-24            (1707) PUBLIC CONVENIENCE AND SAFETY**

**RESTORED 06/30/23**

S-24.1        Add the following to MnDOT 1707:

The Contractor shall ensure that employees and Subcontractors do not display items such as, but not limited to, flags, banners, and symbols on the Project Site, that may disrupt the proper prosecution of the Work, impede public safety, or create a distraction for the traveling public.



**S-25 (1708) RAILROAD HIGHWAY PROVISIONS**

**NEW 01/27/23**

S-25.1 Delete and replace the ninth paragraph of MnDOT 1708.1 with the following:

The Contractor shall be responsible for damages from unscheduled delays of freight or passenger trains caused by the Contractor. If the Contractor's operations cause the railroad company to perform extra work to maintain railroad traffic, the Contractor shall reimburse the railroad company for the cost of the extra work and damages associated with delays to trains.

S-25.2 Delete and replace the third paragraph and note 1 of MnDOT 1708.2 with the following:

The Contractor shall prepare detailed Plans indicating the construction methods and protective measures intended for use adjacent to the railroad company's tracks or at any Structures that are part of the Project. The detailed Plans shall indicate the protective measures used to safeguard railroad property, embankment, traffic, and trainmen from damage and accident during construction operations adjacent to and over or under the railroad company's track. The detailed Plans and methods shall include the following:

- (1) Before excavating for any Structure Work adjacent to the railroad company's track, the Contractor shall construct a railing, approved by the railroad company before construction, between the tracks and the Structure excavation and at the ends of the excavation as approved by the railroad company.

**S-26 (1712) PROTECTION AND RESTORATION OF PROPERTY**

**REVISED 09/29/23**

S-26.1 Add the following to MnDOT 1712:

Bidders may review environmental documents and permits concerning this Project before bidding.

The Environmental Document for this Project is available at  
[https://edocs/edocs\\_employee/DMResultSet/DisplayDoc?docnumber=38600061&identifier=38600061](https://edocs/edocs_employee/DMResultSet/DisplayDoc?docnumber=38600061&identifier=38600061)

**S-27 (1717) AIR, LAND, AND WATER POLLUTION**

**NEW 06/28/24**

S-27.1 Add the following to MnDOT 1717.2:

The Contractor shall not use recycled concrete aggregate (RCA) in temporary work such as causeways, staging areas, or stockpiles that will be in contact with surface water or groundwater. The Contractor shall:

- 1) Manage stormwater runoff from temporary work such as laydown areas, staging areas, and stockpiles that contain RCA. Prevent any discharge outside of construction limits or into surface water of water that is turbid or has a pH of greater than 8.5 or less than 6.0.

- 2) Monitor runoff from temporary work containing RCA during every stormwater inspection. Check for pH and turbidity. Monitor more frequently if needed to maintain acceptable clarity and pH.
- 3) Provide a Site Management Plan showing how they will manage stormwater runoff, monitor the pH and clarity of runoff, and isolate crushed concrete from surface water and groundwater as described above.

## **S-28 (1717) AIR, LAND, AND WATER POLLUTION (CONCRETE GRINDING)**

**REVISED 10/14/22**

S-28.1 Add the following to MnDOT 1717:

### **1717.3 CONCRETE DIAMOND GRINDING OPERATIONS AND SLURRY MANAGEMENT**

The Contractor must not permit residue and water to flow across adjacent Traffic Lanes, flow onto Shoulder, flow off Bridge decks, flow into gutters, or flow onto private property. The Contractor shall provide a Plan for both the on-site and off-site slurry management. The Contractor shall choose, and the Engineer will approve, the methods for slurry management in accordance with the following provisions.

Slurry Management is prohibited within federally recognized tribal land boundaries.

Identification of federally recognized tribal land boundaries are found on the following website:

<http://mndot.maps.arcgis.com/apps/webappviewer/index.html?id=f303130822954064a7bfd76489507ec8>

and will be identified in the Plans.

#### **A ON-SITE SLURRY MANAGEMENT**

On-site slurry management is prohibited within Areas of Environmental Sensitivity (AES). These areas will require off-Site slurry management. No slurry discharge is allowed in the AES or within the buffers (see Table SP1717-1) to an AES. Identification of the AES are as follows:

- (1) Minnesota Department of Natural Resources (MnDNR) Public Waters Inventory (PWI).
- (2) National Wetland Inventory (NWI).
- (3) Calcareous fens.
- (4) Permanent vegetation designated for preservation, such as areas adjacent to the Right-of-way identified as a 'Site of Biodiversity Significance' or 'Native Plant Community' by the MnDNR Minnesota Biological Survey (MBS).
- (5) Prairie remnants, including but not limited to areas adjacent to Railroad Rights-of-way Prairies.
- (6) Wooded areas with Specimen Trees.
- (7) Locations with Federal or State listed Threatened or Endangered plant species.
- (8) Locations with Federal or State listed Threatened or Endangered aquatic species.
- (9) Historic properties.

Identification of items 1-5 are found on the Minnesota Geospatial Commons:

<https://gisdata.mn.gov/>.

Identification of items 6-9 are provided by the Office of Environmental Stewardship (OES) staff through the Project's Early Notification Memo (ENM) process.

The Engineer will identify all AES in the Plans.

Other constraints within the Project that must be addressed in the Slurry Management Plan and require slurry collection are as follows:

- (1) Roadways that utilize curb and gutter to convey storm water to catch basin inlets into a closed drainage system (storm sewers).
- (2) Inlet Structures that utilize a piping system to convey storm water directly into stormwater treatment facilities or AES.
- (3) Bridge deck grinding.
- (4) Stormwater treatment ponds.
- (5) Infiltration/filtration basins.

**B OFF-SITE SLURRY MANAGEMENT** (when slurry is collected and taken to a containment basin or treatment facility)

Any areas identified in Section A, along with other areas identified by the Engineer will require slurry collection in accordance with the following:

- (1) Collect and transport slurry in water-tight haul units to prevent spills.
- (2) Provide a temporary or permanent lined containment basin outside the Right-of-way to decant the collected slurry.
- (3) Areas outside of the Right-of-way may require a separate National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit as per Minnesota Pollution Control Association (MPCA).
- (4) Follow additional requirements described below under Slurry Management Plan.

**C ON- SITE SLURRY MANAGEMENT** (when slurry is spread during the diamond grinding operation)

The Engineer will allow the Contractor to spread the slurry within Department Right-of-way on the vegetated slope and median in accordance with the following requirements:

- (1) **Maximum Buildup of Slurry Sediment:** The Contractor shall spread the slurry at a rate to prevent sediment buildup of greater than 1/2 inch in any location by:
  - (a) Spreading the slurry further up / down the slope with each subsequent pass of the grinder.
  - (b) Spread the material evenly on the adjacent slopes by using appropriate Equipment (i.e., chain drags, tine harrows, plug aeration, dissipater plate, etc.) to break up the material.
  - (c) Remove and haul off site any sediment buildup of greater than 1/2 inch.
  - (d) Other spreading methods, as approved by the Engineer.

(2) **Vegetated Medians** – The Engineer will allow slurry spreading within the entire Roadway median in accordance with the following:

(a) Maintain a vegetated buffer zone (as per Table SP1717-1) from any identifiable point of concentrated storm water flow. The following are examples of points of concentrated storm water flow in medians:

- i. A transverse ditch bottom width of < 5 feet.
- ii. Longitudinal scouring is apparent within median.
- iii. An identifiable low point (V ditch) that runs parallel to the Roadway.

(b) Do not spread slurry in areas identified for protection in accordance with Section A.

(c) Maintain the vegetated buffer zones as per Table SP1717-1.

(3) Vegetated Outside Slopes – Deposit the slurry on either the in-slope or back-slope and maintain the vegetated buffer zones outlined in Table SP1717-1.

(4) In order to minimize sediment infiltration into drainage systems, the Contractor shall:

- (a) Only place slurry in locations that flow away from the Roadway.
- (b) Begin the slurry spreading operation a minimum of 1 foot from the paved Shoulder.
- (c) Provide compost filter log for inlet protection.
- (d) Leave compost filter log in place after Project is completed.

**Table SP1717-1**  
**Buffer Zone/Area Slurry Spreading is Not Allowed**

<b>Location</b>	<b>Vegetated Buffer Distance, ft</b>
*Toe of in-slope or fill slope	5
*Toe of back-slope	5
Water level in roadside ditch or median ditch	5
Stormwater treatment ponds	100
Infiltration/filtration basins	100
Areas of Environmental Sensitivity	100
Stormwater inlet without inlet protection	100
Stormwater inlet with inlet protection	50
* Does not apply to median areas with a transverse ditch bottom width > 5 feet and standing water is not present.	

#### **D SLURRY MANAGEMENT PLAN**

Prior to grinding operations, the Contractor shall submit to the Engineer in writing the proposed Slurry Management Plan for approval. Grinding operations shall not begin until the Plan is approved by the Engineer.

The Slurry Management Plan shall include the following:

(1) When discharging on the slope, provide a method to identify discharge start and stop locations for the Equipment operator. Examples include:

- (a) Lath and flagging tape
- (b) Barrels
- (c) The Engineer may approve other options as suggested by the Contractor.

(2) When using a containment basin:

- (a) Provide an estimate of the expected volume of slurry on the Project and the volume of the containment basin.
- (b) Ownership and location of the temporary containment basin.
- (c) Method used to line the temporary containment basin. Examples include:
  - i. Clay (including thickness of clay layer)
  - ii. Impermeable membrane (including thickness of membrane).
- (d) Describe management of water. Examples include:
  - i. Allowing the water to evaporate,
  - ii. Re-using the water in the grinding operation, slurry broadcast operation, in a commercially useful manner (include engineering need, i.e., dust control, grade compaction),
  - iii. Water sent via sanitary sewer (provide proper permits)
  - iv. Hauling to a water treatment facility; (provide the name of the treating facility).
- (e) Describe management of the solids (fines). Examples include:
  - i. Using the solids as a fill material, a component in recycled Aggregate or any other commercially useful application (include engineering need),
  - ii. Solids transported to a reuse storage facility, MPCA permitted lined mixed municipal solid waste or industrial landfill. Furnish the Engineer with a document that identifies the name and location of the reuse storage facility or a MPCA permitted lined mixed municipal solid waste or industrial landfill.
- (f) Describe restoration of the containment basin area. Include fill material, topsoil, seed mixtures and temporary covers.

(3) pH control Plan must include:

- (a) Procedure used to maintain the pH of the slurry within the acceptable range,
- (b) Example of pH test results log,

E CONTROL OF pH

Monitor and control the pH of the slurry for all slurry operations to maintain a pH between 6 and 12.

- (1) Calibrate the test Equipment prior to start-up of daily operations.
- (2) At the start-up of operations, test the pH at least once per hour to ensure it is within the acceptable limits.
- (3) Once the pH control Plan is operational and producing consistent results, the testing frequency may be reduced to 4 tests per day.
- (4) Keep a signed and dated log of all pH test results for each piece of Equipment collecting slurry and have available to the Engineer upon request.

F PRIOR TO CONCRETE GRINDING OPERATIONS

The Engineer will schedule a pre-grinding meeting at the Project Site. The Engineer and Contractor will review the Slurry Management Plan for approval, including identification of the AES, acceptable slurry management practices, and any other aspects of the Plan as determined by the Engineer.

G STOP WORK

Stop operations and perform the necessary corrective actions before proceeding when any of the following conditions occur:

- (1) Raining during operations resulting in discharge of slurry into buffer areas,
- (2) Equipment failing to contain or remove slurry,
- (3) Defined Quality Control requirements are not followed,
- (4) The slurry is discharged into areas not approved in the Slurry Management Plan,
- (5) The pH is outside the designated range,
- (6) The slurry discharges into waters of the State, or
- (7) A spill.

Notify the State Duty Officer immediately if condition (6) or (7) occurs.

(800) 442-0798 (Outside the Twin Cities); (651) 649-5451 (Twin Cities Calling Area)

**S-29      (1717) AIR, LAND, AND WATER POLLUTION (MPCA CONSTRUCTION STORM WATER PERMIT)**

**REVISED 04/14/23**

S-29.1      Add the following to MnDOT 1717.2:

**D MPCA CONSTRUCTION STORM WATER PERMIT**

The Contractor must complete the application for coverage under the State of Minnesota Construction Stormwater General Permit, MNR100001, which is part of the National Pollutant Discharge Elimination System (NPDES) and the State Disposal System (SDS) Program. This Construction Stormwater General Permit is administered by the Minnesota Pollution Control Agency (MPCA) and for the purpose of this provision will be referred to as the CSW Permit or simply the Permit. By completing the online CSW Permit application the Contractor becomes a co-permittee with the Department and must ensure compliance with the terms and conditions of the Permit that reference the “operator.” A copy of the Permit is available at <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html> or by calling 651-296-6300.

D.1 This Project requires a CSW Permit. The Department will initiate the on-line Permit application for this Project and share the application with the Contractor after Contract Award. The Service ID number for this Project is 466726. The Contractor must complete the application through the electronic online process and pay for the Permit on this Project. The application fee is Incidental.

The Contractor must follow the steps below to complete the CSW Permit application:

- (1) Create User ID account with MPCA E-services (if Contractor already has an account, skip to next step).
- (2) Provide the Contractor’s E-services user ID to the Engineer and request that they share the Service application for the Service ID listed above.
- (3) Wait to receive email from MPCA E-services that the permit is now shared.
- (4) Log into E-Services.
- (5) Select shared document.
- (6) Select Section 5 Contacts, click on the “2. Contractor” tab, and replace the MnDOT contact information with the Contractor’s contact information.
- (7) Navigate to Section 11 Certification by clicking the “Continue” button in sections 5 through 10.
- (8) Complete certification signature in Section 11.
- (9) Complete payment section in Section 12.

The Contractor must complete the application process.

The Contractor must submit a copy of the MPCA confirmation and a signed Permit Affidavit form with the Contract and Bond – this is a condition precedent to Contract approval. The Contractor is not authorized to perform any Project Work which disturbs soil or which involves Work in waters of the State until the Permit is in effect and the Department has received the required documentation.

D.2 Contractor must provide an Erosion Control Supervisor as per MnDOT 2573.3. The Contractor is solely responsible for all inspections, maintenance, and records required in Section 11 of the Permit. Contractor must use standard forms for logging all required inspection and maintenance activities. Contractor must submit all inspection and maintenance forms used on this Project to the Engineer weekly for retention in accordance with the permit. The Contractor must also have the forms available for on-site review.

Contractor must immediately notify the Engineer of site visits by Local Permitting Authorities performed in accordance with Section 24.10 of the Permit. The Contractor must obtain the Engineer's approval before starting any Work required by regulatory authorities which (1) the Contractor believes will result in additional compensation from the Department; or (2) will impact the design or requirements of the Contract documents or impact traffic.

D.3 The Contractor must use Best Management Practices to help minimize turbidity of surface waters and relieve runoff from extreme weather events. The Contractor must report a stormwater sediment release from the Project Site to the Minnesota Duty Officer and the Resident Engineer at the time the Contractor or Department discovers the release. The Contractor must also immediately contact the State Duty Officer (at 1-800-422-0798 or 1-651-649-5451) during any emergency situation involving an uncontrolled stormwater release.

**Table SP1717-2**  
**NPDES Permit Requirements**

<b>CSG Permit Requirements</b>	<b>Cross-Reference within this Contract</b>
Obtain Permit Permit Compliance Submit Notice of Termination	MnDOT 1701, 1702; and 1717; Special Provisions: 1717 (MPCA Construction Stormwater Permit))
Certified Personnel in Erosion / Sediment Control Site Management Develop a Chain of Command	MnDOT 1506, 1717, and 2573; Special Provisions: 1717 (MPCA Construction Stormwater Permit)
Certified Personnel in Erosion / Sediment Control Site installation	MnDOT 2573
Project / Weekly Schedule (for Erosion / Sediment Control) Completing Inspection / Maintenance Log / Records	MnDOT 1717 and 2573; Special Provisions: 1717 (MPCA Construction Stormwater Permit)
Project Specific Construction Staging	The Plans; MnDOT 1717; Special Provisions: 1717 (MPCA Construction Stormwater Permit); and 1806 (Determination and Extension of Contract Time)
Temporary Erosion / Sediment Control	The Plans; MnDOT 2573, 2574. and 2575
Maintenance of Devices / Sediment removal Removal of Tracked Sediment Removal of Devices	The Plans; MnDOT 1717.2, 2573.3K, and 2573.3.R.; Special Provisions: 1717 (MPCA Construction Stormwater Permit)
Dewatering	MnDOT 2573.3A.6 and 3875; May also require DNR Permit
Temporary Work not shown in the Plans Grading areas (unfinished acres exposed to erosion)	MnDOT 1717, 2573, 2574, and 2575; Special Provisions: 1717 (MPCA Construction Stormwater Permit), 2574.3.A.1
Permanent Erosion / Sediment Control and Turf Establishment	The Plans; MnDOT 1717, 2573, 2574, and 2575; Special Provisions: 1717 (MPCA Construction Stormwater Permit)



**S-30                    (1801) SUBLETTING OF CONTRACT**

**REVISED 10/14/22**

- S-30.1            Delete and replace the second sentence of the first paragraph of MnDOT 1801 with the following:

The Contractor may, with the Engineer's consent, sublet a portion of the Contract as long as the Contractor self-performs Work amounting to at least 30 percent of the total original Contract Amount.

- S-30.2            Delete the second paragraph of MnDOT 1801.

**S-31                    (1717) AIR, LAND, AND WATER POLLUTION (IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT)**

**REVISED 01/21/22**

The Bidder agrees that the following statements are true by signing this Contract.

- (1) That any facility to be utilized in the performance of this Contract, unless such Contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 C.F.R. Part 15), is not listed on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 C.F.R. 15.20.
- (2) That the State Transportation Department shall be promptly notified prior to Contract award of the receipt by the Bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the Contract is under consideration to be listed on the EPA List of Violating Facilities.

**S-32                    (1802) QUALIFICATIONS OF WORKERS****NEW 06/30/23**

- S-32.1            Delete and Replace MnDOT 1802 with the following:

The Contractor shall provide workers with sufficient skill and experience to perform the Work assigned to them. Upon request by the Engineer, the Contractor shall submit evidence of qualification for any person engaged in special Work requiring professional training or certification. If any Subcontractor employed by the Contractor or any person employed by the Contractor or by a Subcontractor fails to perform assigned Work in a proper and skillful manner, or becomes intemperate, disorderly, abusive, or harassing, or shows signs of impairment from drug or alcohol use, the Contractor shall remove that Subcontractor or person from the Project as directed in writing by the Engineer. The Contractor shall not employ that Subcontractor or person again on any portion of the Project unless approved in writing by the Engineer. If the Contractor fails to remove a Subcontractor or person as directed by the Engineer, or fails to provide suitable and sufficient personnel for the proper prosecution of the Work, the Engineer may suspend the Work until the Contractor complies with the direction from the Engineer.

**S-33                    (1803) PROGRESS SCHEDULES (BAR CHART/CPM SCHEDULE)****REVISED 01/27/23**

- S-33.1            Delete and replace MnDOT 1803 with the attached (1803) Project Schedules.

- S-33.2            Modify the attached (1803) Project Schedules with the following:

A            This Contract allows for the use of a "Bar Chart Schedule" as the Project Schedule for the Project. The Contractor shall meet the requirements of 1803.1, "Bar Chart".

- B            Delete and replace 1803.1.B.1, "Weather Contingency," with the following:

The Contractor shall allow for normal weather delays when developing the Bar Chart Schedule. The Department will extend the Contract Time, except as limited by 1806.4, "Extension of Contract Time Due to Weather on Calendar Day and Completion Date Contracts," for delays in excess of the anticipated Working days lost to inclement weather as specified in the table below. The days in the table below are cumulative and shall be prorated when Contract Time starts or ends mid-month. For example, if Contract Time starts May 1st and there are days lost to weather in May or June, then the Contract must lose 7 days to weather (4 days from May and 3 days from June) in addition to the anticipated days in July before a time extension would be considered due to weather days lost in July.

**Table 1803.1-1  
Weather Contingency By Time Period**

<b>Time Period</b>	<b>Anticipated Working Days Lost Due To Weather</b>
January	all
February	all
March	all
April 1-15	all
April 16-30	4
May	4
June	3
July	3
August	3
September	3
October	4
November 1-14	4
November 15-30	all
December	all

#### **S-34      (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME**

**REVISED 01/27/23**

S-34.1      Add the following to MnDOT 1806:

##### 1806.5    Contract Time

- A      The Contractor must start construction operations on May 19, 2025 or no later than eight Calendar days after the date of Notice Contract Approval, whichever is later. The Contractor must not begin construction operations before Contract approval.
  
- B      The Contractor must not perform Work that will restrict or interfere with traffic between 12:00 noon on the day before and 9:00 a.m. on the day after any consecutive combination of a Saturday, Sunday, and Holiday. The Contractor may request exceptions to this requirement. Exceptions must be approved in writing by the Engineer.
  
- C      The Contractor must complete all Work required to have traffic on the planned permanent configuration, including all paving, permanent safety devices, lighting, signing, striping, cross-over removal, and the installation of permanent turf establishment under this Contract before October 11, 2025.
  
- D      The Contractor must complete all Work to meet the requirements of 1516.2, "Project Acceptance," under this Contract before June 30, 2026.
  
- E      The Contractor must complete all Work to meet the requirements of 1516.3, "Completion of the Work," under this Contract within 90 Calendar Days of receipt of the Semi-Final Estimate in accordance with 1908.2, "Semi-Final Estimate Following Project Acceptance."

**S-35      (1807) FAILURE TO COMPLETE THE WORK ON TIME****RESTORED 06/30/23**

S-35.1      Delete and replace the first paragraph of MnDOT 1807.1 with the following:

The Department will deduct liquidated damages from money due the Contractor for each Calendar Day that the Work remains incomplete after expiration of the Contract Time, according to the completion requirements of 1516.2, "Project Acceptance". The Engineer will deduct liquidated damages based on the original Contract Amount and Table 1807.1-1.

**S-36      (1807) FAILURE TO COMPLETE THE WORK ON TIME (MONETARY DEDUCTIONS)****REVISED 09/27/24**

S-36.1      Add the following to MnDOT 1807:

- A      The Department will assess the Contractor a Monetary Deduction in an amount equal to \$3500.00 for each Calendar Day that any of the Work specified in S-34.3C (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME remains incomplete after the expiration of the working period provided therefore.
- B      The Department will assess the Contractor a Monetary Deduction in an amount equal to \$200 for each Calendar Day that any Work specified under 1516.3, "Completion of the Work," are not met after the expiration of the 90 day period of the Semi-Final Estimate requirements.
- C      For informational purposes only, Bidders are advised that in addition to the requirements of 1807, other Sections of these Special Provisions contain requirements for assessment of Monetary Deductions to this Contract:

**Table SP1807-1**  
**Special Provision Sections with Monetary Deduction Requirements**

Division	Section Title
S	(1706) EMPLOYEE HEALTH AND WELFARE
S	(2061) MATERIAL DELIVERY MANAGEMENT SYSTEM
S	(2563) TRAFFIC CONTROL
SB	(1502) PLANS AND WORKING DRAWINGS
SB	(2401) CONCRETE BRIDGE CONSTRUCTION

- D      The liquidated damages set forth in MnDOT 1807 and any Monetary Deductions as set forth above may apply equally, separately, and may be assessed concurrently.

**S-37 (1901) MEASUREMENT OF QUANTITIES**

**RESTORED 06/30/23**

S-37.1 Delete and replace the first paragraph of MnDOT 1901.8 with the following:

For measuring or proportioning Material by mass, the Contractor shall provide certified weights or weigh Material on calibrated, approved scales. The Contractor shall give the Engineer a copy of the inspection certificate.

S-37.2 Add the following to MnDOT 1901.8C:

The Contractor shall not provide a ticket to truck drivers if the weight of the load is in excess of the legal load limits in place.

S-37.3 Add the following to MnDOT 1901.8:

D. Computerized Loader Bucket Scales

The Contractor may use computerized Loader Bucket Scales to weigh materials when the quantity of material included in the bid item list is 5000 tons or less.

The Contractor shall equip loader bucket scales with an onboard computer that produces weigh tickets.

The Contractor shall load trucks on a level loading area and with the loader scale in dynamic mode and operate the loader scale in accordance with the manufacturer's guidelines.

The computerized loader bucket scale must be accurate to within 1.0 percent of the true weight of the applied load throughout the range of use.

D.1 Computerized Loader Bucket Scales – Comparison Test

Before the first use of the loader bucket scale on the project and any time the scale is recertified, the Contractor shall perform a comparison test using one of the following methods:

(a) Independent Scale Method.

After placing the load in a truck, weigh the loaded truck on a certified scale owned and operated by an entity other than the Contractor. Provide the tare weight of the truck along with the comparison weigh ticket.

(b) Certified Weighted Object Method.

Weigh an object on the project scale and compare its certified weight to the loader bucket scale readout. Use an object that is free of mud and dirt and has a certified weight of at least 60 percent of the capacity of the loader bucket.

Weld a plate onto the object showing its certified weight.

Provide an affidavit affirming the weight of the object, as measured on a certified scale.

Provide a new affidavit when requested by the Engineer or if changes are made to the object that will affect the certified weight.

D.2 Computerized Loader Bucket Scales – Random Comparison Tests

If a comparison test reveals that the scale is out of tolerance, repair and recertify the scale.

At any time, the Engineer may require the scale to be checked for accuracy utilizing any test method in 1908.D.1, “Computerized Loader Bucket Scales – Comparison Test”.

The Engineer may prohibit the use of loader bucket scales if two consecutive tests fail.

D.3 Computerized Loader Bucket Scales – Documentation

The Contractor shall generate weigh tickets using the onboard computer and loader bucket scale printer and provide tickets to the truck driver. The Contractor shall provide daily haul summaries by computer-generated spreadsheet as provided by the Engineer. The Contractor shall provide the fully completed spreadsheet to the Engineer daily.

**S-38 (1902) SCOPE OF PAYMENT**

RESTORED 06/30/23

S-38.1 Delete and replace MnDOT 1902 with the following:

The Contractor will receive compensation provided for in the Contract as full payment for providing Materials and performing Work in accordance with the Contract requirements. This includes compensation for all risk, loss, damage, and expense incurred by the Contractor for performing the Work required by the Contract. Payment is subject to 1720, “No Waiver of Legal Rights.” The Department prohibits the Contractor from accepting payment from any other party for performing the Work required by the Contract, including any Incentive or bonus payment. The Department does not prohibit the following payments from third parties:

- (1) Payments from sureties
- (2) Quantity-based rebates or credits from suppliers
- (3) Payments under another contract for excess material removed under this Contract

**S-39 (1910) COST ESCALATION**

REVISED 06/30/22

S-39.1 MnDOT 1910 is hereby supplemented with the attached Fuel Escalation Clause.

**S-40      (2011) CONSTRUCTION SURVEYING****REVISED 04/14/23****S-40.1      DESCRIPTION**

This Work consists of Contractor provided Construction Surveying in accordance with S-41 (2011) CONSTRUCTION SURVEYING (CONCRETE OVERLAY), MnDOT 1401 and MnDOT 1508.

MnDOT 1508 is herewith modified to the extent that the Contractor shall meet all the requirements of, and provide all the services listed in, MnDOT 1508 which would otherwise be provided by the Department.

Furthermore, in accordance with MnDOT 1401, the Contractor is advised that the Contract may not fully describe every detail or make specific allowances for all probable exceptions and contingencies related to the Construction Surveying requirements.

Additional best management practices (BMP's) for Construction Surveying are identified in Appendix A of the MnDOT Surveying and Mapping Manual, in addition to the requirements shown below:

**S-40.2      MATERIALS – Blank****S-40.3      CONSTRUCTION REQUIREMENTS****A      Surveying to be Performed by the Department**

The Department will set the initial horizontal and vertical control points in the field for the Project as indicated in the Plans. Upon request, the Department will also provide electronic data on the control so established. This electronic data will be provided in the format that was used in the accomplishment of the surveys for the Plans and Plan development. However, due to the many different processes that the design survey data goes through and the large variety of sources of input in the final production of the Plans, no warrantee is made as to the value or adaptability of the electronic data to the Surveyor. No warrantee is made that the data systems used by the Department or any consultants employed by the Department for Surveying or Plan preparation will be compatible with the systems used by the Contractor's Surveyor. Information shown on the printed "Plan" shall always govern over any electronic "Plan" data.

The Engineer may perform spot checks upon the Contractor's surveying calculations, records, field procedures, and actual staking. If the Engineer determines that the work is not being performed in a manner that will assure proper controls and accuracy, the Engineer will order the Contractor to redo such work, to the standards specified in the Contract, at no additional cost to the Department.

**A.1      Pay Quantities**

The Engineer will measure all of the pay quantities except the following:

Structural Concrete

**A.2      Final Monumentation**

The Department will be responsible for setting the following final monumentation:

Horizontal Control

Vertical Control

Alignment

Right of Way

**B Construction Surveying by the Contractor**

**B.1 Contractor Construction Surveying Requirements**

Construction Surveying is defined as accurately providing all necessary computations, stakes and marks to establish lines, slopes, elevations, points, continuous profile grades in accordance with MnDOT 1508 and the requirements shown in the Plans for Construction Staking; so that the Contractor's forces are able to construct all required work for the Project in accordance with the Contract requirements; and so that the Engineer and Inspectors are able to complete all necessary inspection and Contract Administration duties. The staking shall include, but not be limited to, clearing and grubbing, removals, grading, culverts, embankments, borrow, aggregate base course, pavements, bridges, utilities, signs, pavement markings, erosion control and turf establishment items to complete the Project as represented in the Plans. The Surveying must be done in a way that is timely, and that is reflective of the continuing and ongoing nature of construction and inspection activities which will generally require frequent, separate Project visits by the Contractor's survey crew to the Project to accommodate the various stages of construction and inspection activities that will occur.

The Surveyor shall be prepared to make all necessary surveying checks for field verification of actual conditions and shall make the necessary minor surveying and staking adjustments to fit the construction to actual field conditions. In addition, some Plan details may be dependent upon actual field conditions at the time of construction. It may be necessary to perform some field survey or office computations in order to stake these components. All work referred to in this paragraph is considered part of the work of Construction Surveying and no additional payment will be made for this work.

The Contractor shall retain a Professional Land Surveyor or Professional Engineer, licensed in the State of Minnesota, to directly supervise the Construction Surveying. Any determination of, or marking of, Right of Way must be performed under the supervision of a Licensed Land Surveyor. Additionally, an individual holding a National Society of Professional Surveyors (NSPS) Level III certification in Construction Surveying, a Land Surveyor in Training (LSIT), or a Professional Land Surveyor or Professional Engineer, shall be on the Project site at all times to directly supervise the survey crew(s).

The Contractor shall:

- (1) Be responsible for the preservation of all reference points, monuments, government land corners, horizontal and vertical control points, stakes, and marks that are established by the Department or others within the Project limits. If the Contractor or its surveyor fails to preserve these items and if they must be reestablished by the Department, the Department will charge the Contractor on an hourly rate as shown in S-40.5.
- (2) Be responsible to review, balance, adjust, correct, and investigate the Department provided data and to perform work on survey data and control points that may be necessary to use the survey points and data, all at no additional cost to the Department, unless it is determined by the Engineer that latent errors existed in the information provided by the Department.



- (3) Start and end all level runs, traverses, or Global Positioning System (GPS) control surveys, from known control. Complete all control surveys at no worse than the standards specified for supplemental control in Chapter 2, *Surveying and Mapping Manual*.
- (4) Unless otherwise agreed to, set all stakes and marks in accordance with the Staking Information Sheets included in the Plans.
- (5) Furnish and install traffic control devices in accordance with the *Minnesota Temporary Traffic Control Field Manual Part VI*, (MN MUTCD), when crew members are exposed to traffic.
- (6) Perform all Construction Surveying for all Project construction as shown in MnDOT 1508, and shall install reference points as needed for the use of any public utility crews that are staking or accomplishing utility relocation or construction associated with this Contract.
  - (a) From Horizontal and Vertical Control Points established by the Engineer.
  - (b) According to the Plans, Proposal, and Standard Specifications.
  - (c) According to the *Surveying and Mapping Manual*.
  - (d) According to actual existing field conditions.
- (7) Perform Bridge and Structure Construction staking which includes setting and reestablishing Working Points and Reference Points by XYZ coordinates to provide line and grade during all stages of work, and at all substructures and segments of Bridge or Structure Construction, as shown below:
  - (a) Establish Working Points or Reference Points, approved by the Engineer, on the ground as shown on the Bridge Layout Sheet in the Plans.
  - (b) Transfer of required points from the ground to the top of footing after completion of concrete footing construction. If the structure is a curved wall or bridge edge of slab, curb, coping, median, or railing, the Contractor's Surveyor shall mark a curved line on the footings, forms, or deck slab, to the proper degree of curvature within 1/8 inch in 10 feet, 1:1000, as needed for construction and inspection activities.
  - (c) Transfer required points to the top of all finished structures.
  - (d) Transfer required points to the superstructure deck forming. (The Department will complete all work associated with beam stool elevations.)
- (8) Bear all costs, including but not limited to the cost of actual reconstruction of Contract work, that may be incurred due to errors in Contractor's Construction Surveying.

- (9) Document surveying during construction in a form acceptable to the Engineer and allow the Engineer access to surveying notes and calculations. The survey documentation includes:
- (a) Control station monumentation with reference ties.
  - (b) Field notes that were used to set construction stakes, control the Project, and document monument locations. The Contractor shall use bound, hard cover field books for recording survey data and field notes; store field notes on an electronic medium; or use both methods. If an electronic medium is used, the raw field data files must be available. When using an electronic medium, the Contractor shall make all files and data available in the Standard formats used by the Department.
- (10) Provide the following As-built Survey Data to the Engineer:
- (a) Changes from the Plans
    - (i) Alignment
    - (ii) Profile
    - (iii) Sewer
    - (iv) (List other items as desired)
  - (b) Locations of utilities relocated or emplaced as part of the Project
  - (c) Identify any alignment, Right of Way, property, or control monumentation destroyed during the Project
  - (d) Any alignment, Right of Way, property, or control monumentation that was placed during the Project and that still exists at Project completion.
  - (e) The information shall include the x, y and, if applicable, the z coordinates in the Project datum. If the original item had no coordinate reference, then show the revised centerline station and offset.
  - (f) The information shall be provided in both electronic (MicroStation and Geopak) and hard copy format.
  - (g) In the case of new monumentation, there should also be a report describing how the monumentation was placed. This will include copies of any fieldwork (traverse or leveling) as well as any adjustments used. It shall also include tie sheets, to include a description of the physical object placed as the monument.
- (11) Furnish survey documentation and As-built Survey Data to the Engineer within the time limits indicated in the surveying work schedule.

## B.2 Contractor Construction Surveying Activities

- (1) The Contractor shall give the Engineer a 14 calendar day written notice before the Contractor needs the Department to establish any horizontal and vertical control points shown in the Plans for Construction Surveying.
- (2) At the preconstruction conference, the Contractor shall submit to the Engineer for approval a written Construction Surveying Work Plan and Schedule detailing:
  - (a) Pertinent information as to how the requirements in these specifications, and the requirements in Appendix A of the *Surveying and Mapping Manual*, are being met by the Contractor's Surveyor.
  - (b) A Project specific Construction Surveying Work Schedule for the Construction Surveying and how it relates to the time frame for construction activities and the Department inspection needs.
  - (c) A proposed method of communications between the Contractor, Surveyor, and the Engineer.
  - (d) How and when the Contractor's Surveyor will make delivery of the As-built Survey Data to the Department.
- (3) During the course of construction, the Contractor shall give notice of commencement of any Construction Surveying activities according to 1803.4, "Temporary Suspensions".

## S-40.4 METHOD OF MEASUREMENT

The Engineer will measure Construction Surveying as a lump sum in accordance with MnDOT 1901.12.

## S-40.5 BASIS OF PAYMENT

The Contract Unit Price for Construction Surveying is compensation in full for Equipment, Materials and labor required to complete the Work.

## A Excess Checking

If the Department sustains undue costs in checking excessive amounts of Contractor Construction Surveying, or must perform survey work that is the Contractor's responsibility, the Engineer may deduct Department's cost from monies due or becoming due the Contractor in accordance with the following rates:

	Hourly Rates
Registered Engineer or Licensed Land Surveyor	\$150 per hour
3-person crew and equipment	\$250 per hour
2-person crew and equipment	\$195 per hour
1-person with equipment	\$110 per hour

## B Payment Schedule

The Department will provide partial payments for construction surveying in accordance with the following table:

**Table SP2011-1**  
**Construction Surveying Partial Payments**

<b>Percent of Original Contract Complete</b>	<b>Pay this Percentage of Construction Surveying</b>
5	20
15	50
50	75
90	90
* The percent of Original Contract Amount = the amount earned by the Contractor, excluding money earned for mobilization and material on hand, divided by the total value of the original contract (all contract items).	

The Contractor will receive the final 10 percent of the lump sum bid price when the survey computations, notes, miscellaneous documents, and As-built Survey Data as specified have been received and accepted by the Engineer within the time limits specified by the Survey Work Schedule. If the Contractor fails to provide acceptable documentation and the As-built Survey Data within the time limits specified, the Department reserves the right to reduce the lump sum payment for Contractor Construction Surveying by a percentage of up to 10 percent of the lump sum bid price.

**C Payment for Extra Work**

When the Engineer determines that extra or additional Construction Surveying beyond the scope of the original Contract is required and orders the Contractor to accomplish this work, compensation will be made as Extra Work in accordance with MnDOT 1904 and at the same rate shown for a Department survey crew above. If the Construction Surveying is accomplished by a Subcontractor, the prime Contractor allowance will be five percent.

**D Schedule**

The Department will pay for Construction Surveying on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2011.601	Construction Surveying .....	lump sum

**S-41 (2011) CONSTRUCTION SURVEYING (CONCRETE OVERLAY)**

**REVISED 06/30/22**

**S-41.1 DESCRIPTION**

This Work consists of Contractor provided Construction Surveying for pavement profile control on concrete pavement overlays in accordance with MnDOT 1508.

**A Definitions**

For the purpose of the Work specified in this Special Provision, "(2011) Construction Surveying (Concrete Overlay)," the Department defines:

Digital Terrain Model (DTM)

Digitalized version of a map that is generated by precise data points.

Breaklines

Lines in a file that reflect a distinct change in surface type or slope.

S-41.2 MATERIALS – See Standard Specification for Construction

S-41.3 CONSTRUCTION REQUIREMENTS

In accordance with MnDOT 1401, the Contractor is advised that the Contract may not fully describe every detail or make specific allowances for all probable exceptions and contingencies related to the Construction Surveying requirements for this Project. Additional best management practices (BMP's) for Construction Surveying are identified in Appendix A of the MnDOT Surveying and Mapping Manual.

Delete and replace the first sentence of the first paragraph of MnDOT 1508 with the following: "The Engineer will set construction stakes to establish lines, slopes, elevations, and continuous Plans for grading, base, and bituminous construction to establish the field control for the Project."

A Contractor Surveying

DTM the bottom of the proposed concrete layer at 50-foot intervals in tangent sections of roadways and 25-foot intervals at cross slope transitions and superelevated sections of roadway or at engineer's recommendation.

Create finished grade profile at breaklines in LandXML format and volume and concrete depth reports in .xls format from the DTM and submit to the Engineer. The Engineer will approve the Contractor's recommended paving profiles within 3 working days. Engineer's approval of Contractor recommended paving profile does not relieve Contractor from the requirements of 2399, "Pavement Surface Smoothness" and/or 2301.L, "Pavement Thickness Requirements."

The Department will allow stringline or stringless technology for grade control in accordance with the following:

- (1) When using stringline:
  - (a) Place hubs at 50-foot intervals in tangent sections of roadways and 25-foot intervals at cross slope transitions.
  - (b) Set and use the stringlines for grade control on both sides of the roadway during paving operations.
  - (c) Replace damaged or moved hubs as needed.
- (2) When using stringless technology:
  - (a) Set control points at 250-foot staggered intervals, ensuring that the local accuracy of the horizontal control is less than or equal to 0.07 feet at a 95 percent confidence level by performing a traverse, static GPS, or other methods as approved by the Engineer.
  - (b) Ensure the vertical error in the final adjustment is less than or equal to 0.06 feet per mile using differential leveling, trigonometric leveling, or other methods as approved by the Engineer.
  - (c) Set control points using a suitable stationary pin, or stake, that is at least 14-inches long, with a flush identifiable coordinate location (e.g. divot, tack, cap).
  - (d) Establish control points prior to surveying the bond breaker layer.
  - (e) Use the same control points throughout the entire process from surface collection to production.
  - (f) Tie the control points to the MnDOT Geodetic control where possible.

- (g) Set control points at locations away from production to allow for maintenance of control points and minimize the effects of paving operations including but not limited to vibrations, truck haul routes, accessibility, sight distances and disruption or damage caused to control points.
- (h) Set additional control points as needed based on site conditions and the needs of stringless paving.
- (i) Maintain the control points throughout the process.

## S-41.4 METHOD OF MEASUREMENT

The Engineer will measure Construction Surveying under S-40 (2011) CONSTRUCTION SURVEYING.

## S-41.5 BASIS OF PAYMENT

The Department will pay for Construction Surveying under S-40 (2011) CONSTRUCTION SURVEYING.

**S-42 (2011) AS BUILT****REVISED 06/30/23**

## S-42.1 DESCRIPTION

This Work consists of capturing As-built Asset Features in standard Asset Class deliverable formats.

## S-42.2 MATERIALS – BLANK

## S-42.3 CONSTRUCTION REQUIREMENTS

## A As-built Deliverables in Project Scope

Complete deliverables marked with an “X” in Table SP2011-1. Certain asset classes use multiple.

**Table SP2011-1**  
**As Built Deliverables**

In scope	Deliverable Name
X	As-built Feature Survey Memorandum
	Blowing Snow Control Systems As-built Mark-up Plan
	Blowing Snow Control Systems As-built Survey Data
	Bridge As-built Mark-up Plan
	Bridge As-Built Data
	Bridge Uncontaminated Concrete Management Record
	Bridge Paint System Quality Manual (final submitted by Contractor)
X	Drainage As-built Mark-up Plan
X	Drainage Pipes As-built Survey Data
	Drainage Ponds-Basins As-built Survey Data
X	Drainage Structures As-built Survey Data
	Drainage Ponds-Basins Bathymetry Contours
	Drainage Professional Surveyor Letter
	Facility Site As-built Survey Data

In scope	Deliverable Name
	Geotech Earth Retaining Structures (ERS) As-built Survey Data
	Geotech Slopes (Reinforced; Anchoring; Armoring) As-built Survey Data
	Geotech Subgrade (Ground Improvement) As-built Survey Data
	Geotech Special Drainage (Groundwater Controls) As-built Survey Data
	Geotech Instrumentation As-built Survey Data <i>[Inclinometer, Piezometer, Shape Accel Array, Data Cabinet, etc.]</i>
	Lighting Systems As-built Mark-up Plan
	Lighting Systems As-built Survey Data
	Pavement Messages As-built Survey Data
	Signal Systems As-built Mark-up Plan
	Signal Systems As-built Survey Data
	Stationary Anti-Icing Systems As-built Mark-up Plan
	Stationary Anti-Icing Systems As-built Survey Data
	Traffic Management Systems (TMS) As-built Mark-up Plan
	Traffic Management Systems (TMS) As-built Survey Data
	Weigh Station Systems As-built Mark-up Plan
	Weigh Station Systems As-built Survey Data

Include installed or modified As-built Asset Features. Examples of modified features: existing Structures connected to new pipe, existing pipe with new liner, existing pond or basin reggraded, existing conduit with new cable pulled through, and Bridge footings left in place.

Use the As-built Website's respective Asset Class tab for Feature Collect Indexes, Deliverable Templates, and Go-by Examples. As-built Website URL is <http://www.dot.state.mn.us/gisspec/index.html>.

#### B As-built Mark-up Plan Deliverables

Record As-built Asset Feature elevations, locations, and material changes on the Plans. Include mark-ups from the Contractor unit(s) that performed respective Work. Include revisions due to Change Orders and/or Supplemental Agreements. Use red text and red revision cloud to clearly highlight changes.

Subdivide the Plans by Asset Class.

Write "No Changes" if no revisions on pages. Include final elevations for drainage pipe ends, aprons, Structures, ponds/basins, special features, etc. Include final wiring diagrams for signals, Lighting, and TMS systems. Create an enlarged supplemental depiction for high density TMS cable and Structure areas. Include red box on the first page of each subdivided Plan, enclosing information:

As-built Mark-up Plan "Asset Class"

Department Inspector name

Department Engineer name

Prime Contractor Company name

Prepared By

C As-built Survey Data Deliverables

Conduct survey of As-built Asset Features to match changes captured by As-built Mark-up Plans and use standards defined by As-built Website Templates and Feature Collect Indexes representing final elevations, locations, and descriptive attributes. Collect drainage pipe bends and reducers and geotechnical Subgrade (ground improvement) features prior to trench backfilling. Collect conduit and cables prior to disturbance of plow line, otherwise after electromagnetic Equipment locate. Additional Pipe End Section elevations shall be recorded, as directed by the Engineer.

Achieve survey grade accuracy with datum criteria:

Horizontal Reference Datum: WGS 1984

Horizontal Coordinate System: Geographic (Latitude/Longitude)

Horizontal Units: Decimal Degrees

Horizontal accuracy: +/- 1foot

Vertical datum: NAVD88; Units: Feet

Vertical accuracy: +/- 0.1 foot

Use of mapping grade Equipment (+/-3 feet horizontal) permissible for non-Bridge/Drainage/Geotechnical Asset Classes.

D As-built Special Deliverables

For "Bathymetry Contours" deliverable, survey new or regraded ponds and basins with laser scan or total station, bottom must be dry if using a laser scan, total pond/basin area and 15 to 20 feet outside the pond/basin boundary unless retaining wall or other Structure is in the way, the whole pond/basin, not just what was cleaned out, DTM/TIN or DGN deliverable file provides minimum 0.5 foot contours, and includes 1 foot contour labels.

For "Drainage Professional Surveyor Letter" deliverable, enclose the following content: Minnesota Board of AELSLAGID Land Surveyor License number, signature, and statement attesting to how drainage feature coordinates and elevations data were collected to meet survey grade accuracy.

For special Bridge Asset Class deliverables, complete as instructed in respective form or report.

For drainage Projects with an additional elevation for end sections, include a supplemental file identifying each by Plan ID.

E As-built Kick-off Coordination and Deliverable Submittal Process

Provide a contact list with names of Contractors assigned to submitting deliverables and attend As-built specific kick-off meeting, held at discretion of the Engineer.

Email deliverables to: The Engineer and [AsBUILTs.DOT@state.mn.us](mailto:AsBUILTs.DOT@state.mn.us). Submit deliverables prior to 1516.2, "Project Acceptance."

Name files with convention: "State Project Number Table SP2011-1 Deliverable Name Submittal Date" (For example: 0282-34\_Lighting Systems As-built Survey Data\_04-19-2021.csv).

Resolve comments provided by the Engineer. The Engineer will comment no later than 20 Calendar Days upon receipt.

S-42.4 METHOD OF MEASUREMENT

The Engineer will measure As Built as a lump sum in accordance with MnDOT 1901.12.



## S-42.5 BASIS OF PAYMENT

The Department will pay for As Built on the basis of the following schedule:

Item No.	Item	Unit
2011.601	As Built .....	lump sum

**S-43 (2013) ROAD/WEATHER INFORMATION STATION**

## S-43.1 DESCRIPTION

This Work consists of installing Department-furnished components, furnishing and installing additional components, connecting and commissioning an upgraded Road Weather Information System (RWIS) station in accordance with MnDOT 1702 and MnDOT 2550.

## S-43.2 MATERIALS

All electrical conductors shall be copper and all wire sizes for electrical conductors shall be based on the American Wire Gauge (AWG).

The following are Department-furnished components/items:

Part #	Description	Unit	Qty
RWS200	Data Collection and Processing System	Each	1
76421300	FP2000 Sensor Grey 300'	Each	1
PTB110	Barometric pressure sensor	Each	1
DTS12G	Subsurface temperature sensor, 50m cable	Each	1
264647	Fabick Sealant Kit for FP200	Each	1
239709	Commissioning/Site Acceptance	Day	3

Provide all other components/items necessary for a functional RWIS.

Install the cabinet components into the existing NEMA4 cabinet attached to the fold-over tower. Pull all cabling into cabinet. Install the atmospheric and roadway sensors according to manufacturer's instructions along with the necessary conduit and cabling between cabinet and sensor.

## S-43.3 CONSTRUCTION REQUIREMENTS

Contact MnDOT Statewide RWIS Coordinator at least 5 days before work commences.

Remove the existing Road Weather Information System (RWIS) Vaisala RWS110 LX RPU back Panel and Met One barometer; return to the MnDOT Statewide RWIS Coordinator.

Install new Back Panel Base Structure and RWS200, FP2000 invasive pavement sensor, and DTS12G Subsurface Temperature Sensor which includes both contractor-furnished and state-furnished equipment and materials.

Installation shall be in accordance with the manufacturer's installation instructions that are provided in the plans.

Provide all new conduit, and any cable or hardware not salvaged or Department-furnished.

**A Regulations and Code**

All electrical equipment to be furnished shall conform to the standards of the requirements of the NEMA, the Underwriters' Laboratories, Inc. (UL), or the Electronic Industries Association (EIA), whichever is applicable.

Materials, electrical equipment, and workmanship shall conform to the National Electrical Code (NEC), the standards of the American Society of Testing and Materials (ASTM), the standards of the American National Standards Institute (ANSI), the standards of the Institute of Transportation Engineers (ITE), and to local laws and ordinances that apply.

**B Warranties and Instruction Sheets**

Warranties on new materials and electrical equipment shall apply to the items furnished by the Contractor. Manufacturers' warranties furnished for materials and electrical equipment, calibration sheets, and instruction sheets and parts lists supplied with materials and electrical equipment, shall be submitted to the Engineer before final acceptance of the Project or when requested by the Engineer.

The Contractor shall warrant all materials and electrical equipment furnished to the Project to be free from defects in materials and workmanship in accordance with the following:

- B.1 Warranties that are offered by the material and electrical equipment manufacturer as a customary trade practice shall be turned over to the Department. The Department shall be named as the obligee on all manufacturers' warranties and guarantees.

The above warranty requirements shall not apply to any part or parts of materials and electrical equipment that have been, in the opinion of the Engineer, subject to misuse, negligence, or accident by anyone other than the Contractor.

**C General**

The locations of component parts, as indicated in the Plans, are approximate only. The Engineer will establish the exact locations.

Notify the Engineer prior to Work commencing. The MnDOT RWIS Coordinator needs to be on site prior to Work commencing.

- C.1 Compliance with Electrical Codes and Standards

Construction operations shall conform to the National Electrical Code, to the State of Minnesota Board of Electricity Examiners, and to all State of Minnesota laws and local ordinances governing electrical installations.

- C.2 Permits and Inspections

The Contractor shall secure all necessary permits and inspections with no cost to the Department.

Construct the system in compliance with MnDOT 1702 The Minnesota Electrical Act requires that a permit be obtained for the performance of all such Work, including the installation of conduits.

**D Testing and Commissioning**

Notify the Engineer five Business Days before testing and commissioning. The Engineer, the MnDOT RWIS Coordinator, and the manufacturer's Field Service Engineer shall be on-site to perform the testing and commissioning of the new system. All testing and commissioning operations shall be by manufacturer's Field Service Engineer, in the presence of the Engineer and MnDOT RWIS Coordinator. Testing and commissioning shall include all final hook ups, powering up of the system and sensors, Remote Processing Unit alignment of the sensors and verification of the proper system operation.

The Contractor shall provide the electrical instruments, apparatus, tools, and labor necessary to perform the testing and commissioning procedures. Such electrical instruments, apparatus, and tools shall remain the property of the Contractor after the testing and commissioning procedures are completed.

Provide the Engineer, a signed and dated "Testing and Commissioning Report" from the manufacturer's Field Service Engineer for each site where new system components and replacement sensors have been furnished and installed as part of the Contract along with the following information:

D.1 Project numbers and location identification.

D.2 The data sheet, model number, serial number, and location of each system component and road sensor that has been installed in this Contract.

In the event that the testing and commissioning operations failed, the Engineer may direct the Contractor to replace any part, all at no expense to the Department. All of the above-mentioned testing and commissioning shall be repeated and recorded for the "revised" Testing and Commissioning Report. These tests shall not preclude the Department from testing with their own test equipment to ensure proper operation.

**E Restoration and Cleanup**

Sidewalks, curbs and gutters, pavements, base materials, sod, plants, and other items removed, broken, or damaged by the Contractor's construction operations shall be replaced or reconstructed with the same kind or type of original Material or Material of equal quality. The reconstruction Work shall be done in an acceptable manner for the class or type of Work involved and undertaken and completed as soon as practicable. All reconstruction Work shall be maintained by the Contractor in a satisfactory condition until final acceptance.

**S-43.4 METHOD OF MEASUREMENT**

The Engineer will measure each Road Weather Information Station as an integral unit. The system shall be considered as one each.

**S-43.5 BASIS OF PAYMENT**

The Contract Unit Price for Install Road/Weather Information Station (Non-invasive Sensor) is compensation in full for Equipment, additional Materials and labor required to complete the Work.

The Department will pay for Install Road/Weather Information Station (Non-invasive Sensor) according to the following schedule:

<b>Item No.:</b>	<b>Item:</b>	<b>Unit:</b>
2013.602	Install Road/Weather Information Station (Invasive Sensor) .....	each

**S-44 (2021) MOBILIZATION****REVISED 12/11/24**

S-44.1 Delete and replace Table 2021.5-1 of MnDOT 2021.5 with the following:

**Table 2021.5-1  
Mobilization Partial Payments**

<b>When</b>	<b>Contract Unit Price for mobilization is less than 10 percent of the total Contract amount, pay</b>	<b>Contract Unit Price for mobilization exceeds 10 percent of the total Contract amount, pay</b>
<b>Percent of Original Contract Amount Completed</b>	<b>Percent of Mobilization</b>	<b>Percent of Original Contract Amount *</b>
5	50	5
15	75	7.5
25	100	10
90	100	—
*If the Contract Unit Price for mobilization exceeds 10 percent of the total original Contract amount, the Department may withhold (on any partial estimate) the portion in excess of 10 percent until the Contractor earns at least 90 percent of the original Contract amount.		

S-44.2 Add the following to MnDOT 2021.5:

The Engineer is authorized to pay actual costs for the payment and performance bond ahead of scheduled mobilization payments provided:

- The remaining amount to be paid for (2021) Mobilization is greater than the cost of the payment and performance bonds.
- The Contractor provides the actual invoice for the bonds.
- The Contractor provides proof of payment for the bonds
- The amount paid for the bonds is subtracted from subsequent mobilization payments.

**S-45 (2031) FIELD LABORATORY AND OFFICE****RESTORED 06/30/23**

S-45.1 Delete and replace the pay item schedule in MnDOT 2031.5 with the following:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2031.502	Field Office .....	each
2031.502	Field Laboratory .....	each
2031.502	Combination Field Laboratory-Office .....	each

**S-46      (2031) FIELD LABORATORY AND OFFICE (BROADBAND SERVICES)****REVISED 03/29/24**

S-46.1      Add the following to MnDOT 2031.3:

B            Broadband Services

Provide the following for exclusive use by Department personnel for the entire length of the Contract including periods of Work suspension.

Provide the Department with the information required by the Internet Service Provider (ISP) to authorize communication between the ISP and Department technical staff for purposes of problem resolution. This information shall include the name of the provider, a phone number for technical support and the account number as a minimum. The Contractor shall determine if additional information will be required from the ISP. This information shall be in writing and shall be provided to the Engineer at the Pre-Construction meeting.

Provide the following service:

(1) Minimum bandwidth size shall be:

Small Field office (1 to 10 users) minimum speed service of 20 Mbps or reduce speed as needed if 20 Mbps is not available Mbps.

(2) Internet Connection

Terminating in a Wi-Fi connection.

Any Equipment supplied by the Contractor will be returned within 90 Calendar days after Project Acceptance is made in accordance with 1516.2.

**S-47      (2041) ON-THE-JOB-TRAINING PROGRAM****REVISED 10/14/22**

Delete and replace Section II. 6.b of the "Required Contract Provisions-Federal-Aid Contracts" set forth in the Equal Employment Opportunity Special Provision with the following:

As part of the Contractor's equal employment opportunity (EEO) affirmative action program, on-the-job training (OJT) must be provided in accordance with these Special Provisions and 23 C.F.R. Part 230.

S-47.1      PURPOSE

The primary objective of the MnDOT OJT Program is to create a diverse workforce through the training and upgrading of minorities, women and disadvantaged people in highway heavy construction. The program seeks to improve access for people to reach journey level positions.

S-47.2      OJT GOAL

The OJT goal for this project is:

Trainees:	2
Hours:	900

## S-47.3 TRAINEE ELIGIBILITY

- A A trainee must be a minority, woman or disadvantaged person. MnDOT's Office of Civil Rights will review the OJT Trainee Application for disadvantaged persons on a case-by-case basis. It is the Contractor's responsibility to provide information and documentation illustrating the OJT applicant is a disadvantaged person.
- B A person is not eligible to be a trainee in any trade in which the person is considered a journeyman or is otherwise skilled.
- C A trainee is eligible to be in the OJT program up to the following hours:

**Table SP2041.3-1**  
**OJT Trainee Eligibility Hours**

Trade	Hours
Carpenter	7,000
Cement Mason	6,000
Crane Operator	8,000
Electrician	8,000
Iron Worker	6,000
Laborer	4,000
Operating Engineer	4,000
Painter	6,000
Pile Driver	8,000
Pipefitter	8,750
Truck Driver	2,000

- D A trainee may work on various projects or for different Contractors. However, the Contractor will only receive OJT credit for trainee hours worked on a Project with an OJT goal. Moving employees strictly to meet an OJT goal is a violation of affirmative action under 41 C.F.R. § 60-4.

## S-47.4 OJT PROGRAM PROPOSAL

- A The Contractor must complete the OJT Program Proposal within five (5) business days of the bid opening. The OJT Program Proposal can be found here: [mndot.gov/civilrights/ojt-proposal.html](https://mndot.gov/civilrights/ojt-proposal.html).
- B Approval of the OJT Program Proposal is a condition of Contract award. If approved, the Contractor will receive an email notification from MnDOT's Office of Civil Rights. Failure to submit the OJT Program Proposal will result in the bid being rejected for failure to meet a condition precedent.
- C The OJT Program Proposal must include the 1) number of trainees, 2) selected trades and 3) the planned training program. The number of trainees must be distributed amongst the trades on the basis of the Contractor's needs and the availability of journeymen in the various trades within a reasonable area of recruitment. This section does not apply if the Contractor is an approved participant in the OJT Alternative Program under S-47.13.

1. The Contractor does not need to attach a training plan to the OJT Program Proposal if it has an apprenticeship program registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship. The apprenticeship program must be administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts.
- D MnDOT's Office of Civil Rights and the Federal Highway Administration will approve a program if it is reasonably calculated to:
1. meet the equal employment opportunity obligations of the Contractor; and
  2. qualify the average trainee for journey-level status in the classification concerned by the end of the training period.
- E If the Contractor does not commit to meeting the OJT goal stated in this Proposal, then MnDOT's Office of Civil Rights may choose to perform a compliance review. The purpose of the compliance review will be to analyze the Contractor's employment practices and to facilitate good faith efforts to reach the OJT goal.
- S-47.5 OJT TRAINEE APPLICATION
- A The Contractor must submit an OJT Trainee Application prior to the start of construction or within 30 business days of the trainee's start date on this project. The OJT Trainee Application can be found here: [mndot.gov/civilrights/ojt-application.html](https://mndot.gov/civilrights/ojt-application.html).
1. The Contractor must submit an OJT Trainee Application each calendar year until the trainee reaches journey level status or the Project ends.
- B If a trainee indicates to the Contractor that the trainee is a graduate of a MnDOT OJT Supportive Services Program, the Contractor must confirm this by requesting a Certificate of Completion from the trainee or by contacting MnDOT's Office of Civil Rights.
- C At the time the Contractor submits the OJT Trainee Application, the Contractor must provide the trainee with a copy of the training program.
- D Trainee eligibility approval is not established until the Contractor receives the OJT Trainee Approval Letter from MnDOT's Office of Civil Rights.
- E The Contractor will only receive credit and reimbursement for work performed by a trainee on or after the effective reimbursement date, which is specified in the OJT Trainee Approval Letter.
1. Retroactive reimbursement: The Contractor will only receive credit or reimbursement for work performed by the trainee 30 business days prior to submission of the OJT Trainee Application.

S-47.6 OJT MENTORSHIP AGREEMENT

- A For the trainee to be eligible for the mentor assignment reimbursement rate outlined in the OJT Request for Reimbursement section of these Special Provisions, the Contractor must submit an OJT Mentorship Agreement and a training plan. The OJT Mentorship Agreement and training plan must be approved by MnDOT's Office of Civil Rights. The OJT Mentorship Agreement can be found here: [mndot.gov/civilrights/ojt-mentor.html](https://mndot.gov/civilrights/ojt-mentor.html).
- B Mentorship renewal: An OJT Mentorship Agreement and training plan must be submitted each calendar year. The Contractor will only receive credit or reimbursement for work performed by the trainee 30 business days prior to submission of the OJT Mentorship Agreement.
- C The maximum mentorship ratio is two (2) trainees to one (1) mentor.

S-47.7 OJT TRAINEE DEPARTURE

If a trainee voluntarily or involuntarily departs from the company, the Contractor must complete and submit the OJT Trainee Departure Form within 15 business days to MnDOT's Office of Civil Rights. The OJT Trainee Departure form can be found here: [mndot.gov/civilrights/ojt-departure.html](https://mndot.gov/civilrights/ojt-departure.html). The OJT Trainee Departure form is not required for seasonal layoffs.

S-47.8 OJT CERTIFICATE OF COMPLETION

The Contractor must provide the trainee and MnDOT's Office of Civil Rights with an OJT Certificate of Completion indicating the type and length of training the trainee satisfactorily completed. The OJT Certificate of Completion template can be found here: [mndot.gov/civilrights/forms.html](https://mndot.gov/civilrights/forms.html).

S-47.9 OJT REQUEST FOR REIMBURSEMENT

- A The Contractor may be reimbursed at one of the following rates for each trainee:
  - 1. \$1.00 per hour worked;
  - 2. \$5.00 per hour worked by a graduate of a MnDOT OJT Supportive Services Program;
  - 3. \$10.00 per hour worked by a graduate of a MnDOT OJT Supportive Services Program and who is assigned a mentor by the Contractor.
- B The Contractor must submit an OJT Request for Reimbursement to the Engineer at a time determined by the MnDOT Project Engineer, but no later than Completion of the Work as provided in 1516.3. The OJT Request for Reimbursement can be here: [mndot.gov/civilrights/forms.html](https://mndot.gov/civilrights/forms.html).
- C The Contractor must maintain records and, upon request from the Office of Civil Rights, provide periodic reports documenting the Contractor's performance under these Special Provisions.
- D The Contractor will only be reimbursed for trainee hours worked:
  - 1. on projects with an OJT goal,
  - 2. in the trade that the trainee was approved in, and



3. on or after the effective reimbursement date indicated on the OJT Trainee Approval Letter.

E The Contractor will receive reimbursement for any Subcontractor contributing trainee hours to the OJT goal. It is at the Contractor's discretion to reimburse a Subcontractor for any hours contributed to the OJT goal.

F Upon approval, some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a substantial part of the overall training. Reimbursement for offsite training may only be made where the trainee is concurrently employed on a Federal-aid Project and the Contractor does one or more of the following;

1. contributes to the cost of the training;
2. provides the instruction to the trainee; or
3. pays the trainee's wages during the offsite training period.

Prior to offsite training, the Contractor must submit an offsite training plan to MnDOT's Office of Civil Rights for review and approval.

G Engineer will not reimburse the Contractor if either 1) the failure to provide the required training, or 2) the failure to hire the trainee as a journey person, is caused by the Contractor and demonstrates the Contractor's lack of good faith to meet the requirements of this Special Provision.

H Payment for OJT hours will be paid under Item 1402621/00020 Change Order Trainees.

#### S-47.10 FINAL CLEARANCE

Pursuant to MnDOT Standard Specifications for Construction, Section 1516.3, "Completion of the Work", note (7), the Contractor must notify the Engineer and MnDOT's Office of Civil Rights when the OJT goal is met and/or work is complete. MnDOT's Office of Civil Rights will issue a Final Clearance letter under MnDOT Standard Specifications for Construction, Section 1516.3, "Completion of the Work", note (7).

#### S-47.11 GOOD FAITH EFFORTS REVIEW

If the Contractor is unable to meet the OJT goal, the Contractor must provide documentation demonstrating good faith efforts. The following standards apply to the review of a Contractor's good faith efforts to meet the OJT goal:

A The Contractor must demonstrate that it made every effort to employ minorities, women and disadvantaged persons by conducting systematic and direct recruitment through public and private sources likely to yield minorities, women and disadvantaged persons.

B The Contractor is responsible for demonstrating the actions it took to recruit minorities, women and disadvantaged persons as trainees prior to a determination as to whether the Contractor is in compliance with these requirements.

C This training commitment is not intended and must not be used to discriminate against any applicant for training, whether a member of a minority group or not.

- D MnDOT's Office of Civil Rights may perform a compliance review if the Contractor fails to demonstrate good faith efforts. The purpose of this review will be to analyze the Contractor's employment practices and facilitate good faith efforts to reach future OJT goals.

S-47.12 TRAINING PROGRAM STANDARDS

- A The Contractor will receive credit for each trainee employed on the Project who is currently enrolled or becomes enrolled in an approved program. The Contractor will be reimbursed for such trainees as outlined in the OJT Request for Reimbursement section of these Special Provisions.
- B Training must be provided for construction trades rather than clerical positions. Training is permissible in entry-level management positions, such as office engineers, estimators, etc., where the training is oriented toward construction applications. If approved, the Contractor must provide documentation of hours worked by the trainee (e.g., payroll, timesheets) in a format approved by MnDOT's Office of Civil Rights.
- C It is expected that a trainee will begin training on the Project as soon as feasible after start of work in the trainee's trade and remain on the Project as long as training opportunities exist in the trainee's trade or until the trainee has completed an approved training program.
- D It is not required that a trainee work on the Project for the entire length of the Contract.
- E All training provided by the Contractor to meet the obligations in these Special Provisions must provide a significant and meaningful training experience for the trainee.
- F The Contractor will have fulfilled its responsibilities under this Special Provision if it has provided a significant, meaningful training experience and/or acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the Contract for a significant period.
- G In the event the Contractor subcontracts a portion of the work, the Contractor must determine how much of the training requirement will be fulfilled by the Subcontractor. Despite a subcontract, the Contractor remains responsible for meeting the OJT training requirements. The Contractor must ensure that the On-the-Job Training Program special provisions are incorporated into its subcontracts.
- H Where feasible, 25 percent of apprentices or trainees in each trade must be in their first year of apprenticeship or training.
- I The language established in subpart (A) and (A)(I) of this section replaces the language established in the February 1, 2006 FEDERALLY FUNDED CONSTRUCTION CONTRACTS SPECIAL PROVISIONS DIVISION A – LABOR, Subpart X(B)(3) or the May 17, 2006 FEDERALLY FUNDED "ONLY" CONSTRUCTION CONTRACTS SPECIAL PROVISIONS DIVISION A – LABOR, Subpart X(B)(3).
  - 1. The trainee must be paid at not less than the rate specified in the program for the level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable federal wage decision.

- i. The level of progress, expressed as a percentage requires the Contractor to pay the trainee at least 60 percent of the appropriate minimum journeyperson's rate specified in the applicable federal wage decision for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period.

#### S-47.13 OJT ALTERNATE PROGRAM

Contractors participating in the OJT Alternative Program must receive written approval from MnDOT's Office of Civil Rights. An approved Contractor in the alternative program must submit their annual, company-wide training plan in accordance with specified timeframes. The trainees approved under the OJT Alternative Program must be utilized in accordance with the OJT Special Provisions. Approved Contractors participating in the OJT Alternative Program are subject to an annual goal rather than Project specific goals. Joint ventures are subject to Project specific goals.

### **S-48 (2051) HAUL ROAD MAINTENANCE AND RESTORATION**

**REVISED 04/14/23**

#### S-48.1 Add the following to MnDOT 2051.5:

In addition to the amount the Contractor bids for Item 2051.501 (Maintenance and Restoration of Haul Roads), the Department agrees to reimburse the Contractor at the predetermined Unit Prices set forth below for Materials ordered by the Engineer. All Materials ordered by the Engineer for the Maintenance and Restoration of Haul Roads will be measured as set forth in the applicable section of the Standard Specifications.

Each of the following Materials measured as provided above, will be paid for at the following predetermined Unit Prices:

**Table SP2051.5-1  
Unit Prices for Additional Haul Road Material**

Item No.	Item	Unit Price
2118.509	Aggregate Surfacing Class 1	\$12.00/ton
2130.523	Water	\$25.00/1000 gal.
2131.506	Calcium Chloride Solution	\$0.75/gal.
2211.509	Aggregate Base Class 5	\$13.00/ton
2211.509	Aggregate Base Class 6	\$13.00/ton
2360.509	Type SP 9.5 Wearing Course Mixture*	\$40.00/ton
2360.509	Type SP 12.5 Wearing Course Mixture*	\$40.00/ton
2231.509	Bituminous Patching Mixture*	\$75.00/ton

Crushing will not be required in the production of Class 1 material.

\*Bituminous mixture must be (3,B) or better.

The above prices are compensation in full for Equipment, Materials and labor required to complete the Work. When Materials other than those listed above are ordered by the Engineer, they will be paid for as Extra Work in accordance with 1402.5, with the Contractor and the Department sharing equally in the costs. Blading and reshaping necessary for the maintenance and restoration of haul Roads is Incidental.

The above shall be performed to restore visible damage.

**S-49                    (2061) MATERIAL DELIVERY MANAGEMENT SYSTEM**

**REVISED 09/27/24**

**S-49.1            DESCRIPTION**

This work will consist of capturing source, hauler, and loading and delivery event data associated with the delivery of material to a contract in a standardized, digitalized format.

**A                    Definitions**

For the purpose of the Work specified in section S-49, "Material Delivery Management System," the Department defines:

**AASHTOWare Project (AWP)**

Web-based software that provides a comprehensive series of software modules designed to address phases in the construction lifecycle beginning with project definition and followed by cost estimation, bidding/letting process, and construction and materials management. The software is built on a unified database that allows for easy access to data for use in decision-making, reporting, and tracking of various information (e.g., historical bid prices, civil rights and labor management, etc.).

**Agency MDMS Verification**

A process in which the Engineer randomly verifies data collected by the Contractor's MDMS each day to ensure that no issues are present with the system and the accuracy of data. Additionally, field verification information is used to verify that the final, exported MDMS data reflects that originally reviewed in the field.

**Application Programming Interface (API)**

Software interface that allows multiple platforms to connect to each other.

**Breadcrumb Trail**

Latitude, longitude, and associated time stamp for the truck's location, recorded at pre-defined intervals.

**Category**

Subsection of a project with different funding sources.

**Contract Geofence**

Static virtual perimeter around the limits of the work to be completed in the contract (e.g., boundary of jobsite).

**Contract Total by Material Code Quantity**

Cumulative quantity per material code and contract.

**Control Section**

A specific segment of the state highway road system having fixed termini, usually at intersections with other trunk highways, county lines, or other geographical features. The state highway system is divided into shorter, more manageable segments for recordkeeping, maintenance, construction, and other administrative purposes.

**Daily Running Total by Material Code Quantity**

Cumulative daily quantity per material code and contract.

**Digitalized**

Data provided in a database format.

**Dump**

Truck exchange where source material is delivered.

**Dump Geofence Name**

Name of Geofence where material was placed within.

**E-Ticket (Source Data)**

Exportable, digitalized source data.

**Loading and Delivery Event Data**

Data generated such as dumping details, date and time stamps for given event types, and durations.

**Geofence (Geographic Boundary)**

Virtual geographic perimeter that indicates when a mobile device enters or exits a predefined area.

**Hauler Data**

Data generated by the hauler (e.g., truck ID, driver name, broker name, DOT number, etc.). The hauler for the given truck identification may be the Contractor, independent truck operator (ITO), or managed truck operator (MTO).

**Hypertext Transfer Protocol (HTTP)**

Protocol used for transmitting data over the internet.

**Item Identification**

Unique identifier assigned to each pay item in the reference list for each specification book.

**JavaScript Notation (JSON)**

JavaScript object notation in a lightweight, human-readable data-interchange format.

**Material Code**

Unique identifier assigned to each construction material in the system. In some places, this field also displays the material description.

**Material Delivery Management System (MDMS)**

System that manages source, hauler, loading and delivery events, testing and contract administration, and agency verification data associated with delivery of material to a contract.

Mix Design Identification

Unique identifier for a mix design (e.g., mix designation report number).

OAuth 2.0

Industry standard protocol for authorization.

Overweight Weight

Weight of material exceeding the maximum allowable gross weight of the transport vehicle.

Paper Weight Ticket

Also called Bill of Lading. Printed copy of weight ticket created by load-out software. Includes Certificate of Compliance for MnDOT 2461 and computerized batch tickets for MnDOT 2301.

Project–Category Geofence

Static virtual perimeter around the limits of a project’s Control Section and funding category.

Representational State Transfer (REST)

Architectural style that applies standards in the HTTP protocol creating the capability of exposing APIs over the internet.

RESTful

Term for software built in the REST style which requires the following 6 guiding constraints: 1) client server; 2) stateless; 3) cacheable; 4) uniform interface; 5) layered system; 6) code on demand (optional).

Source Data

Data generated by the source’s loadout software, such as contract, project, source, and mix design identification, material code, ticket identification, and loading and weight information. This data is considered the E-Ticket.

Source Geofence

Static virtual perimeter around boundary of source (e.g., boundary around plant).

Source Identification

AASHTOWare Project or State assigned source identification (e.g., pit/plant identification, BP001, RMX001, GS79103).

Split Load

Loads split at delivery for use at more than one location, such as for patching, entrances, multiple piers, multiple intersections for curb and gutter, etc.

Supplier

Company providing material to multiple Contractors.

System Failure

Error occurring when the Contractor’s MDMS does not collect and/or store data per the requirements of this Standard or when data cellular coverage is limited.

Testing and Contract Administration Data

Data generated by the Engineer and/or Contractor, such as acceptance/rejection, wasted material quantity, water and concrete admixture quantities added in field to ready-mixed concrete, sampling information, split load pay items and quantities, testing results, etc.

**Truck Driver Classification**

Description of truck classification as defined by the Federal Wage System. For example: Tractor Trailer Driver; Four or More Axle Unit, Straight Body Truck; Three Axle Units, or Two Axle Unit.

**Veta**

Standardized intelligent construction data management (ICDM) software that stores, maps and analyzes geospatial data resulting from intelligent construction technology (ICT) such as intelligent compaction, paver mounted thermal profiling, dielectric profile method and spot test data (e.g., density, moisture). This software can perform standardized data processing, analysis and reporting to provide project summary results from various ICT manufacturers. In particular, the software can provide statistics, histograms, correlations for these measurements, document coverage area and evaluates the uniformity of the ICT measurements as part of the project quality control operations.

S-49.2 MATERIALS - BLANK

S-49.3 CONSTRUCTION REQUIREMENTS

Use the MDMS on the following:

- (1) MnDOT 2360 (Plant Mixed Asphalt Pavement)
- (2) MnDOT 2363 (PASSRC and PASB)
- (3) MnDOT 2365 (Stone Matrix Asphalt)

A Equipment and Software – Contractor’s MDMS

Use a system with the following components:

- (1) Ability to digitalize source data and to standardize data fields generated from varying loadout software platforms for inclusion as the E-Ticket in the Contractor’s MDMS. See Table SP2061-1 for required source data fields and standardized naming conventions.
- (2) When feature available, ability to enter source identification data, per Table SP2061-9, and ability to edit the truck identification contained within the E-Ticket should trucks get out of order during the loading process.
- (3) Ability to manually enter (or import from load-out software) hauler data associated with E-Tickets, per Table SP2061-11, into the Contractor’s MDMS.
- (4) Ability to manually accept Dump event.
- (5) Portable, or hardwired, system to track truck locations for MnDOT 2118, MnDOT 2301, MnDOT 2360, MnDOT 2363, and MnDOT 2365. The system:
  - (a) Is powered independently or through use of an adapter.
  - (b) Indicates of instances where there is interruption of signals used to track truck locations.
  - (c) Is associated with corresponding truck identification and ticket identification.
  - (d) Sends and saves breadcrumb trail at intervals of 1 minutes, or less.
  - (e) Provides playback features to display transit routes for each breadcrumb trail.

(6) Static Geofence

- (a) Establishes static Geofence around source(s) and contract(s) for MnDOT 2118, MnDOT 2301, MnDOT 2360, MnDOT 2363, and MnDOT 2365.
- (b) Records Geofence name and date and time stamps, which are associated with the truck when entering and exiting the *source* and *contract* Geofences. (See Table SP2061-14).

(7) Ability to trigger a Dump event for recording Dump time and location per Table SP2061-13.

(8) Data Generated at Source

- (a) Suppliers and Contractor owned sources will provide source data to the Contractor's MDMS in 2 minutes or less from point of sale.
- (b) The Contractor's MDMS will provide source data (data fields contained in Table SP2061-1) to the Contractor's MDMS user interface in 1 minute or less of receipt of data.
- (c) Contractor-owned permanent and portable sources will provide source data through a solution of the Contractor's MDMS or per Section S-49.3.A.8(d).
- (d) Suppliers and Contractor-owned permanent and portable sources will provide source data to the Contractor's MDMS per the following method. Suppliers, Contractor-owned permanent and portable sources, and MDMS vendors will use:
  - (1) REST APIs (secured using the OAuth 2.0 Standard) exposed by the Contractor's MDMS for transmittal of source data to the Contractor's MDMS.
  - (2) JSON data interchange language as the format for data sent and received from the REST APIs.
  - (3) JSON request body format will contain the source data per ticket per Table SP2061-1.
  - (4) The Contractor's MDMS will allow import of more than one ticket per JSON message should batch queuing occur as a result of unexpected issues by Supplier or Contractor owned source.
- (e) When interface available, the Contractor's MDMS will transmit source, hauler, and loading and delivery event data to Veta, using REST APIs and a JSON data interchange language, in 4 minutes or less from point of sale.

(9) MDMS Data Generated at Contract Geofence and During Dump Event

- (a) When interface available, the Contractor's MDMS will transmit loading and delivery event data to Veta in 1 minute or less after the recorded event, using REST APIs and a JSON data interchange language.



**(10) File Downloads**

All Contractor's MDMS source, hauler, and loading and delivery event data, per Tables SP2061-1, SP2061-11, and SP2061-13, are exportable by Engineer as a dbase ASCII, CSV, XLSX, or text format within 15 minutes intervals from the Contractor's MDMS. Loading and delivery event data, collected in systems separate from the Contractor's MDMS must include ticket identification, source identification, and loading date and time for cross referencing to source and hauler data.

**(11) Engineer has viewing capability in 3 minutes or less from the point of sale (using a web- or application-based user interface) of the following information in the Contractor's MDMS when adequate data cellular coverage is available:**

- (a) Number of trucks at source, in transit from source to contract, at contract (and/or Dump), and in transit from contract to source.
- (b) When feature available, tabular summary of ticket status (e.g., ticket identification, loaded, in transit, dumped).
- (c) Source data per Tables SP2061-1 and SP2061-9.
- (d) Hauler data per Table SP2061-11.

**(12) Instrument-appropriate components of the MDMS to collect data per Tables SP2061-1, SP2061-11, and SP2061-13.**

**Table SP2061-1**  
**Required Source (E-Ticket) Data Fields in Contractor's MDMS for each Data Block**

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301) and Ready-Mixed Concrete (MnDOT 2461)
1	ticketId	Ticket Identification	5126349, 101R, 539-19	String (up to 20 characters)	None	Yes	Yes	Yes
2	contractId	Contract Identification	180181, R-37463	String (up to 20 characters)	None	Yes	Yes	Yes
3	projectId	Agency State Project (SP) / State Aid Project (SAP) Identification	1234-56, 47-609-012	String (up to 20 characters)	None	Yes	Yes	Yes
4	contractorName	Contractor Name	Al Fresco Contracting	String (up to 256 characters)	None	Yes	Yes	Yes
5	sourceId	Source Identification	BP001, RMX001, GS79103 (e.g., pit / plant identification)	String (up to 20 characters)	None	Yes	Yes	Yes
6	scaleId *	Scale Identification	2, A2	String (up to 20 characters)	None	Yes	Yes	No
7	siloid *	Silo Identification	5, A3	String (up to 20 characters)	None	No	Yes	No
8	sourceOperatorName	Source Operator Name	Adam Zapel (e.g., weighmaster)	String (up to 256 characters)	None	Yes	Optional	Optional
9	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
10	sourceNote	Source Notes	First Load, Last Load, Warnings	String (up to 3999 characters)	None	Optional	Optional	Optional
11	mixDesignId	Mix Design Identification	02-2020-184, RMX135-030, (e.g.,	String (up to 40 characters)	None	No	Yes	Yes

Reference Field No.	JSON Field` Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301) and Ready-Mixed Concrete (MnDOT 2461)
			mix design report number)					
12	materialCode	Material Code	SPWEA340C, DMF #1932480001, SMI3F52, Class 5, (e.g., material description, classification)	String (up to 20 characters)	None	Yes	Yes	Yes
13	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
14	loadNumber †	Load Number	75	Number	None	Yes	Yes	Yes
15	truckId ‡	Truck Identification	51.6046, 88tb, T-1, T1	String (up to 20 characters)	None	Yes	Yes	Yes
16	trailerId ‡	Trailer Identification	51.6046, 88tb, T-1, T1	String (up to 20 characters)	None	Yes	Yes	Yes
17	voidedTicket	Voided Ticket	See Table SP2061-2	String (up to 10 characters)	None	Yes	Yes	Yes
18	loadDateTime # §	Loading Date and Time	2007-04-05T12:30:45-02:00	String (up to 40 characters)	Time	Yes	Yes	Yes
19	grossWt **	Gross Weight	44.33	Number	Mass	Yes	Yes	No
20	netWt **	Net Weight	26.83	Number	Mass	Yes	Yes	No
21	truckTareWt **	Truck Tare Weight	17.5	Number	Mass	Yes	Yes	No
22	overweightWt ** ††	Overweight Weight	0.33	Number	Mass	Yes	Yes	Yes

Reference Field No.	JSON Field` Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301) and Ready-Mixed Concrete (MnDOT 2461)
23	dailyRunningTotalByMatlCodeQty ** ††	Daily Running Total By Material Code Quantity	1900.64, 11	Number	Mass or Volume	Yes	Yes	Yes
24	contractTotalByMatlCodeQty ** ††	Contract Total by Material Code Quantity	2400.45, 22	Number	Mass or Volume	Yes	Yes	Yes
25	batchedQty **	Batched Quantity	11	Number	Mass or Volume	No	No	Yes
26	ingredientCode ††	Ingredient Code	See Table SP2061-4	String (up to 30 characters)	None	No	No	Yes
27	ingredientSourceName ††	Ingredient Source Name	See Table SP2061-8 for Ingredient Source Names for Water. Temper, Riverstone Cordova Concrete Sand, Master Builders MasterPolyheed 1020, GCP Applied Technologies Daravair 1000	String (up to 50 characters)	None	No	No	Yes
28	targetBatchIngredientQty ** ††	Target Batch Ingredient Quantity	2685, 9, 24.5	Number	Varies	No	No	Yes
29	actualBatchedIngredientQty ** ††	Actual Batched Ingredient Quantity	2685, 9, 24.6	Number	Varies	No	No	Yes

Reference Field No.	JSON Field` Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301) and Ready-Mixed Concrete (MnDOT 2461)
30	batchedQtyVarienc e **	Batched Quantity Variance	-2.11, -0.37, 0.5, 1.34	Number	Percent	No	No	Yes
31	aggregateAbsorptionPercent	Aggregate Absorption Percent	1.2	Number	Percent	No	No	Yes
32	totalAggregateMoisturePercent	Total Aggregate Moisture Percent	3.3	Number	Percent	No	No	Yes
33	waterAddedSourceQty **	Water Added at Source Quantity	3	Number	Mass or Volume	No	No	Yes
34	waterAvailableAddQty **	Water Available to Add Quantity	34.992	Number	Volume	No	No	Yes
35	waterToCementitiousRatioAfterWaterAddedAtSource	Water to Cementitious Ratio after Water Added at Source	0.38	Number	None	No	No	Yes
36	maximumDesignWaterToCementitiousRatio	Maximum Design Water to Cementitious Ratio	0.45	Number	None	No	No	Yes
37	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
38	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
39	qualityControlSignature ## §§	Quality Control Signature	Dan D. Lyon	String (up to 256 characters)	None	No	No	Yes – Ready-Mixed Only

Reference Field No.	JSON Field` Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301) and Ready-Mixed Concrete (MnDOT 2461)
40	qualityControlId ## §§	Quality Control Identification	Dan D. Lyon	String (up to 256 characters)	None	No	No	Yes
41	qualityControlTechnicalCertificationId ## §§	Quality Control Technical Certification Identification	12345SX	String (up to 20 characters)	None	No	No	Yes

- \* Scale and silo identifications are only required when source provides material using multiple scales and silos.
- || Data field is provided by either the source’s loadout software or the Contractor’s MDMS for paving applications. Not all loadout software will allow population of pay item identification associated with the given material code. This data field is provided by Veta for aggregate and ready-mixed concrete (that is not used for paving) applications.
- † Load numbers are generated in sequential order and not shared sequences with other projects.
- ‡ Truck/Trailer identification is visible on outside of truck/trailer and is clearly identifiable as it pertains to the information on the E-Ticket. Trailer is considered a “pup trailer” and the Trailer ID is not required when the Contractor uses a tractor-trailer combination.
- # Includes UTC offset. Use the following format: YYYY-MM-DDThh:mm:ss±hh:mm.
- § For concrete applications, the loading date and time reflects the batch time when water is added to the cementitious materials for concrete applications.
- \*\* See Table SP2061-3 for lookup table for units of measurement. Include unit of measurement in JSON data interchange language (see S-49.3.A(8)(d)).
- ||| Required when a load cell is not used on hoppers beneath a surge or storage bin.
- †† Data field is calculated by either source’s loadout software, or Contractor’s MDMS. This information is not provided in a` digitalized format by some source loadout software.
- ‡‡ Can be up to 14 ingredient codes and associated ingredient source names, target batch ingredient quantities, actual batched ingredient quantities, and batch quantity percent variances. Push fields as an array in JSON coding.
- ## The Contractor’s MDMS will have a unique log-in and password associated with each quality control personnel.
- §§ Provide data when data field is available in MDMS.

**Table SP2061-2**  
**Lookup Table for Voided Tickets \***

Description
Voided – Source ticket identification voided.
Valid – Material loaded for delivery to project.
Orphan – Source ticket identification generated, but does not have associated material loaded for delivery to project.
* Data block value is provided by database as an identifier.

**Table SP2061-3**  
**Lookup Table for Units of Measurement \***

Unit Category	Description
Volume	Cubic Meter
Volume	Cubic Yard
Volume	Gallons
Mass	Kilogram
Mass per Volume	Kilograms per Cubic Meter
Mass	Metric Tons
Length	Millimeters
Length per Mass	Millimeter per Kilogram
Volume	Ounces
Volume per Volume	Ounces per Cubic yard
Volume per Mass	Ounces per 100 Pound Cementitious
Mass	Pounds
Mass per Volume	Pounds per Cubic Yard
Area	Square Yard
Area per Length	Square Yard per Inch
Mass	US Tons
* Data block value is provided by database as an identifier.	

**Table SP2061-4**  
**Lookup Table for Ingredient Code**

Description	Data Block Value
Additive / Admixture	See Table SP2061-5
Aggregate	See Table SP2061-6
Cementitious	See Table SP2061-7
Water	Water *
* Data block value is provided by database as an identifier.	

**Table SP2061-5**  
**Lookup Table for Ingredient Code for Additives and Admixtures \***

Description	
Air-Entraining Admixtures	
Calcium Chloride	
Color	
Fibers	
Glass	
Ground Tire Rubber	
Lime	
Liquid Anti-Stripping	
Plastic	
Recycling Agent	
Recycled Asphalt Shingle	
Type A—Water-Reducing Admixtures †	
Type B—Retarding Admixtures †	
Type C—Accelerating Admixtures †	
Type D—Water-Reducing and Retarding Admixtures †	
Type E—Water-Reducing and Accelerating Admixtures †	
Type F—Water-Reducing, High-Range Admixtures †	
Type G—Water-Reducing, High-Range, and Retarding Admixtures †	
Type S—Specific Performance Admixtures †	
Warm Mix Additive	
* Data block value is provided by database as an identifier.	
AASHTO M154 Standard Specification for Air-Entraining Admixtures for Concrete	
† ASTM C 494 Standard Specification for Chemical Admixtures for Concrete	

**Table SP2061-6**  
**Lookup Table for Ingredient Code for Aggregate \***

Description
Coarse Aggregate
Fine Aggregate
Intermediate Aggregate
Recycled Asphalt Pavement
Recycled Concrete Aggregate
* Data block value is provided by database as an identifier.



**Table SP2061-7**  
**Lookup Table for Ingredient Code for Cementitious \***

Description
Asphalt Cement
Fly Ash
Metakaolin
Natural Pozzolan
Portland Cement
Silica Fume
Slag
* Data block value is provided by database as an identifier.

**Table SP2061-8**  
**Lookup Table for Ingredient Source Names for Water \***

Description
Clarified Water
Cold Water
Hot Water
Reclaimed Water
Temper Water
Wash Out Water
* Data block value is provided by database as an identifier.

**Table SP2061-9**  
**Required Fields in Contractor's MDMS for Source Identification Data**

JSON Field Name	Long Description	Examples	Data Type
sourceId	Source Identification	BP001, RMX001, GS79103 (e.g., pit, plant identification)	String (up to 20 characters)
sourceName	Source Name	John Asphalt, John Asphalt 3 Burnsville, John Plant 7 (e.g., long description of plant name)	String (up to 256 characters)
portable	Portable Plant	See Table SP2061-10 for lookup table for portable plant	String (up to 5 characters)
sourceAddress	Source Address	12345 Marvel Street NW, MN 56738	String (up to 3999 characters)
sourcePhoneNumber	Source Phone Number	777-777-7777	String (up to 20 characters)
Latitude *	Latitude	45.072644	Number
Longitude *	Longitude	-93.868772	Number
spatialReferenceAuthority *	Spatial Reference Authority	EPSG	String (up to 20 characters)
spatialReferenceId *	Spatial Reference Identification	4326	Number
* Provide data when data field is available in MDMS.			

**Table SP2061-10**  
**Lookup Table for Portable Plant \***

<b>Portable Plant Description</b>
Yes – Material is from a portable plant
No – Material is not from a portable plant (i.e., material is from a permanent plant)
* Data block value is provided by database as an identifier.

**Table SP2061-11**  
**Required Hauler Data Fields in Contractor's MDMS for each Data Block**

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118), Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365), and Concrete Paving (MnDOT 2301)	Data Field Required for: Ready-Mixed Concrete (MnDOT 2461)
300	ticketId	Ticket Identification	5126349, 101R, 539-19	String (up to 20 characters)	None	Yes	No
301	sourceId	Source Identification	BP001, RMX001, GS79103 (e.g., pit, plant identification)	String (up to 20 characters)	None	Yes	No
302	loadDateTime *	Loading Date and Time	2007-04-05T12:30:45-02:00	String (up to 40 characters)	Time	Yes	No
303	haulerCompanyName #	Hauler Company Name	Don Key Contracting	String (up to 256 characters)	None	Yes	No
304	brokerName    #	Broker Name	Max E Mumm	String (up to 256 characters)	None	Yes	No
305	truckDotNumber #	Truck DOT Number	US DOT 33136	String (up to 20 characters)	None	Yes	No
306	truckId †	Truck Identification	51.6046, 88tb, T-1, T1	String (up to 256 characters)	None	Yes	No
307	truckDriverClass ‡ #	Truck Driver Classification	See Table SP2061-12	Number	None	Yes	No
308	overweightPermitNumber #	Overweight Permit Number	033I9021331	String (up to 20 characters)	None	Yes	No
309	maximumGrossWt	Maximum Gross Weight	44	Number	Mass	Yes	No

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (MnDOT 2118), Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365), and Concrete Paving (MnDOT 2301)	Data Field Required for: Ready-Mixed Concrete (MnDOT 2461)
310	driverName    #	Driver Name	Stan Dupp	String (up to 256 characters)	None	Yes	No
* Includes UTC offset. Use the following format: YYYY-MM-DDThh:mm:ss±hh:mm.    Data field required only for MTO / ITO. † Truck Identification must match that used with source data in E-Ticket. ‡ Tie truck driver classification to truck identification. # Provide data when data field is available in MDMS.							

**Table SP2061-12**  
**Lookup Table for Truck Driver Classification \***

Format
Tractor Trailer Driver
Four or More Axle Unit, Straight Body Truck
Three Axle Units
Two Axle Unit
* Data block value is provided by database as an identifier.

**Table SP2061-13**  
**Required Loading and Delivery Event Data Fields in Contractor's MDMS for each Data Block**

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (2218)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301)	Data Field Required for: Ready-Mixed Concrete (MnDOT 2461)
400	ticketId	Ticket Identification	5126349, 101R, 539-19	String (up to 20 characters)	None	Yes	Yes	Yes	Yes
401	sourceId	Source Identification	BP001, RMX001, GS79103 (e.g., pit/plant identification)	String (up to 20 characters)	None	Yes	Yes	Yes	Yes
402	loadDateTime *	Loading Date and Time	2007-04-05T12:30:45-02:00	String (up to 40 characters)	Time	Yes	Yes	Yes	Yes
403	geofenceId    ##	Geofence Identification	See Table SP2061-14	String (up to 100 characters)	None	Yes	Yes	Yes	No
404	geofenceType ##	Geofence Type	See Table SP2061-15	String (up to 10 characters)	None	Yes	Yes	Yes	No
405	startDateTime * †	Start Date and Time	2007-04-05T12:30:54-02:00	String (up to 40 characters)	Time	Yes	Yes	Yes	No
406	endDateTime * †	End Date and Time	2007-04-05T12:30:54-02:00	String (up to 40 characters)	Time	Yes	Yes	Yes	No
407	startLatitude †	Start Latitude	47.863023	Number	None	Yes	Yes	Yes	No
408	startLongitude †	Start Longitude	-92.870154	Number	None	Yes	Yes	Yes	No
409	endLatitude †	End Latitude	47.865479	Number	None	Yes	Yes	Yes	No
410	endLongitude †	End Longitude	-93.081257	Number	None	Yes	Yes	Yes	No
411	dumpDateTime * ‡	Dump Date and Time	2007-04-05T12:30:54-02:00	String (up to 40 characters)	Time	No #	Yes §	Yes §	No #
412	dumpLatitude	Dump Latitude	47.858555	Number	None	No #	Yes §	Yes §	No #

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (2218)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301)	Data Field Required for: Ready-Mixed Concrete (MnDOT 2461)
413	dumpLongitude	Dump Longitude	-92.962875	Number	None	No #	Yes §	Yes §	No #
414	dumpMachineId ‡‡	Dump Machine Identification	SX43201J, Mainline Paver	String (up to 256 characters)	None	No #	Yes	Yes	No #
415	spatialReferenceAuthority ‡‡	Spatial Reference Authority	EPSG	String (up to 20 characters)	None	No #	Yes	Yes	No #
416	spatialReferenceId ‡‡	Spatial Reference Identification	4326	Number	None	No #	Yes	Yes	No #
417	startDumpTime * ** ‡‡	Time at Start of Dump (Discharge)	2007-04-05T12:30:54-02:00	String (up to 40 characters)	Time	No	No	Yes	Yes
418	endDumpTime * ** ‡‡	Time at End of Dump (Final Discharge)	2007-04-05T12:30:54-02:00	String (up to 40 characters)	Time	No	No	Yes	Yes
419	durationInTruck **     †† ‡‡	Duration of time in Truck	00:15:30	String (up to 40 characters)	Time	No	No	Yes	Yes
<p>* Includes UTC offset. Use the following format: YYYY-MM-DDThh:mm:ss±hh:mm.</p> <p>   Veta records the Dump Geofence identification per standardized requirements of Table SP2061-14 using the Project–Category Geofences provided by Veta.</p> <p>† Recorded when entering and exiting the Contract and Source Geofences.</p> <p>‡ End of Dump is considered the Dump event for ready-mixed concrete applications as determined by drum rotation sensors.</p> <p># Recorded using Veta as needed.</p> <p>§ Use an automated triggering mechanism to record the Dump Date and Time, and Dump Latitude and Dump Longitude.</p> <p>** Ready-mixed concrete supplier will send startDumpTime, endDumpTime, and durationInTruck to the Contractor's MDMS.</p> <p>    "Duration of time in truck" equals the duration of time between the Time at End of Dump and the Loading Date and Time (durationInTruck = endDumpTime - loadDateTime)</p>									

Reference Field No.	JSON Field Name	Long Description	Examples	Data Type	Unit Category	Data Field Required for: Aggregate (2218)	Data Field Required for: Asphalt Paving (MnDOT 2360, MnDOT 2363, MnDOT 2365)	Data Field Required for: Concrete Paving (MnDOT 2301)	Data Field Required for: Ready-Mixed Concrete (MnDOT 2461)
†† Use the following format: HH:MM:SS. ‡‡ Provide data when data field is available in MDMS.									

**Table SP2061-14**  
**Standardized Naming Convention for Geofence Identification**

Geofence Type	Geofence Identification * (Standardized Naming Convention)	Example(s)
Source	SourceID_CountyName	BP001_StLouis
Contract	ContractID_ProjectID_RouteID_CountyName_GeofenceIncrement    †	CN200078_SP3101-37_TH1_Illasca_01, CN200078_SP6901-29_TH1_StLouis_01, CN200078_SP6931-1_TH73_StLouis_01, CN200078_SP6931-01_TH73_StLouis_02
* Geofence identification is record by the Contractor’s MDMS.    Split the Contract Geofence into smaller subsections for larger contracts to assist with more accurate flow rate calculations and/or with uniform truck counts. † Geofence increment is a two-digit number increasing sequentially (01, 02, 03, ..., n).		

**Table SP2061-15**  
**Lookup Table for Geofence Type \***

<b>Description</b>	<b>Geofence Identification Recorded By: Contractor's MDMS</b>	<b>Geofence Identification Recorded By: Veta   </b>
Contract – Limits of jobsite.	Yes	No
Project–Category – Location where material is delivered (dumped/discharged).	No	Yes
Source – Location where material is loaded.	Yes	No
* Data block value is provided by database as an identifier.    Geofence type is record by Veta using the Dump latitude and longitude recorded by the Contractor's MDMS.		



**B Preconstruction Activities**

**B.1 Source Identification Data**

Enter source identification data per Table SP2061-9 into the Contractor's MDMS, along with other needed startup information.

**B.2 Internet (or Satellite) Connectivity**

Set up internet (or satellite) connectivity at all sources used to provide material to contract.

**B.3 BGeofences**

Contractor will set up the following Geofences in the Contractor's MDMS for MnDOT 2118, MnDOT 2301, MnDOT 2360, MnDOT 2363, and MnDOT 2365.

(1) Source Geofence(s) – Set up Source Geofence to include the road (or area) outside of source limits where trucks queue before entering the source for loading.

(2) Contract Geofence(s)

Contractor will name Geofences using the standardized naming convention per Table SP2061-14.

**B.4 Dump Event**

Set up trigger for recording Dump time and location per requirements of Table 2061-13.

**B.5 Training**

Provide training to Engineer no later than 7 calendar days prior to start of work requiring MDMS.

Training will include instruction and viewing of a minimum of the following:

(1) Contractor's MDMS web- or application-based platforms.

(2) Geofence boundaries and naming conventions used for contract and source.

(3) Data fields included in Contractor's MDMS data collection and export.

(4) Playback of breadcrumb trails.

(5) Example export of Contractor's MDMS data per section S-49.3.A(10).

**C MDMS Data**

Provide Engineer access to the Contractor's MDMS prior to start of delivery of material and until 90 days after final acceptance of all work.

Collect data per requirements of this provision.

**D System Failure**

Notify Engineer when system failure occurs and immediately after resolution of issues. Provide Engineer with resolution to the issues and an acceptable time frame for completing the resolution prior to resuming next day's paving operation.

Source will revert to other means approved by the Engineer, for sharing source data during system failures.

**E Documentation**

Engineer will use paper weight ticket(s) for MnDOT 2118.5, MnDOT 2301.5, MnDOT 2360.5, MnDOT 2363.5, MnDOT 2365.5, MnDOT 2461.5 Basis of Payment and for requirements of the Schedule of Materials Control.

**F Agency MDMS Verification**

Engineer will complete Agency MDMS Verification per the schedule outlined in Table SP2061-16. If data is invalid and/or missing, the Engineer will report the system failure to the Contractor. The Contractor will provide Engineer, by next business day, with a resolution to the issues and an acceptable time frame for completing the resolution.

**Table SP2061-16**  
**Schedule for Agency Verification of MDMS Data**

<b>Material Specification Number</b>	<b>Daily Minimum Department QA/Verification (Acceptance)</b>
MnDOT 2118 (Aggregate Surfacing)	Third Load, then 1 random review per 1,000 tons
MnDOT 2301 (Concrete Pavement)	Third Load, then 1 random review per 300 cubic yards
MnDOT 2360 (Plant Mixed Asphalt Pavement)	Third Load, then 1 random review per 1,000 tons
MnDOT 2363 (PASSRC and PASB)	Third Load, then 1 random review per 1,000 tons
MnDOT 2365 (Stone Matrix Asphalt)	Third Load, then 1 random review per 1,000 tons
MnDOT 2461 (Structural Concrete)	Third Load, then 1 random review per 50 cubic yards

**S-49.4 METHOD OF MEASUREMENT**

The Engineer will measure Material Delivery Management System as a lump sum in accordance with MnDOT 1901.12.

**S-49.5 BASIS OF PAYMENT**

Interruptions in availability of data cellular coverage and/or satellite signals used with this system will not result in adjustments to the "Basis of Payment" for any construction items or to Contract time.

The Contract Unit Price for Material Delivery Management System includes data entry of project information, setup of appropriate MDMS components, system setup to push source data into MDMS, internet or satellite connectivity at permanent and portable sources, setup of Geofences, system monitoring, assigning and distribution of truck asset trackers, monitoring of yields rates recorded by MDMS, remote server storage, cloud-based software accessibility and data package plans.

**A Monetary Adjustment**

The Department must apply Incentives for (2061) Material Delivery Management System. The amounts of these adjustments are deemed reasonable.

- (1) The Department must apply a single lump sum payment of \$5,000 Incentive for Material Delivery Management System when the Contractor provides the following items in addition to the required items for payment: S-49.3.A(2)
- (2) S-49.3.A(11)(b)
- (3) Provides data for the fields identified by note §§ in Table SP2061-1
- (4) Provides data for the fields identified by note \* in Table SP2061-9
- (5) Provides data for the fields identified by note # in Table SP2061-11
- (6) Provides data for the fields identified by note ‡ in Table SP2061-13

The following items are not required for receipt of the monetary adjustment:

- (1) S-49.3.A(8)(e)
- (2) S-49.3.A(9)(a)

Notify the Engineer if these requirements are met.

**B Schedule**

Partial payments for Lump Sum Item 2061.601 (Material Delivery Management System) will be made per Table SP2061-17:

**Table SP2061-17  
Partial Payments Schedule**

When	Percent of Estimated Quantity Completed	Pay Percent of Lump Sum Item
First Pay Estimate	(Blank)	10
Subsequent Pay Estimate *	5	15
Subsequent Pay Estimate *	15	30
Subsequent Pay Estimate *	50	50
Subsequent Pay Estimate *	75	75
Final Acceptance of Submittals	100	100
* Percent of Estimated Quantity Completed is based on the pay quantity where the Material Delivery Management System is required: MnDOT 2360.5, MnDOT 2363.5, and MnDOT 2365.5.		

The Department will pay for Material Delivery Management System on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2061.601	Material Delivery Management System .....	lump sum

**S-50 (2104) REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES (REMOVE AND DISPOSE OF TREATED WOOD)**

**REVISED 06/30/22**

S-50.1 Add the following to MnDOT 2104.3:

F Remove and dispose of treated wood

Reuse the treated wood for its original intended purpose unless the condition of the treated wood is unsuitable for reuse. Replace treated wood damaged during the removal process at no expense to MnDOT.

If the in-place treated wood cannot be reused and the material must be disposed of:

- (1) Furnish a completed Transfer of Ownership form to the Engineer prior to removing treated wood from the Project limits. The Transfer of Ownership form is available at the following website:  
<http://www.dot.state.mn.us/environment/buildingbridge/index.html>.

- (2) Dispose of all waste treated wood in a MPCA permitted Minnesota solid waste or industrial landfill or landfills listed under Landfills/Regulated Waste at <http://www.dot.state.mn.us/environment/buildingbridge/index.html>. Do not dispose of waste treated wood in a demolition landfill.
- (3) Within 30 Calendar days after the treated wood is transported to the landfill, provide the Engineer with shipping manifests, Scale tickets and invoices. Shipping manifests shall include the following information: specify treated wood as the type of waste, quantity of wood, date of hauling and disposal, and location of disposal.

S-50.2 Add the following to MnDOT 2104.5:

The Department will pay for the removal and disposal of treated wood as Extra Work in accordance with 1402.5.

## **S-51 (2104) HAUL SALVAGED MATERIAL**

**REVISED 06/30/22**

### **S-51.1 DESCRIPTION**

This Work consists of loading and hauling salvaged Materials, not required for installation elsewhere under this Contract, to the designated storage area(s) and depositing the Materials to the satisfaction of the Engineer in accordance with MnDOT 2104.

### **S-51.2 MATERIALS – See Standard Specifications for Construction**

### **S-51.3 CONSTRUCTION REQUIREMENTS**

The designated storage area is Fergus Falls Truck Station, 1205 East Douglas Ave. Fergus Falls, MN.

The Contractor shall carefully clean and bundle, if appropriate, the salvaged Materials to the satisfaction of the Engineer prior to loading.

The Contractor shall give the Engineer at least 24 hours' notice before salvaged Materials are to be delivered to the storage area. This will allow arrangements to be made to have a yard man available to accept the salvaged Materials.

It shall be the Contractor's responsibility to neatly stockpile the material at the storage site with his forces as directed by the Engineer.

Salvaged material shall arrive at the storage area in carefully segregated lots so that it can be easily and quickly placed in its proper storage location. The Contractor shall unload the salvaged material and place it at the locations in the yard designated by the yard man.

### **S-51.4 METHOD OF MEASUREMENT**

The Engineer will measure Haul Salvaged Material as a lump sum in accordance with MnDOT 1901.12.

### **S-51.5 BASIS OF PAYMENT**

The Contract Unit Price for Haul Salvaged Material is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Haul Salvaged Material on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2104.601	Haul Salvaged Material .....	lump sum

## **S-52      (2106) EXCAVATION AND EMBANKMENT (COMPACTED VOLUME METHOD)**

**REVISED 10/14/22**

S-52.1      Add the following to the beginning of MnDOT 2106.5:

Embankment, such as required for additional backfilling a muck excavation, may be subject to the provisions of 1402, "Contract Revisions."

S-52.2      Delete and replace the last sentence of MnDOT 2106.5A with:

The Department will make monetary price adjustments for Excavation - Muck in accordance with Table 2106.5-1.

S-52.3      Delete and replace MnDOT Table 2106.5-1 in MnDOT 2106.5A with the following:

**Table 2106.5-1**

### **Monetary Price Adjustments for Excavation – Muck**

#### **Areas Where Muck is Shown in the Plan**

<b>Muck Location</b>	<b>Compensation</b>
For the muck located at a depth between 0 to 5 feet below the Plan Depth	Muck Excavation Unit Price
For the muck located at a depth between 5 to 15 feet below the Plan Depth	Muck Excavation Unit Price plus \$2.00 per cubic yard
For the muck located at a depth greater than 15 feet below the Plan Depth	Negotiated Price

#### **Additional Areas Where Muck is not Shown in the Plan**

<b>Muck Location</b>	<b>Compensation</b>
For the muck located between 0 to 10 feet below the Subgrade Excavation	Muck Excavation Unit Price
For the muck located at a depth greater than 10 feet to 20 feet below the Subgrade Excavation	Muck Excavation Unit Price plus \$2.00 per cubic yard
For muck located at a depth greater than 20 feet below Subgrade Excavation	Negotiated Price

In addition to the monetary price adjustments listed above, compensation for additional muck excavation may be subject to the provisions of MnDOT 1402, "Contract Revisions" if additional shoring, dewatering, requisition of additional disposal site(s) because of increased volume of muck, or additional hauling beyond original disposal site(s), or other related activities are required.

**S-53            (2108) GEOSYNTHETIC CONSTRUCTION MATERIALS**

**REVISED 06/28/24**

S-53.1        Delete and replace note (5) in MnDOT 2108.1 with the following:

(5)        Provide confinement of granular materials.

S-53.2        Add the following to MnDOT 2108.1:

(6)        Provide a geotextile interlayer to concrete pavement.

S-53.3        Add the following to MnDOT 2108.3A:

Do not place Recycled Concrete Aggregate (RCA) within 6 inches of Type 13 geotextile.

S-53.4        Delete and replace MnDOT 2108.3B with the following:

**B            Geotextile**

If multiple pieces of geotextile are required, overlap geotextiles a minimum of 36-inches. In lieu of overlapping, the Contractor may sew the geotextile provided there is a passing Departmental Quality Assurance sewing test prior to installation.

Use a "double spool" machine capable of sewing a Federal Type 401 locking stitch per *ASTM D6193-16, Standard Practice for Stitches and Seams*. Sew a flat, "J," or butterfly seam per *ASTM D6193-16, Standard Practice for Stitches and Seams*, using thread with a minimum strength of 25 pounds, with 1-2 rows of stitching and 5-7 stitches per inch. Meet the required seam strength for the specified geotextile type. Install the geotextile, using the same geotextile, seamstress, thread, and sewing machine as used for the test.

The Contractor may use adhesives listed on the "Geosynthetic products/Adhesive seams" APL in lieu of overlapping or sewing for Types 3, 4, and 5 geotextiles. Apply adhesive per the Adhesive Seams Guidelines found on the "Geosynthetic products/Adhesive seams" APL.

S-53.5        Add the following to MnDOT 2108.3:

**D            Concrete Pavement Geotextile Interlayer**

When a geotextile interlayer for concrete pavement is required, install Type 8 geotextile in accordance with 2301.3F, "Placement on Type 8 Non-woven Geotextile Interlayer."

S-53.6        Delete and replace MnDOT 2108.5 with the following:

The Contract Unit Price for Geosynthetic Construction Materials is compensation in full for Equipment, Materials, and labor required to complete the Work and includes the cost of providing, placing, overlapping, or sewing or gluing, testing, anchoring, and any needed repairs.

The Department will pay for Geosynthetic Construction Material based on the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2108.504	Geotextile Fabric Type * .....	square yard
2108.504	Geogrid Type    .....	square yard

Notes:

\* Specify Type: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13.

|| Specify Type: 1 or 2

## **S-54      (2112) SUBGRADE PREPARATION**

### S-54.1      DESCRIPTION

This Work consists of shaping, mixing, and compacting the Subgrade to address tented joints in the in place concrete pavement after milling in accordance with the General Notes on Sheet 17 of the Plan and MnDOT 2112.

### S-54.2      MATERIALS – See Standard Specifications for Construction

### S-54.3      CONSTRUCTION REQUIREMENTS

Compact the existing subgrade under the tented concrete pavement joint repair areas by "Quality Compaction" Method.

Dispose of excess unsuitable material outside the MnDOT Right-of-way.

### S-54.4      METHOD OF MEASUREMENT

The Engineer will measure the area of Subgrade Preparation.

### S-54.5      BASIS OF PAYMENT

The Contract Unit Price for Subgrade Preparation is compensation in full for Equipment, Materials and labor required to complete the Work, except that any expenses incurred in correcting unstable conditions below the top 6 inches will be compensated as Extra Work in accordance with MnDOT 1402.5.

The Department will pay for Subgrade Preparation on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2112.604	Subgrade Preparation .....	square yard

## **S-55      (2232) MILLED RUMBLE STRIPS**

**REVISED 06/30/22**

### S-55.1      DESCRIPTION

This Work consists of constructing rumble strips in accordance with MnDOT 2232, MnDOT 2355, and MnDOT 1717.

### S-55.2      MATERIALS – See Standard Specifications for Construction

### S-55.3      CONSTRUCTION REQUIREMENTS

#### A      Bituminous Pavement

Milling shall be the only acceptable method of constructing the rumble strips.

Coat rumble strips with an asphalt emulsion fog seal per MnDOT 2355 prior to final striping.

A.1 Corrugated Rumble Strips (Stop Sign)

Rumble strips are to be located in advance of "Stop Ahead" and "Stop" signs as shown in the Plans.

A rumble strip consists of two strips each 5 feet long and one placed in each wheel track.

A.2 Continuous Rectangular and Sinusoidal Rumble Strips

Construct rumble strips within 2 inches of the specified alignment.

The grinding Equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must comply with the specified dimensions in the Plans within 62.5 mil (1/16 inch) in depth and 10 percent in length and width.

Do not construct rumble strips on Structures or approach slabs.

A.3 Intermittent Rectangular and Shoulder Sinusoidal Rumble Strips

Construct rumble strips within 2 inches of the specified alignment.

Do not construct rumble strips on Structures or approach slabs.

B Concrete Pavement

Milling with diamond cutting blades shall be the only acceptable method of constructing the rectangular corrugated rumble strips.

Construct rumble strips within 1 inch of the specified alignment.

The grinding Equipment must be a self-propelled machine equipped with gang stacked diamond cutting blades with controls capable of providing the specified depths following the sinusoidal or rectangular corrugated pattern.

The resulting bottom of the rumble strip shall have a fine corduroy finish. If a coarse tooth pattern is present, increase the number of blades and/or decrease the thickness of the spacers on the cutting head.

The Equipment must also be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must comply with the specified dimensions in the Plans within 62.5 mil (1/16 inch) in depth and 10 percent in length and width.

Do not construct rumble strips on Structures or approach slabs.

S-55.4 METHOD OF MEASUREMENT

For Corrugated Rumble Strips (Stop Sign), the Engineer will measure the number of rumble strips constructed.

For Continuous and Intermittent Rectangular and Sinusoidal Rumble Strips, the Engineer will measure the length of milled rumble strips constructed. Breaks for side streets, entrances, ramps, and turn lanes will be excluded from this measurement.



## S-55.5 BASIS OF PAYMENT

The Contract Unit Price for Milled Rumble Strips is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Milled Rumble Strips on the basis of the following schedule:

Item No.	Item	Unit
2232.603	Milled Rumble Strips .....	linear foot
2232.603	Milled Rumble Strips (Concrete) .....	linear foot
2232.603	Milled Rumble Strips - Intermittent .....	linear foot
2232.603	Milled Rumble Strips-CL .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips (Concrete) .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips - Intermittent .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips (Concrete) - Intermittent .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips-CL .....	linear foot
2232.603	Milled Sinusoidal Rumble Strips Concrete-CL .....	linear foot

**S-56 (2301) CONCRETE PAVEMENT**

REVISED 06/28/24

S-56.1 Delete and replace MnDOT 2301.2B.1(1) and MnDOT 2301.2B.1(2) with the following:

Use Type I or Type I/II cement complying with total alkalis (Na<sub>2</sub>O<sub>e</sub>) no greater than 3.0 pounds per cubic yard of concrete resulting from the Portland cement.

S-56.2 Delete and replace MnDOT 2301.2B.3(1) and MnDOT 2301.2B.3(2) with the following:

Use Type IL, IS or IP cement complying with total alkalis (Na<sub>2</sub>O<sub>e</sub>) no greater than 3.0 pounds per cubic yard of concrete resulting from the Portland cement content of the blend.

S-56.3 Delete and replace MnDOT 2301.2D.1(1) with the following:

- (1) National Weather Service forecast for the construction area predicts air temperatures of 36°F or less within the next 24 hours.

S-56.4 Delete and replace the first paragraph of MnDOT 2301.2L with the following:

The Contractor assumes full responsibility for the concrete mix design and performance of the concrete. Acceptance of concrete is contingent on meeting all specification requirements, including but not limited to requirements related to field placement and performance.

S-56.5 Delete and replace Table 2301.2-4 of MnDOT 2301.2L.1 with the following:

**Table 2301.2-4**  
**Concrete Mix Design Requirements**

Concrete Grade	Estimated Concrete Contract Quantity (yd <sup>3</sup> ) *	Mix Number	Maximum w/c ratio		Minimum Cement Content (lbs/yd <sup>3</sup> )	Cementitious Content (lbs/ yd <sup>3</sup> )	Air Content %	Gradation Requirements	Minimum Aggregate Size Required	Maximum %SCM (Fly Ash/ Slag/ Ternary) †	Slump Range	3137 Spec.
			Fly Ash	Cement Only/ Slag/ Ternary								
A	≥ 3,500	3A21	0.40	0.42	385	475 – 615	7.0	Job Mix Formula	1 1/2" nominal	33/35/40	½ - 2" ‡	2D.3
		3A41	0.40	0.42							2 – 5"	
	< 3,500 and Minor Work and fill-ins not provided by the primary paving plant #	3A21S	0.42	0.42	385	475 – 615	7.0	3126 and Table 3137-4 Or Job Mix Formula	3/4" nominal	33/35/40	½ - 2" ‡	2D.3
		3A41S	0.42	0.42							2 – 5"	
		3A42 §	0.42	0.42	385	475 – 615	7.0	3126 and Table 3137-4	3/4" nominal	33/35/40 §	2 – 5"	
	Engineer Approved or Plan Allowed High-Early	3A21HE **	0.40	0.42	385	> 475 – 750	7.0	3126 and Table 3137-4 Or Job Mix Formula	3/4" nominal	33/35/40	½ - 2" ‡	2D.3
		3A41HE **	0.40	0.42							2 – 5"	

\* Determined by multiplying the planned pavement area by the planned pavement thickness.

|| Provide additional cementitious material to meet requirements in accordance with this section at no additional cost to the Department.

† Refer to Table 2301.2-2 and Table 2301.2-3 for ASR mitigation requirements.

‡ Adjust slump in accordance with 2301.3E.1, "Consistency."

# The 5<sup>th</sup> digit "S" indicates the concrete is for a small concrete paving Project or delivered from a secondary concrete plant for minor Work or fill-ins. The Concrete Engineer considers minor Work or fill-ins as gaps in concrete pavement, turn lanes, Intersections, or other pavement sections as determined by the Engineer, in conjunction with the Concrete Engineer.

§ The Concrete Engineer will allow a non-Project specific 3A42 mix design provided by a MnDOT certified ready-mix plant submitted in accordance with the first two paragraphs of 2461.2F.3, "Submittal Requirements." If the sand source requires mitigation with a minimum of 30% Class C fly ash in accordance with Table 2301.2-2, the Concrete Engineer will require a minimum of 30% Class C fly ash, 30% Class F fly ash, or 35% slag for all 3A42 mixes.

\*\* The Contractor may use 100% Portland cement for High Early Concrete, provided no mitigation is required for the fine Aggregate and intermediate Aggregate in accordance with Table 2301-2 and coarse Aggregate in accordance with Table 2301.2-3. If mitigation is required, the Contractor is required to use a minimum of 15% of any supplementary cementitious material when designing High Early Concrete. The Contractor may use 100 percent Portland cement for any concrete, provided no mitigation is required for the fine Aggregate or intermediate Aggregate in accordance with Table 2301.2-2 or the coarse Aggregate in accordance with Table 2301.2-3. If mitigation is required, the Contractor is required to use a minimum of 15 percent of any supplementary cementitious Material.

S-56.6 Delete and replace MnDOT 2301.2L.2 with the following:

Design Grade A concrete mixes based on an absolute volume of 27.00 cubic feet and a target air content of 7.0 percent.

At least 21 Calendar Days before initial placement of the concrete, submit the appropriate Project specific mix design form to the Concrete Engineer for review. When required by **Error! Reference source not found.**, include a job mix formula in accordance with **Error! Reference source not found.**, "Job Mix Formula." Use the most current forms, specific gravity, and absorption data available from the MnDOT Concrete Engineering website.

MnDOT will review the Contractor's proposed mix design solely for compliance with the applicable mix design properties in Table 2301.2-4 and Table 2301.2-5. The Department makes no guaranty or warranty, either express or implied, that compliance with mix design properties ensures compliance with any other requirements.

S-56.7 Delete and replace the third and fifth paragraphs of MnDOT 2301.3B.3 with the following:

In conjunction with the Engineer, perform a thorough on-site inspection of the concrete plant and complete MnDOT Form 2164, *Contact Report - Paving*. Sign the report to certify compliance with the paving requirements and to certify review of the continual maintenance of the plant.

If concrete is provided by a certified ready-mix plant, complete MnDOT Form 2164, "Contact Report - Addendum Ready-mix Paving" in accordance with 2301.3B.3.b "Certified Ready-mix Plant Lab - Office Requirements."

S-56.8 Delete and replace MnDOT 2301.3B.3.a(12)(e) with the following:

(e) A 4 burner 30-inch standard stovetop or stove and at least 2 additional burners to perform required Aggregate testing per the *Schedule of Materials Control*

S-56.9 Delete and replace MnDOT 2301.3B.3.b(4) with the following:

(4) At least 6 burners to perform required Aggregate testing per the *Schedule of Materials Control*

S-56.10 Delete and replace MnDOT 2301.3B.4(2) with the following:

(2) All Contractor plastic air content tests in the Air Content Charting chart

S-56.11 Add the following to the fourth paragraph of MnDOT 2301.3C.1:

(12) MnDOT Designation Plant/Unit Number (CPAV###)

(13) MnDOT Approved Sheet Number (JMF##-###)

S-56.12 Delete and replace the second and third paragraphs of MnDOT 2301.3C.2 with the following:

Test and record the individual gradation results using the QC - JMF Concrete Aggregate Report.

Calculate the moving average of 4 Contractor Aggregate gradation test results during production using the JMF Moving Average Summary workbook.

S-56.13 Delete and replace MnDOT 2301.3C.2.b with the following:

**C.2.b Department Verification of JMF**

The Engineer will randomly verify the Contractor combined Aggregate gradation results as defined in the Schedule of Materials Control.

If the individual fraction on any split sample results in a variation between the Contractor and the Engineer greater than that set forth in Table 2301.3-2, the parties shall follow the procedures for test result dispute resolution available from the Laboratory Manual.

**Table 2301.3-2**  
**Allowable Variations on Percent Passing Sieves**

Sieve Size	Allowable Percentage
2 inch – 1 inch	±8
3/4 inch – 3/8 inch	±6
No. 4 – No. 40	± 4
No. 50	±3
No. 100	±2
No. 200	±0.6

S-56.14 Delete and replace the first sentence of MnDOT 2301.3C.3 with the following:

The Engineer will use the Contractor's combined Aggregate gradation (JMF) test results (QC and Verification) documented in the QC - JMF Concrete Aggregate Workbook, as verified by the Engineer in accordance with 2301.3C.2.b, "Department Verification of JMF," to determine eligibility for the Incentive in accordance with 2301.5I.1, "Optimized Aggregate Gradation Incentive."

S-56.15 Delete and replace MnDOT 2301.3C.5 with the following:

**C.5 Water/Cement (W/C) Ratio**

Provide and place concrete with a water/cement ratio not to exceed 0.40 when using fly ash and 0.42 when using cement only, slag or ternary. Make any adjustments immediately when the water/cement ratio exceeds 0.40 when using fly ash and 0.42 when using cement only, slag or ternary.

S-56.16 Add the following to MnDOT 2301.3C.6:

The Engineer will base the statistical analysis of acceptance for water/cement ratio on a per lot basis representing one day's paving. Each individual water/cement ratio determination is considered a subplot. The lot will represent the cumulative average of the subplot values. The Engineer will start a new lot and test if either of the following occurs:

- (1) Mix design change due to a water/cement ratio test result exceeding 0.40 when using fly ash and 0.42 when using cement only, slag or ternary, or
- (2) Cementitious type change in the mix design.

If the quantities of concrete produced result in no Engineer moisture testing for any given day, include the untested quantity of concrete into the next day's production and include that quantity of concrete in the sampling rate. If the untested quantity is on the last day of production, add that quantity to the previous day's production.

S-56.17 Delete and replace MnDOT 2301.3C.8.a with the following:

C.8.a BLANK

S-56.18 Delete and replace the sixth paragraph of MnDOT 2301.3F with the following:

Set frame and ring castings to the elevation shown on the Plans during the paving operations. Do not form "box-outs" of castings unless approved by the Engineer. Placement of ring castings not to exceed 1/4 inch higher than the final pavement surface. Adjust frame castings to provide positive drainage not to exceed 1/4 inch lower than the final pavement surface.

S-56.19 Delete and replace the first sentence of MnDOT 2301.3F.5 with the following:

Use any approved construction header method as shown in the Standard Plan 5-297.221 when constructing construction headers, terminal headers, and permanent headers as shown on the Plans.

S-56.20 Delete and replace MnDOT 2301.3F.6.b with the following.

F.6.b BLANK

S-56.21 Delete and replace the third paragraph of 2301.3G with the following:

Construct tied longitudinal joints in accordance with the following:

- (1) Provide and place straight tie bars on chairs, in stakes, utilizing tie bar basket assemblies, or by appropriate Equipment for depressing the bars to the specified location as shown on the Plans.
- (2) For slipform paving, stake the tie bar steel to the Roadbed or use a mechanical device attached to the spreader or paver to place tie bar steel required for L1T joints as shown on the Plans. Space and depress the tie bar steel to the depth and location shown on the Plans. Do not place tie bars within 18 inches of transverse contraction joints.
- (3) Keyway use is optional for fixed form construction of any thickness or for slipform construction with a pavement design thickness of 10 inches or greater.
- (4) Use of keyway for any other applications requires approval by the Engineer.
- (5) If the Contractor would like to install tie bars without a mechanical device, demonstrate the process to the Engineer for review and approval.
- (6) If any processes for inserting tie bars causes distortion, damage, or cracking to the concrete surface or edge, the Engineer will require the Contractor to discontinue the tie bar placement method and drill and grout the remaining tie bars until an acceptable method is approved by the Engineer.

S-56.22 Add the following to MnDOT 2301.3H:

If dowel bars are not pre-coated with a manufacturer-applied bond breaker material or the coating has rubbed off, coat the dowel bars with a uniform coating of Material in accordance with 3902, "Form Coating Material," with the approval of the Engineer.

S-56.23 Delete the third paragraph of MnDOT 2301.3H.1.

S-56.24 Delete the second paragraph of MnDOT 2301.3H.2.

S-56.25 Delete and replace MnDOT 2301.3I with the following:

**I Definition of a Lot and Sublot for Concrete Field Testing**

The Engineer will select random locations for lots for concrete field testing as defined in the *Schedule of Materials Control*.

S-56.26 Delete and replace the first paragraph of MnDOT 2301.3J.4 with the following:

If a dowelled contraction joint has dowel bars out of acceptable alignment during placement in accordance with 2301.3J.3, "Alignment Tolerances," and the Standard Plan 5-297.221, scan both upstream and downstream from the misaligned transverse dowelled joints, from concrete placed in the same operation, until at least 3 joints comply.

S-56.27 Delete and replace MnDOT 2301.3K.1.a with the following:

**K.1.a Texture Testing**

The Engineer will identify the texture testing locations in accordance with the Schedule of Materials Control. The Engineer will verify the volume of the Contractor's testing container prior to the performing texture testing. The Engineer will use the MnDOT Thickness, Texture and MIT SCAN workbook to determine the random texture locations and will provide the Concrete Texture report to the Contractor before the start of paving.

Perform surface texture testing of the concrete pavement in the presence of the Engineer and provide the test results to the Engineer no later than 48 hours after pavement placement unless otherwise approved by the Engineer.

S-56.28 Delete and replace MnDOT 2301.3L.1 with the following:

**L.1 Thickness Evaluation Procedure**

The Engineer will evaluate each differing concrete pavement thickness required on the Project in accordance with the following:

- (1) Through random quality control probing (QCP) or quality control scanning (QCS) and quality acceptance coring (QAC) measurements.
- (2) Identify the thickness measurement using the MnDOT *Thickness, Texture and MIT-SCAN* workbook to determine the random testing locations in accordance with the *Schedule of Materials Control*.
- (3) Provide the field probing or scanning report generated from the MnDOT *Thickness, Texture and MIT-SCAN* workbook to the Contractor before the start of paving.
- (4) Adjust the location to ensure no measurements are taken within 1 foot of the pavement edge and within 4 feet of any transverse or longitudinal joint or other obstructions. If the pavement is placed to a variable cross-section thickness, adjust the location to within 2 feet of the outside lane edge.

S-56.29 Delete the third paragraph of MnDOT 2301.3L.2.

S-56.30 Delete and replace the first paragraph of MnDOT 2301.3.L.2.c with the following:

If a final individual probe or scan measurement shows a thickness deficiency greater than 1/2 inch from Plan thickness, take a quality control core (QC Core) at the probe or scan location to determine if the pavement is defective.

S-56.31 Delete and replace MnDOT 2301.3L.3, "Quality Acceptance Testing - Coring" with the following:

**L.3 Quality Acceptance Testing – Coring**

After concrete pavement placement, the Engineer will mark the QAC core locations in accordance with the *Schedule of Materials Control*. The Engineer will also mark any QC Core locations identified by QCP or QCS testing showing a thickness deficiency greater than 1/2 inch from Plan thickness.

The Contractor will core all marked locations.

The Engineer will allow coring after the concrete meets the requirement of 2301.3O, "Opening Pavement to Traffic." Use 3U58M concrete or another concrete mix approved by the Engineer to fill the core holes within 72 hours of coring at no additional cost to the Department. Provide traffic control for coring.

Cut 4-inch Nominal diameter cores at marked locations. Lay the cores next to the holes in a curing condition. Take precautions to ensure the quality of cores. The Engineer will not accept cores out of round, not perpendicular, or containing ridges.

The Engineer will field measure the core thickness to the nearest 1/8 inch, verify (field ID number) the cores, and record the field measurement on the field coring report generated from the MnDOT Thickness, Texture and MIT-SCAN workbook.

The Engineer will pick up the cores from the pavement and submerge the cores in a water tank maintained at a temperature from 60°F to 80°F at the Department field office for at least 28 Calendar Days after concrete placement.

The Engineer will transport the cores in a curing condition, unless older than 28 Calendar Days, to the MnDOT Office of Materials and Road Research.

The MnDOT Office of Materials and Road Research will determine the final pavement thickness by measuring the length of the cores (QC Core and QAC cores) using nine probe testing devices to obtain the average length of the core in one operation. The Department will report the lab measured core length to the nearest 0.05 inch. The Individual lab measured cores may require exploratory coring in accordance with 2301.3L.4, "Final Evaluation of Thickness Measurements."

After Department thickness verification, the Department will test the cores for compressive strength at 60 Calendar Days of age for information only. The Department will test 3 of the cores from the entire Project for rapid chloride permeability (RCP) in lieu of compressive strength testing for information only, unless otherwise directed by the Concrete Engineer.

S-56.32 Delete and replace MnDOT 2301.3L.4, "Evaluation of Cores to Determine Acceptance," with the following:

**L.4 Final Evaluation of Thickness Measurements**

The Engineer will evaluate the MnDOT lab measured thickness cores and QCS scans to determine the final average thickness for each Plan thickness (PT) in accordance with Table 2301.3-6. If all cores and scans meet the design Plan thickness requirements of the Project, the Engineer will consider the final average core thickness for each Plan thickness acceptable.

**Table 2301.3-6  
Concrete Pavement Thickness**

<b>Individual Lab Measured Cores and QCS Scans</b>	<b>Exploratory Coring Required</b>	<b>Resolution</b>
≥ PT	No	The Engineer will evaluate in accordance with 2301.5I.5.b, "Final Average Thickness"
≤ PT – 1/2 inch	No	The Engineer will evaluate in accordance with 2301.5I.5.b, "Final Average Thickness"
> PT – 1/2 inch to 1 inch	2301.3L.5, "Exploratory Coring"	The Engineer will evaluate in accordance with 2301.5I.5.a(1), "Defective Pavement Area > 1/2 inch to 1 inch"
> PT – 1 inch	2301.3L.5, "Exploratory Coring"	The Engineer will evaluate in accordance with 2301.5I.5.a(2), "Defective Pavement Area > 1 inch"

S-56.33 Delete and replace the fourth paragraph of MnDOT 2301.3N.2 with the following:

Immediately after completing the wet-cut sawing of the joints, use water under nozzle pressure to remove the sawing residue from each joint and the pavement surfaces. Immediately after completing early-entry sawing of the joints, use air blasting to remove the sawing residue from each joint.

S-56.34 Delete and replace the first paragraph of MnDOT 2301.3O with the following:

Do not open a new pavement slab to general public traffic or operate paving or other heavy Equipment on it for 7 Calendar Days, or until the concrete has reached a minimum flexural strength of 300 pounds per square inch, or minimum compressive strength of 2,000 pounds per square inch; whichever occurs first.

S-56.35 Delete Table 2301.3-7 from 2301.3O.

S-56.36 Delete and replace the third paragraph of MnDOT 2301.3O with the following:

Cast and cure the field control specimens in accordance with 2461.3G.5.d, "Strength Specimens for Concrete Paving." Provide moist curing environments in accordance with 2461.3G.5.b(2), "Moist Curing Environment." The Engineer will test the field control specimens for flexural strength in accordance with the Concrete Manual or compressive strength in accordance with 2461.3G.5.c, "Field Control Strength Cylinders."

S-56.37 Delete and replace 2301.3O.1 with the following:

**O.1 Early Opening of Pavement to Traffic**

For earlier opening to general public traffic as required by the Engineer, the Engineer will allow the Contractor to design and construct a section of pavement of High-early strength concrete in accordance with 2301.2-4 at important Road crossings, Intersections, driveway entrances, or other locations as shown on the Plans or directed by the Engineer.



S-56.38 Delete and replace 2301.3Q.1 with the following:

**Q.1 Random or Uncontrolled Cracking**

Repair or replace pavement with random or uncontrolled cracks as directed by the Engineer, in conjunction with the Concrete Engineer. Submit the intended repair technique to the Engineer for approval. Perform pavement repairs at no additional cost to the Department. If the repair fails, replace the pavement at no additional cost to the Department. The Engineer will accept repairs in accordance with 1516, "Acceptance."

S-56.39 Delete and replace 2301.4G with the following:

**G Supplemental Pavement Reinforcement**

The Engineer will measure supplemental pavement reinforcement by weight.

S-56.40 Delete and replace Table 2301.5-2 of MnDOT 2301.5I.2 with the following:

**Table 2301.5-2  
W/C Ratio Incentive/Disincentive**

When using fly ash		When using cement only, slag or ternary	
W/C Ratio Lot Result	Incentive/Disincentive per cubic yard*	W/C Ratio Lot Result	Incentive/Disincentive per cubic yard*
≤ 0.37	+\$3.00	≤ 0.39	+\$3.00
0.38	+\$1.75	0.40	+\$1.75
0.39	+\$0.50	0.41	+\$0.50
0.40	\$0.00	0.42	\$0.00
0.41	-\$0.50	0.43	-\$0.50
0.42	-\$1.75	0.44	-\$1.75
≥ 0.43	The Engineer, in conjunction with the Concrete Engineer, will determine the concrete suitability for the intended use in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work." This may include testing on the hardened concrete.	≥ 0.45	The Engineer, in conjunction with the Concrete Engineer, will determine the concrete suitability for the intended use in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work." This may include testing on the hardened concrete.

\*Apply Incentive/Disincentive for Concrete Pavement based on the theoretical volume of concrete used by multiplying the measured square yard of concrete by the thickness shown on the Plans. Apply Incentive/Disincentive for Structural Concrete based on the daily cubic yards batched of Structural Concrete as verified by the computerized batch ticket printouts from the plant, with consideration of any waste.

S-56.41 Delete and replace the title of MnDOT 2301.5I.5.a(1) with the following:

I.5.a(1) Defective Pavement Area > 1/2 inch to 1 inch

S-56.42 Delete and replace MnDOT 2301.5I.5.b with the following:

**I.5.b. Final Average Thickness**

The Engineer will determine the final average thickness using all of the cores and scans for each separate Plan thickness, except under the following conditions:

- (1) Exploratory cores taken to identify the defective pavement area, the Engineer will exclude the cores within the defective pavement area from the final average thickness calculation and substitute the two outside exploratory cores that are within Plan thickness minus 1/2 inch for the defective pavement area.
- (2) The length of core or scan exceeds the Plan thickness plus 0.30 inch, the Engineer will limit the core or scan length to the plan thickness plus 0.30 inch.
- (3) All cores and scans meet the design Plan thickness.
- (4) If the final average thickness for each Plan thickness is deficient by more than the Plan thickness minus 0.10 inch, the Department may apply the monetary deduction to the Plan thickness in accordance with Table 2301.5-5.

**S-57      (2301) DRILL AND GROUT DOWEL BAR (EPOXY COATED)****REVISED 09/29/23****S-57.1      DESCRIPTION**

This Work consists of furnishing, drilling, grouting, and inserting epoxy coated dowel bars in accordance with the detail shown on Sheet No. 34 of the Plans and MnDOT 2301.

**S-57.2      MATERIALS**

Epoxy Coated Dowel Bars .....MnDOT 3302

Non-shrink Grout or Epoxy Adhesive...Non-shrink Grouts or Epoxies (non-bridge applications) APL

**S-57.3      CONSTRUCTION REQUIREMENTS**

Inject the non-shrink grout or epoxy in the back of the hole in accordance with the Manufacturers recommendations.

**S-57.4      METHOD OF MEASUREMENT**

The Engineer will measure the number of epoxy coated dowel bars placed.

**S-57.5      BASIS OF PAYMENT**

The Contract Unit Price for Drill and Grout Dowel Bar (Epoxy Coated) is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Drill and Grout Dowel Bar (Epoxy Coated) on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2301.602	Drill and Grout Dowel Bar (Epoxy Coated) .....	each

**S-58      (2357) BITUMINOUS TACK COAT****REVISED 01/27/23**

- S-58.1      Delete and replace the Emulsified Asphalt section of MnDOT 2357.2A with the following:

Emulsified Asphalt

AASHTO M 208, "Standard Specification for Cationic Emulsified Asphalt," dilution of the emulsion is only allowed by the supplier. No field dilution is allowed. The storage tank for diluted emulsion must have a recirculation system or agitator that will prevent settlement or separation of the Material.

**Table 2357.2-1**  
**Residual Asphalt Content**

Emulsion	Minimum Residual Asphalt Content		
	Undiluted	Diluted (7:3), D30	Diluted (8.5:1.5), D15
CSS-1 or CSS-1h	57 percent	40 percent	N/A
CQS-1h	N/A	N/A	53 percent

S-58.2 Delete and replace Table 2357.3-1 in MnDOT 2357.3D with the following:

**Table 2357.3-1**  
**Tack Coat Application Rates**

Material Type Surface Type	Application Rates – gallon/square yard			
	CSS-1 or CSS-1h Undiluted Emulsion	CSS-1 or CSS-1h Diluted* Emulsion (7:3), D30	CQS-1h Diluted* Emulsion (8.5:1.5), D15	MC    Cutback
New Asphalt	0.04 to 0.06	0.06 to 0.09	0.05 to 0.07	0.05 to 0.07
Old Asphalt† and PCC	0.05 to 0.09	0.07 to 0.135	0.08 to 0.10	0.09 to 0.11
Milled Asphalt and Milled PCC	0.06 to 0.09	0.09 to 0.135	0.09 to 0.11	0.09 to 0.11
Notes: * As provided by the asphalt emulsion supplier (see 2357.2A, "Bituminous Material")    Use when approved by the Engineer † Older than 1 year				

S-58.3 Delete and replace MnDOT 2357.5A with the following:

**A Monetary Adjustments**

The Department must apply Incentives and Disincentives and may apply monetary deductions for Bituminous Tack Coat. The amounts of these adjustments are deemed reasonable.

The Engineer in conjunction with the Bituminous Engineer may deduct up to 5 percent of the mixture Unit Price for failures related to 3151, "Bituminous Material".

**S-59 (2360) PLANT MIXED ASPHALT PAVEMENT**

**REVISED 09/27/24**

S-59.1 Delete and replace Table 2360.1-1 of MnDOT 2360.1B(4) with the following:

**Table 2360.1-1  
Traffic Levels**

<b>Traffic Level</b>	<b>20 year Design ESALs</b>
2 *	< 1
3	1 – < 3
4	3 – < 10
5	10 – ≤ 30
6	>30 (See SMA Provision)
NOTE: The requirements for gyratory mixtures in this section are based on the 20 year design traffic level of the Project, expressed in Equivalent Single Axle Loads (ESALs) $1 \times 10^6$ ESALs * AADT < 2,300    AADT > 2,300 to < 6,000	

S-59.2 Delete and replace the first paragraph of MnDOT 2360.2E.5.a(2)

At least 7 Working Days before the start of asphalt production, submit the proposed job mix formula (JMF) in writing and signed by a MnDOT Certified Bituminous Mix Designer for each combination of Aggregates to be used in the mixture. Include test data to demonstrate conformance to mixture properties as specified in Table 2360.2-4, and 3139.2, "Graded Aggregate for Bituminous Mixtures, Requirements." Use forms approved by the Department for the submission.

S-59.3 Delete and replace the first paragraph of MnDOT 2360.2E.5.b with the following:

The Contractor may use the modified mixture design if testing shows that the Aggregates meet the requirements of 3139.2, "Graded Aggregate for Bituminous Mixtures, Requirements," in the current construction season and if the MnDOT Certified Bituminous Mix Designer submitting the mixture design has at least 2 years' experience in mixture design. The Department will not require mixture submittal.

S-59.4 Delete and replace MnDOT 2360.2E.5.b(2) with the following:

**E.5.b(2) JMF Submittal**

At least 2 Working Days before beginning asphalt production, submit a proposed JMF in writing to the District Materials Laboratory signed by a MnDOT Certified Bituminous Mix Designer for each combination of Aggregates. For each JMF submitted, include documentation in accordance with 2360.2E.5.a, "Option 1 – Laboratory Mixture Design," to demonstrate conformance to mixture properties as specified in Table 2360.2-4 and Table 3139.2-3. Submit the JMF on forms approved by the Department.

S-59.5 Delete and replace the first paragraph of MnDOT 2360.2E.5.c with the following:

A production mixture design is a new mixture design developed by modifying an existing approved mixture design using plant produced Material or laboratory produced Material. Production mixture designs are allowed only when approved by the Engineer and require an interactive process with the District Materials Laboratory to discuss the proposed modification. Only a MnDOT Certified Bituminous Mix Designer with at least 2 years' experience in mixture design can request a production mixture design.

S-59.6 Delete and replace the first paragraph of MnDOT 2360.2E.5.c(2) with the following:

At least 2 Working Days before beginning asphalt production with the Option 3 mix design begin the interactive process with the District Materials Engineer and submit a proposed JMF. Option 3 mix design submittals must be signed by a MnDOT Certified Bituminous Mix Designer. If directed by the District Materials Engineer submit an optimum asphalt content point for the proposed JMF (new design). If the Option 3 mix design is utilized for Aggregate substitution submit an optimum asphalt content point when directed by the District Materials Engineer. When an optimum asphalt content point is required include documentation showing the mixture is in accordance with 2360.2E.5.b, "Option 2 – Modified Mixture Design," and meets the requirements of Table 2360.2-4.

S-59.7 Delete and replace the second paragraph of MnDOT 2360.2F with the following:

Show the JMF limits for gradation control Sieves in accordance with Aggregate gradation broadbands shown in Table 3139.2-2, percent asphalt binder content, air voids, and adjusted AFT. If the Department issues a Mixture Design Report, this report only confirms that the Department reviewed the mixture and that it meets volumetric properties shown in Table 2360.2-4 and Table 2360.2-5. The Department makes no guaranty or warranty, either express or implied, that compliance with volumetric properties ensures Specification compliance regarding placement and compaction of the mixture, or any other requirements.

S-59.8 Delete and replace 2360.2G.2(1) with the following:

(1) Conduct QA and verification testing

S-59.9 Delete and replace the first paragraph of MnDOT 2360.2G.3 with the following:

The Engineer will obtain at least one random verification sample per day per mix type from behind the paver or from the truck box. At least once per day, the Engineer will randomly determine when the mixture sample will be sampled. The Engineer will observe the Contractor sampling and splitting this QA-Verification sample and take immediate possession of the sample after it is split. The split of this sample, given to the Contractor, must be tested by the Contractor and will replace the next scheduled QC sample. Sample enough Material to accommodate retesting in case the samples fail.

S-59.10 Delete and replace the second paragraph of MnDOT 2360.2G.4.a with the following:

Provide QC technicians certified as a Bituminous Plant Tester meeting the requirements of the MnDOT Technical Certification Program for QC testing and a MnDOT Bituminous Mix Designer to make process adjustments. Provide at least one person per paving operation certified as a Bituminous Street Inspector.

S-59.11 Delete and replace the second paragraph of MnDOT 2360.2G.4.b with the following:

If coarse and fine Aggregate angularity are not evaluated for every QC sample retain the extracted gradation samples for the respective QC samples for additional testing. Keep the Aggregate samples in containers with field identification labels for a period of 10 Calendar Days. The Engineer will identify which extracted gradation sample is the verification companion and test for coarse and fine Aggregate angularity.

S-59.12 Delete and replace the second paragraph of MnDOT 2360.2G.7.g with the following:

The Contractor may test mixtures containing only virgin Aggregates from composite belt samples. Test mixtures containing RAP from extracted Aggregates taken from standard production samples.

S-59.13 Delete and replace the second paragraph of MnDOT 2360.2G.13.a with the following:

A Certified MnDOT Bituminous Mix Designer will review the requested change for the Department. If the request meets the design requirements in Table 3139.2-2, Table 3139.2-3, and Table 2360.2-4, the Department will issue a revised Mixture Design Report. Each trial mixture design submittal in accordance with 2360.2E, "Mixture Design," may have three JMF adjustments per mixture per Project without charge.

S-59.14 Delete and replace the first paragraph of MnDOT 2360.5B.6 with the following:

If the individual test result for adjusted AFT is less than 7.5 microns, the Department may either apply monetary deductions in accordance with Table 2360.5-2 or order the Material removed and replaced represented by the individual test. This tonnage includes all Material placed from the sample point of the failing test to the sample point when the test result meets Specification requirements. If the failure occurs at the first test after the start of daily production, the Engineer may include the tonnage from the start of production that day with the tonnage subject to monetary deduction or removal and replacement.

S-59.15 Delete and replace Table 2360.5-2 of MnDOT 2360.5B.6 with the following:

**Table 2360.5-2**  
**Monetary Deduction Schedule for Individual Test Results, Adjusted AFT**

<b>Individual Adjusted AFT, microns</b>	<b>Monetary Deduction, percent</b>
≥ 7.5	0
7.4 – 7.0	10
6.9 – 6.1	25
≤ 6.0	Remove and replace at no expense to the Department.

S-59.16 Delete and replace the second paragraph of MnDOT 2360.5B.10 with the following:

The Engineer will calculate the moving average (n=4) Adjusted AFT during the sixth test after the beginning of mixture production of that specific mixture. The Engineer will include the individual results of calculations for tests No. 3, No. 4, No. 5, and No. 6 with this calculation. The Department may consider Material with the moving average (n=4) of the Adjusted AFT is less than 8.0 microns as unsatisfactory and apply monetary deductions of 80 percent of the relevant Contract Unit Price. The Department may calculate the quantity of Material subject to replacement or monetary deductions as the tons placed from the sample point of all Individual Adjusted AFT results less than 8.0 micrometers, which contributed to the moving average value that was less than 8.0 microns, to the sample point where the Individual Adjusted AFT is at least 8.0 microns. If the failure occurs at the first test after the start of daily production, the Engineer will include the tonnage from the start of production that day with the tonnage subject to monetary deductions.

S-59.17 Delete and replace Table 2360.5-6 of MnDOT 2360.5B.13 with the following:

**Table 2360.5-6**  
**Incentive and Disincentive for Longitudinal Joint Density, 4% Design Void\***

Longitudinal Joint (Confined Edge) Density, percent	Pay Factor B Longitudinal (Confined Edge)		Longitudinal Joint (Unsupported Edge) Density, percent	Pay Factor C (Unsupported Edge)	
	Traffic Level 2 & 3	Traffic Level 4 & 5		Traffic Level 2 & 3	Traffic Level 4 & 5
≥ 92.6	1.02†	1.03†	≥ 91.5	1.02†	1.03†
92.0 – 92.5	1.01†	1.02†	90.5 – 91.4	1.01†	1.02†
91.0 – 91.9	1.00	1.00	89.5 – 90.4	1.00	1.00
89.5 – 90.9	0.98	0.98	88.0 – 89.4	0.98	0.98
88.0 – 89.4	0.95	0.95	86.5 – 87.9	0.95	0.95
87.0 – 87.9	0.91	0.91	85.0 – 86.4	0.91	0.91
< 87.0	0.85	0.85	< 85.0	0.85	0.85
* The Department will limit incentive payment for longitudinal joint density to lots with evaluated longitudinal joint densities.    Calculate the percent of maximum specific gravity to the nearest tenth. † Payment will only apply if the day's weighted average individual production air voids fall within - ½ percent of the target air void value. Base the weighted average air voids on all the mixture production tests in accordance with 2360.2.G.7, "Production Tests" for the corresponding day and weight by the tons the corresponding test represents.					

S-59.18 Delete and replace Table 2360.5-7 of MnDOT 2360.5B.13 with the following:

**Table 2360.5-7**  
**Incentive and Disincentive Schedule for Longitudinal Joint Density, 3 percent Design Void\***

Longitudinal Joint (Confined Edge) Density, percent	Pay Factor B Longitudinal (Confined Edge)		Longitudinal Joint (Unsupported Edge) Density, percent	Pay Factor C (Unsupported Edge)	
	Traffic Level 2 & 3	Traffic Level 4 & 5		Traffic Level 2 & 3	Traffic Level 4 & 5
≥ 93.6	1.02†	1.03†	≥ 93.0	1.02†	1.03†
93.0 – 93.5	1.01†	1.02†	92.0 – 92.9	1.01†	1.02†
92.0 – 92.9	1.00	1.00	90.5 – 91.9	1.00	1.00
90.5 – 91.9	0.98	0.98	88.0 – 90.4	0.98	0.98
89.0 – 90.4	0.95	0.95	87.0 – 87.9	0.95	0.95
88.0 – 88.9	0.91	0.91	86.0 – 86.9	0.91	0.91
< 88.0	0.85	0.85	< 86.0	0.85	0.85
* The Department will limit incentive payment for longitudinal joint density to lots with evaluated longitudinal joint densities.    Calculate the percent of maximum specific gravity to the nearest tenth. † Payment will only apply if the day's weighted average individual production air voids fall within ½ percent of the target air void value. Base the weighted average air voids on all the mixture production tests in accordance with 2360.2.G.7, "Production Test" for the corresponding day and weight by the tons the corresponding test represents.					

**S-60            (2363) PASSRC AND PASB****NEW 06/30/22**

S-60.1        Add the following to MnDOT 2363.2B:

Bituminous Tack Coat .....MnDOT 2357

S-60.2        Add the following to MnDOT 2363.3B:

Tack surface of inplace pavement in accordance with 2357.

**S-61            (2399) PAVEMENT SURFACE SMOOTHNESS****REVISED 12/29/23**

S-61.1        Delete and replace Table 2399.3-1 of MnDOT 2399.3B with the following:

**Table 2399.3-1**  
**Areas Excluded from Smoothness Evaluation**

<b>Pavement</b>	<b>Excluded Areas</b>
Bituminous or concrete	Paving in areas with a posted vehicle speed less than or equal to 45 mph
	Ramps, Loops
	Acceleration and deceleration lanes less than 1,000 feet in length
	Physically isolated segments less than 1,000 feet in length
	Projects less than 1,000 feet in length
	Intersections constructed under traffic – begin and end exclusion 100 feet from the Intersection radius
Bituminous	Single Lift overlays placed directly on concrete
Concrete	Doweled Shoulders greater than or equal to 10 feet in width

S-61.2        Delete and replace Table 2399.3-2 of MnDOT 2399.3B with the following:



**Table 2399.3-2**  
**Areas Excluded from Smoothness and ALR Evaluation**

<b>Pavement</b>	<b>Excluded Areas</b>
Bituminous or concrete	Paving in areas with a posted vehicle speed less than or equal to 35 mph
	Paving in areas with a cautionary vehicle speed less than or equal to 35 mph
	Turn Lanes, crossovers
	20 feet on either side of obstructions in lane that obstruction is located
	Side Streets, side connections
	150 feet before stop signs at an Intersection
	150 feet before yield signs or concrete curb/median areas at a roundabout
	Bridge decks, approach panels
	20 feet from Bridge decks or approach panels
	20 feet from terminal headers tying into existing pavement
Bituminous	Paved Shoulders
	Intersections where mainline profiles are merged or blended into the cross Street profile – begin and end exclusion 100 feet from the Intersection radius
Concrete	Doweled Shoulders less than 10 feet in width
	Undoweled Shoulders
	Headers adjacent to colored concrete

S-61.3 Delete and replace MnDOT 2399.3D.1.a with the following:

D.1.a Bituminous Pavements

See Section 2360, “Plant Mixed Asphalt Pavement” of the Special Provisions for the Smoothness equation requirements. If no Smoothness equation is specified in the Contract, evaluate with equation HMA-C.

S-61.4 Delete and replace Table 2399.5-1 of MnDOT 2399.5A.1.a with the following:

**Table 2399.5-1**  
**Smoothness Incentive/Disincentive and Corrective Work for Bituminous Pavements**

<b>Equation</b>	<b>Smoothness inches/mile</b>	<b>Incentive/Disincentive \$/0.1 mile</b>
HMA-A	< 25.0	400.00
	25.0 – 75.0	800.00 – 16.000 × Smoothness
	> 75.0	Corrective Work to ≤ 50.0 inches per mile
HMA-B	< 30.0	270.00
	30.0 – 80.0	594.00 – 10.800 × Smoothness
	> 80.0	Corrective Work to ≤ 55.0 inches per mile
HMA-C	< 35.0	180.00
	35.0 – 95.0	390.00 – 6.000 × Smoothness
	> 95.0	Corrective Work to ≤ 95.0 inches per mile

**S-62 (2412) PRECAST CONCRETE BOX CULVERTS****NEW 06/28/24**

S-62.1 Add the following to MnDOT 2412.3A:

Do not use bedding or backfill material composed of recycled concrete aggregate (RCA).

**S-63 (2433) STRUCTURE RENOVATION****REVISED 06/30/23**

S-63.1 Delete and replace the second paragraph of MnDOT 2433.3C.5.b with the following:

Collect all debris and other Material removed from the surface and cracks and dispose of it in accordance with 2104.3D, "Disposal of Materials and Debris."

**S-64 (2461) STRUCTURAL CONCRETE****REVISED 06/28/24**

S-64.1 Delete and replace the second sentence of MnDOT 2461.2E.1.e with the following:

Use "EX" for exposed Aggregate mixes, "CO" for colored concrete mixes, and "FRC" for fiber reinforced concrete mixes.

S-64.2 Delete and replace Table 2461.2-5 of MnDOT 2461.2E.2.a(2) with the following:

**Table 2461.2-5**  
**Concrete Mix Design Requirements for Grout and Lean Mix Backfill Mixes**

Mix Number	Maximum W/C Ratio	Water Content (pounds)	Cement Content (pounds)	Fly Ash Content (pounds)	Fine Aggregate Calculation (pounds)	Coarse Aggregate Calculation (pounds)	Percent Air Content	Slump Range	Minimum 28-Calendar Day Compressive Strength, f'c
1A Grout*	0.50	379	758	0	100 percent †	0	3.0	As needed	4000 psi
3A Grout *	0.44	379	865	0	100 percent †	0	10.0	As needed	4000 psi
Lean Mix	1.00	375	125	250	50 percent†	50 percent† ‡	N/A	10 inches ± 1 inch	#

\* Do not provide 1A or 3A grout containing coarse Aggregate or fly ash.

|| Coarse Aggregate quality meets requirements of 3137.2D.1, "Coarse Aggregate for General Use."

† After adding the specified quantities of cement, fly ash, and water, provide the remaining Aggregate to an absolute volume 27.00 – 27.27 cubic feet.

‡ Meeting #67 gradation as shown in Table 3137.2-4.

# Maximum 28-Calendar Day compressive strength of 1500 psi.

S-64.3 Delete and replace the first sentence of MnDOT 2461.2E.2 with the following:

Acceptance of concrete is contingent on meeting all specification requirements, including but not limited to requirements related to field placement and performance.

S-64.4 Delete and replace the second paragraph of 2461.2E.2.b with the following:

The Contractor assumes full responsibility for the concrete mix design and performance of the concrete, including meeting all specification requirements.

S-64.5 Delete and replace Table 2461.2-6 of MnDOT 2461.2E.2.b(1) with the following:

**Table 2461.2-6**  
**Concrete Mix Design Requirements (Not applicable to High-Performance Concrete or Mass Concrete)**

Concrete Grade	Mix Number	Intended Use *	Maximum W/C Ratio 	Maximum Cementitious Content (pounds/ cubic yard)	Maximum percent SCM (Fly Ash/ Slag/Ternary)	Design Slump Range (inches)	Minimum 28-day Compressive Strength, f'c	3137, "Coarse Aggregate for Portland Cement Concrete."
B Bridge Substructure	3B52	Abutment, stems, wingwalls, paving brackets, pier columns, pier caps, pier struts	0.45	750	30/35/40	2 - 5	4000 psi	2D.1
F Flatwork	3F32	Curb and gutter	0.42	750	30/35/0	1/2 - 3 #	4500 psi	2D.1
	3F52 3F57EX + 3F52CO ‡	Sidewalk, curb and gutter, slope paving, median Sidewalk, driveway entrances, ADA pedestrian Sidewalk	0.45	750	25/30/0	2 – 5	4500 psi	2D.1
	1G52	Footings and pilecap	0.55	750	30/35/40	2 - 5	4500 psi	2D.1
G General Concrete	3G52	Footings, pilecap, walls, cast-in-place manholes and catch basins, fence posts, signal bases, Light Pole foundations, erosion control Structures, cast-in-place box culverts, Culvert headwalls, open flumes, cast-in-place wall stems	0.45	750	30/35/40	2 - 5	4500 psi	2D.1
M Median Barrier	3M12	Slipform barrier, Median barrier, non-bridge	0.42	750	30/35/40	1/2 - 1 #	4500 psi	2D.1
	3M52	Barrier, Median barrier, non-bridge	0.45	750	30/35/40	2 – 5	4500 psi	2D.1
P Piling	1P42	MSE and gravity wall leveling pad	0.63	750	30/35/40	2 – 4	3000 psi	2D.1
	1P62	Piling, spread footing leveling pad	0.63	750	30/35/40	3 – 6	3000 psi	2D.1
R Pavement Rehabilitation	3R52	CPR – Full-depth concrete repairs, concrete base	0.45	750	30/35/40	2 – 5	4000 psi	2D.3
S Bridge Superstructure	3S12	Slipform Bridge barrier, parapets, end post	0.42	750	30/35/40	1/2 - 1 #	4000 psi	2D.2
	3S52	Median barrier, raised median, pilaster, curb, Sidewalk, approach panel, formed Bridge barrier, parapet, end post, collar	0.45	750	30/35/40	2 - 5	4000 psi	2D.2

Concrete Grade	Mix Number	Intended Use *	Maximum W/C Ratio 	Maximum Cementitious Content (pounds/ cubic yard)	Maximum percent SCM (Fly Ash/ Slag/Ternary)	Design Slump Range (inches)	Minimum 28-day Compressive Strength, f'c	3137, "Coarse Aggregate for Portland Cement Concrete."
X Miscellaneous Bridge	1X62	Cofferdam seals, rock sockets, drilled shafts	0.45	750	30/35/40	3 – 6	5000 psi	2D.1
	3X62	Drilled shafts above the frost line	0.45	750	30/35/40	3 – 6	5000 psi	2D.1
Y Bridge Deck	3Y42-M § 3Y42-S §	Bridge decks, integral abutment diaphragms, pier continuity diaphragms, expansion joint replacement mix	0.45	750	30/35/40	2 - 4	4000 psi	2D.2
	3Y47 **	Deck patching mix	0.45	750	30/35/40	2 – 4	4000 psi	2D.2
<p>If the intended use is not included elsewhere in the Specification or Special Provisions, use mix 3G52, unless otherwise directed by the Engineer.</p> <p>   The minimum Water/Cement (W/C) ratio is 0.30.</p> <p>† Mix 3F57EX requires the use of Coarse Aggregate Designation "7", "2" or "3" for the 4<sup>th</sup> digit in accordance with Table 2461.2-3.</p> <p>‡ Identify the specific color used on the Certificate of Compliance. Colored concrete is only allowed when specified in the Plans or the Contract.</p> <p># Adjust slump in accordance with 2461.3G.7.a, "Concrete Placed by the Slip-Form Method," for slip-form concrete placement.</p> <p>§ The "-S" indicates a Bridge deck with a structural slab and "-M" indicates a monolithic Bridge deck.</p> <p>** Mix 3Y47 requires the use of Coarse Aggregate Designation "7" or "3" for the 4<sup>th</sup> digit in accordance with Table 2461.2-3.</p>								

S-64.6 Delete and replace the first sentence of MnDOT 2461.2E.2.b(2) with the following:

Design High-early (HE) concrete to achieve the minimum design strength and time required in accordance with Table 2461.2-7.

S-64.7 Delete and replace Table 2461.2-7 of MnDOT 2461.2E.2.b(2) with the following:

**Table 2461.2-7**  
**High-Early (HE) Concrete Requirements**  
**(Not applicable to Bridge Superstructure or Mass Concrete)**

Mix Number	Concrete Grades Allowed	Minimum Design Time	Maximum W/C Ratio	Maximum Cementitious Content (pounds/cubic yard)*	Slump Range	Minimum Design Strength	Minimum 28-Calendar Day Compressive Strength, f'c	3137 "Coarse Aggregate for Portland Cement Concrete"
1PHE62	P	-	0.63	750	3 – 6 inches	-	3000 psi	2.D.1
3HE32	F	48 hours	0.42	750	1/2 – 3 inches †	2000 psi	4500 psi	2.D.1
3HE52	F	48 hours	0.42	750	2 – 5 inches	2000 psi	4500 psi	2.D.1
3HE52	B and G	48 hours	0.42	750	2 – 5 inches	3000 psi	4500 psi	2.D.1
3YHE52	Y (Repairs Only)	48 hours	0.42	750	2 – 5 inches	3000 psi	4000 psi	2.D.2
3RHE52	R (Repairs Only)	48 hours	0.42	750	2 – 5 inches	2000 psi	4000 psi	2.D.3
<p>* Supplementary cementitious Materials allowed.</p> <p>   Used only for placing concrete in piles during freezing temperatures, provide 30 percent additional cement to the concrete mix for concrete 10 feet below the ground line or water line in accordance with 2451.3D.6, "Cast-in-Place Concrete Piles."</p> <p>† Adjust slump in accordance with 2461.3G.7.a, "Concrete Placed by the Slip-Form Method."</p>								

S-64.8 Delete and replace Table 2461.2-8 of MnDOT 2461.2E.2.b(3) with the following:

**Table 2461.2-8**  
**Project Specific Contractor Designed Mixes**

Concrete Grade	Intended Use	Specification	3137 "Coarse Aggregate for Portland Cement Concrete"
A	Concrete Pavement	2301, "Concrete Pavement"	2.D.3
M, V, W, Z	Precast Concrete	2462, "Precast Concrete"	Varies
HPC	High Performance Concrete	2401, "Concrete Bridge Construction"	2.D.2
MC	Mass Concrete	Special Provision 2401	Varies
SCC	Self-consolidating Concrete	Special Provision 2401	Varies
CLSM, LCCF	Cellular Concrete Grout	2519, "Cellular Concrete"	None
Non-MnDOT Designated	Per Contract	Per Contract	Per Contract
All concrete grades	Delivery Time is > 90 minutes	2461.3G.3.a, "Delivery Time Beyond 90 minutes"	Varies

S-64.9 Delete and replace the first, second, and third paragraphs of MnDOT 2461.2E.3 with the following:

At least 21 Calendar Days before initial placement of the concrete, submit the appropriate General concrete mix design form to the Concrete Engineer for review. Use the most current forms, specific gravity, and absorption data available from the MnDOT Concrete Engineering website.

Design the concrete mix to an absolute volume of 27.00 – 27.27 cubic feet.

MnDOT will review the Contractor's proposed mixture design solely for compliance with applicable mix design properties in 2461.2. The Department makes no guaranty or warranty, either express or implied, that compliance with mix design properties ensures compliance with any other requirements.



S-64.10 Delete and replace Table 2461.2-11 of MnDOT 2461.2E.4 with the following:

**Table 2462.2-11**  
**Mix Design Adjustments/Requirements**

	Type of Change or Adjustment	Mix Design Resubmittal Requirements
Level 1 mixes	Cementitious Sources Admixture Sources Admixture Dosage Rate	No resubmittal required
	Aggregate Sources Aggregate Proportions Any cementitious proportion ( $\leq 15\%$ max fly ash)	Resubmittal of Mix Design
	Any cementitious proportion ( $> 15\%$ max fly ash)	Resubmittal in accordance with 2461.2E.3.a, "Preliminary Test Data Requirements for Level 2 Mixes"
Level 2 mixes	Cementitious Sources Admixture Dosage Rate	No resubmittal required
	Aggregate Source, no change in Aggregate Class $\leq 5\%$ Total Cementitious $\leq 10\%$ Individual Aggregate Weights	Resubmittal of Mix Design
	Aggregate Source and Class of Coarse Aggregate Supplementary Cementitious Proportion $> 5\%$ Total Cementitious $> 10\%$ Individual Aggregate Weights Admixture Sources	Resubmittal in accordance with 2461.2E.3.a, "Preliminary Test Data Requirements for Level 2 Mixes"
* Only one (1) increase in total cementitious allowed per mix design, next adjustment requires resubmittal in accordance with 2461.2E.3.a, "Preliminary Test Data Requirements for Level 2 Mixes"		

S-64.11 Delete and replace MnDOT 2461.2E.5 with the following:

**E.5 MnDOT Review of Continual Acceptance of Contractor Mix Designs**

The Concrete Engineer will review test results relating to each individual Contractor concrete mix design.  
The Concrete Engineer will review the following test results:

- (1) Plant and Field Test Results
- (2) Compressive Strength at 28 Calendar Days
- (3) Monthly Aggregate Quality Testing

Provided the concrete continues to meet specification requirements, the Contractor will have that mix design available for future use.

S-64.12 Add the following to MnDOT 2461.3D.1:

**D.1.g Fiber Proportioning**

Do not incorporate fiber packaging materials into the Concrete. The Engineer considers the following fiber addition methods acceptable on all jobs:

- (1) Open bag and distribute fibers on Aggregate belt at Ready-mix Concrete plant
- (2) Open bag, break apart any fiber clumps, and introduce fibers into Ready-mix Concrete truck in a well-distributed manner

Any alternate methods to add fibers to the concrete mix must be submitted for acceptance by the Engineer and demonstrated by a successful trial placement.

Ensure fibers are uniformly dispersed in the Concrete to avoid balling. Balling of fibers is defined as a 2 inch diameter or greater conglomerate of fibers at the point of placement. The Engineer will consider any balling more prevalent than 1 per load of Concrete as unacceptable and may reject the load of concrete.

S-64.13 Delete and replace MnDOT 2461.3D.1.b with the following:

**D.1.b Weighing Equipment and Tolerances**

Weigh or measure concrete mixture ingredients using load cells or meters for Ready-mix and paving concrete to within the targeted batch weight in accordance with the following:

- (1) Water – 1 percent
- (2) Cement – 1 percent or 30 pounds, whichever is greater
- (3) Other cementitious Materials – 3 percent or 30 pounds, whichever is greater
- (4) Aggregates – 2 percent
- (5) Admixtures – 3 percent

In accordance with 1503, the Producer will make plant adjustments when out of tolerance values are reoccurring on the same day or over a period of 7 calendar days.

S-64.14 Delete and replace MnDOT 2461.3F.1.a(7) with the following:

- (7) Supply a working email address, including an active internet connection with availability for Department use, at the certified ready-mix plant.

S-64.15 Delete and replace the second sentence of MnDOT 2461.3F.2 with the following:

If the computer that generates the Certificate of Compliance malfunctions, the Engineer may allow the Contractor to finish any pours in progress if the Producer issues a handwritten or computer-generated Department Form 0042, *Certificate of Compliance* with each load. The Engineer will not allow the Producer to begin new pours without a working computerized Certificate of Compliance.

S-64.16 Add the following to MnDOT 2461.3F.2:

- (22) Fibers, brand, and dosage per cubic yard
- (23) Ready-Mix Sheet Number (RMX###-###), JMF Sheet Number (JMF##-###), or PS Sheet Number (PS##-###)
- (24) MnDOT Designation Plant/Unit Number (RM###)

S-64.13 Delete and replace MnDOT 2461.3F.3.c with the following:

Place concrete meeting the aggregate gradation requirements in the Work.

Identify QC companion gradation samples with the following information:

- (1) Date
- (2) Test number
- (3) Time
- (4) Type of Material
- (5) Plant
- (6) Sampling Location

If any gradation fails, immediately take second gradation. If the second gradation passes, resume testing as required. The Engineer will not allow the second gradation as a substitute for the next required QC gradation. If the second gradation fails, refer to Table 2461.5-1 for additional requirements. The Engineer will not allow a verification companion gradation as a substitute for a QC gradation.

S-64.14 Delete the second paragraph of MnDOT 2461.3F.3.d.

S-64.15 Delete and replace the first and second paragraphs of MnDOT 2461.3F.3.e with the following:

The Producer will complete and maintain the Concrete Ready-mix Plant QC Workbook in Real Time for all materials and sources incorporated into the concrete mix, using their full name for the diary and each test performed.

S-64.16 Add the following to MnDOT 2461.3G.2:

The Contractor and Engineer will perform random sampling and testing in accordance with ASTM C172, Standard Practice for Sampling Freshly Mixed Concrete; ASTM C1064, Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete; and the Schedule of Materials Control.

S-64.17 Add the following to MnDOT 2461.3G.5:

For all cast-in-place concrete as specified in 2461, including HE concrete, place concrete meeting the strength requirements of Table 2461.2-6 and Table 2461.2-7 unless otherwise specified in the Contract into the Work. Unless otherwise included in the Plans, HE concrete requires approval of the Engineer before incorporation into the Work.

S-64.18 Delete 2461.3G.5.b(2) and replace with the following:

- (2) Mark cylinder for identification of the represented unit or section of concrete

S-64.19 Delete and replace Table 2461.3-3 of MnDOT 2461.3G.6.a(1) with the following:

**Table 2461.3-3  
Chronological Testing Ages of Strength Specimens**

<b>Type of Concrete</b>	<b>Testing Ages*</b>
Concrete Pavement as defined in 2301, "Concrete Pavement"	Test at least 2 sets of strength specimens before and the remaining sets after the anticipated opening strength
Normal Strength Concrete as defined in 2461, "Structural Concrete"	1, 3, 7, 14, and 28-Calendar Days
High-early (HE) Concrete as defined in 2461, "Structural Concrete"	12 hours, 1, 2, 7, and 28-Calendar Days
Ultra High-Early (UHE) Concrete as defined in 2302, Concrete Pavement Rehabilitation"	3, 4, and 8 hours, 1 and 14-Calendar Days
* The Contractor may adjust the testing ages if approved by the Engineer, in conjunction with the Concrete Engineer.	

S-64.20 Delete and replace the second sentence of MnDOT 2461.3G.7 with the following:

The Contractor and Engineer will perform random sampling and testing in accordance with ASTM C172, Standard Practice for Sampling Freshly Mixed Concrete; ASTM C143, Standard Test Method for Slump of Hydraulic-Cement Concrete; ASTM C1611, Standard Test Method for Slump Flow of Self-Consolidating Concrete; and the Schedule of Materials Control.

S-64.21 Delete and replace the second sentence of MnDOT 2461.3G.8 with the following:

The Contractor and Engineer will perform random sampling and testing in accordance with *ASTM C172, Standard Practice for Sampling Freshly Mixed Concrete*; *ASTM C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method*; and the Schedule of Materials Control.

S-64.22 Delete and replace the fourth paragraph of MnDOT 2461.3G.8 with the following:

Test the air content at the point of delivery (eg., end of concrete chute) unless otherwise specified in the Contract.

S-64.23 Delete and replace MnDOT 2461.5A.2.d with the following:

**A.2.d Moving Average Below  $f'_c$**

If the moving average of 3 consecutive strength tests is less than the required  $f'_c$ , the Concrete Engineer will review the strength test results and determine if a new mix design is required in accordance with Table 2461.2-6 or Table 2461.2-7.

The Concrete Engineer in conjunction with the Engineer will remove any strength test results from the moving average if the following occurs:

- (1) After investigation, the cause for the deficient concrete strength is due to improper handling, curing, or testing of the cylinder
- (2) Cylinders kept in the field longer than 7-Calendar Days that negatively impact the moving average calculation
- (3) The suspect concrete was removed and replaced
- (4) Dispute resolution coring identified the concrete acceptable to remain in place

For the quantity of non-conforming concrete not meeting the moving average of 3 consecutive strength tests, the Engineer will make determinations regarding the disposition, payment, or removal of the concrete in accordance with Table 2461.5-5.

**Table 2461.5-5**  
**All Concrete Grades**

<b>Moving average of 3 consecutive strength tests</b>	<b>Monetary Deductions for Moving Average Failure *</b>
> 96.0 percent of $f'_c$	No deductions for the Materials placed as approved by the Engineer.
91.0 percent to 96.0 percent of $f'_c$	\$20.00 per cubic yard or 10 percent of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance.
$\geq 87.5$ percent and $\leq 91.0$ percent of $f'_c$	\$50.00 per cubic yard or 25 percent of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance.
< 87.5 percent of $f'_c$	Remove and replace concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work," as directed by the Engineer. If the Engineer, in conjunction with the Concrete Engineer, determines the concrete can remain in-place, the Engineer will adjust the concrete at a reduction of \$100.00 per cubic yard or 50 percent of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance.

## **S-65 (2462) PRECAST CONCRETE**

**REVISED 06/28/24**

S-65.1 Delete and replace MnDOT 2461.2E.3 with the following:

At least 21 Calendar Days before initial placement of the concrete, submit a Precast Mix Design Submittal to the Concrete Engineer for review. Use the most current Precast mix design form, specific gravity, and absorption data available from the MnDOT Concrete Engineering website.

Design the concrete mix to an absolute volume of 27.00 – 27.27 cubic feet.

MnDOT will review the Contractor's proposed concrete mix design solely for compliance with the applicable mix design properties in Table 2462.2-4. The Department makes no guaranty or warranty, either express or implied, that compliance with mix design properties ensures compliance with any other requirements.

S-65.2 Delete and replace the first and fourth paragraphs of MnDOT 2462.3G.4 with the following:

Take samples randomly in accordance with *ASTM D3665, Standard Practice for Random Sampling of Construction*, Section 5, at a rate defined in accordance with the Schedule of Materials Control.

Perform random sampling and testing in accordance with ASTM C172, *Standard Practice for Sampling Freshly Mixed Concrete*; ASTM C1064, *Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete*; ASTM C231, *Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method*; ASTM C143, *Standard Test Method for Slump of Hydraulic-Cement Concrete*; ASTM C1611, *Standard Test Method for Slump Flow of Self-Consolidating Concrete*; and the *Schedule of Materials Control*.

Furnish 4-inch by 8-inch cylinder molds, unless the maximum Aggregate size is greater than 1 1/4 inches, then furnish 6-inch by 12-inch cylinder molds.

**S-66                    (2501) PIPE CULVERTS**

**REVISED 06/28/24**

S-66.1            Delete and replace MnDOT 2501.2H with the following:

H            Geotextile, Type 3 .....3733

S-66.2            Add the following to MnDOT 2501.3A:

Do not use bedding or backfill materials containing recycled concrete aggregate (RCA).

S-66.3            Add the following to MnDOT 2501.3:

H.            Geotextile

Use Geotextile 3733 Type 1 to wrap concrete pipe joints or for other drainage applications.

**S-67                    (2502) SUBSURFACE DRAINS (SUBCUT DRAINS)**

**REVISED 10/14/22**

S-67.1            Add the following to MnDOT 2502.5:

Regardless of option chosen, payment for Subcut Drain Type will be under Item 2502.503 (4-inch Perforated TP Pipe Drain) at the Contract bid price per linear foot.

**S-68                    (2506) MANHOLES AND CATCH BASINS**

**REVISED 09/27/24**

S-68.1            Delete and replace MnDOT 2506.2B with the following:

B            **Masonry Mortar (Mortar) .....3107**

S-68.2 Delete and replace MnDOT 2506.3G with the following:

Provide vertical adjustment of access castings made to the planned elevation on the Structure. Meet the criteria that full support for the casting is obtained above the cone section. Limit thickness of each adjusting ring to 6 inches or less. Encase adjusting rings in mortar according to the Plan.

Construct new structures so the height above the cone does not exceed 9 inches, including mortar but not including the frame. Use no more than 2 adjusting rings.

Reconstruct in-place structures so the height above the cone does not exceed 12 inches, including mortar but not including the frame. Use no more than 3 adjusting rings. If these criteria cannot be met by vertical adjusting Work, reconstruct the Structure.

For upward adjustment of castings, the Contractor may use any of the Structure Materials or applicable construction methods specified in this subsection, provided they are compatible with the in-place construction. The Contractor may use auxiliary ring castings and adjusting rings as shown on the Plans.

## S-69 **(2507) LINING CULVERT PIPE SPECIAL**

NEW 06/30/23

S-69.1 DESCRIPTION

This Work consists of furnishing and installing a Cured-In-Place Pipe (CIPP) liner into existing culvert pipe in accordance with the Plan, manufacturer recommendations, and MnDOT 2507.

S-69.2 MATERIALS

- A Thermal cured CIPP.....ASTM F1216  
Outside layer shall be coated with an impermeable, translucent, flexible membrane that will contain the resin and allow the resin impregnation procedure to be monitored.

**Table SP2507-1**  
**Thermal Cured Liner Physical Properties**

Property	Minimum Value
Flexural Strength	4,500 psi
Modulus of Elasticity (initial)	250,000 psi
Long Term Modulus of Elasticity (50 years)	125,000 psi

A.1 Non-woven liner tube

One or more layers of absorbent non-woven felt fabric meeting one of the following ASTM F1216, Section 5.1, or ASTM F1743, Section 5.2.1, or ASTM D5813, Sections 5 and 6.

Provide seams that are stronger than the non-seamed felt material and meet the requirements of ASTM D5813.

A.2 Resin System.....ASTM F1216

Corrosion resistant polyester or vinyl ester system including required catalysts and initiators that when cured within the tube create a composite in accordance with the requirements of the ASTM F1216, ASTM F1743, or ASTM D5813.

- A.3 Exterior pre-liner.  
Provide pre-liner able to contain resin in wet conditions that cannot be controlled by dewatering to prevent exposure of groundwater to resin.
- B Ultraviolet (UV) cured CIPP..... ASTM F2019  
Uniform thickness wet-out tube that meets or exceeds the design thickness when compressed at installation pressures.

Saturate the glass fiber tube with the resin using a resin bath system to allow for the lowest possible amount of air entrapment. The wet out of the liner must be done in an indoor environmentally controlled manufacturing setting that meets current ISO 9001 standard compliant and registered quality management system for the wet-out facility. No onsite wet out will be allowed.

Provide CIPP liner having a light reflective color interior wall surface after installation.

Cured liner must be seamless in its cured state and have homogenous physical properties around the circumference of the cured liner.

Inspect each lot of glass fiber tube liner for defects at the time of manufacture. Confirm the liner is homogeneous throughout, uniform in color free of cracks, holes, foreign materials, blisters, and deleterious faults at the time of manufacture.

**Table SP2507-2**  
**UV Cured Liner Physical Properties**

Property	Minimum Value
Flexural Modulus	725,500 psi
Flexural Strength	15,000 psi
Modulus of Elasticity (initial)	725,500 psi
Long Term Modulus of Elasticity (50 years)	675,000 psi
Long Term Tensile Bending Strength (50 years)	13,500 psi

- B.1 Fiberglass liner tube  
Glass reinforced plastic (GRP) fabric tube consisting of at least two separate tubes made of corrosion resistant (E-CR or equivalent) glass fibers in accordance with Specification ASTM D578, ASTM D3567.
- B.2 Resin System.....ASTM F1216  
Polyester, vinyl-ester, or orthothalic (either ppg or npg grade) UV resin including required catalysts in accordance with the requirements of ASTM F2019 and ASTM F1216. Resins created from recycled materials are not allowed.
- B.3 Interior and Exterior Film  
Exterior and interior membrane on the glass fiber tubing must be impervious to airborne styrene and protects and contains the polyester, vinyl-ester or ortho based resin used in the liner.  
  
Exterior film shall have UV blocking characteristics.
- C Manufacture Requirements  
Liner tube shall be marked at regular intervals along its entire length. Markings shall include a bar and the manufacturer name or identifying symbol.



## S-69.3 CONSTRUCTION REQUIREMENTS

## A Structural Design Requirements

Contractor's Professional Engineer licensed in the State of Minnesota shall prepare and certify structural design calculations for liner thickness based on ASTM F1216 Appendix X.1 and ASTM F2019 Appendix X1. The Professional Engineer may use calculator sheets based on ASTM standards and approved by the manufacture when calculating the liner thickness.

Assume no bonding to the existing culvert pipe wall in the CIPP design computations.

Obtain field verified dimensions and deflection from contractor.

Use the following design parameters for computing the CIPP wall thickness:

## A.1 Partially Deteriorated Design Parameters

Use the following values for partially deteriorated CIPP design computations:

- (1) Enhancement factor:  $K = 7$
- (2) Poisson's ratio of the CIPP liner:  $n = 0.3$
- (3) Minimum deflection:  $\Delta (\%) = 2\%$  or measured deflection, whichever is larger.
- (4) Minimum CIPP liner long-term modulus of elasticity:  $E_L (\text{psi})$

a. Thermal cured CIPP  $E_L (\text{psi}) = 125,000$  psi

b. UV cured CIPP  $E_L (\text{psi}) = 675,000$  psi

**Table SP2507-3**  
**Site Specific Partially Deteriorated Design Parameters**

Design Parameter	Value
Culvert Pipe Inside Diameter (inch)	See Plan.
Height of water or groundwater above Pipe Invert (feet)	See Plan. If a value is not provided in the Plan use the shoulder PI adjacent to the pipe.
Culvert Pipe deflection: $\Delta (\%)$	Use a minimum deflection of 2%. See Plan for estimate if deflection is greater than 2%. Actual pipe deflection to be field verified by installer.

## A.2 Fully Deteriorated Design Parameters

Use the following for values for fully deteriorated CIPP design computations:

- (1) Live load:  $W_s (\text{psi})$  according to AASHTO LRFD Bridge Design Specifications (AASHTO, 2012)
- (2) Modulus of soil reaction  $E''_s (\text{psi})$  in accordance with AASHTO LRFD Bridge Design Specifications (AASHTO, 2012) Table 12.12.3.5-1
- (3) Soil Density:  $w (\text{pcf}) = 120$
- (4) Minimum deflection:  $\Delta (\%) = 2\%$  or measured deflection, whichever is larger.
- (5) Minimum CIPP liner long-term modulus of elasticity:  $E_L (\text{psi})$

a. Thermal cured CIPP  $E_L (\text{psi}) = 125,000$  psi

b. UV cured CIPP  $E_L (\text{psi}) = 675,000$  psi

- (6) Factor of Safety:  $N = 2$

**Table SP2507-3**  
**Site Specific Fully Deteriorated Design Parameters**

Design Parameter	Value
Culvert Pipe Inside Diameter (inch)	See Plan
Height of Water above Culvert Pipe Crown: HW (feet)	See Plan. If a value is not provided in the Plan use the shoulder PI adjacent to the pipe.
Height of Soil above Pipe Crown: H (feet)	See Plan
Culvert Pipe deflection: $\Delta$ (%)	Use a minimum deflection of 2%. See Plan if estimated deflection is greater than 2%. Actual pipe deflection to be field verified by installer
Soil Classification	See Plan

**B General**

Obtain the Engineer's approval prior to commencing any Work.

Comply with manufacturer recommendations and OSHA requirements for the following:

- (1) Shipping, handling, storage, installation, and the wet-out process.
- (2) Liners damaged during shipping, handling or storage shall be replace at no cost to the Department.
- (3) Provide worker and inspector safety and protective gear.
- (4) Field verify the length and diameter of the pipe for proper sizing of the liner tube.

Field verify pipe deflection and dimensions. Identify conditions that impact liner thickness, size, or installation.

Manufacture liner to a size that will tightly fit the internal circumference and length of the pipe. Make allowance for circumferential and longitudinal stretching during installation.

Construct CIPP Liner to withstand installation pressures, have sufficient strength to meet the structural requirements for site conditions and stretch to fit irregular pipe sections.

Final, in-place, CIPP shall be impermeable to water and provide corrosion resistance and have an optimum friction factor for flow.

Remove and replace CIPP where testing samples do not meet the design requirements, exhibit delamination, or fail leakage tests.

**B.1 Manufacturer and Contractor Qualifications**

Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of cured-in-place liners for highway drainage pipe, municipal storm water or wastewater systems and with a history of successful production acceptable to the Owner.

Provide certification from the Manufacturer attesting the contractor has Approved Contractor status for the CIPP liner products being installed.

Manufacturer's representative must be on site for the first two installations if the site foreman does not have a minimum of five successful installations in the last 24 months.

**C Flow Diversion or Dewatering**

Divert surface water to install liner in dry conditions.

Meet permit requirements for flow diversion. Do not damage the environment, adjacent property, pavement, or structures.

Follow the requirements of Minnesota Department of Natural Resources General Public Waters Permit (GP) 2004-0001 on DNR Public Waters.

Control groundwater infiltration to prevent interference with installation of the CIPP liner. Dewatering may be necessary.

DNR Water Appropriations permit is required for withdrawal of more than 10,000 gallons of water per day or 1 million gallons per year from surface water or ground water. DNR GP1997-0005 (temporary water appropriations) covers a variety of activities including dewatering associated with road construction and should be applied if required. All equipment intended for use at a project site must be free of prohibited invasive species and aquatic plants prior to being transported into or within the state and placed into state waters.

Provide a site plan in accordance with MnDOT 1717 to the Engineer for approval prior to beginning flow diversions or dewatering.

**D General Pipe Preparation**

Inspect and videotape the interior of the pipeline. Note location of any conditions which may prevent proper installation. Provide a copy of the videotape and notes to the Engineer.

Remove or repair obstructions that would prevent installation or damage CIPP liner during installation prior to liner installation.

Cut off existing pipe tie bolts flush with the nut. Cut off tie bar ends without nuts within 1/2 inch of the pipe wall.

Remove internal joint bands as identified in the Plan.

Thoroughly clean pipe using a high-pressure water jet or hydro-mechanical methods. Manage wastewater according to the site management plan. Clean water without sediment or other pollutants may be discharged on site.

Prepare the pipe surface to produce an abraded surface with no evidence of laitance, loose material, debris, or contaminants.

The pipe must be clean and dry prior to installation.

The Engineer will inspect the pipe after cleaning.

Securely affix a liner end seal system to the interior circumference of the existing pipe at inlets and outlets located at a manhole, catch basin or structure in accordance with manufacturer's recommendation. The end seal system shall provide a watertight seal and may consist of hydrophilic rubber O-rings, strips, or boots.

**E Installation of CIPP**

Prevent leakage or spillage of resin to the environment.

Collect and dispose of escaped resin in accordance with MnDOT 2104.D.

Provide continuous finished liner over the length of the inversion run free from visual defects, including foreign inclusions, dry spots, pinholes, and delamination. Correct defects using methods of repair approved by the Engineer prior to completing the Work.

Wrinkles in the finished pipe, other than at pipe bends and abrupt changes, which cause a deformity of 1-inch or more and do not follow the surface of the cleaned pipe wall parallel to the pipe flow line or reduce the structural stability of the pipe are unacceptable. Remove the wrinkle and repair or replace the liner. Provide methods of wrinkle removal and repair or replacement to the Engineer for review and approval prior to the work.

Trim liner so that a minimum of 2 inches extends beyond the end of the pipe section. For flared aprons end the liner before the start of the apron flare. For safety aprons end the liner 2 inches past the last joint.

Provide a tight seal at the ends of the CIPP after the liner is cured. Apply a seal consisting of a UV resistant resin mixture or product compatible with the CIPP material fully covering the cut or exposed ends of the liner.

Restore service connections without damaging the liner after CIPP liner has cured.

#### E.1 Installation of Thermal cured CIPP

Handle and install Cured-in-place pipe (CIPP) in accordance with the CIPP manufacturer's recommended procedures and one of the following: ASTM F1216 or ASTM F1743 as modified by these provisions. Use either air inversion with steam cured CIPP, or water inversion with hot water CIPP.

Impregnate tube prior to installation. Notify the Engineer of time and location of vacuum impregnation with resin (wet-out) and allowed the Engineer to witness the procedure. On-site wet-out requirements:

- (1) Conduct on-site wet-out within a suitable structure (large enough to house the wet-out operation. If necessary, the structure shall have sidewalls and be heated or cooled to maintain the temperature range required for this operation.
- (2) The structure must be constructed of light-colored, opaque materials, to minimize heat generation within the structure.
- (3) Use the same type of equipment, procedures, and quality control as required by ASTM and as normally conducted at the manufacturer's factory wet-out facility for the on-site wet-out.

Provide suitable temperature gauges and monitors so that the resin curing process can be monitored by Engineer.

Insert impregnated tube through manhole or end of culvert pipe by means of an air or water inversion process or the pull-through method. Use lubricant as necessary.

Provide a suitable heat source and steam/water circulation equipment. Use specifically designed and controlled hydrostatic pressures to cure impregnated tube into a rigid pipe. Determine required temperature based on resin catalyst employed.

Monitor the temperature of ingoing and outgoing steam/water supply with a gauge placed inside the impregnated felt tube to determine the temperatures during cure.

Use steam/water temperatures and cure period durations that meets manufacturer recommendations. Time the recirculation of the hot water and cycling of the heat exchanger to maintain the temperature during the cure period for hot water cured CIPP.

Confirm that the initial cure is complete, exposed portions of the pipe are hard, and sound and the remote temperature sensor indicates that the temperature was sufficient to complete pipe curing.

Cool the hardened hot water cured pipe liner to a temperature below 100 degrees Fahrenheit before relieving static head in the inversion standpipe or calibration hose. Cool down may be accomplished by the introduction of cool water into the inversion standpipe to replace water drained from a small hole in the downstream end of the CIPP. Release static head slowly to avoid development of a vacuum that may damage newly installed CIPP.

Rinse entire interior surface of finished liner thoroughly.

Cool heated water that has not been in contact with the resin before discharging, do not discharge directly into any waters of the state.

Do not discharge liquid or other by-product waste resulting from the construction or curing processes of liner installation directly into waters of the state. Capture and transport rinse water and chemical containing liquids including water that has been in contact with the resin to a suitable wastewater treatment facility willing to accept the process water and liquid by-product waste.

#### E.2 Installation of UV cured CIPP

Install in accordance with the manufacturer's recommended procedures and ASTM F2019 as modified by these provisions.

The system must utilize an outer and inner film to ensure that the liner remains intact during the insertion process and to protect the resin at all times during the installation and curing process from water and debris contamination, and resin migration. Remove the inner membrane after the installation and curing processes are completed.

Use a constant tension winch to pull the glass fiber liner into position in the pipe. The liner shall have a longitudinal fiberglass reinforcement band which runs the entire length of the liner ensuring that the pulling force is transferred to the band and not the fiberglass liner.

Provide, insert, and secure end plugs on inserted liner to cap each end of the glass fiber liner to prepare for pressurizing the liner.

Install a slip sheet on the bottom one third to one half of the pipe prior to liner insertion unless it is a part of the manufactured outer film of the liner.

Cure the glass fiber liner with UV light sources at a constant inner pressure. Damaged caused by inserting the curing equipment in the liner shall be repaired.

Assemble the UV light sources according to the manufacturer's specifications for the liner diameter.

Control the following parameters during the entire curing process. Record the curing parameters over every segment of the entire length of the liner and a post CCTV inspection to the Engineer using a computer and database that are tamper proof. Use infrared sensors to record curing data. The record shall include curing speed, light source working & wattage, inner air pressure, curing temperatures, date and time, length of liner.

Determine the optimal curing speed, or travel speed of the energized UV light sources, for each length of liner based on liner diameter, liner thickness, and exothermic reaction temperature. Curing speed shall comply with manufacturer's recommendations and be adjusted by Contractor based on site specific field conditions.

#### F Submittals

Submit the following a minimum of ten working days prior to commencing prescribed work:

- (1) Manufacturer and Contractor qualifications specified in S-69.3.B.1.
- (2) License or certificate verifying manufacturer's/licensor approval of installer.
- (3) The name of the liner and resin manufacturer, the location of the facility where each was manufactured, and a list of appurtenant materials and accessories to be furnished.
- (4) Manufacturer's certification that materials to be used meet the referenced standards and these specifications.
- (5) Written manufacturer's warranty.
- (6) List of equipment and procedures for accomplishing work including manufacturer cure method procedure detailing curing medium and method of application.
- (7) Structural design calculations and liner thickness recommendations certified by an engineer licensed in the State of Minnesota and product data sheets listing parameters used in the liner design and thickness calculations.
- (8) Detailed shop drawings, schedule, and Materials Safety Data Sheets (MSDS) for all materials.
- (9) Curing schedule for each lining segment.
- (10) Quality control plan that ensures CIPP liner wet out resin saturation process, shipping, storage, and handling meet manufacture's recommendations. At a minimum, include resin saturation documentation, date of wet-out, storage/transportation controls, and quality assurance procedures in the quality control document.
- (11) Site plan.
- (12) Site management plan in accordance with MnDOT 1717.
- (13) Plan for treatment of process water including a permit or verification from the wastewater treatment facility that they will accept CIPP process water.

Submit the following within 30 Days of liner installation:

- (1) One copy of the post installation CCTV inspection on a USB flash drive, or other method and format approved by the Engineer.
- (2) Results of test samples taken for quality control.
- (3) Results of delamination tests, thickness tests, physical properties tests.
- (4) Receipts from treatment facilities documenting time, state and estimated gallons of processed water being treated.
- (5) Record of the curing parameters over every segment for the entire length of the liner. The record shall include curing speed, light source working & wattage, inner air pressure, curing temperatures, date and time, length of liner.

#### G Quality Control

Notify the Engineer so the Engineer is present during and after cleaning and televising the existing pipe, placing liner, inversion of the liner, and taking of samples.

The Engineer will conduct a visual inspection. Any deficiencies in the finished liner system shall be marked and repaired according to the procedures set forth by the Manufacturer.

Conduct an internal CCTV inspection of completed work and provide a copy to the Engineer. Culverts less than 60 feet in length will not require unless the Engineer observes deficiencies or flaws during the visual inspection. CCTV inspections are incidental to the liner installation.

#### G.1 Samples

Provide a set of four (4) test samples for strength of materials and thickness testing from locations of soft spots, measured thin spots, visible flaws or irregularities when directed by the Engineer.

- (1) Take samples in the presence of the Engineer and delivered to a testing laboratory by the Contractor. Failing test samples may be retested at no cost to the Department.
- (2) Take cored coupons within the pipe as thickness samples. Two additional thickness samples shall be collected at each location where the CIPP thickness is scheduled to change within a CIPP segment. Repair method for sample area shall be proposed by the Contractor and submitted to the Engineer for review and approval. Sample area shall be immediately repaired following sample removal.
- (3) Flatplate and thickness samples for testing will be individually labeled and logged to record the following:
  - (a) Project number and title.
  - (b) Sample number.
  - (c) Segment number of line as noted on plans, and location (station and clock position).
  - (d) Date and time sample taken.
  - (e) Name of contractor.
  - (f) Date, location, and by whom tested.
  - (g) Results of test.
- (4) Samples shall be numbered as follows:
  - (a) Sample #/A: Flat plate sample (2 samples per CIPP segment).
  - (b) Sample #/B: Thickness test (2 cores per CIPP segment).
  - (c) Additional samples will be lettered consecutively after "B".
- (5) Updated copies of the log shall be submitted to the Engineer within 10 days after each section is completed.

#### G.2 Testing

The Engineer may at any time direct the manufacturer to obtain compound samples and prepare test specimens in accordance with the latest applicable ASTM standards.

##### (1) Delamination Tests

Conduct delamination testing in accordance with ASTM F1216 or F1743, and ASTM D903 for all types of resin impregnated CIPP, for each nonhomogeneous layer of representative field sample.

##### (2) Physical Properties Tests

Run the CIPP between two release-agent coated, smooth surface, aluminum plates of sufficient size to obtain two cured samples, each 6" x 16" in size, at the end of each segment to be lined.

Seal the edges of the sample with polymer suitable for protecting the edges from chemical intrusion. Seal the CIPP material in a heavy-duty plastic envelope within the aluminum plate molds and cured with the CIPP which the samples represent.

Conduct tests for modulus of elasticity and flexural strength in accordance with ASTM D790. The test results shall meet or exceed the values used for design.

(3) Thickness Tests

Drill two 2-inch diameter cores for each CIPP segment from the lower half of the host pipe, below the spring line. Remove the CIPP material from the host pipe core sample and test for thickness, deducting any liner film thickness.

Obtain three thickness measurements from each sample. The average thickness shall be equal to or greater than the required design thickness.

G.3 Failure to Meet Test Requirements

Where test results do not meet the design requirements, exhibits delamination, or fails leakage tests; bring the liner into compliance by either removal and replacement of the CIPP; or if hydraulic capacity allows it addition of a second CIPP, after acceptable preparation of the in-place CIPP interior surface; or by another method subject to approval by the Engineer. Repair of defects will be made at no cost to the Department.

Alternatively, at the sole discretion of Engineer, the payment due to the Contractor for furnishing and installing the CIPP which failed to meet test requirements shall be reduced in proportion to (a) the deficiency in thickness and (b) the total installed length of CIPP in which the deficiency occurs.

H Cleanup and restoration

Stabilize soils in accordance with the project SWPPP and permit requirements. Stabilize all exposed soils within 7 days. Stabilize culvert ends and ditch conveyances within 24 hours.

Final cleanup at each work site shall be completed within 30 calendar days following liner installation unless noted otherwise in the plans. Restore site to preconstruction conditions or better.

Dispose of debris removed from the pipe in accordance with MnDOT 2104.3D.

S-69.4 METHOD OF MEASUREMENT

The Engineer will measure Lining Pipe by the linear foot of pipe lined with CIPP.

S-69.5 BASIS OF PAYMENT

The Contract Unit Price for each diameter of Culvert Pipe lined with CIPP is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay separately for traffic control, filling voids outside of the pipe and pipe joint repair.

The contract unit price for the relevant lining item includes but is not limited to cleanup and restoration, flow diversion, obstruction removal, debris removal, cleaning, dewatering, infiltration control, wastewater management, cured-in-placed pipe liner, culvert inspection, CCTV inspection, sampling, testing, and repair of defects except for such costs that are specifically compensated under other contract items.

A Schedule

The Department will pay for Lining Culvert Pipe on the basis of the following schedule:

<b>Item No.:</b>	<b>Item:</b>	<b>Unit:</b>
2507.603	Lining Culvert Pipe ___" Special.....	linear foot



**S-70**                    **(2515) REVETMENT SYSTEMS**

**NEW 06/28/24**

- S-70.1            Add the following to the first paragraph of MnDOT 2512.2B:

Do not use bedding material contains recycled concrete aggregate (RCA).

- S-70.2            Delete and replace MnDOT 2515.3 G with the following:

If vegetation is shown in the Plans, fill voids of the revetment system with screened common topsoil borrow per 3877 "Topsoil Material." Plant Mesic Inslope Seed Mixture per 3876 "Seed" and 2575 "Establishing Vegetation and Controlling Erosion." Install category 30 rolled erosion prevention product per 3885 "Rolled Erosion Prevention Products" and 2575 "Establishing Vegetation and Controlling Erosion" unless otherwise shown in the Plans. Perform filing and vegetation after the Engineer completes inspection of any required clamping and anchoring systems.

**S-71**                    **(2521) WALKS**

**REVISED 06/28/24**

- S-71.1            Add the following to MnDOT 2521.2A:

A.4                    Concrete Truck Aprons .....Mix No. 3F52

- S-71.2            Delete and replace the first paragraph of MnDOT 2521.3D.2 with the following:

For 4 inch walk thickness, divide the walk into square panels of uniform size no greater than 36 square feet. For 6-inch walk thicknesses, divide the walk into square panels of uniform size no greater than 81 square feet.

- S-71.3            Delete and replace the third paragraph of MnDOT 2521.3D.2 with the following:

Sawcut all concrete curb ramp, concrete walk, and concrete truck aprons. To reduce the risk of random cracking, the Engineer will allow tooling joints on long sidewalk placements. Sawing of tooled joints is required. The Engineer will allow tooling or sawing joints in the concrete median walk located outside of the pedestrian circulation path. If tooling, round joints with a 1/4 inch radius grooving tool and round edges with an edging tool having a radius no greater than 1/2 inch.

- S-71.4            Delete and replace the title of MnDOT 2521.3G to the following:

G                    Concrete Protection from Backfilling and Loading

- S-71.5            Delete the first paragraph of MnDOT 2521.3G and replace with the following:

For a minimum of 24 hours after placement of the concrete, do not perform vibration or backfilling operations adjacent to the concrete, drill into concrete, or operate construction equipment and public traffic loading on the concrete.

Perform adjacent vibratory and backfilling operations or drilling into concrete at least 72 hours after placing the concrete or after the concrete reaches a compressive strength of at least 2,000 pounds per square inch.

The Engineer will allow construction equipment and public traffic loading on newly placed concrete at least 72 hours after placing the concrete or after the concrete reaches a compressive strength of at least 3,000 pounds per square inch and the following:

- (1) When moving on and off the concrete, construct a ramp to prevent damage to the concrete edges and joints.
- (2) Protect the concrete surface and joints from damage due to heavy loads or Equipment in accordance with 1513, "Restrictions on Movement and Storage of Heavy Loads and Equipment." Sweep the surface free of debris before placing the protective Material or tracked Equipment onto the slab.
- (3) Operate Equipment on the concrete without causing damage. If damage results, suspend operations, and take corrective action as approved by the Engineer. Do not operate the Equipment wheels or tracks within 4 inches of the concrete edge.
- (4) When hauling Aggregate and other Materials across newly constructed concrete, keep the concrete surface free of debris by sweeping or other method as approved by the Engineer to prevent spalling of the joints and edges.

S-71.6 The Engineer will cast, cure, and test the concrete field control specimens in accordance with 2461.3G.5.c, "Field Control Strength Cylinders." If damage results from any of these operations, the Engineer will suspend operations until the Contractor takes corrective action and obtains the Engineer's approval of a new method. The Engineer may require removal and replacement of the damaged concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work." Add the following to MnDOT 2521.3D.2:

For concrete truck aprons, construct joints according to 2301.3N, "Joint Construction Operations," and Standard Plan 5-297.221.

S-71.7 Add the following to MnDOT 2521.4:

In the case of transitions from one thickness or design to another, the Engineer will measure the entire transition for payment under the item with the higher Contract Unit Price.

S-71.8 Delete and replace the first paragraph of MnDOT 2521.5 with the following:

Payment for concrete walk (colored) at the Contract price per unit of measure is full compensation for cost to providing concrete walk and concrete truck aprons to the specified lines, grade and minimum thickness specified in the Plans, including but not limited to: forming, joint filler Material, colored concrete test panels, furnishing and placing the concrete, reinforcement bars, expansion joint material, concrete compaction by vibration, concrete curing, and protecting the completed Work from damage.

**S-72 (2531) CONCRETE CURBING****REVISED 06/28/24**

S-72.1 Delete the third and fifth paragraph of MnDOT 2531.3E and replace with the following:

Tool or saw concrete curb, curb and gutter, and driveway pavement joints to a depth to prevent random/uncontrolled cracking. Unless stated otherwise in Standard Plan 5-297.250, use an edging tool with a radius no greater than 1/2 inch to round outside edges and longitudinal joints.

Sawcut concrete driveway pavement contraction joints. To reduce the risk of random cracking, the Engineer will allow tooling joints on large concrete driveway pavement placements. When tooling concrete driveways, round joints with a 1/4 inch radius grooving tool. Sawing of tooled joints on concrete driveways is required.

S-72.2 Delete and replace the title of MnDOT 2531.3H with the following:

**H Concrete Protection from Backfilling and Loading**

S-72.3 Delete the first paragraph of 2531.3H and replace with the following:

For a minimum of 24 hours after placement of the concrete, do not perform vibration or backfilling operations adjacent to the concrete, drill into concrete, or operate construction equipment and public traffic loading on the concrete.

Perform adjacent vibratory and backfilling operations or drilling into concrete at least 72 hours after placing the concrete or after the concrete reaches a compressive strength of at least 2,000 pounds per square inch.

The Engineer will allow construction equipment and public traffic loading on newly placed concrete 72 hours after placing the concrete or after the concrete reaches a compressive strength of at least 2,000 pounds per square inch and the following:

- (1) When moving on and off the concrete, construct a ramp to prevent damage to the concrete edges and joints.
- (2) Protect the concrete surface and joints from damage due to heavy loads or Equipment in accordance with 1513, "Restrictions on Movement and Storage of Heavy Loads and Equipment." Sweep the surface free of debris before placing the protective Material or tracked Equipment onto the slab.
- (3) Operate Equipment on the concrete without causing damage. If damage results, suspend operations, and take corrective action as approved by the Engineer. Do not operate the Equipment wheels or tracks within 4 inches of the concrete edge.
- (4) When hauling Aggregate and other Materials across newly constructed concrete, keep the concrete surface free of debris by sweeping or other method as approved by the Engineer to prevent spalling of the joints and edges.

The Engineer will cast, cure, and test the concrete field control specimens in accordance with 2461.3G.5.c, "Field Control Strength Cylinders." If damage results from any of these operations, the Engineer will suspend operations until the Contractor takes corrective action and obtains the Engineer's approval of a new method. The Engineer may require removal and replacement of the damaged concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work."

S-72.4 Delete and replace the third sentence of MnDOT 2531.4B with the following:

In the case of transitions from one thickness or design to another, the Engineer will measure the entire transition for payment under the item with the higher Contract Unit Price.

S-72.5 Delete and replace the first sentence of MnDOT 2531.5A.2 with the following:

The Engineer will consider concrete Work with deviations 3/8 inch or greater in any 10 foot length of curb and gutter, either horizontal or vertical, as unacceptable Work.

### **S-73 (2554) TRAFFIC BARRIERS**

**REVISED 11/08/21**

S-73.1 Add the following to MnDOT 2554.2:

I Blockouts

Composite or recycled material guardrail blockouts meeting the criteria of NCHRP 350 or MASH may be substituted for wood blockouts in the construction of Type 8307 and Type 8338 Plate Beam Guardrail systems.

J Steel I Beam Post Delineators .....Delineation Devices APL

K Retroreflective sheeting .....MnDOT 3352.2A.3g

Provide yellow delineators with fluorescent yellow retroreflective sheeting.

S-73.2 Add the following to MnDOT 2554.3:

F Guardrail Blockouts

Install composite or recycled guardrail blockouts as recommended by the manufacturer.

G Delineation

Install the I-beam delineators at the top of the I-beam post along the installation at a maximum spacing of 50 feet.

Attach the I-beam delineators using adhesive only installation per manufacturers recommendation.

Retroreflective sheeting on the delineator shall be at least 3 inches by 3 inches.

Retroreflective sheeting shall be the same color as the adjacent edge line and face traffic. When the barrier separates opposing traffic, retroreflective sheeting is required on both sides of the device.

**S-74 (2554) TRAFFIC BARRIERS (END TREATMENT)**

REVISED 10/14/22

S-74.1 Add the following to MnDOT 2554.3:

F Object Marker

Fabricate one adhesive object marker (OM3-R, or OM3-L) according to the standard drawings in the MnDOT Standard Signs and Markings Manual. The alternating stripes shall be sloped down toward the side on which traffic is to pass the obstruction. Size the object marker in accordance with the following table:

**Table SP2554.3-1  
Object Marker Size**

End Treatment Type	Size of Object Marker
MFLEAT	18 inches x 18 inches
FLEAT-350	12 inches x 18 inches
SRT-350	12 inches x 12 inches
SKT-350	18 inches x 18 inches
ET-Plus Extruder Terminal	12 inches x 18 inches
MSKT Sequential Kinking Terminal	18 inches x 18 inches
Softstop	6 inches x 18 inches

**S-75 (2554) INSTALL ENERGY ABSORBING TERMINAL**

S-75.1 DESCRIPTION  
This Work consists of installing salvaged Energy Absorbing Terminal in accordance with MnDOT 2554.

S-75.2 MATERIALS .....MnDOT Standard Plate 8338

S-75.3 CONSTRUCTION REQUIREMENTS.....MnDOT Standard Plate 8338

S-75.4 METHOD OF MEASUREMENT  
The Engineer will measure the number of Tangent Terminals installed.

S-75.5 BASIS OF PAYMENT  
The Contract Unit Price for Install Energy Absorbing Terminal is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Install Energy Absorbing Terminal on the basis of the following schedule:

Item No.	Item	Unit
2554.602	Install Energy Absorbing Terminal.....	each

**S-76 (2554) TENSION CABLE GUARDRAIL**

**REVISED 06/30/22**

- S-76.1 DESCRIPTION  
This Work consists of constructing High Tension Cable Barrier (HTCB) in accordance with MnDOT 2554.
- S-76.2 MATERIALS  
Tension Cable Guardrail.....Longitudinal Barriers Products/High Tension Cable APL  
Anchorage Assembly – Tension Cable .....Longitudinal Barriers Products/High Tension Cable APL  
Retroreflective Sheeting .....MnDOT 3352
- S-76.3 CONSTRUCTION REQUIREMENTS  
Design the HTCB systems in accordance with the following criteria:
- (1) Satisfy the requirements for test level 4 (TL-4) as defined by the criteria of NCHRP Report 350 or MASH for 1:6 slopes or flatter.
  - (2) Satisfy the requirements for test level 3 (TL-3) as defined by the criteria of NCHRP Report 350 or MASH on slopes steeper than 1:6, and up to 1:4.
  - (3) Utilize four (4) pre-stretched cables.
  - (4) Unless specified or shown in the Plans, line post socket foundation shall be steel.
  - (5) End anchorage assembly foundations must be concrete.
  - (6) All end anchorage assemblies and intermediate line post foundations shall be designed in accordance with the latest edition of the AASHTO LRFD Bridge Design Specifications, including all interims, herein referred to as "AASHTO LRFD."

Each HTCB beginning and end, must be terminated with an end anchorage assembly. Install the end anchorage assembly as specified by the manufacture of the HTCB system.

Follow manufacturers' recommendations for vertical tolerance of cables with respect to the ground level.

The alignment and location of the HTCB shall be according to the Plans.

HTCB shall have a maximum line post spacing of 10 feet, center to center. Line posts shall be plumbed within the sockets. Remove and replace sockets or foundations that do not produce a plumb post.

Adjust post spacing longitudinally to avoid utilities without exceeding the maximum line post spacing.

Adjust tension of individual ropes with cable splices/turnbuckles spaced at a 1000 feet maximum.

Use only swage type fittings for all line cable connections. The fitting must be superior in strength to the cable itself. End anchorage assembly cable connections must be per manufacturer's detail.

Do not locate turnbuckles or cable connections at, on, or abutting line posts in the assembly, unless such placement is indicated as crash-worthy, in the FHWA eligibility letter. A maximum of two splices of the cable runs may occur at each line support post.

Replace edge drains damaged during the drilling or excavation for posts or end anchorage assemblies in accordance with MnDOT 2502. Reroute any edge drains encountered but not damaged around the post location.

Tension the HTCBB system according to the manufacturer's recommendations at the time of installation. The Contractor shall check and adjust the tension approximately three (3) weeks after installation. No additional compensation will be provided for any subsequent tensioning actions.

Design driven sockets within any curved sections to resist the additional lateral component of the tension forces from the cable.

A Minnesota Licensed Professional Engineer will design all end anchorage assemblies and intermediate line post foundations in accordance with the current version and all interims of AASHTO LRFD Bridge Design Specifications. The Plans will contain all the necessary details and design information, including required embedment depth, to construct end anchorage assemblies, line posts, and line post foundations. The soil parameters used in the design will be based on the borings taken at the end anchorage assembly locations during the site investigation except that the soil strengths used in the design will not exceed a friction angle of 35° for the end anchorage assemblies and 30° for the intermediate line posts for cohesion-less soils or 1000 pounds per cubic foot for cohesive soils for the end anchorage assemblies and intermediate line posts. Support or resistance provided by the top 3 feet of soil shall not be included in the design of end anchorage assemblies.

Design of end anchorage assemblies, line posts and line post foundations shall meet the following requirements:

- (1) Design load shall be based on the PLASTIC MOMENT CAPACITY of the cable supporting posts.
- (2) Maximum lateral deflection, under design load, at the top of end anchorage assembly, concrete foundation, or steel socket foundation to be one inch.
- (3) End anchorage assemblies, concrete foundations and steel socket foundations shall be in accordance with the current version and all interims of AASHTO LRFD strength and serviceability requirements under normal load cases. These foundations shall survive the loads due to the vehicular impact induced loads. These loads shall not be treated as extreme loads.
- (4) The bottom of the end anchorage assemblies, concrete foundations and steel socket foundations shall be at least 5 feet below the finished grade to meet frost depth requirements.
- (5) The acting forces and moments on the end anchorage assemblies and steel sockets shall be derived from the most current version of L-Pile or similar software for analysis of piles under lateral loads in different horizontal directions, based on the true Structure configurations, such as socket with soil plate.
- (6) Reinforcement bars for all concrete foundations shall be epoxy coated in accordance with MnDOT 3301.

Prior to installing the HTCB system, the Contractor shall provide the Engineer with two (2) sets of Manufacturer prepared design calculations and notes in accordance with AASHTO LRFD, shop drawings, and construction Specifications certified by a Minnesota Licensed Professional Engineer. The Contractor shall allow at least twenty-one (21) Calendar Days for the review process and shall not begin installation until receiving approval. The shop drawings and calculations shall detail the end anchorage assemblies, and line post Steel Socket and/or Concrete Foundations. The recommended depths for the end anchorage assemblies, line post Steel Socket Foundation and/or Concrete Foundation and the design of the end anchorages assemblies and line post Steel Socket Foundations shall be approved and certified by a Minnesota Licensed Professional Engineer. The Engineer, in concurrence with the MnDOT Bridge and Foundation Offices, will review and comment prior to installation. The time required to get the shop drawings approved will not be allowed as justification for extension in the Contract Time.

<b>Materials &amp; Road Research</b>	<b>Bridge Office</b>
1400 Gervais Ave Maplewood, MN 55109 Rich Lamb 651/366-5595 <a href="mailto:Rich.lamb@state.mn.us">Rich.lamb@state.mn.us</a>	3485 Hadley Avenue North Oakdale, MN 55128-3307 Jihshya Lin 651/366-4490 <a href="mailto:Jihshya.Lin@state.mn.us">Jihshya.Lin@state.mn.us</a>

Steel socket foundations shall be designed in accordance with the current version and all interims of AASHTO LRFD Bridge Design Specifications including the lateral soil pressure due to the design loads on the top of the foundation and shall include the use of soil plates to resist foundation tipping or movement on both tangent and curved alignments. Install steel socket foundations with a drop hammer capable of producing plumb post without resulting in damage or mushrooming of the foundation components. The socket for concrete line post foundations shall be installed inside the foundation rebar cage. The top of the rebar cage shall be secured 3 inches below the planned top of concrete, prior to concrete placement. Refer to MnDOT Standard Plate 8342 for additional details. Remove steel or concrete line post foundations not at the proper height or alignment and install a new foundation.

Galvanize socket for cable line post after fabrication per MnDOT 3392 and MnDOT 3394.

Delineate HTCB installations with retroreflective sheeting. Apply the sheeting to the last five (5) posts at each end of the terminal. Apply the sheeting throughout the remainder of the installation at a maximum of 50-foot intervals. The sheeting shall meet the requirements of MnDOT 3352.2A.3g for florescent yellow sign sheeting and MnDOT 3352.2A.3b for white sign sheeting. The retroreflective sheeting should be on flat surface, perpendicular to traffic and shall have a minimum dimension of 3 inches. Attach the sheeting near the top of the post as recommended by the manufacturer of the cable system. Apply the sheeting to both sides of the post for median installations. Apply the sheeting only to the side of the post facing traffic for roadside installations. The sheeting shall be florescent yellow or white and shall be the same color as the adjacent edge line.

Install snow plow marker (X3-5) with a square-tube three-wall sign base per MnDOT Standard Plan 5297.721 and MnDOT 3402. Extend post a minimum of 5 feet above the ground line and 6 inches adjacent to end anchorage assembly. Install marker at the beginning and end of each run. Snowplow markers and post shall be included in the HTCB Pay Item.

#### S-76.4 METHOD OF MEASUREMENT

The Engineer will measure the length of Tension Cable Guardrail furnished and installed from end to end, including end anchorage assembly lengths and the number of end anchorage assemblies installed.

#### S-76.5 BASIS OF PAYMENT

The Contract Unit Price for Anchorage Assembly – Tension Cable and Tension Cable Guardrail is compensation in full for Equipment, Materials and labor required to complete the Work.



The Department will pay for Anchorage Assembly – Tension Cable and Tension Cable Guardrail on the basis of the following schedule:

Item No.	Item	Unit
2554.502	Anchorage Assembly – Tension Cable.....	each
2554.603	Tension Cable Guardrail .....	linear foot

The Department will pay for replacement or rerouting edge drains as Extra Work in accordance with MnDOT 1402.5.

## **S-77            (2554) INSTALL TENSION CABLE GUARDRAIL**

### **S-77.1        DESCRIPTION**

This Work consists of design and installation of salvaged Tension Cable Guardrail, at the locations shown on Plan sheets 12 and 16 in accordance with S-76 (2554) TENSION CABLE GUARDRAIL and MnDOT 2554.

### **S-77.2        MATERIALS – See S-76 (2554) TENSION CABLE GUARDRAIL**

### **S-77.3        CONSTRUCTION REQUIREMENTS**

See S-76 (2554) TENSION CABLE GUARDRAIL for design, submittals and installation requirements.

Install salvaged reflective delineators on HTCB posts to the nearest 50-foot intervals.

Maintenance, repair, and replacement of damage not caused by the Contractor will be paid for as Extra Work in accordance with 1402.5.

### **S-77.4        METHOD OF MEASUREMENT**

The Engineer will measure the length of Tension Cable Guardrail designed and installed from end to end, including end anchorage assembly lengths.

### **S-77.5        BASIS OF PAYMENT**

The Contract Unit Price for Install Tension Cable Guardrail is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Install Tension Cable Guardrail on the basis of the following schedule:

Item No.	Item	Unit
2554.603	Install Tension Cable Guardrail .....	linear foot

## **S-78            (2557) FENCING**

**NEW 09/29/23**

### **S-78.1        Delete and replace MnDOT 2557.2E with the following:**

Provide concrete mix 3G52 in accordance with 2461, "Structural Concrete."

**S-79                    (2562) ADDITIONAL TRAFFIC CONTROL DEVICES AND EXTENDED USE OF TRAFFIC CONTROL DEVICES**

**REVISED 03/29/24**

**S-79.1            DESCRIPTION**

This Work consists of providing additional traffic control devices in accordance with S-81 (2563) TRAFFIC CONTROL and as authorized by the Engineer.

The Engineer is authorized to:

- (1) Require extra traffic control devices in addition to the traffic control devices shown in the Traffic Control Plan or in the Field Manual.
- (2) Require additional traffic control devices for EXTRA WORK.
- (3) Require extended use for all traffic control devices which are impacted by excusable and compensable delays, as defined in MnDOT 1806.2B.
- (4) Negotiate compensation for a Lump Sum Payment.

**S-79.2            MATERIALS**

Devices must meet Contract requirements, quality standards detailed in the Field Manual, and be in functional and legible condition. Maintain sufficient crashworthy standards. Devices not meeting these requirements must be immediately replaced or repaired.

**S-79.3            CONSTRUCTION REQUIREMENTS**

Furnish the additional traffic control devices as ordered by the Engineer.

**S-79.4            METHOD OF MEASUREMENT**

Driven post supports and all mounting hardware for 48"X48" signs and Standard Signs are included in the Traffic Control Pay Item.

Standard Signs with Portable Supports will be calculated and paid for as follows: Total Standard Sign Sq. Ft. + Portable Support Cost (listed in Table SP2562-1) = Standard Signs with Portable Supports Cost per day.

Construction Sign-Special will be measured by the sign face area furnished, installed including supports, maintained, and removed. Install with square tube steel posts and slip bases meeting MASH crashworthy standards.

Flaggers and Police Officers will be measured by the number of hours each is in service on the job. The Police Officer must be properly uniformed including a reflectorized high-visibility safety vest and fully equipped including police car.

**S-79.5            BASIS OF PAYMENT**

The Department will not use the predetermined Unit Prices listed in Table SP2562-1 if payment for a device is specifically provided for elsewhere in the Contract.

**A            Devices, Flaggers and Police Officers:**

The Engineer and Contractor are authorized to negotiate the terms of compensation for additional traffic control devices and extended use of traffic control devices. If the Engineer and Contractor are unable to agree on compensation using Contract Unit Prices or by negotiation, the Department will pay for traffic control devices according to the schedule of pre-determined prices in the following schedule:

**Table SP2562-1**  
**Additional Traffic Control Devices, Flaggers and Police Officers**

<b>Item Number</b>	<b>Item</b>	<b>Unit</b>	<b>Pre-determined Price</b>
2562.602	Impact Attenuator (Extended Duration)*#	Each	\$69.00
2562.603	Pedestrian Channelizer (Extended Duration)*#	Linear Foot	\$0.33
2562.603	Portable Precast Concrete Barrier Design 8337 (Extended Duration)*#	Linear Foot	\$0.08
2562.610	Flagger	Hour	
2562.610	Police Officer†	Hour	
2562.613	Sidewalk Barricade	Unit Day	\$1.49
2562.613	Type III Barricade	Unit Day	\$2.71
2562.613	Flasher Type A (Low Intensity)	Unit Day	\$0.52
2562.613	Tubular Marker	Unit Day	\$0.45
2562.613	Type A Cone Channelizer	Unit Day	\$0.32
2562.613	Type A Weighted Channelizer	Unit Day	\$0.72
2562.613	Opposing Traffic Lane Divider	Unit Day	\$3.53
2562.613	Reflectorized Drum	Unit Day	\$0.90
2562.613	Flashing Arrow Board	Unit Day	\$35.26
2562.613	Portable Changeable Message Sign‡	Unit Day	\$78.41
2562.613	Vehicle Speed Feedback Sign	Unit Day	\$39.57
2562.613	48"X48" Sign	Unit Day	\$1.61
2562.613	48"X48" Sign with Supports	Unit Day	\$2.48
2562.613	Portable Sign Support	Unit Day	\$0.84
2562.618	Standard Sign*	Square Foot	\$0.25
2562.618	Construction Sign Special (Additional)	Square Foot	\$38.96
2562.613	Construction Sign Special (Extended Duration)*#	Square Foot	\$0.37
2562.613	Audible Message Device	Unit Day	\$1.16
2562.613	Temporary Pedestrian Ramp	Unit Day	\$7.58
2562.613	Portable Rumble Strips (set of 3)	Unit Day	\$52.27
* Item will be paid by the item unit per each day in use.    Will be paid in accordance with MnDOT 1904.4A. † Will be paid at the invoice price plus 10%. ‡ Type C Trailer Mounted Message Sign. # Only to be paid when used for extended duration and a compensable delay is approved.			

**B Labor and Equipment:**

The Engineer and Contractor are authorized to negotiate the terms of compensation for labor and Equipment to furnish, install and remove additional traffic control devices listed in Table SP2562-1. If the Engineer and Contractor are unable to agree on compensation by negotiation, the Department will pay for labor and Equipment according to the following mileage-based method:

The Department will pay \$500.00 for the first 30 miles for mobilization and installation of additional traffic control devices. The Engineer will determine mileage based on the distance from the Traffic Control Contractor's closest office location to the Project limits (most direct route) plus mileage from the Project limits to the furthest location of the additional placement(s), round trip. The Department will pay a minimum of \$500.00.

The Department will pay \$2.40 per mile traveled over 30 miles. The Engineer will determine mileage based on the distance from the Traffic Control Contractor's closest office location to the Project limits (most direct route) plus mileage from the Project limits to the furthest location of the additional placement(s), round trip.

The Department will pay \$500.00 for the first 30 miles for de-mobilization and removal of additional traffic control devices. The Engineer will determine mileage based on the distance from the Traffic Control Contractor's closest office location to the Project limits (most direct route) plus mileage from the Project limits to the furthest location of the additional removal(s), round trip. The Department will pay a minimum of \$500.00.

The Department will pay \$2.40 per mile traveled over 30 miles. The Engineer will determine mileage based on the distance from the Traffic Control Contractor's closest office location to the Project limits (most direct route) plus mileage from the Project limits to the furthest location of the additional removal(s), round trip.

The Department will not pay for labor and Equipment for the installation/removal of additional traffic control devices when additional traffic control Work is combined with Plan-provided traffic control devices installation/removal during the original Contract period, unless a Contract revision meets the requirements listed in MnDOT 1402.3 and the Plan does not contain Item 2563.601 (Traffic Control).

The Department will not pay for labor and Equipment to inspect and maintain additional traffic control devices during the original Contract period, unless a Contract revision meets the requirements listed in MnDOT 1402.3 and the Plan does not contain Item 2563.601 (Traffic Control).

The Department will pay for labor and Equipment to inspect and maintain all traffic control devices when an extension of Contract Time is due to an excusable and compensable delay in accordance with MnDOT 1806.2B.

The Department will not pay for labor and Equipment to remove existing traffic control devices, provided under S-81 (2563) TRAFFIC CONTROL, when Contract Time is extended.

## **S-80 (2563) TRAFFIC CONTROL SUPERVISOR**

**REVISED 06/30/22**

### **S-80.1 DESCRIPTION**

This Work consists of providing a Traffic Control Supervisor during all major traffic control modifications to this project in accordance with S-81 (2563) TRAFFIC CONTROL. The Traffic Control Supervisor is responsible for managing the traffic control operations of the project, including those of the Contractor, Subcontractors, and suppliers. Traffic Control Management must be the Traffic Control Supervisor's primary responsibility.

### **S-80.2 MATERIALS**

See S-81 (2563) TRAFFIC CONTROL.

### **S-80.3 CONSTRUCTION REQUIREMENTS**

The Traffic Control Supervisor must be either an employee of the Contractor other than the superintendent, or an employee of a firm which has a subcontract for overall traffic control management.

The Traffic Control Supervisor must have a copy of the Temporary Traffic Control Plan and the “Minnesota Temporary Traffic Control Field Manual”. The Traffic Control Supervisor must have the authority needed to effectively complete modifications and perform maintenance of traffic controls. This includes having the authority necessary to obtain and use all labor, equipment, and materials needed to provide and maintain traffic control in routine and in emergency situations.

**A Certification**

Provide a copy of the designated Traffic Control Supervisor certification to the Engineer at the project pre-construction conference. The employee must be certified as a Traffic Control Supervisor by MnDOT or the American Traffic Safety Services Association (ATSSA). A person may become an ATSSA-certified Traffic Control Supervisor by receiving a certification from the ATSSA sponsored Traffic Control Supervisor-MN State Specific Course. A person may become a MnDOT-certified Traffic Control Supervisor by receiving a certification from the MnDOT sponsored Traffic Control Supervisor Course. Additional information on MnDOT’s certification program may be found at: <http://www.dot.state.mn.us/const/wzs/traffic-supervisor.html>.

**B Traffic Control Modifications**

Provide a Traffic Control Supervisor for all major traffic control modifications listed below:

- (1) Initial startup of the Project
- (2) Whenever any bypass is placed into operation
- (3) Winter suspension traffic control adjustment operation
- (4) Spring start-up traffic control adjustment operation
- (5) Completion of the Project
- (6) Any other major changes to the Traffic Control set-up (due to Contractors staging of operations)

The Traffic Control Supervisor must be on site three days prior to all major traffic control modifications listed above until the major traffic control modification is functioning properly allowing for safe, long term accommodations for traveling public. During the three day time period prior to the major traffic control modification, the Traffic Control Supervisor will be expected to develop a site plan for the major traffic control modification, to determine and ensure timely delivery of the proper quantity of traffic control devices, and to develop staging plans for the major traffic control modification operations. The Traffic Control Supervisor will then coordinate and direct the installation of the devices as well as the staging of the traffic control modification to ensure a safe and efficient transition is completed. Following the transition, the Traffic Control Supervisor will monitor the traffic flow of the site(s) in question and make modifications necessary to provide for the safe and efficient passage of the traveling public.

**C Specific Duties**

Traffic control management by the Traffic Control Supervisor includes:

- (1) Ensuring that traffic control devices are functioning as required. This includes the repair or replacement of all signs, barricades, and other traffic devices that become damaged, moved, or destroyed, or lights that cease to function properly, and barricade weights that are damaged or otherwise fail to stabilize barricades.
- (2) Providing sufficient surveillance of signs, barricades, and other traffic control devices. This includes inspecting traffic control devices on every calendar day that traffic control devices are in use (by the Traffic Control Supervisor or approved representative). Provide copies of the inspection logs on a weekly basis and at the request of the Engineer.

- (3) The Traffic Control Supervisor will be on the Project minimum of once every working day, "on call" at all times, and available within 60 minutes of notification at other than normal working hours. Provide the names, addresses, and phone numbers of at least three individuals (one of which is the Traffic Control Supervisor) responsible to provide and ensure immediate attention to the traffic control management to the Engineer.
- (4) Provide and maintain vehicular access to businesses, residences, parking lots, garages, farms, and other properties.

S-80.4 METHOD OF MEASUREMENT

The Engineer will measure Traffic Control Supervisor as a lump sum in accordance with MnDOT 1901.12 or the number of Unit Days of service.

S-80.5 BASIS OF PAYMENT

The Contract Unit Price for Traffic Control Supervisor is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Traffic Control Supervisor on the basis of the following schedule:

Item No.	Item	Unit
2563.601	Traffic Control Supervisor .....	lump sum
2563.613	Traffic Control Supervisor .....	unit day

**S-81 (2563) TRAFFIC CONTROL**

REVISED 09/27/24

S-81.1 DESCRIPTION

This Work consists of furnishing, installing, maintaining, and removing all traffic control devices required to provide safe movement of traffic and pedestrians through the Project at all times from commencement of the Work until Project Acceptance. Maintain roads and pedestrian facilities undergoing improvements in a condition that accommodates public traffic. Do not close roads or pedestrian facilities, except as authorized. The Engineer may modify the requirements for traffic control as deemed necessary.

The Department will maintain Detour Roads established by the Commissioner for through traffic diverted from the Project unless otherwise indicated in the Plan.

The use of maintenance crossovers in or near the construction area is permitted if authorized by the Engineer.

The Contractor is not responsible for snow removal from roads or pedestrian facilities open to public traffic. Do not suspend operations for the winter until meeting the requirements of 1803.4, "Temporary Suspensions". During authorized winter suspension, the Department will maintain traffic control devices. If traffic control devices are damaged or destroyed, the Department will pay the Contractor the value of the device as determined by the Engineer.

All temporary traffic management must conform to and be installed in accordance with:

- the "Minnesota Manual on Uniform Traffic Control Devices" (MN MUTCD);
- the "Minnesota Temporary Traffic Control Field Manual" (Field Manual);
- the "Speed Limits in Work Zones Guidelines";
- the "Minnesota Flagging Handbook";

- the "MnDOT Standard Signs and Markings Manual";
- the Plan;
- all applicable standard Specifications and Special Provisions.

Manuals listed above may be found at: <http://www.dot.state.mn.us/trafficeng/publ/index.html>

## S-81.2 MATERIALS

### A Temporary Signs and Devices

Reflectorize all signs, paddles, and other traffic control devices including those used for daytime operations. Fabricate temporary rigid signs and devices with retroreflective sheeting material of the appropriate color listed on the Approved Products List (APL) for either "Sheeting for Rigid Temporary Work Zone Signs, Delineators, and Markers (Type IX and XI)" or "Sheeting for Rigid Permanent Signs, Delineators, and Markers (Type IX and XI)". The sheeting Materials APL is located at the following link:

<http://www.dot.state.mn.us/products/signing/sheeting.html>.

Inplace signs that still apply during temporary operations need no change in sign sheeting.

### B Truck/Trailer Mounted Attenuators

The Approved Products List for "Mobile Crash Attenuators" is found at:

<http://www.dot.state.mn.us/products/temporarytrafficcontrol/mobilecrashattenuators.html>

### C Flashing Arrow Boards

On Projects requiring flashing arrow boards, provide Work Zone Data Exchange compliant arrow boards.

### D Crashworthy Signs, Traffic Control Devices, and Ballast

Ground mounted signs and traffic control devices must be crashworthy and meet the crash testing requirements of the AASHTO Manual for Assessing Safety Hardware 2016 (MASH-16). The Department may require a letter of compliance stating that all signs and traffic control devices comply with MASH-16 requirements. The Letter of Compliance must include drawings of the different signs and devices along with a copy of the FHWA issued Letter of Eligibility or MnDOT MASH Crashworthy Evaluation.

See MnDOT Technical Memorandum No. 19-03-T-01 for information and timelines on the allowable use of crashworthy devices tested under NCHRP-350. <https://techmemos.dot.state.mn.us/techmemo.aspx>

Trailer mounted devices are not crash tested and must be delineated when deployed and removed when not needed.

The approved ballast system for signs and devices mounted on temporary portable supports is sandbags, unless it is designed, crash tested, and approved for the specific device. Add a deicer during freezing conditions to prevent the sand from freezing. Place sandbags at the base of the sign or traffic control device. Do not use any ballast that causes a sign or traffic control device to become hazardous to motorists or workers.

## S-81.3 CONSTRUCTION REQUIREMENTS

### A Traffic Control Plan, Maintenance, and Inspection

- A.1 Submit proposed traffic control changes to the Engineer for acceptance if the Contractor modifies the traffic control Plan or Field Manual layout. Submit the proposed traffic control Plan at least seven days before implementation. If Field Manual layouts are used, specify layout number(s) but do not submit the layouts from the Field Manual. Do not implement the proposed traffic control modification until accepted by the Engineer.

- A.2 Immediately repair or replace all traffic control devices that become damaged, moved or destroyed, and all ballasts that are damaged, destroyed, or otherwise fail to stabilize the device.
  - A.3 Meet the traffic control device quality standards as required in the Field Manual. Immediately replace unacceptable traffic control devices. Signs that are dirty and result in a noticeable loss of reflectivity at night are considered unacceptable and must be cleaned or replaced. Respond promptly to any call from the Engineer concerning the notification of unacceptable traffic control devices.
  - A.4 Provide the names, addresses, and phone numbers of at least three individuals responsible for placing and maintaining traffic control devices to the Engineer at the Pre-construction Conference. These individuals will be "on call" 24 hours per day, seven days per week during the times any temporary traffic control devices are in place.
  - A.5 Inspect all traffic control devices on a daily basis, including one nighttime inspection per week. Verify that the devices and pavement markings are placed in accordance with the Traffic Control Plan, these Special Provisions, and the MN MUTCD. Immediately correct discrepancies between the actual placement and the required placement. Respond immediately to any call from the Engineer concerning any request for improving or correcting traffic control devices.
  - A.6 Make a daily log of required inspections. This log must indicate the date and time any changes in the stages, phases, or portions go into effect. The log must identify the location and verify that the devices and pavement markings are placed as directed or corrected in accordance with the Plan. The person making the inspection must sign the log and include the date and time of the entry. Provide copies of the inspection logs on a weekly basis and at the request of the Engineer.
- B Traffic Control Signs and Devices
- B.1 Roll-up signs are not allowed unless authorized by the Engineer.
  - B.2 Cover, modify, or remove all signs that are not consistent with traffic operations. Cover the entire sign or that part of the legend that is inappropriate. Sign covers must conform to the Typical Temporary Sign Covering Details Sheet found in the Plan or at the following link:  
<http://www.dot.state.mn.us/trafficeng/workzone/wz-ltta/pdf/tempcover.pdf>
  - B.3 Maintain Street identification signage at all times. Signs may be installed on temporary supports if the permanent sign Structures are affected by operations. This is necessary to maintain the 911 emergency system.
  - B.4 Post mount all signs that will remain in the same location for more than 30 consecutive days. This does not include portable signs which are set up and taken down at the beginning and end of each Work shift.

When the proper location of a sign is on pavement, do not core through the surface. If there is a conflict with underground utilities, attempt to move the sign while maintaining its visibility to traffic. If it is not possible to drive posts into the ground, mount signs on portable supports as approved by the Engineer.

When signs are removed, the sign posts and stub posts must also be removed from the Right-of-way. Posts left in place for future use or removal at a later date must be properly delineated with tubular markers, flags, or other delineation as approved by the Engineer at no additional cost.



- B.5 At the beginning of the Project, store at least 10 extra Type III barricades and 10 extra retroreflective drums to be used at the Engineer's discretion. Store the devices at a location approved by the Engineer.

If the Engineer orders additional devices, beyond the quantity specified above, the Department will compensate the Contractor according to S-79 (2562) ADDITIONAL TRAFFIC CONTROL DEVICES AND EXTENDED USE OF TRAFFIC CONTROL DEVICES.

- B.6 Signs and Structures damaged by the Contractor shall be replaced at the Contractor's expense.

C Traffic Safety

- C.1 Do not suspend material, Equipment, tools or personnel over lanes or pedestrian facilities open to traffic.
- C.2 Do not place Bridge deck concrete over lanes open to traffic or over active pedestrian facilities.
- C.3 Protect traffic and pedestrians from excavations, drop-offs, falling objects, splatter or other potential construction hazards.
- C.4 Do not store Materials or Equipment in the Work zone clear zone unless approved by the Engineer. If Materials or Equipment must be stored within the Work zone clear zone, protect with temporary barrier. If the Engineer agrees that temporary barrier is not practical, delineate with Type B channelizers.
- C.5 Do not park vehicles or construction Equipment in the clear zone or any location that obstructs traffic control devices. Workers are not allowed to park their private vehicles within the Project limits unless approved by the Engineer.
- C.6 Do not load or unload material or Equipment on the Shoulders of any Roadway without a full Shoulder closure using signs and channelizing devices shown on Layout 8 in the Field Manual.

D High Visibility Apparel

During night work or low light conditions, all workers must wear high visibility Class E long pants and retro-reflective headgear in addition to the ANSI Class 2 or 3 vest, shirt, or jacket.

All high visibility apparel must be worn in the manner for which it was designed. All apparel worn on the torso must be closed in the front to provide 360-degree visibility. A worker's high-visibility apparel must be removed from service and replaced if it becomes faded, worn, torn, dirty, or defaced, reducing the conspicuity of the apparel.

E Night Work

Night work is not permitted on this Project without prior approval of the Engineer.

F Vehicle Warning Light Specification

All vehicles and Equipment operating in the trunk highway Right-of-way, must have operable warning lights that are amber in color and meet the appropriate SAE Specification. The SAE Specification requirements are as follows:

- (1) Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles- SAE Specification J845.
- (2) Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles - SAE Specification J595.

Details on SAE Specification can be found at: <http://www.dot.state.mn.us/const/wzs/lighting.html>

**G Lane Closure Requirements**

- G.1 Temporary lane closures or other traffic restrictions by the Contractor, during work hours and consistent with the time restrictions, will be permitted only during those hours and at those locations approved by the Engineer. Request temporary lane closures at least 24 hours prior to such closures.
- G.2 Work that will restrict or interfere with traffic shall not be performed between 12:00 noon on the day preceding and 9:00 a.m. on the day following any consecutive combination of a Saturday, Sunday and legal holiday.
- G.3 Place traffic control devices in any temporary lane closure that is adjacent to traffic and extends beyond 1000 feet as shown on Layout 61 of the Field Manual. When the lane closure is in place three days or longer, use only Type III barricades.
- G.4 Use Drum Channelizers in all lane closure tapers and in any shifts in traffic alignment.
- G.5 No center lane closures will be permitted.
- G.6 Maintain a minimum of two miles between temporary lane closures.
- G.7 Temporary lane closures will not be permitted during inclement weather, nor any other time when, in the opinion of the Engineer, the lane closure will be a greater than normal hazard to traffic.
- G.8 When working on the Shoulder or median, provide a lane closure on mainline adhering to the above lane closure restrictions.

**H Truck/Trailer Mounted Attenuators (TMAs) For Mobile/Short Duration Operations**

Truck/Trailer Mounted Attenuators (TMA) must be used on all shadow and protection vehicles operating totally or partially in a Traffic Lane if any temporary traffic control zone is defined as "Mobile/Short Duration" by the Field Manual. All references to "should" in the Field Manual in regard to TMA use for Mobile/Short Duration layouts are hereby changed to "shall". This requirement applies to all operations utilizing Field Manual layouts 9, 10, 12, 13, 36, 41, 49, 50, 51, 54, 55, 63, 76, 77, 78, and 79. Providing TMAs for "Mobile/Short Duration" work zones is included in Traffic Control Lump Sum.

I Flagging Operations

- I.1 Flaggers and Pilot Drivers must attend a training session taught by a MnDOT-Qualified Flagger Trainer. The trainer must have completed a "MnDOT Flagger Train the Trainer Session" within the last five years and be on file as a qualified Trainer with MnDOT. Provide all flaggers with the MnDOT Flagging Handbook. Flaggers must be in possession of the handbook while flagging on the Project. Furnish the signed "Checklist for Flagger Training" or "Flagger Qualification Card" to the Engineer any time a new flagger reports to work on the Project. The "Checklist for Flagger Training" and other forms and information is found at:  
<http://www.dot.state.mn.us/const/wzs/flagger.html>

Flaggers must be properly uniformed in the required high visibility apparel, including a high visibility hat. The high visibility hat can be substituted for a hard hat if the work site has a hard hat requirement.

- I.2 All signs associated with the flagging operation must be removed or covered when flagging operations are not present.
- I.3 Coordinate the flagging operations in a manner that causes minimum delay to the traveling public. The maximum delay time is 10 minutes. If the operation exceeds the maximum delay time, the operation must be discontinued until a new traffic control plan is developed which meets the maximum delay requirement.
- I.4 No additional flaggers are required at any specific project locations within the limits of flagging operations.
- I.5 Provide flaggers as directed by the Engineer for Contractors operations that create hazards to the traveling public. No additional payment will be made for flaggers required for this purpose.

J Milling, Sealcoating, and Paving Operations

- J.1 Taper and/or chamfer any drop-off where traffic will cross from or to the in-place surface, or from or to the milled surface, so as to provide for the safe passage of traffic.
- J.2 Schedule construction operations to minimize traffic exposure to uneven lanes, milled edges, and edge drop-offs. If these conditions cannot be avoided, provide and maintain the appropriate traffic control in accordance with the "LONGITUDINAL DROP OFF GUIDELINES" in the Field Manual.

K Maintenance and Staging of Traffic Control

- K.1 Maintain a minimum lane width of 11 feet on all Roadways. Traffic must not be allowed or forced onto the Shoulders without prior approval of the Engineer.
- K.2 Access to and from the Project Site is subject to approval by the Engineer.
- K.3 Keep the Right of Way fence closed during non-working hours.

**S-81.4 METHOD OF MEASUREMENT**

All traffic control required to complete the Project as shown in the Plans and specified in these Special Provisions will be made as a lump sum payment under Item 2563.601 (Traffic Control). Payment includes all costs associated with furnishing, installing, maintaining, relocating and subsequently removing traffic control devices (including flaggers) as required. No additional measurement for payment will be made for individual activities and devices that constitute Traffic Control, except for other traffic control Bid items specifically listed in the Statement of Estimated Quantities.

Traffic Control layouts and devices not shown in the Plan or stated in these Special Provisions, that are necessary to facilitate traffic switches or for transitioning traffic from one stage to another, are included in the lump sum traffic control item. If the Contractor requests a change in traffic control and these changes are implemented, there will be no increase or decrease in the lump sum payment for traffic control. If the Engineer orders a change in traffic control because of a Plan error, omission, changed condition or change of Project scope, payment for such changes will be made as Extra Work.

If the Contractor fails to properly provide, install, maintain, or remove any of the required traffic control devices, the Department may correct the deficiency and to deduct the costs from any moneys due or becoming due to the Contractor in accordance with MnDOT 1512, "Unacceptable and Unauthorized Work".

**S-81.5 BASIS OF PAYMENT**

Partial payments for lump sum Item 2563.601 (Traffic Control) will be made as follows:

**Table SP2563-2**  
**Traffic Control Partial Payments**

<b>Percent of Original Contract Completed</b>	<b>Pay this Percentage of Traffic Control</b>
5	50
10	75
50	95
All Work Completed And All Traffic Control Removed	100

**A Monetary Price Adjustments**

The Department must apply incentives and disincentives and may apply monetary deductions for (2563) TRAFFIC CONTROL. The amounts of these adjustments are deemed reasonable.

If the Contractor fails to adhere to the established time schedules, the Department may assess a monetary adjustment of \$1,500.00 per hour for each hour or portion of an hour that the Engineer determines that the Contractor has not complied.

**B Schedule**

The Contract Unit Price for Traffic Control is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Traffic Control on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2563.601	Traffic Control .....	Lump Sum

**S-82 (2563) RAISED PAVEMENT MARKER TEMPORARY**

REVISED 06/30/22

S-82.1 DESCRIPTION

This Work consists of furnishing, installing, maintaining and removal of temporary raised pavement markers (TRPMs) and the selected mounting system in accordance with S-81 (2563) TRAFFIC CONTROL.

S-82.2 MATERIALS

TRPMs.....Temporary Raised Pavement Markers APL

The color, type, and one-way or two-way is specified in the Plans.

S-82.3 CONSTRUCTION REQUIREMENTS

Install new, unused temporary raised pavement markers, on a clean dry pavement surface, air blown or brushed to remove surface dust, dirt, and foreign matter. Affix TRPMs to the pavement surface as per the manufacturer's recommendation.

The spacing and location of the temporary raised pavement markers is specified in the Plans.

Replace damaged or missing TRPMs within twenty-four (24) hours of notification, at no cost to the Department.

Remove all containers, wrappers and used or damaged markers, etc. from the job site at the time of installation, during the project, and at the time of removal.

Damage to permanent surfaces due to installing, maintaining, and removing TRPMs must be repaired at no cost to the Department.

S-82.4 METHOD OF MEASUREMENT

The Engineer will measure the number of temporary raised pavement markers installed.

S-82.5 BASIS OF PAYMENT

The Contract Unit Price for Raised Pavement Marker Temporary is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Raised Pavement Marker Temporary on the basis of the following schedule:

Item No.	Item	Unit
2563.602	Raised Pavement Marker Temporary .....	each

**S-83 (2563) TUBULAR MARKER**

REVISED 04/14/23

S-83.1 DESCRIPTION

This Work consists of furnishing, installing, replacing, and removing tubular markers in accordance with the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) and S-81 (2563) TRAFFIC CONTROL.

S-83.2 MATERIALS

Tubular Markers .....Tubular Markers APL

The color of the Tubular Marker is specified in the Plans.

**S-83.3 CONSTRUCTION REQUIREMENTS**

Furnish, install, replace and remove tubular markers in accordance with manufacturer's specifications and the Plans.

**A General**

The color(s) and location of the tubular markers as shown in the Plans.

Pavement repair due to the removal of the post and surface mount assembly shall be done as directed by the Engineer.

Tubular markers that are fastened to the concrete or bituminous pavement with epoxy cement shall not be placed without the prior approval of the Engineer.

**B Replacing Tubular Markers**

The Contractor shall replace damaged or missing tubular markers and bases on a daily basis with new or used Materials (approved by the Engineer), including the high impact plastic tubing, the polyethylene support tubing and the reflective sheeting.

**S-83.4 METHOD OF MEASUREMENT**

The Engineer will measure the number of tubular markers furnished, installed, and removed.

The Engineer will measure the number of tubular markers replaced.

**S-83.5 BASIS OF PAYMENT**

The Contract Unit Price for Tubular Marker is compensation in full for Equipment, Materials and labor required to complete the Work.

The Contract Unit Price for Replace Tubular Marker is compensation in full for Equipment, Materials and labor required to replace the Tubular Markers or portions of the Tubular Markers.

The Department will pay for Tubular Marker and Replace Tubular Marker according to the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2563.602	Tubular Marker .....	each
2563.602	Replace Tubular Marker .....	each

**S-84 (2563) ELECTRONIC WORKERS PRESENT SPEED LIMIT SYSTEM**

**REVISED 09/27/24**

**S-84.1 DESCRIPTION**

This Work consists of furnishing, installing, maintaining and removing an "Electronic Workers Present Speed Limit System", in accordance with S-81 (2563) Traffic Control.

**S-84.2 MATERIALS**

Temporary Signs and Devices .....S-81 (2563) Traffic Control

S-84.3 CONSTRUCTION REQUIREMENTS

Furnish and install an Electronic Workers Present Speed Limit System that operates while lane closures are in use and workers are present in the lane adjacent to through traffic. The system consists of an electronic speed limit signs with a changeable message sign (CMS) inserts and covering inplace permanent speed limit signs within the limits of the Electronic Workers Present Speed Limit.

Cover the inplace permanent speed limit signs in accordance with Plan sheet TC22.

Maintain, operate, relocate and remove the electronic speed limit signs as shown in the Traffic Control Plans.

Operate the system continuously 24 hours a day, 7 days a week, displaying either the workers present or 24/7 construction speed limit as appropriate. To ensure speed limit accuracy based on the workers' presence, an operator must be on site to monitor worker location.

Provide a system that is equipped with GPS locating system to provide accurate location.

Collect and store speed limit data and archive into a database with time and date stamps which will be provided to the Engineer upon request, and at completion of the Project.

Respond immediately to calls from the Engineer concerning requests for correcting system deficiencies.

It is the responsibility of the Contractor to replace damaged Equipment due to crashes, vandalism, adverse weather, etc. that occurs during the system's deployment.

A System Requirements:

A.1 Speed Limit Signs with CMS Inserts

Display white LED characters on an opaque black background. Minimum character (number) height is 18 inches and width is 12 inches. Signs must be clearly visible and legible from a distance of 1,000 feet under both day and night conditions. Provide electronic speed limit signs that can be changed remotely and locally at the site.

Provide a Work Zone Data Exchange (WZDx) device feed for CMS inserts, CMS inserts are to be considered "Hybrid Signs" in the WZDx feed. Provide data in accordance with WZDx, version 4.1 or newer. Provide data at least once every 5 minutes while devices is on site, even if device is not deployed.

Provide the IP address(s) to access the WZDx device feeds and the User Name and Password to access the device feed (if needed) to the Engineer at the Preconstruction meeting. Provide this information no less than 5 days prior to new devices being deployed or changes to the onsite device.

S-84.4 METHOD OF MEASUREMENT

The Engineer will measure the number of Electronic Worker Present Speed Limit systems furnished and installed or the number of Unit Days each Electronic Worker Present Speed Limit system is in service.

S-84.5 BASIS OF PAYMENT

The Contract Unit Prices for Electronic Workers Present Speed Limit System is compensation in full for Equipment, Materials and labor required to complete the work.

The Department will pay for Electronic Workers Present Speed Limit System on the basis of the following schedule:

<b>Item No.:</b>	<b>Item:</b>	<b>Unit:</b>
2563.602	Electronic Workers Present Speed Limit System.....	Each
2563.613	Electronic Workers Present Speed Limit System .....	Unit Day

**S-85**                    **(2563) PORTABLE CHANGEABLE MESSAGE SIGN**  
**REVISED 06/30/22**

S-85.1            DESCRIPTION  
This Work consists of furnishing, installing, maintaining, and removing Portable Changeable Message Signs (PCMS) in accordance with S-81 (2563) TRAFFIC CONTROL.

S-85.2            MATERIALS  
Changeable Message Signs - Type C.....Temporary Traffic Control Electronic Equipment APL

S-85.3            CONSTRUCTION REQUIREMENTS  
Provide Type C Trailer Mounted Message Signs that meet the requirements specified in the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD). The PCMS must have eight characters per line, three lines, and a character height of 18 inches.

Operate each PCMS at maximum legibility. Failure to operate a PCMS at maximum legibility, as determined by the Engineer, will result in no payment for each day that the Message Sign is deemed inadequate.

When the PCMS is on the Shoulder and in use, delineate the PCMS according to Layout 7 (Partial Shoulder Closure) in the Field Manual. The PCMS must be stored off the Shoulder, beyond the clear zone distance, when it is not actively being used as a traffic control device.

Revise the messages as directed by the Engineer.

S-85.4            METHOD OF MEASUREMENT  
The Engineer will measure the number of portable changeable message signs furnished and installed or the number of Unit Days each portable changeable message sign is in service.

S-85.5            BASIS OF PAYMENT  
The Contract Unit Price for Portable Changeable Message Sign is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Portable Changeable Message Sign on the basis of the following schedule:

<b>Item No.</b>	<b>Item</b>	<b>Unit</b>
2563.602	Portable Changeable Message Sign .....	each
2563.613	Portable Changeable Message Sign .....	unit day



**S-86 (2573) STORM WATER MANAGEMENT**  
**REVISED 04/14/23**

S-86.1 Add the following to MnDOT 2573.5:

I Unit Prices

In addition to stormwater management Pay Items included in the Plan, the Engineer may require the items listed below. Payment for additional items as ordered by the Engineer will be made in accordance with the following schedule:

Wheel Wash off .....	\$5000.00/each
Flocculant Sock (250,000 gal. treatment vol.) .....	\$265.00 each
Bale Barrier .....	\$8.00/foot
Silt Fence, Type HI .....	\$4.50/foot
Silt Fence, Type SD .....	\$30.00/foot
Silt Fence, Type MS .....	\$2.75/foot
Flotation Silt Curtain, Type: Moving, 1.2 m (4 foot) depth .....	\$22.50/foot
Sediment Control Log, Type Wood Fiber .....	\$4.00/foot
Sediment Control Log, Type Compost .....	\$4.00/foot
Sediment Control Log, Type Rock .....	\$12.00/foot
Sediment Trap Excavation.....	\$10.00/cubic yard
Sandbag Barrier.....	\$15.00/square foot
Sand Tote Bag .....	\$75.00/each
Sediment Removal, Backhoe .....	\$240.00/hour
Sediment Removal, Vacuum truck.....	\$425.00/hour
Temporary Slope Drain (18" diameter) .....	\$100.00/linear foot
Water Treatment Type Sediment Tank.....	\$20,250.00/each

**S-87 (2573) STORM WATER MANAGEMENT (MPCA PERMIT)**  
**NEW 08/07/23**

S-87.1 Add the following to MnDOT 2573.3A.1, "Erosion Control Supervisor:"

Inspect and photograph dewatering operations at the beginning of dewatering and at least once every 24 hours during dewatering to ensure that the system is cleaning the water sufficient to prevent the discharge from causing nuisance conditions. Photographs must show the condition of the discharge, the discharge location, and the receiving water. Include photographs in the next stormwater inspection report.

Reduce stormwater inspection frequency to once per month in areas of the project where construction activity has been completed and the planted native vegetation has a temporary vegetation density of 70 percent.

Prior to project completion take photographs of representative locations to document that all surfaces intended for permanent vegetation have a uniform cover of perennial vegetation with a density of at least 70 percent of expected cover at maturity. Submit these photos to the Engineer to be filed with the Notice of Termination.

**S-88 (2574) SOIL PREPARATION**

RESTORED 06/30/23

S-88.1 Add the following to MnDOT 2574.5:

C. Unit Prices

In addition to soil preparation Pay Items included in the Plan, the Engineer may require the items listed below as site conditions warrant (provided the items listed below are not already included in the Plan). Payment for additional items as ordered by the Engineer will be made in accordance with the following schedule:

Subsoiling.....\$300.00/acre  
Soil Bed Preparation .....\$350.00/acre  
Soil Tracking.....\$2,500.00/acre

**S-89 (2575) ESTABLISHING VEGETATION AND CONTROLLING EROSION**

REVISED 06/28/24

S-89.1 Delete and replace Table 2575.3-1 with the following:

**Table 2575.3-1  
Seeding Dates**

Seed Mixture	Spring	Fall
Oats	May 1 – August 1	
Winter Wheat	---	August 1 – October 1
Oats and Peas	Year round	---
Two-year Cover Crop*	April 1 – July 20	July 20 – October 20
Boulevard and Turfgrass mixes, Snow Fence Ground Cover, Inslope mixes, Patch mix*	April 1 – June 1	July 20 – September 20
Roadside and Wet Ditch mixes	April 15 – July 20	September 20 – October 20
*Plant these mixes from April 15 through September 20 when working on or north of TH 2.		

S-89.2 Delete and replace the first paragraph of MnDOT 2575.3 B.2 Seeding Turf Mixes with the following:

**B.2 Seeding Cover Crop and Turfgrass Mixtures**

Mechanically sow or hydraulically apply Cover Crop, Boulevard, Turfgrass, Snow Fence, Inslope, and Patch mixes uniformly at the adjusted bulk application rate of each mixture. Only use hand operated mechanical spreaders on areas too small for or inaccessible by the specified equipment.

S-89.3 Delete and replace MnDOT 2575.3 B.3 with the following:

**B.3 Seeding Roadside and Wet Ditch Mixtures**

Seed Roadside and Wet Ditch mixes with a native seed drill, a drop type seeder, or a hydro seeder uniformly at the adjusted bulk application rate of each mixture.

Use a drill or drop seeder with separate seed boxes for fluffy seed and small flowable seed, capable of accurately metering seed of various sizes, and capable of maintaining a uniform mixture of seeds during planting.

Seed drills must have separate seed boxes for fluffy seed and small flowable seed, be capable of accurately metering seed of various sizes, and be capable of maintaining a uniform mixture of seeds during planting. They must also have disc furrow openers and a packer assembly that compacts the soil directly over the drill row. Plant seeds in rows no greater than 8 inches apart and at a depth of between 1/8 inch and 3/8 inch. Drill perpendicular to the direction of surface drainage.

Drop seeders must have separate seed boxes for fluffy seed and small flowable seed, be capable of accurately metering seed of various sizes, and be capable of maintaining a uniform mixture of seeds during planting. They must also have a packer assembly that firms the soil immediately after the seed lands on it or be followed immediately by a separate cultipacker.

Use cyclone or spinner-type seeders on areas no greater than 1 acre or on areas inaccessible to other Equipment as approved by the Engineer.

S-89.4 Delete and replace the second paragraph of MnDOT 2575.3L "Turf Establishment" with the following:

Unless otherwise shown on the Plans, establish vegetative cover by sodding or by seeding and mulching. Fertilize the areas with a slow release fertilizer in accordance with 3881.2B.3 "Type 3 – Slow Release Fertilizer" at a rate derived from a topsoil fertility test result. If seeding, provide and place Mesic Inslope seed mixture as specified in 3876 "Seed." Stabilize seeded areas with Type 3 Mulch in accordance with 3882 "Mulch Material" and disc anchoring. Stabilize slopes steeper than or equal to 3h:1v, ditch bottoms, and other areas of concentrated flow with category 25 Rolled Erosion Prevention Product.

S-89.5 Delete and replace the first sentence of MnDOT 2575.3 L.1 Subsurface Drain Outlets with the following:

As per 2502 "Subsurface Drains," plant the area around subsurface drain outlets with the seed mixture shown in the Plans. Plant Mesic Inslope Seed Mixture in accordance with 3876 "Seed" if no seed mixture is shown in the Plans.

S-89.6 Delete Table 2575.3-3 Rapid Stabilization and replace it with the following:

**Table 2575.3-3**  
**Rapid Stabilization**

Method	Materials
1	2 tons per acre of Type 1 mulch followed by disc anchoring
2	1.5 tons per acre of Type 3 mulch 750 pounds per acre of Stabilized Fiber Matrix (3884.2 B.3)
3	A slurry consisting of the following and applied at a rate of 6,000 gallons per acre: <ul style="list-style-type: none"> <li>• 330 pounds of Stabilized Fiber Matrix (3884.2 B.3) per 1,000 gallons of slurry</li> <li>• 10 pounds of Two-year Cover Crop Seed Mixture per 1,000 gallons of slurry</li> <li>• 50 pounds of 10-10-10 Type 3 slow release fertilizer per 1,000 gallons of slurry</li> <li>• 875 gallons of water per 1,000 gallons of slurry</li> </ul>
4	Category 25 Rolled Erosion Prevention Product 2 pounds per 100 square yards of Two-year Cover Crop Seed Mixture 8 pounds per 100 square yards of 10-10-10 Type 3 slow release fertilizer
5	Riprap, Class II Geotextile, Type 3

S-89.1 Add the following to MnDOT 2575.4:

The Engineer will measure Seed Mixture Special in accordance with 2575.4B "Seed".

S-89.2 Add the following to MnDOT 2575.5K:

Item No.	Item	Unit
2575.608	Seed _____	.....pound

S-89.3 Add the following to MnDOT 2575.5:

L Unit Prices

In addition to the erosion control Pay Items included in the Plan, the Engineer may require the items listed below as site conditions warrant (provided the items below are not already included in the Plan). Payment for additional items as ordered by the Engineer will be made in accordance with the following schedule:

Disc Anchoring .....\$100.00/acre  
Mulch Material, Type 1 .....\$250.00/ton

Seed Mixtures (for temporary use)

21-111 or 21-112 .....\$1.90/pound  
21-113.....\$2.25/pound  
22-111.....\$4.50/pound  
32-241.....\$36.00/pound  
34-171.....\$65.00/pound

Erosion Control Blanket

Category 25 .....	\$2.40/square yard
Category 30 .....	\$2.25/square yard
Category 72 .....	\$11.00/square yard

Rapid Stabilization

Method 1 .....	\$1,000.00/acre
Method 2 .....	\$1,300.00/acre
Method 3 .....	\$600.00/M Gallon
Method 4 .....	\$1.75/square yard
Hydraulic Stabilized Fiber Matrix .....	\$1.00/pound
Hydraulic Reinforced Fiber Matrix .....	\$2.00/pound
Temporary Poly (Fiber Reinforced) Covering .....	\$5.00/square yard
Temporary Geotextile Covering .....	\$7.00/square yard
Water .....	\$31.00/M Gallon
Mowing (Hand Whip) .....	\$100.00/hour
Mowing (Machine) .....	\$300.00/acre
Weed Spraying .....	\$150.00/acre

M Sod

The Contract Unit Price for sod includes maintenance as described in 2575.3 K.1 during the 30 day maintenance period and during any extension to the maintenance period due to sod replacements. The Contract Unit Price for sod does not include additional watering or maintenance ordered by the Engineer after the 30 day maintenance period or after any extension in the maintenance period due to sod replacements, whichever is longer.

**S-90 (2581) REMOVABLE PREFORMED PLASTIC MASK (BLACK)**

**REVISED 06/30/22**

S-90.1 DESCRIPTION  
This Work consists of furnishing, placing, maintaining, replacing, removing, and disposing of temporary pavement marking material over inplace pavement markings on bituminous pavement in accordance with MnDOT 2104 and MnDOT 2581.

S-90.2 MATERIALS – See Standard Specifications for Construction

S-90.3 CONSTRUCTION REQUIREMENTS  
Fully cover conflicting pavement markings with plastic mask (black).

For recessed longitudinal pavement markings, plastic mask (black) may be trimmed to fit within recessed area. Excess material shall be discarded in accordance with MnDOT 2581.3.

For pavement marking messages, fully cover irregular shaped markings with a rectangle shape of least dimensions.

S-90.4 METHOD OF MEASUREMENT

The Engineer will measure Removable Preformed Plastic Mask (Black) tape on equivalent lengths of 6 inch wide marking tape furnished and installed. Segmented line markings will be measured by the actual length of material used and will not include the gap between the line segments.

S-90.5 BASIS OF PAYMENT

The Contract Unit Price for Removable Preformed Plastic Mask (Black) is compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Removable Preformed Plastic Mask (Black) on the basis of the following schedule:

Item No.	Item	Unit
2581.603	Removable Preformed Plastic Mask (Black) .....	linear foot
2581.618	Removable Preformed Plastic Mask (Black) .....	square foot

**S-91 (2582) PAVEMENT MARKINGS**

REVISED 09/29/23

S-91.1 Add the following to MnDOT 2582.2:

For pavement marking installations between the dates of October 15 and April 1, provide and use pavement marking Materials listed on the "Late Season Pavement Marking Materials" APL.

S-91.2 Delete and replace the fourth paragraph of MnDOT 2582.3B.7.b with :

For Pref Tape Gr In provide a recess depth between 150 mil to 200 mil. For Pref Thermo Gr In provide a recess depth of 110 mil ± 10 mil.

S-91.3 Delete and replace MnDOT 2582.3C.3 with :

**C.3 Retroreflectivity**

Initial pavement marking retroreflectivity is defined as the pavement marking dry and wet retroreflectivity when measured between 14 Calendar Days and 44 Calendar Days after pavement marking installation, prior to snow and ice maintenance operations.

**C.3.1 Dry Retroreflectivity**

Provide pavement markings meeting the following minimum initial pavement marking dry retroreflectivity when tested using 30-meter geometry in accordance with *ASTM E1710, Standard Test Method for Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer*.

**Table 2582.3-2**  
**Minimum Initial Pavement Marking Dry Retroreflectivity**

	<b>White</b>	<b>Yellow</b>
Pref Tape	600 millicandela/square meter/lux	500 millicandela/square meter/lux
Pref Thermo	300 millicandela/square meter/lux	200 millicandela/square meter/lux
Pref Thermo, ESR (Enhanced Skid Resistance)	250 millicandela/square meter/lux	150 millicandela/square meter/lux
Multi Comp	300 millicandela/square meter/lux	200 millicandela/square meter/lux
Paint	275 millicandela/square meter/lux	180 millicandela/square meter/lux

### **C.3.2 Wet Retroreflectivity**

When recessed, provide linear pavement markings in the field meeting minimum initial pavement marking wet retroreflectivity as listed in Table 2582.3-2A in accordance with ASTM E 2832, *Standard Test Method for Measuring the Coefficient of Retroreflected Luminance of Pavement Markings in a Standard Condition of Continuous Wetting*.

**Table 2582.3-2A**  
**Minimum Initial Pavement Marking Wet Retroreflectivity**

	<b>White</b>	<b>Yellow</b>
All Materials	200 millicandela/square meter/lux	200 millicandela/square meter/lux

## **S-92 (2582) PAVEMENT MARKINGS (SPOTTING METHOD AND WR)**

**REVISED 06/30/23**

S-92.1 Add the following to MnDOT 2582.3B:

Obtain acceptance from the Engineer prior to using longitudinal joints, pavement edges and existing marking as horizontal control. Provide marking related lane closures and traffic control. Locate points to provide horizontal control for permanent and temporary pavement markings. Prior to placing pavement markings, obtain acceptance of proposed locations from the Engineer.

S-92.2 Delete and replace the third paragraph of MnDOT 2582.3B.8 with:

For WR markings, apply wet reflective media per manufacturer's specifications and apply the Utah Blend beads specified in 3592.B.2 "Utah Blend" Gradation as the second drop glass bead.

**S-93            (3107) MASONRY MORTAR****RESTORED 06/30/23**

S-93.1        Delete and replace MnDOT 3107 with the following:

## 3107.1        SCOPE

Provide masonry mortar for use in utility/sewer and other applications.

## 3107.2        REQUIREMENTS

## A.            Utility/Sewer Application

Provide a preblended, dry, air-entrained, bagged mortar mix designed for utility/sewer applications from the approved source listed on the *Approved/Qualified Products List*, meeting the requirements of *ASTM C270, Standard Specification for Mortar for Unit Masonry*, and *ASTM C1714, Standard Specification for Preblended Dry Mortar Mix*.

Mix the preblended bagged mortar mixture onsite for the minimum time stated by the manufacturer. Do not exceed the manufacturer allowable mixing water. If the manufacturer does not recommend a minimum mixing time, mix the preblended bagged mortar mixture for a minimum of 5 minutes. The Engineer will not allow retempering the mortar mixture and will reject mortar mixtures not placed within 60 minutes of mixing.

## B.            Applications Other Than Utility/Sewer

For applications other than for utility/sewer, provide masonry mortar in accordance with *ASTM C270, Standard Specification for Mortar for Unit Masonry*, based on the type of mortar required by the Contract. Mix in accordance with the manufacturer's recommendations.

For site mixed masonry mortar using bagged masonry cement, submit to the Engineer a statement of compliance meeting the requirements of *ASTM C91, Standard Specification for Masonry Cement*. Label the type of masonry cement, either Type S or Type M, on each bag.

## 3107.3        SAMPLING AND TESTING

Provide samples for site mixed masonry mortar as required by the Contract.

**S-94            (3113) ADMIXTURES FOR CONCRETE****RESTORED 06/30/23**

S-94.1        Delete and replace MnDOT 3113.2A with the following:

Provide Class I admixtures from the Approved Products List meeting the requirements of *ASTM C494, Standard Specification for Chemical Admixtures for Concrete*.

Department identifies the following as Class I admixtures:

- (1)        Type A — Water reducing
- (2)        Type B — Retarding
- (3)        Type C — Accelerating
- (4)        Type D — Water reducing and retarding
- (5)        Type E — Water reducing and accelerating



- (6) Type F — Water reducing, high range
- (7) Type G — Water reducing, high range and retarding
- (8) Type S — Specific performance admixtures

Provide Class II air-entraining admixtures from the Approved Products List meeting the requirements of *AASHTO M 154, Standard Specification for Air-Entraining Admixtures for Concrete*, except the tests for bleeding, bond strength, and volume change are not required.

Provide Class III corrosion inhibiting chloride admixtures from the Approved Products List meeting the requirements of *ASTM C1582, Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete*.

## **S-95            (3115) FLY ASH FOR USE IN PORTLAND CEMENT CONCRETE**

**NEW 03/29/24**

S-95.1        Delete and replace MnDOT 3115 with the following:

### **3115            FLY ASH FOR USE IN PORTLAND CEMENT CONCRETE**

#### **3115.1        SCOPE**

Provide fly ash or coal ash for use in concrete and other applications.

#### **3115.2        REQUIREMENTS**

Provide fly ash or coal ash from the certified source listed on the Approved/Qualified Products List.

Provide materials meeting the requirements of ASTM C618, "Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete."

Ensure the following standardized Certification Statement is included with delivery invoices: "(insert company name) certifies that the (material name) produced at (insert plant and location) conforms to MnDOT Specification 3115 for Class (insert class) coal ash."

#### **3115.3        SAMPLING AND TESTING**

Provide samples for testing meeting the requirements of the Schedule of Materials Control.

## **S-96            (3116) NATURAL POZZOLAN**

**NEW 06/28/24**

#### **S-96.1        SCOPE**

Provide natural pozzolan for use in concrete and other applications.

#### **S-96.2        REQUIREMENTS**

Provide raw or calcined natural pozzolan material listed on the *Approved/Qualified Products List*, meeting the requirements of *ASTM C618, Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete*.

Include the following standardized Certification Statement with delivery invoices: “(insert company name) certifies that the (material name) produced at (insert plant and location) conforms to MnDOT 3116 for Class N Natural Pozzolan.”

S-96.3 SAMPLING AND TESTING

Provide samples for testing meeting the requirements of fly ash in the *Schedule of Materials Control*.

**S-97 (3131) INTERMEDIATE AGGREGATE FOR PORTLAND CEMENT CONCRETE**

**NEW 09/29/23**

S-97.1 Add the following to the first paragraph of MnDOT 3131.2D:

If the CIA is <15 percent of the total aggregate in the mix, Table 3137.2-3(b) is modified to a maximum of 50.0 percent by weight of Carbonate in Class C aggregate.

**S-98 (3137) COARSE AGGREGATE FOR PORTLAND CEMENT CONCRETE**

**NEW 03/29/24**

S-98.1 Delete MnDOT 3137.2C and replace with the following:

**C Washing**

Wash Class B, Class C, Class D, and Class R coarse Aggregate to comply with the requirements of Table 3137.2-1(i). Wash Class A aggregate as needed to comply with the requirements of Table 3137.2-1(i), except always wash Class A aggregate for use in Concrete Pavement.

S-98.2 In Table 3137.2-1, delete the “#” footnote and replace with the following:

# Each individual fraction at the point of placement consists of dust from fracture and free of soil (eg., clay and silt) and shale.

**S-99 (3138) AGGREGATE FOR SURFACE AND BASE COURSES**

**REVISED 03/29/24**

S-99.1 Add the following to MnDOT 3138.2C:

- (3) When mixing recycled Aggregate with virgin Aggregate, the minimum Los Angeles Rattler of Carbonate virgin Aggregate is 40%. Meet all other virgin Aggregate requirements in 3138.2B, “Virgin Materials”.

S-99.2 Add the following note under Table 3138.2-3 of MnDOT 3138.2E:

For 100% crushed quarried class 5 aggregate, the required passing the number 4 sieve is 30 – 80, the required passing the number 10 sieve is 15 – 65, the required passing the number 40 sieve is 7 – 35, and the required passing the Number 200 sieve is 3.0 – 12.0. The 1-1/2 inch, 3/4 inch, and 3/8 inch requirements for crushed quarried class 5 aggregate are the same as in Table 3138.2-3.

S-99.3 Delete and replace MnDOT 3138.2D(5) with the following:

- (5) Provide Aggregate with a minimum clay content of 3 percent and a Plasticity Index (PI) of 5 - 12. In lieu of meeting the minimum clay content and PI, the requirements are fulfilled if one of the following are met:
- (a) the Aggregate is composed of at least 25 percent recycled Materials.
  - (b) the Aggregate is composed of at least 25 percent crushed quarry Aggregate.
  - (c) If using glacial or fluvial Aggregate, a minimum of 5 percent 3/8 minus crushed limestone is added.

**S-100 (3149) GRANULAR MATERIAL**

**NEW 06/28/24**

S-100.1 Replace 3149.2D.2 with the following:

**D.2 Structural Backfill**

Provide 100 percent virgin structural backfill meeting the requirements of Table 3149.2-3, and the following.

**Table 3149.2-3**  
**Structural Backfill Requirements**

Requirement	Percent
3/4 inch Sieve	100 passing
Percent Passing Ratio # 40/# 10	0 – 65
No.200 Sieve	0 – 5.0 passing
Clay Percentage as Determined by MnDOT Test Method 1302	1.5 maximum

- (1) Provide screened Material meeting the requirements of 3137.2B, "Classification," for Class C.

**S-101 (3236) REINFORCED CONCRETE PIPE****RESTORED 06/30/23**

S-101.1 Delete and replace Table 3236.3-1 of MnDOT 3236.3C.2 with the following:

**Table 3236.3-1 1**  
**Minimum Three Edge Bearing Testing Rates**

Size Range, inch	Class Range	Test Rates
12 – 15	≤ 5	1 per 1000 pieces
18 – 36	≤ 4	1 per 800 pieces
18 – 36	5	1 per 400 pieces
42 – 60	≤ 3	1 per 400 pieces
42 – 60	4 & 5	1 per 200 pieces
66 – 96	≤ 5	1 per 200 pieces

NOTE: Testing rates for sizes not shown are as required by the Project Specifications. Begin a new schedule of testing after changing the mix design, after shutting down the system for major repairs and renovations, when beginning a new production run, and when beginning a new season. These rates are for testing to the 0.01 in D-load. Testing to failure is required on each combination of pipe size, wall thickness, and class manufactured once per production year. For arch pipe smaller than 88-inches nominal span, one piece per year of each size and class manufactured is required to be tested to 0.01 in D-load. Besides, testing to failure is required for arch pipe smaller than 88-inches nominal span on each combination of pipe size and class manufactured once per production year.

S-101.2 Delete and replace MnDOT 3236.2A with the following:

## A. Materials

A.1	Aggregate Quality.....	3126, 3131 and 3137
A.2	Form Release Agents.....	3902
A.3	Portland Cement.....	3101
	The Department will allow admixtures in accordance with 2462, "Precast Concrete."	
A.4	Blended Hydraulic Cement .....	3103
A.5	Fly Ash for Use in Portland cement concrete.....	3115
A.6	Ground Granulated Blast Furnace Slag Cement.....	3102
A.7	Precast Concrete .....	2462
A.8	Metal Reinforcement .....	2472
A.9	Preformed Gasket Seals for Concrete Pipe .....	3726
A.10	Precast Concrete Manufacturing .....	3240

S-101.3 Add the following to MnDOT 3236.2D:

Manufacturers of reinforced concrete pipe may produce an alternate "offset joint" on the spigot end of the pipe. This type of offset joint is to be used with the profile or pre-lubricated pipe seal systems. See MnDOT Standard Plate 3006.

**S-102 (3238) PRECAST CONCRETE BOX CULVERTS**

**RESTORED 06/30/23**

S-102.1 Add the following to MnDOT 3238.2B:

B.3 Welded Wire Reinforcement .....3303

S-102.2 Delete and replace MnDOT 3238.2I with the following:

I. Certified Plant Requirement

Provide precast concrete box culverts, end sections, and appurtenances constructed in a precast concrete fabrication plant certified by the American Concrete Pipe Association, the National Precast Concrete Association, or another organization approved by the Materials Engineer. If requested, provide quality control and plant certification records to the Materials Engineer.

S-102.3 Add the following to MnDOT 3238.2:

J. Tolerances

Dimensional tolerances will be based on AASHTO M 259, "Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers".

**S-103 (3302) DOWEL BARS**

**REVISED 06/28/24**

S-103.1 Delete and replace the second paragraph of MnDOT 3302.2A with the following:

Epoxy coat the steel dowel bars in accordance with ASTM A1078, *Standard Specification for Epoxy Coated Steel Dowels for Concrete Pavement*, Type 1 coating, and as modified:

- (1) Apply epoxy coating in a fusion bonded epoxy coating plant certified by the CRSI or another organization as approved by the Materials Engineer.
- (2) Apply a minimum of 7 mils epoxy coating thickness. Epoxy coating of the entire dowel bar assembly is not required.
- (3) Do not epoxy coat the ends of the dowel bars unless required by the Manufacturer.

S-103.2 Delete and replace MnDOT 3302.2B with the following:

B Tubular Dowel Bars

Provide welded carbon and alloy steel tubular dowel bar meeting the requirements of ASTM A513, *Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing*, and Table 3302.2-1.

**Table 3302.2-1  
Tubular Dowel Bar Requirements**

<b>Specified Dowel Bar Diameter</b>	<b>Required Tubular Dowel Bar Outside Diameter</b>	<b>Required Tubular Dowel Bar Wall Thickness</b>
1.25 inches	1.375 inches	0.120 inches
1.50 inches	1.625 inches	0.120 inches

Cap the ends of the tubular dowel bar in a way to prevent intrusion of concrete or other Materials.

Galvanize the exterior and interior of the tubular steel dowel bars using G90 coverage zinc galvanized coating.

Epoxy coat the exterior of the galvanized tubular dowel bars in accordance with ASTM A1078, *Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement*, Type 2 coating and as modified in 3302.2A (1), (2), and (3).

#### **S-104      (3491) PRESERVATIVES AND PRESERVATIVE TREATMENT OF WOOD PRODUCTS**

**RESTORED 06/30/23**

S-104.1      Add the following to the last paragraph of MnDOT 3491.2C:

No field treatment shall be applied within 100 feet of surface water, and any spills must be collected and properly disposed of.

#### **S-105      (3702) PREFORMED JOINT FILLERS**

**NEW 03/29/24**

S-105.1      Add the following to MnDOT 3702.2

- (7)      Type F - 100 percent recycled Polyvinyl Chloride (PVC) Expansion Joint Filler meeting the requirements of *ASTM D1752, Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction or Recycled Rubber* and Table 3702.2-1, "Preformed Joint Filler Requirements.

S-105.2      Delete and replace the third paragraph of MnDOT 3702.2 with following:

Provide the filler for each joint in a single piece for the full depth and width required for the joint unless otherwise approved by the Engineer. For pavement construction, provide filler in lengths equal to the width of the pavement lanes. Use ¼-inch thick Type F joint filler material as a separation material between sidewalk and back of curb.

S-105.3      Delete and replace Table 3702.2-1 with the following:

**Table 3702.2-1**  
**Preformed Joint Filler Requirements**

Properties	Type						
	A	B	C	D-1	D-2	E	F
Compression	50-1500 psi *	50-1500 psi *	50-1500 psi *	5-300 psi 	30-60 psi *	100-750 psi *	50-1500 psi *
Recovery	> 90 percent	> 90 percent	> 90 percent	> 95 percent	> 80 percent	> 70 percent	> 90 percent
Extrusion	< 0.25 inches	< 0.25 inches	< 0.25 inches	< 0.5 inches	< 0.25 inches	< 0.25 inches	< 0.25 inches
Density †	-	-	> 30 pounds / cubic feet	-	> 3.5 pounds / cubic feet	> 19 pounds / cubic feet	> 50 pounds / cubic feet
Water Absorption	-	-	-	-	< 1 percent	< 15 percent	< 1 percent
Asphalt Content	-	-	-	-	-	> 35 percent	-
Expansion	-	> 140 percent	-	-	-	-	-
* To 50 percent of the original thickness    Compression requirements per <i>ASTM D7174, Standard Specification for Preformed Closed-Cell Polyolefin Expansion Joint Fillers for Concrete Paving and Structural Construction</i> † Air-dried							

## **S-106      (3721) PREFORMED ELASTOMERIC COMPRESSION JOINT SEALERS FOR CONCRETE**

**NEW 06/28/24**

S-106.1      Delete and replace MnDOT 3721.2C with the following:

Provide joint sealers meeting the requirements of ASTM D2628, *Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements*.

## **S-107      (3733) GEOSYNTHETIC MATERIALS**

**RESTORED AND REVISED 06/30/23**

S-107.1      Delete and replace MnDOT 3733.2B with the following:

Provide geotextiles made from woven, nonwoven, or knit fabric of polymeric filaments or yarns, such as polypropylene, polyethylene, polyester, or polyamide. Except for Type 1b (knit sock), provide geotextiles in compliance with the National Transportation Product Evaluation Program (NTPEP).

For Types 1, 3-13 meet the applicable requirements in Table 3733.2-1 through Table 3733.2-4.

**Table 3733.2-1**  
**Geotextile Properties for Types 1, 3, 4, 5, 6, 7**

Geotextile Property	ASTM Test Method Units	Type *						
		1		3	4	5	6	7 †
		Fabric	Knit sock					
B1 Grab Tensile Strength minimum, each principal direction	D4632 Pounds	100	—	100	200	200	‡	300
B2 Elongation minimum, each principal direction	D4632 Percent	—	—	50	50	—	‡	50
B3 Seam Breaking Strength minimum #	D4632 Pounds	90	—	90	180	180	‡	270
B4 Apparent Opening Size (AOS) §	D4751 U.S. Sieve	40	40 as applied	50	50	30	20	50
B5 Permittivity minimum**	D4491 sec <sup>-1</sup>	0.7	2.75 relaxed	0.5	0.5	0.05	0.05	0.5
B6 Puncture strength minimum	D6241 Pounds	—	180	—	—	—	—	—
B7 Wide Width Strip Tensile Strength minimum each principal direction	D4595 pounds/feet	—	—	—	—	—	‡	—

\* Minimum Average Roll Values (MARV) based on an average of at least three tests per swatch.

|| Provide socks made of knit polymeric Materials and meeting the requirements of ASTM D6707-06, *Standard Specification for Circular-Knit Geotextile for Use in Subsurface Drainage Applications*, for Type H as given for properties B4, B5, and B6 fabric. Ensure the sock exhibits minimum snag or run potential, is factory-applied to maintain uniform installed mass, and conforms to the outside diameter of the tubing with a snug fit.

† Needle-punched nonwoven. Do not use thermally bonded (heat-set) fabric.

‡ Requirements are site-specific and will be as specified in the Contract. The property values for B1 and B3 may not be less than shown for Type 5. If the Contract does not specify either B1 or B7, use a default value of 300 pounds for B1. If the Contract does not specify seam strength, use a default value of 270 pounds for B3.

# Adhere to this requirement if the Contract requires or allows seams. Strength Specifications apply to factory and field seams. Use thread for sewing that has the strength of at least 25 pounds. Sew seams with a Federal Type 401 stitch (ASTM D6193-16, *Standard Practices for Stitches and Seams*) using a two-spool sewing machine and install seams facing upward. For seaming with adhesives, see the *Approved/Qualified Products List* available on the Department's website.

§ For U.S. Sieve sizes, the AOS Number must be equal to or greater than the Sieve size specified.

\*\* Permittivity:  $P = K/L$ , where K = fabric permeability and L = fabric thickness.



**Table 3733.2-2**  
**Type 8 Geotextile Properties**

Property	Requirements	Test Procedure
Geotextile type	Nonwoven, needle-punched geotextile, no thermal treatment (calendaring or IR)	Manufacturer Certificate of Compliance
Color	Uniform/Nominally same-color fibers	Visual Inspection
Mass per unit area	≥ 14.7 ounce/square yard	ASTM D5261*
Thickness under load (pressure)	At 0.29 psi: ≥ 0.12 inches At 2.9 psi: ≥ 0.10 inches At 29 psi: ≥ 0.04 inches	ASTM D5199
Wide-width tensile strength	≥ 685 pounds/feet	ASTM D4595†
Wide-width maximum elongation	≤ 130 percent	ASTM D4595†
Water permeability in normal direction under load (pressure)	At 2.9 psi: ≥ 3.3x10 <sup>-4</sup> feet/second	ASTM D5493 MnDOT Modified‡ or ASTM D4491#
In-plane water permeability (transmissivity) under load (pressure)	At 2.9 psi: ≥ 1.6x10 <sup>-3</sup> feet/second At 29 psi: ≥ 6.6x10 <sup>-4</sup> feet/second	ASTM D6574 MnDOT Modified§ or ASTM D4716**
Weather resistance	Retained strength ≥ 60 percent	ASTM D4355    at 500 hours exposure
Alkali resistance	≥ 96 percent polypropylene/polyethylene	Manufacturer certification of polymer

**Table 3733.2-3**  
**Types 9, 10, 11, and 12 Geotextile Properties**

Properties	Test Method	Unit	Type 9		Type 11		Type 12	
			Minimum Average Roll Value					
			MD	CD	MD	CD	MD	CD
Tensile Strength at Ultimate	ASTM D4595	lbs/ft	3,500	3,200				
Tensile Strength @ 2% Strain	ASTM D4595	lbs/ft			600	1,000	480	1,800
Tensile Strength @ 5% Strain	ASTM D4595	lbs/ft			1,800	2,200	1,400	4,300
Cyclic Tensile Modulus @ 2% Strain	ASTM D7556 “Method C”	lbs/ft			50,000	70,000	50,000	120,000
Interaction Coefficient: Ci*	ASTM D6706				0.89		0.90	
Properties	Test Method	Unit	Maximum Roll Value					
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve	30		40		40	
Properties	Test Method	Unit	Minimum Average Roll Value					
Permittivity	ASTM D4491	sec <sup>-1</sup>	0.5		0.90		1.0	
Flow Rate	ASTM D4491	gal/min/ft <sup>2</sup>	40		75		75	
Properties	Test Method	Unit	Minimum Roll Value					
UV Resistance (at 500 hours exposure)	ASTM D4355	% Strength Retained	70		90		90	
Seam Breaking Strength	ASTM D4884	Pounds/ inch	200					
For Type 10, meet the requirements of AASHTO M288 Class 4A – Geotextile.								
* Perform test with a normal pressure of 1.0 psi. Use material in the mold consisting of GW or SP with a maximum internal angle of friction of 34 degrees.								
If required, use thread with a minimum strength of 25 pounds. Sew seams with a ASTM D6193 Federal Type 401 stitch using a two-spool sewing machine, and install seams facing upward.								

**Table 3733.2-4**  
**Type 13 Geotextile Properties**

Properties	Test Method	Unit	Minimum Average Roll Value
			MD and CD
Wide Width Max Elongation	ASTM D4595	%	20
Permittivity	ASTM D4491	Sec <sup>-1</sup>	0.4
Minimum wet front movement in vertical direction	ASTM 1559 (modified for geotextiles)	Inches	4
Minimum wet front movement in horizontal direction:	ASTM 1559 (modified for geotextiles)	Inches	70
Wide Width Tensile Strength	ASTM D4595	lbs/Ft	5000
Wide Width Tensile Strength @2% Strain	ASTM D4595	lbs/Ft	450 MD and 1000 CD
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve	40 Maximum Opening Size
Flow Rate	D4491	Gal/Min/ft <sup>2</sup>	30 MARV

S-107.2      Renumber Table 3733.2-4, “Geogrid Properties” of MnDOT 3733.2C to Table 3733.2-5, “Geogrid Properties”.

**S-108            (3876) SEED**

**NEW 06/28/24**

S-108.1      Delete and replace Table 3876.2-1 with the following:

**Table 3876.2-1  
MnDOT Seed Mixes**

<b>Seed Mixture</b>	<b>Application Rate (PLS pounds per acre)</b>
Oats	100
Winter Wheat	100
Oats and Peas	110
Two-year Cover Crop	25
Patch Mix	30
Northern Boulevard	150
Southern Boulevard	160
Turfgrass	200
Snow Fence Ground Cover	84
Mesic Inslope	65
High-traffic Inslope	60
Sandy Inslope	65
Wet Ditch	20
Northeast Roadside	26
Northwest Shortgrass Roadside	26
Northwest Tallgrass Roadside	26
Southern Shortgrass Roadside	26
Southern Tallgrass Roadside	26

S-108.2 Delete and replace MnDOT 3876.2 B with the following:

**B Blending**

Provide Uniformly blended seed mixtures as required by the Contract and meeting the requirements of the Seeding Manual. Blend mixtures according to the requirements of the Department's Approved Seed Vendor Agreement.

**B.1 Cover crop and turfgrass mixtures**

Combine all components of cover crop, patch, boulevard, turfgrass, ground cover, and inslope mixtures.

**B.2 Roadside and Wet Ditch mixtures**

Blend and package components of these mixtures according to size to allow installation from the appropriate seed box of native seeding Equipment and in the following groups:

- (1) Combine seeds of sedges, rushes, and forbs with small or medium seeds for installation with the small seeds box.
- (2) Combine the seeds of grasses and large-seeded forbs for installation with the fluffy seed box.
- (3) Keep the seeds of grain cover crops such as oats and winter wheat separate for installation with the grain box.

**S-109      (3885) ROLLED EROSION PREVENTION PRODUCTS**

**RESTORED AND REVISED 06/30/23**

- S-109.1      Delete and replace Tables 3885.2-1, 3885.2-2, and 3885.2-5 of MnDOT 3885.2A with the following:

**Table 3885.2-1**  
**Temporary, Straw-based Products**

<b>Criteria</b>	<b>Category 10</b>	<b>Category 20</b>	<b>Category 30</b>
Net Number (upper/lower)	1	2	2
Fiber Fill Material	100 percent Straw	100 percent Straw	70 percent Straw, 30 percent Coconut/hemp
Mass, minimum*‡ (pound per square yard)	0.43	0.43	0.42
Reported Fiber Length, 80 percent greater than (inch)	3	3	3
Reported Functional Longevity, 75 percent remaining (month)	3	4.5	9
Reported Target Service Life (month)	4	9	12
Permissible shear, unvegetated# (pound per square foot)	1.50	1.75	2.00
Flow, probable maximum# (feet per second)	4.5	6	8
Machine Direction (MD) Tensile Strength, minimum§ (pounds per foot)	70	160	160
TD Tensile Strength, minimum§ (pounds per foot)	50	110	150
Permissible Anchor Type	Wood or biodegradable    plant-based plastic barbed, glue, U, or round head metal, 11-13 gage	U or round head metal, 11-13 gage, Washer/60D (6 inches) Nail†	Helical twist pin, Washer/60D (6 inches) Nail†
Minimum anchor embedment length	4 inches	6 inches	8 inches

Criteria	Category 10	Category 20	Category 30
<p>* Dry mass at the time of manufacture following ASTM protocols.</p> <p>   Biodegradable means the product will decompose under ambient soil conditions into carbon dioxide, water, and other naturally occurring materials within one year of installation.</p> <p>† Winter Utilization.</p> <p>‡ <i>ASTM D6475, Mass per Unit Area of Erosion Control Blankets.</i></p> <p># <i>ASTM D6460, Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.</i></p> <p>§ <i>ASTM D6818, Ultimate Tensile Properties of Rolled Erosion Control Products.</i></p>			

**Table 3885.2-2**  
**Temporary, Wood Fiber Based Products**

<b>Criteria</b>	<b>Category 15</b>	<b>Category 25</b>	<b>Category 35</b>	<b>Category 45</b>
Net Number (upper/lower)	Netless	2	2	2
Fiber Fill Material	100 percent Cellulose, Agricultural products, hemp, wood	100 percent Wood* Fiber	100 percent Wood* Fiber	100 percent Wood* Fiber
Mass, minimum   # (pound per square yard)	0.40	0.57	0.76	1.25
Reported Fiber Length, 80 percent greater than (inch)	Varies, 0.5 to 6	6	6	6
Reported Functional Longevity, 75 percent remaining (month)	1.5	6	12	24
Reported Target Service Life (month)	3	12	24	36
Permissible shear, unvegetated§ (pound per square foot)	1.00	2.10	2.50	3.25
Flow, probable maximum§ (feet per second)	2	7	8	11
MD Tensile Strength, minimum** (pounds per foot)	4	160	160	160
TD Tensile Strength, minimum** (pounds per foot)	4	110	110	110



Criteria	Category 15	Category 25	Category 35	Category 45
Permissible Anchor Type	Wood or biodegradable† plant-based plastic barbed, glue U or round head metal 11-13 gage	U or round head metal, 11-13 gage, Washer/60D (6 inches) Nail‡	Helical twist pin, Washer/60D (6 inches) Nail‡	Helical twist pin, Washer/60D (6 inches) Nail‡
Minimum anchor embedment length	4 inches	6 inches	8 inches	10 inches
<p>* Derived from hardwood (Aspen spp.) or softwoods (pine).     Dry mass at the time of manufacture following ASTM protocols.  † Biodegradable means the product will decompose under ambient soil conditions into carbon dioxide, water, and other naturally occurring materials within one year of installation.  ‡ Winter Utilization.  # ASTM D6475, Mass per Unit Area of Erosion Control Blankets.  § ASTM D6460, Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.  ** ASTM D6818, Ultimate Tensile Properties of Rolled Erosion Control Products.</p>				

**Table 3885.2-5**  
**Permanent, Synthetic-based, Soil or Organic Fiber Media Filled Products**

<b>Criteria</b>	<b>Category 70</b>	<b>Category 72</b>	<b>Category 74</b>	<b>Category 76</b>
Net Number* (upper/lower)	TRM	TRM	TRM	TRM
Fill Material	3877.2C "Sandy Clay Loam Topsoil Borrow," 3890.2B "Grade 2 Compost" 3884.2B.1 "Organic Fiber Matrix (OFM)"			
Mass, minimum † (pound per square yard)	0.5	0.5	0.5	1.2
80 percent test chamber strength retained ‡ (hours)	500	1000	3000	3000
Target Service Life ‡	Permanent	Permanent	Permanent	Permanent
Shear, unvegetated, minimum # (pound per square foot)	2.00	2.25	2.50	2.75
Shear, vegetated, minimum # (pound per square foot)	6	8	10	12
MD Tensile Strength, minimum § (pounds per foot)	150	240	1400	3000
TD Tensile Strength, minimum § (pounds per foot)	130	200	1100	3000
Permissible Anchor Type	Helical twist metal hooks, Hooked No. 4 rebar, tension cable	Helical twist metal hooks, Hooked No. 4 rebar, tension cable	Tension cable per manufacturer specification	Tension cable per manufacturer specification
Minimum anchor embedment length ##	18 inches	18 inches	18 inches	18 inches

Criteria	Category 70	Category 72	Category 74	Category 76
<p>*Provide mats with cells at least 3/8 – 3/4 inch in depth to allow soil filling and retention, composed of nylon, polypropylene, polyolefin, polyester, or rust inhibited metal.</p> <p>   See 2575 “Establishing Vegetation and Controlling Erosion” for approximate fill quantities to achieve a 0.5 – 1 inch layer filling all voids within product surface.</p> <p>† <i>ASTM D6566 Mass Per Unit Area of Turf Reinforcement Mats</i></p> <p>‡ <i>ASTM D4355 Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc-Type Apparatus</i></p> <p># <i>ASTM D6460 Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.</i> Provide either vegetated or un-vegetated test results showing product meets the minimum criteria for that test. Some data may be extrapolated to show the upper value for vegetation establishment.</p> <p>## Minimum anchor embedment length may be reduced for anchors that are an alternative to straight pins or to account for site specific soil conditions.</p> <p>§ <i>ASTM D6818 Ultimate Tensile Properties of Rolled Erosion Control Products</i></p> <p>TRM products must have an average opening size sufficient for allowing introduction of soil or organic growth medium fill and to allow plant roots and shoots to grow through. Product texture must be rough enough to prevent soil from sliding off.</p>				

**S-110 (3886) SILT FENCE****RESTORED 06/30/23**

S-110.1 Delete and replace Table 3886.2-1 of MnDOT 3886.2A with the following:

**Table 3886.2-1**  
**Silt Fence Requirements**

<b>Silt Fence Type</b>	<b>Minimum Width, inches</b>	<b>Grab Tensile (machine direction), pounds *</b>	<b>Apparent Opening Size   </b>	<b>Puncture Strength †</b>	<b>UV Stability, 500 hour, percent ‡</b>	<b>MAX Permittivity #</b>	<b>Maximum Flow Rates, GPM/square foot</b>
MS, HI woven geotextile §	36	130	No. 30 Sieve	—	70	1.0 s <sup>-1</sup>	130
PA woven geotextile	36	100	No. 30 Sieve	—	70	0.1 s <sup>-1</sup>	5
SD woven or nonwoven geotextile **	36	100	—	—	70	—	—
TB polyester or polyvinyl Fabric	60	200	—	90 pounds	70	0	0

Values in the table are Minimum Average Roll Values (MARV).

\* ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

|| ASTM D4751, Standard Test Methods for Determining Apparent Opening Size of a Geotextile, Maximum average roll value.

† ASTM D4833, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

‡ ASTM D4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus.

# ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

§ Provide MS, HI woven geotextile with monofilament in both directions. Do not make substitutions.

\*\* Meeting 3733, "Geosynthetic Materials," Types 3, 4, 5, or 7, or poly/poly-reinforced sheeting meeting 3888, "Poly Sheeting" of variable width.

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DIVISION SB

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BRIDGE PLANS


The plans for this project, consisting of the sheets tabulated below, were approved by the State Bridge Engineer.

<u>BRIDGE NO.</u>	<u>TOTAL SHEETS</u>	<u>SHEET NO.</u>	<u>DATE OF APPROVAL</u>
56805	7	1-7	October 4, 2024

New or revised sheets were approved as listed below:

<u>BRIDGE NO.</u>	<u>SHEET NO.</u>	<u>DATE OF APPROVAL</u>
-------------------	------------------	-------------------------

I hereby certify that the Special Provisions for bridge construction (Division SB) contained in this Proposal were prepared by me or under my direct supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.



Digitally signed by Cory Stuber  
Date: 2024.10.04 10:24:56-05'00'

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(Cory Stuber)

Date: \_\_\_\_\_ Lic. No. 47534

**SB-1                    (1502) PLANS AND WORKING DRAWINGS**

*The provisions of 1502, "Plans and Working Drawings," are supplemented as follows:*

The Department will provide revised bridge drawings, bridge specifications, or provide bridge engineering analysis for the Contractor's means and methods if:

1.        Deemed necessary by the Department, in its sole discretion, to rectify materials or workmanship not meeting specifications, or
2.        Requested by the Contractor in writing.

The Department may, at its option, perform the work with its own staff, or by engaging a consultant pre-qualified by the Department to perform such work. If the Department is unable to perform the work, the Department may require the Contractor to have the work performed by a consultant acceptable to the Department.

If the Department, or a consultant engaged by the Department, performs further bridge engineering studies, bridge redesign, or provides additional bridge engineering analysis, the Contractor will reimburse the costs incurred by the Department. For work performed by the Department, the Department will charge the Contractor for the work at actual hourly rates of pay (including an overtime premium when applicable) and customary additives and overhead. For work performed by a consultant, the Department will charge the Contractor the amount invoiced by the consultant. The Department will prepare a Change Order for reimbursement, and will deduct the costs from any payment(s) due the Contractor.

When such work is performed by the Department or its consultant, the work will be considered a review for the Department's own purposes and will not be considered work commissioned by the Contractor. This clause will not constitute a special relationship between the Department and the Contractor, nor will the Contractor be a third-party beneficiary of the Department's contract with its consultant.

**SB-2                    (1706) EMPLOYEE HEALTH AND WELFARE**

*The provisions of 1706, "Employee Health and Welfare," are supplemented as follows:*

All safety equipment, in accordance with applicable safety and health codes and regulations, must be in place and operable in adequate time to allow Department personnel to perform their required inspection duties at the appropriate time. Don't place concrete in any areas affected by such required inspection until the inspection has been completed.

The installation of guardrail systems, safety nets, horizontal or vertical lifelines, personal fall arrest systems, or scaffolding whose purpose is to reduce the hazards of bridge work may require the attachment of anchorage devices to beams, girders, diaphragms, bracing or other components of the structure. Clamp type anchorage systems which do not require modification of structural members may be used, provided they do not interfere with proper execution of the work; if using an anchorage system which requires modification of structural members, request approval, in writing, for plan modifications as provided in MnDOT specifications. Requests to install systems which require field welding or drilling of primary stress carrying members of a bridge will not be approved. The Contractor shall indicate any portions of anchorage devices which will remain permanently in the structure.

On both ends of each pier cap extending 6 feet or more above the ground, the Contractor shall install an insert or other suitable anchorage to which a horizontal lifeline can be attached. Remove any portion of said device extending outside the finished lines of the pier cap unless otherwise approved by the Engineer. The Contractor shall repair or seal any void or cavity resulting from the installation or removal of this device to prevent the ponding or entry of water as directed by the Engineer.

The Contractor shall furnish, install and remove approved anchorage systems at no increased cost to the state for materials, fabrication, erection, or removal of the bridge component or anchorage system.

**SB-3                    CONSTRUCTION OPERATIONS ADJACENT TO ROADWAYS**

*The Contractor shall perform work in accordance with 1502, "Plans and Working Drawings," and 1707, "Public Convenience and Safety," 2563, "Traffic Control," located in the S Division section of this contract provisions, except as modified below:*

When necessary to adequately prevent undermining of the existing roadbed and protect traffic, sheet and shore the roadway side and end of each footing excavation having a traveled roadway adjacent thereto. The Contractor shall leave sheeting and shoring in place until the excavated area has been properly backfilled.



**SB-4                    (1717) AIR, LAND, AND WATER POLLUTION**

*The provisions of 1717, "Air, Land, and Water Pollution," are supplemented as follows:*

The Contractor's attention is hereby directed to MPCA Rule 7011.0150 (<http://www.pca.state.mn.us>) as it relates to sandblasting and/or concrete removal operations.

Unless otherwise provided in these special provisions, construction, demolition and/or removal operations conducted over or in the vicinity of public waters shall be so controlled as to prevent materials from falling into the water. Any materials which do fall into the water, or onto areas where there is a likelihood that they will be picked up by rising water levels, shall be retrieved, and stored in areas where such likelihood does not exist.

**SB-5                      REMOVAL OF ASBESTOS AND REGULATED WASTE (BRIDGE)**

Remove and dispose of any regulated waste found on existing bridges or from the utilities located on the bridge in accordance with the applicable MnDOT Standard Specifications and the following:

If, during the course of removal or renovation of utility or bridge, additional asbestos materials or regulated wastes other than that noted in the Assessment Summary are encountered, notify the MnDOT Project Engineer to suspend work and furnish a documented inspection and evaluation by a MnDOT approved certified MDH contractor prior to resuming work. The work, as outlined in this paragraph, will be paid for as Extra Work.

Dispose of all asbestos and/or regulated waste in accordance with MnDOT's manual. Only those listed in this manual as pre-approved for asbestos and/or regulated waste will be allowed to work on this project. Use MnDOT approved companies for testing, waste transport and disposal as provided and described in MnDOT's manual "*Asbestos and Regulated Waste Manual For Structure Demolition Or Relocations for Construction Projects*" available on the following website: <http://www.dot.state.mn.us/environment/buildingbridge/index.html>. Contact Jeff Neisse at 651.356.2348 or Summer Allen-Murley 612.248.4302, Office of Environmental Stewardship, with any questions regarding the manual.

A pre-activity meeting will be conducted to outline the action items to the satisfaction of the Engineer prior to removing any regulated materials and any bridge renovation or demolition activities.

All material shall be removed, identified, and disposed of in accordance with Section S-1701 (LAWS TO BE OBSERVED (BRIDGE)) of these Special Provisions. Permission to begin the regulated waste removals, with the exception of material needed for hazardous and regulated waste assessment or testing, will not be granted until the Engineer has copies of all required notices.

Permission to proceed with the demolition or renovation of bridges will not be granted until the Engineer has received copies of all required notifications as indicated in Section S-1701 (LAWS TO BE OBSERVED (BRIDGE)) of these Special Provisions.

Notify any utility owners at least three (3) business days prior to the removal of any regulated waste which may affect the utility, allowing the utility owner time to have a representative on site.

**SB-6                    (2401) CONCRETE BRIDGE CONSTRUCTION**

**SB-6.1                Special Surface Finish of Concrete Surfaces**

To preserve and enhance the state's environmental, scenic, historic and cultural values and in response to the National Environmental Policy Act of 1969 (NEPA) the *Cost Participation and Maintenance Responsibilities with Local Units of Government Manual* dictates that the Aesthetic level of bridge(s) 56805 is level C impact.

At the Contractor's option, follow the provisions of SSF II SB 6.1.1 as a whole for all elements receiving special surface finish on this project.

**1.                    Exposed concrete surfaces receiving a textured surface finish**

Spray apply a textured SSF II (see APL) on the exposed concrete surfaces as designated below for Bridge No.(s). 56805. Apply the SSF II coating at a rate as defined on the Approved Products List (APL) in a uniform texture and color appearance. Back-roll the spray applied coating, if required by the Engineer.

- Crash struts

Provide a finish color for all SSF II matching AMS-STD-595A Color No. 36622 (pearl gray). Provide paint free of toxic metals and toxic pigments. Provide a "matte" finish for all colors.

**A.                    Basis of Payment**

Finishing of concrete surfaces, except as otherwise provided in these special provisions, are considered an included with expense to the respective concrete mixes for this construction, and no additional compensation will be made for this work.

**SB-6.2                Finish of Inplace Concrete**

This work consists of preparing the exposed concrete surfaces, furnishing, and applying a Special Surface Finish as described in 2401.3F.2.c, "Special Surface Finish," and these special provisions.

Prepare areas to receive surface finish by abrasive blasting or high-pressure water (3500 psi) blasting thoroughly cleaning the surfaces and removing any non-tightly adhering existing surface finish before applying SSF II.

Spray apply a textured SSF II (see MnDOT Approved Products List - APL) on the exposed concrete surfaces as designated below or shown on the Plans. Apply the SSF II coating at the rate as defined on the APL in a uniform texture and color appearance. The Engineer will require back-rolling the spray applied coating if uniformity is not achieved.

Bridge No. 56805

1.                    Pier columns
2.                    Vertical faces of pier caps, including the ends, and bottom face of pier caps

Provide a finish color matching AMS-STD-595A Color No. 36622 (pearl gray). Provide paint free of toxic metals and toxic pigments. Provide a "matte" finish for all colors.

**A. Method of Measurement**

The Engineer will measure the area based on where the special surface finish (inplace) was correctly applied in the field.

**B. Basis of Payment**

Payment for Item No. 2401.618 "SPECIAL SURFACE FINISH (INPLACE)", at the Contract price per square foot shall be compensation in full for performing all work described above complete in place.

**SB-6.3 Protection Against Cold Weather**

***Delete the 5<sup>th</sup> paragraph of 2401.3G.5, "Protection Against Cold Weather," and substitute the following:***

Provide insulated forms, insulation, or heating and housing facilities to maintain a concrete surface and projecting reinforcing temperature of between 60°F and 120°F during the curing period. The Engineer may allow the concrete surface temperature of between 50°F and 120°F for concrete with strengths equal to or greater than 75 percent of the required compressive strength but not less than 4,000 psi.

**SB-7                    (2433) STRUCTURE RENOVATION**

*The provisions of 2433, "Structure Renovation," are supplemented with the following:*

**SB-7.1                Reinforcement Bar Anchorages (Post-installed)**

**A.            Description of Work**

Furnish and install a drilled-in reinforcement bar anchorage system of the type, shape and size specified, and its satisfactory placement at the locations indicated in "Table 1 – Anchorage Location and Testing Frequency".

Perform all work in accordance with the applicable provisions of 2433, "Structure Renovation," 2472, "Metal Reinforcement," and 3301, "Reinforcement Bars," the requirements of the plans, as directed by the Engineer, and the following:

Furnish only one of the systems listed on the Department's "Approved/Qualified Products List for Bridge Products, Concrete Anchorages – Reinforcing Bar Applications," ([www.dot.state.mn.us/products](http://www.dot.state.mn.us/products)). Verify that the adhesive has an uncracked characteristic bond strength as specified in the plan. Install all anchors as specified by the Manufacturer's Printed Installation Instructions (MPII). Furnish a copy of the MPII that the installer will use to the Project Engineer. Install in sound concrete to a depth equal to the minimum depth specified in the plan or as specified by the supplier/manufacturer, whichever is greater.

**B.            Construction Requirements**

Adhesive anchorages consist of a deformed rebar dowel secured by an adhesive. Adhesive anchorage installers must hold current ACI-CRSI Adhesive Anchor Installer Certification credentials. Installers are required to check depth, diameter and condition of the drilled hole, clean the hole, and install the anchorage per the MPII. Record the name(s) of all certified installers on the *RECORD OF CONTRACTOR/INSTALLER ACI-CRSI CERTIFICATION FORM* provided in this specification. Prior to installation of anchorages on the project, meet with the Project Engineer, Inspectors, and Installers to review the installation process and requirements. At the Pre-installation meeting, submit the *RECORD OF CONTRACTOR/INSTALLER ACI-CRSI CERTIFICATION FORM* with a copy of each installer's ACI-CRSI Adhesive Anchor Installer Certification card and a copy of the MPII to the Project Engineer.

**C.            Pullout Tests**

Verify the anchor strength and installation procedures by proof testing anchorages in accordance with this specification. Perform all testing in accordance with ASTM E488, *Standard Test Methods for Strength of Anchors in Concrete Elements*. Set up the testing device such that no portion of the device bears on the concrete surface within a distance equal to one and a half times the anchorage embedment depth. Test anchorages to not less than the required proof load as provided in the plan. If no anchor proof load is provided in the plan, contact the Project Engineer. Failure of an anchorage test is defined in ASTM E488.

All damage to the concrete will be repaired at no cost to the Department. The repair must first be approved by the Project Engineer.

Perform all testing by an independent third party testing agency. Testing agent must have current ACI-CRSI Adhesive Anchor Installer Certification credentials.

Meet the following conditions prior to installation and testing:

- Allow concrete to set at least 14 days after pour;
- Ensure concrete surface is free of water prior to drilling;
- Ensure the hole is dry; and
- Install anchorages per Manufacturer's Printed Installation Instructions.

A dry hole is defined as a hole with no water present within the hole. If the hole is filled with water, partially filled with water, or water entered the hole during drilling, blow out the water using compressed air and allow 24 hours before cleaning the hole and installing the anchorage.

Verify the anchor strength and installation procedure as follows:

Install all production anchorages. Test the number of the anchorages in each location indicated in Table 1 (see below) at a later date. If a failure occurs while testing anchorages, more testing at the location in which the failure occurred will be required at the rate indicated in Table 1, per each failure at no additional cost to the department. If the number of anchorages at a given location failing in concrete breakout exceed the maximum number of failures permitted in Table 1, provide an anchorage replacement plan to the Project Engineer and remove the remaining anchorages in that location without testing. Concrete breakout failure is defined as a spall a minimum of 2 inches in diameter by 1 inch deep. Record all results on the *PRODUCTION ANCHORAGES QUALIFICATION TEST REPORT* provided in these specifications and submit to the Project Engineer within 5 working days of the completion of testing.

**Table 1 – Anchorage Location and Testing Frequency**

Location	Initial Production Anchorage Test	Additional Tests per Failure	Max Number of Breakout Failures
Piers 1 and 3 Top of Footing	15	15	3
Pier 2 Top of Footing	15	15	2

Notify the Project Engineer immediately after any failure. Remove all anchors that fail the field test without damage to the surrounding concrete. Redrill holes to remove adhesive bonding material. Replace and test anchors using the method listed above, at no cost to the Department.

Perform installation of anchorages in accordance with the manufacturer's recommendations and as specified in the plan.

Fill with approved caulk any voids occurring between the top of the anchorages and the concrete in which it is embedded, as approved by the Project Engineer.

#### **D. Method of Measurement**

Measurement will be by the single unit of each for furnishing and installing acceptable reinforcement bar anchorages complete in place. Anchorages installed that are not shown in the plans or ordered by the Engineer will not be measured for payment.

**E. Basis of Payment**

Payment will be made as Item 2433.502, "ANCH TYPE REINF BARS (TYPE H)", at the Contract price per each and shall be compensation in full for all costs of furnishing, placing, and testing the reinforcement bar anchorages complete in place.

RECORD OF CONTRACTOR/INSTALLER ACI-CRSI CERTIFICATION

PROJECT #:  
BRIDGE #:  
DATE:

PRIME CONTRACTOR:  
INSTALLER:

NAME OF EMPLOYEE	COMPANY	DATE TRAINING WAS TAKEN	CERT. EXPIRATION DATE	CERTIFICATION ID NUMBER

Attach a photo copy of each certified installer’s ACI – CRSI Adhesive Anchor Installer Certification ID showing the ID number, the expiration date, and the name of the installer. All certified installers must carry their certification on their person while installing anchors. Certification to be produced upon request.



PRODUCTION ANCHORAGES QUALIFICATION TEST REPORT

PROJECT #:  
BRIDGE #:  
DATE:

PRIME CONTRACTOR:  
INSTALLER:  
MANUFACTURER:  
TESTING FIRM:  
PRODUCT NAME:

ANCHORAGE DIAMETER:

PROOF LOAD (KIPS):

AMBIENT TEMP. (°F ):

WEATHER:

TEST #	LOCATION	TIME @ START	TIME @ END	MAX LOADING (KIPS)	PASS/ FAIL

SIGNATURE OF TESTING AGENT: DATE: DATE RECEIVED BY PROJECT ENGINEER:

CC: STATE PROJECTS ONLY:  
Copy: Bridge Const. Unit (MS 610)  
FOR ALL PROJECTS:  
Original: Project Engineer  
Copy: Railroad

**SB-7.2           Reconstruct Slope Paving**

Remove and dispose of concrete panels, toe walls, and side walls; furnish, install, and compact granular fill; prepare foundation; construct new reinforced concrete panels; and furnish and install joint filler and joint sealer. Perform work in accordance with 2514, "Slope Paving," the Plans, and the following:

The Engineer will designate the slope paving areas where the above work is to be performed.

Dispose of excavated materials in accordance with 2104, "Removing Pavement and Miscellaneous Structures".

**A.       Method of Measurement**

The Engineer will separately measure reconstructed slope paving by area of top surface in ft<sup>2</sup>.

**B.       Basis of Payment**

Payment will be made as Item No. 2433.618 "RECONSTRUCT CONCRETE SLOPE PAVING," at the Contract price per square foot and shall be compensation in full for all costs of construction complete in place.

**SB-8 (2451) STRUCTURE EXCAVATIONS AND BACKFILLS**

*The provisions of 2451, "Structure Excavations and Backfills," are supplemented as follows:*

**SB-8.1 Structure Excavation**

Undertake all activities necessary for construction of Bridge(s), which are not specifically included in the grading portion of the Contract. Dispose of surplus material.

Do not measure the excavated or backfill material. All work performed as specified above will be included in a single lump sum for which payment is made under Item No. 2401.601, "STRUCTURE EXCAVATION".

For purposes of partial payments, the portion of the lump sum Structure Excavation at each substructure unit will be defined as follows:

Bridge 56805

Each Pier 25%

**SB-9                    (2471) STRUCTURAL METALS**

*The provisions of 2471, "Structural Metals," is supplemented as follows:*

*Delete and replace 2471.2R.8, with the following:*

R.8        PVC Coated Rigid Metal Conduit ..... 3805

*Supplement 2471.3C.3, "Submittal for Bridge Engineer's Review and Acceptance," with the following:*

Submit shop drawings from Fabricators directly to the MnDOT Bridge Office

MnDOT Bridge Office  
Fabrication Methods Engineer  
3485 Hadley Ave. North  
Oakdale, MN 55128

*Add the following to section 2471.3G.1, "General":*

Artificial cooling of any production welds will not be allowed.

*The section of 2471.3M.1.a(1), "General," is replaced with the following:*

Use personnel certified as an American Society for Nondestructive Testing (ASNT) NDT Level II operator and qualified in accordance with ASNT-TC-1A.

**DIVISION ST**

Section		Page
No.	Item	No.
ST-1	(2104) REMOVING MISCELLANEOUS STRUCTURES.....	1-ST
ST-2	(2564) TRAFFIC SIGNS AND DEVICES .....	1-ST
ST-3	(3352) SIGNS.....	4-ST
ST-4	(3402) SQUARE TUBULAR SIGN POSTS.....	6-ST

I hereby certify that the Special Provisions for traffic sign construction (Division ST) contained in this proposal were prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.




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Nathan Bausman

Lic. No. 58659

Date 10/7/2024

## **DIVISION ST**

### **ST-1      (2104) REMOVING MISCELLANEOUS STRUCTURES**

#### **ST-1.1          DESCRIPTION**

Remove and salvage miscellaneous structures according to 2104, "Removing Pavement and Miscellaneous Structures" and these Special Provisions.

#### **ST-1.2          MATERIALS**

Use materials according to 2104, "Removing Miscellaneous Structures" and the 2104, "Removing Miscellaneous Structures: Construction Requirements" section of these Special Provisions.

#### **ST-1.3          CONSTRUCTION REQUIREMENTS**

##### **A          Remove Delineator/Marker**

Remove and dispose of the delineator/marker panel, mounting hardware, and sign structure.

#### **ST-1.4          METHOD OF MEASUREMENT & BASIS OF PAYMENT**

The Engineer will measure each item according to the Contract and the 2104, "Removing Miscellaneous Structures: Construction Requirements" section of these Special Provisions.

The Department will include all work described in the Contract and the 2104, "Removing Miscellaneous Structures: Construction Requirements" section of these Special Provisions as part of the contract unit price per unit of measure.

The Department will pay for traffic signs and devices on the basis of the following schedule:

<b>Item No.:</b>	<b>Item:</b>	<b>Unit:</b>
2104.502	Remove Delineator/Marker	Each

The Department's payment for each item shall be compensation in full for all work, material, and costs involved in performing the work specified on the Plans and these Special Provisions.

### **ST-2      (2564) TRAFFIC SIGNS AND DEVICES**

#### **ST-2.1          DESCRIPTION**

The Contractor shall furnish and install traffic signs in accordance with 2564, "Traffic Signs and Devices," except as modified in these Special Provisions.

#### **ST-2.2          CONSTRUCTION REQUIREMENTS**

The provisions of 2564.3A, "Construction Requirements: General" are modified and supplemented as follows:

#### **Delete and replace 2564.1A, "Definitions," with the following:**

For the purposes of the Work specified in section 2564, "Traffic Signs and Devices," the Department defines:

##### **Extruded Panel**

Extruded aluminum panels that, when bolted together, form an extruded sign panel.

**Extruded Sign Panel**

Extruded panels bolted together to form an extruded sign panel.

**Mounting Hardware**

Rivets, bolts, washers, nuts, post clips, and/or banding. These are used to attach Sign Panels or Extruded Sign Panels to structures and to attach Sign Panel Overlays to Extruded Sign Panels or Sign Panels.

**Sign Panel**

Sheet aluminum overlaid with sign sheeting materials.

**Sign Panel Overlay**

Sign Panel that is attached to Extruded Sign Panels or other Sign Panels.

**Delete and replace the second paragraph of 2564.3A, "General," with the following:**

Sign locations and sign structure posts lengths indicated in the Contract are approximate. Locate and stake final sign and delineator/marker locations. Obtain approval of locations by the Engineer. Determine the final post lengths for signs and delineator/markers in accordance with the offsets, mounting heights, and clearances detailed in the Contract and field verification of the proposed or in-place ground slopes. Obtain approval of the final required post lengths for I-Beam, Monotube, and Overhead Signs prior to starting fabrication of the posts. Provide shop drawings for I-Beam, Monotube, and Overhead signs in accordance with 2471.3C, "Shop Drawings."

**Delete and replace the second paragraph of 2564.3A.1, "Sign Fabrication," with the following:**

Use sheet aluminum sign base material for Sign Panels.

**Delete and replace the third paragraph of 2564.3A.1, "Sign Fabrication," with the following:**

Provide extruded panels in accordance with 3352.2A.2, "Extruded Aluminum, Bolted Type," and assemble extruded sign panel. Mount sign panel overlay to extruded sign panel with 3/16 inch stainless steel pull-through rivets as fasteners to attach the sign panel overlay to the extruded sign panel. Tightly butt the sign panel overlay sections and rivet to the extruded sign panel on centers no greater than 12 inches vertically and horizontally. Do not mount sign panel overlay sections with horizontal butt joints for extruded sign panels less than 144 inches tall. Rivet the edges and corners of each sign panel overlay section. Do not place rivets within 1 inch of the extruded sign panel joints. The sign panel overlay must be flat after attaching to the extruded sign panel.

**Delete and replace the fourth paragraph of 2564.3A.1, "Sign Fabrication," with the following:**

Provide fluorescent yellow retroreflective sheeting for all yellow signs, yellow markers, yellow delineators, and yellow background on Sign Panel Overlays. Provide fluorescent yellow-green retroreflective sheeting on warning signs and their supplemental plaques associated with pedestrians, bicyclists, playgrounds, schools.

**Delete and replace paragraph (4) of 2564.3A.3, "Scheduling of Work," with the following:**

(4) For signs not covered in the previous requirements, schedule the work so that replacement signs are installed the same workday that the in-place signs are removed on roads open to traffic.

**Delete 2564.3B, "Median Barrier Footing".****Delete 2564.3C, "Sign Support – Sign Bridge or Cantilever".**

Delete 2564.3E, "Install Delineator or Marker".

Delete 2564.3F, "Install Reference Location Sign".

Delete 2564.3G, "Install Sign Panel".

Delete 2564.3H, "Install Sign".

Delete 2564.3I, "Overhead Sign Identification Plate".

Delete 2564.3M, "Delineator".

Delete 2564.3N, "Bridge Number Marker".

Delete 2564.3P, "Reference Location Sign".

Delete 2564.3Q, "Object Marker".

Delete 2564.3R, "Concrete Footings".

Delete 2564.3S, "Structural Steel".

Delete 2564.3U, "Sign Panels".

Delete 2564.3V, "Sign Panel Overlay Type A, EA, EO of OH".

Delete 2564.4A, "Median Barrier Footing".

Delete 2564.4B, "Sign Support".

Delete 2564.4D, "Install Delineator".

Delete 2564.4E, "Install Marker".

Delete 2564.4F, "Install Reference Location Sign".

Delete 2564.4G, "Install Sign Panel".

Delete 2564.4H, "Install Sign".

Delete 2564.4I, "Overhead Sign Identification Plate".

Delete 2564.4M, "Delineator".

Delete 2564.4N, "Bridge Number Marker".

Delete 2564.4P, "Reference Location Sign".

Delete 2564.4Q, "Object Marker".



**Delete 2564.4R, "Concrete Footings Type \_\_\_\_".**

**Delete 2564.4S, "Structural Steel".**

**Delete 2564.4U, "Sign Panels".**

**Delete 2564.4V, "Sign Panel Overlay Type \_\_\_\_".**

#### **A Delineator/Marker**

#### **Add the following to 2564.3, "Construction Requirements":**

Provide delineator/marker panel as required by the contract.

Provide and install the sign structure and attach the delineator/marker panel with new mounting hardware required by the contract.

Install sign structure plumb. Remove and replace bases that do not produce a plumb post.

#### **Add the following to 2564.4, "Method of Measurement":**

The Engineer will measure delineator/marker as a complete unit, including new post, new mounting hardware, and new delineator/marker panel.

#### **ST-2.3 METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

The Engineer will measure each item according to the Contract and the 2564, "Traffic Signs and Devices: Construction Requirements" section of these Special Provisions.

The Department will include all work described in the Contract and the 2564, "Traffic Signs and Devices: Construction Requirements" section of these Special Provisions as part of the contract unit price per unit of measure.

The Department will pay for traffic signs and devices on the basis of the following schedule:

<b>Item No.:</b>	<b>Item:</b>	<b>Unit:</b>
2564.602	Delineator/Marker	Each

The Department's payment for each item shall be compensation in full for all work, material, and costs involved in performing the work specified on the Plans and these Special Provisions.

### **ST-3 (3352) SIGNS**

#### **ST-3.1 DESCRIPTION**

The Contractor shall furnish signs, delineators, and markers in accordance with 3352, "Signs," except as modified in these Special Provisions.

#### **Delete and replace the first paragraph of 3352.2, "Requirements," with the following:**

Provide sign panels as specified in the Standard Signs and Markings Manual, Standard Signs and Markings Summary, the MN MUTCD, as detailed in the Contract, and in accordance with this section.

**Delete and replace 3352.2A.1, "Sheet Aluminum," with the following:**

Provide sheet aluminum for sign panels meeting the requirements of ASTM B209M, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) for Alloy 5052-H38 or Alloy 6061-T6. Use sign base Material with no warps or twists so the finished sign panel will lay flat against the post or mounting Structure. Provide sheet aluminum thickness for single section sign panels, panel sections of multiple section signs, and sign panel overlays in accordance with Table 3352.2-1.

Table 3352.2-1 Sheet Aluminum Thickness	
Length of Longest Side	Thickness
≤ 18	0.063 ± 0.004
>18 - 30	0.080 ± 0.005
>30	0.100 ± 0.005
Sign Panel Overlay	0.063 ± 0.004
X4-3 Cylinder Delineator	0.040 ± 0.005

The provisions of 3352.2A.2 "Extruded Aluminum, Bolted Type" are modified and supplemented as follows:

**Delete and replace the last paragraph of 3352.2A.2, "Extruded Aluminum, Bolted Type," with the following:**

Use aluminum alloy hardware or stainless steel hardware to assemble the extruded panel. Use Type 304 stainless steel post clip bolts in the post clips to attach the extruded panel to the supports. Use Type A304 stainless steel washers with nylon insert stainless steel locknuts meeting the requirements of ASTM F594, Standard Specification for Stainless Steel Nuts, Type 304 for the nuts for post clip bolts.

**Add the following to 3352.2A.7, "Fasteners":****A.7.c Stainless Steel Bolts**

Use stainless steel bolts as specified in 3391.2E, "Fasteners: Requirements: Stainless Steel Bolts," with zinc coated steel nylon insert lock nuts. When used to attach sign panels place a stainless steel washer and nylon washer on the sign sheeting surface.

**A.7.d Galvanized Steel Screw Anchor Bolts**

Use galvanized screw anchor bolts as specified in plans. Galvanize screw anchor bolts in accordance with 3392, "Galvanized Hardware."

**Add the following to 3352.2A, "Materials":****A.8 Aluminum Stringers**

Use extruded aluminum alloy 6061-T6 with mill finished surface for stringers used to mount sign panels to square tube posts. The stringer shall have 3/8 inch holes provided at one inch intervals on center. The nominal thickness of the stringer shall be 1/8 inch.

**A.9 Stainless Steel Clamps**

Use to clamp stringers to square tube posts. Use 11 gauge Type 304, #2B finished stainless steel with 3/8"-16 x 2" carriage bolt & serrated flange nut.

**Add the following to 3352.2B.1, "General":**

Construct sign panels from one sheet of sign base material. If sign is larger than a single sign base material sheet, than construct the sign panel with sheets placed horizontally adjacent so that only vertical splices are used. For sign panel overlays a horizontal splice is allowed for sign panels with a height that exceeds 144 inches.

**Delete and replace the second paragraph of 3352.2B.4, "Applying Sign Face and Legend Sheeting," with the following:**

For sign panels with brown backgrounds, provide white retroreflective sheeting for sign face material and brown transparent overlay film.

**Delete and replace the fifth paragraph of 3352.2B.4, "Applying Sign Face and Legend Sheeting," with the following:**

Do no splice retroreflective sheeting for sign face material on a single sign base material sheet, except when different sheeting colors abut. If splicing is required to apply transparent overlay film on sign panels, provide vertical butt splices spaced so splices do not occur through letters or arrows.

**ST-4      (3402) SQUARE TUBULAR SIGN POSTS**

**ST-4.1      DESCRIPTION**

The Contractor shall furnish square tubular sign posts in accordance with 3402, "Square Tubular Sign Posts," except as modified in these Special Provisions.

**Delete and replace 3402.2C, "Weight," with the following:**

Use posts required by the contract and in accordance with Table 3402.2-1.

Table 3402.2-1 Properties		
Size	USS Gauge	Weight
1-1/2 inches by 1-1/2 inches	12	1.7 pounds/foot
1-3/4 inches by 1-3/4 inches	14	1.71 pounds/foot
1-3/4 inches by 1-3/4 inches	12	2.06 pounds/foot
2 inches by 2 inches	12	2.42 pounds/foot
2-3/16 inches by 2-3/16 inches	10	3.43 pounds/foot
2-1/4 inches by 2-1/4 inches	12	2.77 pounds/foot
2-1/2 inches by 2-1/2 inches	12	3.14 pounds/foot
2-1/2 inches by 2-1/2 inches	10	4.01 pounds/foot

The post weight shall be within 7 percent of the weight shown for the specified post size and gauge.



**1803 PROJECT SCHEDULES****1803.1 BAR CHART****A General Requirements****A.1 General**

When the Department specifies the Work under this Contract must be scheduled using the Bar Chart method, the Work must be planned, accomplished, and reported using a Bar Chart Schedule for the Contractor's Project Schedule accompanied by a written Narrative Report. It is the Contractor's responsibility to develop a Project Schedule that provides for orderly, timely, and efficient completion of the Project and includes enough detail to allow both the Contractor and the Engineer to jointly evaluate progress and confirm contractual requirements are being met.

The Project Schedule must be the Contractor's primary tool to communicate and report their planned delivery strategy to complete the Work. The Contractor must use the Project Schedule to plan, coordinate, and control the progress of construction, including Work performed by subcontractors, suppliers and vendors. The Contractor must provide copies of the Project Schedule to subcontractors, suppliers, vendors and utility companies affected by the Work as needed.

The Project Schedule must be used by the Contractor and the Engineer for the following purposes:

- (1) To identify controlling work scopes;
- (2) To document actual performance and progress of Work;
- (3) To evaluate the effect of changes and delays to the Work;
- (4) To evaluate the best course of action for recovering schedule delays;
- (5) To evaluate resource requirements of the Contractor and the Department; and
- (6) To coordinate the Work of the Department, other contractors, and third parties (e.g., government agencies and authorities, permitting authorities) into the sequencing of the Contractor's Work where necessary.

**A.2 Notice**

The Contractor must give the Engineer at least 72 hours advance notice before beginning any construction and at least 24 hours advance notice before beginning each major construction operation. The Contractor must inform the Engineer of the number of hours the Contractor intends to be working each day and provide 24 hours advance notice of any changes to work day hours, equipment, forces, or sequence of operations. Submission of the Project Schedule does not meet these notice requirements. The Contractor is required to provide notice separate from the Project Schedule submission.

**A.3 Acceptance**

The Engineer will accept or reject a schedule submission based on whether the schedule submission meets the requirements of 1803.1, "Project Schedules, Bar Chart" and any other contractual requirements. The Engineer's acceptance of a schedule submission:

- (1) Does not modify the Contract;
- (2) Does not attest to the validity of the Contractor's Activity sequencing, Activity durations, or assumptions in creating the schedule;
- (3) Does not guarantee that the Project can be performed or completed as depicted in the schedule; and
- (4) Does not transfer any of the Contractor's responsibilities to the Department. The Contractor alone remains responsible for the accuracy of the schedule and for managing forces, equipment, and work schedules to ensure completion of the Work within the time(s) specified in the Contract.

The Engineer will return the schedule submission to the Contractor as "Accepted – No Exceptions Taken", "Accepted – As Noted", or "Rejected – As Noted." Review by the Engineer of a portion of a schedule or an incomplete schedule submission will not indicate acceptance of the entire schedule. If the Contractor or Engineer discovers an error after the Engineer has accepted a schedule, the Contractor must correct the error in the next required schedule submission.

**A.4 Request for Early Completion Date**

If the Contractor wants to have a contractual completion date changed to an earlier date, the Contractor must notify the Engineer of the new desired date in a written letter. The requested early completion date must be achievable as of the last accepted Bar Chart Schedule, or the Contractor must revise the Bar Chart Schedule to show completion of all Work by the requested early completion date and explicitly identify the schedule as a submission requesting an early completion date. If the Contractor's request for an early completion date is accepted, the Engineer will initiate a Change Order amending the contractual completion date to the early completion date requested and as validated by the accepted Bar Chart Schedule submission. The amended completion date will be effective upon execution of that Change Order, and all Contract provisions concerning the completion date, such as incentives, disincentives, excusable delays, compensable delays, and liquidated damages, will be measured against the amended completion date.

The Contractor is allowed to submit a schedule showing completion of all Work before the contractual completion date without requesting an early completion date. If this occurs, the time between the early project completion shown in the schedule and the contractual completion date will be considered Project Float and the contractual completion date will not be amended.

**A.5 Non-Compliance**

It is the Contractor's responsibility to ensure that each schedule submission meets the requirements of 1803.1, "Project Schedules, Bar Chart" and accurately reflects the Work performed in the field. The Department may withhold up to the full amount of each monthly progress estimate for failure to submit an acceptable schedule on time and in the manner required. Payment withheld for violation of the schedule requirements will be included in the next progress estimate following the Contractor's submission of an acceptable schedule. The Engineer may suspend Work under 1803.3, "Temporary Suspensions" if the schedule does not meet the requirements of 1803.1, "Project Schedules, Bar Chart" or if the schedule does not accurately reflect the progress of the Work in the field; the suspension may continue until an acceptable schedule is submitted.

**B Technical Requirements****B.1 Weather Contingency**

The Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-specific Weather Contingency requirements.

**B.2 Actual Weather Day Reporting**

The Contractor must document and obtain agreement with the Engineer for each weather day experienced at the time of each occurrence. The Contractor must include a list of the specific claimed actual weather days experienced and a brief description of the work affected on each weather day in the accompanying Narrative Report applicable to the period in which weather was experienced.

**C Required Schedules****C.1 Bar Chart Schedule**

The purpose of the Bar Chart Schedule is to communicate the Contractor's plan to complete the contracted Work in a simplified graphical format. The Bar Chart Schedule must include the entire scope of Work and accurately reflect the Activity sequencing, dates and durations as described in the Contractor's accompanying Narrative Report. The Bar Chart Schedule may be prepared by hand or using a computer.

The Contractor and Engineer must meet at least monthly to assess progress in the field compared to the Bar Chart Schedule. Before meeting with the Engineer, the Contractor must update the Bar Chart Schedule to report actual start and actual finish dates for completed Work.

The Contractor must minimize the number of changes to the Bar Chart Schedule. If the project experiences an impact or the Engineer requests the Bar Chart Schedule to be revised, the Contractor must modify planned Activity sequencing, dates and durations as needed to accurately reflect the planned Work as known in the field. Changes made to the Bar Chart Schedule must be closely coordinated with the Engineer and are subject to the Engineer's review and acceptance.

**C.2 Look-Ahead Schedule**

The purpose of the Look-Ahead Schedule is to communicate, in a high level of detail, the Contractor's recent Work progress in the field and planned Work Activities for the upcoming 14 calendar days on a rolling basis. The Contractor must submit a detailed Look-Ahead Schedule to the Engineer each week until all Work is completed. The Contractor must prepare the schedule in Bar Chart format by hand or by using a computer. The Look-Ahead Schedule must include actual dates for Work performed since the last Look-Ahead Schedule submission and planned dates for Work to be performed in the upcoming 14 calendar days at a minimum. The Work activities included in the Look-Ahead Schedule must specifically reference the applicable Activity IDs in the Bar Chart Schedule.

**D Submission Requirements****D.1 File Naming Convention**

The Contractor must include the State Project Number, submission date, and revision number, if applicable, in the file name for all Bar Chart schedule printouts and accompanying Narrative Reports. The Contractor must ensure the file naming convention remains consistent throughout the duration of the Project.

**D.2 Timeline**

The Contractor must submit a Bar Chart Schedule and accompanying Narrative Report for the Engineer's review and acceptance at least 7 calendar days before the preconstruction meeting. The Engineer will either accept or reject the schedule submission within 7 calendar days of receipt. If the Engineer rejects a schedule submission, the Contractor must review and respond to all of the Engineer's questions and concerns, adjust the schedule if needed, and resubmit to the Engineer within 7 calendar days.

The Contractor must submit an updated Bar Chart Schedule within 7 calendar days of each monthly progress meeting with the Engineer.

If the project experiences an impact or the Engineer requests the Bar Chart Schedule to be revised, the Contractor must submit the revised Bar Chart Schedule for the Engineer's review and acceptance within 7 calendar days.

**D.3 Narrative Report**

The Contractor must include a detailed Narrative Report with each Bar Chart Schedule submission.

Each Narrative Report must include and discuss at a minimum:

- (1) Explanation of the overall plan to complete the Project, including how the Work and crews will flow through the Project;
- (2) Description of the status of scheduled Milestone dates, including specifically any differences from the last accepted Bar Chart Schedule;
- (3) The quantity and estimated production rates for controlling Work scopes;
- (4) The work days per week, number of shifts per day, and number of hours per shift;
- (5) Explanation of all nonwork days, including observed Holidays;
- (6) Actual weather day reporting as required by 1803.1.B.2, "Actual Weather Day Reporting";
- (7) Description of the expected performance of each required permit that has reasonable potential to negatively affect the Work if delayed;
- (8) Identification of all Activities requiring coordination with the Department or third parties (e.g., utilities) and a description of the expected performance needed to avoid impacts to the Work;
- (9) Description of the reasons for any changes to the schedule, including but not limited to:
  - (a) Added or deleted Activities,
  - (b) Changes to planned Activity dates,
  - (c) Changes to work and nonwork days, including observed Holidays, and
  - (d) Changes to previously recorded actual dates;
- (10) Description of any unusual labor, shift, equipment or material conditions or restrictions encountered or anticipated since the previous schedule submission; and
- (11) Any other Project concerns that are currently affecting or anticipated to affect the schedule.

**D.4 Schedule Printouts**

The Contractor must provide a printout of the Bar Chart Schedule in .pdf format, hard copy or both as requested by the Engineer. The Bar Chart Schedule printout must include the status date (i.e., the date through which progress is being reported), an Activity information table and time-scaled Bar Chart. The Activity information table must include the following information at a minimum:

- (1) Activity ID,
- (2) Activity Name,
- (3) Original Duration,
- (4) Remaining Duration,
- (5) Percent complete,
- (6) Planned start date,
- (7) Planned finish date,
- (8) Actual start date, and
- (9) Actual finish date.

**1803.2 CRITICAL PATH METHOD (CPM)****A General Requirements****A.1 General**

When the Department specifies the Work under this Contract must be scheduled using the Critical Path Method (CPM), the Work must be planned, accomplished, and reported using CPM scheduling for the Contractor's Project Schedule. The basic concept of CPM network scheduling must be followed, which shows how each given Activity is dependent on preceding Activities and affects following Activities. It is the Contractor's responsibility to develop a Project Schedule that provides for orderly, timely, and efficient completion of the Project and includes enough detail to allow both the Contractor and the Engineer to jointly evaluate progress and confirm contractual requirements are being met.

The Project Schedule must be the Contractor's primary tool to communicate and report their planned delivery strategy to complete the Work. The Contractor must use the Project Schedule to plan, coordinate, and control the progress of construction, including Work performed by subcontractors, suppliers and vendors. The Contractor must provide copies of the Project Schedule to subcontractors, suppliers, vendors and utility companies affected by the Work as needed.

The Project Schedule must be used by the Contractor and the Engineer for the following purposes:

- (1) To identify Activities on the Longest Path to project completion;
- (2) To identify Activities on the Critical Path(s) to interim Contract Milestone(s);
- (3) To document actual performance and progress of Work;
- (4) To evaluate the effect of changes and delays to the Work;
- (5) To evaluate the best course of action for recovering schedule delays;
- (6) To evaluate resource requirements of the Contractor and the Department; and
- (7) To coordinate the Work of the Department, other contractors, and third parties (e.g., government agencies and authorities, permitting authorities) into the sequencing of the Contractor's Work where necessary.

**A.2 Notice**

The Contractor must give the Engineer at least 72 hours advance notice before beginning any construction and at least 24 hours advance notice before beginning each major construction operation. The Contractor must inform the Engineer of the number of hours the Contractor intends to be working each day and provide 24 hours advance notice of any changes to work day hours, equipment, forces, or sequence of operations. Submission of the Project Schedule does not meet these notice requirements. The Contractor is required to provide notice separate from the Project Schedule submission.



**A.3 Schedule-Related Roles**

The Contractor's Project Manager and Project Scheduler must meet the requirements pertaining to the Project Schedule as specified in 1803.2.A.3.a, "Project Manager" and 1803.2.A.3.b, "Project Scheduler" respectively.

The Contractor's Project Manager and Project Scheduler roles may be performed by the same person. If the Contractor chooses to have one person perform both roles, that person must meet the requirements of both 1803.2.A.3.a, "Project Manager" and 1803.2.A.3.b, "Project Scheduler".

**A.3.a Project Manager**

- (1) The Project Manager must have extensive knowledge about the development and status of the Project Schedule. The Project Manager must understand and be able to explain changes made to the Project Schedule, even if the changes were made in the electronic schedule file by the Project Scheduler.
- (2) The Project Manager must attend all schedule-related meetings. Any absence from a schedule-related meeting must be approved in advance by the Engineer.

**A.3.b Project Scheduler**

- (1) The Contractor must designate an individual, entitled the Project Scheduler, who will develop and maintain the Project Schedule.
- (2) The Project Scheduler is recommended to have at least one (1) year of CPM scheduling experience using Primavera P6 scheduling software.
- (3) The Project Scheduler may be a full or part time position or may be filled by a consultant.
- (4) The Contractor may fill the Project Scheduler position using a person employed by the Contractor who is not on the Project, except for meetings and other times when the Project Manager deems it necessary to have the Project Scheduler at the Project site.
- (5) The Contractor must provide an explanation of the Project Scheduler's availability to work on the Project Schedule and experience with CPM scheduling at the preconstruction meeting or before the first Preliminary Schedule submission, whichever occurs first. If the Engineer determines the Project Scheduler does not have sufficient skill or experience in CPM scheduling as a result of Project Schedule submissions being substantially deficient or repeatedly not submitted within the required Contract timeframes, the Engineer may require that the person be removed from the Project in accordance with 1802, "Qualification of Workers" and replaced with a more qualified scheduler.

**A.4 Acceptance**

The Engineer will accept or reject a schedule submission based on whether the schedule submission meets the requirements of 1803.2, "Project Schedules, Critical Path Method (CPM)" and any other contractual requirements. The Engineer's acceptance of a schedule submission:

- (1) Does not modify the Contract;
- (2) Does not attest to the validity of the Contractor's Activity sequencing, Activity Logic, Activity durations, or assumptions in creating the schedule;
- (3) Does not guarantee that the Project can be performed or completed as depicted in the schedule; and
- (4) Does not transfer any of the Contractor's responsibilities to the Department. The Contractor alone is responsible for the accuracy of the schedule and for managing forces, equipment, and work schedules to ensure completion of the Work within the time(s) specified in the Contract.

The Engineer will return the schedule submission to the Contractor as "Accepted – No Exceptions Taken", "Accepted – As Noted", or "Rejected – As Noted." Review by the Engineer of a portion of a schedule or an incomplete schedule submission will not indicate acceptance of the entire schedule. If the Contractor or Engineer discovers an error after the Engineer has accepted a schedule, the Contractor must correct the error in the next required schedule submission.

**A.5 Float Suppression / Sequestered Float**

The Contractor must not suppress or sequester Float. Examples of prohibited Float suppression or sequestration include, but are not limited to:

- (1) Logic Relationships that provide no tangible or sequential value between unrelated Activities;
- (2) Logic Relationships that demand completion of an Activity that could otherwise continue beyond a Successor's start or finish dates; and
- (3) Excessively long and unreasonable Activity durations.

The Contractor is not entitled to compensation or a time extension for delays that could have been avoided by revising Logic or Activity durations used to sequester Float.

**A.6 Use of Float**

The Contractor acknowledges that all Float (Total Float and Free Float) is a shared commodity available to the Project and is not for the exclusive benefit of any party. Float is an expiring resource available to accommodate changes in the Work, however originated, or to mitigate the effect of events that may delay performance or completion of all or part of the Work. Float can be used by any party as long as there is no adverse effect to the other party. If the Engineer uses Float, the Contractor must notify the Engineer if the use of that Float will have an impact to the Contract in accordance with 1402, "Contract Revisions".

Weather Contingency, as described in 1803.2.C.10, "Weather Contingency", is not considered Float. For each update period, the Engineer may reserve time gained, or time that should have been gained, on Critical Path Work due to better than anticipated weather as a credit for unused Weather Contingency. The Engineer may apply credits for unused Weather Contingency toward delays to Critical Path Work caused by future weather events or other impacts not caused by the Contractor. Weather Contingency, both planned and acknowledged as a credit, is reserved for the exclusive benefit of the Department.

**A.7 Request for Early Completion Date**

If the Contractor wants to have a contractual completion date changed to an earlier date, the Contractor must notify the Engineer of the new desired date in a written letter. The requested early completion date must be achievable as of the last accepted Project Schedule, or the Contractor must submit a Rebaseline Schedule which is explicitly identified as a submission requesting an early completion date and shows completion of all Work by the requested early completion date. If the Contractor's request for an early completion date is accepted, the Engineer will initiate a Change Order amending the contractual completion date to the early completion date requested and as validated by the last accepted Project Schedule or the accepted Rebaseline Schedule submission. The amended completion date will be effective upon execution of that Change Order, and all Contract provisions concerning the completion date, such as incentives, disincentives, excusable delays, compensable delays, and liquidated damages, will be measured against the amended completion date.

The Contractor is allowed to submit a schedule showing completion of all Work before the contractual completion date without requesting an early completion date. If this occurs, the time between the early Project completion shown in the schedule and the contractual completion date will be considered Project Float and the contractual completion date will not be amended.

**A.8 Non-Compliance**

It is the Contractor's responsibility to ensure that each schedule submission meets the requirements of 1803.2, "Project Schedules, Critical Path Method (CPM)" and accurately reflects the Work performed in the field. The Department may withhold up to the full amount of each monthly progress estimate for failure to submit an acceptable schedule on time and in the manner required. Payment withheld for violation of the schedule requirements will be included in the next progress estimate following the Contractor's submission of an acceptable schedule. The Engineer may suspend Work under 1803.3, "Temporary Suspensions" if the schedule does not meet the requirements of 1803.2, "Project Schedules, Critical Path Method (CPM)" or if the schedule does not accurately reflect the progress of the Work in the field; the suspension may continue until an acceptable schedule is submitted.

**B Software Requirements****B.1 Required Software**

The Contractor must use Oracle's Primavera P6 (P6). The Contractor must use a version of P6 that is compatible with the Department's current version of P6. The Contractor is responsible for any conversion discrepancies if using a version of P6 that is different than the Department's current version of P6.

**B.2 Calculation Settings**

The Contractor must schedule (i.e., F9 in P6) the Project Schedule to ensure all changes have been incorporated before submission to the Engineer. The Contractor must use the following settings in the P6 'Schedule Options' window:

- (1) Uncheck 'Use Expected Finish Dates'; expected finish dates are not allowed.
- (2) Select 'Retained Logic' for scheduling progressed Activities.
- (3) Select 'Longest Path' to define Critical Activities.
- (4) Select 'Finish Float = Late Finish – Early Finish' to compute Total Float.

**B.3 Project-Level Settings**

The Contractor must use project-level calendars, not global or resources calendars. The Contractor must use project-level codes, not global- or EPS-level codes.

**B.4 Duration Format Settings**

The Department considers Activity durations (e.g., Original Duration, Remaining Duration) in whole days. In the 'Time Units' tab of the P6 'User Preferences' window, the Contractor must use the following settings for the 'Duration Format':

- (1) 'Day' for the 'Unit of Time', and
- (2) '0' for the number of 'Decimals'.

**B.5 Date Format Settings**

The Contractor must use the DD-MMM-YY (e.g., 01-Jan-19) format to display dates in schedule printouts. This date format is typically the default P6 setting.

**C Technical Requirements****C.1 Work Breakdown Structure**

The Contractor must use the following Work Breakdown Structure levels and nodes at a minimum.

<b>Table 1803-1</b>	
<b>Work Breakdown Structure</b>	
Level 1: Project Description	
	Level 2: Milestones
	Level 2: Submittals
	Level 3: Shop Drawings
	Level 3: Procurement/Fabrication
	Level 2: Construction
	Level 3: Phase TBD
	Level 4: Stage TBD
	Level 5: Detail to be defined by Contractor
	Level 5: Detail to be defined by Contractor
	Level 4: Stage TBD
	Level 5: Detail to be defined by the Contractor
	Level 5: Detail to be defined by the Contractor
	Level 3: Phase TBD

Table 1803-1 Work Breakdown Structure		
		Level 4: Stage TBD
		Level 5: Detail to be defined by Contractor
		Level 5: Detail to be defined by Contractor
		Level 4: Stage TBD
		Level 5: Detail to be defined by the Contractor
		Level 5: Detail to be defined by the Contractor
		Level 2: Post Construction

The Contractor must refine and expand on the specified Work Breakdown Structure provided, but the specified levels and nodes must still be included and maintained in the arrangement specified. The Contractor is responsible for determining an appropriate level of detail and descriptions for the Work Breakdown Structure. The Contractor must obtain acceptance from the Engineer for any deviations from the specified Work Breakdown Structure. The Contractor must ensure each Activity is assigned to the appropriate Work Breakdown Structure node.

### C.2 Activity IDs

Each Activity must possess a unique Activity ID which remains constant throughout the Project. If an Activity is deleted in a subsequent schedule submission, the corresponding Activity ID must not be used for any other Activity. The Contractor must limit the complexity of Activity IDs such that Activity IDs are easy to speak and write.

If using 'smart' Activity IDs, the Contractor must develop a coding system and corresponding key to explain the meaning of the Activity IDs. The Contractor must apply the coding system consistently and accurately to all Activity IDs and provide the coding system key to the Engineer for review and acceptance.

### C.3 Activity Names

Each Activity must possess a unique Activity Name. Activity Names must include a Verb, Object and Location (VOL) where practical. In addition, the Activity Name for each 'Level of Effort' Activity must start with "(LOE)". The Contractor must obtain the Engineer's acceptance for any Activity Name that does not include a Verb, Object and Location (VOL). The Contractor must use consistent language, including abbreviations and punctuation, among Activity Names with a similar scope of Work, location, or both.

### C.4 Activity Durations

Activity durations must be expressed in work days. Activity durations must be limited to not more than 20 work days, unless otherwise accepted by the Engineer.

### C.5 Activity Count

The Contractor is responsible for determining an appropriate level of detail to include in the Project Schedule. The number of Activities included in the Project Schedule should reflect the nature, size and complexity of the Project. The Contractor must include enough Activities to assure adequate planning of the Project, to allow for accurate monitoring and evaluation of progress, and to ensure all contractual date requirements are identifiable and being met, including any contractual time-related Work restrictions.

### C.6 Logic

The Activity Relationships included in the Project Schedule must accurately represent how Predecessor and Successor Activities are dependent upon each other.

**C.6.a Relationship Types**

Activity Relationship types must be limited to finish-to-start (FS), start-to-start (SS), and finish-to-finish (FF). The Contractor must obtain acceptance from the Engineer before using any start-to-finish (SF) relationships.

- (1) Each Activity, except for the first Activity in the schedule, must have at least one of the following Predecessor Relationships:
  - (a) Finish-to-start, or
  - (b) Start-to-start.
- (2) Each Activity, except for the last Activity in the schedule, must have at least one of the following Successor Relationships:
  - (a) Finish-to-start, or
  - (b) Finish-to-finish.

**C.6.b Missing Logic**

Each Activity must have at least one Predecessor Relationship except for the first Activity in the schedule and at least one Successor Relationship except for the last Activity in the schedule.

**C.6.c Open-Ended Activities**

Open-Ended Activities occur when an Activity's start or finish is not logically tied to another Activity in the schedule. Open-ended Activities are prohibited.

**C.6.d Redundant Logic**

The Contractor must avoid using excessive Redundant Logic when possible. The Contractor must provide an explanation of the reason for Redundant Logic upon the request of the Engineer.

**C.6.e Lag**

The Contractor must obtain the Engineer's acceptance before using Lags. The Contractor must remove any Lag and replace with an Activity identifying the Lag upon the request of the Engineer, regardless of whether the Engineer allowed the Lag in a previous Project Schedule.

**C.6.f Out-Of-Sequence Work**

Out-Of-Sequence Work occurs when a logical Relationship between Activities is invalidated by actual progress (i.e., when a Successor Activity actually starts or actually finishes earlier than its Predecessor Relationship type indicates it should be able to start or finish). Out-Of-Sequence Work indicates that actual Work progress is being performed differently than was planned in the schedule.

The Department considers the degree of Out-Of-Sequence Work as major, minor or historical, as defined below. A list of major and minor Out-Of-Sequence Work can be found in the P6 'Schedule Log' after scheduling (i.e., F9 in P6) the schedule. Before making any change to the schedule, the Contractor must review each instance of Out-Of-Sequence Work reported on the P6 'Schedule Log' to determine if a corrective action is appropriate. When possible, the Contractor must minimize the number of changes to the Project Schedule resulting from any Out-Of-Sequence Work correction. If the Contractor determines a change is needed due to Out-Of-Sequence Work, a detailed explanation must be provided in the accompanying Narrative Report for each instance of Out-Of-Sequence Work and the corrective action taken. If the Contractor believes Out-Of-Sequence Work indicates a significant change in planned Work sequencing, the Contractor must notify the Engineer before making changes in the schedule. Significant numbers of Out-Of-Sequence Work instances, including major Out-Of-Sequence Work, may indicate a Rebaseline Schedule or Impact Schedule is needed. The Contractor should discuss any concerns with Out-Of-Sequence Work and the potential need for a Rebaseline Schedule or Impact Schedule with the Engineer before taking action.

- (1) Major Out-Of-Sequence Work: Each instance of Out-Of-Sequence Work may be considered major when either of the following parameters occur:
  - (a) The Predecessor is critical, and the Successor is 100% complete, or
  - (b) The Out-Of-Sequence Work is not expected to be resolved during the next update period.

- (2) Minor Out-Of-Sequence Work: Each instance of Out-Of-Sequence Work may be considered minor when the Out-Of-Sequence Work is expected to be resolved during the next update period and either of the following parameters occur:
  - (a) The Predecessor is not critical, and the Successor is 100% complete, or
  - (b) The Successor is in-progress.
- (3) Historical Out-Of-Sequence Work: Historical Out-Of-Sequence Work will not be reported on the P6 'Schedule Log'.

Major Out-Of-Sequence Work is prohibited. The Contractor must modify each instance of major Out-Of-Sequence Work to accurately reflect Activity Relationships and the planned Work sequence as known in the field.

Minor Out-Of-Sequence Work is allowed. The Contractor must not modify minor Out-Of-Sequence Work, unless requested by the Engineer or the Contractor determines that modifications are needed to reflect a change in the planned Work sequence as known in the field.

Historic Out-Of-Sequence Work is allowed. The Contractor must not modify historical Out-Of-Sequence Work, unless requested by the Engineer.

## **C.7 Constraints**

### **C.7.a Constraint Date Requirements**

The Contractor must reference the 1806, "Determination and Extension of Contract Time," Special Provisions for Project-specific Constraint date requirements. The Contractor's use of Constraint dates other than those specified in the Special Provisions is subject to the Engineer's review and acceptance.

### **C.7.b Constraint Types**

Constraint types must be limited to the following types, unless otherwise approved by the Engineer:

- (1) Start on or before, and
- (2) Finish on or before.

## **C.8 Calendars**

Each Activity must be assigned an appropriate calendar in P6. The Project Schedule must use the following calendars at a minimum, unless otherwise approved by the Engineer:

- (1) Calendar to indicate calendar days (i.e., 7 days per week with no Holidays);
- (2) Calendar(s) for Work unaffected by weather;
- (3) Calendar(s) for Work affected by weather; the Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-specific Weather Contingency requirements; and
- (4) Calendar(s) for any Work subject to significant Work restriction periods as detailed in the 1806, "Determination and Extension of Contract Time," Special Provisions (e.g., closure periods, Work in water restrictions).

The Contractor must ensure the number of calendars created and used in the Project Schedule is manageable. The Contractor must provide an explanation of each calendar in the accompanying Narrative Report. Once the Baseline Schedule is accepted, the Contractor must not make changes to calendars unless the changes are clearly identified and explained in the accompanying Narrative Report.

### **C.8.a Work Days Per Week**

The name of each calendar in P6 must include the number of planned work days per week (e.g., 5 days, 6 days). The planned number of work days per week shown in the calendars must be consistent with the number of work days listed in the accompanying Narrative Report and the number of days worked in the field. Once the Baseline Schedule is accepted, the Contractor must not make changes to the planned work days per week in the calendars unless the changes are clearly identified and explained in the accompanying Narrative Report.

### **C.8.b Work Hours Per Day**

The Department considers Activity durations in work days and not work hours. It is not recommended for the Contractor to adjust the calendars in P6 to reflect the specific planned work hours per day because adjusting work hours in calendars can add significant complexity in schedule management and result in unintentional changes to Activity durations. If the Contractor chooses to modify the work hours per day in a

calendar after the Baseline Schedule is accepted, the changes must be clearly identified and explained in the accompanying Narrative Report.

**C.8.c Nonwork Days**

The calendars in P6 must indicate all days that the Contractor does not plan to work as nonwork days. Each calendar must contain nonwork days (e.g., weekends, closure periods, Holidays, Weather Contingency) as appropriate, with the exception of the calendar used to indicate calendar days.

The nonwork days shown in the calendars must be consistent with the nonwork days described in the accompanying Narrative Report. Once the Baseline Schedule is accepted, the Contractor must not make changes to the planned nonwork days in the calendars unless the changes are clearly identified and explained in the accompanying Narrative Report.

**C.9 Holidays**

The calendars in P6, with the exception of the calendar used to indicate calendar days, must accurately show each planned observed Holiday as a nonwork day. The Holidays shown in the calendars must be consistent with the Holidays listed in the accompanying Narrative Report. Once the Baseline Schedule is accepted, the Contractor must not make changes to the Holidays in the calendars unless the changes are clearly identified and explained in the accompanying Narrative Report. Unless otherwise noted, Holidays must be as established in MS 645.44.

**C.10 Weather Contingency**

**C.10.a Project-Specific Weather Contingency**

The Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-Specific Weather Contingency requirements.

**C.10.b Weather Contingency Reporting**

For each update period, the Contractor must provide an assessment of the planned Weather Contingency compared to actual weather experienced on Critical Path Work, in addition to the requirements of 1803.2.C.11, "Actual Weather Day Reporting", in the accompanying Narrative Report for the Engineer's review.

- (1) The Contractor must clearly state the number of days that any contractual requirement was delayed due to weather when the Contractor believes actual weather experienced on Critical Path Work is more than the planned Weather Contingency in an update period.
- (2) The Contractor must clearly state that no contractual requirement(s) was delayed due to weather when the Contractor believes the actual weather experienced on Critical Path Work is less than or equal to the planned Weather Contingency in the update period.

For each update period, the Engineer may reserve a credit for unused Weather Contingency (i.e., the difference between the planned Weather Contingency and actual weather days experienced) when the actual weather experienced on Critical Path Work is less than the planned Weather Contingency. The Engineer will consider any credits for unused Weather Contingency as cumulative until the completion of the Project or until the Engineer determines that a time extension due to weather is necessary. The Engineer will not pursue an early completion of the Project as a result of any credits for unused Weather Contingency unless an early completion date is requested by the Contractor in accordance with 1803.2.A.7, "Request for Early Completion Date."

The Engineer will provide details regarding determination of any credits for unused Weather Contingency for the Contractor's review. If the Contractor disagrees with the Engineer's determination, the Contractor must provide a written explanation and supporting documentation (e.g., daily reports, contemporaneous correspondence, Project photos) for the Engineer's review.

**C.11 Actual Weather Day Reporting**

The Contractor must document and obtain agreement with the Engineer for each weather day experienced at the time of each occurrence. The Contractor must include a list of the specific claimed actual weather days experienced and a brief description of the Work affected on each weather day in the accompanying Narrative Report applicable to the period in which weather was experienced.

**C.12 Actual Dates**

The Contractor must report actual start and actual finish dates for Work performed before the Project Schedule Data Date. Actual dates must accurately reflect when the Work was performed in the field. The Contractor must provide an explanation in the accompanying Narrative Report for any change to a previously reported actual date.

**C.13 Schedule Criticality**

The Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-specific schedule criticality requirements.

**C.14 Activity Codes**

The Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-specific Activity Code requirements.

**C.15 User Defined Fields**

The Contractor must reference the 1803, "Project Schedules" Special Provisions for Project-specific User Defined Field requirements.

**D Required Schedules****D.1 Preliminary Schedule**

Acceptance of the First Preliminary Schedule is a condition of Notice to Proceed 1 (NTP1). The Contractor must reference Table 1803-2 for Preliminary Schedule file naming convention requirements and Table 1803-3 for Preliminary Schedule submission timeline requirements. A delay in submitting the Preliminary Schedule is a non-excusable delay under 1806.2.C, "Non-Excusable Delays," and the Contractor is not entitled to an extension of the Contract Time.

The purpose of the Preliminary Schedule is to show that the Contractor understands the contractual Milestones and plans to complete the Project within the contractually required interim and completion dates. The Preliminary Schedule may be submitted in either Bar Chart or CPM format. The Preliminary Schedule is not required to meet all requirements in 1803.2.B, "Software Requirements" and 1803.2.C, "Technical Requirements". At a minimum, the Contractor must include the following level of detail in the Preliminary Schedules:

- (1) First Preliminary Schedule: Show all Milestone dates are understood and provide a detailed schedule for the next 30 calendar day look-ahead period from the submission date.
- (2) Subsequent Preliminary Schedules: Show all Milestone dates are understood and provide a detailed schedule for the next 45 calendar day look-ahead period from the submission date.

Changes made between Preliminary Schedule submissions must be closely coordinated with the Engineer and are subject to the Engineer's review and acceptance. The Contractor must show the status of Work completed by reporting actual start and finish dates and by reasonably estimating the Remaining Duration for each in-progress Activity.

**D.2 Baseline Schedule**

Baseline Schedule acceptance is a condition of Notice to Proceed 2 (NTP2). The Contractor must reference Table 1803-2 for Baseline Schedule file naming convention requirements and Table 1803-3 for Baseline Schedule submission timeline requirements. It is the responsibility of the Contractor to ensure schedule submissions intended for Baseline Schedule review and acceptance meet all requirements included in 1803.2, "Project Schedules, Critical Path Method (CPM)". Any delay to acceptance of the Baseline Schedule and NTP2 not caused by the Department (e.g., Contractor late submissions, incomplete submissions, and repeat resubmissions due to failure to properly address comments by the Engineer) will be considered a non-excusable delay in accordance with 1806.2.C, "Non-Excusable Delays".

The purpose of the Baseline Schedule is to establish how the Contractor plans to complete all Work contracted. The Baseline Schedule must include the entire scope of Work in detail. The Contractor must notify the Engineer when a schedule is being submitted for baseline review and acceptance as opposed to a Preliminary Schedule submission.

- (1) The Baseline Schedule must indicate:



- (a) Actual dates of Work performed if the Contractor chooses to perform any Work before the Baseline Schedule being accepted.
  - (b) All contractual date requirements and Milestones, including any time-related Work restrictions, are being met and scheduled to complete within the Contract Time.
- (2) The Baseline Schedule must include the following level of detail at a minimum and when applicable:
  - (a) Mobilization;
  - (b) Work to be performed by the Contractor, subcontractors and suppliers;
  - (c) Work to be performed by the Department, other contractors, and third parties which directly affects the Contractor's Work (e.g., government agencies and authorities, permitting authorities);
  - (d) Project Milestones, phases, stages, traffic switches and availability dates specified in the Contract
  - (e) Submittal, review and acceptance Activities;
  - (f) Fabrication, delivery, installation, testing and similar Activities for materials, plants and equipment;
  - (g) Installation, erection, removal and similar Activities related to temporary systems or structures (e.g. temporary electrical system, shoring);
  - (h) Settlement or surcharge periods;
  - (i) Utility notification and relocation, including concurrent utility moves and planned suspension periods to allow for utility relocation;
  - (j) Receipt of permits;
  - (k) Substantial Completion; and
  - (l) Final Completion.

### **D.3 Update Schedule**

The Contractor must submit an Update Schedule on a monthly basis, at a minimum, after the Baseline Schedule is accepted. The Contractor must reference Table 1803-2 for Update Schedule file naming convention requirements and Table 1803-3 for Update Schedule submission timeline requirements.

The purpose of the Update Schedule is to document progress and communicate the current status of the Project. The Contractor must update the last accepted Project Schedule to create each Update Schedule. Each Update Schedule must meet all requirements included in 1803.2, "Project Schedules, Critical Path Method (CPM)." The Contractor must update the last accepted Project Schedule by reporting actual start and actual finish dates for Work completed during the update period and by reasonably estimating the Remaining Duration for each in-progress Activity. The Contractor must minimize the number of changes to the Project Schedule. The Contractor must describe in detail the reason for any changes to the schedule in the accompanying Narrative Report submitted with each Update Schedule.

The inclusion of significant changes in a standard Update Schedule requires a detailed review by the Engineer and may affect acceptance of the Update Schedule and corresponding progress payment. Should significant changes be required during the standard update process, the Contractor must determine whether a Rebaseline Schedule or Impact Schedule is needed instead of including the changes in the Update Schedule. The Contractor must coordinate closely with the Engineer if an Update Schedule is due and a Rebaseline Schedule or Impact Schedule has been submitted and is in the review process. The Engineer will determine if the Contractor must update progress for the Update Schedule that is due using the last accepted Project Schedule or the last submitted Rebaseline Schedule or Impact Schedule.

### **D.4 Look-Ahead Schedule**

The Contractor must submit a detailed Look-Ahead Schedule to the Engineer each week until all Work is completed. The Contractor must reference Table 1803-3 for Look-Ahead Schedule submission timeline requirements.

The purpose of the Look-Ahead Schedule is to communicate, in a high level of detail, the Contractor's recent Work progress in the field and planned Work Activities for the upcoming 14 calendar days on a rolling basis. The Contractor must prepare the schedule in Bar Chart format by hand or by using a computer. The Look-Ahead Schedule must include actual dates for Work performed since the last Look-Ahead Schedule submission

and planned dates for Work to be performed in the upcoming 14 calendar days at a minimum. The Look-Ahead Schedule is not required to meet all requirements in 1803.2.B, "Software Requirements" and 1803.2.C, "Technical Requirements". However, the Work Activities included in the Look-Ahead Schedule must specifically reference the applicable Activity IDs in the Project Schedule. The Look-Ahead Schedule may be prepared by Contractor personnel other than the designated Project Scheduler (e.g., Superintendent, Field Supervisor, Project Manager).

#### **D.5 Rebaseline Schedule**

The Contractor must not perform Work substantially different than depicted on the last accepted Project Schedule. If work is to be performed substantially different than depicted on the last accepted Project Schedule, the Contractor must seek an accepted Rebaseline Schedule.

The Contractor must submit a Rebaseline Schedule upon one of the following:

- (1) At the Engineer's Request.
  - (a) Where the Engineer has accepted an Impact Schedule and approves the Contractor to incorporate the impacts and corresponding resolution (e.g., modified completion date, re-sequenced Work, mitigation efforts) into the last accepted Project Schedule.
  - (b) Where the Engineer requires the Contractor to demonstrate a proposed recovery plan to any Milestone date significantly exceeding the contractual requirements in the last accepted Project Schedule.
  - (c) The Engineer concludes that there is a substantial difference between the sequence or duration of the Work as known in the field and the Work as depicted in the last accepted Project Schedule.
- (2) The issuance of a Contract Revision document that changes the planned sequence of Work or the method and manner of its performance.
- (3) The Contractor requests an early completion date.
- (4) The Contractor plans to substantially deviate from the last accepted Project Schedule, including significant changes to sequence or durations of remaining Work.

The Contractor must reference Table 1803-2 for Rebaseline Schedule file naming convention requirements and Table 1803-3 for Rebaseline Schedule submission timeline requirements.

The purpose of the Rebaseline Schedule is to establish the Contractor's revised plan to complete all Work when significant changes to the last accepted Project Schedule are required. The Rebaseline Schedule must meet all requirements included in 1803.2, "Project Schedules, Critical Path Method (CPM)." The Contractor must describe in detail the reasons for all proposed schedule changes in the accompanying Narrative Report.

Any requirement to prepare a Rebaseline Schedule is not a directive by the Engineer to accelerate the Work but rather a directive for the Contractor to seek the Engineer's acceptance of a proposal to revise the last accepted Project Schedule, which may or may not include acceleration. Acceptance of a Rebaseline Schedule does not approve acceleration costs without detailed support from the Contractor explaining such acceleration costs.

#### **D.6 Impact Schedule**

The Contractor must submit an Impact Schedule to model and evaluate impacts to the Project Schedule upon one of the following:

- (1) At the Engineer's request. An example of a reason for an Engineer-requested Impact Schedule may be the negotiation of a potential Contract Revision document that changes that planned sequence of Work or the method and manner of its performance.
- (2) When the Contractor believes that an Impact Schedule is necessary and obtains agreement with the Engineer.

Depending on the complexity of the proposed schedule changes required to evaluate the impact experienced, an Impact Schedule may or may not be needed. However, the Engineer still reserves the right to require the Contractor to submit an Impact Schedule regardless of complexity. The Contractor must reference Table 1803-2 for Impact Schedule file naming convention requirements and Table 1803-3 for Impact Schedule submission timeline requirements.

The purpose of the Impact Schedule is to quantify the effects of any past, current or future impacts to the Project Schedule and to establish the potential need for a time extension to a Project Milestone. When creating an Impact Schedule, the Contractor must follow the standard for preparation of an Impact Schedule as specified in 1806, "Determination and Extension of Contract Time." The Contractor must describe in detail the reasons for all proposed schedule changes in the accompanying Narrative Report.

The requirement to prepare an Impact Schedule is not a directive by the Engineer to accelerate the Work but rather a directive for the Contractor to demonstrate the effects of impacts to the accepted Project Schedule.

#### **D.7 As-Built Schedule**

At the conclusion of work, the Contractor must submit a final Project Schedule with actual start and actual finish dates for each Activity. This schedule will serve as the As-Built Project Schedule. The Department will not grant final Contract acceptance as specified in 1516.4, "Final Contract Acceptance" until the Engineer receives and accepts the Final As-Built Project Schedule.

### **E Submission Requirements**

#### **E.1 File Naming Convention**

The Contractor must include the file naming convention as shown in Table 1803-2 for all files included in the schedule submission (i.e., Narrative Report, schedule printouts, and P6 native .xer file). The Contractor may include additional wording after the specified file naming convention to identify the schedule submission type (e.g., Narrative Report, All Activities Printout, Longest Path Printout, Near-Critical Activities Printout). The Contractor must ensure any additional wording added to the file naming convention remains consistent throughout the duration of the Project. If the schedule is not accepted, the Contractor must resubmit under the file name as modeled for resubmission. The #####-#### indicates a placeholder for the State Project Number.

The purpose of the file naming convention is to avoid confusion regarding the schedule submission type and version between the Contractor, the Engineer, and any other party receiving the Contractor's schedule submission.

<b>Table 1803-2 Project Schedule File Naming Convention</b>			
<b>Schedules</b>	<b>Original Submission</b>	<b>1<sup>st</sup> Resubmission</b>	<b>2<sup>nd</sup> Resubmission</b>
First Preliminary Schedule	#####-####-PR00-Rev0	#####-####-PR00-Rev1	#####-####-PR00-Rev2
1 <sup>st</sup> Subsequent Preliminary Schedule edulSchedule	#####-####-PR01-Rev0	#####-####-PR01-Rev1	#####-####-PR01-Rev2
2 <sup>nd</sup> Subsequent Preliminary Schedule, etc. edulSchedule	#####-####-PR02-Rev0	#####-####-PR02-Rev1	#####-####-PR02-Rev2
Baseline Schedule	#####-####-BSLN-Rev0	#####-####-BSLN-Rev1	#####-####-BSLN-Rev2
1 <sup>st</sup> Update Schedule	#####-####-UP01-Rev0	#####-####-UP01-Rev1	#####-####-UP01-Rev2
2 <sup>nd</sup> Update Schedule, etc.	#####-####-UP02-Rev0	#####-####-UP02-Rev1	#####-####-UP02-Rev2
1 <sup>st</sup> Rebaseline Schedule	#####-####-RB01-Rev0	#####-####-RB01-Rev1	#####-####-RB01-Rev2
2 <sup>nd</sup> Rebaseline Schedule, etc.	#####-####-RB02-Rev0	#####-####-RB02-Rev1	#####-####-RB02-Rev2
1 <sup>st</sup> Impact Schedule	#####-####-IS01-Rev0	#####-####-IS01-Rev1	#####-####-IS01-Rev2
2 <sup>nd</sup> Impact Schedule, etc.	#####-####-IS02-Rev0	#####-####-IS02-Rev1	#####-####-IS02-Rev2

#### **E.2 Timeline**

It is the Contractor's responsibility to meet with the Engineer as often as necessary to satisfy the timelines stated in Table 1803-3. If the Engineer does not accept a schedule submission, the Contractor must review and respond to all of the Engineer's questions and concerns, adjust the schedule if needed, and resubmit to the Engineer within the timelines indicated in Table 1803-3.

Table 1803-3 Schedule Submission Timelines					
Schedule Type	Section	Data Date	Submission Due Date	Engineer Review Length	Resubmission Due Date
First Preliminary	1803.2.D.1	Letting Date, or as agreed to by the Engineer	Condition of NTP1	7 Calendar Days after submitted	7 Calendar Days
Subsequent Preliminary	1803.2.D.1	One month after the Data Date of the last accepted Preliminary Schedule, or as agreed to by the Engineer	4 Business Days after Data Date	7 Calendar Days after submitted	7 Calendar Days
Baseline	1803.2.D.2	No earlier than the Data Date of the last accepted Preliminary Schedule, or as agreed to by the Engineer	Condition of NTP2	7 Calendar Days after submitted	7 Calendar Days
Update	1803.2.D.3	15 <sup>th</sup> of every month, or as agreed to by the Engineer	4 Business Days after Data Date	7 Business Days after submitted	3 Business Days
Look-Ahead	1803.2.D.4	N/A	Weekly	N/A	N/A
Rebaseline	1803.2.D.5	No earlier than the Data Date of the last accepted Project Schedule, or as agreed to by the Engineer	7 Business Days after the need for a Rebaseline Schedule is identified	7 Business Days after submitted	7 Calendar Days
Impact	1803.2.D.6	No earlier than the Data Date of the last accepted Project Schedule, or as agreed to by the Engineer	7 Business Days after the need for an Impact Schedule is identified	7 Business Days after submitted	As directed by the Engineer

### E.3 Narrative Report

The Contractor must include a detailed Narrative Report with each schedule submission, including schedule resubmissions. For schedule resubmissions, the Contractor must update the Narrative Report to include comments regarding the nature of the resubmission and any changes made since the previous schedule submission.

#### E.3.a Baseline Schedule Narrative Report

Each Baseline Schedule Narrative Report must include and discuss at a minimum:

- (1) Explanation of the overall plan to complete the Project, including where the Work will begin and how the Work and crews will flow through the Project;
- (2) The quantity and estimated production rates for Critical Activities;
- (3) The work days per week, number of shifts per day, and number of hours per shift;
- (4) Identification of calendars used in P6 and an explanation of all non work days, including observed Holidays and Weather Contingency;
- (5) Description of the expected performance of each required permit that has reasonable potential to negatively affect the Work if delayed;

- (6) Identification of all Activities requiring coordination with the Department or third parties (e.g., utilities) and a description of the expected performance needed to avoid impacts to the Work;
- (7) Identification of all Constraints and an explanation of the reason for each Constraint;
- (8) Identification of all Relationships with Lag and an explanation of the reason for each Lag;
- (9) Schedule criticality calculations, if required by the 1803, "Project Schedules" Special Provisions; and
- (10) Any other Project concerns that are currently affecting or anticipated to affect the schedule.

#### **E.3.b Update Schedule Narrative Report**

Each Update Schedule Narrative Report must include and discuss at a minimum:

- (1) Description of the reasons for any changes to the schedule, including but not limited to:
  - (a) Added or deleted Activities;
  - (b) Added or deleted Logic;
  - (c) Changes to Original Duration;
  - (d) Increases in Remaining Duration (NOTE: decreases in Remaining Duration for Work progressed during the update period are not considered changes);
  - (e) Added, deleted, or changed Constraints;
  - (f) Added, deleted, or changed Lag;
  - (g) Changes to work and nonwork days in calendars in P6, including observed Holidays and Weather Contingency;
  - (h) Changes to calendar assignments in P6; and
  - (i) Changes to previously recorded actual dates (NOTE: new actual start and actual finish dates for Work progressed during the update period are not considered changes);
- (2) Description of the status of scheduled Milestone dates, including specifically any differences from the last accepted Project Schedule;
- (3) Actual weather day reporting as required by 1803.2.C.11, "Actual Weather Day Reporting";
- (4) Weather Contingency reporting as required by 1803.2.C.10.b, "Weather Contingency Reporting";
- (5) Description of any unusual labor, shift, equipment or material conditions or restrictions encountered or anticipated since the previous schedule submission;
- (6) Description of the expected performance of each required permit that has reasonable potential to negatively affect the Work if delayed;
- (7) Description of the status of any Activities requiring coordination with the Department or third parties (e.g., utilities) planned to occur during the next update period and expected performance needed to avoid impacts to the Work;
- (8) Schedule criticality calculations, if required by the 1803, "Project Schedules" Special Provisions; and
- (9) Any other Project concerns that are currently affecting or anticipated to affect the schedule.

#### **E.3.c Rebaseline Schedule Narrative Report**

Each Rebaseline Schedule Narrative Report must include and discuss at a minimum:

- (1) Explanation of the overall plan to complete the Project, including how the Work and crews will flow through the Project and specifically how this differs from the last accepted Project Schedule;
- (2) Description of the reasons for any changes to the schedule as listed in 1803.2.E.3.b(1);
- (3) Description of the status of scheduled Milestone dates, including specifically any differences from the last accepted Project Schedule;
- (4) The quantity and estimated production rates for Critical Activities;
- (5) Description of any changes to the work days per week, number of shifts per day, and number of hours per shift;
- (6) Description of any unusual labor, shift, equipment or material conditions or restrictions encountered or anticipated;

- (7) Description of the expected performance of each required permit that has reasonable potential to negatively affect the Work if delayed;
- (8) Identification of all Activities requiring coordination with the Department or third parties (e.g., utilities) and a description of expected performance needed to avoid impacts to the Work;
- (9) Schedule criticality calculations, if required by the 1803, "Project Schedules" Special Provisions; and
- (10) Any other Project concerns that are currently affecting or anticipated to affect the schedule.

#### **E.3.d Impact Schedule Narrative Report**

Each Impact Schedule Narrative Report must include and discuss at a minimum:

- (1) Detailed explanation of the impact being experienced and its effect on the overall plan to complete the Project, including how the impact may affect how crews will flow through the Project;
- (2) Detailed description of all changes to the schedule, as listed in 1803.2.E.3.b(1), and the reason for each change; changes must be limited to those involving the impact only;
- (3) Description of the status of scheduled Milestone dates, including specifically any differences from the last accepted Project Schedule;
- (4) Description of the expected performance of each required permit related to the impact that has reasonable potential to negatively affect the Work if delayed, if related to the impact;
- (5) Identification of all Activities related to the impact requiring coordination with the Department or third parties (e.g., utilities) and a description of expected performance needed to avoid impacts to the Work;
- (6) Schedule criticality calculations, if required by the 1803, "Project Schedules" Special Provisions; and
- (7) Any other Project concerns that are currently affecting or anticipated to affect the schedule.

#### **E.4 Schedule Printouts**

##### **E.4.a Required Schedule Printouts**

The Contractor must include the following schedule printouts in .pdf format with each schedule submission:

- (1) "All Activities". All Activities grouped by WBS and sorted by start date with the Longest Path indicated in red.
- (2) "Longest Path". Critical Path Activities, which are typically displayed using the P6 'Longest Path' filter, sorted by start date. This printout may be grouped by WBS at the Contractor's discretion.
- (3) "Near-Critical Activities". All Near-Critical Activities sorted first by Total Float and then by start date. This printout must not be grouped by WBS.
- (4) Any additional schedule printout as requested by the Engineer.

Each schedule printout must include a title block displaying the Data Date, run date, Activity bar legend, schedule printout name, and filter(s) applied. Each schedule printout must be formatted to fit the Activity table and Gantt chart to one page wide in landscape orientation on an 11x17 page size. The Engineer may require the Contractor to submit a hard copy of each schedule printout in addition to the required .pdf.

##### **E.4.b Activity Table Information**

The Activity table must contain the following information at a minimum:

- (1) Activity ID,
- (2) Activity Name,
- (3) Original Duration,
- (4) Remaining Duration,
- (5) Start,
- (6) Finish,
- (7) Late Start,
- (8) Late Finish, and

- (9) Total Float.

**E.4.c Gantt Chart Information**

The Gantt chart must typically be formatted as follows:

- (1) The timescale must be adjusted to appropriately show the Activities included in the printout.
- (2) Show the Data Date as a solid blue line, when applicable.
- (3) Show Logic lines, when applicable.
- (4) Do not include summary bars, percent complete bars, or baseline bars.

**E.5 P6 Native File**

The Contractor must submit the P6 native .xer schedule file with each schedule submission. The Contractor must reference Table 1803-2 for file naming convention requirements.

**1803.3 TEMPORARY SUSPENSIONS**

**A Suspension of Work Ordered by the Engineer**

The Engineer will issue all suspension-of-work orders in writing specifying the effective start date and end date of the suspension, the operations to be suspended, and the reasons for the suspension. The Contractor may not resume work until so authorized in writing by the Engineer and must resume work within a reasonable time upon the Engineer's direction. The Engineer will order the resumption of Work upon determining that the conditions that caused the suspension no longer exist.

If the Engineer issues a temporary suspension-of-work order because of any action or inaction by the Department, or because of incomplete Work under other contracts, and if the Contractor has not been advised in the Contract that such a suspension may be necessary, the Contractor must refer to 1402.4, "Suspensions of Work Ordered by the Engineer," regarding compensation and extension of Contract Time.

If the Engineer issues a temporary suspension-of-work order due to the Contractor's fault or negligence, such suspension is a non-excusable delay as specified in 1806.2.C, "Non-Excusable Delays," and is non-compensable.

**B Suspension of Work Requested by the Contractor**

The Contractor must send a written request for a temporary suspension of work to the Engineer. The Contractor's request must include the proposed effective start and end dates, the operations to be suspended, and the reasons for requesting the suspension. The Contractor must not suspend all or any part of the Work without the Engineer's written authorization. Suspension of the Work for any cause whatsoever does not relieve the Contractor of the responsibility for maintenance of traffic, except as otherwise provided in 1404, "Maintenance of Traffic," or by written agreement between the Contractor and the Department.

The Engineer will not authorize the Contractor to temporarily suspend operations until the following conditions are met:

- (1) The roads that are being used by traffic and any temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, garages, and farms are in such condition that only routine maintenance will be required to adequately accommodate through and local traffic during the anticipated period of suspension.
- (2) The Contractor has performed such work as is necessary to protect all completed or partially completed work during the anticipated suspension period.
- (3) The Contractor has placed all traffic control devices as specified in 1710, "Traffic Control Devices."

Should the Contractor fail to perform any of this Work before suspension, the Department reserves the right to have the Work performed by others and to deduct the associated costs from any moneys due or becoming due the Contractor.





# 1910 Fuel Escalation Clause

The provisions set forth in 1910, “Cost Escalation” are hereby supplemented with the following:

This provision provides for compensation adjustments in the cost of motor fuels (diesel and gasoline) consumed in prosecuting the Contract work. The Engineer will calculate the Fuel Cost Adjustments. Payments or credits will be applied to progress, semi-final, and final payments for work items set forth herein.

The Department will establish a Base Fuel Index (BFI) for fuel to be used on the Contract. The BFI will be the average of the high and low rack prices shown for Ultra Low Sulfur Diesel Undyed in the “DTN FastRack” for the day of the Contract letting.

A Current Fuel Index (CFI) in cents per gallon will be established for each week. The CFI will be the average of the high and low rack prices shown for Ultra Low Sulfur Diesel Undyed in the “DTN FastRack” indicated each Wednesday.

The Engineer will compute the ratio of the CFI to the BFI (CFI/BFI) each week. If that ratio is between 0.85 and 1.15, no fuel adjustment will be made for the week following the CFI computation. If the ratio is less than 0.85, a credit to the Department will be computed. If the ratio is greater than 1.15, additional payment to the Contractor will be computed.

Credit of additional payment will be computed as follows:

1. The Engineer will estimate the quantity of work done in that week under each of the Contract items listed in Table 1910-1.
2. The Engineer will compute the gallons of fuel used in that week for each of the Contract items listed in Table 1910-1 by applying the unit fuel usage factors shown.
3. The Engineer will determine the Fuel Cost Adjustment (FCA) from the following formulas
  - a. If the CFI is greater than the BFI:  $[(CFI/BFI)-1.15]*Q*BFI$  = amount of FCA to be paid to the Contractor.
  - b. If the CFI is less than the BFI:  $[(CFI/BFI)-0.85]*Q*BFI$  = amount of FCA to be credited to the Department
    - i. FCA = Fuel Cost Adjustment (cents)
    - ii. CFI = Current Fuel Index (cents per gallon)
    - iii. BFI = Base Fuel Index (cents per gallon)
    - iv. Q = Weekly total gallons of fuel per item

## Basis of Payment

A FCA payment to the Contractor will be made as a price adjustment to each eligible item for each payment period based on the last published CFI. An FCA credit to the Department will be deducted each payment period

from any monies due the Contractor. Only items shown in Table 1901-1 will be considered for compensation adjustments.

Table 1901-1 Schedule of Work Items

Specification Number	Item	Unit	Gallons of Fuel per Unit
2105	Common Excavation	CY	0.17
2105	Rock Excavation	CY	0.27
2105	Muck Excavation	CY	0.17
2105	Subgrade Excavation	CY	0.17
2105	Unclassified Excavation	CY	0.23
2105	Granular Borrow (EV)	CY	0.17
2105	Granular Borrow (CV)	CY	0.19
2105	Granular Borrow (LV)	CY	0.14
2105	Select Granular Borrow (EV)	CY	0.17
2105	Select Granular Borrow (CV)	CY	0.19
2105	Select Granular Borrow (LV)	CY	0.14
2105	Common Borrow (EV)	CY	0.17
2105	Common Borrow (CV)	CY	0.19
2105	Common Borrow (LV)	CY	0.14
2105	Topsoil Borrow (EV)	CY	0.17

Specification Number	Item	Unit	Gallons of Fuel per Unit
2105	Topsoil Borrow (CV)	CY	0.19
2105	Topsoil Borrow (LV)	CY	0.14
2106	Excavation – Common	CY	0.17
2106	Excavation – Subgrade	CY	0.17
2106	Excavation – Rock	CY	0.27
2106	Excavation – Muck	CY	0.17
2106	Common Embankment (CV)	CY	0.19
2106	Granular Embankment (CV)	CY	0.19
2106	Select Granular Embankment (CV)	CY	0.19
2106	Select Granular Embankment (CV) Modified (____%) (CV)	CY	0.19
2211	Aggregate Base	Ton	0.55
2211	Aggregate Base (LV)	CY	0.77
2211	Aggregate Base (CV)	CY	0.99
2211	Open Graded Aggregate Base (CV)	CY	0.99
2211	Shoulder Base Aggregate, Class	Ton	0.55
2211	Shoulder Base Aggregate (LV), Class	CY	0.77
2211	Shoulder Base Aggregate (CV), Class	CY	0.99

Specification Number	Item	Unit	Gallons of Fuel per Unit
2232	Mill Bituminous Surface $t$ inches	SY	$0.019*t$
2301	Concrete Pavement $t$ inches	SY	$0.027*t$
2301	Place Concrete Pavement $t$ inches	SY	$0.027*t$
2360	Type SP ( ) Wearing Course Mixture	Ton	0.90
2360	Type SP ( ) Wearing Course Mixture	Ton	0.90
2360	Type ( ) Mixture $t$ inches thick	SY	$0.051*t$
2501	Pipe Culvert	Lin Ft	0.70
2501	Pipe Arch Culvert	Lin Ft	0.70
2501	Pipe Culvert Des 3006	Lin Ft	0.70
2503	Pipe Sewer	Lin Ft	0.70
2503	Pipe Arch Sewer	Lin Ft	0.70
2503	Pipe Sewer Des 3006	Lin Ft	0.70

$t$  = Thickness in inches

The Department will not pay adjustments for pipes less than 12" in diameter, jacked pipes, or directionally drilled pipes.

The Department will not pay adjustments for fuel used for drying or heating aggregates.

# **Schedule of Materials Control 2023 Version**

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## Introduction Page

### Minnesota Department of Transportation Schedule of Materials Control (SMC) (Federal Aid, State Funds, County/Municipal Federal Aid Projects, and State Aid Projects)

This schedule outlines the minimum sampling and testing required for most materials used in highway construction. For more information regarding contract requirements for testing, please reference the "Standard Specifications for Construction", Specification 1603 Materials: Specifications, Samples, Tests, and Acceptance. Items that are not listed in the Standard Specifications for Construction are covered by Special Provisions and are not listed herein.

Laboratories performing acceptance tests for payment shall be accredited by AASHTO resource (formerly AMRL) or a comparable accreditation program approved by MnDOT and the FHWA for all test procedures performed.

#### **Contact the MnDOT District Independent Assurance Inspector when the project starts to provide the proper servicing of your project.**

When sample sizes required for testing exceed 35 pounds, please submit multiple containers of the material with no individual container weighing more than 35 pounds.

Small quantities of materials may be accepted without sampling and testing. A small quantity is defined as any total quantity, for the whole project, of one material, which is smaller than the minimum quantity required for testing unless modified by the individual material items. These materials shall be from known, reliable sources, perform satisfactorily and meet the requirements for purpose intended. The inspection report (Form 02415) should include a statement to this effect and show the source. Form 2403 may be used to report small quantities of diverse materials from different sources. Form 02415 and Form 2403 (or approved revisions) are referenced in the Schedule of Materials Control for project record documentation and are required to be maintained in the project file.

Previously approved materials transferred from another project should be reported on Form 02415. The report should include type of material, quantities involved, source, and supplier of materials. Whenever possible, certification of "Approval documents" shall be included with the Project documents.

If Forms 02415 and 2403 are referenced by form number within the Schedule of Materials Control for materials or products received from pre-approved sources, where the field responsibility for acceptance is visual inspection and all information required to complete these forms is contained in other documents in the project file, the use of these forms becomes optional. If these forms are completed and sent to the Project Engineer by off-site inspection personnel from the District or the Office of Materials, they must be retained in the project file.

A [Telephone Index](#) is included with the Schedule giving contact information for the specialty areas if further information is required regarding the various materials. A [Form Index](#) is also included.

The Department maintains the [Approved/Qualified Products List](#) (APL/QPL) and the Certified Products and Services List, as well as the Schedule of Materials Control. All are available electronically on the [Office of Materials and Road Research website](#).

Products manufactured offsite may be pre-approved; however, final acceptance will be made at the point of incorporation, based upon review of documentation and inspection for shipping or other damage.

The Department may perform ride quality verification testing (Bituminous and/or Concrete) within 30 calendar days of the Contractor's profiling for the project or major stage of construction. The Department will randomly test at least 10 percent of the calendar year's projects that are subject to Smoothness evaluation. If the Department's weighted mean Smoothness value differs by less than or equal to 10 percent or 3 inches/mile of the Contractor's weighted mean Smoothness value, the Engineer will accept the Contractor's segment Smoothness and ALR values as the basis for acceptance, incentive/disincentive, and Corrective Work's monetary deductions. If the Department's weighted mean Smoothness value is greater than 10 percent and 3 inches/mile of the Contractor's weighted mean Smoothness value, the Engineer will use the retested segment Smoothness and ALR values as the basis for acceptance, incentive/disincentive, and Corrective Work monetary deductions.

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

Pay Item Number	Test Type / Material	Material Spec. No.	Minimum Contractor Testing Rate	Minimum Department Testing, Rate and Size	Minimum Companion (Split Lab) Sample, Rate and Size	Form No. (See Note 4)
(a) 2118 (b) 2211 (c) 2212 (d) 2221 (e) 2106	<b>1. Gradation</b> (a) Aggregate Surfacing (b) Aggregate Base (c) Drainable Aggregate Base (d) Shoulder Base Aggregate (e) Stabilizing Aggregate	3136 3138	<u>Production:</u> 1/1000 yd <sup>3</sup> (CV) Only required for 1906.2, “Material on Hand”	<b>Random Sampling</b> (See Notes 1, 2, 10, & 11) < 250 yd <sup>3</sup> (CV) or 500 tons: No tests required  ≥ 250 yd <sup>3</sup> (CV) to ≤ 2,000 yd <sup>3</sup> (CV) or ≥ 500 tons to ≤ 4,000 tons: 2 random samples from each lot and average.  > 2,000 yd <sup>3</sup> (CV) or 4,000 tons: Divide into lots with lot size no greater than 2,000 yd <sup>3</sup> (CV) or 4,000 tons 2 random samples from each lot and average 30 lb.	1 per project  30 lb.  .	G&B-001 G&B-002b  G&B-101 G&B-104
(f) 2106	(f) Granular and Select Granular Materials	3149.2B	1/10,000 yd <sup>3</sup> (CV) Only required for 1906.2, “Material on Hand”	1 per 40,000 yd <sup>3</sup> (CV) or 1 per 80,000 tons (See Notes 1, 2, 10, & 11) 30 lb.	1 per project  30 lb.	G&B-001 G&B-101 G&B-104
(g) 2215	(g) Full Depth Reclamation (FDR)	2215	None	Test at Engineer’s discretion. Inspect for oversize chunks (+3”), after the motor grader has overturned the material. 30 lb.	None	G&B-001 G&B-101
Multiple	(h) Granular Backfill (i) Aggregate Backfill (j) Granular Bedding (k) Aggregate Bedding (l) Coarse Filter Aggregate (m) Fine Filter Aggregate (n) Structural Backfill	3149	1 per source. Only required for 1906.2, “Material on Hand”	1 per source 30 lb. .	None	G&B-001 G&B-101 G&B-104
Multiple	<b>2. Proctor Test</b> (Used to determine optimum moisture & maximum density)	2106	None	1 per major soil type. Additionally, 1 for each granular material (3138, 3149, etc.), if using specified density. (See Notes 6 & 8) 50 lb.	1 per project. (Notes 1 & 2)  25 lb.	G&B-001 G&B-303



**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

Pay Item Number	Test Type / Material	Material Spec. No.	Minimum Department Testing	Form No. (See Note 4)
Multiple	<b>3a. Compaction Compliance-Non-Granular Material</b> Non-granular material has greater than 20% passing the number 200 sieve. Specified Density or Light Weight Deflectometer (LWD)	2106	<b>Roadway Embankment</b> <b>Within road core:</b> 1 per 10,000 yd <sup>3</sup> <b>Material outside road core:</b> Test at Engineer's discretion <b>Trenches for Transverse Culverts and Abutments:</b> 1 per every 2 feet of fill height <b>Trenches for longitudinal water-main, storm-sewer, sanitary, gas, and retaining walls. Also, sidewalks and trails:</b> 1 per 500 feet <b>Subgrade Preparation</b> 1 per 25 Road Stations (See Notes 11 & 12)	G&B-001 G&B-304
Multiple	<b>3b. Compaction Compliance -Granular Material</b> Dynamic Cone Penetration (DCP) Index Method, LWD, or specified density (a) Aggregate Base (b) Shoulder Base Aggregate (c) Walks and Trails Granular material has 20% or less passing the number 200 sieve.	3138	<b>For aggregate base and shoulder base:</b> 1 per 2,000 yd <sup>3</sup> (CV) or 1 per 4,000 ton  1 per 500 feet for sidewalks and trails (See Note 10, 11, & 12)	G&B-001 G&B-204 G&B-601 G&B-603
(d) 2215	<b>3b. Compaction Compliance -Granular Material (Continued)</b> (d) Full Depth Reclamation (FDR)	2215	1 per 10,000 yd <sup>2</sup> (See Note 11)	G&B-001 G&B-205 G&B-601 G&B-603
Multiple	(e) Granular Embankment and Subgrade Preparation, if Subgrade has less than 20% passing the number 200 sieve.	3149	<b>Roadway Embankment:</b> 1 per 5,000 yd <sup>3</sup> <b>Trenches for Transverse Culverts and Abutments except spread footings:</b> 1 per every 2 feet of fill height per structure. <b>Trenches for longitudinal water-main, storm-sewer, sanitary, gas, retaining walls. Also, sidewalks and trails:</b> 1 per 500 feet <b>Spread Footings:</b> Four per footing <b>Subgrade Preparation:</b> 1 per 25 Road Stations. (See Notes 11 & 12)	G&B-001 G&B-203 G&B-601 G&B-603

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

Pay Item Number	Test Type / Material	Minimum Contractor Testing Rate
Multiple	<b>3c. Compaction Compliance-Test Rolling</b> (See Note 9)	<p>Contractor to perform test rolling at top of:</p> <ul style="list-style-type: none"> <li>• Non-granular subgrade (2106)</li> <li>• Granular subgrade that does not meet 3149.2.B.2 (2106),</li> <li>• Base (2211) and shoulder base (2221),</li> <li>• Unstabilized Full Depth Reclamation (2215).</li> </ul> <p>Minimum 12' width and 300' length.</p> <p>Department to observe test rolling.</p>

Pay Item Number	Test Type / Material	Material Spec. No.	Minimum Department Testing	Form No. (See Note 4)
Multiple	<b>4. Moisture Content Test During Compaction</b> (a) Aggregate Surfacing (See Notes 1 & 7) (b) Aggregate Base (See Note 1) (c) Shoulder Base Aggregate (See Note 1) (d) Structure Excavations and Backfills (e) Walks and Trails	3138 3149	<p><b>For 2118, 2211, 2221, and 2521:</b> 1 per 1,000 yd<sup>3</sup> up to 10 maximum</p> <p><b>For 2451:</b> 1 per structure., however, for multiple adjacent structures, may test once, use judgement</p> <p><b>For Quality Compaction:</b> Test at Engineer's discretion.</p>	G&B-001 G&B-105 G&B-106
(f) 2215	(f) Full Depth Reclamation (See Note 1)	2215	1 per 20,000 yd <sup>2</sup>	G&B-001 G&B-105 G&B-106
Multiple	(g) All embankment materials (See Note 1) (h) Subgrade Preparation (See Note 1)	2106 3149	<p><b>Embankment Materials:</b> 1 per 10,000 yd<sup>3</sup> up to 10 maximum</p> <p><b>Subgrade Preparation:</b> 1 per 25 Road Stations</p> <p><b>For Quality Compaction:</b> Test at Engineer's discretion.</p>	

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

Pay Item Number	Test Type / Material	Material Spec. No.	Minimum Contractor Quality Control Testing Rate	Minimum Department Testing, Rate and Size	Form No. <i>(See Note 4)</i>
Multiple	<b>5. Aggregate Quality</b> (a) LAR, Insoluble Residue (IR), and Lithological Exam  (b) Bitumen content; % crushing; clay content; plasticity index; percentage of Concrete, Masonry Concrete, Glass, Brick and other Objectionable Material in a Recycled Aggregate Sample.	3136 3138 3149	1 per source. Only required for 1906.2, "Material on Hand" <i>(See Note 5)</i>	(a) 2 per source For larger quantities from carbonate quarries, LAR and IR are required. Always required for structures regardless of quantity. <i>(See Notes 1, 2, &amp; 3)</i>  (b) 2 per source Test at the discretion of the Engineer, however crushing is required for drainable bases regardless of quantity (2212 & 3136). <i>(See Notes 1, 2, 3, &amp; 5)</i>  30 lb.	G&B-103 G&B-104 G&B-107

Pay Item Number	Test Type / Material	Minimum Contractor Quality Control Testing Rate	Minimum Department Testing	Form No. <i>(See Note 4)</i>
2215	<b>6. Depth Check</b> Full Depth Reclamation (FDR)	1 per mile	1 per day	<b>G&amp;B-401</b>

**General Notes:** Sampling and Testing Procedures are found in the Grading and Base Manual in Section 5-692.2XX. Obtain all gradation and quality samples at time of delivery and before compaction.

Modify testing and sampling protocol for increases in Plan quantities as follows:

Time Plan Quantity Increased	Testing and Sampling
Before Collection of first sample.	Reorder sampling to account for additional quantity.
After Collection of first sample, but before sampling is complete.	Complete testing of current lot, and then reorder the sampling using the remaining quantity.
After collection of all original Plan quantity samples.	Order sampling for additional quantity.

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

**Note 1:** Except for backfilling structures (where tests are always required), samples, companion gradations, proctor, moistures during compaction, and aggregate quality samples are not required for 500 tons or 250 yd<sup>3</sup> (CV) or less. Report small quantities on Form 02415 or Form 2403. Form G&B-104 is always required regardless of quantity.

**Note 2:** Laboratories with AASHTO accreditation that perform Department testing is not required to submit companion samples. When Department testing is not performed in an AASHTO accredited facility, obtain the Companion/Lab sample as a split sample from the first Department sample, and include the gradation results on the sample card.

**Note 3:**

- Carbonate aggregates require 50 lb. samples for lab testing.
- Submit the initial aggregate quality and crushing sample from the first day's placement; the Engineer may elect to sample from the stockpile.
- A second test is required, when the first test fails. Average both tests to determined compliance, when two tests are performed.
- Use the table on the following page as a guideline.

**Note 4:** Forms are available on the Grading & Base website at: <http://www.dot.state.mn.us/materials/gradingandbase.html>. Form G&B-104 is always required regardless of quantity.

**Note 5:** Use the Centrifuge Method (MnDOT Lab. Manual Method 1852) to determine bitumen content.

**Note 6:** Major soil types are defined in the Triaxial Chart located in the Grading and Base Manual.

**Note 7:** For Quality Compaction of Base and Shoulder Aggregate (2118, 2211, or 2221), the Engineer may replace the moisture testing requirement with time stamped photo documentation of water being applied.

**Note 8:** For estimated optimum moisture content only, may use one point proctor, full proctor, or Form G&B - 305 (granular only), to determine the optimum moisture.

**Note 9:** The Engineer may elect, with the concurrence of the Contractor, to have the Contractor test roll per 2111, "Test Rolling", material meeting the requirements of 3149.2.B, "Select Granular Material", in lieu of spot compaction testing. If this method is adapted, the Contractor would be required to first place 3" of base on top of the Select Granular prior to test rolling. For areas failing test rolling the Contractor is required to remove the base and recompact the material, then place the base back, and retest roll. There is no additional compensation to the Contractor, if this method is adapted. Additionally, the Select Granular is not accepted until passing test rolling has occurred.

**Note 10:** Test rates are determined by the method of measurement, cubic yards (CV) or tons.

**Note 11:** For gradations or compaction compliance, the Engineer can choose to divide lots sizes into smaller volumes, weights, or areas of non-equal sizes. For example, the Engineer may designate one or more turn or passing lanes or farm entrances as individual lots or may designate a lot as one or more day(s) production.

**Note 12:** For quantities less than 500 tons or 250 yd<sup>3</sup>, one may use Quality Compaction as the only test method, except when backfilling structures.

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

<b>Table: Guidelines for Required Crushing and Aggregate Quality Tests</b>					
<b>Material</b>	<b>Crushing</b>	<b>Bitumen Content, Percent Concrete, PI, and clay content</b>	<b>LAR</b>	<b>Insoluble Residue</b>	<b>Lithological Exam &amp; Shale Float Test</b>
3136 Drainable Bases	Yes.  Not required for quarried sources.	Not applicable	Yes, if source from a carbonate quarry.	Yes, if source from a carbonate quarry.	Yes, when not from quarried source.
3138 Aggregate for Surface and Base	Test at the discretion of the Engineer.  Not required for quarried sources.	At the discretion of the Engineer.	Yes, if source is carbonate quarry and does not contain any recycled material.	Yes, if source from a carbonate quarry, and does not contain any recycled material.	Yes, for Class 3, 4, 5, and 6, when not from quarried rock, and does not contain bitumen.
3149 Granular Material *	Test at the discretion of the Engineer.	<b>Bit. Content</b> At the discretion of the Engineer.  <b>PI/Clay content</b> Not applicable	Yes, for carbonate quarried Fine Aggregate Bedding (3149.2G.1), and Coarse Filter Aggregate (3149.2H) .	Yes, if source from a carbonate quarry, and does not contain recycled material.	Yes, for virgin glacial gravel: Stabilizing Aggregate (3149.2C), Fine Aggregate bedding (3149.2G.1), and Medium Filter Aggregate (3149.2I.1)
* Note for Structural Backfill (3149.2D.2), perform all tests required of 3137.2B.3, and tests as required in plan and special provisions.					

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

<b>Contractor QC Tests Requirements for Cold in Place Recycled Bituminous (CIR) &amp; Cold Central Plant Recycling Bituminous (CCPR) Spec 2390 &amp; Stabilized Full Depth Reclamation (SFDR) Spec 2215</b>		
<b>Test Name</b>	<b>Rate</b>	<b>Method/Location</b>
<b>SFDR:</b> Simple gradation for unstabilized material	1 per mile	G&B Manual .215 & Form G&B-101 Report sieves 3" & 2"
<b>CIR, CCPR, &amp; SFDR:</b> Entire Gradation for material to be stabilized	1 per day	G&B Manual .215 & Form G&B-101 Report sieves 2", 1", 3/4", 3/8", #4, #10 & #30.
<b>SFDR:</b> Test Roll unstabilized portion		Test Roll and recompact failing areas. Repairs may be subject to 1402.5, "Extra Work".
<b>CIR, CCPR, &amp; SFDR:</b> Simple gradation for material to be stabilized	1 per mile for SFDR and CIR 1 per 2,000 ton for CCPR	G&B Manual .215 & .293, Form G&B-101 Report sieves 2" & 1.5" for SFDR 1.5" and 1.25" for CIR
<b>CIR &amp; SFDR only:</b> Depth Check for unstabilized and stabilized material	1 per mile for initial pulverization and stabilization	G&B Manual .284 and Form G&B- 401
<b>SFDR:</b> Penetration Index (DCP) for unstabilized material	2 per mile	G&B Manual .255 & Form G&B-205
<b>CIR &amp; SFDR:</b> Calibrate mineral stabilizing agent application rate	Once using design rate per vane feeder	G&B Manual .286
<b>CCPR &amp; SFDR:</b> Moisture determination before injecting liquid bituminous material	1 per mile of anticipated daily production and after rain & one for SFDR after mechanical drying (disking, etc.).	G&B Manual .281 & Form G&B-105
Yield check: <b>CIR &amp; SFDR:</b> Cement <b>CIR, CCPR, &amp; SFDR:</b> Liquid Bit. Material	1 per transport (if using cement, lime, etc.) 1 per transport	G&B Manual .286 & Forms G&B 402 & 403
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Compaction (Nuclear Density)	10 per lane mile, engineer can require more for suspect areas Correlate the nuclear gauge's dry measurement density by direct moisture measurement (microwave oven or equivalent).	Grading & Base manual .282 and Form G&B-405
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Control strip	Minimum 1 per project	
<b>CIR, CCPR, &amp; SFDR:</b> Foaming asphalt checks expansion ratio & half-life	1 per load (if using foamed asphalt)	Grading & Base Manual .285 and Form G&B-404
<b>CIR, CCPR, &amp; SFDR:</b> Moisture testing of stabilized layer during curing before placement of HMA	2 per day until placement of HMA. For 1st day get samples before compaction. For subsequent days, get 1 before compaction of new production, and 1 in 1 <sup>st</sup> day's production until moisture stabilizes, then get the 2 <sup>nd</sup> in new area until moisture stabilizes.	Grading & Base Manual

**I. Grading, Base, and Reclamation Construction Items ([www.dot.state.mn.us/materials/gradingandbase.html](http://www.dot.state.mn.us/materials/gradingandbase.html))**

<b>Department Tests Requirements for Cold in Place Recycled Bituminous (CIR) &amp; Cold Central Plant Recycling Bituminous (CCPR) Spec 2390 &amp; Stabilized Full Depth Reclamation (SFDR) Spec 2215</b>		
<b>Test Name</b>	<b>Rate</b>	<b>Method/Location</b>
<b>SFDR:</b> Penetration Index (DCP) for unstabilized material	1 per mile	Grading & Base Manual .255 & Form G&B-205
<b>SFDR:</b> Test Rolling unstabilized portion		Observe Test Rolling, and recompact failing areas.  Repair underlying material. Repairs may be subject to 1402.5, “Extra Work”, if due to weak underlying materials.
<b>CIR &amp; SFDR:</b> Calibration of the mineral stabilizing agent application rate	Observe the Contractor	
Yield check: <b>CIR &amp; SFDR:</b> Mineral Stabilizing Agent <b>CIR, CCPR, &amp; SFDR:</b> Liquid Bit. Material	1 per day each	G&B Manual .286 & Forms G&B-402 & 403
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Compaction (Nuclear Density)	Observe the Contractor	Grading & Base Manual .282 & Form G&B-405
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Control Strip	Observe the Contractor	
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Bituminous Material Samples	1 per 250,000 gallons	1 quart from first load, then take samples randomly
<b>CIR, CCPR, &amp; SFDR stabilized:</b> Foaming asphalt checks expansion ratio & half life	Observe the Contractor	G&B Manual .285 and Form G&B-404

**II. Bituminous Construction Items for Specification 2360**

**Note:** Projects with bituminous tonnage less than or equal to 300 tons per day may be accepted on a small quantity basis at the discretion of the Engineer. Retain Form 02415 or Form 2403 in Project File.

(All plant mixed asphalt from Certified Plants)

**DEFINITIONS**

<b>SAMPLE TYPE</b>	<b>DESCRIPTION</b>	<b>SAMPLE LOCATION DETERMINED BY</b>	<b>SAMPLE TAKEN BY</b>	<b>SAMPLE TESTED BY</b>
QC	Quality Control Testing performed by Contractor. Also known as Process Control Testing.	Contractor	Contractor	Contractor
QA	Quality Assurance Testing performed by the Department. This test is performed on a companion sample to the Contractor's QC sample.	Contractor (mixture) Department (density cores)	Contractor	Department
Verification	A sample to assure compliance of the Contractor's Quality Control program. The results shall be included as part of the QA Testing Program.	Department	Department	Department
Verification Companion	A companion sample to the Department's Verification sample provided to the Contractor. The Contractor <u>is required</u> to test this sample. The results <u>shall be used</u> as part of the QC program.	Department	Department	Contractor
IAST	The <u>I</u> ndependent <u>A</u> ssurance <u>S</u> ampling and <u>T</u> esting assures testers are sampling and testing properly and that equipment is calibrated correctly.	Department	Contractor or Department	Contractor or Department



**II. Bituminous Construction Items for Specification 2360 (cont.)****A. Pre-Production Sampling and Testing for Specification 2360 Plant Mixed Asphalt****Minimum Sample Sizes:****Quality Sample Size for Lab Submittal:**

Plus #4 aggregate sample for quality testing and Percent Crushing	80 lb.
Minus #4 aggregate for quality testing	35 lb.
Bituminous mixture plus 2 Gyratory specimens for volumetric testing	80 lb.
Bituminous mixture for TSR testing (option A)	80 lb.
Bituminous mixture for TSR testing plus 6 Gyratory specimens (option B)	20 lb.
Mineral filler.	2 lb.
RAP for Quality Testing	80 lb.
RAS (shingles) for Gradation and Quality Testing	10 lb.
Asphalt Binder	1 quart

All aggregates and mixtures will be split according to G&B Manual 5-692.141, "Quartering Method of Sample Size Reduction"

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Bituminous Mix Design (QC/QA)	2360	<b>Contractor submits Mix Design Option 1 or Option 2</b>	<b>Option 1-</b> Laboratory Mix Design: In addition to reviewing the Trial Mix data (JMF), test Contractor's mixture (at optimum asphalt content). Also, evaluate TSR per 2360.2G.7.i.  <b>Option 2-</b> Laboratory Mix Design: Review submitted Mix data only.	Approved Mix Design Report
2360	Aggregate Quality Testing (QA only)	2360	Provide 24 hour notice of intent to sample aggregates for quality testing. Department has the option to monitor sampling.  Submits to the Bituminous Engineer or the District Materials Engineer: 1 sample of each non-asphaltic aggregate type or class per source per year. Also submit the asphaltic aggregate material when the mixture contains RAP or RAS. Provide documentation that of all RAS /TOSS (Tear Off Shingle) material is from a MPCA certified supplier.	Test as directed by the Bituminous Engineer or the District Materials Engineer.	Test Report
2360	Mineral Filler (QA only)	3145	1 per shipment of 50 tons or less, unless previously inspected.	Testing as directed by the Engineer or the District Materials Engineer.	Test Report
2360	Additives (QA Only)	2360	Sample blended asphalt binder and additive, 1 quart  Sample first shipment of each type of material. Then submit 1 per 250,000 gal. (approximately 1,000 ton).	Testing as directed by the Engineer or the Chemical Laboratory Director.	Test report

**II. Bituminous Construction Items for Specification 2360 (cont.)****B. BITUMINOUS PRODUCTION for Specification 2360****\*Verification Testing**

Verification Companion testing from Department split sample is required to be performed and used as the next QC sample that day.

<b>SAMPLE SIZE:</b>	Aggregate for Gradation (QC/QA)	35 lb.
	Plus #4 Aggregate Type for Quality Testing	80 lb. for each source
	Minus #4 Aggregate Type for Quality Testing	35 lb. for each source
	RAP material for Quality Testing	80 lb. for each source
	RAS (Shingles) for Processed Gradation and Quality Testing	10 lb.
	Mixture Properties (QC/QA) 3 full 6" by 12" cylinder molds for QA	65 lb.
	TSR (QC/QA) 4 full 6" by 12" cylinder molds for QA	90 lb.
	Aggregate Specific Gravity (QC/QA)	90 lb.
	Asphalt Binder (QA)	1 quart
	Emulsified Asphalt (QA)	½ gallon

All aggregates and mixtures will be split according to G&B Manual 5-692.141, "Quartering Method of Sample Size Reduction"

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Aggregate Quality Testing Including aggregate specific gravity (QA Only)	2360	None	<p>Take additional samples when aggregate qualities approach specification limits or when material variation is observed, take additional field samples as requested by Project Engineer.</p> <p>Take additional samples when material variation is observed in RAP or RAS. Take additional field samples as requested by Project Engineer.</p> <p>Conduct random belt samples and test for aggregate quality as directed by the Engineer.</p>	Lab report
2360	Moisture Content in Mixture (QC/QA) Lab Manual 1855	2360	Sample and test as directed by the Engineer.	None	Test Summary Sheet (TSS)

**II. Bituminous Construction Items for Specification 2360 (cont.)**

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Asphalt Binder Content, % AC, ADD AC, AC/Total AC ratio (QC/QA, Verification*) Lab Manual 1851, 1852, 1853	2360	<p>(a) Incinerator Oven MnDOT Lab Manual 1853 (b) Chemical Extraction MnDOT Lab Manual 1851 or 1852</p> <p>REMARKS: Contractor selects one method at the beginning of the project (when material is submitted for Trial Mix Review) and use that method for the entire project. The Contractor and Engineer may agree to change test procedures during the construction of the Project.</p> <p>When additional verification samples are taken the contractor must test the Verification companion split of this sample and include the results in the QC program (Test Summary Sheet).</p> <p>REMARKS: (See Notes #1, #2 &amp; #4)</p> <p>A computer file of the plant's control settings is required every 20 minutes of production.</p>	<p>The inspector will witness all QC/QA mixture sampling and take possession of the Department's QA-Verification split of this sample immediately after the sample is split.</p> <p>At least once per day per mix type the Inspector will randomly determine when the QC/QA mixture sample will be sampled from either behind the paver or from the truck box. The Inspector will observe the Contractor sampling and splitting this QA-Verification sample and take immediate possession of the sample after it is split. At the end of the day randomly submit one of the QA-Verification splits to the District Lab for testing. Additional verification samples can be taken at any time or location.</p> <p>The Department reviews the computer files of the plant's control settings.</p> <p>REMARKS: (See Notes #3 &amp; #7)</p>	TSS
2360	Mixture Properties (QC/QA, Verification*) Maximum Specific Gravity Lab Manual 1807	2360	<p>Contractor performs test 1807</p> <p>When additional verification samples are taken the contractor must test the Verification companion split of this sample and include the results in the QC program (Test Summary Sheet).</p> <p>REMARKS: (See Notes #1, #2, &amp; #4)</p>	<p>The inspector will witness all QC/QA mixture sampling and take possession of the Department's QA-Verification split of this sample immediately after the sample is split.</p> <p>At least once per day per mix type the Inspector will randomly determine when the QC/QA mixture sample will be sampled from either behind the paver or from the truck box. The Inspector will observe the Contractor sampling and splitting this QA-Verification sample and take immediate possession of the sample after it is split. At the end of the day randomly submit one of the QA-Verification splits to the District Lab for testing. Additional verification samples can be taken at any time or location.</p> <p>REMARKS: (See Notes # 3 &amp; #7)</p>	TSS

**II. Bituminous Construction Items for Specification 2360 (cont.)**

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Mixture Properties (QC/QA, Verification*) Gyratory Bulk Specific Gravity - 2 Specimen Average, Lab Manual 1806, 1820	2360	Contractor performs test 1806  When additional verification samples are taken the contractor must test the Verification companion split of this sample and include the results in the QC program (Test Summary Sheet).  REMARKS: (See Notes #1, #2, & #6)	The inspector will witness all QC/QA mixture sampling and take possession of the Department's QA-Verification split of this sample immediately after the sample is split.  At least once per day per mix type the Inspector will randomly determine when the QC/QA mixture sample will be sampled from either behind the paver or from the truck box. The Inspector will observe the Contractor sampling and splitting this QA-Verification sample and take immediate possession of the sample after it is split. At the end of the day randomly submit one of the QA-Verification splits to the District Lab for testing. Additional verification samples can be taken at any time or location. REMARKS: (See Notes #3 & #7)	TSS
2360	Mixture Properties (QC/QA, Verification*) Adjusted Asphalt Film Thickness (AFT), Air Voids, Fines to effective, CAA, FAA and Gradation. Lab Manual 1203, 1206, 1214, 1808, 1854	2360	Verification Companion testing from Department split sample is required and used as a QC sample once per day.  Bituminous mixes composed entirely of Class A and/or Class B aggregates are not required to be tested for CAA (Coarse Aggregate Angularity).  When additional verification samples are taken the contractor must test the Verification companion split of this sample and include the results in the QC program (Test Summary Sheet).  REMARKS: (See Notes #1, #2, #4, #5, & #6)  The production start-up testing rates for the CAA and FAA are 1 per 1000 tons for the first 2000 tons. After 2000 tons, 2 test per day for at least two days. Then CAA and FAA at a rate of 1 test per week, if the CAA and FAA exceed the requirements by 8% and 5% respectively, otherwise test daily.	The inspector will witness all QC/QA mixture sampling and take possession of the Department's QA split of this sample immediately after the sample is split.  At least 1 per day per mix type the Inspector will randomly determine when mix will be sampled from behind the paver or from the truck box. The Inspector will observe the Contractor sampling and splitting this Verification Sample and take immediate possession of the sample after it is split. This Department sample is then submitted to the District Lab for testing.  The contractor must test the Verification companion split of this sample and include the results in the QC program (Test Summary Sheet). The verification sample replaces the next scheduled QC sample. Additional verification samples can be taken at any time or location. REMARKS: (See Notes # 3 & #7)	TSS

**II. Bituminous Construction Items for Specification 2360 (cont.)**

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Core Density and Thickness Lab manual 1810	2360	<p>Contractor cuts 2 cores at each location. In the laboratory, measure, and saw cores into separate lifts. Sawing of cores into separate lifts is required.</p> <p>Schedule the approximate time of testing during normal project work hours so the Department may observe and record the saturated surface dry and immersed weight of the cores.</p> <p>A completed Core Density Incentive/Disincentive worksheet is to be submitted to the Laboratory (Department field or District/Division).</p>	<p>Complete core stationing spreadsheet to determine core locations and then mark all coring locations on the pavement.</p> <p>Once the Contractor has measured and sawed the Department companion cores the Department will transport their cores to the Department field lab or District Lab for testing. Transport the cores as soon as possible to the testing lab taking care to prevent damage due to improper handling or exposure to heat.</p> <p>Selects at least one of the two companion cores per lot to test for verification.</p> <p>REMARKS: (See Notes #3 &amp; #6)</p>	<p>Core Density Worksheet</p> <p>Core Density Incentive/Disincentive worksheet.</p>
2360	Tensile Strength Ratio (T.S.R.) (QC/QA) Lab Manual 1813813	2360	Sample as directed by the Engineer. When testing is required, complete testing within 72 hours after the sample is taken.	Test as directed by the Engineer. When testing is required, complete testing within 72 hours after the sample is taken.	TSR Worksheet
2360	Mixture Moisture Content	2360	Sample as directed by the Engineer.	Test as directed by the Engineer.	Lab Report

**II. Bituminous Construction Items for Specification 2360 (cont.)****C. BITUMINOUS MATERIALS for Specification 2360**

Only Bituminous Materials from Certified Sources are allowed for use. The most current list of Certified Sources: <http://www.dot.state.mn.us/products/index.html>

**Minimum Sample Sizes:****Quality Sample Size for Lab Submittal:**

Asphalt Binder (QA)/Cutback Asphalt (QA)

1 quart metal can with pressure fit lid

Emulsified Asphalt (QA)

1/2 gallon plastic

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2360	Asphalt Binder (QA only)	3151.2	<p><u>Asphalt Supplier</u> QC testing is the responsibility of the bituminous material supplier as part of the Combined State Binder Certification program at the rate specified in <a href="https://engineering.purdue.edu/~csbg/method.html">https://engineering.purdue.edu/~csbg/method.html</a>.</p> <p><u>During Asphalt Mixture Production (Field Verification Sample)</u> Obtain asphalt binder samples from a sampling valve located between the pump and the drum. Contractor personnel will obtain samples, under the observation of a Department representative, by random selection from shipments of material at the project site. The samples shall be taken from the first load and subsequently 1 per 1000 tons of liquid asphalt binder for each supplier and grade of asphalt binder per contract. For contracts with less than approximately 25 tons (one truck transport) of asphalt binder, sampling may be waived. A minimum of 1 gallon of binder must be drawn and wasted from the sampling valve before the actual sample is drawn.</p> <p>For batch plants, obtain the asphalt binder sample from the weigh pod. Provide asphalt binder sample in clean 1-quart steel container. The Inspector will monitor the sampling the Contractor performs.</p>	<p><u>During Asphalt Mixture Production (Field Verification Sample)</u> Observe contractor personnel taking sample from sampling valve and submit to MnDOT Chemical Lab.</p>	2413 Asphalt Sample Identification Card
2357	Emulsified Asphalt (QA only)	3151.2	<p><u>Tack Coat</u> Obtain emulsion samples from the spigot or sampling valve of the distributor for the first load placed on the project then sample 1 per 50,000 gallons. Contractor personnel will obtain samples under the observation of a Department representative. Sample emulsified asphalt in clean 1/2 gallon plastic container with wide screw top. Sample all emulsified asphalt from the distributor.</p>	<p><u>Tack Coat</u> Observe Contractor personnel taking sample from the spigot or sampling valve of the distributor and submit to MnDOT Chemical Lab within 7 calendar days of sampling.</p>	2413 Asphalt Sample Identification Card

**II. Bituminous Construction Items for Specification 2360 (cont.)**

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2357 2358	Cutback Asphalt (QA only)	3151.2	<u>Tack Coat</u> Obtain emulsion samples from the spigot or sampling valve of the distributor for the first load placed on the project then sample 1 per 50,000 gallons. Contractor personnel will obtain samples under the observation of a Department representative. Sample emulsified asphalt in clean 1/2 gallon plastic container with wide screw top. Sample all emulsified asphalt from the distributor.	<u>Tack Coat</u> Observe Contractor personnel taking sample from the spigot or sampling valve of the distributor and submit to MnDOT Chemical Lab within 7 calendar days of sampling.	2413 Asphalt Sample Identification Card

**Note #1:** All QA test samples shall be from split samples.

If a member of the monitoring team observes the Contractor Test, note and sign under remarks.

The Project Engineer is responsible for:

- 1.) Reviewing control charts & Test summary sheets for accuracy and completeness,
- 2.) Checking sampling and testing procedures,
- 3.) Discussing QC problems with the Contractor,
- 4.) Obtaining Verification Samples

**Note #2:** For Mixture Quality Management, acceptance will be based on Contractor's test results as verified by Department test results.

**Note #3:** When a member of a monitoring team observes the Contractor test, note and sign under remarks.

**Note #4:**

How to calculate the number of tests per day	Production Start-up testing rates (first 2000 tons of production)	Production testing rates (after 2,000 tons of mixture produced)
Divide daily tonnage by 500 and round up to next whole number	1 per 500 tons	
Divide daily tonnage by 1000 and round up to next whole number		1 per 1000 tons

**Note #5:** MnDOT projects will require the calculated Adjusted Asphalt Film Thickness (AFT). VMA will still be calculated for informational purposes but will not be used for acceptance criteria. The adjusted AFT will be calculated each time a gradation test is required.

**Note #6:** Random number generation and determination of random sample location shall be consistent with Section 5 of ASTM D3665. The Engineer may approve alternate methods of random number generation.

**Note #7:** QA samples retained for 10 calendar days and tested, if needed.

### III. Construction Items for Bituminous Specialty Items include the following:

- 2353 Ultra-Thin Bonded Wearing Course (UTBWC)
- 2354 Micro-Surfacing
- 2355 Bituminous Fog Seal
- 2356 Otta Seal Special Provision
- 2356 Bituminous Seal Coat and Bituminous Underseal Special Provision
- 2363 Permeable Asphalt Stabilized Stress Relief Course (PASSRC) and Permeable Asphalt Stabilized Base (PASB)
- 2365 Stone Matrix Asphalt (SMA)

All aggregates and mixtures will be split according to G&B Manual 5-692.141, "Quartering Method of Sample Size Reduction"

**Only Bituminous Materials from Certified Sources are allowed for use. The most current list of Certified Sources:**

<http://www.dot.state.mn.us/products/index.html>

SAMPLE TYPE	DESCRIPTION	SAMPLE LOCATION DETERMINED BY	SAMPLE TAKEN BY	SAMPLE TESTED BY
QC	Quality Control Testing performed by Contractor. Also known as Process Control Testing.	Contractor	Contractor	Contractor
QA	Quality Assurance Testing performed by the Department. This test is performed on a companion sample to the Contractor's QC sample.	Contractor (mixture) Department (density cores)	Contractor	Department
Verification	A sample to assure compliance of the Contractor's Quality Control program. The results shall be included as part of the QA Testing Program.	Department	Department	Department
Verification Companion	A companion sample to the Department's Verification sample provided to the Contractor. The Contractor <u>is required</u> to test this sample. The results <u>shall be used</u> as part of the QC program.	Department	Department	Contractor
IAST	The Independent Assurance Sampling and Testing assures testers are sampling and testing properly and that equipment is calibrated correctly.	Department	Contractor or Department	Contractor or Department



**III. Construction Items for Bituminous Specialty Items (cont.)****2353 Ultra-Thin Bonded Wearing Course**

Test Type	Material Spec. No.	Minimum Contractor Quality Control Testing Rate Minimum Sample Size	Minimum Department QA/Verification (Acceptance)	Form No.
<b>Mix Design (Pre-Production)</b>	2353 3139.4	Complete and submit 1 design per mix	Review submitted Mix Design	Reviewed Mix Design Report
<b>Bituminous Mixture Tests</b> Lab Manual 1203, 1807, 1852, 1853, 1854	2353 3139.4	Tests: % AC, Gradation, Max Gravity, Adjusted AFT Rate: 1 per 750 tons (min. 1 per day) (See Note 1) Submit to Department: 20 lbs. (1 cylinder from truck box)	1 per day, minimum	Test Summary Sheet
<b>Bituminous Material</b>	2353 3151	QC testing is the responsibility of the bituminous material supplier	The Department will observe Contractor personnel taking sample from sampling valve and MnDOT will submit to Chemical Lab Asphalt Binder: First load, then 1 per 250,000 gallons Sample Size: 1 quart Emulsified Asphalt: First load, then 1 per 50,000 gallons Sample Size: 1/2 gallon*	Test Report

\*Use plastic containers for Emulsified Asphalt Samples. Send to MnDOT Chemical Lab within 7 calendar days of sampling.

**Note 1:** TSR testing on production mixture is at the discretion of the Engineer.

**III. Construction Items for Bituminous Specialty Items (cont.)****2354 Micro Surfacing**

<b>Test Type</b>	<b>Material Spec. No.</b>	<b>Minimum Contractor Quality Control Testing Rate Minimum Sample Size</b>	<b>Minimum Department QA/Verification (Acceptance)</b>	<b>Form No.</b>
<b>Mix Design (Pre-Production)</b>	2354 3139.5	Complete 1 mix design per aggregate source. See specification. Submit to Department: 150 lbs. aggregate	Review submitted Mix Design. Perform gradation and sand equivalence test from submitted sample.	
<b>Gradation</b> Lab Manual 1202, 1203	3139.5	Machine Hopper: 1 per 500 tons (min. 1 per day)	Machine Hopper: 1 per 1,500 tons (min. 1 per project) Sample Size: 30 lbs.	Test Report
<b>Moisture (In Aggregate)</b> Grading & Base Manual, 5-692.245.B	2354	Machine Hopper: 1 per 300 tons (min. 1 per day) Sample Size: 1 lb.	1 per day Sample Size: 1 lb. split sample	Test Report
<b>Sand Equivalence</b> AASHTO T 176	3139.5	1 per day		Test Report
<b>Bituminous Material</b>	2354 3151	QC testing is the responsibility of the bituminous material supplier	First load, then 1 per 50,000 gallons, Sample Size: 1/2 gallon*	Test Report
<b>Bituminous Material Application Rate</b>	2354	Verify Application rate 3 per day	Verify Application rate 1 per day	

\*Use plastic containers for Emulsified Asphalt Samples. Send to MnDOT Chemical Lab within 7 calendar days of sampling.

**III. Construction Items for Bituminous Specialty Items (cont.)****2355 Bituminous Fog Seal and 2357 Bituminous Tack Coat**

Test type	Material Spec. No.	Minimum Contractor Quality Control Testing Rate Minimum Sample Size	Minimum Department QA/Verification (Acceptance)	Form
<b>Bituminous Material</b>	3151	QC testing is the responsibility of the bituminous material supplier.	First load, then 1 per 50,000 gallons Sample Size: 1/2 gallon*	Test Report
<b>Bituminous Material Application Rate</b>	2355 2357	Verify Application rate As needed for tack coat, 1 per project for fog seal	Verify Application rate As needed for tack coat 1 per project for fog seal	Bituminous Manual Form 21841 or ASTM D2995 Method A

\*Use plastic containers for Emulsified Asphalt Samples. Send to MnDOT Chemical Lab within 7 calendar days of sampling.

**2356 Otta Seal Special Provision**

Test Type	Material Spec. No.	Minimum Contractor Quality Control Testing Rate Minimum Sample Size	Minimum Department QA/Verification (Acceptance)	Form No.
<b>Gradation</b> Lab Manual 1202, 1203	2356	Stockpile: 1 per 1,500 tons (min. 1 per day) Placement: Chip Spreader Hopper: As needed Submit to Department: 30 lbs. from Hopper	As needed	Test Report
<b>Bituminous Material</b>	2356 3151	QC testing is the responsibility of the bituminous material supplier. Random sampling is arranged by the MnDOT Chemical Laboratory.	First load, then 1 per 50,000 gallons Sample Size: 1/2 gallon*	Test Report
<b>Bituminous Material Application Rate</b>	2356	Verify Application rate As needed	Verify Application rate As needed	Bituminous Manual Form 21841 or ASTM D2995 Method A

\*Use plastic containers for Emulsified Asphalt Samples. Send to MnDOT Chemical Lab within 7 calendar days of sampling.

**III. Construction Items for Bituminous Specialty Items (cont.)****2356 Bituminous Seal Coat and Bituminous Underseal Special Provisions**

<b>Test type</b>	<b>Material Spec. No.</b>	<b>Minimum Contractor Quality Control Testing Rate Minimum Sample Size</b>	<b>Minimum Department QA/Verification (Acceptance)</b>	<b>Form</b>
<b>Mix Design (Pre-Production)</b>	2354	At least two weeks before beginning construction complete 1 design per mix and provide information to Engineer. Submit to Department: 150 lbs. aggregate	Review and verify submitted Mix Design.	
<b>Gradation</b> Lab Manual 1203	3127	Placement: Chip Spreader Hopper: As needed	Placement: 1 per material source obtained from Chip Spreader Hopper, Sample Size: 30 lbs.	Test Report
<b>Quality Tests</b> Lab Manual 1223	2356	None	Perform daily quality tests per Table 3127.2-2, as needed, Sample Size: 30 lbs.	Test Report
<b>Bituminous Material</b>	2356 3151	QC testing is the responsibility of the bituminous material supplier	First load, then 1 per 50,000 gallons Sample Size: 1/2 gallon*	Test Report
<b>Bituminous Material Application Rate</b>	2356	Verify Application rate As needed	Verify Application rate As needed	Bituminous Manual Form 21841 or ASTM D2995 Method A

\*Use plastic containers for Emulsified Asphalt Samples. Send to MnDOT Chemical Lab within 7 calendar days of sampling.

**III. Construction Items for Bituminous Specialty Items (cont.)****2363 Permeable Asphalt Stabilized Stress Relief Course (PASSRC) and Permeable Asphalt Stabilized Base (PASB)**

Test type	Material Spec. No.	Minimum Contractor Quality Control Testing Rate Minimum Sample Size	Minimum Department QA/Verification (Acceptance)	Form
<b>Mix Design (Pre-Production)</b>	2363 3139.3	Complete 1 Job Mix Formula (gradation blend only) per mix Submit to Department: 100 lbs. each coarse aggregate, 35 lbs. each fine aggregate & 4-quart asphalt binder	Department performs Mix Design	Mix Design Report
<b>Production Gradation</b> Lab manual 1202, 1203	2363 3139.3	1 per 1,000 ton with a minimum of one per day Submit to Department: 35 lbs. (See Note 1)	1 per day	Test Report
<b>Production % Crushing (CAA)</b> Lab manual 1214	2363 3139.3	One per 1,000 ton with a minimum of one per day Submit to Department: 35 lbs. from Belt	1 per day	Test Report
<b>Bituminous Mixture Tests</b> Bit Manual	2363 3151	Test: Asphalt spot check Rate: minimum 1 per day	None	Test Report
<b>Bituminous Material</b>	3151	QC testing is the responsibility of the bituminous material supplier.	Observe contractor personnel taking sample and submit to MnDOT Chemical Lab. First load, then 1 per 250,000 gallons Sample Size: 1 quart	Test Report

**Note 1:** Perform test on gradation sample taken from aggregate belt

**III. Construction Items for Bituminous Specialty Items (cont.)****2365 Stone Matrix Asphalt (SMA)**

Test type	Material Spec. No.	Minimum Contractor Quality Control Testing Rate Minimum Sample Size	Minimum Department QA/Verification (Acceptance)	Form
<b>Mix Design (Pre-Production)</b>	2365	Complete 1 design per mix Submit to Department: 80 lb. - bituminous mixture plus 6 Gyratory specimens for TSR testing. 150 lbs. + 4 aggregate from JMF blend for VCA 80 lbs. each coarse aggregate & 30 lbs. each fine aggregate for quality testing	Review and verify submitted Mix Design Test as directed by the Engineer	Approved Mix Design Report
<b>Bituminous Mixture Tests</b> Lab Manual 1203, 1204, 1205, 1211, 1214, 1806, 1807, 1808, 1813, 1853, 1854, 1855, AI SP-2 AASHTO T 305	2365	<b>Tests:</b> % AC, Gradation, Max Gravity, Bulk Gravity, Voids, VMA, CAA, Draindown, voids in coarse aggregate (VCA) fines/effective asphalt. <b>Rate:</b> 1 per 1000 tons (min. 1 per day) Aggregate sp. Gravity, mix moisture content to be tested as directed by the Engineer (See Note 1) Submit companion 1 per day to Department: Sample Size: 65 lbs. 3 full 6" by 12" cylinder molds	<b>Tests:</b> %AC, Gradation, Max Gravity, Bulk Gravity, Voids, VMA, CAA, voids in coarse aggregate (VCA) fines/effective asphalt. (See Notes 1 & 2)	Test Summary Sheet
<b>Bituminous Material</b>	2365 3151	QC testing is the responsibility of the bituminous material supplier.	Observe contractor personnel taking sample and submit to MnDOT Chemical Lab. First load, then 1 per 250,000 gallons Sample Size: 1 quart	Test Report

**Note 1:** TSR testing on production mixture is at the discretion of the Engineer.

**Note 2:** Department is not required to perform draindown testing on QA/Verification samples.

#### IV. Concrete Construction Items ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

##### General Notes:

1. The testing rates shown in this Schedule of Materials Control are **minimums**. Take as many tests as necessary to ensure quality concrete. Should circumstances arise on a project which makes the testing rate impractical, contact the Concrete Engineering Unit.
2. **All samples shall be taken in a random manner.**
3. The first load of concrete each day per mix – Take sample after discharging approximately  $\frac{1}{4}$  yd<sup>3</sup>, stop further discharge until both slump and air content test are completed with passing results.
4. If batching or field adjustments are made, test the adjusted load for air content and if suspect, slump, before it gets into the work. The Engineer will determine if additional testing is required after each water adjustment made during slipform placement. Continue to test for air content and slump, if suspect, when test results are inconsistent or marginal.
5. If any field test fails, reject the concrete or if the Producer adjusts the load to meet requirements, record the adjustments on the Certificate of Compliance. Retest the air content of the load, slump if required, and record the adjusted test results. Test the next load for air content and slump, if required, before it gets into the work.
6. Material not meeting requirements shall not knowingly be placed in the work. If failing concrete inadvertently gets placed in the work, review either the MnDOT Standard Specifications for Construction or contact the Concrete Engineering Unit for monetary deduction recommendations.
7. Perform quality testing as directed by the Concrete Engineer. Conduct additional random samples for aggregate quality as directed by the Engineer.

##### Best Practices:

1. It is recommended the Department Plant Monitor be present during critical pours, such as superstructure or paving concrete (i.e. S mixes, HPC, JMF mixes).
2. It is recommended that the Department representative continually monitor the progress of all concrete pours in the field and review Certificate of Compliances. It is not a recommended practice to only perform minimum testing requirements and leave the pour.

DEFINITIONS				
	Description	Sample Location Determined By	Sample Taken By	Sample Tested By
QC	Quality Control Testing performed by Contractor. Also known as Process Control Testing.	Contractor	Contractor	Contractor
QA	Quality Assurance Testing performed by the Department. This test is performed on a companion sample to the Contractor's QC sample.	Contractor	Contractor	Department
Verification	A sample to assure compliance of the Contractor's Quality Control program. The results shall be included as part of the QA Testing Program.	Department	Department	Department
Verification Companion	A companion sample to the Department's Verification sample provided to the Contractor. The Contractor <u>is required</u> to test this sample.	Department	Department	Contractor
IAST	The Independent Assurance Sampling and Testing assures testers are sampling and testing properly and that equipment is calibrated correctly.	Department	Contractor or Department	Contractor or Department

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Plant Batching Materials****Remarks:**

- (1) All materials must come from certified or qualified sources. All certified sources must state so on the delivery invoice.
- (2) The most current list of certified/approved sources can be found at [www.dot.state.mn.us/products](http://www.dot.state.mn.us/products).
- (3) The Sample Log sheets are found in the Aggregate Gradation Control Charts Workbook.
- (4) Take additional random samples as directed by the Concrete Engineer.

Pay Item No.	Material	Spec. No.	Sample Size	Minimum Required Sampling Rate for Department Testing	Form No.
2301 2302 2401 2405 2406 2411 2412 2452 2461 2462 2506 2511 2514	Portland Cement Slag Cement Blended Cement Fly Ash	3101 3102 3103 3115	5 lb.	<u>Certified ready-mix and concrete paving:</u> 1 per certified source when the plant is certified.  Take an additional sample: 1) If the plant changes sources, or 2) As the Contract requires.  <u>For precast concrete:</u> 1 per 3 months during Department production.  The Producer obtains and stores the sample in a sealed container provided by the Department and includes the supplier's delivery invoice from which the sample is obtained.	24300 ID Card Cement Samples  24308 ID Card Fly Ash Samples  Sample Log
2519 2521 2531 2533 2545 2550 2554 2557 2564 2565	Admixtures (Accelerating, Retarding, Water- Reducing, Air- Entraining, etc.)	3113	1/2 pt	<u>Certified ready-mix and concrete paving:</u> Air Entrainment: 1 when the plant is certified Type A water reducer: 1 when plant is certified All other admixtures: 1 when plant is certified, or first time used  Take an additional sample of any admixtures used: 1) If the plant changes sources, or 2) As the Contract requires.  <u>For precast concrete:</u> 1 per 3 months during Department production.  The Producer obtains samples from dispensing tubes and store the samples in a sealed plastic containers provided by the Department. Agitate admixtures prior to sampling.	2410 Sample ID Card  Sample Log
	Water (Non-Potable or Clarified)	3906	1 gal	<u>Non-Potable Water:</u> 1 per any questionable source. <u>Clarified Water:</u> 1 per month during Department production.  Store sample in a clean glass or plastic container	2410 Sample ID Card



IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Minimum Concrete Aggregate Sample Sizes****Remarks:**

(1) All gradation and aggregate quality tests require companion samples, double sample sizes. Samples taken at location identified on Contact Report located at plant.

<b>Gradation:</b> <u>Coarse Aggregate:</u> 3/4" Plus: 30 lb. 3/4" Minus, #67: 10 lb. #7, CA-70: 6 lb. #89, CA-80: 500 g	<b>Gradation:</b> <u>Intermediate Aggregate:</u> CIA to meet #67: 6 lb. CIA to meet JMF: 500 g FIA, CS, FS: 500 g	<b>Gradation:</b> <u>Fine Aggregate:</u> Sand: 500 g	<b>Moisture:</b> Coarse Aggregate: 2000 g Intermediate Aggregate: 500 g Fine Aggregate: 500 g	<b>Aggregate Quality:</b> 3/4" Plus: 50 lb. 3/4" Minus, #67: 30 lb. #7, CA-70: 20 lb. #89, CA-80: 20 lb. CIA, FIA, CS, FS: 20 lb. Fine Aggregate: 20 lb.	<b>-#200 Coarse Aggregate:</b> 3/4" Plus: 5000 g 3/4" Minus, #67: 2500 g #7, CA-70: 2500 g #89, CA-80: 500 g CIA: 500 g
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**Certified Ready-Mix - Concrete Plant Production****Remarks:**

(1) When <20 yd<sup>3</sup> of Department concrete is produced in a week, plant monitoring is not required except for monthly aggregate quality testing.

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2301 2302 2401 2405 2406 2411 2452 2461 2462 2506 2511 2514 2519 2521 2531 2533 2545 2550 2554 2557 2564 2565	Gradation (QC/QA)	2461 3126 3131 3137	<b><u>JMFs and Bridge Deck Mix Designs:</u></b> <b>Daily Concrete Quantity:</b> 20 – 400 <u>yd</u> <sup>3</sup> : 1 per fraction per source >400 <u>yd</u> <sup>3</sup> : 1 additional per fraction per source Take the additional gradation after <u>daily</u> total exceeds 400 <u>yd</u> <sup>3</sup> .  Passing aggregate gradations are required prior to the start of any bridge deck concrete pours.  If using the same source and fraction, Producer may use daily QC gradation results to satisfy weekly QC gradation requirements. Record test results in both sections of QC Workbook.  <b><u>All other mix designs:</u></b> <b>Weekly Concrete Quantity:</b> 20 – 400 <u>yd</u> <sup>3</sup> : 1 per fraction per source >400 <u>yd</u> <sup>3</sup> : 1 additional per fraction per source Take the additional gradation after <u>weekly</u> total exceeds 400 <u>yd</u> <sup>3</sup> .  <b><u>Notes:</u></b> Washing the fine aggregate gradation (QC) sample is not required when the result on the -#200 sieve of the unwashed sample is less than 1.0%.  Hold QA (QC companion) samples until they are picked up by the Department monitor. Discard after 14 calendar days.  Performing testing on representative material at the end of the most recent day of production is allowed.	None	Concrete Ready-Mix Plant QC Workbook  Aggregate Gradation Control Charts and Sample Log

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Certified Ready-Mix - Concrete Plant Production (cont.)					
Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2301 2302 2401 2405 2406 2411 2452 2461 2462 2506 2511 2514	Gradation (Verification/ Verification Companion)	2461 3126 3131 3137	Test the Verification Companion sample. Complete on the day the sample was taken.  Wash all fine aggregate Verification Companion samples.	<b>Weekly Concrete Quantity:</b>  <b>20 – 400 yd<sup>3</sup>:</b> 1 per fraction per source <b>&gt;400 yd<sup>3</sup>:</b> 1 additional per fraction per source <b>Take the additional gradation after <u>weekly</u> total exceeds 400 yd<sup>3</sup>.</b>  Include JMF Number and Verification Companion results on Sample ID Card.  Wash all fine aggregate Verification samples.	Concrete Ready-Mix Plant QC Workbook  Concrete Ready-Mix Plant QA Workbook  Aggregate Gradation Control Charts and Sample Log
2519 2521 2531 2533 2545 2550 2554 2557 2564 2565	Aggregate Quality <u>including</u> Coarse Aggregate Percent Passing - #200	3126 3131 3137	Test at Producer/Contractor Discretion	<b><u>When Department concrete is produced:</u></b> 1 per fraction per source per 30 calendar days.  <b><u>When bridge deck concrete is produced:</u></b> 1 per fraction per source per 30 calendar days tested for 3137.2.D.2  Identify quality samples with a “Q” on the Sample ID Card and the Quality companion sample. Write 3137.2.D.2 on bridge deck concrete Sample ID Cards.	2410 Sample ID Card
	Aggregate Moisture (QC)	2461	<b>Daily Concrete Quantity <math>\geq 20</math> yd<sup>3</sup>:</b> 1 per fraction per source completed every 4 hours and enter results into batching system in real time.  Complete the initial moisture content prior to the start of concrete production each day.  Performing moisture testing on representative material at the end of plant production the prior day is allowed. In the event of overnight precipitation, new moisture tests are required prior to the start of concrete production. In this event, the four-hour rate will commence with the first pour of the day, regardless if it is placed in Department or private work.	None	Concrete Ready-Mix Plant QC Workbook

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Pavement - Concrete Plant Production****Remarks:**

(1) Use *Certified Ready-Mix - Concrete Plant Production* testing rates when:

- a) The entire concrete paving project is < 3,500 cu. yd, or
- b) Minor work or fill-ins are not provided by the primary plant.

(2) When w/c incentives apply, Contractor QC Technician and Department Plant Monitor are required to be present during the entire pour or at the Engineer's discretion.

(3) If w/c incentives do not apply, the Department Plant Monitor shall monitor as necessary to ensure compliance with the requirements of the Contract.

(4) All samples shall be taken off the belt leading to the weigh hopper unless otherwise approved by the Engineer.

Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2301	Gradation (QC)	3126 3131 3137	<p><b><u>Concrete paving batch plant:</u></b>  <b>Daily Concrete Quantity <math>\geq 250</math> yd<sup>3</sup>:</b>            1 per 2500 yd<sup>3</sup> per fraction per source</p> <p>Take initial samples for aggregate gradation testing within the first 500 yd<sup>3</sup>.</p> <p><b><u>Certified ready-mix plant using JMF:</u></b>  <b>Daily Concrete Quantity:</b>  <b>20 – 400 yd<sup>3</sup>:</b> 1 per fraction per source  <b>&gt;400 yd<sup>3</sup>:</b> 1 additional per fraction per source</p> <p>Take the additional gradation after <u>daily</u> total exceeds 400 yd<sup>3</sup>.</p> <p><b><u>Notes:</u></b>            Washing the fine aggregate gradation (QC) sample is not required when the result on the -#200 sieve of the unwashed sample is less than 1.0%.</p>	None	JMF Concrete Aggregate Workbook  2410 Sample ID Card when samples are submitted to MnDOT Laboratory
2301	Gradation (Verification/ Verification Companion)	3126 3131 3137	<p><b><u>Concrete paving batch plant:</u></b>            Test the Verification Companion sample. Complete on the day the sample was taken.</p> <p><b><u>Certified ready-mix plant using JMF:</u></b>            Test the Verification Companion sample. Complete on the day the sample was taken.</p> <p>Wash all fine aggregate Verification Companion samples.</p>	<p><b><u>Concrete paving batch plant:</u></b>  <b>Daily Concrete Quantity <math>\geq 500</math> yd<sup>3</sup>:</b>            1 per fraction per source</p> <p><b><u>Certified ready-mix plant using JMF:</u></b>  <b>Daily concrete quantity <math>\geq 100</math> yd<sup>3</sup>:</b>            1 per fraction per source</p> <p>Wash all fine aggregate Verification samples.</p> <p>Include the JMF Number and the QC Verification Companion results on Sample ID Card.</p> <p><b><u>Note:</u></b> The Department may use the Verification sample for the Coarse Aggregate Quality incentive/disincentive testing, if applies.</p>	JMF Concrete Aggregate Workbook  2410 Sample ID Card when samples are submitted to MnDOT Laboratory

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Pavement - Concrete Plant Production (cont.)					
Pay Item No.	Test Type	Spec. No.	Producer/Contract or Testing	Department Testing	Form No.
2301	Coarse Aggregate Percent Passing - #200 (QC/QA)	3131 3137	Test the Verification Companion sample  <b>Test these samples at the plant.</b>	<p><b><u>For a concrete paving batch plant:</u></b> Test Verification sample on the first day of production and each time the Contractor mobilizes the plant, changes aggregate sources, or the cleanliness of the coarse aggregate is in question.  Test 1 Verification sample per week thereafter  <b>Test these samples at the plant.</b></p> <p><b><u>For a certified ready-mix plant using JMF:</u></b> Test Verification sample on the first day of production and each time the Contractor mobilizes the plant, changes aggregate sources, or the cleanliness of the coarse aggregate is in question.  Test 1 Verification sample per week thereafter  <b>Test these samples at the plant or the Department lab.</b></p>	JMF Concrete Aggregate Workbook
2301	Aggregate Quality Testing including Coarse Aggregate Percent Passing - #200	3126 3131 3137	Test at Producer/Contractor Discretion	<p><b>Pre-Production Testing for concrete paving batch plants:</b> <b>If entire project &lt; 3,500 yd<sup>3</sup>:</b> Pre-production sampling is not required</p> <p><b>If entire project ≥ 3,500 yd<sup>3</sup>:</b> Obtain pre-production samples for quality testing at least 16 hours prior to concrete production. Samples may be taken from the stockpile and the -#200 test may be performed at the lab instead of at the plant at the discretion of the Engineer.</p> <p><b>During concrete production for concrete paving batch plants and certified ready-mix using JMF:</b> 1 randomly selected test each fraction every 20,000 yd<sup>3</sup> of production.</p> <p>Split the Quality sample 4 ways:</p> <ol style="list-style-type: none"> <li>1) Provide 2 quarters of the sample to the Producer/Contractor.</li> <li>2) Submit 1 quarter of the sample to the lab for quality testing including testing on the -#200 sieve.</li> <li>3) Retain the remaining quarter of the sample until the project is complete.</li> </ol> <p>Identify quality samples with a "Q" on the Sample ID Card.</p> <p><b>See additional requirements for first sand quality sample under ASR Testing.</b></p>	2410 Sample ID Card

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Pavement - Concrete Plant Production (cont.)					
Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2301	Aggregate Moisture Testing (QC/Verification)	2301	<p>Complete the initial moisture content prior to the start of concrete production each day.</p> <p>Performing moisture testing on representative material at the end of plant production the prior day is allowed. In the event of overnight precipitation, new moisture tests are required prior to the start of concrete production.</p> <p><b><i>If w/c incentives do not apply:</i></b>  <b><u>For a concrete paving batch plant:</u></b>            1 per 1000 yd<sup>3</sup> per fraction per source or completed every 4 hours, whichever results in the higher sampling rate.</p> <p><b><u>For a certified ready-mix plant using JMF:</u></b>            1 per fraction per source completed every 4 hours.</p> <p>Enter results into batching system in real time.</p>	<p><b><i>If w/c incentives apply:</i></b>  <b><u>For a concrete paving batch plant:</u></b>            1 per 1000 yd<sup>3</sup> or completed every 4 hours, whichever results in the higher sampling rate. Take initial samples for aggregate moisture testing within the first 250 yd<sup>3</sup>.</p> <p><b><u>For a certified ready-mix plant using JMF:</u></b>            1 per 200 yd<sup>3</sup> or completed every 4 hours, whichever results in the higher sampling rate. Take initial samples for aggregate moisture testing within the first 100 yd<sup>3</sup>.</p> <p>Use aggregate moisture results for determining the water content to calculate the w/c ratio incentive/disincentive.</p> <p><b>Do not leave samples unattended.</b></p> <p>Enter results into batching system in real time.</p>	W/C Ratio Calculation Workbook
	Water Content Verification Testing (Microwave or Phoenix Oven Verification)	2301	Obtain the plastic concrete sample at the plant.	<p><b><i>If w/c incentives apply:</i></b>            Microwave or Phoenix oven verification testing to verify the w/c ratio is completed in conjunction with Department aggregate moisture testing.</p> <p><b><u>For a concrete paving batch plant:</u></b>            Take initial verification test within the first 250 yd<sup>3</sup>. At least one additional verification test should be taken if more than 1,000 yd<sup>3</sup> is produced in a day.</p> <p><b><u>For a certified ready-mix plant:</u></b>            Take initial verification test within the first 100 yd<sup>3</sup>. At least one additional verification test should be taken if more than 400 yd<sup>3</sup> is produced in a day.</p>	
	Unit Weight (QC)		Test 1 load of concrete per day at the plant.	None	
	Air Content for Type 3 Concrete (QC)	2301 2461	Test the first load of concrete at the plant.	None	

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Pavement - Concrete Plant Production (cont.)						
Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.	
2301	Coarse Aggregate Quality Testing for Incentive/Disincentive	3137	Test at Contractor’s discretion	<b>If coarse aggregate quality incentives apply:</b> Test the Class B aggregates for % absorption and Class C aggregates for % carbonate including any other tests necessary to make those determinations.  Sample the 2 largest fractions in accordance with the following table and 2301:	2410 Sample ID Card  Coarse Aggregate Quality Incentive/Disincentive Workbook	
				Coarse Aggregate Quality Incentive/Disincentive Sampling Rates		
				Plan Concrete yd³		Samples per fraction (n)
				3,500 – 7,500		3
				7,501 – 10,000		5
				10,001 – 25,000		10
				25,001 – 50,000		15
				> 50,000		20
				<b>Identify incentive samples on the Sample ID Card with “I/D”</b>		
				<u><b>Note:</b></u> The Verification Gradation sample may be used for the Coarse Aggregate Quality incentive/disincentive testing.		
2301	Alkali Silica Reactivity (ASR)	2301	None	<b><u>ASR</u> Testing is not required if the entire project is &lt;3,500 cu. yd.</b>	2410 Sample ID Card  24300 ID Card Cement Samples  24308 ID Card Fly Ash Samples	
				1 per paving project per sand source		
				Provide the following samples: 1) 5 lb. of cement 2) 5 lb. of supplementary cementitious material (fly ash or slag), and 3) 10 lb. of sand.		
				Write “Project Specific ASR Testing” on all 3 Sample ID cards.		
				Write “Verification” on the Sample ID cards if the cement and supplementary cementitious samples are also used for verification testing.		

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

<b>Concrete Plant Production - Bagged Portland Cement Concrete Patching Mix (3U18 and 3U58M)</b>					
<b>Remarks:</b> (1) Mix design is provided by MnDOT unless otherwise specified in the Contract.					
Pay Item No.	Test Type	Spec. No.	Producer/Contractor Testing	Department Testing	Form No.
2302 2401	Cement	3101 3103	None	1 per certified source when the plant is certified.  Take an additional sample: 1) If the plant changes sources, or 2) As the Contract requires.  The Producer obtains and stores the sample in a sealed container provided by the Department and includes the supplier's delivery invoice from which the sample is obtained.	
2302 2401	Gradation (QC/QA)	2461 3105 3126 3131 3137	<b>Prior to production:</b> 1 per day per fraction per source  Washing the fine aggregate gradation (QC) sample is not required when the result on the -#200 sieve of the unwashed sample is less than 1.0%,  Hold QA (QC companion) samples until they are picked up by the Department monitor. Discard after 14 calendar days.	None	3U18 and 3U58M Quality Control Worksheet   2410 Sample ID Card
	Gradation Testing (Verification/ Verification Companion)	2461 3105 3126 3131 3137	Test the Verification Companion sample. Complete on the day the sample was taken.  Wash all fine aggregate Verification Companion samples.	1 per fraction per source per month  Include verification companion results on Sample ID Card.	
	Aggregate Moisture Testing (QC)	2461	Complete the initial moisture content prior to the start of concrete bagging each day.	None	

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Field Materials (Refer to Metallic Materials and Metal Products for sampling requirements for concrete reinforcement.)					
Pay Item No.	Material	Spec. No.	Sample Size	Minimum Required Field Sampling Rate	Form No.
2301 2302 2401 2406 2411 2514 2521 2531	Preformed Joint Filler	3702	2 ft <sup>2</sup>	Visual Inspection  Use only preformed joint filler materials from approved sources are allowed. The most current lists can be found at <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a> .	2410 Sample ID Card
2301 2302	Preformed Elastomeric Type	3721	6 ft.	<b>1 per lot source per project</b>	
2401 2406	Silicone Joint Sealer	3722	1 pt.	1 per source per project	
	Hot Poured Elastomeric Type	3725	1/2 gal.	Only joint materials from qualified sources are allowed. The most current lists can be found at <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a> .  Take samples from application wand. Store sample in one gallon steel container or silicone lined sample box.	
2301 2302 2401	Burlap	3751	1 yd <sup>2</sup>	Visual Inspection  Must be free from holes.	
2406 2411 2514 2519 2520	Colored Concrete Membrane Curing Compound	3752		Visual Inspection  Only curing compound for colored concrete from approved sources is allowed. Refer to the approved products list of curing compounds for approved manufacturers <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a> .	
2521 2531 2533 2545 2550 2554 2557 2564 2565	Membrane Curing Compound	3753 3754 3755	1 qt.	Visual Inspection  Use only Pre-Approved Curing Compounds. Refer to the approved products list of curing compounds for <b>pre-approved</b> lots at <a href="http://www.dot.state.mn.us/products/concrete/curingcompounds.html">http://www.dot.state.mn.us/products/concrete/curingcompounds.html</a>  If sampling is required, materials must be thoroughly stirred or agitated immediately prior to taking sample. Store sample in steel container and cover immediately.	
	Plastic	3756		Visual Inspection  Must be white opaque and free from holes.	



IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing –Ready-mix Concrete Grades F, G, M, P, R, Grout, and Lean Mix Backfill****Remarks for Air, Slump, Temperature and Cylinder Testing:**

- (1) Take all field samples at the point of placement unless otherwise allowed by the Engineer.
- (2) First load each day per mix - Take sample after discharging approximately 1/4 yd<sup>3</sup>, stop further discharge until both slump and air content test are completed.
- (3) Subsequent tests - Sample from the middle portion of the load.
- (4) If batching or field adjustments are made, test the adjusted load for air content and if suspect, slump, before it gets into the work.
- (5) It is recommended to make standard strength cylinders **after** the first load of concrete unless that is the only load of concrete for that mix that day.
- (6) MnDOT standard cylinder mold size is 4 x 8 inch. If aggregate has a maximum size greater than 1-1/4 inch, use 6 x 12 inch molds.

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2302 2452 2461 2506 2511 2514 2515 2520 2521 2531 2533 2545 2550 2554 2557 2564 2565	Air Content for Type 3 Concrete (Verification)	2461	None	1 per 100 yd <sup>3</sup> Test first load each day per mix	2409 ID Card Concrete Test Cylinder  When submitting samples, record all field test results and Batch Ticket Number on the Cylinder ID Card.
	Slump (Verification)	2461	None	Test slump if concrete is suspected to be outside of required slump range	
	Ambient air and Concrete Temperature	2461	Record temperatures each time air content, slump, or strength test specimen is performed/fabricated.	Record temperatures each time air content, slump, or strength test specimen is performed/fabricated.	
	Compressive Strength (Verification)	2461	Any additional field control cylinders are the responsibility of the Contractor.  Provide moist curing environments for initial and intermediate curing of all cylinders.	1 set of 3 (28-day) cylinders per 300 yd <sup>3</sup> per mix per day  MnDOT will cast up to three (3) field control cylinders.	

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing – Ready-mix Bridge Concrete Grades B, S, X, Y, HPC, SCC, and Mass Concrete (MC)****Remarks for Air, Slump, Temperature and Cylinder Testing:**

- (1) Take all field samples at the point of placement unless otherwise allowed by the Engineer.
- (2) First load each day per mix - Take sample after discharging approximately  $\frac{1}{4}$  yd<sup>3</sup>, stop further discharge until both slump and air content test are completed.
- (3) Subsequent tests - Sample from the middle portion of the load.
- (4) If batching or field adjustments are made, test the adjusted load for air content and if suspect, slump, before it gets into the work.
- (5) It is recommended to make standard strength cylinders **after** the first load of concrete unless that is the only load of concrete for that mix that day.
- (6) MnDOT standard cylinder mold size is 4 x 8 inch. If aggregate has a maximum size greater than 1-1/4 inch, use 6 x 12-inch molds.

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2401 2406 2411 2461 2506	Air Content for Type 3 Concrete (Verification)	2401 2461	None	1 per 100 yd <sup>3</sup> Test first load each day per mix	2409 ID Card Concrete Test Cylinder  When submitting samples, record all field test results and Batch Ticket Number on the Cylinder ID Card.
	Slump or Spread (SCC) (Verification)	2401 2461  SCC Special Provision	None	1 per 100 yd <sup>3</sup> Test first load each day per mix  Test slump if concrete is suspected to be outside of required slump range	
	Ambient air and Concrete Temperature	2401 2461	Record temperatures each time air content, slump, or strength test specimen is performed/fabricated.	Record temperatures each time air content, slump, or strength test specimen is performed/fabricated.	
	Compressive Strength (Verification)	2401 2461	Any additional field control cylinders are the responsibility of the Contractor.  MnDOT standard cylinder mold size is 4 x 8 inch. If aggregate has a maximum size greater than 1-1/4 inch, use 6 x 12 inch molds.  Provide moist curing environments for initial and intermediate curing of all cylinders.	1 set of 3 (28-day) cylinders for 100 yd <sup>3</sup> , then 1 set of 3 (28-day) cylinders per 300 yd <sup>3</sup> thereafter per mix per day  <u>For Grades HPC, SCC, and MC:</u> 1 set of 3 (56-day) cylinders per day  MnDOT will cast up to three (3) field control cylinders.	

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Field Testing – Cellular Concrete					
Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2519	Density (QC)	2519	1 per hour at the point of placement  Perform in accordance with ASTM C796	Observe Contractor testing when possible	Cellular Concrete Density Worksheet
2519	Compressive Strength (QC/Verification)	2461 2519	1 set of 4 cylinders at the point of placement per 300 yd <sup>3</sup> per day  Cast 3 x 6 cylinders in accordance with ASTM C495.  Field cure in accordance with 2461.3G5.b.	Transport cylinders to the MnDOT Office of Materials and Road Research for testing.  MnDOT will break 4 cylinders at 28-days in accordance with ASTM C495 (do not oven dry before testing).	2409 ID Card Concrete Test Cylinder

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing – Concrete Pavement****Remarks for Air Content Before Consolidation, Slump, Temperature and Strength Testing:**

- (1) Take samples prior to spreading
- (2) If batching or field adjustments are made, test the adjusted load for air content and if suspect, slump, before it gets into the work.
- (3) MnDOT standard beam box size is 6" x 6" x 20" unless other sizes or types are approved by the Concrete Engineer. If cylinders are substituted for beams, MnDOT standard cylinder mold size is 4 x 8 inch. If aggregate has a maximum size greater than 1-1/4 inch, use 6 x 12 inch molds.

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2301	Air Content Before Consolidation for Type 3 Concrete (QC/QA)	2301 2461	1 per 300 yd <sup>3</sup> or 1 per hour, whichever results in the lower testing rate  Test first load each day per mix	1 correlation air test per day	Air Content Workbook
	Slump (QC/QA)	2461	Test slump if concrete is suspected to be outside of required slump range as directed by the Engineer		
	Ambient air and Concrete Temperature (QC/QA)	2461	Record temperatures each time air content, slump or strength test specimen is performed/fabricated by the Contractor.	Record temperatures each time air content, slump or strength test specimen is performed/fabricated by the Department.	
	Flexural Strength (QC)	2301 2461	<u>For information only:</u> 1 beam (28-day) per week per mix  1 cylinder (28-day) per week per mix may be substituted at the discretion of the Engineer  Provide moist curing environments, fabricate beams or cylinders, deliver to curing site, and clean beam boxes.	Supply beam boxes or cylinder molds. Cure and test beams and cylinders.	Concrete Test Beam Data Worksheet
	Opening to Traffic Strength		<u>For opening to traffic:</u> Make field control beams <u>within the last hour</u> of concrete poured each day. Substitute field control cylinders for field control beams at the discretion of the Engineer  Maturity testing is allowed in lieu of field control cylinders or beams  Fabricate beams or cylinders, deliver to curing site, and clean beam boxes.	Supply beam boxes or cylinder molds for field control testing. Cure and test beams and cylinders.	Concrete Test Beam Data Worksheet

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing – Concrete Pavement (cont.)****Remarks for Lane Definition:**

- (1) From the pavement edge to the adjacent longitudinal joint
- (2) From one longitudinal joint to the next longitudinal joint
- (3) In the absence of a longitudinal joint, between pavement edges
- (4) Each Ramp and Loop greater than or equal to 18 feet in width
- (5) Doweled concrete Shoulder greater than or equal to 10 feet in width
- (6) Doweled concrete Shoulders less than 10 feet in paved width and undoweled concrete Shoulders are not included as part of a lane.

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2301	Concrete Pavement Texture (QC)	2301	1 texture test per 1,000 lin. lane feet in the outside wheel path  Perform a minimum of 3 texture tests per project	Determine texture testing locations using random numbers.  Observe Contractor testing.	Thickness, Texture and MIT-SCAN Report
	Thickness (QC/Verification)	2301	<p>Projects <math>\leq</math> 3,500 cu. yd. and concrete overlay Projects where underlying pavement at any depth is concrete: 1 quality control probe (QCP) per 1,000 lin. lane feet. Measure and record probes to the nearest 1/8".</p> <p>1 quality assurance core (QAC) per 4,000 lin. lane feet.</p> <p>Projects <math>&gt;</math> 3,500 cu. yd. when concrete is placed directly on grade, or the concrete overlay is placed on existing asphalt pavement with no underlying concrete: 1 quality control scan (QCS) per 1,000 lin. lane feet. Measure scans in millimeters and convert and record to the nearest tenth of an inch.</p> <p>1 quality assurance core (QAC) per 4,000 lin. lane feet.</p>	<p>Determine probing, scanning and coring locations using random numbers.</p> <p>Observe Contractor probing or scanning.</p> <p>Mark pavement at core locations. Pick up the cores from the pavement and re-mark the sides of the specimens after coring to clearly verify their authenticity. Field measure cores to the nearest 1/8"</p> <p>Transport to the MnDOT Office of Materials and Road Research for final thickness determination.</p>	<p>Thickness, Texture and MIT-SCAN Report</p> <p>Field Probing or Scanning Report</p> <p>Field Coring Report</p>
	Surface Smoothness	2399	Measure smoothness of the final concrete as required by the Contract. Perform all profiling in the presence of the Engineer unless otherwise approved by the Engineer.	Observe Contractor testing when possible	Concrete Profile Summary Worksheet
	Dowel Bar and Tie Bar Steel Location (QC)	2301	<p>For concrete projects <math>&gt;</math> 3,500 cu. yd., scan the following: Test 5 random doweled contraction joints per 1,000 lin. lane feet</p> <p>For mechanically placed LIT joints, randomly test 45 lin. feet per 1,000 lin. feet</p>	Observe Contractor steel location testing when possible	Thickness, Texture and MIT-SCAN Report

**IV. Concrete Construction Items (cont.)** ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing (Volumetric Batching)- Low Slump Concrete for Bridge Deck Overlays****Remarks:**

- (1) Mix design is provided by MnDOT on the back of the Form 21412 Weekly Report of “Low Slump Concrete” unless otherwise specified in the Contract.
- (2) All materials must come from certified or qualified sources. All certified sources must state so on the delivery invoice.
- (3) The most current list of certified/approved sources can be found at [www.dot.state.mn.us/products](http://www.dot.state.mn.us/products).

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Sample Size	Form No.
2404	Cement	3101	None	Each time cement is delivered to site:  Store the sample in a sealed container and include the supplier's delivery invoice from which the sample is obtained.	5 lb.	24300 ID Card Cement Samples
	Admixtures	3113	None	Each time new lot/batch admixture delivered to site:  Store the sample in a sealed plastic container.	1/2 pint	2410 Sample ID Card
	Gradation and Aggregate Quality Testing including Coarse Aggregate Percent Passing - #200	3126 3137	<u>Prior to concrete production:</u> Provide the Department with: <ul style="list-style-type: none"> <li>Aggregate pit numbers</li> <li>1 passing gradation result per aggregate fraction per source</li> </ul> No quality test results are required.	Prior to production and each time aggregate is delivered to site: 1 gradation and quality per aggregate fraction prior to concrete production and each time aggregate is delivered to the site.  Identify quality samples with a “Q” on the Sample ID Card and the Quality companion sample.		2410 Sample ID Car  21412 Weekly Report of “Low Slump Concrete”

**Concrete Field Testing - Low Slump Concrete for Bridge Deck Overlays**

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2404	Air Content for Type 3 Concrete	2461	None	1 per 15 yd <sup>3</sup> Test at beginning of pour each day	21412, Weekly Report of “Low Slump Concrete”
	Slump	2461	None	1 per 15 yd <sup>3</sup> Test at beginning of pour each day  For concrete from a concrete-mobile, allow mix to hydrate 5 minutes before slump test to assure all cement is saturated.	21412, Weekly Report of “Low Slump Concrete”
	Compressive Strength	2461	None	1 set of 3 cylinders (28-day) per 100 yd <sup>3</sup>  MnDOT standard cylinder mold size is 4 x 8 inch.	2409 ID Card Concrete Test Cylinder

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))**Concrete Field Testing – Concrete Pavement Repair (CPR) for 3U18****Remarks:**

- (1) Mix design is provided in accordance with MnDOT Spec 3105 unless otherwise specified in the Contract. 3U18 may be pre-bagged or batched volumetrically. Ready-mix batched 3U18 concrete is not allowed.
- (2) Testing rates apply to concrete that is produced on site.
- (3) All materials must come from certified or qualified sources. All certified sources must state so on the delivery invoice.
- (4) The most current list of certified/approved sources can be found at [www.dot.state.mn.us/products](http://www.dot.state.mn.us/products).

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2302	Type 1 Cement	3101	None	<b><u>For volumetric batching only:</u></b> <u>Each time mobile mixer is calibrated:</u> Obtain a 5 lb. sample  Store the sample in a sealed container and include the supplier's delivery invoice from which the sample is obtained.	24300 ID Card Cement Samples
	Admixtures	3113	None	<u>Each time mobile mixer is calibrated:</u> Obtain a 1/2 pint sample  Store the sample in a sealed plastic container.	2410 Sample ID Card
	Gradation (QC/Verification)	3126 3137	<b><u>Prior to concrete production:</u></b> Provide the Department with: <ul style="list-style-type: none"> <li>• Aggregate pit numbers</li> <li>• 1 passing gradation result per aggregate fraction per source.</li> </ul> Test companion samples at Contractor's discretion.	<b><u>For volumetric batching only:</u></b> <u>Prior to concrete production and each time aggregate is delivered to the site:</u> 1 per aggregate fraction	2410 Sample ID Card
	Aggregate Quality Testing <u>including</u> Coarse Aggregate Percent Passing - #200	3126 3137	No quality test results are required.	<b><u>For volumetric batching only:</u></b> <u>Prior to production and each time aggregate is delivered to site:</u> 1 test each aggregate fraction per source  The Department may use the gradation results for the Quality Samples as a substitute for 1 required field gradation.  Identify quality samples with a "Q" on the Sample ID Card and the Quality companion sample.	2410 Sample ID Card

IV. Concrete Construction Items (cont.) ([www.dot.state.mn.us/materials/concrete.html](http://www.dot.state.mn.us/materials/concrete.html))

Concrete Field Testing – Concrete Pavement Repair (CPR) for 3U18 (cont.)					
Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2302	Air Content for Type 3 Concrete (Verification)	2461	None	1 per 15 yd <sup>3</sup> or 1 per 4 hours whichever results in the highest sampling rate  Test at beginning of pour each day.	Concrete Pavement Repair (CPR) Workbook
	Slump (Verification)	2461	None	1 per 15 yd <sup>3</sup> or 1 per 4 hours whichever results in the highest sampling rate Test at beginning of pour each day.  Allow mix to hydrate 5 minutes before slump test to assure all cement is saturated.  Test slump if concrete is suspected to be outside of required slump range	
	Compressive Strength (Verification)	2461	Any additional field control cylinders are the responsibility of the Contractor.	1 set of 3 cylinders (28-day) per 15 yd <sup>3</sup>  MnDOT will cast three (3) field control cylinders.	2409 ID Card Concrete Test Cylinder

## Concrete Field Testing – Dowel Bar Retrofit (DBR)

## Remarks:

- (1) Use MnDOT approved packaged, dry, non-shrink, rapid-hardening cementitious material for dowel bar retrofit repairs.  
 (2) Testing rates apply to concrete that is produced on site. (Not from a certified ready-mix plant.)

Pay Item No.	Test Type	Spec. No.	Contractor Testing	Department Testing	Form No.
2302	Gradation Testing (Verification)	3137	None	<u>Prior to production and each time aggregate is delivered to site:</u> 1 per aggregate fraction per source	2410 Sample ID Card
	Quality Testing <u>including</u> Coarse Aggregate Percent Passing	3131 3137	None	<u>Prior to production and each time aggregate is delivered to site:</u> 1 per aggregate fraction per source  Identify quality samples with a “Q” on the Sample ID Card and	2410 Sample ID Card
	Dowel Bar Retrofit Material Compressive Strength (Verification)	2302	Any additional field control cylinders are the responsibility of the Contractor.	1 set of 3 cylinders (28-day) per day  MnDOT will cast three (3) field control cylinders per day.	2409 ID Card Concrete Test Cylinder



**V. Landscaping and Erosion Control Items**

Pay Item No	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2571 2574 2575	1. Topsoil borrow <sup>a</sup>	3877.2	None	Type A: 1 per 1000 cy.  Type B: 1 per 500 cy - up to 5 samples from each source.  Type C: 1 per 500 cy - up to 5 samples from each source, (min. 1 per project)  Type E – G: Topsoil blends have certificate of compliance  Type H is same as Compost	1 lb. (2-3 cups)	<sup>a</sup> Contractor to test topsoil for soil texture, organic matter, pH, fertility and, if requested, soluble salts at a Certified Soils Lab. Soils Lab should also provide fertilizer recommendations for the proposed vegetation.  Soils for infiltration/filtration must meet specification. Topsoil used for infiltration or filtration must be tested after installation by the contractor to assure flow rate.  Where topsoil material is blended with compost and drainage medium (Filtration Topsoil Borrow) for use in filtration basins the following tests are required:  Compost – Compost material shall be provided by vendors included on the APL/QPL.  Sand Drainage Material – test sand for particle size meeting the requirements of 3126, Fine Aggregate for Portland Cement Concrete.
2571 2575 2577	2. Plant Stock & Landscape Materials <sup>b</sup>	3861 and 2571.2A1	Field Inspection at Job Site, submit itemized report for each shipment <sup>c</sup> .			<sup>b</sup> Preliminary inspection will not be done at the source. Material must be in accordance with the Inspection and Contract Administration Guidelines for MnDOT Landscape Projects. <sup>c</sup> Utilize "Inspection and Contract Administration Guidelines for MnDOT Landscape Projects" to determine and measure minimum and maximum criteria thresholds. The following documentation must be provided: 1. A MnDOT Certificate of Compliance for Plant Stock, Landscape Materials, and Equipment 2. A valid copy of a nursery stock (dealer or grower) certificate registered with the MN Dept. of Agric. And/or a current nursery certificate/license from a state or provincial Dept. of Agric. for each plant stock supplier. 3. A copy of the most recent Certificate of Nursery Inspection for each plant stock supplier. 4. Plant material shipped from out-of-state nursery vendors subject to pest quarantines must be accompanied by documentation certifying all plants shipped are free of regulated pests. 5. Bills of lading (shipping documents) for all materials delivered. 6. Invoices for all materials to be used. 7. Each bundle, bale, or individual plant must be legibly and securely labeled with the name and size of each species or variety.

## V. Landscaping and Erosion Control Items (cont.)

Pay Item No	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2502 2573 2575 2577	3. Rolled Erosion Prevention Products (REPP) Category 10, 20, 30, 15, 25, 35, 45 <sup>d</sup>	3885	Visual Inspection	1 per 18,000 lin. feet, QA Mass, ASTM D6475 test. - See Footnote <sup>d</sup>		<sup>d</sup> Check Web site for list of approved products. <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a>
2573 2577	4. REPP-Open Weave Textile Category 37, 47, 57 <sup>e</sup>	3885	Visual Inspection			<sup>e</sup> Check Web site for list of approved products. <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a>
2573	5. Silt Fence <sup>f</sup>	3886	Check Product Label. Obtain Manufacturer's Certificate of Compliance with Roll Number and MARV values			<sup>f</sup> Check APL/QPL of accepted geotextiles <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a>
2573	6. Flotation Silt Curtain <sup>g</sup>	3887	Visual Inspection			<sup>g</sup> Accepted, based on manufacturers' certification of compliance. Check weight of fabric.
2573 2575	7. REPP- Permanent Products Category 50, 55, 60, 70, 72, 74, 76 <sup>h</sup>	3885	Visual Inspection			<sup>h</sup> Check Web site for list of approved products. <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a>
2573	8. Sediment Control Logs	3897	Visual Inspection			Meet specifications
2573	9. Flocculants <sup>i</sup>	3898	Visual Inspection	None		<sup>i</sup> Certificate of Compliance and MSDS to the Engineer.
2571 2575	10. Fertilizer <sup>j</sup>	3881	Visual Inspection			<sup>j</sup> Bagged: Inspected on the basis of guaranteed analysis. Bulk: Inspector to obtain copy of invoice of blended material stating analysis. Check Type and NPK ratio that it matches that specified in the Plan or recommendation based on soil test.
2571 2575	11. Agricultural Lime <sup>k</sup>	3879	1 gradation test per 200 tons			<sup>k</sup> Contractor must supply amount of ENP (Equivalent Neutralizing Power) for each shipment.
2575 2577	12. Mulch Material A. Type 3 Mulch - Certified Weed Free (Certified sources only) <sup>l</sup>	3882	Visual Inspection, Check if from Certified Vendor by Minnesota Crop Improvement Association. <b>Must be tagged</b> , grain straw only.			<sup>l</sup> Certified mulch will be indicated by label. Do not accept Mulch that arrives on project without tags <b>attached</b> to bales.

**V. Landscaping and Erosion Control Items (cont.)**

Pay Item No	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2571 2575 2577	13. Mulch Material B. Type 6 Mulch – Woodchips	3882	Visual Inspection.  Obtain Certificate of Compliance.			All wood chips supplied by a supplier outside the Emerald Ash Borer quarantine area or have an Emerald Ash Borer Compliance Agreement with the MDA.
2502 2575 2577	14. Seeds A. Seeds (Certified Vendors Only) (Mixes 21-000, 22-000 and 25-000 series) <sup>m</sup>	3876	Check for Certified Vendor tag from Minnesota Crop Improvement Association. If materials are on hand and past the twelve months, testing must be done.			<sup>m</sup> Periodic sampling taken by Office of Environmental Services. Any moldy or insect contaminated seed must be rejected. Check seed Label test date is no more than 12 months old at the time of testing.
2502 2575 2577	14. Seeds B. Native Seed (Mixes 30-000 series) (Certified Vendors Only) <sup>n</sup>	3876	Check if from Certified Vendor by Minnesota Crop Improvement Association, must be tagged. If materials are on hand and past the twelve months, testing must be done.			<sup>n</sup> Certified seed will be indicated by label on containers. Reject all moldy or insect contaminated seed. Periodic sampling taken by Office of Environmental Services. Check seed Label test date is no more than 12 months old at the time of testing.
2575	15. Sod <sup>o</sup>	3878	A certified tag by Minnesota Crop Improvement Association for Salt tolerant sod. Final Visual Inspection at site.			<sup>o</sup> A Certificate of Compliance must be furnished by the producer to the Engineer for the type of sod supplied showing correct grass varieties.
2571 2575	16. Compost A. Compost Certified Source <sup>p</sup>	3890	Visual Inspection			<sup>p</sup> Check APL/QPL.
2571	17. Compost B. Compost Non-Certified Source <sup>q</sup>	3890	Inspection of source 6 weeks prior to delivery.			<sup>q</sup> Retain Certificate of Compliance, 6 weeks prior to delivery. Applies only to 2571 Landscape pay items.
2575	18. Hydraulic Erosion Control Product <sup>r</sup>	3884				<sup>r</sup> Check APL/QPL. Installer needs to show certificate of training.

## VI. Chemical Items

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2401	Asphalt Plank	3204	Check for proper type and size as specified in plans.  Lab Sample Required	1 per 1,000 plank or less of each thickness from each shipment	3 – 1 yard pieces sampled from different planks	
2131	Calcium Chloride	3911	Check for listing on Qualified Products website if product is a deicer.  Lab Sample Required (See Notes)	Liquid: 1 per shipment Dry: 1 per shipment	1 pint or 1 lb. in Plastic Container	Provide copy of the BOL with sample.
2131	Magnesium Chloride	3912	Check for listing on Qualified Products website if product is a deicer.  Lab Sample Required (See Notes)	1 per shipment	1 pint in Plastic Container	Provide copy of the BOL with sample.
2331	Hot-Pour Crack Sealant for Crack Sealing/Filling	3719 3725	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 per lot. Take samples from application wand. Use caution when handling hot containers	1/2 gallon in a one gallon steel container or silicone lined sample box	<b>Form 02415</b> List batch numbers and retain Certificate of Compliance.
2331	Pavement Joint Adhesive	Special Provisions	Lab Sample Required	1 per lot. Take samples from application wand. Use caution when handling hot containers	1 qt. in a steel container or silicone lined sample box	
2481	Waterproofing Materials Membrane Waterproofing System	3757	Check for listing on Qualified Products website.  Lab Sample Required	1 per shipment (Membrane Only)	1 Sq. Ft	
2481	Waterproofing Materials Three Ply System  Asphalt Primer	3165	Verify supplied material meets ASTM D 41  Lab Sample Required	1 per shipment	1 pint in steel container	
2481	Waterproofing Materials Three Ply System  Waterproofing Asphalt	3166	Verify supplied material meets ASTM D 449  Lab Sample Required	1 per shipment	1 pint in steel container	

## VI. Chemical Items (Cont.)

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2481	Waterproofing Materials Three Ply System  Fabric	3201	Verify supplied material meets AASHTO M 117  Lab Sample Required	1 per shipment	1 Sq. yd.	
2582	Waterborne Latex Traffic Marking Paint.	3591	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 per lot	1 pint	<b>Form 02415</b> List batch numbers and retain Certificate of Compliance.
2582	Epoxy Traffic Paint	3590	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 Part A per lot 1 Catalyst Part B per lot	1 pint	<b>Form 02415</b> List batch numbers and retain Certificate of Compliance.
2564	Non-Traffic Marking Paints	3501 3532 3533 Special Provisions	Check for proper material as specified in plans. (See Notes)  Lab Sample Required	1 per lot	1 pint	<b>Form 02415</b> List batch numbers.
2401	Special Surface Finish II concrete coating	3501	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	Submit Draw Down for color match/approval prior to start of painting (See Notes)  Liquid sampling: 1 per lot or every 500 gallons of coating, whichever is greater	1 pint	<b>Form 02415</b> List batch numbers and provide Certificate of Compliance with each batch/lot of the coating to the Engineer.  Confirm that the contractor provided a color "Draw Down" sample to the MnDOT Chemical Laboratory for verification of the color.
2478	Bridge Structural Steel Paint	3501 3520	Check for listing on Approved Products website. (See Notes)  No Lab Sample Required	Not Field Sampled or Lab Tested - Submit draw down for color match / approval prior to start of painting (See Notes)		<b>Form 02415</b> List batch numbers and provide Certificate of Compliance with each batch/lot for each component of the paint system to the Engineer.  Confirm that the contractor provided a color "Draw Down" sample to the MnDOT Chemical Laboratory for verification of the finish coat color.

## VI. Chemical Items (Cont.)

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
	Exterior Masonry Paint	3584	Check for proper material as specified in plans. (See Notes)  Lab Sample Required	1 per lot	1 pint	<b>Form 02415</b> List batch numbers.
	Noise Wall Stain	Special Provisions	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 per lot	1 pint	<b>Form 02415</b> List batch numbers.
2582	Drop-on Glass Beads	3592	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 per lot	1 quart	<b>Form 02415</b> List lot numbers and retain Certificate of Compliance
2502 2581 2582	Preformed Pavement Marking Tape and Thermoplastic	3354 3355 3556	Check for listing on Qualified Products website. (See Notes)  Lab Sample Required	1 per lot of each color and width	<b>Tape:</b> 3 yds if 12" or less  <b>Tape:</b> 1 yd if greater than 12"  <b>Thermo:</b> 1 piece for lines under 12" wide or 6" x 6" for other shapes	<b>Form 02415</b> List lot numbers and retain Certificate of Compliance.
2540 2563 2564 2565 2582	Signs and Markers	3352	Check for listing on Approved Products website.  No Lab Sample Required	None unless material is suspect (See Notes)		Items may be considered suspect if on visual inspection the screening or digital printing appears abnormal, the sheeting type / brand looks different than past appearance, the backing material may be the incorrect thickness / type, etc.  Contact the Office of Traffic Engineering ( <a href="http://www.dot.state.mn.us/trafficeng/contacts.html">http://www.dot.state.mn.us/trafficeng/contacts.html</a> ) for guidance on suspect items to determine need for sampling and submittal to the Chem Lab for testing.

**VII. Metallic Materials and Metal Products**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2554	1. Guard Rail A. Fittings - Splicers, Bolts, etc.	3381	Visual Inspection – sample, if necessary, <i>(See Notes)</i>	Bolts: 1 Post bolt and 4 splice bolts with nuts for each 1,000 units or less.		<b>Form 02415 or 2403</b> To be approved before use. Materials from H&R may be pre-sampled and tested. Call the MnDOT inspector at 218-846-3613 to see if material has been approved. For non-pre-tested, submit laboratory samples at required rate. For small quantities, lab samples are not required, but document on Form 02415 or 2403 and maintain in project file. Small Quantities: Rail Sections - 20 or less Terminals - 10 or less Post Bolts - 100 or less, Splice Bolts - 100 or less
2554	1.B.i. Non-High Tension Guard Rail Cable	3381	Visual Inspection – submit sample	1 per each spool	4 feet	<b>Form 02415 or 2403</b> See VII.1.A.
2554	1. B.ii. High Tension Guard Rail Cable	Special Provisions	Visual Inspection – <i>(See Notes)</i>	None, unless material is suspect <i>(See Notes)</i>	4 feet	Sample at the rate of 1 per 50,000 feet if the strand appears damaged or suspect (Accepted as part of system)
2554	1. Guard Rail C. Structural Plate Beam	3382	Visual Inspection – <i>(See Notes)</i>	1 from one end of a section for each 200 rail sections (or portion thereof) or 1 per each 100 terminal sections	Full depth x 10 inches	<b>Form 02415 or 2403</b> See VII.1.A.
2554	D. Plate Beam Guide Posts	3382	Visual Inspection	None, unless material is suspect		<b>Form 02415 or 2403</b>
2554	E. High Tension Guide Posts	Spec. Provisions	Visual Inspection	None, unless material is suspect		<b>Form 02415 or 2403</b> (Accepted as part of system)
2545 2554 2564	2. Steel Sign Posts	3401	Visual Inspection & Certification from Contractor of compliance with Domestic source requirement under 1601, if applicable. Submit sample from material being installed, <i>(See Notes)</i>	1 post per shipment of each mass per unit length. Submit shortest full-sized length of each weight, not a scrap piece.	(See Note)	<b>Form 02415 or 2403</b> <b>Check domestic steel requirement under 1601</b>  <b>No Samples for project quantities less than 20</b>

## VII. Metallic Materials and Metal Products (cont.)

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2554 2557	3. Posts for Traffic & Fence A. Steel fence posts, brace bars, and rails	3403 3406	Visual Inspection - submit sample of material being installed, <i>(See Notes)</i>	1 per 500 pieces. Submit full length for posts used in the ground (line, terminal, "C" and anchor posts), and 5' length of top rail and brace bar.  Small Quantity (< 1000 ft. on entire project): sample line post, top rail, and brace bar only.		<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance and certified mill analysis in project file. See link for certification form on right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
2557	3. Fence B. Components: includes cup, cap, nut, bolt, end clamp, tension band, truss rod tightener, hog ring, tie wire, tension stretcher bar, truss rod, clamp, & tension wire	3376	Visual Inspection - submit sample of material being installed, <i>(See Notes)</i>	1 each of cup, cap, nut, bolt, end clamp, tension bands, truss rod tightener, 12 hog rings, 6 tie wires, 1 tension stretcher bar; 1 truss rod, cut to 2-foot min. with threaded section, 3 feet of tension wire.  Small Quantity (< 1000 ft. on entire project): No sample required		<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance in the project file.  See link for certification form on right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
2557	3. Fence C. Gates	3379	Visual Inspection, <i>(See Notes)</i>	No sample required. <i>(See Notes)</i>		<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance in the project file. See link for certification form on right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
2557	3. Fence D. Barbed Wire	3376	Visual Inspection – submit sample of material being installed, <i>(See Notes)</i>	1 per 50 rolls – <i>(See Notes)</i>	3 feet	<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance in the project file. See link for cert. form on right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
2557	3. Fence E. Woven Wire Fabric	3376	Visual Inspection - submit sample of materials being installed, <i>(See Notes)</i>	1 full height sample per 50 rolls	3 feet	<b>Form 02415 or 2403</b> <b>Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance in the project file.</b> See link for cert. form right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>



**VII. Metallic Materials and Metal Products (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2557	3. Fence F. Chain Link Fabric	3376	Visual Inspection - submit sample of materials being installed, <i>(See Notes)</i>	1 full height sample for each 5,000 ft. of fencing.	1 foot	<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. Retain Certificate of Compliance in the project file. See link for certification form on right side of page, <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
2402	4. Water Pipe and other Piping Materials	3364, 3365, 3366 & Special Provisions	<i>(See Notes)</i>	No sample necessary		<b>Form 02415 or 2403</b> Check domestic steel requirement under 1601 Special Provision. To be identified & tested if necessary, prior to use. See Special Provisions.
2301 2401 2405 2411 2412 2433 2452 2472 2514 2531 2533 2545 2564	5. Reinforcing Steel A. Bars – Uncoated	3301	Visual Check for Size and Grade Marking	No Field Sample Necessary		<b>Form 02415 or 2403</b> For Uncoated bars - Retain Certificate of Compliance and Certified Mill Analysis in Project File.
2301 2302 2401 2405 2411 2412 2433 2452 2472 2514 2531 2533 2545 2564	5. Reinforcing Steel B. Bars - Epoxy Coated	3301	Visual Check for Size and Grade Marking and "Inspected" tag. Inspect for damage to coating, verify repairs, if necessary. (See Notes)	1 bar of each size of bar for each day's coating production	3 feet	<b>Form 02415 or 2403</b> For Epoxy-Coated bars, steel will be tagged "Inspected" when sampled and tested by MnDOT prior to shipment and will be tagged "Sampled" when testing has not been completed prior to shipment.  If the Epoxy-Coated bars are not tagged "Sampled" or "Inspected", submit 3 foot. samples cut from project bars, with copies of the Certificate of Compliance and Certified Mill Analysis. Replace the samples with splice bars that are supplied with the shipment. Splice bar length is 3 feet plus 40 bar diameters. Retain originals of the Certificate of Compliance and Certified Mill Analysis in the project file.

**VII. Metallic Materials and Metal Products (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2401	5. Reinforcing Steel C. Bars Stainless Steel	Special Provisions	Visual check for size and grade. Send sample bars from shipment. <i>(See Notes)</i>	2 bars per heat per bar size	3 feet	Submit copies of mill test reports with samples, retain originals in project file
2401 2411 2452 2472 2564	5. Reinforcing Steel D. Spirals	3305	Submit sample, inspect for damage to coating, verify repairs, if necessary.	1 per shipment	3 feet	<b>Same as 5.B</b>
2301 2401 2411 2412 2472 2531	5. Reinforcing Steel E. Steel Fabric	3303	Visual inspection. <i>(See Notes)</i>	Field sample not necessary for uncoated fabric. If epoxy-coated, submit 2-ft.-square sample.		Retain Certificate of Compliance in project file. Verify material size, normally shown on metal tag on bundles of fabric. Use caliper or micrometer if there is no metal tag. If fabric is pre-bent, examine outside of bends for cracking. Do not allow cracked material to be installed.
2301 2302 2401 2411	5. Reinforcing Steel F. Dowel Bars	3302	Sample from material being used, including basket. <i>(See Notes)</i>	1 Dowel Bar from each shipment	Full Size Dowel Bars	For all types of dowels – Each project shall have a Certificate of Compliance from the Manufacturer certifying that all materials used in fabrication of the dowel bars and baskets comply with all applicable specifications. The Manufacturer shall maintain all records necessary for certification by project.
2401 2405	5. Reinforcing Steel G. Prestressing or Post-Tensioning Strand	3348	If strand is installed at project site, sample from material being used.	2 strands from each heat <i>(See Notes)</i>	6 feet	Submit one copy of mill certificate and one copy of the stress-strain curve representative of the lot with the samples. For most manufacturers, a heat equals a production lot, and an individual lot, pack, or reel is a subset of a heat/production lot.
2401 2411 2433 2472	5. Reinforcing Steel H. Mechanical Splice Couplers	3301 Special Provisions	Visual Check for Size and Grade Marking. Inspect for damage to coating, verify repairs, if necessary. <i>(See Notes)</i>	1 for each size and of each lot supplied.	Mechanical splice coupler and reinforcement bars 3 feet each	The contractor shall submit a "Certificate of Compliance" provided by manufacturer, on a per project basis for each size of mechanical splice coupler used. Verify mechanical splice type and size is listed on APL/QPL. Pre-qualification requires contractor to submit a sample to the Department for each reinforcement bar size used on the project. Test results of sample must verify compliance to original product specifications.

## VII. Metallic Materials and Metal Products (cont.)

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2402 2506 2565	6. Drainage and Electrical Castings	3321 2471 2565	Check APL/QPL and visual inspection at the project site. <i>(See Notes)</i>	All castings: 3 tensile bars to be cast with each heat at Foundry and submitted to the lab by an approved Foundry*. See 3321.		<b>Form 02415 or 2403</b> Verify source of material is listed on APL/QPL  Inspect in the field and retain Form 02415 or 2403 in project file, showing name of foundry and quantity
2401 2402 2411 2433 2545 2554 2564 2565	7. Anchor Rods (Cast in Place)	3385 3391 3392	Check APL/QPL, mill certifications, and visual inspection at the project site. Take sample if not listed on APL/QPL.	Pre-approved <i>(See Notes)</i> or 1 complete anchor rod assembly including nuts and washers from each lot supplied.		Pre-approved system requires supplier to submit a sample to the Department yearly for each anchor rod grade. Test results of sample must verify compliance to product specifications.
2401 2402 2411 2433 2545 2554 2564 2565	8. Structural Fasteners, both coated and uncoated	3385 3391 3392	Visual inspection and verify material is on APL/QPL, or submit sample for verification testing if not on APL/QPL	Pre-approved <i>(See Notes)</i> or 2 complete assemblies for each size, length, diameter, grade and finish, per increment of 1000 or fraction thereof		Pre-approved system requires the supplier to submit a sample yearly for each fastener size, grade and finish. Test results must verify compliance to specifications. If not on the APL/QPL, submit two complete assemblies for each size, length, grade and finish per increment of 1000 or fraction thereof of fasteners supplied for the project, including nuts and washers from each lot supplied. Obtain passing test results before installation.
2401 2411 2433 2545 2565	9. Anchorages (Drilled In)	Special Provisions, Standard Plates, Plan Sheet Details	Visual Inspection. Before installation, verify listing on APL/QPL.  For field testing rate, of installed anchorages, see the Special Provisions.	Laboratory samples not required.		Note: Before installation, verify that anchorages are on the APL/QPL Or Verify that anchorages are in accordance with the Standard Plate or the details in the Plan.

**VII. Metallic Materials and Metal Products (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2402	10. Structural Steel A. For Steel Bridge – Beams, Girders, Diaphragms, etc.	2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2402 2405	10. Structural Steel B. For Concrete Girders- Diaphragms and sole plates	2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2402	10. Structural Steel C. Expansion joints	2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2402	10. Structural Steel D. Steel Bearings	2471	Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>

**VII. Metallic Materials and Metal Products (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2402	10. Structural Steel E. Railing-Structural tube and ornamental	2471	Structural Metals a Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2402	10. Structural Steel F. Drainage Systems	2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2402	10. Structural Steel G. Protection Angles	2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2564	11. Overhead Sign structures	2564 2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>

**VII. Metallic Materials and Metal Products (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2545	12. High Mast Lighting Structures	2545 2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>
2565	13. Monotube Signal Structures	2565 2471	Structural Metals Confirmation of Inspected Material Document and field inspection for damage/defects	None		Structural metals products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office web site: <a href="http://www.dot.state.mn.us/bridge/">http://www.dot.state.mn.us/bridge/</a>

**VIII. Miscellaneous Materials**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2403 2422 2452 2521 2540 2545 2554 2557 2564	1. Timber, Lumber Piling & Posts	3412 to 3471 & 3491	Visual Inspection			<b>Form 02415 or 2403</b> Untreated materials shall be inspected in the field and the results reported on Form 02415 or 2403. Treated materials shall be Certified on the Invoice or Shipping Ticket. Material is inspected and stamped by an Independent Agency as per Specification 3491. Contact Laboratory for additional information.
2402 2405 2557 Many	2. Miscellaneous pieces and Hardware (Galvanized)	3392 3394		3 samples of each item per shipment. Sample critical items only. (Critical items are load bearing, structurally necessary items.)	3 of each type.	<b>Form 02415 or 2403</b> Will carry "Inspected" tag if sampled and tested prior to shipment. No sample necessary if "Inspected".
2504	3. Insulation Board	3760	Visual Inspection	None		<b>Form 02415 or 2403</b>
2402	4. Laminated Elastomeric Bearing Pads	3741 and Special Provisions	Confirmation of Inspected Material Document and field inspection for damage/defects	See Notes		See Project Special Provisions for Sampling, Testing, and Acceptance Requirements. Products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs.
2402	4. Plain Elastomeric Bearing Pads	3741 and Special Provisions	Confirmation of Inspected Material Document and field inspection for damage/defects	See Notes		See Project Special Provisions for Sampling, Testing, and Acceptance Requirements. Products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs.
2402	4. Cotton Duck Bearing Pads	3741 and Special Provisions	Confirmation of Inspected Material Document and field inspection for damage/defects	See Notes		See Project Special Provisions for Sampling, Testing, and Acceptance Requirements. Products will be inspected at the plant and will be shipped with a Confirmation of Inspected Material Document. A copy of the inspection documentation will be archived in eDOCs.

**IX. Geosynthetics, Pipe, Tile, and Precast/Prestressed Concrete**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2402 2422 2501 2503 2506	1. Corrugated Metal Products A. Culvert Pipe Underdrains Erosion Control Structures	3225 thru 3229, 3351 and 3399	Visual Inspection: Check for good construction, workmanship, finish requirements and shipping			<b>Form 02415 or 2403</b> Make certain pipe is Certified on Invoice, retain certificate of compliance and certified mill analysis in project file
2501	1. Corrugated Metal Products B. Structural Plate	3231	Visual Inspection: Invoice shall include notation that material described is in accordance with fabricator's Certificate and Guarantee			<b>Same as 1.A</b>
2501	1. Corrugated Metal Products C. Aluminum Structural Plate	3233				Retain certificate of compliance and certified mill analysis in project file
2503 2506	2. Clay Pipe	3251	No samples required for less than 100 pieces	1 per 200 pieces of each size.	Full Size Pipe	<b>Form 02415 or 2403</b>
2501 2503 2506	3. Concrete Pipe Reinforced Pipe and Arches, Precast Cattle Pass Units, and Sectional Manhole Units	2462 3236	Field Inspection: Check for damage and defects. Check dimensions as required. Check for producer's "Certified" stamp and signature on the certification document.	1 "companion" cylinder per month per plant during production, or cylinder testing machine, whichever is greater. Call Precast Inspection Engineer at 651-366-5539 for additional information.		<b>Form 02415 or 2403</b> Product will be certified by producer, only spot checks are done by plant inspector. Make certain the invoice or certification document is signed and the product has the required markings. Maintain Form 2403 or 02415 in project records, showing source of materials and type and quantity used
2501 2503 2506	3. Concrete Pipe Fine Aggregate Quality	3126		1 quality test per month during production.	25 lb.	
2501 2503 2506	3. Concrete Pipe Coarse Aggregate Quality	3137		1 quality test per month during production.	25 lb.	



**IX. Geosynthetics, Pipe, Tile, and Precast/Prestressed Concrete (Cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2412	4. Precast/Prestressed Concrete Structures  A. Reinforced Precast Box Culvert	2462 3238	1 air test per pour (1st load)  1 set of cylinders per 25 cubic yards, with a minimum of two cylinders per set. Alternate cylinder acceptance systems may be allowed with the approval of the State Materials Engineer.	1 "companion" cylinder per month per plant during production, or cylinder testing machine, whichever is greater. Call Precast Inspection Engineer at 651-366-5539 for additional information.		Precast/prestressed Concrete Structure (beams, posts, etc.) will be inspected and stamped at plant. Field personnel are responsible for checking for plant inspector's stamp, for shipping/handling damage or defects, and dimensions. An inspection report will be completed by plant personnel and sent to the field personnel.
	Fine Aggregate Quality	3126		1 quality test per month during production.	25 lb.	
	Coarse Aggregate Quality	3137		1 quality test per month during production.	25 lb.	
2405	4. Precast/Prestressed Concrete Structures  B. Precast/Prestressed Concrete Structure (beams, posts, wetcast pipe and manholes, miscellaneous concrete products, etc.).	2405 2462	1 air test per pour (1st load)  1 slump/spread test  1 set of cylinders per 25 cubic yards, with a minimum of two cylinders per set, and one set per beam. Alternate cylinder acceptance systems may be allowed with the approval of the State Materials Engineer.	1 "companion" cylinder per month per plant during production, or cylinder testing machine, whichever is greater. Call Precast Inspection Engineer at 651-366-5539 for additional information.		Precast/prestressed Concrete Structure (beams, posts, etc.) will be inspected and stamped at plant. Field personnel are responsible for checking for plant inspector's stamp, for shipping/handling damage or defects, and dimensions. An inspection report will be completed by plant personnel and sent to the field personnel.
	Fine Aggregate Gradation and Quality	3126	<u>Gradation</u> : 1 per 200 Cu. yd. or fraction thereof.  1 per day of production or 3 per week, whichever is less.	1 gradation and 1 quality test per month during production from a split sample. Include producer's gradation results on sample card.	25 lb.	
	Coarse Aggregate Gradation and Quality	3137	Gradation: 1 per 100 Cu. yd. or fraction thereof. 1 per day of production or 3 per week, whichever is less.	1 gradation and 1 quality test per month during production from a split sample. Include producer's gradation results on sample card.	25 lb.	

**IX. Geosynthetics, Pipe, Tile, and Precast/Prestressed Concrete (Cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2506	5. Manholes and Catch Basins (Construction)	2462 2506 3622	Field Inspection: Check for damage and defects. Check dimensions as required. Check for Producer's "Certified" stamp and signature on the certification document.	1 "companion" cylinder per month per plant during production, or cylinder testing machine, whichever is greater. Call Precast Inspection Engineer at 651-366-5539 for additional information.		<b>Form 02415 or 2403</b> Product will be certified by producer or inspected, tested and stamped at source. Only spot checks are done by plant inspector. Make certain the invoice or certification document is signed and the product has the required markings. Maintain Form 2403 or 02415 in project records, showing source of materials and type and quantity used (bricks, blocks, precast, or combination).
2502	6. Drain Tile (Clay or Concrete)	3276	Visual Inspection	2 samples of each size from each source		
2502 2503	7. Thermoplastic (TP) Pipe ABS and PVC	3245	Obtain Certificate of compliance. Check for approved marking printed on pipe. Field Inspect for damage or defects.	None		<b>Form 02415 or 2403</b> See Spec. 3245 for specific AASHTO or ASTM Pipe types are approved under this specification.
2502	8. Corrugated Polyethylene Pipe – Single wall for edge drains, etc.	3278	Check for markings (AASHTO M 252) Certificate of Compliance. Field Inspect for damage or defects.	No Laboratory tests required		<b>Form 02415 or 2403</b>
2503	9. Sewer Joint Sealing Compound	3724	None	1 per shipment	1 pint	
2412 2501 2503	10. Preformed Plastic Sealer for Pipe	3726 Type b	None	1 from each source	1 foot	
2412 2501 2503	11. Bituminous Mastic Joint Sealer for Pipe	3728	Visual Inspection	Sample, if questionable		
2106	12. EPS Geofoam	Special Provisions	Visual Inspection Check for yellow aged material, uniformity and dimensions. Weigh 1'x1'x1' cut coupon to verify density every 250 yd3	None		Form 02415 or 2403

**IX. Geosynthetics, Pipe, Tile, and Precast/Prestressed Concrete (Cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2501 2503	13. Plastic Pipe A. Corrugated Polyethylene (CP) – Dual Wall B. Polypropylene (PP) – Dual Wall C. Polyvinyl Chloride (PVC) – Profile Wall	3247  3246 3248	Inspect for damage or defects.  Deflection test no less than 30 calendar days after installation. Recommend test completed at least 5-10 calendar days prior to paving. Pipe cannot be deflected more than 5%.	None		Form P2501 Send form to State Hydraulic Engineer  PP, CP or PVC culvert and storm sewer pipe manufactures that meet structural requirements and are in compliance with AASHTO's National Transportation Product Evaluation Program (NTPEP) are listed on the APL/QPL.  A Certificate of Compliance in accordance with Specification 1603 is required.
2108 2511	14. Geotextile Fabric and Geogrid Reinforcement	3733 and Special Provisions	Inspect for damage and uniformity of texture. Rolls of both geotextile and geotextile wrapped PE Tubing must be wrapped in UV protective plastic. (Usually Black). Obtain Certificate of Compliance  If using adhesive for seams, see Approved/Qualified Product List available at the Department's website	(a) 1 per project for pipe wrap or trench lining for Permeable base designs. (b) 1 per 50,000 yd <sup>2</sup> of each type of fabric or geogrid. (c) Seam, if required, 1 per project.  Small Quantity Acceptance <ul style="list-style-type: none"> <li>For fabric totals &lt; 200 yd<sup>2</sup></li> <li>For pipe wrap totals &lt; 1000 Lin. Ft</li> <li>No sampling required</li> <li>Use Inspection Report for Small Quantities (Form 2403)</li> </ul> Check: <ul style="list-style-type: none"> <li>Certificate of Compliance</li> <li>Identifying label on product</li> <li>Geotextile Small Quantity Acceptance List at <a href="http://www.dot.state.mn.us/materials/aggregatedocs/gtxlist.pdf">http://www.dot.state.mn.us/materials/aggregatedocs/gtxlist.pdf</a></li> </ul>	(a) 10 Lin. Ft.  (b) 4 yd <sup>2</sup> *  (c) 10 Lin. Ft. **	Provide a Certificate of Compliance with minimum average roll values (MARV) for all specified geotextile properties. Values must meet Specification 3733 requirements for the specific application. Submit copy of Certificate with material samples & send to the CO Materials Laboratory.  Obtain a random sample with no more than 1 sample per individual roll. For Type 6 & special geosynthetics, submit pages of Special Provisions that list required material properties. For Modular Block Walls or Reinforced Soil Slopes, submit page(s) of shop drawings that reference geogrid/geotextile to be used (product name) and/or required properties.  * Do not sample first full turn of rolled product. ** Provide seam sample with 3 feet of geosynthetic material on each side of seam (in direction perpendicular to seam).

**X. Brick, Stone, and Masonry Units**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Sample Size	Notes
2506	1. Brick A. Sewer (clay) and Building	3612 to 3615	Visual Inspection	1 per 50,000 brick or fraction thereof	6 whole bricks	
2506	1. Brick B. Sewer (Concrete)*	3616	Visual Inspection	1 per shipment.	6 whole bricks	* Air entrainment required. Obtain air content statement from supplier.
2506	2. Concrete Masonry Units A. For Sewer Construction	3621	Visual Inspection	1 per shipment	6 whole units	Air entrainment required. Obtain air content statement from supplier.
2411	2. Concrete Masonry Units B. For Modular Block Retaining Walls	Special Provisions	Visual Inspection Check for cracks and broken corners	1 per 10,000 units or fraction thereof, with a minimum of one sample per product (block) type per contract.*	5 whole units	All lots of block upon delivery shall have Manufacturer or Independent laboratory test results to verify passing both compression and freeze-thaw requirements. * Wall units and cap units are considered separate block types.
2422	3. Reinforced Concrete Cribbing	3661	Concrete control tests Air Tests Visual Inspection if previously tested	1 cylinder per 100 units, but not less than 5 cylinders for a given contract. Other materials as required herein.	6 x 12 inch Cylinders	Form 02415 or 2403 Will be stamped when inspected prior to shipment.

Pay Item No.	Kind of Material	Spec. No.	Minimum Quality Control (Contractor Testing Rate)	Quality Assurance (Department)	Notes
2511 2512 2577	4A Class I – V Random Riprap.	3601 and/or Special Provisions	1 gradation per product per year of Class I – V Random Riprap, adhering to the requirements listed in Supplemental Specification 2511.3F.1.  Provide certification for each product, using Form G&B-104.	1 gradation per project, source and Class using D <sub>85</sub> method 5-692.210 in the Grading and Base Manual. Use Form G&B 108a.	See special provisions. For questions on quality, contact District Materials or Geology Unit.
	4B All other Riprap	3601 and/or Special Provisions	Provide certification for each product, using Form G&B-104.	Visual Inspection	See special provisions. For questions on quality, contact District Materials or Geology Unit.

**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545	1. Light Poles (Aluminum, Coated Steel, or Stainless Steel)	3811	Visual Inspection-verify product is as shown on MnDOT's APL/QPL for Lighting	None	The Fabricator shall submit "Certificate of Compliance", on a per project basis, to the Project Engineer. Materials should not be ordered until required shop drawings have been signed off by the Department. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2565	2. Signal Poles and Mast Arms	3831	Visual Inspection	None	The Fabricator shall submit "Certificate of Compliance", on a per project basis, to the Project Engineer. Materials should not be ordered until required shop drawings have been signed off by the Department. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2565	3. Signal Head Pedestal Pole	2565 Special Provisions	Visual Inspection verify product is as shown on MnDOT's APL/QPL for Signals	None	Signal Head Pedestal Poles are listed on MnDOT's APL/QPL for Signals
2545 2550 2565	4. Hand Holes for use in non-deliberate vehicular traffic applications (installed in sidewalk and along the roadside)	3819.2A	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None	<b>Form 02415 or 2403</b> Traffic control signals and lighting projects require handholes (HH) and frames and covers for use in non-deliberate vehicular traffic applications to be listed on the MnDOT APL/QPL for signals. See Standard Specifications for Construction 3819.
2545 2550 2565	5. Hand Holes (Concrete Precast) for use in deliberate heavy vehicular traffic applications.	2545 2550 2565		None	<b>Form 02415 or 2403</b> For precast concrete HH's and cast iron frame and cover: see Standard Plate 8117, VII.6, Drainage Castings and Standard Specifications for Construction 3819. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2545 2550 2565	6. Pulling Vaults and Splice Vaults (Polymer Concrete)	3820 3821	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None	<b>Form 02415 or 2403</b> Traffic control signals, roadway lighting projects, and traffic management systems require pulling vaults and splice vaults to be listed on MnDOT's APL/QPL for Traffic Management Systems/ITS
2545 2550 2565	7. Underground Non-Detectable Marking Tape	3806	Visual Inspection	None	Tape shall be labeled as required.

**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545 2565	8. Foundation	2545	Refer to Section IV. Concrete Field Testing – General Concrete Grades F, G, M, P, and R	Refer to Section IV. Concrete Field Testing – General Concrete Grades F, G, M, P, and R	Rebar is required in concrete foundations as specified in the Contract documents for all traffic control signals and roadway lighting projects. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2545 2565	9. Steel Screw in Foundations	2545 2565	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None	Steel Screw in Foundations are listed on MnDOT's APL/QPL for Lighting & Signals. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2402 2545 2550 2565	10. Conduit and Fittings Rigid Steel Conduit (RSC)	3801	Visual Inspection	None	<b>Form 02415 or 2403</b> Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Retain Form 02415 or 2403 in Project File. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2402 2545 2550 2565	12. Conduit and Fittings (Cont.) Non-Metallic Rigid PVC and HDPE Conduit <b>A.</b> Rigid PVC Conduit <b>B.</b> High Density Polyethylene (HDPE) Conduit	3803	Visual Inspection	None	<b>Form 02415 or 2403</b> Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Retain Form 02415 or 2403 in Project File
2402 2545 2550 2565	13. Conduit and Fittings (Cont.) Liquid Tight Flexible Non-Metallic Conduit (LFNC-B)	3804	Visual Inspection	None	<b>Form 02415 or 2403</b> Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Retain Form 02415 or 2403 in Project File

**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545 2565	14. Conduit and Fittings (Cont.)  PVC Coated Hot Dipped Galvanized Rigid Steel Conduit (PVC Coated RSC)	3805	Visual Inspection	None	<b>Form 02415 or 2403</b> Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Retain Form 02415 or 2403 in Project File. For traffic control signals and roadway lighting projects, specific requirements are contained in the Special Provisions for each project. Verify compliance with (23CFR635.410) Buy America requirements listed under Division S 1601 Special Provisions. Retain Certificate of Compliance and certified mill analysis in the project file.
2545 2565	15. Anchor bolts (cast in place) Epoxy Adhesive	3385			See section VII, 7.
2545 2565	16. Anchorages (Drilled In)	3885			See section VII, 9.
2545 2565	17. Accessible Pedestrian Signal (APS) Pushbutton Base Adhesive Anchoring System	2545 2565	Visual Inspection - verify product is as listed on MnDOT's APL/QPL	None	Traffic control signals require epoxy for securing anchor rods used for APS ped stations, service cabinets, and traffic control signal cabinets. Additionally, lighting projects require epoxy for securing anchor rods used for the service cabinets.
2545 2565	18. Anti-Seize and Lubricating Compound (Bridge Grease)	3842.2A	Visual Inspection - verify product is as listed on MnDOT's APL/QPL	None	Traffic control signals, roadway lighting projects, require Anti-Seize Compound to be listed on MnDOT's APL/QPL for Bridge
2545 2565	19. Conductor Anti-Oxidant Joint Compound	3842.2B	Visual Inspection	None	Traffic control signals, roadway lighting projects, require Anti-Oxidant Compound be used on grounding connections.
2545 2565	20. Ferrous Metal Electrically-Conductive Corrosion Resistant Compound	3842.2C	Visual Inspection	None	Traffic control signals, lighting projects, require Ferrous Metal Electrically-Conductive Corrosion Resistant Compound be used on rigid metal conduit threads and PVC coated rigid steel conduit threaded fittings.
2545 2565	21. Light Pole and Luminaire Numbering Labels	3844.2A	Visual Inspection - verify product is as listed on MnDOT's APL/QPL	None	Traffic control signals, lighting projects, require Light Pole and Luminaire Numbering Labels be used on all light poles and luminaires.

**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545 2565	22. Arc Flash Warning Labels	3844.2B.1 and 3844.2B.2	Visual Inspection - verify the self-adhering label has proper calculated values displayed as required	None	Traffic control signals, lighting projects, require the electrical service cabinet be labeled with the appropriate arc flash warning labels.
2545 2565	23. Available Fault Current Calculation Labels	3844.2C	Visual Inspection - verify the self-adhering label has proper calculated values displayed as required	None	Traffic control signals and lighting projects, require service cabinet be labeled with the calculated available fault current calculation labels.
2545 2565	24. Miscellaneous Hardware	2545 2565	Visual Inspection	Sample critical items only. One of each item per shipment. (Critical Items are load bearing, structurally necessary items.)	Will carry "Inspected" tag if sampled and tested prior to shipment. No sample necessary if "Inspected". Do not use if not tested. Field sample at sampling rate for laboratory testing. For traffic control signals and roadway light lighting projects, various miscellaneous hardware is required to be listed on the MnDOT Signals and Lighting APL/QPL. The Contract documents indicate which items must be on the Signals and/or Lighting APL/QPL.
2545 2550 2565	25. Cable and Conductors A. Service, Feeder, and Branch Circuit Conductors PVC Loop Detector Conductors Underground Service Entrance (USE) cables	3815.2B.1	Visual Inspection	None	<b>Form 02415 or 2403</b> Make certain the conductors are the type specified. Submit Field Inspection report showing type and quantities used. Shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL) and type where applicable. Ensure Service Entrance Cables (SE) and Underground Service Entrance Cables (SE) are installed in accordance with the NEC
2545 2550 2565	26. Cable and Conductors (Cont.) B. Electrical Cables and Single Conductors with Jacket	3815.2B.2(b) ) 3815.2B.3 3815.2B.5 3815.2C.1 3815.2C.3 3815.2C.4 3815.2C.5 3815.2C.6 3815.2C.7 3815.2C.8 3815.2C.14	Visual Inspection	1 per size per lot  Sample Size: 5 feet	<b>Form 02415 or 2403</b> Usually inspected at Distributor. Documentation showing project number, reel number(s), and MnDOT test number(s) will be included with each project shipment. If such documentation is not received from Contractor, submit sample for testing along with material certification from manufacturer. Do not use if not tested. Pre-inspected materials will not be tagged; an inspection report will be sent by the MnDOT inspector for each shipment. Project inspectors should verify that the shipping documents agree with this inspection report. Call the Concrete and Metals Lab at 651-366-5536 with questions.



**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545 2550 2565	27. Cable and Conductors (Cont.) C. Fiber Optic Cables	3815.2C.13	Visual Inspection - verify make and model number as shown in Special Provisions	None	<b>Form 02415 or 2403</b> Fiber optic cables shall be listed on the MnDOT APL/QPL for Traffic Management Systems/ITS.
	28. Saw Cut Loop Detector Conductors (Tube Loop Detector)	3815.2B.3	Visual Inspection	1 per size per lot Sample Size: 5 feet	<b>Form 02415 or 2403</b> Usually inspected at the distributor. Documentation showing project number, reel number(s), and MnDOT test number(s) will be included with each project shipment. If such documentation is not received from Contractor, submit sample for testing along with material certification from manufacturer. <u>Do not</u> use if <u>not</u> tested. Pre-inspected materials will <u>not</u> be tagged; an inspection report will be sent by the MnDOT inspector for each shipment. Project inspectors should verify that the shipping documents agree with this inspection report. Call the Physical Testing Engineer at 651-366-5540 or the Concrete and Metals Lab at 651-366-5536 with questions
2545 2565	29. Grounding Electrodes (Ground Rods) (Plate Electrodes)	2545 2565 3818	Visual Inspection	None.	<b>Form 02415 or 2403</b> Retain Form 02415 or 2403 in project file. Shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL).
2545	30. Luminaires	3810	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None.	<b>Form 02415 or 2403</b> Traffic control signals and roadway lighting projects require luminaries and lamps to be listed on the MnDOT APL/QPL for Lighting. The conductors shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL) and type, where applicable.
2545	31. Air Obstruction Lights	3816	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None.	Air Obstruction Lights are listed on MnDOT's APL/QPL for Lighting.
2545	32. Navigation Lanterns	3817	Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None.	Navigation Lanterns are listed on MnDOT's APL/QPL for Lighting.

**XI. Lighting Systems, Traffic Management Systems, and Traffic Control Signals Electrical Materials (cont.)**

Pay Item No.	Kind of Material	Spec. No.	Minimum Required Acceptance Testing (Field Testing Rate)	Minimum Required Sampling Rate for Laboratory Testing	Notes
2545 2565	33. Rodent Intrusion Barrier	3836	<b>A.</b> Ensure the stainless-steel woven wire cloth meets the requirements. <b>B.</b> Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL <b>C.</b> Visual Inspection - verify make and model number as shown on MnDOT's APL/QPL	None.	In both lighting and traffic control signal pole bases some type of rodent intrusion barrier is required. See Standard Specifications for Construction 3836.
2545 2565	34. Sponge Rubber Expansion Joint. Used for wrapping expansion and deflection/expansion conduit joints on bridges.	3841	Visual Inspection		
2545	35. Lighting System	2545			Lighting Systems are to be certified by the Project Engineer.
2545	36. Electrical Systems				Electrical Systems are to be certified by the Project Engineer.
2565	37. Traffic Control Signal Systems	2565			Traffic Control Signal Systems are to be certified by the Project Engineer.

Material	SMC Section	Sub Section	Page	Certification Required
All Base, Surface, and Granular Materials	I. Grading & Base	Many	2-9	Form G&B-104 (24346)
Plant Mixed Asphalt (PMA)	II. Bituminous	Many	10-14	All PMA from certified supplier <a href="http://www.dot.state.mn.us/materials/bituminous.html">www.dot.state.mn.us/materials/bituminous.html</a>
Shingles	II. Bituminous		11-12	Contractor shall provide documentation that of all RAS /TOSS (Tear Off Shingle) material is from a MPCA certified supplier.
Bituminous Material	II. Bituminous		15-16	Only Bituminous Materials from certified asphalt binder sources are allowed for use. The most current list of Certified Sources can at <a href="http://www.dot.state.mn.us/products">http://www.dot.state.mn.us/products</a>
Emulsified Asphalt	II. Bituminous		15	Use Emulsion for seal coat from a certified emulsified asphalt source.
Portland Cement Fly Ash Slag Cement Admixtures Clarified Water	IV. Concrete		25	Concrete Plant Batching Materials: All materials must come from certified approved, or qualified sources. All certified sources must state so on the Bill of Lading Delivery invoice including MnDOT standardized certification statement for cement, fly ash, and slag. The most current list of certified/approved sources can be found at <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a> .
Certified Ready Mix	IV. Concrete	Many	26-27	Contact Report from Ready-Mix Plant. All concrete from certified plant including a computerized certificate of compliance with each load.
Plastic for Curing	IV. Concrete		33	A Certificate of Compliance shall be submitted to the Project Engineer from the Manufacturer certifying that the plastic complies with AASHTO M171.
Profiler	Introduction IV. Concrete		1,37	Contractor provides MnDOT certified Inertial Profiler Results for bumps/dips and/or Areas of Localized Roughness for the entire project.
Aggregate for Low Slump Overlays	IV. Concrete		38	Aggregate pit numbers and 1 passing gradation result per fraction per source
Aggregate for Concrete Pavement Repair	IV. Concrete		39	Aggregate pit numbers and 1 passing gradation result per fraction per source
Aggregate for Dowel Bar Retrofits	IV. Concrete		40	Aggregate pit numbers and 1 passing gradation result per fraction per source
Plant Stock & Landscape Materials	V: Landscaping etc.	2	41	Several certifications
Silt Fence	V: Landscaping etc.	5	42	APL/QPL <a href="http://www.dot.state.mn.us/products">www.dot.state.mn.us/products</a>
Flotation Silt Curtain	V: Landscaping etc.	6	42	Manufacturers' certification of compliance
Mulch Type 3	V: Landscaping etc.	12	45	Certified Vendor by Minnesota Crop Improvement Association must be tagged grain straw only on label.
Mulch Type 6 Wood Chips	V: Landscaping etc.	13	42	Emerald Ash Borer Compliance Agreement with the MDA
Seeds	V: Landscaping etc.	14	43	Certified Vendor by Minnesota Crop Improvement Association must be tagged.
Seeds - Native	V: Landscaping etc.	14	43	Certified Vendor by Minnesota Crop Improvement Association must be tagged.
Sod	V: Landscaping etc.	15	43	A certified tag by Minnesota Crop Improvement Association for Salt tolerant sod. A certificate of Compliance for all other types of sod listing grass varieties.

Material	SMC Section	Sub Section	Page	Certification Required
Compost	V: Landscaping etc.	16	43	APL/QPL <a href="http://www.dot.state.mn.us/products/erosioncontrolandlandscaping/compost.html">http://www.dot.state.mn.us/products/erosioncontrolandlandscaping/compost.html</a>
Hydraulic Erosion Control Product	V: Landscaping etc.	18	43	If DNR Permit on project Certification of Compliance stating it is plastic/synthetic free.
Waterproofing material membrane waterproof system	VI: Chemical Items		44	Certificate and test results
Waterborne latex traffic marking paint	VI: Chemical Items		45	Certificate of Compliance
Epoxy traffic paint	VI: Chemical Items		45	Certificate of Compliance
Traffic marking paint	VI: Chemical Items		45	Certificate of Compliance
Non-traffic marking paint	VI: Chemical Items		45	Certificate of Compliance
Bridge structural steel paint	VI: Chemical Items		45	Certificate of Compliance
Exterior masonry paint	VI: Chemical Items		46	Certificate of Compliance
Noise wall stain	VI: Chemical Items		46	Certificate of Compliance
Drop-on glass beads	VI: Chemical Items		46	Certificate of Compliance
Pavement marking tape	VI: Chemical Items		46	Certificate of Compliance
Steel sign posts	VII: Metallic	2	47	Certification of domestic source if applicable under 1601
Posts for traffic or fence	VII: Metallic	3A	48	Certification of domestic source if applicable under 1601 For fence: Fence certification form (Optional)
Fence components	VII: Metallic	3B	48	Fence certification form (Optional)
Fence gates	VII: Metallic	3C	48	Fence certification form (Optional)
Fence barbed wire fabric	VII: Metallic	3D	48	Fence certification form (Optional)
Fence woven wire fabric	VII: Metallic	3E	48	Fence certification form (Optional)
Fence chain link wire fabric	VII: Metallic	3F	49	Fence certification form (Optional)
Reinforcing steel uncoated bars	VII: Metallic	5A	49	Certificate of Compliance & certified mill analysis
Reinforcing steel epoxy bars	VII: Metallic	5B	49	Inspected tag or Certificate of Compliance & certified mill analysis
Steel Fabric	VII: Metallic	5E	50	Certificate of Compliance
Dowel Bars	VII: Metallic	5F	50	Certificate of Compliance
Pre or post tensioning strand	VII: Metallic	5G	50	Mill analysis
Anchor rods & Structural Fasteners	VII: Metallic	7, 8	51	Yearly MnDOT passing test report

Material	SMC Section	Sub Section	Page	Certification Required
Timber & lumber	VIII: Miscellaneous	1	55	Certified on invoice
Bearing pads	VIII: Miscellaneous	4	55	Certificate of Compliance
Corrugated metal pipe	IX: Geosynthetics & Pipe	1A	56	Certified on invoice
Corrugated metal structural plate	IX: Geosynthetics & Pipe	1B	56	Certified on invoice
Corrugated metal aluminum plate	IX: Geosynthetics & Pipe	1C	56	Fabricator's Certificate and guarantee
Concrete pipe	IX: Geosynthetics & Pipe	3A	56	Certified stamp and certification document
Precast box culverts	IX: Geosynthetics & Pipe	4A	57	Stamped & field inspection report
Prestressed beams & posts, etc.	IX: Geosynthetics & Pipe	4B	57	Stamped & field inspection report
Manholes & catch basins	IX: Geosynthetics & Pipe	5	58	Certification document or stamped
Thermoplastic pipe ABS & PVC	IX: Geosynthetics & Pipe	7	58	Certificate of Compliance
Corrugated PE Pipe: Single wall – edge drains	IX: Geosynthetics & Pipe	8	58	Certificate of Compliance
Plastic Pipe – culverts or storm sewers: A. Corrugated Polyethylene (CP) B. Polypropylene (PP) C. Polyvinyl Chloride (PVC)	IX: Geosynthetics & Pipe	13	59	Certificate of Compliance
Geotextile fabric	IX: Geosynthetics & Pipe	14	59	Manufacturers' Certification of compliance
Brick sewer concrete	X: Brick, Stone, Masonry	1B	60	Air content statement
Concrete masonry units	X: Brick, Stone, Masonry	2A	60	Air content statement
Light poles	XI: Electrical & Signal	1	61	Certificate of Compliance
Cable & Conductors	XI: Electrical & Signal	7	64	Usually inspected at the distributor. Documentation showing project number, reel number(s), & MnDOT test number(s) will be included with each project shipment. If not received from Contractor, submit sample for testing along with manufacturers' material certification.
Electrical systems	XI: Electrical & Signal	14	66	Electrical Systems are to be reported as a "System" using the Lighting, Signal, and Traffic Recorder Inspection Report.
Traffic control signal systems	XI: Electrical & Signal	15	66	Traffic Control Signal Systems are to be reported as a "System" using the Lighting, Signal, and Traffic Recorder Inspection Report.

Section	Page	Section Name	Contact	Phone
Part I	Page 2	Grading, Base & Reclamation – Specifications 2106, 2111, 2112, 2118, 2211, 2212, 2215, 2221, and 2390	Terry Beaudry John Bormann	(651) 366-5456 (651) 366-5596
Website: <a href="http://www.dot.state.mn.us/materials/gradingandbase.html">www.dot.state.mn.us/materials/gradingandbase.html</a>				
Part II	Page 10	Bituminous - Spec. 2360	John Garrity	(651) 366-5577
Part II C	Page 15	Asphalt Binder	Allen Gallistel Jason Szondy	(651) 366-5545 (651) 366-5549
Website: <a href="http://www.dot.state.mn.us/materials/bituminous.html">www.dot.state.mn.us/materials/bituminous.html</a>				
Part III	Page 17	Bituminous Specialty Items	Joel Ulring Jerry Geib	(651) 366-5432 (651) 366-5496
Part IV	Page 24	Concrete – General Aggregates, Mix Designs and Certified Ready-Mix – Metro Certified Ready Mix – Greater MN North Certified Ready Mix – Greater MN South Paving Bridges Pavement Rehabilitation	Maria Masten Matt Herbst  Brad Swenson Mike Daniels Rob Golish Jake Gave Gordy Bruhn	(651) 334-4015 (651) 283-7127  (218) 232-1012 (320) 293-9421 (651) 216-0516 (612) 554-9289 (651) 398-9597
Website: <a href="http://www.dot.state.mn.us/materials/concrete.html">www.dot.state.mn.us/materials/concrete.html</a>				
Part V	Page 41	Landscaping and Erosion Control Items Erosion Control Landscaping Wood Chips	Ken Graeve Carol Zoff Tina Markeson	(612) 386-6101 (612) 449-0754 (651) 366-3619
Part VI	Page 44	Chemical Items	Allen Gallistel Jason Krogman	(651) 366-5545 (651) 366-5550
Part VII	Page 47	Metallic Materials and Metal Products Sampling Test Results Bridge Structural Metals	Jemal Jeju Laboratory Rich Karras	(651) 366-5539 (651) 366-5560 (651) 366-4569
Part VIII	Page 55	Miscellaneous Materials Sections 1 thru 3 Section 4 Test Results	Jemal Jeju Rich Karras Laboratory	(651) 366-5539 (651) 366-4569 (651) 366-5560
Part IX	Page 56	Geosynthetics, Pipe, Tile, and Precast/Prestressed Concrete Sections 1 -2, 6-11, & 13 Sections 3, 4 & 5 Section 12 Section 14 Test Results	Jemal Jeju Rich Lamb Blake Nelson Laboratory	(651) 366-5539 (651) 366-5595 (651) 366-5599 (651) 366-5560
Part X	Page 60	Brick, Stone and Masonry Units/Modular Retaining Wall Blocks Sections 1, 2A & 3 Section 2B Section 4 Test Results	Jemal Jeju Blake Nelson Andrea Hendrickson Laboratory	(651) 366-5539 (651) 366-5599 (651) 366-4466 (651) 366-5560
Part XI	Page 61	Electrical & Signal Sections 1, 8-11 Section 5 Section 3 Test Results	Susan Zarling Jemal Jeju Gordy Bruhn Laboratory	(651) 234-7052 (651) 366-5539 (651) 398-9597 (651) 366-5560

<b>Grading and Base</b>	
<b>Form No.</b>	<b>Form Name</b>
G&B – 001	Grading & Base Report
G&B – 002b	Random Sampling Acceptance for use with 2018 Spec Book
G&B – 101	Sieve Analysis
G&B – 103	Percent Crushing Report
G&B – 104	Certificate of Aggregates & Granular Materials
G&B – 105	Moisture Test
G&B – 106	Relative Moisture Test for Nuclear Gauge
G&B – 107	Excel Spreadsheet for Computing D60/D10 for Drainable Bases Specs 2212 and 3136
G&B – 203	(Table 2106.3-5) DCP Penetration Index Method
G&B – 204	(Table 2211.3-3) DCP Penetration Index Method
G&B – 205	2215 DCP Penetration Index Form – Full Depth Reclamation
G&B – 303	Moisture - Density (Proctor) Test
G&B – 304	Relative Density Test
G&B – 305	Estimated Optimum Moisture Content
G&B – 401	Depth Report – FDR, CIR, SFDR
G&B – 402	Yield Report Cement SFDR & CIR
G&B – 403	Yield Report Bitumen SFDR & CIR
G&B – 404	Foam AC Report
G&B – 405	SFDR Compaction Report
G&B – 601	LWD Option 1: Control Strip- Road Embankment
G&B – 602	LWD Option 1: Control Strip- Misc., Trench, Culvert, Tapered Construction

<b>Bituminous</b>	
<b>Form No.</b>	<b>Form Name</b>
2413	Asphalt Sample Identification Card
	Test Summary Worksheet
	QM Workbook
	Core Stationing Worksheet
	Core Incentive/Disincentive Worksheet
	Bituminous Profile Summary Worksheet
	Plant Certification Application
	Bituminous Batch Plant – Contact Report
	Dryer Drum Plant – Certification Report
	Daily Production Report
	Bituminous Plant Spotcheck
	Bituminous Plant Diary

<b>Concrete</b>	
<b>Form No.</b>	<b>Form/Workbook Name</b>
2409	ID Card Concrete Test Cylinder
21412	Weekly Report of “Low Slump Concrete”
24300	ID Card Cement Samples
24308	ID Card Fly Ash Samples
CONC-302	Aggregate Gradation Control Charts and Sample Log
CONC-304	Concrete Ready-Mix Plant QC Workbook
CONC-305	Concrete Ready-Mix Plant QA Workbook
	Concrete Profile Summary Worksheet
CONC-401	Air Content Workbook
CONC-402	Concrete Test Beam Data Worksheet
CONC-404	Thickness, Texture and MIT-SCAN Workbook
CONC-405	Coarse Aggregate Quality Incentive/Disincentive Workbook
CONC-409	W/C Ratio Calculation Workbook
CONC-410	QC - JMF Concrete Aggregate Workbook
CONC-411	QA- JMF Concrete Aggregate Workbook
CONC-501	Concrete Pavement Repair (CPR) Workbook
CONC-503	3U18 and 3U58M Quality Control Worksheet

<b>Miscellaneous</b>	
<b>Form No.</b>	<b>Form Name</b>
2410	Sample ID Card
02415	Inspection Report for Small Quantities (May be used for documentation or use another method to capture required documentation)
2403	Inspection Report for Small Quantities (May be used for documentation or use another method to capture required documentation)
	Certification Form for Type of Fence used (right side of page at website location below) <a href="http://www.dot.state.mn.us/materials/lab.html">www.dot.state.mn.us/materials/lab.html</a>
P2501	Plastic Pipe Installation and Mandrel Test Results



## Disadvantaged Business Enterprise (DBE) Special Provisions

Project Information	
<b>State Project Number:</b>	<b>This contract uses the following project delivery method:</b>
<b>This contract will be solicited and administered by:</b> <input type="checkbox"/> The Minnesota Department of Transportation (MnDOT) <input type="checkbox"/> A local governmental unit	<input type="checkbox"/> Design-bid-build (DBB) <input type="checkbox"/> Design-build (DB) <input type="checkbox"/> Construction Manager/General Contractor (CM/GC) <p style="text-align: center;"><b>OR</b></p> <input type="checkbox"/> This is a professional-technical (PT) services contract

### Introduction

**Federal Regulations Govern.** Some or all of the funds for this contract will come from the U.S. Department of Transportation (USDOT). Therefore, the federal Disadvantaged Business Enterprise (DBE) program described at Title 49, Part 26 of the Code of Federal Regulations (CFR) applies to this contract. The responder is responsible for understanding and following the requirements of 49 CFR Part 26.

**Purpose.** These special provisions (1) outline the responder's obligations under the federal DBE program, (2) explain the process MnDOT Office of Civil Rights (OCR) will follow to evaluate the responder's compliance with DBE program requirements, and (3) identify sanctions for failing to comply with DBE program requirements. These provisions apply *in addition to* any other requirements applicable to award of this contract.

**Policy Statement.** MnDOT must ensure nondiscrimination in the award and administration of federally eligible highway projects. The DBE program seeks to:

- Create a level playing field on which DBEs can compete fairly for federally eligible highway projects,
- Ensure that the DBE program is narrowly tailored,
- Ensure that only eligible firms are permitted to participate as DBEs,
- Help remove barriers to the participation of DBEs in federally eligible highway projects, and
- Provide flexibility in establishing and providing opportunities for DBEs.

**Contract Assurance.** The USDOT requires MnDOT, as a recipient of federal funds, to include the following paragraph in contracts for federally funded projects. It applies to the responder, and the responder must also include it in subcontracts the responder executes for this project.

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to, (1) withholding monthly progress payments, (2) assessing sanctions, (3) liquidated damages, and/or (4) disqualifying the contractor from future bidding as non-responsible.

**Application and Interpretation.** Terms must be interpreted as follows:

- "Responder" refers to the bidder, apparent low bidder, proposer, or apparent successful proposer.
- "Proposal" includes a bid, proposal or price proposal.

- “CRL” refers to AASHTOWare Project Civil Rights and Labor. For additional information about CRL, see **Attachment 5**.

**DBE Directory.** A directory of all certified DBEs in the state of Minnesota is available at the following link:

<http://mnucp.metc.state.mn.us/Default.aspx>

The Minnesota Unified Certification Program (MnUCP) maintains this directory. It is the definitive source of information regarding the DBE certification status of firms in Minnesota. A firm must be certified prior to contract execution in order to qualify for credit toward the DBE goal.

**False Claims.** The Federal False Claims Act (31 USC §§ 3729-3733) and Minnesota False Claims Act (Minn. Stat. § 15C.02) apply to statements and certifications the responder makes in connection with the DBE program.

## Before Contract Award

### *DBE Goal*

The DBE goal for this project is \_\_\_\_%. or ☐ Race/Gender Neutral

To be eligible for award of this contract, the responder must demonstrate that the responder has (1) obtained sufficient DBE participation to meet the DBE goal or (2) made adequate good faith efforts (GFE) to meet the DBE goal. The responder must submit the information specified in **Table A** in the time specified in **Table B**. If the contract has a specific numerical DBE participation goal, all responders must include their DBE commitment for the contract at the time the proposal is submitted. If the responder does not properly document the responder’s efforts or submit timely and complete documentation to MnDOT OCR, MnDOT must reject the responder’s bid.

### *Race/Gender Neutral Goal*

If the DBE goal is Race/Gender Neutral (RGN), all responders are encouraged to include their anticipated DBE utilization for the contract in their proposals. **Each responder will still be required to submit a bidders list of all subcontractors and suppliers (both DBE and non-DBE) on projects with an RGN goal.** While DBE participation is encouraged on proposals with an RGN goal, responders are not required to submit GFE documentation specified in **Table A, other than a bidders list (parts D and E of Exhibit B, the GFE Consolidated form)**. Payment information described in **Table C** is required on **all projects**.

### *DBE Credit*

DBE work may be counted toward the DBE goal for any of the following activities:

- hiring a DBE as a subcontractor or consultant to do project work,
- purchasing materials from a DBE (typically sixty percent of the supplier’s contracted amount will count toward the goal),
- leasing equipment from a DBE,
- entering into a joint venture with a DBE (this requires approval from OCR before bid opening), or
- using DBEs for other services specifically approved by OCR before bid opening.
- If the responder is an eligible DBE, the responder may count all work being self-performed towards the subcontractor goals on this project.

DBE credit is counted for work actually performed by a DBE. The DBE must perform a commercially useful function. **Attachment 1** describes how MnDOT will count DBE credit and how MnDOT will determine whether a DBE performs a commercially useful function.

<b>Table A – What to Submit to MnDOT</b>	
<input type="checkbox"/> <b>Design-bid-build administered by MnDOT</b>  <input type="checkbox"/> <b>Construction Manager/General Contractor administered by MnDOT</b>  <input type="checkbox"/> <b>Design-build administered by MnDOT</b>	<input type="checkbox"/> <b>Construction Contract administered by local governmental unit</b>  <input type="checkbox"/> <b>PT contract administered by MnDOT or local governmental unit</b>
<b>IF THE DBE GOAL IS MET</b>	<b>IF THE DBE GOAL IS MET</b>
<ul style="list-style-type: none"> <li>• Exhibit A for each DBE participating on the project</li> <li>• Parts A, B, C, D, and I of the GFE consolidated form</li> <li>• The responder must submit their bidders list or bidder/quoter information electronically via CRL. For this reason, the responder does not need to fill out parts E of the GFE consolidated form.</li> </ul>	<ul style="list-style-type: none"> <li>• Exhibit A for each DBE participating on the project</li> <li>• Parts A, B, C, D, E, and I of the GFE consolidated form</li> </ul>
<b>IF THE DBE GOAL IS NOT MET</b>	<b>IF THE DBE GOAL IS NOT MET</b>
<ul style="list-style-type: none"> <li>• Exhibit A for each DBE participating on the project</li> <li>• Parts A, B, C, D, F, G, H and I of the GFE consolidated form</li> <li>• The responder must submit the bidders list or bidder/quoter information electronically via CRL. For this reason, the responder does not need to fill out part E of the GFE consolidated form.</li> <li>• Any additional information that will help explain the responder's efforts to obtain DBE participation (ONLY IF the responder does not meet the DBE goal)</li> </ul>	<ul style="list-style-type: none"> <li>• Exhibit A for each DBE participating on the project</li> <li>• Parts A, B, C, D, E, F, G, H and I of the GFE consolidated form</li> <li>• Any additional information that will help explain the responder's efforts to obtain DBE participation (ONLY IF the responder does not meet the DBE goal)</li> </ul>

**Table B – When and How to Submit Information to MnDOT**

<input type="checkbox"/> <b>Design-bid-build</b>	<input type="checkbox"/> <b>Professional-technical</b>
<p><b><u>Date and Time</u></b> The submission due date is the 5<sup>th</sup> calendar day after the bid due date. <b>Documentation is due before 4:30 PM Central Time on the 5<sup>th</sup> calendar day after the bids are due.</b></p> <p><b><u>Format and Location</u></b> The responder can submit documents via email, fax, hand delivery, or U.S. mail. Submit to MnDOT OCR as follows:</p> <p>Email: ocrformsubmissions.DOT@state.mn.us</p> <p>Fax: <b>651-366-3129.</b></p> <p>To hand-deliver or submit by U.S. mail, address printed documents to <b>MnDOT Office of Civil Rights, 395 John Ireland Boulevard, Mail Stop 170, St. Paul, MN 55155.</b> Submissions by U.S. mail will satisfy the timing requirement if <u>postmarked</u> by the time specified in the “Date and Time” section above.</p>	<p><b><u>Date and Time</u></b> The submission due date is the 5<sup>th</sup> calendar day after the successful responder is notified by MnDOT. <b>Documentation is due before 4:30 PM Central Time on the 5<sup>th</sup> calendar day after the date of the successful responder letter/email issued by MnDOT.</b></p> <p><b><u>Format and Location</u></b> The responder can submit documents via email, fax, hand delivery, or U.S. mail. Submit to MnDOT OCR as follows:</p> <p>Email: ocrformsubmissions.DOT@state.mn.us</p> <p>Fax: <b>651-366-3129.</b></p> <p>To hand-deliver or submit by U.S. mail, address printed documents to <b>MnDOT Office of Civil Rights, 395 John Ireland Boulevard, Mail Stop 170, St. Paul, MN 55155.</b> Submissions by U.S. mail will satisfy the timing requirement if <u>postmarked</u> by the time specified in the “Date and Time” section above.</p>
<input type="checkbox"/> <b>Construction Manager/General Contractor</b>	<input type="checkbox"/> <b>Design-build</b>
<p><b><u>Date and Time</u></b> The submission due date is the letting date. <b>Documentation is due before 4:30 PM Central Time on the letting date.</b> Subsequent bid packages are due no later than 4:30 PM on the fifth calendar day following the letting of that bid package.</p> <p><b><u>Format and Location</u></b> The responder can submit documents via email, fax, hand delivery, or U.S. mail. Submit to MnDOT OCR as follows:</p> <p>Email: ocrformsubmissions.DOT@state.mn.us</p> <p>Fax: <b>651-366-3129.</b></p> <p>To hand-deliver or submit by U.S. mail, address printed documents to <b>MnDOT Office of Civil Rights, 395 John Ireland Boulevard, Mail Stop 170, St. Paul, MN 55155.</b> Submissions by U.S. mail will satisfy the timing requirement if <u>postmarked</u> by the time specified in the “Date and Time” section above.</p>	<p><b><u>Date and Time</u></b> The submission due date is 9:30AM on the Price Proposal due date. <b>Documentation is due no later than 9:30AM on the Price Proposal due date.</b></p> <p><b><u>Format and Location</u></b> See the Design-Build “Instructions to Proposers” for format and location delivery specifics.</p>
<b>On All Projects</b>	
If the date the responder’s submission is due is a Saturday, Sunday, federal holiday, or Minnesota state holiday, the documentation is due on the next calendar day that is not a Saturday, Sunday, federal holiday, or Minnesota state holiday.	
The responder may submit a written request for an extension from the Director of MnDOT Office of Civil Rights for good cause shown. However, until the responder receives written approval of their request, the due date for its submission remains as specified above.	

If the responder does not meet the DBE goal, MnDOT OCR will conduct a Good Faith Efforts (GFE) review to determine whether the responder made adequate GFE to meet the goal based on the documentation the responder has provided by the submission due date. The standards MnDOT OCR will use to evaluate GFE are described in **Attachment 2**. Also, if MnDOT OCR determines that the responder did not make adequate GFE to meet the goal, the responder will be deemed non-responsible. The responder may request an administrative reconsideration of that determination. The process for administrative reconsideration is described in **Attachment 3**.

## **After Contract Award**

### *DBE Commitments, Termination, and Replacement*

The DBE Description of Work and Field Monitoring Report (Exhibit A) commits the responder to using the specified DBEs to perform work or supply materials. This commitment is binding on the responder unless the responder requests and is granted written approval from MnDOT OCR. If the responder fails to use a specified DBE for the amount of compensation the responder has specified in the Exhibit A form, without requesting and receiving written approval from MnDOT OCR, the responder has materially breached this contract and may not be entitled to payment for the work or materials that were committed to be performed by the DBE.

MnDOT OCR will not approve the responder's request to terminate a DBE unless the responder (1) gives written notice to the DBE, with a copy to MnDOT OCR, of the responder's intent to request to terminate the DBE's subcontract, (2) allow at least five business days for the DBE to advise the responder and MnDOT OCR of the reasons, if any, it objects to the proposed request to terminate, (3) demonstrate good cause to terminate the DBE as described in **Attachment 4**, and (4) either replace the DBE with another DBE for at least as much compensation as the initially specified DBE or make GFE to do so. MnDOT OCR will use the GFE standards described in **Attachment 2** to determine whether the responder made GFE. MnDOT OCR may shorten the five-day DBE response period if there is a public necessity. The responder may request assistance from MnDOT OCR to identify available replacement DBEs.

If the responder is involved in a negotiated procurement with MnDOT, the responder must obtain written approval from MnDOT as described in this section before deleting or substituting a DBE the responder has identified as part of a negotiation package. The responder must notify MnDOT OCR of any changes or substitutions to DBE participation, including changes occurring during the negotiation phase of the contract.

### *Continuing Good Faith Efforts*

After contract award, the Contractor has a continuing obligation to make adequate good faith efforts to meet the DBE goal for the duration of the contract. Good faith efforts are explained in **Attachment 2**. To receive credit for DBE participation added after award, the responder must report the participation to MnDOT OCR and submit a DBE Description of Work and Field Monitoring Report (Exhibit A).

### *Prompt Payment to Subcontractors*

The responder must pay each subcontractor no later than 10 business days of receiving payment for undisputed services provided by the subcontractor. This applies to all subcontractors. The responder must pay the subcontractor interest charges of 1.5 percent per month, or any part of a month, on any undisputed amount not paid within 10 days. The responder must make prompt and full payment of any retainage kept by the prime contractor to the subcontractor within 10 days after the subcontractor's work is satisfactorily completed "Satisfactorily completed" means all tasks identified in the subcontract have been accomplished and documented as required by MnDOT. If MnDOT has incrementally accepted a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

The responder must report payment information as specified in **Table C**. **If the responder fails to comply with prompt payment requirements, including reporting requirements, the responder has materially breached this contract.**

Furthermore, verification of the responder's final payment to each subcontractor is a condition of final clearance from MnDOT OCR and final payment from MnDOT.

<b>Table C – Required Payment Submissions</b>	
<input type="checkbox"/> <b>Design-bid-build administered by MnDOT</b> <input type="checkbox"/> <b>Construction Manager/General Contractor administered by MnDOT</b> <input type="checkbox"/> <b>Design-build administered by MnDOT</b>	<input type="checkbox"/> <b>Construction Contract administered by local gov't unit</b> <input type="checkbox"/> <b>PT contract administered by MnDOT</b>
<p>Within 10 business days of the responder's receipt of MnDOT payment:</p> <ul style="list-style-type: none"> <li>the responder must submit information about individual payments to subcontractors via CRL.</li> </ul> <p>When final payment has been made to subcontractors:</p> <ul style="list-style-type: none"> <li>the responder must submit information about the responder's final payment to each subcontractor via CRL.</li> <li>the responder must submit a Total Payment Affidavit to MnDOT OCR after final payment to all DBE subcontractors.</li> </ul> <p>To fax your submission, use <b>651-366-3129</b>.</p> <p>To email your submission, attach documents as PDFs and send to <a href="mailto:ocrformsubmissions.dot@state.mn.us">ocrformsubmissions.dot@state.mn.us</a></p> <p>To submit by U.S. mail, address printed documents to <b>MnDOT Office of Civil Rights, 395 John Ireland Boulevard, Mail Stop 170, St. Paul, MN 55155</b>.</p>	<p>Within 10 business days of the responder's receipt of MnDOT or Local Government Unit payment:</p> <ul style="list-style-type: none"> <li>the responder must submit a Contractor Payment Form to MnDOT after each payment to a subcontractor.</li> </ul> <p>When final payment has been made to all subcontractors:</p> <ul style="list-style-type: none"> <li>the responder must submit a Total Payment Affidavit to MnDOT OCR after final payment to all DBE subcontractors.</li> </ul> <p>To fax your submission, use <b>651-366-3129</b>.</p> <p>To email your submission, attach documents as PDFs and send to <a href="mailto:ocrformsubmissions.dot@state.mn.us">ocrformsubmissions.dot@state.mn.us</a></p> <p>To submit by U.S. mail, address printed documents to <b>MnDOT Office of Civil Rights, 395 John Ireland Boulevard, Mail Stop 170, St. Paul, MN 55155</b>.</p>

## Appendices

### *Explanatory Attachments*

- Attachment 1 – Counting and Commercially Useful Function
- Attachment 2 – Good Faith Efforts Documentation and Standards
- Attachment 3 – Administrative Reconsideration
- Attachment 4 – Good Cause to Terminate a DBE
- Attachment 5 – Information about AASHTOWare Project CRL

### *Forms*

- Exhibit A – DBE Description of Work and Field Monitoring Report
- Exhibit B – GFE Consolidated Form (Parts A-I)
- Exhibit C – Contractor Payment Form
- Exhibit D – Total Payment Affidavit

## **Attachment 1 – Counting and Commercially Useful Function**

### **DBE Counting – Generally**

- (a) When a DBE participates in a contract, MnDOT will only count the value of the work actually performed by the DBE toward DBE goals.
1. The entire amount of the portion of a construction contract (or other contract not covered by paragraph 49 C.F.R. § 26.55(a)(2)) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies, and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).
  2. The entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, counts toward DBE goals, provided that MnDOT determines the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.
  3. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontract work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm will not count toward DBE goals.
- (b) When a DBE performs as a participant in a joint venture, MnDOT will count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.
- (c) If a firm is not currently certified as a DBE in accordance with the standards of 49 CFR Part 26 subpart D at the time of execution of the contract, MnDOT will not count the firm's participation toward any DBE goals.
- (d) The dollar value of the work performed under a contract with a firm after it has ceased to be certified will not be counted toward the overall goal.
- (e) MnDOT will not count the participation of a DBE subcontractor toward the responder's final compliance with the responder's DBE obligations on a contract until the responder has paid the amount to the DBE.

### **DBE Counting – Materials and Supplies**

- (f) MnDOT will count the responder's expenditures with DBEs for materials or supplies toward DBE goals as follows.
1. MnDOT will count 100% of the cost of the materials or supplies toward DBE goals if the responder obtains the materials or supplies from a DBE manufacturer.
  2. For purposes of this section (f), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described in the specifications.
  3. If the responder purchases the materials or supplies from a DBE regular dealer, MnDOT will count 60% of the cost of the materials or supplies toward DBE goals.
  4. For purposes of this section (f), a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the

specifications and required under the contract are bought, kept in stock, and regularly sold to or leased to the public in the usual course of business.

- A. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
- B. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating, or maintaining a place of business as provided in 49 C.F.R. §26.55(e)(2)(ii) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long -term lease agreement and not on an ad hoc or contract-by-contract basis.
- C. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this section (e).
- D. If a DBE firm is supplying bulk materials such as petroleum products, steel, cement, gravel, stone or asphalt which are delivered to the project site or a commercial establishment for processing or storage prior to reaching the project site, the firm will receive 60% credit only for the total cost of materials and associated hauling used on this contract.

(g) With respect to materials or supplies the responder purchases from a DBE which is neither a manufacturer nor a regular dealer, MnDOT will count the entire amount of fees or commissions the responder pays for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided MnDOT determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. MnDOT, however, will not count any portion of the cost of the materials or supplies themselves toward DBE goals.

### **Commercially Useful Function – Generally**

(h) MnDOT will count expenditures of a DBE toward DBE goals only if the DBE performs a commercially useful function on the contract.

- 1. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the materials, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, MnDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and DBE credit claimed for its performance of the work, and other relevant factors.
- 2. A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which the funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, MnDOT must examine similar transactions, particularly those in which DBEs do not participate.
- 3. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, MnDOT must presume that it is not performing a commercially useful function.



4. When a DBE is presumed not to be performing a commercially useful function as provided in the preceding paragraph, the DBE may present evidence to rebut this presumption. MnDOT may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.
5. MnDOT decisions regarding commercially useful function are subject to review by the concerned operating administration but are not administratively appealable to DOT.

### **Commercially Useful Function – Trucking**

(i) MnDOT will use the following factors to determine whether a DBE trucking company performs a commercially useful function.

1. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of the meeting DBE goals.
2. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
3. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures and operates using drivers it employs.
4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
5. The DBE may lease trucks equipped with drivers from a non-DBE firm. In such a case, the DBE is entitled to credit for the total value of transportation services provided by the non-DBE firm not to exceed the value of transportation services provided by DBE-owned trucks or leased trucks with DBE employees. Additional participation by trucks and drivers from non-DBE firms will receive credit only for the fee or commission paid to the non-DBE firm as a result of the lease arrangement.
6. The DBE may also lease trucks without drivers from a non-DBE firm. If the DBE firm uses its own employees to drive the leased trucks, the DBE firm is entitled to credit for the full value of the transportation services.
7. For purposes of this section, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for the use of the leased truck. Leased trucks must display the name and identification number of the DBE.

## Attachment 2 – Good Faith Efforts Documentation and Standards

If the responder's DBE commitment falls short of the DBE goal, the responder must demonstrate adequate good faith efforts (GFE) in order to be eligible for contract award (49 CFR § 26.53). To demonstrate that the responder made adequate GFE, the responder must show documentation that the responder took all necessary and reasonable steps to achieve the DBE goal which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if the responder were not fully successful.

The efforts employed by the responder should be those that one could reasonably expect the responder to take if the responder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere *pro forma* efforts are not good faith efforts to meet the contract requirements. The GFE consolidated form, attached to these provisions as Exhibit B, provides a helpful start to the responder's documentation, **but the responder is not limited to the information specified in the consolidated form.**

When the responder submits GFE documentation, the responder must explain the relevance of any documents the responder submits that are not mentioned in these special provisions or the related forms. **Responder is encouraged to submit ALL information that supports good faith efforts with an explanatory narrative.** Only documentation provided to MnDOT OCR by the submission due date can be considered by MnDOT to determine GFEs.

### Good Faith Efforts Evaluation

MnDOT will consider the actions listed below when evaluating the responder's GFE documentation. This list closely resembles a list in 49 CFR Part 26, Appendix A. The listed actions are consistent with GFE, but the list is not a mandatory checklist, nor is it intended to be exclusive or exhaustive. MnDOT will also consider the performance of other bidders relative to the DBE goal. Other factors or types of efforts may be relevant in appropriate cases. MnDOT will make GFE determinations on a case-by-case basis.

(a) **Conducting market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified DBEs that have the capability to perform the work of the contract.** This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to DBEs that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project. The bidder should solicit this interest as early as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. The bidder should determine with certainty if the DBEs are interested by taking appropriate steps to follow up on initial solicitations.

(b) **Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved.** This includes, where appropriate, breaking out contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.

(c) **Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract.**

(d) **Negotiating in good faith with interested DBEs.** It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE

goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

**(e) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities.** The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals. A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

**(f) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.**

**(g) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.**

**(h) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.**

#### **Notification of MnDOT Decision**

After reviewing the responder's GFE documentation and the performance of other bidders relative to the DBE goal, the Director of MnDOT OCR, or his or her designee, will determine whether the responder met the DBE goal or made adequate GFE. MnDOT OCR will mail the Director's determination to the responder approximately 15 business days after the responder's submittals are received. If the Director determines that the responder failed to meet the DBE goal or make adequate GFE, MnDOT OCR will send the notice by certified U.S. mail.

### **Attachment 3 – Administrative Reconsideration**

If the Director determines that the responder failed to make adequate good faith efforts (GFE), the responder may request administrative reconsideration of that determination (49 CFR §26.53(d)).

#### **Requesting Reconsideration**

The responder's request for reconsideration must be written and timely. Otherwise, the responder will be deemed to have waived the right to reconsideration.

If the responder sends the request by fax or personal delivery, MnDOT must **receive** it no later than 4:30 PM on the fifth business day after the responder receives notice of the Director's determination. If the responder sends the responder's request by U.S. mail, it must be postmarked no later than the fifth business day after the responder receives notice of the Director's determination. The responder is deemed to have notice as of the date indicated on the certified mail receipt signed by the responder or the responder's representative at the time of delivery.

The responder's written request must be submitted to the attention of:

**MnDOT Deputy Commissioner at:** MnDOT, 395 John Ireland Blvd., St. Paul, MN 55155; or by fax at 651-366-4795.

**A copy of the same request must be sent to the Director of the MnDOT Office of Civil Rights** at 395 John Ireland Blvd., St. Paul, MN 55155 or by fax at 651-366-3129.

#### **Reconsideration Process**

The Commissioner of MnDOT will designate officials to serve as Reconsideration Officials. The Reconsideration Officials shall not have any role in the original determination that the responder failed to meet the DBE goal or make adequate GFE to do so.

As part of the reconsideration process, the responder will have the opportunity to:

- Provide the Reconsideration Officials written documentation and arguments as to why the responder believe the responder met the DBE goal or made adequate GFE to do so (49 CFR § 26.53(d)(1)).
- Meet in person with the Reconsideration Officials to explain why the responder believes the responder met the DBE goal or made adequate GFE to do so (49 CFR § 26.53(d)(3)).

The Reconsideration Officials will reconsider the record documenting the GFE the responder made. The reconsideration process is a review of only the GFE the responder made as of the submission due date specified in **Table B**. GFE made after that date will not be considered.

MnDOT will provide the responder with a written decision **within 5 business days following the date the responder is scheduled to meet with the Reconsideration Officials**. The written decision will include an explanation of reasons for the decision. The decision is not subject to administrative appeal to the U.S. Department of Transportation (49 CFR § 26.53(d)(5)).

#### **Attachment 4 – Good Cause to Terminate a DBE**

The responder may not, without written approval from MnDOT OCR, terminate or replace a DBE whose participation the responder represented in the original DBE commitment. MnDOT OCR will not approve a request to terminate or replace a DBE unless the responder demonstrates good cause to do so. In accordance with 49 CFR § 26.53(f), good cause includes the following circumstances.

- (a) The DBE subcontractor fails or refuses to execute a written contract;
- (b) The DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work in the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (c) The DBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
- (d) The DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (e) The DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR parts 180, 215 and 1,200 or applicable state law;
- (f) OCR has determined that the DBE subcontractor is not a responsible contractor;
- (g) The DBE subcontractor voluntarily withdraws from the project and provides to OCR written notice of its withdrawal;
- (h) The DBE is ineligible to receive DBE credit for the type of work required;
- (i) A DBE owner dies or becomes disabled with the result that the DBE contractor is unable to complete its work on the contract; or
- (j) Other documented good cause that MnDOT OCR determines compels the termination of the DBE subcontractor.

**Good cause does not exist if the responder seeks to terminate a DBE represented in the responder's DBE commitment so the responder can self-perform or transfer to another subcontractor work originally committed to the DBE.**

## **Attachment 5 – Information about AASHTOWARE Project CRL**

### **General Information**

AASHTOWare Project Civil Rights Labor (CRL) is a web-based system that currently allows contractors to submit electronic payroll, subcontract and subcontractor payment information, and Bidder/Quoter submittals.

Design-bid-build construction contracts let by MnDOT, advertised after July 1, 2013, report information through the CRL system.

More information regarding CRL requirements can be found in the MnDOT Standard Specifications for Construction: *Electronic Submission of Payrolls and Statements and Bidders Lists for Federally Funded Projects*.

### **Registration and Training**

Information on annual contractor training, vendor and user registration, system support, forms, and manuals can be found at:

<https://www.dot.state.mn.us/const/labor/civil-rights-labor.html>

MnDOT also provides access to a CRL Interactive E-learning Tool at:

<https://www.dot.state.mn.us/onlinelearning/lcu/crl/>



## Exhibit A - DBE Description of Work and Field Monitoring Report

A contract will not be awarded to the Prime Contractor unless this form is submitted with a signed subcontract, purchase order, or affidavit for each DBE participating in the contract. This form is complete when the DBE subcontractor has filled in **all of the applicable information in sections A through D and signed in section E.**

PLEASE PRINT CLEARLY OR TYPE.

**Section (A):** (All DBE subcontractors, including trucking firms, must complete this section.)

### MUST BE COMPLETED BY THE DBE PRINCIPAL

Letting Date: \_\_\_\_\_ State Project Number: \_\_\_\_\_

Prime Contractor: \_\_\_\_\_ Phone #: \_\_\_\_\_

DBE Subcontractor: \_\_\_\_\_ Phone #: \_\_\_\_\_

DBE Principal Name: \_\_\_\_\_ Total Subcontract \$: \_\_\_\_\_

DBE Participation Claimed: Percent \_\_\_\_\_% Amount \$ \_\_\_\_\_

**Section (B):** (All DBE subcontractors, including trucking firms and suppliers, must complete this section.)

- Did you bid and sign a subcontract agreement with the above-named prime contractor? \_\_\_\_\_
- List the line items to be performed and the associated North American Industry Classification System (NAICS) codes for each item:

Scope of Work	Associated NAICS Code

- If equipment to be used is not owned by your firm, please provide the following information:
  - Will you be renting or leasing any of the following: (Attach a copy of the lease or rental agreement(s).  
Equipment \_\_\_\_\_ Insurance \_\_\_\_\_ Operator \_\_\_\_\_ or Maintenance \_\_\_\_\_
  - Lessor's name: \_\_\_\_\_  
Amount to be paid: \_\_\_\_\_ Number of days to be used: \_\_\_\_\_
- Will there be any other firm(s) providing work listed in your (DBE) subcontract?  
If yes, answer the following: Firm's Name: \_\_\_\_\_ \$ amount of the work: \_\_\_\_\_
- What is the name of the person supervising your work on this project? \_\_\_\_\_  
Is this your employee? \_\_\_\_\_
- Is your firm purchasing materials (including Bulk Materials such as AC Oil, Cement, Gravel, etc.) to be supplied or installed on the project?  
YES \_\_\_\_\_ NO \_\_\_\_\_ (If "Yes" Complete **Section C** below)

**Section (C)** (DBE firms purchasing or supplying materials on the project complete this section.)

Please submit Purchase Agreement, Materials Invoice, or Purchase Order from manufacturer(s) or primary material supplier(s).

- What material(s) are you supplying? \_\_\_\_\_
- Total dollar amount of materials to be supplied? \_\_\_\_\_
- Who are you purchasing the materials from? \_\_\_\_\_
- What is the quantity of material to be purchased? \_\_\_\_\_
- Where are the materials being delivered? (ie. project site or plant) \_\_\_\_\_
- Is the delivery equipment owned and operated by your firm? YES \_\_\_\_\_ NO \_\_\_\_\_  
If not, who owns and operates the equipment? \_\_\_\_\_

**Section (D) TO BE COMPLETED ONLY BY DBE TRUCKING FIRMS AND MATERIAL HAULERS**

1. The number of hours contracted or quantities to be hauled on this project? \_\_\_\_\_
2. How many fully operational units will be used on this Project? \_\_\_\_\_ (Tractor/trailers: \_\_\_\_\_ Dump trucks: \_\_\_\_\_)
3. How many fully operational units will be yours? \_\_\_\_\_ (Dump trucks: \_\_\_\_\_ Tractors/trailers: \_\_\_\_\_)
4. How many other units will be yours? \_\_\_\_\_ (Tractors: \_\_\_\_\_ Trailers: \_\_\_\_\_)
5. How many ITOs will be used on this project? \_\_\_\_\_ (Tractors: \_\_\_\_\_ Trailers: \_\_\_\_\_ Dump Trucks: \_\_\_\_\_)

	<b>Name of DBE ITOs (add a list if necessary)</b>	<b>Dollar Amount of Contract/Agreement</b>	<b>Number of Dump Trucks, Tractors/Trailers (specify)</b>
1.			
2.			
3.			
4.			

**Section (E):** (All DBE subcontractors, including trucking firms, must complete this section.)

I hereby certify that the information presented above is correct. I agree to inform the Office of Civil Rights in writing of any change within 10 days of the change.

DBE Company: \_\_\_\_\_

DBE Principal: \_\_\_\_\_  
 \_\_\_\_\_ Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

**Section (F): TO BE COMPLETED BY MnDOT OFFICE OF CIVIL RIGHTS STAFF PERSON**

Reviewed by OCR: \_\_\_\_\_

OCR Main Phone No: 651-366-3073

Email for OCR Forms: OCRFormSubmissions.DOT@state.mn.us

**Section (G): TO BE COMPLETED BY PROJECT ENGINEER WHEN THE DBE'S PORTION OF WORK IS 1/3 TO 1/2 COMPLETED**

1. Does it appear that the DBE firm is performing the work specified in (Exhibit "A") description of work?  
 Yes \_\_\_\_\_ No \_\_\_\_\_
2. Does it appear that the DBE contractor is managing their portion of the project and using their own company employees?  
 Yes \_\_\_\_\_ No \_\_\_\_\_
3. Does it appear that the DBE contractor is providing the equipment for their items of work or other work specified?  
 Yes \_\_\_\_\_ No \_\_\_\_\_
4. Does it appear that the quality of the DBE contractor's performance, scheduling and project management are meeting industry standards?  
 Yes \_\_\_\_\_ No \_\_\_\_\_
5. If the DBE is supplying materials, are the quantities proportionate for what is required on the project (refer to **Section C** above)?  
 Yes \_\_\_\_ No \_\_\_\_
6. Comments: \_\_\_\_\_  
 \_\_\_\_\_

**NOTE:** If you, as the Project Engineer, have checked "NO" to any of the above questions or have any other comments, it is important that you contact the MnDOT Office of Civil Rights Staff Person assigned to this project.

Project Engineer: \_\_\_\_\_ Date: \_\_\_\_\_



## Exhibit B - Office of Civil Rights - Good Faith Efforts Consolidated Form

**(Includes Parts A-I)**

This form will assist you in demonstrating that you met the DBE goal or made adequate good faith efforts to meet the goal. You must provide this form and all supporting GFE documentation to the MnDOT Office of Civil Rights prior to the submission due date identified in **Table B** of the DBE Special Provisions.

<b>PART A – PRIME CONTRACTOR’S INFORMATION (You must complete this part.)</b>				
COMPANY NAME				
ADDRESS	STREET	CITY	STATE	ZIP CODE
PHONE #	FAX #	EMAIL ADDRESS		
CONTACT PERSON		TITLE		

<b>PART B - PROJECT DESCRIPTION (You must complete this part.)</b>			
STATE PROJECT #	CONTRACT # (If Applicable)	<input type="checkbox"/> Attach copy of MnDOT Advertisement	
ANTICIPATED START DATE (Based on progress schedule)		EXPECTED COMPLETION DATE (Based on progress schedule)	
DBE GOAL	%	DBE COMMITMENT	(Type of GFE Information – Check one only) <input type="checkbox"/> Pre-award <input type="checkbox"/> Post-award/Execution
	VS		
TOTAL DBE PARTICIPATION DOLLARS BASED ON ADVERTISED DBE GOAL (Total prime bid \$ * DBE % Goal)			

<b>PART C – PROJECT SUMMARY AMOUNTS (You must complete this part.)</b>	
TOTAL PRIME BID	\$
TOTAL DOLLARS COMMITTED TO NON-DBE’S (Not including suppliers)	\$
TOTAL DOLLARS COMMITTED TO DBE’S (Not including suppliers)	\$
TOTAL DOLLARS COMMITTED TO DBE SUPPLIERS (Total paid to DBE suppliers 60%)	\$
WORKED PERFORMED BY PRIME	\$
PERCENT OF WORK PERFORMED BY PRIME	%
TOTAL DBE PARTICIPATION REMAINING (Difference between DBE goal \$ and DBE commitment \$ )	\$

State Project Number:

Contractor:

**PART D – BIDDERS LIST - DBE QUOTES SUBMITTED** (You must complete this part. If the project is let by MnDOT, you must submit information through the AASHTOWare Project CRL about all bids/quotes you have received and enter your DBE Commitments on this form.)

DBE COMMITMENTS							
List all DBE firms who provided quotes or bid proposals. Indicate whether the quotes were accepted. Please include a copy of their quote(s).							
DBE Contractor Information					Description of Work	Dollar Amount Of Bid/Proposal.	Will Firm Be Used?
1.	DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax:				
2.	DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax				
3.	DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax				
4.	DBE Contractor Name						Yes
	Contact Name						
	Address:						
	Federal Tax #		E-mail				
	Phone		Fax				

Make additional copies of this page as necessary

State Project Number:

Contractor:

<b>PART E- BIDDERS LIST - NON-DBE QUOTES SUBMITTED</b> (Complete this part only if the project is let by a local governmental unit. If the project is let by MnDOT, you must submit information about bids/quotes you have received through the AASHTOWare Project CRL online system rather than on this form.)							
<b>NON-DBE COMMITMENTS</b> List all non-DBE firms who provided quotes or bid proposals. Indicate whether the quotes were accepted. Please include a copy of their quote(s).							
<b>NON-DBE Contractor Information</b>				<b>Description of Work</b>	<b>Dollar Amount Of Bid/Proposal.</b>	<b>Will Firm Be Used?</b>	
1.	NON-DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax:				
2.	NON-DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax				
3.	NON-DBE Contractor Name						Yes
	Contact Name						
	Address						
	Federal Tax #		E-mail				
	Phone		Fax				
4.	NON-DBE Contractor Name						Yes
	Contact Name						
	Address:						
	Federal Tax #		E-mail				
	Phone		Fax				

Make additional copies of this page as necessary

State Project Number:

Contractor:

**PART F – SOLICITATION OF SUBCONTRACTORS, SUPPLIERS, AND SERVICE PROVIDERS** (Complete this part only if DBE goal is not met.)

List all subcontractors solicited, both DBE and non-DBE contractors, truckers and suppliers for this specific project. Include initial contact and follow-up dates, as well as methods of contact (Phone, Fax, Email, etc.).

The good faith effort submission should include evidence of the solicitation effort such as; copies of request for bids sent to DBE firms with the name of the DBE firms clearly identified; fax confirmation sheets showing the date, fax number, name of DBE firm, confirmation the fax was sent; list of all DBE firms called time of call, person contacted and response; or email lists with time/day sent clearly indicated etc.

Subcontractor/Supplier/Service provider		DBE?		Phone #	Dates, Method of Contact		Description of Work	Dollar Amount of Quote
		Yes	No		DATES	METHOD		
1		<input type="checkbox"/>	<input type="checkbox"/>					
2		<input type="checkbox"/>	<input type="checkbox"/>					
3		<input type="checkbox"/>	<input type="checkbox"/>					
4		<input type="checkbox"/>	<input type="checkbox"/>					
5		<input type="checkbox"/>	<input type="checkbox"/>					
6		<input type="checkbox"/>	<input type="checkbox"/>					
7		<input type="checkbox"/>	<input type="checkbox"/>					
8		<input type="checkbox"/>	<input type="checkbox"/>					
9		<input type="checkbox"/>	<input type="checkbox"/>					
10		<input type="checkbox"/>	<input type="checkbox"/>					
11		<input type="checkbox"/>	<input type="checkbox"/>					
12		<input type="checkbox"/>	<input type="checkbox"/>					

Make additional copies of this page as necessary

State Project Number:

Contractor:

**PART G - DBEs QUOTED BUT NOT SELECTED** (Complete this part only if DBE goal is not met.)

**If DBE quotes were rejected, if necessary, attach a separate sheet of paper explaining the specific basis for rejecting any DBE quote.**

Note: Additional cost is not in itself sufficient reason for rejecting a DBE quote. However, prime contractors need not accept excessive or unreasonable DBE quotes. The contractor's standing within its industry or memberships in specific groups (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of a quote in the contractor's efforts to meet the project goal. Please include a copy of the quote(s) received.

DBE QUOTE	DBE FIRMS WHO QUOTED, BUT WERE NOT SELECTED	TYPE OF WORK QUOTED	FIRM SELECTED FOR SCOPE QUOTED	REASON NOT SELECTED
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

**Make additional copies of this page as necessary**

## Office of Civil Rights– Good Faith Efforts Consolidated Form

State Project Number:

Contractor:

**PART H – DESCRIPTION OF GOOD FAITH EFFORTS** (Complete this part only if DBE goal is not met. Use additional sheets if necessary.)

Please describe below or in a separate letter any aspects of your efforts to obtain DBE participation that are not already apparent from the information provided in parts A-G. This is an opportunity to “tell the story” of your GFE. Please give special attention to the factors identified in **Attachment 2** of the DBE special provisions and 49 CFR Part 26, Appendix A. The following questions may help you organize your description. **The questions below are not intended to be a checklist or an exhaustive list of what is considered in evaluating GFE.** Information not submitted will not be considered in making a finding of Good Faith Efforts.

Questions to consider:

- Did you use the current DBE directory to identify DBEs?
- Did you break out work into units that small businesses such as DBEs could reasonably perform?
- Did you solicit DBE participation for work you could have self-performed?
- Did you overlook any DBEs whose business operations are geographically close to the project?
- Did you host any DBE informational workshops or attend any MnDOT sponsored DBE events?
- Did you contact minority business organizations about DBE opportunities?
- Did you send timely written (fax, e-mail, etc.) solicitation notices to certified DBEs?
- Did your solicitation notice include the following information? *name and location of project, bid date, scope of work requested, location where DBEs can review plans and specifications, date and time to submit quote, contact name for technical assistance, any special requirements*
- Did you provide any contacts for possible bonding, insurance, or lines of credit?
- Did you provide any technical assistance relative to bonding, insurance, or lines of credit?
- Did you maintain a follow-up log to track responses to your initial solicitations?
- Did you track the following information after initial solicitation? *name of DBE firm, type of contact (fax, telephone, e-mail, etc.), date and time DBE contacted, name of contact person, response received, reason for DBE not bidding (if applicable)*
- Did you receive bids from DBE's that you did not accept? If so, what were your reasons?

Type Response Below:

**Exhibit B – Good Faith Efforts Consolidated Form**

**PART I – CERTIFICATION / GOOD FAITH EFFORTS AFFIDAVIT (You must complete this part.)**

STATE OF MINNESOTA

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, being first duly sworn, state as follows:  
(Full Name)

1. I am the \_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Individual, Company, Partnership, or Corporation)

that has submitted a bid for State Project \_\_\_\_\_.

2. I have the authority to make this affidavit for and on behalf of the apparent low bidder.

3. The information provided in the attached Good Faith Efforts Consolidated Form is true and accurate to the best of my belief.

SIGNATURE (Bidder or Authorized Representative)	TITLE	DATE

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

My commission expires \_\_\_\_\_, 20\_\_\_\_

Pursuant to 49 CFR § 26.107, if any person or firm has willfully and knowingly provided incorrect information or made false statements in connection with the Federal DBE program, the USDOT may initiate suspension or debarment proceedings against such person or firm under 49 CFR Part 29, take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, and/or refer the matter to the Department of Justice for criminal prosecution under 18 U.S.C. 1001, which prohibits false statements in Federal programs.

Minnesota Department of Transportation  
Office of Civil Rights

Page \_\_\_\_ of \_\_\_\_

Contractor Payment Form

State Project Number: \_\_\_\_\_ Prime Contractor: \_\_\_\_\_ 1<sup>st</sup> Tier Sub-Contractor: \_\_\_\_\_

Payment Reporting Period: From: \_\_\_\_\_ To: \_\_\_\_\_

Instructions: All Contractors making payments to Contractors/Subcontractors/Suppliers/Service Providers, regardless of their tier or DBE status, are required to complete and submit this form to the MnDOT Office of Civil Rights (OCR), each time payments are made to sub-contractors until final payment is made. Failure to comply with this form and Minnesota's prompt payment law may cause progress payments to be withheld. Submit one copy of this form to MnDOT OCR and one copy to the Project Engineer, no later than ten (10) days after receiving payment from MnDOT. Some projects require that payment information be entered into AASHTOWare Project CRL. See Table C of the DBE Special Provisions for payment submission requirements.

Contractor Information		Original Contract Amount	Committed DBE %	Actual DBE % to Date
Name:				
Address:				
Phone:				
Name of Subcontractor/Supplier	DBE? (Check if Yes)	Description of Work	Subcontract Amount	
1.	<input type="checkbox"/>	1.	1.	
2.	<input type="checkbox"/>	2.	2.	
3.	<input type="checkbox"/>	3.	3.	
4.	<input type="checkbox"/>	4.	4.	
5.	<input type="checkbox"/>	5.	5.	
6.	<input type="checkbox"/>	6.	6.	
Amount of Current Payment	Total Sub-Contractor Payment-To-Date	% Paid to date	Final Payment? Yes/No	
1.	1.	1.	1.	
2.	2.	2.	2.	
3.	3.	3.	3.	
4.	4.	4.	4.	
5.	5.	5.	5.	
6.	6.	6.	6.	
Company Officials Signature & Title		Date Signed	Name & Title of Individual Completing Report (Type or Print Clearly)	
Title:		Title:		
Phone:	Fax:	Phone:	Fax:	



## DBE Total Payment Affidavit

Pursuant to MnDOT Standard Specifications for Construction, Section 1516.3, the following DBE Total Payment Affidavit shall be executed by the Prime Contractor after all work contracted to be performed by DBEs has been satisfactorily completed. This Affidavit is required prior to MnDOT Office of Civil Rights issuing final clearance on the project. Identify each DBE firm that worked on the project and the dollar amount of the subcontract. If the dollar value of a DBE firm's total work is less than the DBE's original subcontract, please attach an explanation.

State Project Number: \_\_\_\_\_

STATE OF MINNESOTA

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, being first duly sworn, state as follows:  
(Full Name)

1. I am the authorized representative of \_\_\_\_\_  
(Name of Individual, Company, Partnership or Corporation)

and I have the authority to make this affidavit for and on behalf of said Prime Contractor.

2. The following DBE Subcontractors/Suppliers/Service Providers/Sub-Consultants have performed work on the above project with a total dollar value of:

	Name of DBE Firm	Dollar Amount of Subcontract	Total Dollar Amount Paid
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

3. I have fully informed myself regarding the accuracy of the statements made in this Affidavit.

Signed: \_\_\_\_\_  
(Prime Contractor or Authorized Representative)

Subscribed and sworn to before me

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
(Notary Public)

My commission expires \_\_\_\_\_, 20\_\_\_\_

Prepare affidavit in duplicate. Submit one affidavit to the Project Engineer, and one to:  
**MnDOT's Office of Civil Rights, 395 John Ireland Blvd., MS 170, St. Paul, MN 55155**  
or email completed form to: [ocrformsubmissions.dot@state.mn.us](mailto:ocrformsubmissions.dot@state.mn.us)

**No. 1516.3 – Standard Specifications for Construction**

Unless the Contractor has presented an Affidavit showing the total dollar amounts of work performed by Disadvantaged Business Enterprises (DBE), a final clearance letter will not be issued.



## REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

### ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

### I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

### II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

#### **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

#### **8. Reasonable Accommodation for Applicants /**

**Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

#### **9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:**

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

#### **10. Assurances Required:**

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov). The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov), refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

## 2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph



2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

### 3. Records and certified payrolls (29 CFR 5.5)

*a. Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

*(2) Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

*(3) Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

*(4) Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

*b. Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

*(2) Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

*(3) Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

*(4) Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.



(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

#### **4. Apprentices and equal employment opportunity (29 CFR 5.5)**

a. *Apprentices (1) Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

**6. Subcontracts.** The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

**9. Disputes concerning labor standards.** As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.** a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

**11. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

## **V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)\* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

\* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

### 3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

**4. Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

**5. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

## **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

## **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)**

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

## **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

### **1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

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## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

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## **3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

\* \* \* \* \*

#### **4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

\* \* \* \* \*

#### **XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

#### **XII. USE OF UNITED STATES-FLAG VESSELS:**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS  
PREFERENCE FOR APPALACHIAN DEVELOPMENT  
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS  
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.



## **Equal Employment Opportunity (EEO) State and Federal Laws, Policies and Rules**

### **Minnesota Affirmative Action Requirements**

Minn. Stat. § 363A.36, Minn. R. 5000.3520 - .3530

#### **General**

- A. The Contractor agrees that Minn. Stat. § 363A.36 and its accompanying rules are incorporated into any Contract executed with the Minnesota Department of Transportation (MnDOT) based on these specifications or any modification thereof. Upon request, MnDOT will provide the Contractor with a copy of Minn. Stat. § 363A.36 and its accompanying rules.
- B. MnDOT intends to execute its responsibility to require affirmative action by the Contractor. This includes providing the Minnesota Department of Human Rights (MDHR) with information indicating that the Contractor is not in compliance with Minn. Stat. § 363A.36 and its accompanying rules.

#### **Contractor Responsibilities**

- A. The Contractor must take affirmative action to employ and advance in employment qualified minorities and women at all levels of employment, including the executive level. This applies to all employment practices, including, but not limited to, the following:
  - 1. Hiring, upgrading, demotion, or transfer
  - 2. Recruitment, or recruitment advertising
  - 3. Layoff, or termination
  - 4. Rates of pay, or other forms of compensation; and selection for training, including apprenticeship
- B. The Contractor must demonstrate that specific and significant actions to recruit, hire, and retain minorities and/or women are being taken if the applicable workforce participation goals will not be met.
- C. The Contractor must comply with the affirmative action requirements of Minn. Stat. § 363A.36 and its accompanying rules, as well as any subsequent rules and relevant orders issued by MDHR pursuant to this same law.

#### **Notice**

- 1. The Contractor must post notices in a form stipulated by the Commissioner of MDHR in conspicuous places. These notices must outline the following:
  - 1. The rights of employees and applicants
  - 2. The legal obligation to take affirmative action to employ and advance in employment employees and applicants who are minorities and women. The notices can be found here:  
<http://www.dot.state.mn.us/const/labor/posterboards.html>

#### **Noncompliance**

- A. The Contractor's failure to implement or make a good faith effort to implement an affirmative action plan approved under Minn. Stat. § 363A.36 and its accompanying rules may result in the suspension or revocation of its certificate of compliance. Should either of these consequences occur, MnDOT may abridge or terminate the Contract awarded.
- B. The Contractor's failure to take specific and significant actions to recruit, hire, and retain minorities and/or women if the workforce participation goals will not be met may result in the suspension or revocation of its certificate of

compliance. Should either of these consequences occur, MnDOT may abridge or terminate the Contract awarded.



# VIOLENCE-FREE AND RESPECTFUL WORKPLACE

(INCLUDES GENERAL HARASSMENT, RETALIATION,  
AND WEAPONS)

POLICY HR014, EFFECTIVE 2015-07-17

## POLICY STATEMENT

The Minnesota Department of Transportation (MnDOT) is committed to providing a safe and respectful workplace free from inappropriate behaviors for all employees. MnDOT employees, contractors and vendors (third parties) conducting business with MnDOT must:

- Understand the [Workplace Violence Continuum](#) and the behaviors that constitute a violation of this policy;
- Report any persons who violate this policy;
- Take appropriate action in situations that involve policy violation.

MnDOT fully adopts the [MMB Respectful Workplace](#) policy, to build and maintain a workplace that is respectful and professional toward all employees and third parties.

MnDOT's Violence-Free and Respectful Workplace policy addresses only behavior and communication that do not involve protected class status. The [MnDOT Discrimination Policy](#) addresses harassment based on race, color, creed, religion, national origin, sex, marital status, disability, sexual orientation, age, genetic information, or status with regard to public assistance.

## REASON FOR POLICY

- Identify the types of behavior that constitute workplace violence
- Define roles and responsibilities of all MnDOT employees and third parties
- Clarify reporting procedure for policy violation.

## WHO NEEDS TO KNOW THIS POLICY?

- All MnDOT employees
- All third parties conducting business with MnDOT

## DEFINITIONS

### Formal Complaint

A formal complaint is a written statement of workplace concern that alleges violation of this policy by an employee or third party.

## SENIOR OFFICER

### Tracy Hatch

Deputy Commissioner/CFO/COO

## POLICY OWNER

### Karin van Dyck

Director, Office of Human Resources

## POLICY CONTACT

### Jodi Mathiason

Labor Relations Manager

Office of Human Resources

[Jodi.Mathiason@state.mn.us](mailto:Jodi.Mathiason@state.mn.us)

651-366-3404

## POLICY HISTORY

2015-07-17, Established

[MnDOT Policy Website](#)

**General Harassment**

Conduct that has the effect of unreasonably interfering with the employee's work performance, behavior made with the intent to cause fear, or creating an intimidating, hostile, or offensive work environment. Legitimate job-related efforts of a supervisor to direct or evaluate an employee or to have the employee improve his or her performance are not general harassment.

**Professionalism**

Professionalism is a display of good judgment and proper behavior expected in the workplace from employees and third parties.

**Respectful Behavior**

Positive interactions with employees and third parties, in a manner that a reasonable person finds appropriate.

**Retaliation**

Adverse action response to an employee's participation in a complaint, report, investigation, or lawsuit about workplace violence (protected activity).

**Third Party**

A third party is a contractor or vendor conducting business with MnDOT.

**Weapon**

Weapon is anything intended to harm or intimidate another person. Examples may include, but are not limited to, all firearms, non-firearms such as knives, martial arts devices, explosives, combustible devices, and chemical substances.

**Workplace Violence Continuum**

Violence or inappropriate behaviors that range from bullying, verbal abuse, arguments, property damage, vandalism, sabotage, pushing, theft, physical assaults, rape, and arson, to murder. Workplace violence can occur while on state property or while performing work for MnDOT at any location, by a state employee, third party, or the public.

## **PROCEDURES**

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***Obligation to Report Workplace Violence***

In a life-threatening situation, call 9-1-1 or other emergency contact at the work location, if making the call does not pose a risk to the well-being of the employee.

Any employee who is the subject of, or who witnesses workplace violence must immediately report the incident in one or all of the following ways:

- Report the behavior to his/her supervisor, manager or Human Resources office;
- Submit a completed [Violent Incident Report Form](#) to the Human Resources Office;
- Report by using the [Report Wrongdoing/Questionable Activity Form](#); the information reported must include the details of the situation.

Any employee who violates this policy or is found to have witnessed an act of workplace violence and did not report it may be subject to discipline, up to and including discharge. Violation of this policy by third parties conducting business for MnDOT may jeopardize their contractual relationship with the agency.

***Informal Resolution***

Any employee can choose to explore options with Human Resources to address concerns.

- The employee subjected to inappropriate behavior should have a conversation with the other individual(s) involved whenever possible, if it does not pose a risk to the well-being of the employee;
- The employee is encouraged to speak with his/her supervisor, Human Resources, union representative, or Employee Assistance Program (EAP) for assistance or guidance on how to resolve the situation;
- If the concern is about a supervisor or manager, employees may contact Human Resources, union representative or EAP to discuss options for resolution.

### **Formal Complaints**

A formal complaint must be submitted in writing to Human Resources and include the details of the situation. As with all investigations alleging employee misconduct, investigations related to this policy will occur in a timely, fair, and objective manner. ***This process does not supersede any applicable grievance or dispute resolution process under a collective bargaining agreement or plan.***

- Complaints must be submitted to the Human Resources Office, and include the details of the situation;
- The person receiving a complaint must acknowledge receipt of the complaint in writing;
- A prompt review of the complaint will be conducted and addressed;
- All data associated with a complaint, including any investigation and any outcome is government data, [Minnesota Statutes Chapter 13](#), Government Data Practices Act governs the release or non-release of data.

### **Retaliation**

Any employee who perceives retaliation because he or she filed a complaint about workplace violence should immediately contact the Human Resources Office, Labor Relations.

## **RESPONSIBILITIES**

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### **Employees**

- Conduct one's self in a manner that demonstrates professionalism and respect for all others while working for and representing MnDOT;
- Be familiar with this policy and understand the meanings and definitions included;
- Document and report all behaviors or incidents that may violate this policy to a manager, supervisor, or Human Resources Office;
- Fulfill all mandatory training requirements:
  - Respectful Workplace (*MnDOT employees*)
  - Workplace Violence Prevention (*MnDOT employees*)
- Cooperate in investigations of alleged violations of this policy, including investigations of general harassment, inappropriate behaviors, weapons, and retaliation.

### **Managers/Supervisors** *In addition to the responsibilities of Employees (as described above)*

- Be familiar with this policy to achieve and maintain compliance with this policy;
- Document and take timely and appropriate action when a complaint is made alleging violations of this policy and collaborate with Human Resources in the process;
- Ensure employees fulfill mandatory training requirements:
  - Respectful Workplace (*MnDOT employees*)
  - Workplace Violence Prevention (*MnDOT employees*)

### **Human Resources Offices**

- Assist with the resolution and investigation of inappropriate behaviors that may violate this policy;
- Provide consultation to employees, supervisors, and managers on options and the appropriate course of action, to including guidance regarding resources for alternative solutions;
- Provide consultation to employees, supervisors, and managers on applicable rules, policies, procedures, and learning opportunities;
- Design and provide mandatory training, offer resources and/or training to assist employees in dealing with situations that may lead to potential violence.

### **Third Parties (contractor or vendor)**

- Conduct one's self in a manner that demonstrates professionalism and respect for all others while working with MnDOT and the public;
- Refer to the [MnDOT Policies](#) webpage to become familiar with all of MnDOT policies;
- Document and report all behaviors or incidents that may violate this policy;
- Cooperate in investigations of alleged violations of this policy including investigations of general harassment, inappropriate behaviors, weapons, and retaliation.

## FORMS/INSTRUCTIONS

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[Violent Incident Report Form](#)

[Report Wrongdoing/Questionable Activity Form](#)

## RELATED INFORMATION

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[MnDOT Violent Incident Advisory Team \(VIAT\)](#)

[MnDOT Discrimination Policy](#)

[Minnesota Statutes §609.02, Subd.6](#) *Dangerous Weapons*

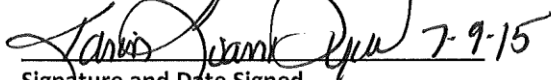
[Employee Assistance Program \(EAP\)](#)

## POLICY OWNERSHIP AND AUTHORIZATION

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### Policy Owner

Karin van Dyck, Director, Office of Human Resources

  
Signature and Date Signed 7-9-15

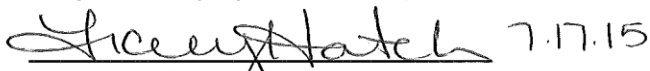
### Governance Council

Sue Stein, Director, Corporate Services Division

  
Signature and Date Signed 7-16-15

### Responsible Senior Officer

Tracy Hatch, Deputy Commissioner/CFO/COO

  
Signature and Date Signed 7-17-15

**SPECIFIC FEDERAL EQUAL OPPORTUNITY RESPONSIBILITIES**

(23 CFR 230, Subpart A, Appendix A, FAPG June 6, 1996)

**1. General.**

- a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required contract Provisions (Form PR-1273 or 1316, as appropriate) and these Special Provisions which are imposed pursuant to Section 140 of title 23, U.S.C., as established by Section 22 of the Federal-Aid Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.
- b. The contractor will work with the State highway agencies and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.
- c. The contractor and all his/her subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, will comply with the following minimum specific requirement activities of equal employment Opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway program Manual, are applicable to material suppliers as well as contractors and subcontractors.) The contractor will include these requirements in every subcontract of \$10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

**2. Equal Employment Opportunity Policy.**

The contractor will accept as his operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote their full realization of equal employment through a positive continuing program:

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, or national origin. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre apprenticeship, and/or on-the-job training.

**3. Equal Employment Opportunity Officer.**

The contractor will designate and make known to State highway agency contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

**4. Dissemination of Policy.**

- a. All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action will be made fully cognizant of, and will implement, the contractor's equal employment opportunity policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
  - (1) Periodic meetings of supervisory and personnel office staff will be conducted before the start of work and then not less often than once every six months, at which time the contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
  - (2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official, covering all major aspects of the contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the contractor.



- (3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO officer or appropriate company official in the contractor's procedures for locating and hiring minority group employees.
- b. In order to make the contractor's equal employment policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the contractor will take the following actions:
  - (1) Notices and posters setting forth the contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
  - (2) The contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**5. Recruitment.**

- a. When advertising for employees, the contractor will include in all advertisements for employees the notation "An Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- b. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including, but not limited to, State employment agencies, schools, colleges and minority group organizations. To meet this requirement, the contractor will, through their EEO Officer, identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where the implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
- c. The contractor will encourage his present employees to refer minority group applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

**6. Personnel Actions.** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, or national origin. The following procedures shall be followed:

- a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
- b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
- c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his/her obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all his avenues of appeal.

**7. Training and Promotion.**

- a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees and applicants for employment.
- b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor must make full use of training programs, i.e. apprenticeship, and on-the- job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event the Training Special Provision is provided under this contract, this subparagraph will be superseded as indicated in Attachment 2.
- c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The Contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

**8. Unions.**

If a contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

- a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group members and women so that they may qualify for higher paying employment.
- b. The contractor will use best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin.
- c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the State highway department and shall set forth what efforts have been made to obtain such information.
- d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, or national origin; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the State highway agency.

**9. Subcontracting.**

- a. The contractor will use his best efforts to solicit bids from and to utilize minority group subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of minority-owned construction firms from State highway agency personnel.
- b. The contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

**10. Records and Reports.**

- a. The contractor shall keep such records as necessary to determine compliance with the contractor's equal employment opportunity obligations. The records kept by the contractor will be designed to indicate:
  - (1) The number of minority and non minority group members and women employed in each work classification on the project.

- (2) The progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractor's who rely in whole or in part on unions as a source of their work force),
  - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
  - (4) The progress and efforts being made in securing the services of minority group subcontractors with meaningful minority and female representation among their employees.
- b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State highway agency and the FHWA.
- c. The contractors will submit an annual report to the State highway agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR-1391. If on-the-job training is being required by a "Training Special Provision", the contractor will be required to furnish Form FHWA 1409.

**STANDARD FEDERAL AND STATE EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS**

(41 CFR 60-4.3 and Minnesota Statute §363A.36)

Unless noted, the following apply to both Federal/federally assisted projects and State/state assisted projects. Item 3 applies to Federal/federally assisted projects only.

1. As used in these specifications:
  - (a) "Covered area" means the geographical area described in the solicitation from which this contract resulted;
  - (b) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
  - (c) "Employer Identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
  - (d) "Minority" includes:
    - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
    - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
    - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
    - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 (\$100,000 for State projects) the provisions of these specifications and the Notice which contains the applicable goals for minority and women participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4, 5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work on the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7(a) to (p) of these specifications (itemized as 4 [a] to [o], Minnesota Rules 5000.3535). The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minorities and utilization the Contractor should (shall, for State or state assisted projects) reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor shall make substantially uniform progress toward its goals in each craft during the period specified. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Federal goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any office of Federal Contract Compliance programs or from Federal procurement contracting officers. State goals are published periodically in the State Register in notice form, and may be obtained from the Minnesota Department of Human Rights or the Minnesota Department of Transportation Office of Civil Rights. The Contractor is expected to

make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union, with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications and Executive Order 11246 and its associated rules and regulations for Federal or federally assisted projects, and Minnesota Statutes, Section §363A.36 of the Minnesota Human Rights Act, or the rules adopted under the Act for State or state assisted projects.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained according to training programs approved by the Minnesota Department of Human Rights, the Minnesota Department of Labor and Industry, or the United States Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications must be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following (referred to in Minnesota Rules 5000.3535 as items 4(a) to (o)):
  - (a) Ensure and maintain, or for State or state assisted projects make a good faith effort to maintain, a working environment free of harassment, intimidation, and coercion at all sites and in all facilities at which the Contractor's employees are assigned to work. For Federal or federally assisted projects, the Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or women individuals working at such sites or in such facilities.
  - (b) Establish and maintain a current list of minority and women recruitment sources, provide written notification to minority and women recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
  - (c) Maintain a current file of the names, addresses, and telephone numbers of each minority and woman off-the-street applicant and minority or woman referral from a union, a recruitment source, or community organization and of what action was taken with respect to each individual. If the individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the Contractor may have taken.
  - (d) Provide immediate written notification to the commissioner of the Minnesota Department of Human Rights for State or state assisted projects, or the director of the Office of Federal Contract Compliance for Federal or federally assisted projects, when the union, or unions with which the Contractor has a collective bargaining agreement, has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
  - (e) Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the State of Minnesota for State or state assisted projects or the Department of Labor, for Federal or federally assisted projects. The Contractor shall provide notice of these programs to the sources compiled under (b).
  - (f) Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its equal employment opportunity obligations; by including it in any policy manual and collective bargaining agreement;

by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and women employees at least once a year; and by posting the company equal employment opportunity policy on bulletin boards accessible to all employees at each location where construction work is performed.

- (g) Review, at least annually, the company's equal employment opportunity policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions; including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the first day of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- (h) Disseminate the Contractor's equal employment opportunity policy externally by including it in any advertising in the news media, specifically including minority and women news media, and providing written notification to and discussing the Contractor's equal employment opportunity policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.
- (i) Direct its recruitment efforts, both oral and written, to minority, women, and community organizations; to schools with minority and women students; and to minority and women recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- (j) Encourage present minority and women employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and women youth, both on the site and in other areas of a Contractor's work force.
- (k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3. (This requirement applies only to Federal and federally assisted projects.)
- (l) Conduct, at least annually, an inventory and evaluation at least of all minority and women personnel for promotional opportunities; and encourage these employees to seek or to prepare for, through appropriate training, such opportunities. (This is Item 4(k) in Minnesota Rules.)
- (m) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out. (This is item 4(l) in Minnesota Rules.)
- (n) Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes. (This is item 4(m) in Minnesota Rules.)
- (o) Document and maintain a record of all solicitations or offers for subcontracts from minority and women construction contractors and suppliers, including circulation of solicitations to minority and women contractor associations and other business associations. (This is item 4(n) in Minnesota Rules.)
- (p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment opportunity policies and affirmative action obligations. (This is item 4(o) in Minnesota Rules.)

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7(a) to (p) for Federal or federally assisted projects, and 4(a)-(o) for State or state assisted projects). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7(a) to (p) or 4(a) to (o) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and women work force participation, makes a good faith effort to meet its individual goals and timetables, and can



provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor however, is required to provide equal employment opportunity and to take affirmative action for all minority groups both male and female, and all women both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order for Federal or federally assisted projects, or Minnesota Rules for State or state assisted projects, if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order or Minnesota Rules part 5000.3520 if a specific minority group is under-utilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, creed, religion, sex, or national origin. Minnesota Statutes §363A.36, part 5000.3535 (Subp. 7) also prohibits discrimination with regard to marital status, status with regard to public assistance, disability, age, or sexual orientation.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from government contracts under the federal Executive Order 11246 or a local human rights ordinance, or whose certificate of compliance has been suspended or revoked pursuant to Minnesota Statutes, Section §363A.36.
12. The Contractor shall carry out such sanctions for violation of these specifications and of the equal opportunity clause, including suspension, termination, and cancellation of existing contracts as may be imposed or ordered pursuant to Minnesota Statutes, Section §363A.36, and its implementing rules for State or state assisted projects, or Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs for Federal or federally assisted projects. Any contractor who fails to carry out such sanctions shall be in violation of these specifications and Minnesota Statutes, Section §363A.36, or Executive Order 11246 as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications (paragraph 4 in Minnesota Rules 5000.3535), so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these Specifications or Minnesota Statutes, Section §363A.36 and its implementing rules, or Executive Order 11246 and its regulations, the commissioner or the director shall proceed in accordance with Minnesota Rules part 5000.3570 for State or state assisted projects, or 41 CFR 60-4.8 for Federal or federally assisted projects.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Minnesota Department of Human Rights or the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (for example, mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing provided in this part shall be construed as a limitation upon the application of other state or federal laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

**EQUAL OPPORTUNITY CLAUSE**  
(41 CFR Part 60-1.4 b, 7-1-96 Edition)

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

- a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and, selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Highway Agency (SHA) setting forth the provisions of this nondiscrimination clause.
- b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- c. The Contractor will send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- d. The Contractor will comply with all provisions of Executive Order 11246, Equal Employment Opportunity, dated September 24, 1965, and of the rules, regulations (41 CFR Part 60), and relevant orders of the Secretary of Labor.
- e. The Contractor will furnish all information and reports required by Executive Order 11246 and by rules, regulations, and orders of the Secretary of Labor, pursuant thereto, and will permit access to its books, records, and accounts by the Federal Highway Administration (FHWA) and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract, or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- g. The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraph (1) through (7) in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor, unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246. The Contractor will take such action with respect to any subcontract or purchase order as the Secretary of Labor, SHA, or the Federal Highway Administration (FHWA) may direct as a means of enforcing such provisions, including sanctions for noncompliance. In the event a contractor becomes a party to litigation by a subcontractor or vendor as a result of such direction, the contractor may request the SHA to enter into such litigation to protect the interest of the State. In addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the applicant so



participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.



# Notice to Bidders – Bid Schedule

The following abbreviations and acronyms, in addition to industry standards, and those listed in 1102, may be used in item descriptions and unit of measure in the Bid Schedule.

ACRONYM OR SHORT FORM	FULL NAME OR MEANING	ACRONYM OR SHORT FORM	FULL NAME OR MEANING
AGG	AGGREGATE	MJ	MECHANICAL JOINT
A-S	ANTI-SEEPAGE	MOD	MODIFIED
B&B	BALLED & BURLAPPED	MTD	MOUNTED
BIT	BITUMINOUS	OH	OVERHEAD
BR	BRIDGE or BARE ROOT	P-A	PIPE-ARCH
CAL	CALIPER	PAVT	PAVEMENT
CL	CLASS or CENTERLINE	PC	POWDER COAT or PRECAST
COMP	COMPONENT	PERF	PERFORATED
CONC	CONCRETE	PL	PLATE
COND	CONDUCTOR	PP	POLYPROPYLENE
CONST	CONSTRUCT	PREF	PREFORMED
CONT	CONTRAST or CONTAINER	PREST	PRESTRESSED
CP	CORRUGATED POLYETHYLENE	RC	REINFORCED CONCRETE
CRS	COURSE	RCP	REINFORCED CONCRETE PIPE
DBLE	DOUBLE	REINF	REINFORCED or REINFORCEMENT
DES	DESIGN	RDST	ROAD STATION
DMS	DYNAMIC MESSAGE SIGN	RS	RIGID STEEL
ESR	ENHANCED SKID RESISTANCE	SPEC	SPECIAL
EVP	EMERGENCY VEHICLE PREEMPTION	STR	STRENGTH
EXP	EXPANSION	STRUCT	STRUCTURAL or STRUCTURE
GR	GRADE	SYS	SYSTEM
GR IN	GROUND IN	SYIN	SQUARE YARD INCH
HD	HEAVY DUTY	TCLP	TOXIC CHARACTERISTIC LEACHING PROCEDURE
HP	HIGH PRESSURE	TEMP	TEMPORARY
HT	HEIGHT	THERMO	THERMOPLASTIC
HVAC	HEATING, VENTILATION, AIR CONDITIONING	TP	THERMOPLASTIC
LIN FT	LINEAR FEET	VAR	VARIABLE
LD	LIGHT DUTY	VCP	VITRIFIED CLAY PIPE
MAINT	MAINTENANCE	WEAR	WEARING
MATL	MATERIAL	WR	WEARING or WET REFLECTIVE
MH	MANHOLE	YR	YEAR



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Trunk Hwy: 94=064

SECTION: 0001

SP 5680-147

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0005	2011601/00003 CONSTRUCTION SURVEYING	LUMP SUM	LUMP SUM			
0010	2011601/01000 AS BUILT	LUMP SUM	LUMP SUM			
0015	2013602/00025 INSTALL ROAD/WEATHER INFORMATION STATION (INVASIVE SENSOR)	1.000 EACH				
0020	2021501/00010 MOBILIZATION	LUMP SUM	LUMP SUM			
0025	2031502/00010 FIELD OFFICE	1.000 EACH				
0030	2031502/00110 FIELD LABORATORY	1.000 EACH				
0035	2051501/00010 MAINT AND RESTORATION OF HAUL ROADS	LUMP SUM	LUMP SUM			
0040	2061601/00050 MATERIAL DELIVERY MANAGEMENT SYSTEM	LUMP SUM	LUMP SUM			
0045	2104502/00130 REMOVE PIPE APRON	8.000 EACH				
0050	2104502/00250 REMOVE ANCHORAGE ASSEMBLY - TENSION CABLE	8.000 EACH				
0055	2104502/00270 REMOVE CONCRETE HEADWALL	8.000 EACH				
0060	2104502/00360 REMOVE ANCHORAGE ASSEMBLY- CABLE	12.000 EACH				

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Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0065	2104502/01900 REMOVE ECCENTRIC LOADER BCT	3.000 EACH				
0070	2104502/01910 REMOVE ENERGY ABSORBING TERMINAL	15.000 EACH				
0075	2104502/01930 REMOVE SLOTTED RAIL TERMINAL	6.000 EACH				
0080	2104502/02230 SALVAGE ENERGY ABSORBING TERMINAL	11.000 EACH				
0085	2104502/02490 SALVAGE PIPE APRON	13.000 EACH				
0090	2104502/02510 SALVAGE PRECAST CONCRETE HEADWALL	280.000 EACH				
0095	2104503/00195 SAWING CONCRETE PAVEMENT (FULL DEPTH)	1,198.000 L F				
0100	2104503/00205 SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	3,432.000 L F				
0105	2104503/00220 REMOVE PIPE DRAIN	24,114.000 L F				
0110	2104503/00255 REMOVE PIPE CULVERTS	1,388.000 L F				
0115	2104503/00315 REMOVE CURB AND GUTTER	56.000 L F				
0120	2104503/00450 REMOVE CABLE GUARDRAIL	3,713.000 L F				

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Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0125	2104503/00460 REMOVE GUARDRAIL-PLATE BEAM	4,500.000 L F				
0130	2104503/01120 REMOVE GUARDRAIL-BOX BEAM	588.000 L F				
0135	2104503/01130 REMOVE GUARDRAIL-TYPE 31	175.000 L F				
0140	2104503/01150 REMOVE TENSION CABLE GUARDRAIL	518.000 L F				
0145	2104503/01370 SALVAGE PIPE CULVERT	32.000 L F				
0150	2104503/01520 SALVAGE TENSION CABLE GUARDRAIL	35,635.000 L F				
0155	2104503/01600 SALVAGE GUARDRAIL-TYPE 31	288.000 L F				
0160	2104504/00070 REMOVE PAVEMENT	13,995.000 S Y				
0165	2104504/00090 REMOVE CONCRETE PAVEMENT	23,688.000 S Y				
0170	2104504/00120 REMOVE BITUMINOUS PAVEMENT	4,352.000 S Y				
0175	2104504/00140 REMOVE BITUMINOUS SHOULDER PAVEMENT	109,493.000 S Y				
0180	2104601/01730 HAUL SALVAGED MATERIAL	LUMP SUM	LUMP SUM			
0185	2106507/00010 EXCAVATION - COMMON	39,118.000 C Y				

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0190	2106507/00040 EXCAVATION - SUBGRADE	58,153.000 C Y				
0195	2106507/00080 SELECT GRANULAR EMBANKMENT (CV)	38,022.000 C Y				
0200	2106507/00130 COMMON EMBANKMENT (CV)	20,357.000 C Y				
0205	2112604/00010 SUBGRADE PREPARATION	224.000 S Y				
0210	2118507/00150 AGGREGATE SURFACING (CV) CLASS 5	223.000 C Y				
0215	2118509/00020 AGGREGATE SURFACING CLASS 1 MOD	14,236.000 TON				
0220	2211507/00170 AGGREGATE BASE (CV) CLASS 5	37,611.000 C Y				
0225	2231509/00010 BITUMINOUS PATCHING MIXTURE	504.000 TON				
0230	2232504/00060 MILL BITUMINOUS SURFACE (2.0")	4,569.000 S Y				
0235	2232504/00200 MILL BITUMINOUS SURFACE (5.0")	152,062.000 S Y				
0240	2232504/00320 MILL BITUMINOUS SURFACE (12")	18,380.000 S Y				
0245	2232603/00025 MILLED RUMBLE STRIPS	68,671.000 L F				



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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0250	2232603/00026 MILLED RUMBLE STRIPS (CONCRETE)	78,641.000 L F				
0255	2301502/00010 DOWEL BAR	116,615.000 EACH				
0260	2301504/01090 PLACE CONCRETE PAVEMENT 9"	254,583.000 S Y				
0265	2301507/00010 STRUCTURAL CONCRETE	64,389.000 C Y				
0270	2301508/00010 SUPPLEMENTAL PAVEMENT REINFORCEMENT	10,860.000 LB				
0275	2301602/00050 DRILL AND GROUT DOWEL BAR (EPOXY COATED)	238.000 EACH				
0280	2360509/23200 TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	20,147.000 TON				
0285	2360509/25200 TYPE SP 12.5 WEARING COURSE MIXTURE (5,B)	2,713.000 TON				
0290	2363509/00010 BIT MIX FOR PERM ASPHALT STABILIZED STRESS RELIEF CRSE	11,762.000 TON				
0295	2363509/00030 BITUMINOUS MATERIAL FOR MIXTURE	375.000 TON				
0300	2401507/03643 STRUCTURAL CONCRETE (3B52)	18.000 C Y				
0305	2401508/00011 REINFORCEMENT BARS (EPOXY COATED)	2,680.000 LB				

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0310	2501502/23018 18" CS SAFETY APRON AND GRATE DESIGN 3128	8.000 EACH				
0315	2501502/45070 INSTALL PIPE APRON	13.000 EACH				
0320	2501503/12018 18" CS PIPE CULVERT	1,388.000 L F				
0325	2501503/25010 INSTALL PIPE CULVERT	32.000 L F				
0330	2502502/00090 INSTALL PRECAST CONCRETE HEADWALL	280.000 EACH				
0335	2502503/01040 4" TP PIPE DRAIN	3,456.000 L F				
0340	2502503/08040 4" PERF TP PIPE DRAIN	6,108.000 L F				
0345	2502503/10040 4" PERF PE PIPE DRAIN	138,614.000 L F				
0350	2506502/06020 ADJUST FRAME AND RING CASTING	4.000 EACH				
0355	2507603/10024 LINING CULVERT PIPE (24") SPECIAL	380.000 L F				
0360	2507603/10036 LINING CULVERT PIPE (36") SPECIAL	760.000 L F				
0365	2507603/10042 LINING CULVERT PIPE (42") SPECIAL	245.000 L F				
0370	2531503/02120 CONCRETE CURB AND GUTTER DESIGN B424	168.000 L F				

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0375	2531503/02320 CONCRETE CURB AND GUTTER DESIGN B624	32.000 L F				
0380	2554502/00002 GUIDE POST TYPE B	9.000 EACH				
0385	2554502/00009 ANCHORAGE ASSEMBLY - TYPE 31	5.000 EACH				
0390	2554502/00010 ANCHORAGE ASSEMBLY - TENSION CABLE	16.000 EACH				
0395	2554502/00025 END TREATMENT-FLARED TERMINAL	18.000 EACH				
0400	2554503/00001 TRAFFIC BARRIER DESIGN SPECIAL	75.000 L F				
0405	2554503/00040 TRAFFIC BARRIER DESIGN BULLNOSE	1,200.000 L F				
0410	2554503/00131 TRAFFIC BARRIER DESIGN TYPE 31	4,499.000 L F				
0415	2554503/00137 TRAFFIC BARRIER DESIGN TRANSITION TYPE 31	1,025.000 L F				
0420	2554503/03131 INSTALL TRAFFIC BARRIER DESIGN TYPE 31	288.000 L F				
0425	2554602/00126 INSTALL ENERGY ABSORBING TERMINAL	1.000 EACH				
0430	2554603/05630 TENSION CABLE GUARDRAIL	3,237.000 L F				

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0435	2554603/05640 INSTALL TENSION CABLE GUARDRAIL	35,635.000 L F				
0440	2563601/00001 TRAFFIC CONTROL SUPERVISOR	LUMP SUM	LUMP SUM			
0445	2563601/00010 TRAFFIC CONTROL	LUMP SUM	LUMP SUM			
0450	2563602/00002 RAISED PAVEMENT MARKER TEMPORARY	7,440.000 EACH				
0455	2563602/00070 TUBULAR MARKER	760.000 EACH				
0460	2563602/00075 REPLACE TUBULAR MARKER	80.000 EACH				
0465	2563602/01050 ELECTRONIC WORKERS PRESENT SPEED LIMIT SYSTEM	2.000 EACH				
0470	2563602/01100 PORTABLE CHANGEABLE MESSAGE SIGN	3.000 EACH				
0475	2564602/02340 DELINEATOR / MARKER	24.000 EACH				
0480	2573501/00030 EROSION CONTROL SUPERVISOR	LUMP SUM	LUMP SUM			
0485	2573502/00110 STORM DRAIN INLET PROTECTION	13.000 EACH				
0490	2573502/00140 CULVERT END CONTROLS	8.000 EACH				

## Minnesota Department Of Transportation

## Proposal Schedule of Items

Page 9 of 11

Proposal ID: 250007

SP No.: 5680-147

Trunk Hwy: 94=064

SECTION: 0001

SP 5680-147

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0495	2573503/00020 SILT FENCE, TYPE HI	1,051.000 L F				
0500	2573503/00064 SEDIMENT CONTROL LOG TYPE COMPOST	1,051.000 L F				
0505	2574505/00020 SOIL BED PREPARATION	28.700 ACRE				
0510	2574507/00103 FILTER TOPSOIL BORROW	1,957.000 C Y				
0515	2574508/00013 FERTILIZER TYPE 3	10,055.000 LB				
0520	2575504/00110 RAPID STABILIZATION METHOD 4	33,753.000 S Y				
0525	2575504/00325 ROLLED EROSION PREVENTION CATEGORY 25	7,094.000 S Y				
0530	2575505/00021 SEEDING	28.710 ACRE				
0535	2575505/00025 DISK ANCHORING	27.200 ACRE				
0540	2575507/00090 MULCH MATERIAL TYPE 9	76.000 C Y				
0545	2575509/00010 MULCH MATERIAL TYPE 1	54.600 TON				
0550	2575608/25100 SEED MESIC INSLOPE	2,767.000 LB				
0555	2581503/00404 4" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	2,080.000 L F				

11/25/2024

## Minnesota Department Of Transportation

## Proposal Schedule of Items

Page 10 of 11

Proposal ID: 250007

SP No.: 5680-147

Trunk Hwy: 94=064

SECTION: 0001

SP 5680-147

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0560	2581503/00406 6" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	22,400.000 L F				
0565	2581503/00408 8" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	3,000.000 L F				
0570	2581603/00020 REMOVABLE PREFORMED PLASTIC MASK (BLACK)	1,000.000 L F				
0575	2582503/00010 MOBILE RETROREFLECTOMETER MEASUREMENTS	255,168.000 L F				
0580	2582503/14104 4" SOLID LINE PAINT (WR)	219,810.000 L F				
0585	2582503/40106 6" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	237,853.000 L F				
0590	2582503/62110 10" SOLID LINE PREFORM TAPE GROUND IN (WR) CONTRAST	1,357.000 L F				
0595	2582503/62206 6" BROKEN LINE PREFORM TAPE GROUND IN (WR) CONTRAST	15,492.000 L F				
0600	2582503/62306 6" DOTTED LINE PREFORM TAPE GROUND IN (WR) CONTRAST	466.000 L F				
Section: 0001			Total:			

11/25/2024

## Minnesota Department Of Transportation

## Proposal Schedule of Items

Page 11 of 11

Proposal ID: 250007

SP No.: 5680-147

Trunk Hwy: 94=064

SECTION: 0002

BRIDGE #56805

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0605	2104502/00260 REMOVE MISCELLANEOUS STRUCTURES	2.000 EACH				
0610	2401507/03643 STRUCTURAL CONCRETE (3B52)	97.000 C Y				
0615	2401508/00011 REINFORCEMENT BARS (EPOXY COATED)	6,850.000 LB				
0620	2401601/00010 STRUCTURE EXCAVATION	LUMP SUM	LUMP SUM			
0625	2401618/00002 SPECIAL SURFACE FINISH (INPLACE)	1,260.000 S F				
0630	2433502/00040 ANCH TYPE REINF BARS (TYPE H)	128.000 EACH				
0635	2433618/00210 RECONSTRUCT CONCRETE SLOPE PAVING	750.000 S F				
Section: 0002			Total:			
			Total Bid:			





Letting Date: \_\_\_\_\_  
State Project No.: \_\_\_\_\_  
Bond No.: \_\_\_\_\_

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

**PROPOSAL BOND**

KNOW ALL MEN BY THESE PRESENTS, that We, \_\_\_\_\_,  
\_\_\_\_\_, as Principal, and \_\_\_\_\_,  
\_\_\_\_\_, as Surety, are jointly and severally held and firmly bound unto the State  
of Minnesota, Department of Transportation, as Obligee, in the sum of five percent (5%) of the total amount of  
the proposal price.

The CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall be awarded a  
contract, upon the accompanying proposal dated \_\_\_\_\_ for the performance  
of STATE PROJECT \_\_\_\_\_

\_\_\_\_\_ and shall, within the time stated in the proposal, enter into a contract for the performance of the work  
and give bond as required by law, then this obligation shall be void; otherwise, the Principal and  
Surety shall pay unto the Obligee the amount of this bond, not as a penalty, but as liquidated  
damages sustained by the Obligee as the result of such failure on the part of the Principal to execute  
said contract and bond.

**SIGNATURES**

Date \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
(Name of Contractor/Principal)

By: \_\_\_\_\_  
(Officer)

By: \_\_\_\_\_  
(Officer)

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_  
(Attorney-in-Fact)

(Surety Corporate Seal)

**ACKNOWLEDGEMENT IN A REPRESENTATIVE CAPACITY**  
**(Corporation, LLC, Partnership or Other Entity)**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

This instrument was acknowledged before me on \_\_\_\_\_ by \_\_\_\_\_  
(date) (name)

and \_\_\_\_\_ as \_\_\_\_\_ and \_\_\_\_\_  
(name) (title) (title)

of \_\_\_\_\_  
(name and designation of party on behalf of whom the instrument was executed)

Notary Signature: \_\_\_\_\_

Title: Notary

Commission Expiration: \_\_\_\_\_

(Notary Stamp/Seal)

**ACKNOWLEDGEMENT IN AN INDIVIDUAL CAPACITY**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

This instrument was acknowledged before me on \_\_\_\_\_ by \_\_\_\_\_  
(date) (name)

and \_\_\_\_\_  
(name)

Notary Signature: \_\_\_\_\_

Title: Notary

Commission Expiration: \_\_\_\_\_

(Notary Stamp/Seal)

## ACKNOWLEDGEMENT OF SURETY

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

This instrument was acknowledged before me on \_\_\_\_\_ by \_\_\_\_\_  
(date) (name)

as Attorney-in-Fact of \_\_\_\_\_  
(name of surety)

Notary Signature: \_\_\_\_\_

Title: Notary

Commission Expiration: \_\_\_\_\_

(Notary Stamp/Seal)

NOTICE TO PERSONAL SURETIES: Bond will not be accepted unless accompanied by a sworn financial statement of each of the sureties.

NOTICE TO CORPORATE SURETIES: This bond will not be accepted unless executed by a Minnesota agent, or a duly licensed non-resident-producer, or attorney-in-fact whose name and address must be noted below.

Full Name of Surety Company \_\_\_\_\_

Home Office Address (Street) \_\_\_\_\_

City, State and Zip Code \_\_\_\_\_

Name of Attorney-in-Fact \_\_\_\_\_

Name of Local Agent and Agency or  
Non-Resident Producer and Agency \_\_\_\_\_

Address of Local Agency or  
Non-Resident Producer Agency (street) \_\_\_\_\_

City, State and Zip Code \_\_\_\_\_

Approved and filed \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Commissioner of Transportation  
Pursuant to Delegation of Authority



DISTRICT #: 4d5680147\_tsh  
PLOT NAME: 4d5680147\_tsh  
PATH & FILENAME:  
18-NOV-2024  
PLOTTED/REVISED:

TH 94		
REF. POST	=	STATION
38+00.000	=	2305+53
39+00.000	=	2358+39
40+00.000	=	2411+21
41+00.000	=	316+22
42+00.000	=	369+01
43+00.000	=	421+76
44+00.000	=	474+60
45+00.000	=	527+41
46+00.000	=	580+26
47+00.000	=	632+89
48+00.000	=	685+69
49+00.000	=	738+46
50+00.000	=	791+27
51+00.000	=	844+55

TH 94 EQUATIONS

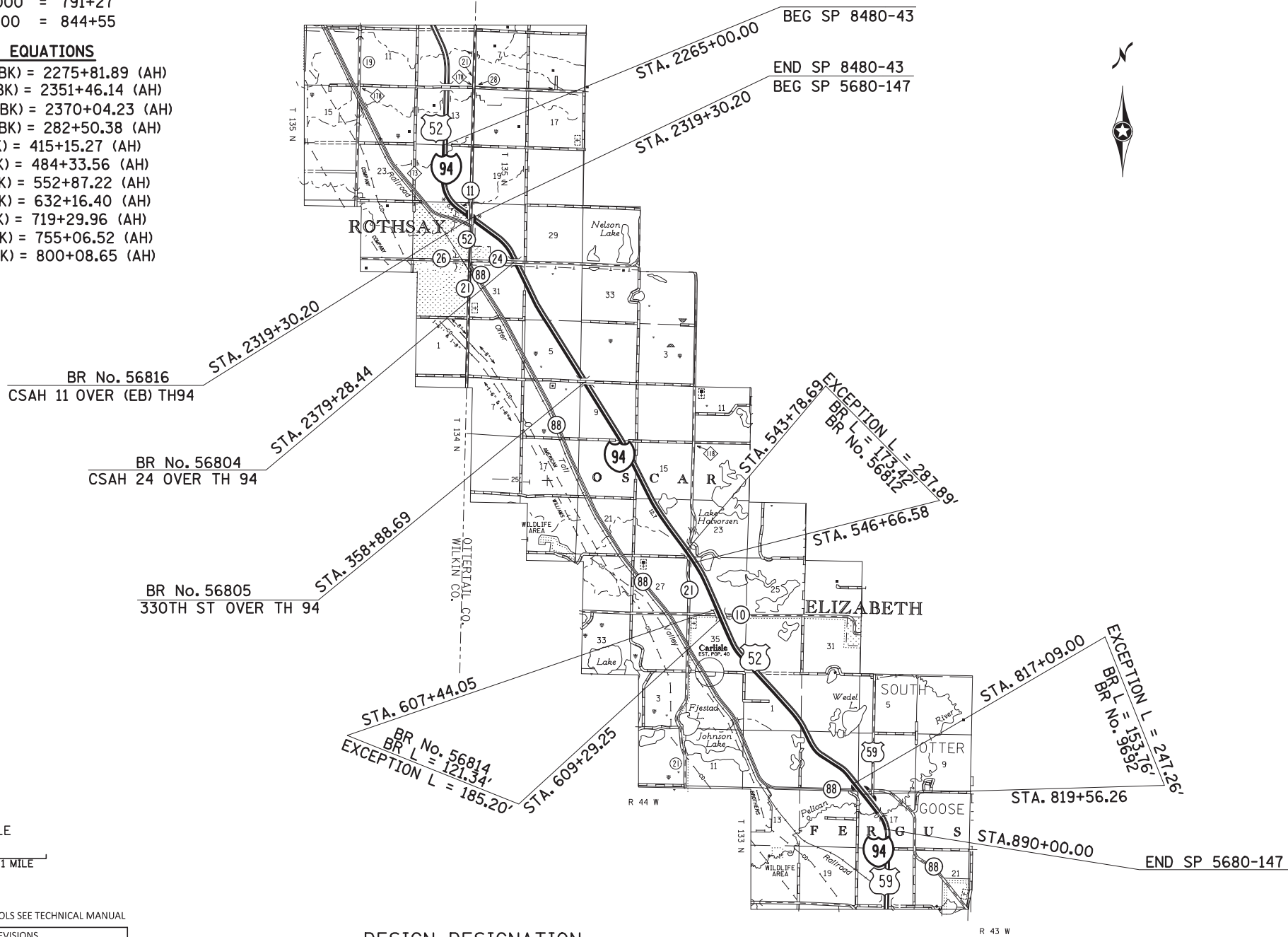
2275+77.67 (BK) = 2275+81.89 (AH)  
2351+43.35 (BK) = 2351+46.14 (AH)  
2370+00.27 (BK) = 2370+04.23 (AH)  
2430+24.24 (BK) = 282+50.38 (AH)  
415+19.65 (BK) = 415+15.27 (AH)  
484+31.53 (BK) = 484+33.56 (AH)  
552+75.73 (BK) = 552+87.22 (AH)  
632+34.99 (BK) = 632+16.40 (AH)  
719+33.88 (BK) = 719+29.96 (AH)  
755+02.63 (BK) = 755+06.52 (AH)  
800+02.33 (BK) = 800+08.65 (AH)

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS MILL & SURFACING, CONCRETE SURFACING, UNBONDED CONCRETE OVERLAY, RWIS, AND BR 56805  
LOCATED ON TH 94 EB FROM 1.0 MILES WEST OF CSAH 11 TO 1.35 MILES SOUTH OF CSAH 88

STATE PROJ. NO. 8480-43 (TH94 EB)  
GROSS LENGTH 5425.98 FEET 1.028 MILES  
BRIDGES-LENGTH FEET MILES  
EXCEPTIONS-LENGTH FEET MILES  
NET LENGTH 5425.98 FEET 1.028 MILES  
REF. POINT 37+00.229 TO REF. POINT 38+00.270  
LENGTH AND DESCRIPTION BASED ON EB ALIGNMENT

STATE PROJ. NO. 5680-147 (TH94 EB)  
GROSS LENGTH 71840.07 FEET 13.606 MILES  
BRIDGES-LENGTH 448.52 FEET 0.085 MILES  
EXCEPTIONS-LENGTH 720.35 FEET 0.136 MILES  
NET LENGTH 71119.72 FEET 13.470 MILES  
REF. POINT 38+00.270 TO REF. POINT 51+00.900  
LENGTH AND DESCRIPTION BASED ON EB ALIGNMENT



FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

DESIGN DESIGNATION

Design ESALS = 42319000  
ADT (Current Year) 2025 = 19670  
ADT (Future Year) 2045 = 24580  
DHV (Design Hr. Vol.) = 12950  
D (Directional Distr.) = %  
T (Heavy Commercial) = 19.6 %  
Design Speed 70 MPH  
Based on STOPPING Sight Distance  
Height of eye 3.5' Height of object 2.0'  
Design Speed not achieved at:  
STA. TO STA. MPH  
STA. TO STA. MPH



PROJECT LOCATION  
COUNTY : WILKIN/OTTER TAIL  
DISTRICT : 4

ASSOCIATED PROJ. NO.  
8480-43 (TH 94=064)

FED. PROJ. NO. NHPP I940(058)

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION  
"STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2 - 6	GENERAL LAYOUT
7 - 9	ESTIMATED QUANTITIES
10 - 16	TABULATIONS
17 - 26	TYPICAL SECTIONS
27 - 36	DESIGN DETAILS
37 - 39	ALIGNMENT PLANS
40 - 89	STANDARD PLANS
90 - 117	CONSTRUCTION PLANS
118 - 126	PROFILES
127 - 132	NWI MAPS
133 - 135	ENVIROMENTAL MANAGEMENT PLAN
136 - 138	SWPPP
139 - 153	TRAFFIC BARRIER PLAN
RS1 - RS13	RWIS PLAN
TC1 - TC22	TRAFFIC CONTROL PLAN

SHEETS 89, 134 AND 135 HAVE BEEN DELETED

THIS PLAN CONTAINS 185 SHEETS

RECOMMENDED FOR APPROVAL  
DISTRICT TRANSPORTATION ENGINEER

Shiloh Wahl  
Digitally signed by Shiloh Wahl  
Date: 2024.11.25 08:20:47 -06'00' 20

RECOMMENDED FOR APPROVAL  
DISTRICT MATERIALS ENGINEER

Katy Reiersen  
Digitally signed by Katy Reiersen  
Date: 2024.11.25 07:04:39 -06'00' 20

RECOMMENDED FOR APPROVAL  
DISTRICT HYDRAULICS ENGINEER

Amanda Ellingson  
Digitally signed by Amanda Ellingson  
Date: 2024.11.25 07:30:58 -06'00' 20

RECOMMENDED FOR APPROVAL  
DISTRICT TRAFFIC ENGINEER

Trudy Kordosky  
Digitally signed by Trudy Kordosky  
Date: 2024.11.25 07:30:58 -06'00' 20

RECOMMENDED FOR APPROVAL  
FOR STATE PRE-LETTING ENGINEER

Tim Swanson  
Digitally signed by Tim Swanson  
Date: 2024.11.25 10:51:59 -06'00' 20

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION  
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE  
OF MINNESOTA.

PRINT NAME: ANDREW KROG LIC. NO. 54689

DATE: SIGNATURE: Andrew Krog  
Digitally signed by Andrew Krog  
Date: 2024.11.22 12:00:29 -06'00'

DESIGN SQUAD BEN GREISEN & DUSTIN PARSONS

OFFICE OF LAND MANAGEMENT APPROVAL  
DIRECTOR, LAND MANAGEMENT

Joseph Pignato  
Digitally signed by Joseph Pignato  
Date: 2024.11.25 13:43:42 -06'00' 20

APPROVED  
STATE DESIGN ENGINEER

Tom Styrbicki  
Digitally signed by Tom Styrbicki  
Date: 2024.11.25 13:49:58 -06'00' 20



TITLE SHEET

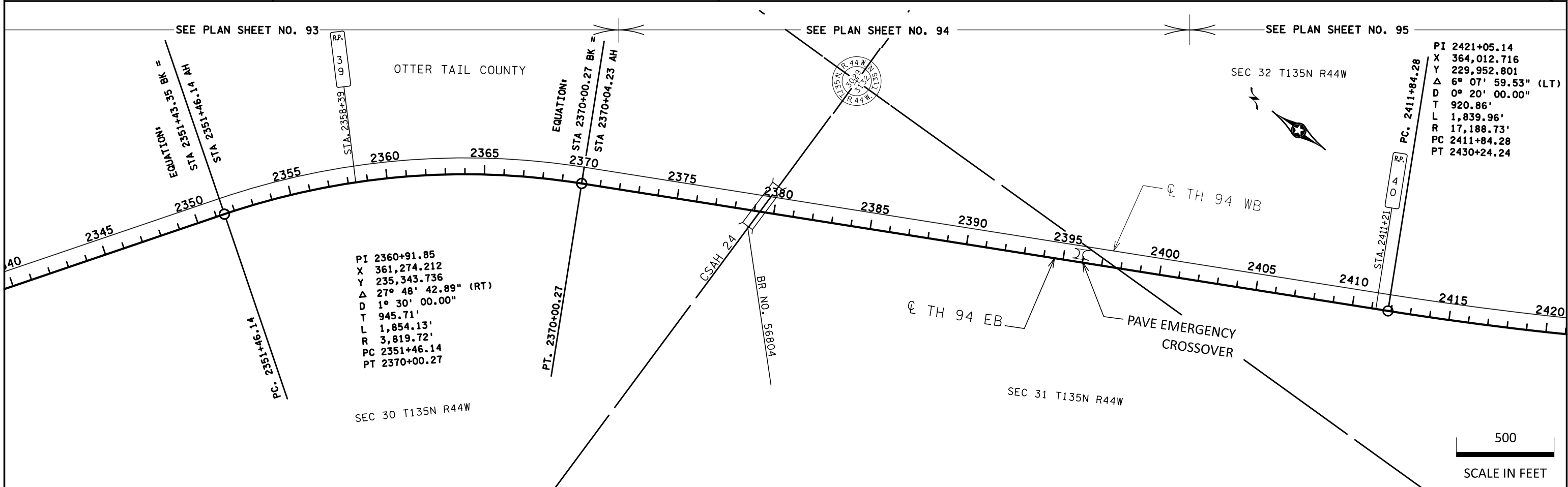
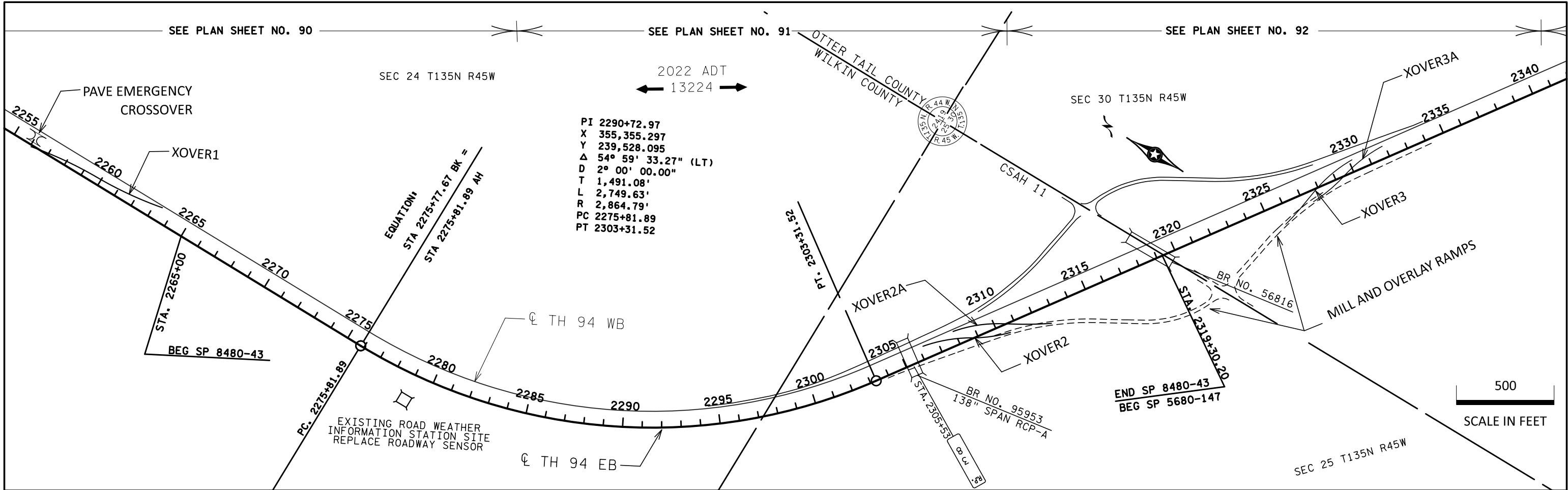
STATE PROJ. NO. 5680-147  
(TH 94 = 064)

SHEET NO. 1  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT # 4D5680147\_glp  
PLOT NAME: 4D5680147\_glp  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

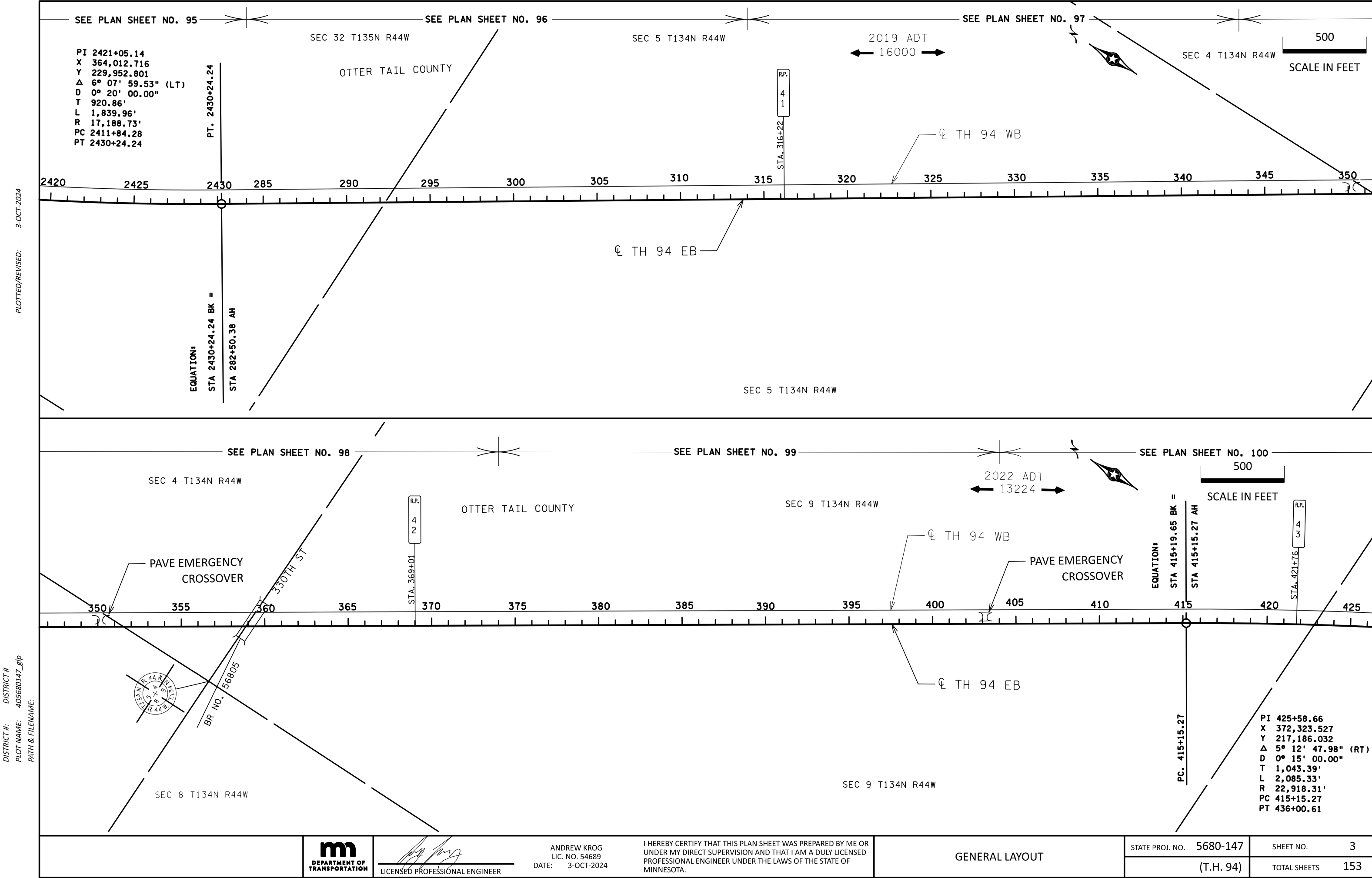
ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

GENERAL LAYOUT

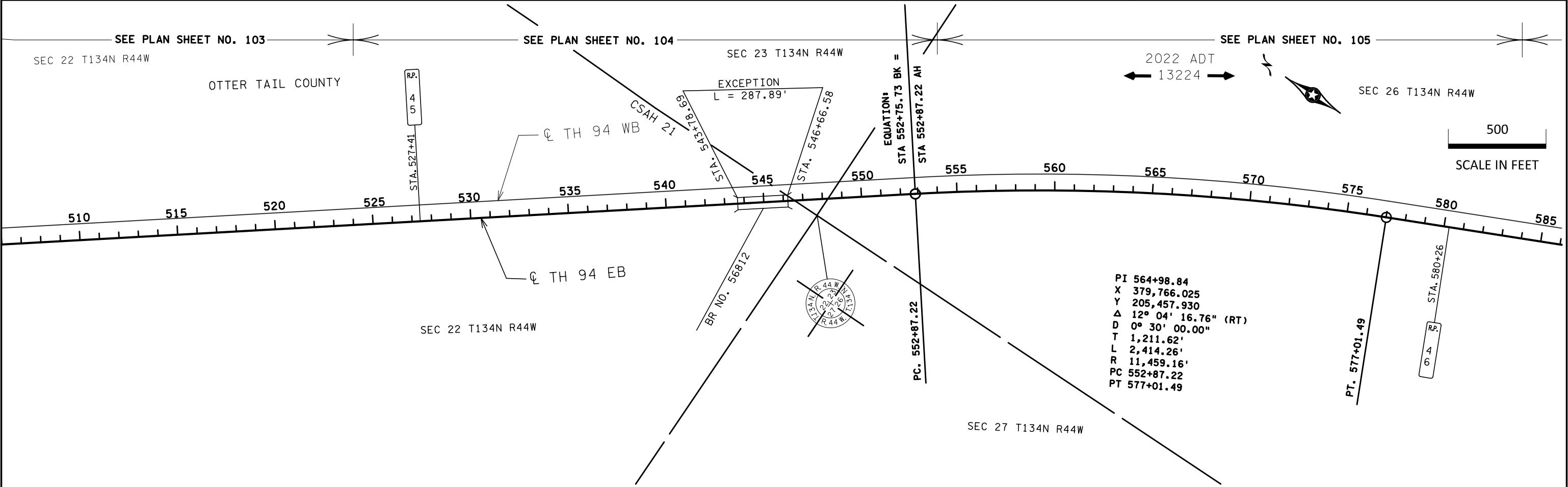
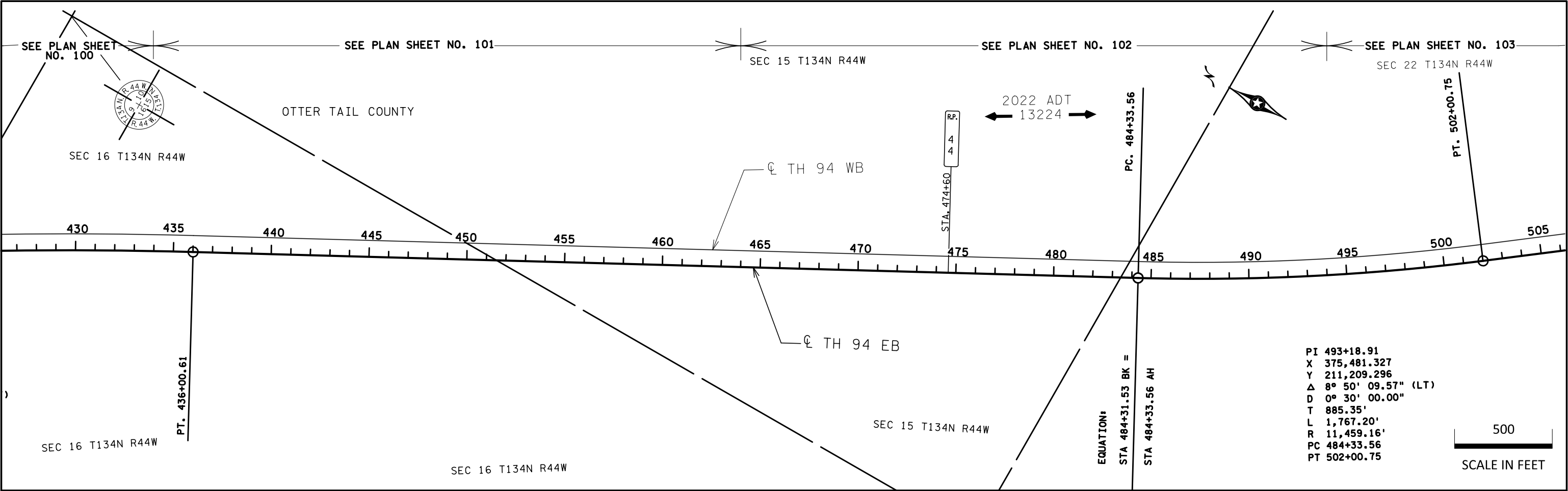
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 2  
TOTAL SHEETS 153



3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_glp  
PATH & FILENAME:



*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

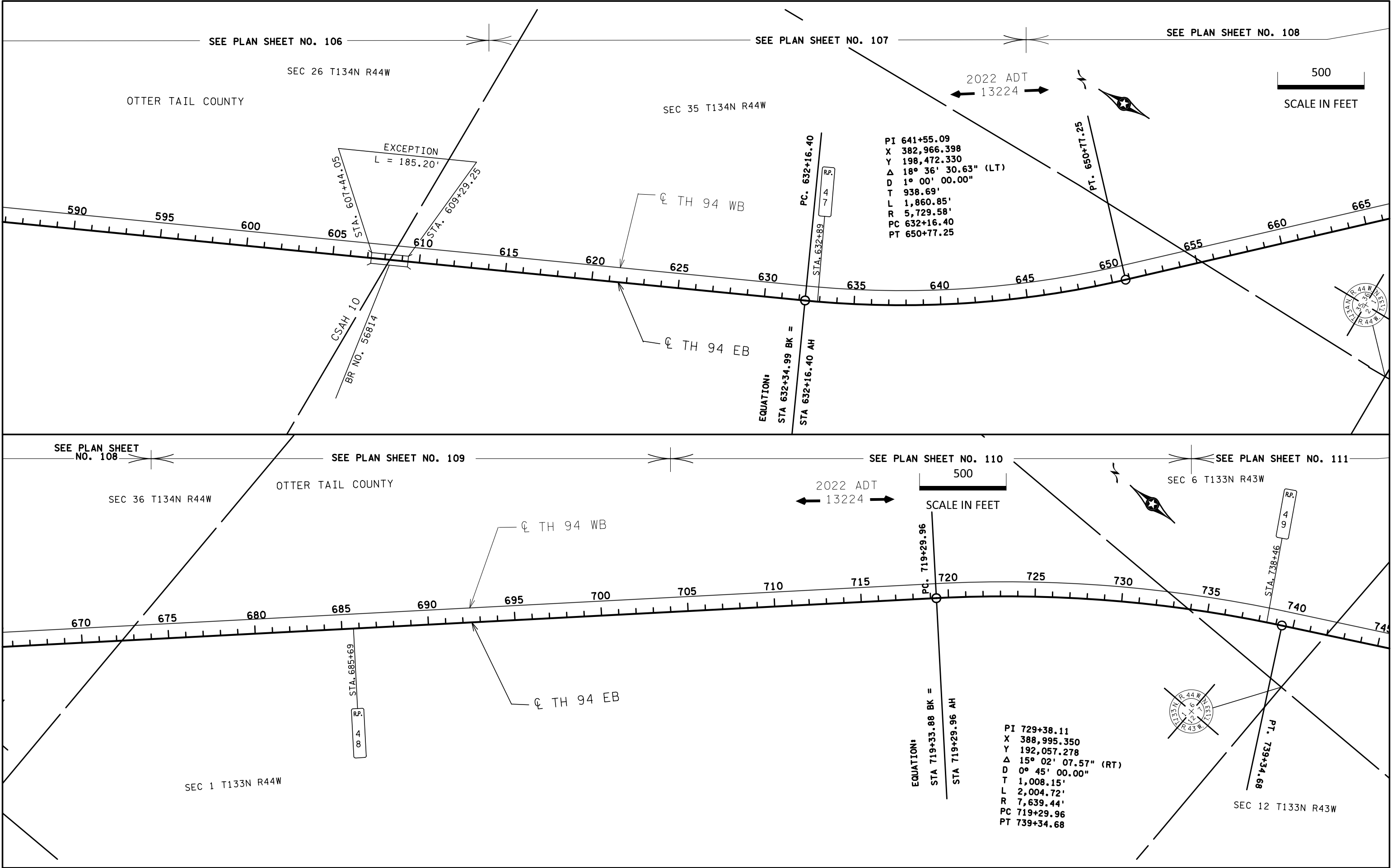
GENERAL LAYOUT

STATE PROJ. NO. 5680-147	SHEET NO. 4
(T.H. 94)	TOTAL SHEETS 153



PLOTTED/REVISED: 3-OCT-2024

DISTRICT #  
PLOT NAME: 4D5680147\_glp  
PATH & FILENAME:



*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

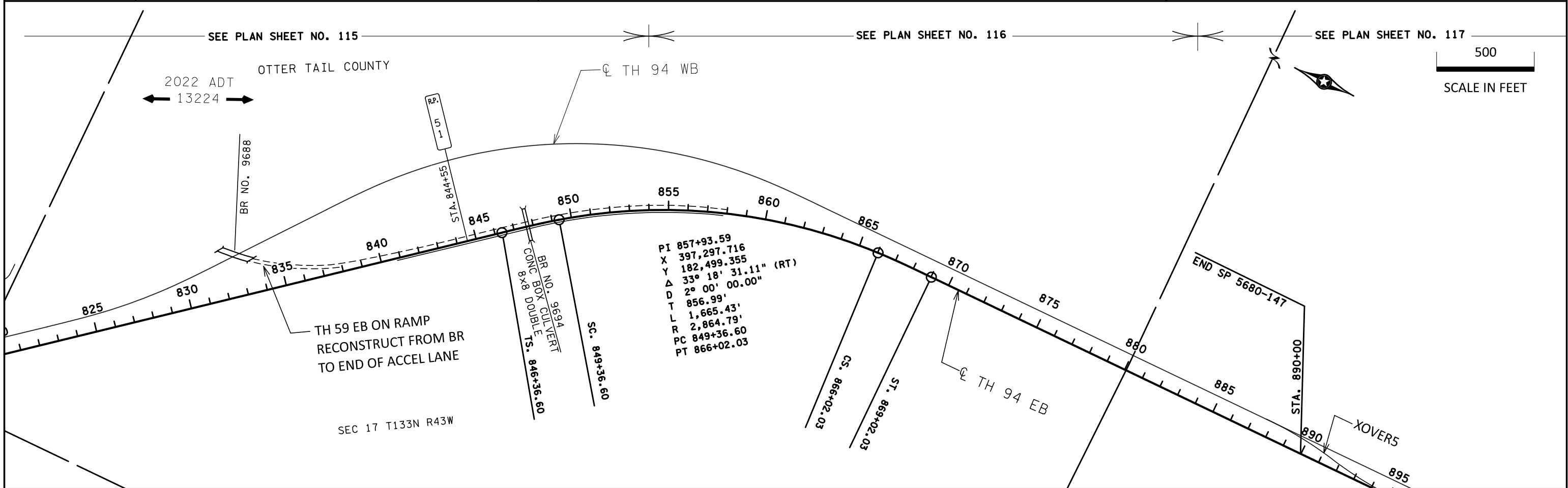
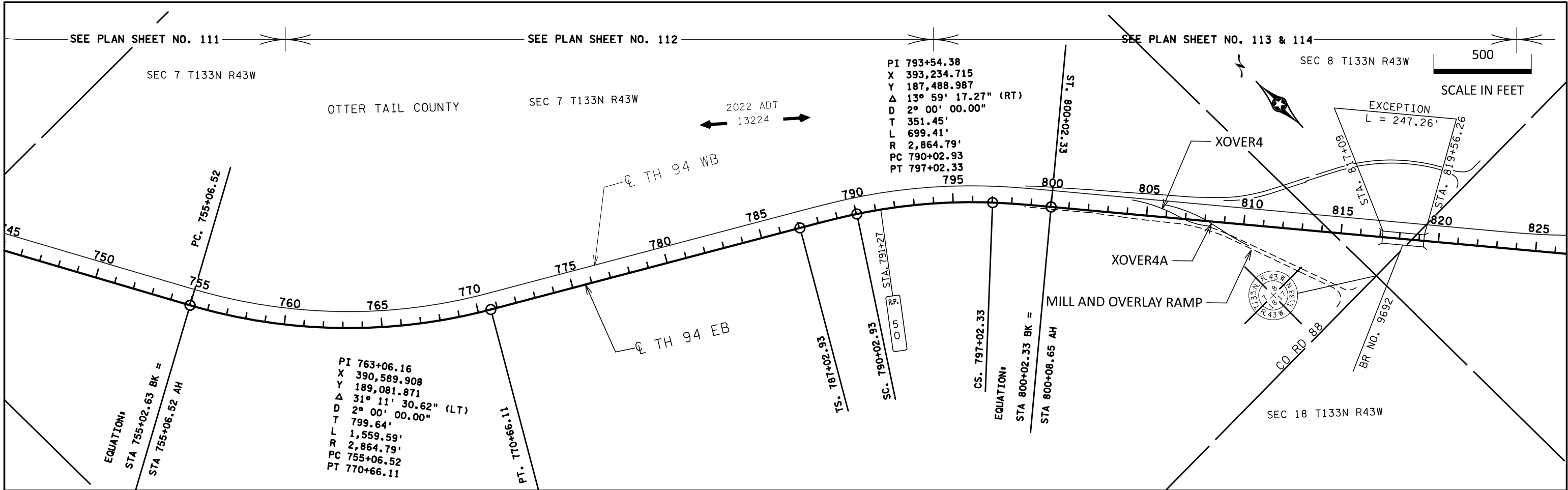
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

GENERAL LAYOUT

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 5  
TOTAL SHEETS 153

DISTRICT #: 4D5680147\_glp  
PLOT NAME: 4D5680147\_glp  
PATH & FILENAME:  
6-NOV-2024  
PLOTTED/REVISED:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

GENERAL LAYOUT

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 6  
TOTAL SHEETS 153

DISTRICT #: 4d2180118\_seq

17-JAN-2025

4d2180118\_seq

PATH & FILENAME:

PLOTTED/REVISED:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
		2011.601	CONSTRUCTION SURVEYING	LUMP SUM	1	1	
		2011.601	AS BUILT	LUMP SUM	1	1	
RS1-RS13		2013.602	INSTALL ROAD/WEATHER INFORMATION STATION (INVASIVE SENSOR)	EACH	1		1
		2021.501	MOBILIZATION	LUMP SUM	1	1	
		2031.502	FIELD OFFICE	EACH	1	1	
		2031.502	FIELD LABORATORY	EACH	1	1	
		2051.501	MAINT & RESTORATION OF HAUL ROADS	LUMP SUM	1	1	
		2061.601	MATERIAL DELIVERY MANAGEMENT SYSTEM	LUMP SUM	1	1	
11	D	2104.502	REMOVE PIPE APRON	EACH	8	4	4
14	H	2104.502	REMOVE ANCHORAGE ASSEMBLY - TENSION CABLE	EACH	8	8	
10	F	2104.502	REMOVE CONCRETE HEADWALL	EACH	8	7	1
14	H	2104.502	REMOVE ANCHORAGE ASSEMBLY - CABLE	EACH	12	12	
15-16	J	2104.502	REMOVE ECCENTRIC LOADER BCT	EACH	3	3	
15-16	J	2104.502	REMOVE ENERGY ABSORBING TERMINAL	EACH	15	14	1
15-16	J	2104.502	REMOVE SLOTTED RAIL TERMINAL	EACH	6	5	1
15-16	J	2104.502	SALVAGE ENERGY ABSORBING TERMINAL	EACH	11	11	
10	G	2104.502	SALVAGE PIPE APRON	EACH	13	13	
10	F	2104.502	SALVAGE PRECAST CONCRETE HEADWALL	EACH	280	269	11
10	AA	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	1198	1102	96
10-11	C,D,AA	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	3432	2287	1145
10	F	2104.503	REMOVE PIPE DRAIN	LIN FT	24114	23102	1012
11	D	2104.503	REMOVE PIPE CULVERTS	LIN FT	1388	680	708
10	AA	2104.503	REMOVE CURB AND GUTTER	LIN FT	56	56	
14	H	2104.503	REMOVE CABLE GUARDRAIL	LIN FT	3713	3713	
15-16	J	2104.503	REMOVE GUARDRAIL - PLATE BEAM	LIN FT	4500	4412	88
15-16	J	2104.503	REMOVE GUARDRAIL - BOX BEAM	LIN FT	588	488	100
15-16	J	2104.503	REMOVE GUARDRAIL - TYPE 31	LIN FT	175	175	
14	H	2104.503	REMOVE TENSION CABLE GUARDRAIL	LIN FT	518	518	
10	G	2104.503	SALVAGE PIPE CULVERT	LIN FT	32	32	
14	H	2104.503	SALVAGE TENSION CABLE GUARDRAIL	LIN FT	35635	29486	6149
15-16	J	2104.503	SALVAGE GUARDRAIL - TYPE 31	LIN FT	288	288	
10	AA	2104.504	REMOVE PAVEMENT	SQ YD	13995	12646	1349
10	AA	2104.504	REMOVE CONCRETE PAVEMENT	SQ YD	23688	23672	16
11	D	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	4352	2349	2003
10,11	AA,C	2104.504	REMOVE BITUMINOUS SHOULDER PAVEMENT	SQ YD	109493	101527	7966
		2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1		
11-13	B,C,D,K,X	2106.507	EXCAVATION - COMMON	CU YD	51890	44351	7539
13	B	2106.507	EXCAVATION - SUBGRADE	CU YD	58153	56373	1780
13	B	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	38022	36954	1068
10-13	B,C,D,G,K,X	2106.507	COMMON EMBANKMENT (CV)	CU YD	39147	36283	2864
10	AA	2112.604	SUBGRADE PREPARATION	SQ YD	224	208	16
11	C	2118.507	AGGREGATE SURFACING (CV) CLASS 5	CU YD	223	120	103
13	B	2118.509	AGGREGATE SURFACING CLASS 1 MOD	TON	14236	13036	1200
11,13	B,C	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	37611	33367	4244
		2231.509	BITUMINOUS PATCHING MIXTURE	TON	504	458	46
10	AA	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	4569	2897	1672
10	AA	2232.504	MILL BITUMINOUS SURFACE (5.0")	SQ YD	152062	143323	8739
10	AA	2232.504	MILL BITUMINOUS SURFACE (12")	SQ YD	18380	13988	4392
12	E	2232.603	MILLED RUMBLE STRIPS	LIN FT	68671	63745	4926
12	E	2232.603	MILLED RUMBLE STRIPS (CONCRETE)	LIN FT	78641	73234	5407
13	B	2301.502	DOWEL BAR	EACH	116615	108262	8353
13	B	2301.504	PLACE CONCRETE PAVEMENT 9"	SQ YD	254583	235963	18620

A 90% FEDERAL - 10% STATE FUNDS

B 100% STATE FUNDS

- CONSTRUCTION NOTES:
- 1

REMOVING INPLACE CULVERT MARKERS TO BE INCIDENTAL.
- 2

NOTE DELETED
- 3

AGGREGATE SURFACING CLASS 1 MOD SHALL CONSIST OF 90% BITUMINOUS MILLINGS FROM THIS PROJECT BLENDED WITH 10% VIRGIN AGGREGATE SURFACING CLASS 1. 100% MUST PASS THE 1.5" SIEVE AND 95-100% MUST PASS THE 1" SIEVE. THE MATERIAL SHALL BE FREE FROM CLUMPS WHEN PLACED WHICH MAY REQUIRE SCREENING AND/OR CRUSHING PRIOR TO PLACEMENT.
- 4

PROVIDED FOR THE HAULING OF SALVAGED ENERGY ABSORBING TERMINALS. TO BE DELIVERED TO THE FERGUS FALLS TRUCK STATION LOCATED: 1205 EAST DOUGLAS AVE. FERGUS FALLS, MN 56537.
- 5

ADDITIONAL 173 SQ YD INCLUDED FOR THE REMOVAL OF BITUMINOUS PAVEMENT AT THE SE APPROACH PANEL OF BRIDGE NUMBER 56812

(P) DENOTES PLAN QUANTITY

THE FOLLOWING STANDARD PLATES APPROVED BY THE DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

PLATE NO.	STANDARD PLATES
1070 N	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 L	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
3040 F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" X 1/2" CORRUGATION)
3128 H	METAL SAFETY APRON & GRATE (2 SHEETS)
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3221 D	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
7100 H	CONCRETE CURB & GUTTER (DESIGN B & V)
8000 K	TEMPORARY CHANNELIZERS (3 SHEETS)
8150 C	INSTALLATION OF CULVERT MARKERS
8343 A	HIGH-TENSION CABLE BARRIER LINE POST FOUNDATION (STEEL DESIGN)
8350 A	THRIE BEAM ANCHORAGE PLATE
8352 C	THRIE BEAM WEDGE PLATE FOR F-SHAPE AND J-SHAPE BARRIER (2 SHEETS)
8354 A	W-BEAM END SECTION
8355 B	W-BEAM GUARDRAIL
8356 A	W-BEAM TO THRIE-BEAM TRANSITION GUARDRAIL
8357 A	THRIE-BEAM GUARDRAIL
8358 A	THRI-BEAM SLOTTED RAIL FOR BULLNOSE
8360 B	GUARDRAIL POST LENGTH MARKING
8361 B	GUARDRAIL STEEL POST (3 SHEETS)
8362 A	UNIVERSAL BREAKAWAY STEEL POST (UPSP) (2 SHEETS)
8363 A	STEEL POST TRAILING-END ANCHOR-BREAKER ARM COMPONENT (5 SHEETS)
8365 B	BCT TIMBER POST
8366 B	BCT FOUNDATION TUBE
8369 B	GUARDRAIL BLOCKOUT (2 SHEETS)
8370 B	BCT CABLE AND COMPONENTS-COMPONENT AND ASSEMBLY DETAILS (2 SHEETS)
8371 A	NOSE-CABLE-BULNOSE GUARDRAIL
8380 A	TRAILING END ANCHOR STRUT AND YOKE

PLAN REVISIONS		
DATE	REVISION	APPROVER
1/17/2025	REVISED QUANTITY FOR EXCAVATION-COMMON	A.K.
1/17/2025	REVISED QUANTITY FOR COMMON EMBANKMENT	A.K.



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG

LIC. NO. 54689

DATE: 17-JAN-2025

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ESTIMATED QUANTITIES

STATE PROJ. NO.	5680-147	SHEET NO.	7R
	(TH 94)	TOTAL SHEETS	153

DISTRICT #: 4d2180118\_seq

DISTRICT #

25-NOV-2024

4d2180118\_seq

PATH & FILENAME:

PLOTTED/REVISED:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
RS1-RS13		2011.601	CONSTRUCTION SURVEYING	LUMP SUM	1	1	
		2011.601	AS BUILT	LUMP SUM	1	1	
		2013.602	INSTALL ROAD/WEATHER INFORMATION STATION (INVASIVE SENSOR)	EACH	1		1
		2021.501	MOBILIZATION	LUMP SUM	1	1	
		2031.502	FIELD OFFICE	EACH	1	1	
		2031.502	FIELD LABORATORY	EACH	1	1	
		2051.501	MAINT & RESTORATION OF HAUL ROADS	LUMP SUM	1	1	
		2061.601	MATERIAL DELIVERY MANAGEMENT SYSTEM	LUMP SUM	1	1	
11	D	2104.502	REMOVE PIPE APRON	EACH	8	4	4
14	H	2104.502	REMOVE ANCHORAGE ASSEMBLY - TENSION CABLE	EACH	8	8	
10	F	2104.502	REMOVE CONCRETE HEADWALL	EACH	8	7	1
14	H	2104.502	REMOVE ANCHORAGE ASSEMBLY - CABLE	EACH	12	12	
15-16	J	2104.502	REMOVE ECCENTRIC LOADER BCT	EACH	3	3	
15-16	J	2104.502	REMOVE ENERGY ABSORBING TERMINAL	EACH	15	14	1
15-16	J	2104.502	REMOVE SLOTTED RAIL TERMINAL	EACH	6	5	1
15-16	J	2104.502	SALVAGE ENERGY ABSORBING TERMINAL	EACH	11	11	
10	G	2104.502	SALVAGE PIPE APRON	EACH	13	13	
10	F	2104.502	SALVAGE PRECAST CONCRETE HEADWALL	EACH	280	269	11
10	AA	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	1198	1102	96
10-11	C,D,AA	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	3432	2287	1145
10	F	2104.503	REMOVE PIPE DRAIN	LIN FT	24114	23102	1012
11	D	2104.503	REMOVE PIPE CULVERTS	LIN FT	1388	680	708
10	AA	2104.503	REMOVE CURB AND GUTTER	LIN FT	56	56	
14	H	2104.503	REMOVE CABLE GUARDRAIL	LIN FT	3713	3713	
15-16	J	2104.503	REMOVE GUARDRAIL - PLATE BEAM	LIN FT	4500	4412	88
15-16	J	2104.503	REMOVE GUARDRAIL - BOX BEAM	LIN FT	588	488	100
15-16	J	2104.503	REMOVE GUARDRAIL - TYPE 31	LIN FT	175	175	
14	H	2104.503	REMOVE TENSION CABLE GUARDRAIL	LIN FT	518	518	
10	G	2104.503	SALVAGE PIPE CULVERT	LIN FT	32	32	
14	H	2104.503	SALVAGE TENSION CABLE GUARDRAIL	LIN FT	35635	29486	6149
15-16	J	2104.503	SALVAGE GUARDRAIL - TYPE 31	LIN FT	288	288	
10	AA	2104.504	REMOVE PAVEMENT	SQ YD	13995	12646	1349
10	AA	2104.504	REMOVE CONCRETE PAVEMENT	SQ YD	23688	23672	16
11	D	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	4352	2349	2003
10,11	AA,C	2104.504	REMOVE BITUMINOUS SHOULDER PAVEMENT	SQ YD	109493	101527	7966
		2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1		
11-13	B,C,D,K,X	2106.507	EXCAVATION - COMMON	CU YD	39118	32345	6773
13	B	2106.507	EXCAVATION - SUBGRADE	CU YD	58153	56373	1780
13	B	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	38022	36954	1068
10-13	B,C,D,G,K,X	2106.507	COMMON EMBANKMENT (CV)	CU YD	20357	18606	1751
10	AA	2112.604	SUBGRADE PREPARATION	SQ YD	224	208	16
11	C	2118.507	AGGREGATE SURFACING (CV) CLASS 5	CU YD	223	120	103
13	B	2118.509	AGGREGATE SURFACING CLASS 1 MOD	TON	14236	13036	1200
11,13	B,C	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	37611	33367	4244
		2231.509	BITUMINOUS PATCHING MIXTURE	TON	504	458	46
10	AA	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	4569	2897	1672
10	AA	2232.504	MILL BITUMINOUS SURFACE (5.0")	SQ YD	152062	143323	8739
10	AA	2232.504	MILL BITUMINOUS SURFACE (12")	SQ YD	18380	13988	4392
12	E	2232.603	MILLED RUMBLE STRIPS	LIN FT	68671	63745	4926
12	E	2232.603	MILLED RUMBLE STRIPS (CONCRETE)	LIN FT	78641	73234	5407
13	B	2301.502	DOWEL BAR	EACH	116615	108262	8353
13	B	2301.504	PLACE CONCRETE PAVEMENT 9"	SQ YD	254583	235963	18620

- A 90% FEDERAL - 10% STATE FUNDS
- B 100% STATE FUNDS

- CONSTRUCTION NOTES:
- 1 REMOVING INPLACE CULVERT MARKERS TO BE INCIDENTAL.

2 NOTE DELETED

3 AGGREGATE SURFACING CLASS 1 MOD SHALL CONSIST OF 90% BITUMINOUS MILLINGS FROM THIS PROJECT BLENDED WITH 10% VIRGIN AGGREGATE SURFACING CLASS 1. 100% MUST PASS THE 1.5" SIEVE AND 95-100% MUST PASS THE 1" SIEVE. THE MATERIAL SHALL BE FREE FROM CLUMPS WHEN PLACED WHICH MAY REQUIRE SCREENING AND/OR CRUSHING PRIOR TO PLACEMENT.

4 PROVIDED FOR THE HAULING OF SALVAGED ENERGY ABSORBING TERMINALS. TO BE DELIVERED TO THE FERGUS FALLS TRUCK STATION LOCATED: 1205 EAST DOUGLAS AVE. FERGUS FALLS, MN 56537.

5 ADDITIONAL 173 SQ YD INCLUDED FOR THE REMOVAL OF BITUMINOUS PAVEMENT AT THE SE APPROACH PANEL OF BRIDGE NUMBER 56812

P DENOTES PLAN QUANTITY

PLATE NO.	STANDARD PLATES
1070 N	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 L	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
3040 F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" X 1/2" CORRUGATION)
3128 H	METAL SAFETY APRON & GRATE (2 SHEETS)
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3221 D	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
7100 H	CONCRETE CURB & GUTTER (DESIGN B & V)
8000 K	TEMPORARY CHANNELIZERS (3 SHEETS)
8150 C	INSTALLATION OF CULVERT MARKERS
8343 A	HIGH-TENSION CABLE BARRIER LINE POST FOUNDATION (STEEL DESIGN)
8350 A	THRIE BEAM ANCHORAGE PLATE
8352 C	THRIE BEAM WEDGE PLATE FOR F-SHAPE AND J-SHAPE BARRIER (2 SHEETS)
8354 A	W-BEAM END SECTION
8355 B	W-BEAM GUARDRAIL
8356 A	W-BEAM TO THRIE-BEAM TRANSITION GUARDRAIL
8357 A	THRIE-BEAM GUARDRAIL
8358 A	THRI-BEAM SLOTTED RAIL FOR BULLNOSE
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8363 A	STEEL POST TRAILING END ANCHOR-BREAKER ARM COMPONENT (5 SHEETS)
8365 B	BCT TIMBER POST
8366 B	BCT FOUNDATION TUBE
8369 B	GUARDRAIL BLOCKOUT (2 SHEETS)
8370 B	BCT CABLE AND COMPONENTS-COMPONENT AND ASSEMBLY DETAILS (2 SHEETS)
8371 A	NOSE-CABLE-BULNOSE GUARDRAIL
8380 A	TRAILING END ANCHOR STRUT AND YOKE



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG

LIC. NO. 54689

DATE: 25-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ESTIMATED QUANTITIES

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. 7

TOTAL SHEETS 153

DISTRICT #: 4d2180118\_seq  
PLOT NAME: 4d2180118\_seq  
PATH & FILENAME:  
10-JAN-2025  
PLOTTED/REVISED:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
13	B	2301.507	STRUCTURAL CONCRETE	CU YD	64389	59729	4660
		2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT ③	POUND	10860	10060	800
13	B	2301.602	DRILL & GROUT DOWEL BAR (EPOXY COATED)	EACH	238	192	46
13	B	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	TON	20147	18057	2090
11,13	B,C	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (5,B)	TON	2713	1685	1028
13	B	2363.509	BIT MIX FOR PERM ASPHALT STABILIZED STRESS RELIEF CRSE	TON	11762	10808	954
13	B	2363.509	BITUMINOUS MATERIAL FOR MIXTURE	TON	375	344	31
35-36		2401.507	STRUCTURAL CONCRETE (3B52)	CU YD	18	18	
35-36		2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	2680	2680	
11	C	2501.502	18" CS SAFETY APRON AND GRATE DESIGN 3128 ①	EACH	8	4	4
10	G	2501.502	INSTALL PIPE APRON	EACH	13	13	
11	C	2501.503	18" CS PIPE CULVERT	LIN FT	1388	680	708
10	G	2501.503	INSTALL PIPE CULVERT	LIN FT	32	32	
10	F	2502.502	INSTALL PRECAST CONCRETE HEADWALL	EACH	280	269	11
10	F	2502.503	4" TP PIPE DRAIN	LIN FT	3456	3296	160
10	F	2502.503	4" PERF TP PIPE DRAIN	LIN FT	6108	5058	1050
10	F	2502.503	4" PERF PE PIPE DRAIN	LIN FT	138614	128766	9848
10	AA	2506.502	ADJUST FRAME & RING CASTING	EACH	4	4	
10	G	2507.603	LINING CULVERT PIPE (24") SPECIAL ②	LIN FT	380	380	
10	G	2507.603	LINING CULVERT PIPE (36") SPECIAL ②	LIN FT	592	592	
10	G	2507.603	LINING CULVERT PIPE (42") SPECIAL ②⑤	LIN FT	245	245	
13	B	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	168	168	
13	B	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	32	32	
10	G	2554.502	GUIDE POST TYPE B	EACH	9	9	
15-16	J	2554.502	ANCHORAGE ASSEMBLY - TYPE 31	EACH	5	5	
14	H	2554.502	ANCHORAGE ASSEMBLY - TENSION CABLE	EACH	16	16	
15-16	J	2554.502	END TREATMENT - FLARED TERMINAL	EACH	18	16	2
15-16	J	2554.503	TRAFFIC BARRIER DESIGN SPECIAL	LIN FT	75	75	
15-16	J	2554.503	TRAFFIC BARRIER DESIGN BULLNOSE	LIN FT	1200	1100	100
15-16	J	2554.503	TRAFFIC BARRIER DESIGN TYPE 31	LIN FT	4499	4192	307
15-16	J	2554.503	TRAFFIC BARRIER DESIGN TRANSITION TYPE 31	LIN FT	1025	1025	
15-16	J	2554.503	INSTALL TRAFFIC BARRIER DESIGN TYPE 31	LIN FT	288	288	
15-16	J	2554.602	INSTALL ENERGY ABSORBING TERMINAL	EACH	1	1	
14	H	2554.603	TENSION CABLE GUARDRAIL	LIN FT	3237	3237	
14	H	2554.603	INSTALL TENSION CABLE GUARDRAIL	LIN FT	35635	29486	6149
TC1	TC	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
TC1	TC	2563.601	TRAFFIC CONTROL	LUMP SUM	1	1	
TC1	TC	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	7440	6675	765
TC1	TC	2563.602	TUBULAR MARKER	EACH	760	685	75
TC1	TC	2563.602	REPLACE TUBULAR MARKER	EACH	80	70	10
TC1	TC	2563.602	ELECTRONIC WORKERS PRESENT SPEED LIMIT SYSTEM	EACH	2	1	1
TC1	TC	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	3	2	1
		2564.602	DELINEATOR/MARKER ④	EACH	24	24	
		2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1	
11	L	2573.502	STORM DRAIN INLET PROTECTION	EACH	13	13	
11	C	2573.502	CULVERT END CONTROLS	EACH	8	4	4
10	G	2573.503	SILT FENCE, TYPE HI	LIN FT	851	851	
10	G	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	851	851	
11,12	C,D,K	2574.505	SOIL BED PREPARATION	ACRE	28.7	23.7	5.0
13	X	2574.507	FILTER TOPSOIL BORROW	CU YD	1957	1957	
11,12	C,D,K	2574.508	FERTILIZER TYPE 3	POUND	10055	8295	1760

- A 90% FEDERAL - 10% STATE FUNDS
- B 100% STATE FUNDS

CONSTRUCTION NOTES:

- ① 1:6 APRON SLOPE REQUIRED.
- ② SHALL BE CIPP
- ③ TO BE USED OVER CENTERLINE CULVERTS IN RECONSTRUCTION AREAS. SEE STANDARD PLATE 1070 (COMPUTED AT 2 PANELS PER CULVERT). AND AT RECONSTRUCTION TO OVERLAY TRANSITION AREAS. SEE SHEET 34 FOR DETAIL AND LOCATIONS
- ④ QUANTITY PROVIDE FOR THE REPLACEMENT OF TENTH MILE DELINEATOR MARKERS IN RECONSTRUCT AREAS. SEE SHEET 87 FOR PLACEMENT DETAILS

⑤ INCLUDES A 42" TO 48" X 4' RCP REDUCER AND 48" X 24' RCP CULVERT SEGMENT WITH 48" APRON

(P) DENOTES PLAN QUANTITY

PLAN REVISIONS		
DATE	REVISION	APPROVER
1/10/2025	REVISED QUANTITY FOR LINING CULVERT PIPE (36") SPECIAL, SILT FENCE TYPE HI, SEDIMENT CONTROL LOG TYPE COMPOST	A.K.
1/10/2025	ADDED NOTE 5 TO LINING CULVERT PIPE (42") SPECIAL ITEM	A.K.



DISTRICT #: DISTRICT #  
PLOT NAME: 4d2180118\_seq  
PATH & FILENAME:

18-NOV-2024  
PLOTTED/REVISED:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
13	B	2301.507	STRUCTURAL CONCRETE	CU YD	64389	59729	4660
		2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT ③	POUND	10860	10060	800
13	B	2301.602	DRILL & GROUT DOWEL BAR (EPOXY COATED)	EACH	238	192	46
13	B	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	TON	20147	18057	2090
11,13	B,C	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (5,B)	TON	2713	1685	1028
13	B	2363.509	BIT MIX FOR PERM ASPHALT STABILIZED STRESS RELIEF CRSE	TON	11762	10808	954
13	B	2363.509	BITUMINOUS MATERIAL FOR MIXTURE	TON	375	344	31
35-36		2401.507	STRUCTURAL CONCRETE (3B52)	CU YD	18	18	
35-36		2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	2680	2680	
11	C	2501.502	18" CS SAFETY APRON AND GRATE DESIGN 3128 ①	EACH	8	4	4
10	G	2501.502	INSTALL PIPE APRON	EACH	13	13	
11	C	2501.503	18" CS PIPE CULVERT	LIN FT	1388	680	708
10	G	2501.503	INSTALL PIPE CULVERT	LIN FT	32	32	
10	F	2502.502	INSTALL PRECAST CONCRETE HEADWALL	EACH	280	269	11
10	F	2502.503	4" TP PIPE DRAIN	LIN FT	3456	3296	160
10	F	2502.503	4" PERF TP PIPE DRAIN	LIN FT	6108	5058	1050
10	F	2502.503	4" PERF PE PIPE DRAIN	LIN FT	138614	128766	9848
10	AA	2506.502	ADJUST FRAME & RING CASTING	EACH	4	4	
10	G	2507.603	LINING CULVERT PIPE (24") SPECIAL ②	LIN FT	380	380	
10	G	2507.603	LINING CULVERT PIPE (36") SPECIAL ②	LIN FT	760	760	
10	G	2507.603	LINING CULVERT PIPE (42") SPECIAL ②	LIN FT	245	245	
13	B	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	168	168	
13	B	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	32	32	
10	G	2554.502	GUIDE POST TYPE B	EACH	9	9	
15-16	J	2554.502	ANCHORAGE ASSEMBLY - TYPE 31	EACH	5	5	
14	H	2554.502	ANCHORAGE ASSEMBLY - TENSION CABLE	EACH	16	16	
15-16	J	2554.502	END TREATMENT - FLARED TERMINAL	EACH	18	16	2
15-16	J	2554.503	TRAFFIC BARRIER DESIGN SPECIAL	LIN FT	75	75	
15-16	J	2554.503	TRAFFIC BARRIER DESIGN BULLNOSE	LIN FT	1200	1100	100
15-16	J	2554.503	TRAFFIC BARRIER DESIGN TYPE 31	LIN FT	4499	4192	307
15-16	J	2554.503	TRAFFIC BARRIER DESIGN TRANSITION TYPE 31	LIN FT	1025	1025	
15-16	J	2554.503	INSTALL TRAFFIC BARRIER DESIGN TYPE 31	LIN FT	288	288	
15-16	J	2554.602	INSTALL ENERGY ABSORBING TERMINAL	EACH	1	1	
14	H	2554.603	TENSION CABLE GUARDRAIL	LIN FT	3237	3237	
14	H	2554.603	INSTALL TENSION CABLE GUARDRAIL	LIN FT	35635	29486	6149
TC1	TC	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
TC1	TC	2563.601	TRAFFIC CONTROL	LUMP SUM	1	1	
TC1	TC	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	7440	6675	765
TC1	TC	2563.602	TUBULAR MARKER	EACH	760	685	75
TC1	TC	2563.602	REPLACE TUBULAR MARKER	EACH	80	70	10
TC1	TC	2563.602	ELECTRONIC WORKERS PRESENT SPEED LIMIT SYSTEM	EACH	2	1	1
TC1	TC	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	3	2	1
		2564.602	DELINEATOR/MARKER ④	EACH	24	24	
		2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1	
11	L	2573.502	STORM DRAIN INLET PROTECTION	EACH	13	13	
11	C	2573.502	CULVERT END CONTROLS	EACH	8	4	4
10	G	2573.503	SILT FENCE, TYPE HI	LIN FT	1051	1051	
10	G	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	1051	1051	
11,12	C,D,K	2574.505	SOIL BED PREPARATION	ACRE	28.7	23.7	5.0
13	X	2574.507	FILTER TOPSOIL BORROW	CU YD	1957	1957	
11,12	C,D,K	2574.508	FERTILIZER TYPE 3	POUND	10055	8295	1760

**A** 90% FEDERAL - 10% STATE FUNDS  
**B** 100% STATE FUNDS

CONSTRUCTION NOTES:

① 1:6 APRON SLOPE REQUIRED.

② SHALL BE CIPP

③ TO BE USED OVER CENTERLINE CULVERTS IN RECONSTRUCTION AREAS. SEE STANDARD PLATE 1070 (COMPUTED AT 2 PANELS PER CULVERT). AND AT RECONSTRUCTION TO OVERLAY TRANSITION AREAS. SEE SHEET 34 FOR DETAIL AND LOCATIONS

④ QUANTITY PROVIDE FOR THE REPLACEMENT OF TENTH MILE DELINEATOR MARKERS IN RECONSTRUCT AREAS. SEE SHEET 87 FOR PLACEMENT DETAILS

(P) DENOTES PLAN QUANTITY



*Andrew Krog*  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 18-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ESTIMATED QUANTITIES

STATE PROJ. NO. 5680-147	SHEET NO. 8
(T.H. 94)	TOTAL SHEETS 153

PLOTTED/REVISED: 13-JAN-2025

DISTRICT #: DISTRICT #  
 PLOT NAME: 4d2180118\_seq  
 PATH & FILENAME:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
10,12,13	G,K,X	2575.504	RAPID STABILIZATION METHOD 4	SQ YD	32530	32530	
11	C,D	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	7094	4715	2379
11,12	C,D,K	2575.505	SEEDING	ACRE	28.7	23.71	5.0
11,12	C,D,K	2575.505	DISK ANCHORING	ACRE	27.2	22.7	4.5
12	K	2575.507	MULCH MATERIAL TYPE 9	CU YD	76	50	26
11,12	C,D,K	2575.509	MULCH MATERIAL TYPE 1	TON	54.6	45.5	9.1
11,12	C,D,K	2575.608	SEED MESIC INSLOPE	POUND	2767	2441	326
TC1	TC	2581.503	4" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	2080	1080	1000
TC1	TC	2581.503	6" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	22400	12500	9900
TC1	TC	2581.503	8" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	3000	2000	1000
TC1	TC	2581.603	REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT	1000	800	200
		2582.503	MOBILE RETROREFLECTOMETER MEASUREMENTS	LIN FT	353429	326191	27238
TC1	TC	2582.503	4" SOLID LINE PAINT (WR)	LIN FT	219810	199720	20090
12	E	2582.503	6" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	315126	291187	23939
12	E	2582.503	10" SOLID LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	2817	2017	800
12	E	2582.503	6" BROKEN LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	34810	32371	2439
12	E	2582.503	6" DOTTED LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	676	616	60

- A 90% FEDERAL - 10% STATE FUNDS
- B 100% STATE FUNDS

PLAN REVISIONS		
DATE	REVISION	APPROVER
1/10/2025	REVISED QUANTITY FOR RAPID STABILIZATION METHOD 4	A.K.
1/13/2025	ADDED QUANTITY FOR WB STRIPING	A.K.

18-NOV-2024

18-NOV-2024

DISTRICT #: 4d2180118\_seq  
PLOT NAME: 4d2180118\_seq  
PATH & FILENAME:

STATEMENT OF ESTIMATED QUANTITIES							
SHEET NO.	TAB	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	SP 5680-147 ESTIMATED QUANTITY	SP 8480-43 ESTIMATED QUANTITY
10,12,13	G,K,X	2575.504	RAPID STABILIZATION METHOD 4	SQ YD	33753	33753	
11	C,D	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	7094	4715	2379
11,12	C,D,K	2575.505	SEEDING	ACRE	28.7	23.71	5.0
11,12	C,D,K	2575.505	DISK ANCHORING	ACRE	27.2	22.7	4.5
12	K	2575.507	MULCH MATERIAL TYPE 9	CU YD	76	50	26
11,12	C,D,K	2575.509	MULCH MATERIAL TYPE 1	TON	54.6	45.5	9.1
11,12	C,D,K	2575.608	SEED MESIC INSLOPE	POUND	2767	2441	326
TC1	TC	2581.503	4" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	2080	1080	1000
TC1	TC	2581.503	6" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	22400	12500	9900
TC1	TC	2581.503	8" REMOVABLE PREFORMED PAVEMENT MARKING TAPE WR	LIN FT	3000	2000	1000
TC1	TC	2581.603	REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT	1000	800	200
		2582.503	MOBILE RETROREFLECTOMETER MEASUREMENTS	LIN FT	255168	235078	20090
TC1	TC	2582.503	4" SOLID LINE PAINT (WR)	LIN FT	219810	199720	20090
12	E	2582.503	6" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	237853	219344	18509
12	E	2582.503	10" SOLID LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	1357	857	500
12	E	2582.503	6" BROKEN LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	15492	14411	1081
12	E	2582.503	6" DOTTED LINE PREFORM TAPE GROUND IN (WR) CONTRAST	LIN FT	466	466	

- A 90% FEDERAL - 10% STATE FUNDS
- B 100% STATE FUNDS



13-JAN-2025

PLOTTED/REVISED:

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_135tab-plan  
PATH & FILENAME:

	PAVEMENT REMOVALS & SAWING												AA
SP	STATION	SEGMENT	MILL BITUMINOUS SURFACE (2.0")	MILL BITUMINOUS SURFACE (5.0") <sup>(4)</sup>	MILL BITUMINOUS SURFACE (12") <sup>(4)</sup>	REMOVE CONCRETE PAVEMENT	REMOVE BITUMINOUS SHOULDER PAVEMENT	SUBGRADE PREPARATION	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE PAVEMENT ①	REMOVE CURB & GUTTER	ADJUST FRAME & RING CASTING	SAWING CONCRETE PAVEMENT (FULL DEPTH)
			SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	LIN FT	SQ YD	LIN FT	EACH	LIN FT
8480-43	TH 94 EB												
	2265+00 - 2314+24.20	OVERLAY		8739	4392		6818		13				24
	2314+24.20 - 2319+30.20	RECONST					731		13	1349			24
	TENTED JOINT REPAIR					16		16					48
	CSAH 11 OFF RAMP	OVERLAY	1672										
	SP 8480-43 TOTAL		1672	8739	4392	16	7549	16	26	1349			96
5680-147	2319+30.20 - 2324+27.40	RECONST					718		13	1326			24
	2324+27.40 - 2374+29.95	OVERLAY		10220	3120		6898						
	2374+29.95 - 2384+39.95	RECONST					1459		26	2693			48
	2384+39.95 - 354+13.03	OVERLAY		31325			16968						
	354+13.03 - 364+16.24	RECONST					1449		26	2675			48
	364+16.24 - 539+13.49	OVERLAY		46659			25274						
	539+13.49 - 551+96.53	RECONST				1	1376		52	2542	38	1	102
	551+96.53 - 602+96.82	OVERLAY		13601			7367						
	602+96.82 - 614+90.10	RECONST				2	1456		52	2688	18	2	102
	614+90.10 - 811+22.54	OVERLAY		41518	10868		28376						
	811+22.54 - 890+00	RECONST				19996	9326		48			1	104
	TENTED JOINT REPAIR					208		208					624
	CSAH 11 ON RAMP	OVERLAY	1153										
	CSAH 88 RAMP ③	OVERLAY	1744										
	CSAH 59 RAMP ③	RECONST				3461				722			20
	TH 94 WB												
	(PIER STRUT) 359+64.33-360+02.00						78		16				
	609+75 - 609+97					3 ③							17 ③
	820+26.00 - 820+36.00					1 ③							13 ③
	SP 5680-147 TOTAL		2897	143323	13988	23672	100745	208	233	12646	56	4	1102
	TH 94 TOTALS		4569	152062	18380	23688	108294	224	259	13995	56	4	1198

SUBSURFACE PIPE DRAINS									F
SP	STATION (LT & RT)	REMOVE CONC HEAD- WALL	PRECAST CONCRETE HEADWALL		REMOVE PIPE DRAIN	4" TP PIPE DRAIN	4" PERF TP PIPE DRAIN	4" PERF PE PIPE DRAIN	
			SALVAGE	INSTALL					
		EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	
8480-43	2265+00 - 2314+24.20		10	10		120		9848	
	2314+24.20 - 2319+30.20	1	1	1	1012	40	1050		
	SP 8480-43 TOTAL	1	11	11	1012	160	1050	9848	
5680-147	2319+30.20 - 2324+27.40	3			994		994		
	2324+27.40 - 2374+29.95		8	8		96		1004	
	2374+29.95 - 2384+39.95	4	1	1	2020	80	2058		
	2384+39.95 - 2430+24.24		21	21		252		9151	
	282+50.37 - 354+13.03		28	28		336		14325	
	354+13.03 - 364+16.24		4	4	2006	48	2006		
	364+16.24 - 539+13.49		67	67		804		34944	
	539+13.49 - 551+96.53		4	4	2566	48		1990	
	551+96.53 - 602+96.82		17	17		204		10200	
	602+96.82 - 614+90.10		4	4	2387	48		2016	
	614+90.10 - 811+22.54		63	63		756		42007	
	811+22.54- 890+00		52	52	13129	624		13129	
	SP 5680-147 TOTAL	7	269	269	23102	3296	5058	128766	
	TOTAL	8	280	280	24114	3456	6108	138614	

CONSTRUCTION NOTES:

- ① BITUMINOUS OVER CONCRETE.
- ② TO BE USED FOR PERMANENT STABILIZATION.
- MODIFIED TO INCLUDE SOUTHERN TALLGRASS ROADSIDE AT 0.54 LBS/100 SQ YDS AND FERTILIZER TYPE 3 (ANALYSIS 22-5-10) AT 4.1 LBS/100 SQ YDS
- ③ PROVIDED FOR CURB & GUTTER WORK FOR GUARDRAIL UPDATES.
- ④ MILL TO CONCRETE

DRAINAGE TABULATION																	G
SP	STATION	LOCATION	INPLACE	REMARKS	SALVAGE PIPE APRON	SALVAGE PIPE CULVERT	INSTALL PIPE CULVERT	INSTALL PIPE APRON	LINING CULVERT PIPE (24") SPECIAL	LINING CULVERT PIPE (36") SPECIAL	LINING CULVERT PIPE (42") SPECIAL	COMMON EMBANKMENT (CV)	GUIDE POST TYPE B	RAPID STABIL- IZATION METHOD 4	SEDIMENT CONTROL LOG TYPE COMPOST	SILT FENCE TYPE HI	
					EACH	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	CU YD	EACH	②	LIN FT	LIN FT	
														SQ YD			
5680-147	2334+00	EB CL	18" X 76' RCP + 2 APRS	P. 2 GUIDE POSTS TYPE B									2				
	2428+60	EB & WB CL	60" X 235' RCP + 2 APRS	REPAIR INSLOPE LT OF WB								2		99			
	373+10	EB & WB CL	30" X 234' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT REPAIR INSLOPE	1	8	8	1				2		711			
	627+50	MEDIAN	18" X 20' RCP + 1 APR														
	627+50	EB&WB CL	36" X 165' RCP + 2 APRS														
	627+50	MEDIAN	18" X 20' RCP + 1 APRS														
	641+35	EB&WB CL	36" X 189' RCP + 2 APRS	SALVAGE AND INSTALL APRS. LINE CULVERT PIPE WITH CIPP, P. 2 GUIDE POST TYPE B	2			2		192			2	671	245	245	
	661+00	EB&WB CL	36" X 211' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT., LINE CULVERT PIPE WITH CIPP	1	8	8	1		214				1006	239	239	
	674+50	EB&WB CL	36" X 184' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT, LINE CULVERT PIPE WITH CIPP	1	8	8	1		186				211			
	717+00	EB&WB CL	24" X 200' RCP + 2 APRS	LINE CULVERT PIPE WITH CIPP					204					495			
	750+00	EB&WB CL	42"X211'+48"X24'+4"REDUCER+ 2 APRS	SALVAGE AND INSTALL 8' + APR. LT, LINE CULVERT PIPE WITH CIPP	1	8	8	1			245			1099	127	127	
	815+50	EB OFF RAMP	30" X 64' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						244	122	122	
	818+00	UNDER BR 9692	24" X 300' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						345	58	58	
	819+00	UNDER BR 9692	24" X 280' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						270	60	60	
	821+10	WB ON RAMP	22" SP X 64' RCP-A + 2 APRS	SALVAGE AND INSTALL LT APR, P. GUIDE POST TYPE B	1			1					1	250			
	844+73	EB&WB CL	24"X198' RCP + 2 FLARED APRS	P. 2 GUIDE POST TYPE B									2				
	874+72	EB&WB CL	24" X 192' RCP + 2 APRS	P. 2 GUIDE POST TYPE B									2				
	882+18	EB&WB CL	24" X 173' RCP + 2 APRS	LINE CULVERT PIPE WITH CIPP, CUTTING LINER-INCIDENTAL					176								
				TOTAL	13	32	32	13	380	592	245	4	9	5401	851	851	

6-NOV-2024

PLOTTED/REVISED:

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_135tab-plan  
PATH & FILENAME:

PAVEMENT REMOVALS & SAWING													AA
SP	STATION	SEGMENT	MILL BITUMINOUS SURFACE (2.0")	MILL BITUMINOUS SURFACE (5.0") <sup>(4)</sup>	MILL BITUMINOUS SURFACE (12") <sup>(4)</sup>	REMOVE CONCRETE PAVEMENT	REMOVE BITUMINOUS SHOULDER PAVEMENT	SUBGRADE PREPARATION	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE PAVEMENT ①	REMOVE CURB & GUTTER	ADJUST FRAME & RING CASTING	SAWING CONCRETE PAVEMENT (FULL DEPTH)
			SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	LIN FT	SQ YD	LIN FT	EACH	LIN FT
8480-43	TH 94 EB												
	2265+00 - 2314+24.20	OVERLAY		8739	4392		6818		13				24
	2314+24.20 - 2319+30.20	RECONST					731		13	1349			24
	TENTED JOINT REPAIR					16		16					48
	CSAH 11 OFF RAMP	OVERLAY	1672										
	SP 8480-43 TOTAL		1672	8739	4392	16	7549	16	26	1349			96
5680-147	2319+30.20 - 2324+27.40	RECONST					718		13	1326			24
	2324+27.40 - 2374+29.95	OVERLAY		10220	3120		6898						
	2374+29.95 - 2384+39.95	RECONST					1459		26	2693			48
	2384+39.95 - 354+13.03	OVERLAY		31325			16968						
	354+13.03 - 364+16.24	RECONST					1449		26	2675			48
	364+16.24 - 539+13.49	OVERLAY		46659			25274						
	539+13.49 - 551+96.53	RECONST				1	1376		52	2542	38	1	102
	551+96.53 - 602+96.82	OVERLAY		13601			7367						
	602+96.82 - 614+90.10	RECONST				2	1456		52	2688	18	2	102
	614+90.10 - 811+22.54	OVERLAY		41518	10868		28376						
	811+22.54 - 890+00	RECONST				19996	9326		48			1	104
	TENTED JOINT REPAIR					208		208					624
	CSAH 11 ON RAMP	OVERLAY	1153										
	CSAH 88 RAMP ③	OVERLAY	1744										
	CSAH 59 RAMP ③	RECONST				3461				722			20
	TH 94 WB												
	(PIER STRUT) 359+64.33-360+02.00						78		16				
	609+75 - 609+97					3 ③							17 ③
	820+26.00 - 820+36.00					1 ③							13 ③
	SP 5680-147 TOTAL		2897	143323	13988	23672	100745	208	233	12646	56	4	1102
	TH 94 TOTALS		4569	152062	18380	23688	108294	224	259	13995	56	4	1198

SUBSURFACE PIPE DRAINS									F
SP	STATION (LT & RT)	REMOVE CONC HEAD- WALL	PRECAST CONCRETE HEADWALL		REMOVE PIPE DRAIN	4" TP PIPE DRAIN	4" PERF TP PIPE DRAIN	4" PERF PE PIPE DRAIN	
			SALVAGE	INSTALL					
		EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	
8480-43	2265+00 - 2314+24.20		10	10		120		9848	
	2314+24.20 - 2319+30.20	1	1	1	1012	40	1050		
	SP 8480-43 TOTAL	1	11	11	1012	160	1050	9848	
5680-147	2319+30.20 - 2324+27.40	3			994		994		
	2324+27.40 - 2374+29.95		8	8		96		1004	
	2374+29.95 - 2384+39.95	4	1	1	2020	80	2058		
	2384+39.95 - 2430+24.24		21	21		252		9151	
	282+50.37 - 354+13.03		28	28		336		14325	
	354+13.03 - 364+16.24		4	4	2006	48	2006		
	364+16.24 - 539+13.49		67	67		804		34944	
	539+13.49 - 551+96.53		4	4	2566	48		1990	
	551+96.53 - 602+96.82		17	17		204		10200	
	602+96.82 - 614+90.10		4	4	2387	48		2016	
	614+90.10 - 811+22.54		63	63		756		42007	
	811+22.54- 890+00		52	52	13129	624		13129	
	SP 5680-147 TOTAL	7	269	269	23102	3296	5058	128766	
	TOTAL	8	280	280	24114	3456	6108	138614	

CONSTRUCTION NOTES:

- ① BITUMINOUS OVER CONCRETE.
- ② TO BE USED FOR PERMANENT STABILIZATION.  
MODIFIED TO INCLUDE SOUTHERN TALLGRASS ROADSIDE AT 0.54 LBS/100 SQ YDS  
AND FERTILIZER TYPE 3 (ANALYSIS 22-5-10) AT 4.1 LBS/100 SQ YDS
- ③ PROVIDED FOR CURB & GUTTER WORK FOR GUARDRAIL UPDATES.
- ④ MILL TO CONCRETE

DRAINAGE TABULATION																G
SP	STATION	LOCATION	INPLACE	REMARKS	SALVAGE PIPE APRON	SALVAGE PIPE CULVERT	INSTALL PIPE CULVERT	INSTALL PIPE APRON	LINING CULVERT PIPE (24")	LINING CULVERT PIPE (36")	LINING CULVERT PIPE (42")	COMMON EMBANKMENT (CV)	GUIDE POST TYPE B	RAPID STABILIZATION METHOD 4	SEDIMENT CONTROL LOG TYPE COMPOST	SILT FENCE TYPE HI
					EACH	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	CU YD	EACH	②	LIN FT	LIN FT
5680-147	2334+00	EB CL	18" X 76' RCP + 2 APRS	P. 2 GUIDE POSTS TYPE B									2			
	2428+60	EB & WB CL	60" X 235' RCP + 2 APRS	REPAIR INSLOPE LT OF WB								2		99		
	373+10	EB & WB CL	30" X 234' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT REPAIR INSLOPE	1	8	8	1				2		711		
	627+50	MEDIAN	18" X 20' RCP + 1 APR	CUTTING LINER - INCIDENTAL												
	627+50	EB&WB CL	36" X 165' RCP + 2 APRS	LINE CULVERT PIPE WITH CIPP						168				1223	200	200
	627+50	MEDIAN	18" X 20' RCP + 1 APRS	CUTTING LINER - INCIDENTAL												
	641+35	EB&WB CL	36" X 189' RCP + 2 APRS	SALVAGE AND INSTALL APRS. LINE CULVERT PIPE WITH CIPP, P. 2 GUIDE POST TYPE B	2			2		192			2	671	245	245
	661+00	EB&WB CL	36" X 211' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT., LINE CULVERT PIPE WITH CIPP	1	8	8	1		214				1006	239	239
	674+50	EB&WB CL	36" X 184' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR LT, LINE CULVERT PIPE WITH CIPP	1	8	8	1		186				211		
	717+00	EB&WB CL	24" X 200' RCP + 2 APRS	LINE CULVERT PIPE WITH CIPP					204					495		
	750+00	EB&WB CL	42" X 239' RCP + 2 APRS	SALVAGE AND INSTALL 8' + APR. LT, LINE CULVERT PIPE WITH CIPP	1	8	8	1			245			1099	127	127
	815+50	EB OFF RAMP	30" X 64' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						244	122	122
	818+00	UNDER BR 9692	24" X 300' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						345	58	58
	819+00	UNDER BR 9692	24" X 280' RCP + 2 APRS	SALVAGE AND INSTALL APRONS	2			2						270	60	60
	821+10	WB ON RAMP	22" SP X 64' RCP-A + 2 APRS	SALVAGE AND INSTALL LT APR, P. GUIDE POST TYPE B	1			1					1	250		
	844+73	EB&WB CL	24"X198' RCP + 2 FLARED APRS	P. 2 GUIDE POST TYPE B									2			
	874+72	EB&WB CL	24" X 192' RCP + 2 APRS	P. 2 GUIDE POST TYPE B									2			
	882+18	EB&WB CL	24" X 173' RCP + 2 APRS	LINE CULVERT PIPE WITH CIPP, CUTTING LINER-INCIDENTAL					176							
				TOTAL	13	32	32	13	380	760	245	4	9	6624	1051	1051

18-NOV-2024

18-NOV-2024

DISTRICT # 4d5680147\_135tab-plan  
PLOT NAME: 4d5680147\_135tab-plan  
PATH & FILENAME:

	CONSTRUCT TEMPORARY CROSSEOVERS																	C
SP	LOCATION	REMOVE BITUMINOUS SHOULDER PAVEMENT	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	EXCAVATION - COMMON	COMMON EMBANKMENT (CV)	AGGREGATE SURFACING (CV) CLASS 5	AGGREGATE BASE (CV) CLASS 5	TYPE SP 12.5 WEARING COURSE MIX (SPWEB540B)	18" CS PIPE CULVERT	18" CS SAFETY APR & GRATE DES 3128 (1:6 SLOPE)	SEEDING	SOIL BED PREPARATION	SEED MESIC INSLOPE	FERTILIZER TYPE 3 ②	MULCH MATERIAL TYPE 1	DISK ANCHORING	ROLLED EROSION PREVENTION CAT. 25 ①	CULVERT END CONTROLS
		SQ YD	LIN FT	CU YD	CU YD	TON	CU YD	TON	LIN FT	EACH	ACRE	ACRE	POUND	POUND	TON	ACRE	SQ YD	EACH
8480-43	XOVER1. STA. 2256+07 - 2263+43	122	12	829	157	63	1526	394	310	2	0.73	0.73	47	256	1.31	0.66	360	2
	XOVER2. STA. 2301+91 - 2310+60	203	9	281	61	15	417	163	398	2	0.71	0.71	46	249	1.14	0.57	689	1
	XOVER2A STA. 2307+80 - 2312+72	92	9	119	82	25	621	287										1
	SP 8480-43 TOTAL	417	30	1229	300	103	2564	844	708	4	1.44	1.44	93	505	2.45	1.23	1049	4
5680-147	XOVER3. STA. 2325+74 - 2333+78	82	9	257	64	20	459	308	362	2	0.79	0.79	51	277	1.28	0.64	748	1
	XOVER3A. STA. 2327+50 - 2336+69	246	9	262	61	24	508	185										1
	XOVER4. STA. 800+00 - 807+50	224	9	337	90	24	540	151	318	2	0.89	0.89	58	312	1.42	0.71	879	1
	XOVER4A. STA. 805+50 - 808+50	88	9	203	44	15	376	173										1
	XOVER5. STA. 889+50 - 895+00	142	12	584	121	37	948	187			0.72	0.72	47	252	1.20	0.60	558	
	SP 5680-147 TOTAL	782	48	1643	380	120	2831	1004	680	4	2.40	2.40	156	841	3.90	1.95	2185	4
	TOTAL	1199	78	2872	680	223	5395	1848	1388	8	3.84	3.84	249	1346	6.35	3.18	3234	8



	REMOVE TEMPORARY CROSSEOVERS														D
SP	LOCATION	REMOVE PIPE CULVERTS	REMOVE BITUMINOUS PAVEMENT	REMOVE PIPE APRON	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	EXCAVATION - COMMON	COMMON EMBANKMENT (CV)	SEEDING	SOIL BED PREPARATION	SEED MESIC INSLOPE	FERTILIZER TYPE 3 ②	MULCH MATERIAL TYPE 1	DISK ANCHORING	ROLLED EROSION PREVENTION CAT. 25 ①	
		LIN FT	SQ YD	EACH	LIN FT	CU YD	CU YD	ACRE	ACRE	POUND	POUND	TON	ACRE	SQ YD	
8480-43	XOVER1. STA. 2256+07 - 2263+43	310	979	2	211	1695	414	0.93	0.93	60	326	1.68	0.84	424	
	XOVER2. STA. 2301+91 - 2310+60	398	370	2	484	681	141	0.99	0.99	64	347	1.60	0.80	906	
	XOVER2A STA. 2307+80 - 2312+72		654		394	302	60								
	SP 8480-43 TOTAL	708	2003	4	1089	2678	615	1.92	1.92	124	673	3.28	1.64	1330	
5680-147	XOVER3. STA. 2325+74 - 2333+78	362	223	2	577	517	129	1.19	1.19	77	417	1.98	0.99	951	
	XOVER3A. STA. 2327+50 - 2336+69		416		353	566	131								
	XOVER4. STA. 800+00 - 807+50	318	532	2	494	619	169	0.74	0.74	48	259	1.08	0.54	947	
	XOVER4A. STA. 805+50 - 808+50		537		321	413	102								
	XOVER5. STA. 889+50 - 895+00		468		261	1058	292	0.14	0.14	9	49	.02	0.01	632	
	SP 5680-147 TOTAL	680	2176	4	2006	3173	823	2.07	2.07	134	725	3.08	1.54	2530	
	TOTAL	1388	4179	8	3095	5851	1438	3.99	3.99	258	1398	6.36	3.18	3860	

CONSTRUCTION NOTES:

- ① QUANTITY INCLUDED FOR COVERING DISTURBED 8' DITCH BOTTOM  
② ANALYSIS 22-5-10 APPLIED AT 350 LBS/ACRE

STORM DRAIN INLET PROTECTION			L
STATION	LOCATION	STORM DRAIN INLET PROTECTION	
		EACH	
360+41	MEDIAN	1	
464+12	MEDIAN	1	
546+88	EB RT	1	
609+39	EB RT	1	
609+39	EB LT	1	
609+73	WB RT	1	
641+36	MEDIAN	1	
661+00	MEDIAN	1	
674+49	MEDIAN	1	
750+00	MEDIAN	1	
803+05	MEDIAN	1	
890+00	MEDIAN	1	
893+12	MEDIAN	1	
SP 5680-147 TOTAL		13	

PLOT NAME: 4d5680147\_135stab-plan  
PATH & FILENAME:

 <b>DEPARTMENT OF TRANSPORTATION</b>	PLAN REVISIONS			 <b>ANDREW KROG</b> LIC. NO. 54689 DATE: 17-JAN-2025 LICENSED PROFESSIONAL ENGINEER	I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	TABULATIONS	STATE PROJ. NO. 5680-147	SHEET NO. 12 RR
	DATE	REVISION	APPROVER				(TH 94)	TOTAL SHEETS 153
	1/13/2025	ADDED QUANTITY FOR WB STRIPING	A.K.					
	1/17/2025	ADDED QUANTITIES FOR EARTHWORK IN TAB K	A.K.					

13-JAN-2025

DISTRICT # 4d5680147\_135tab-plan  
PLOT NAME:  
PATH & FILENAME:

PAVEMENT MARKING / RUMBLE STRIPS								E
SP	LOCATION	6" SOLID LINE MULTI COMP GR IN (WR)	6" SOLID LINE MULTI COMP GR IN (WR)	10" SOLID LINE PREFORM TAPE GR IN (WR) CONTRAST	6" DOTTED LINE PREFORM TAPE GR IN (WR) CONTRAST ①②	6" BROKEN LINE PREFORM TAPE GR IN (WR) CONTRAST ①③	MILLED RUMBLE STRIPS ④	MILLED RUMBLE STRIPS (CONCRETE) ④
		YELLOW	WHITE	WHITE	WHITE	WHITE		
		LIN FT	LIN FT	LIN FT	LIN FT	LIN FT		
8480-43	2265+00 - 2319+30.20	5407	4921			1081	4926	5407
	CSAH 11 OFF RAMP	1147	1604	500				
	TH 94 WB	5430	5430	300	60	1358		
	SP 8480-43 TOTAL	11984	11955	800	60	2439	4926	5407
5680-147	2319+30.20 - 890+00	69717	70683			14411	63745	73234
	CSAH 11 ON RAMP	663	1733	242				
	CSAH 88 RAMP	773	1241	236				
	CSAH 59 RAMP	2226	465	379	466			
	TH 94 WB	71843	71843	1160	150	17960		
	SP 5680-147 TOTAL	145222	145965	2017	616	32371	63745	73234
	TOTAL	157206	157920	2817	676	34810	68671	78641
		315126						

INSLOPE GRADING												K
SP	STATION	LOCATION	MULCH MATERIAL TYPE 9 ⑤	EXCAVATION - COMMON	COMMON EMBANKMENT (CV)	SEEDING	SOIL BED PREPARATION	SEED MESIC INSLOPE	FERTILIZER TYPE 3 ⑧	MULCH MATERIAL TYPE 1	DISK ANCHORING	RAPID STABILIZATION METHOD 4 ⑥
			CU YD	CU YD	CU YD	ACRE	ACRE	POUND	POUND	TON	ACRE	SQ YD
8480-43	CSAH 11 BRIDGE											
	2317+64 - 2319+00	EB RT		37	48	0.33	0.33	22	116	0.66	0.33	
	2316+79 - 2320+38	WB LT		75	152							
	2317+00 - 2321+00	MEDIAN	26	237	247							
	CONSTRUCTION DISTURBANCE ALONG INSLOPES					1.33	1.33	87	466	2.66	1.33	
	SP 8480-43 TOTAL		26	349	447	1.66	1.66	109	582	3.32	1.66	
5680-147	CSAH 24 BRIDGE											
	2377+06 - 2379+91	EB RT		86	248	0.34	0.34	22	119	0.68	0.34	
	2378+26 - 2381+86	WB LT		19	21							
	2376+95 - 2380+97	MEDIAN	26	280	280							
	330TH ST BRIDGE											
	356+86 - 358+75	EB RT		7	7	0.3	0.3	20	105	0.60	0.3	
	358+38 - 361+91	WB LT										
	357+94 - 360+83	MEDIAN	24	279	279							
	CSAH 21 BRIDGE											
	541+24 - 544+50	EB RT		38	43	0.33	0.33	22	116	0.66	0.33	1047 ⑦
	540+50 - 543+50	MEDIAN		118	196							1128 ⑦
	546+00 - 548+78	MEDIAN		152	337							
	CSAH 10 BRIDGE											
	604+25 - 607+85	EB RT		39	62	0.31	0.31	20	109	0.62	0.31	902 ⑦
	604+50 - 607+50	MEDIAN		131	261							891 ⑦
	610+00 - 612+50	MEDIAN		112	230							
	CSAH 88 BRIDGE											
	813+94 - 817+00	EB RT		24	34	0.33	0.33	22	116	0.66	0.33	861 ⑦
	814+00 - 817+50	MEDIAN		238	829							
	820+00 - 821+56	EB RT		21	29							
	820+00 - 822+50	MEDIAN		150	261							869 ⑦
	LOW TENSION 3-CABLE											
	370+50 - 378+50	EB RT		734	1549							4340
	746+00 - 752+00	EB RT		462	1097							2749
	759+50 - 765+00	EB RT		209	361							1220
	834+00 - 844+00	EB RT		914	1711							5176
	844+00 - 849+00	EB RT		1362	2508							2843
	CONSTRUCTION DISTURBANCE ALONG INSLOPES					17.61	17.61	1145	6164	35.22	17.61	
	SP 5680-147 TOTAL		50	5375	10343	19.22	19.22	2151	6729	38.44	19.22	22026
	TH 94 TOTALS		76	5724	10790	20.88	20.88	1360	7311	41.76	20.88	22026

CONSTRUCTION NOTES:

- ① DOES NOT INCLUDE GAPS
- ② 3' LINE & 12' GAP (15' CYCLE)
- ③ 10' LINE & 40' GAP (50' CYCLE)
- ④ SEE DETAILS ON SHEET 30-32
- ⑤ TYPE 7 GEOTEXTILE FABRIC IS INCIDENTAL.  
SEE STANDARD PLAN 5-297.611, SHEET NO. 72.
- ⑥ TO BE USED FOR PERMANENT STABILIZATION.  
MODIFIED TO INCLUDE SOIL BED PREPARATION, SOUTHERN TALLGRASS  
ROADSIDE AT 0.54 LBS/100 SQ YDS AND FERTILIZER TYPE 3 (ANALYSIS 22-5-10)  
AT 4.1 LBS/100 SQ YDS
- ⑦ RAPID STABILIZATION TO BE UTILITIZED INSIDE THE BULLPEN AREA.  
THE GRADING AREAS OUTSIDE OF THE BULLPEN SHALL BE  
SEEDED, MULCHED, AND DISK ANCHORED.
- ⑧ ANALYSIS 22-5-10 APPLIED AT 350 LBS/ACRE.



PLOT NAME: 4d5680147\_135stab-plan  
PATH & FILENAME:

PLOT NAME:

PATH & FILENAME:

PAVEMENT MARKING / RUMBLE STRIPS								E
SP	LOCATION	6" SOLID LINE MULTI COMP GR IN (WR)	6" SOLID LINE MULTI COMP GR IN (WR)	10" SOLID LINE PREFORM TAPE GR IN (WR) CONTRAST	6" DOTTED LINE PREFORM TAPE GR IN (WR) CONTRAST ①②	6" BROKEN LINE PREFORM TAPE GR IN (WR) CONTRAST ①③	MILLED RUMBLE STRIPS ④	MILLED RUMBLE STRIPS (CONCRETE) ④
		YELLOW	WHITE	WHITE	WHITE	WHITE		
		LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
8480-43	2265+00 - 2319+30.20	5407	4921			1081	4926	5407
	CSAH 11 OFF RAMP	1147	1604	500				
	TH 94 WB	5430						
	SP 8480-43 TOTAL	11984	6525	500		1081	4926	5407
5680-147	2319+30.20 - 890+00	69717	70683			14411	63745	73234
	CSAH 11 ON RAMP	663	1733	242				
	CSAH 88 RAMP	773	1241	236				
	CSAH 59 RAMP	2226	465	379	466			
	TH 94 WB	71843						
	SP 5680-147 TOTAL	145222	74122	857	466	14411	63745	73234
	TOTAL	157206	80647	1357	466	15492	68671	78641
		237853						

CONSTRUCTION NOTES:  
  
① DOES NOT INCLUDE GAPS  
  
② 3' LINE & 12' GAP (15' CYCLE)  
  
③ 10' LINE & 40' GAP (50' CYCLE)  
  
④ SEE DETAILS ON SHEET 30-32  
  
⑤ TYPE 7 GEOTEXTILE FABRIC IS INCIDENTAL.  
SEE STANDARD PLAN 5-297.611, SHEET NO. 72.  
  
⑥ TO BE USED FOR PERMANENT STABILIZATION.  
MODIFIED TO INCLUDE SOIL BED PREPARATION, SOUTHERN TALLGRASS  
ROADSIDE AT 0.54 LBS/100 SQ YDS AND FERTILIZER TYPE 3 (ANALYSIS 22-5-10)  
AT 4.1 LBS/100 SQ YDS  
  
⑦ RAPID STABILIZATION TO BE UTILITIZED INSIDE THE BULLPEN AREA.  
THE GRADING AREAS OUTSIDE OF THE BULLPEN SHALL BE  
SEEDED, MULCHED, AND DISK ANCHORED.  
  
⑧ ANALYSIS 22-5-10 APPLIED AT 350 LBS/ACRE.

INSLOPE GRADING												K	
SP	STATION	LOCATION	MULCH MATERIAL TYPE 9 ⑤	EXCAVATION - COMMON	COMMON EMBANKMENT (CV)	SEEDING	SOIL BED PREPARATION	SEED MESIC INSLOPE	FERTILIZER TYPE 3 ⑧	MULCH MATERIAL TYPE 1	DISK ANCHORING	RAPID STABILIZATION METHOD 4 ⑥	
			CU YD	CU YD	CU YD	ACRE	ACRE	POUND	POUND	TON	ACRE	SQ YD	
8480-43	CSAH 11 BRIDGE												
	2317+64 - 2319+00	EB RT		37	48	0.33	0.33	22	116	0.66	0.33		
	2316+79 - 2320+38	WB LT		75	152								
	2317+00 - 2321+00	MEDIAN	26	237	247								
	CONSTRUCTION DISTURBANCE ALONG INSLOPES						1.33	1.33	87	466	2.66	1.33	
	SP 8480-43 TOTAL			26	349	447	1.66	1.66	109	582	3.32	1.66	
5680-147	CSAH 24 BRIDGE												
	2377+06 - 2379+91	EB RT		86	248	0.34	0.34	22	119	0.68	0.34		
	2378+26 - 2381+86	WB LT		19	21								
	2376+95 - 2380+97	MEDIAN	26	280	280								
	B30TH ST BRIDGE												
	356+86 - 358+75	EB RT		7	7	0.3	0.3	20	105	0.60	0.3		
	358+38 - 361+91	WB LT											
	357+94 - 360+83	MEDIAN	24	279	279								
	CSAH 21 BRIDGE												
	541+24 - 544+50	EB RT		38	43	0.33	0.33	22	116	0.66	0.33	1047 ⑦	
	540+50 - 543+50	MEDIAN		118	196							1128 ⑦	
	546+00 - 548+78	MEDIAN		152	337								
	CSAH 10 BRIDGE												
	604+25 - 607+85	EB RT		39	62	0.31	0.31	20	109	0.62	0.31	902 ⑦	
	604+50 - 607+50	MEDIAN		131	261							891 ⑦	
	610+00 - 612+50	MEDIAN		112	230								
	CSAH 88 BRIDGE												
	813+94 - 817+00	EB RT		24	34	0.33	0.33	22	116	0.66	0.33	861 ⑦	
	814+00 - 817+50	MEDIAN		238	829								
	820+00 - 821+56	EB RT		21	29								
	820+00 - 822+50	MEDIAN		150	261							869 ⑦	
	LOW TENSION 3-CABLE												
	370+50 - 378+50	EB RT		734	1549								4340
746+00 - 752+00	EB RT		462	1097								2749	
759+50 - 765+00	EB RT		209	361								1220	
834+00 - 844+00	EB RT		914	1711								5176	
844+00 - 849+00	EB RT		1362	2508								2843	
CONSTRUCTION DISTURBANCE ALONG INSLOPES						17.61	17.61	1145	6164	35.22	17.61		
SP 5680-147 TOTAL			50	5375	10343	19.22	19.22	2151	6729	38.44	19.22	22026	
TH 94 TOTALS			76	5724	10790	20.88	20.88	1360	7311	41.76	20.88	22026	

DEPARTMENT OF  
TRANSPORTATION

LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 18-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR  
UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF  
MINNESOTA.

TABULATIONS

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. 12

TOTAL SHEETS 153

8-NOV-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME:  
PATH & FILENAME:

SURFACING																		B
SP	STATION	EXCAVATION - COMMON ①	EXCAVATION - SUBGRADE	SELECT GRANULAR EMBANKMENT (CV)	COMMON EMBANKMENT (CV) ①	AGGREGATE SURFACING CLASS 1 MOD	AGGREGATE BASE (CV) CLASS 5 ①	DOWEL BAR	PLACE CONCRETE PAVEMENT 9"	STRUCTURAL CONCRETE ⑩	TYPE SP 12.5 WEARING COURSE MIX (3,B) (SPWEB330B)		TYPE SP 12.5 WEARING COURSE MIX (5,B) (SPWEB540B)	BIT MIX FOR PERMEABLE ASPHALT STABILIZED STRESS RELIEF COURSE	BITUMINOUS MATERIAL FOR MIXTURE	DRILL & GROUT DOWEL BAR (EPOXY COATED)	CONCRETE CURB & GUTTER DES. B624 ⑨	CONCRETE CURB & GUTTER DES. B424 ②
		CU YD	CU YD	CU YD	CU YD	TON	CU YD	EACH	SQ YD	CU YD	SHOULDER ①⑩	SUPERELEVATION CORRECTION	TON	TON	TON	EACH	LIN FT	LIN FT
	TH 94 EB																	
8480-43	2265+00 - 2314+24.20	116			145	886	875	⑦ 7605	⑦ 16990	⑦ 4248	1141	830		⑦ 954	31	⑦ 46		
	2314+24.20 - 2319+30.20	2401	1780	1068	244	81	703	748	1630	412	111							
	TENTED JOINT REPAIR										8							
	CSAH 11 OFF RAMP					233	102						184					
	SP 8480-43 TOTAL	2517	1780	1068	389	1200	1680	8353	18620	4660	1260	830	184	954	31	46		
5680-147	2319+30.20 - 2324+27.40	1848	1750	1050	239	80	691	748	1602	405	109							
	2324+27.40 - 2374+29.95					900	927	⑧ 8099	⑧ 17601	⑧ 4400	1101	465		⑧ 1013	32	⑧ 19		
	2374+29.95 - 2384+39.95	4980	3554	2132	486	162	1403	1496	3254	823	222							
	2384+39.95 - 2430+24.24	92			98	825	865	6732	14772	3735	1067			826	26			
	282+50.38 - 354+13.03	134			213	1289	1332	10516	23080	5836	1634			1291	41			
	354+13.03 - 364+16.24	7634	3530	2118	483	161	1393	1474	3233	817	221							
	364+16.24 - 539+13.49	110			163	3150	3253	25674	56380	14257	3907			3154	101			
	539+13.49 - 543+78.69	224	2050	1347	224	74	705	704	1499	379	102							16
	546+66.58 - 551+96.53	255	2336	1535	255	85	803	792	1708	432	117							22
	551+96.53 - 602+96.82					918	945	7502	16434	4156	1122			919	29			
	602+96.82 - 607+44.05	215	1971	1295	215	72	675	660	1441	364	98					27		16
	609+29.95 - 614+90.10	270	2451	1624	270	90	850	836	1807	457	123					27		41
	614+90.10 - 811+22.54					3534	3636	⑦ 29165	⑦ 64383	⑦ 16475	4278	1312		⑦ 3605	115	⑦ 19		
	811+22.54 - 817+09.00	282	2628	1716	282	94	908	860	1890	473	129					27		
	819+56.26 - 890+00	3391	31566	20610	3209	1127	10905	10340	22696	5674	1550					54		51
	TENTED JOINT REPAIR										103							
	CSAH 11 ON RAMP					256	58						334					
	CSAH 88 RAMP ③	19		47	19	153	76				347		347					
	TH 59 SB RAMP		4537	3480		66	1086	2664	4183	1046	35					19		
	TH 94 WB																	
	(PIER STRUT) 359+64.33 - 360+02.00	37					23				13						32	
	609+75.00 - 609+97.00 RT						1				1							12
	820+26.00 - 820+36.00 RT						1				1							10
	SP 5680-147 TOTAL	19491	56373	36954	6156	13036	30536	108262	235963	59729	16280	1777	681	10808	344	192	32	168
TH 94 TOTALS		22008	58153	38022	6545	14236	32216	116615	254583	64389	17540	2607	865	11762	375	238	32	168

CONSTRUCTION NOTES:

- ① INCLUDES QUANTITIES FOR PAVING 4 EMERGENCY VEHICLE CROSSTOVERS
- ② TO BE USED AT BRIDGE GUARDRAIL LOCATIONS
- ③ INCLUDES QUANTITIES FOR THE DECELERATION LANE EXTENTION AT CSAH 88
- ④ TO BE USED FOR PERMANENT STABILIZATION.  
MODIFIED TO INCLUDE SOIL BED PREPARATION, SEED SOUTHERN TALLGRASS ROADSIDE AT 0.54 LBS/100 SQ YDS  
AND FERTILIZER TYPE 3 (ANALYSIS 22-5-10) AT 4.1 LBS/100 SQ YDS
- ⑤ AMEND TOP 3' OF EXISTING SOILS. SEE DETAIL 'AMENDMENT OF SOILS IN INFILTRATION AREA' ON SHEET 33
- ⑥ SEE DETAIL 'EARTHEN BERM SEDIMENT CONTROL STRUCTURES (PERMANENT DITCH CHECKS)' ON SHEET 33  
FOR DESCRIPTION OF DITCH CHECK TYPE(S)
- ⑦ INCLUDES QUANTITIES FOR DECELERATION LANE.
- ⑧ INCLUDES QUANTITIES FOR ACCELERATION LANE.
- ⑨ INCLUDES CURB HEIGHT TAPERS. SEE STD PLAN 5-297.693 FOR DETAILS.
- ⑩ INCLUDES QUANTITIES FOR SAFETY EDGE

PERMANENT DITCH CHECK SUMMARY										X
SP	INFILTRATION AREA	DITCH CHECK TYPE ⑥	LOCATION			EXCAVATION COMMON (CV)	COMMON EMBANKMENT (CV)	FILTER TOPSOIL BORROW	RAPID STABILIZATION METHOD 4 ④	
						CU YD	CU YD	CU YD	SQ YD	
5680-147	1	C	2420+44	TO	2428+00	86	206		821	
	⑤ 2	B	328+83	TO	338+77	2017	524	1562	2969	
		A	338+77	TO	340+37	510	95	395	1005	
	3	C	379+93	TO	380+64	15	39		90	
		B	380+64	TO	382+87	35	36		218	
SP 5680-147 TOTAL						2663	900	1957	5103	

6-NOV-2024

PLOTTED/REVISED:

DISTRICT #

PLOT NAME: 4d5680147\_135tab-plan

PATH & FILENAME:

FLEXIBLE TRAFFIC BARRIER													H
SP	SITE	STATION	LOCATION	REMOVE ANCHORAGE ASSEMBLY - TENSION CABLE	REMOVE ANCHORAGE ASSEMBLY - CABLE	REMOVE CABLE GUARDRAIL	REMOVE TENSION CABLE GUARDRAIL	SALVAGE TENSION CABLE ① GUARDRAIL	ANCHORAGE ASSEMBLY - TENSION CABLE	TENSION CABLE GUARDRAIL	INSTALL TENSION CABLE GUARDRAIL	REMARKS	
				EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT		
8480-43	FOR CONSTRUCTION OF TEMPORARY CONNECTIONS												
	1	2256.54 TO 2318+00	MEDIAN EB LT INP					6149					
	UPDATE MEDIAN GUARDRAIL /INSTALL TENSION CABLE												
	1	2256.54 TO 2318+00	EB LT INP								6149	USE INPLACE ANCHORS	
SP 8480-43 TOTAL								6149			6149		
5680-147	FOR CONSTRUCTION OF TEMPORARY CONNECTIONS												
	2	2319+78 TO 2345+17	MEDIAN EB LT INP	1			22	2517				SHORTEN WEST END FOR CLEARANCE TO BULLNOSE	
	3	794+55 TO 817+90	MEDIAN WB RT INP	1			195	2140				SHORTEN EAST END FOR CLEARANCE TO BULLNOSE	
	4	872+76 TO 892+56	MEDIAN WB RT INP					1980					
	POST TRAFFIC SWITCH REMOVAL												
	17	2396+23 TO 2430+24	MEDIAN EB LT INP					3392					
	18	282+50 TO 300+76	MEDIAN EB LT INP					1826					
	20	370+88 TO 378+00	EB RT UPDATE		2	712			2	715			
	21	453+70 TO 506+31	MEDIAN EB LT INP					5261					
	25	546+25 TO 548+88	EB RT UPDATE		2	312.5							
	28	608+94 TO 611+576	EB RT UPDATE		2	350							
	30	611+63 TO 652+84	MEDIAN EB LT INP					4121					
	31	653+51 TO 652+84	MEDIAN EB LT INP					4835					
	32	746+52 TO 751+65	EB RT UPDATE		2	513			2	510			
	33	748+48 TO 771+07	MEDIAN EB LT INP					2259					
	34	759+95 TO 764+45	EB RT UPDATE		2	450			2	455			
	38	820+95 TO 831+00	EB LT INP	1			50	955				SHORTEN WEST END FOR CLEARANCE TO BULLNOSE	
	39	834+50 TO 848+25	EB RT UPDATE		2	1375			2	1375			
	UPDATE MEDIAN GUARDRAIL /INSTALL TENSION CABLE												
	2	2319+78 TO 2345+17	EB LT INP							1		2517	ATTACH TO NEW ANCHOR WEST -EXISTING ANCHOR EAST
	17	2396+23 TO 2430+24	MEDIAN EB LT									3392	USE INPLACE ANCHORS
	18	282+50 TO 300+76	MEDIAN EB LT									1826	USE INPLACE ANCHORS
	43	360+28 TO 360+48	WB RT INP	1				22		1			SHORTEN WEST END FOR CLEARANCE TO BULLNOSE
	21	453+70 TO 506+31	EB LT INP									5261	USE INPLACE ANCHORS
	45	539+46 TO 541+21	WB RT INP	1					100	1	35	100	EXTEND EAST END FOR CLEARANCE TO BULLNOSE
	49	548+46 TO 550+46	WB RT INP	1					100	1	100	100	EXTEND WEST END FOR CLEARANCE TO BULLNOSE
	51	605+87 TO 606+20	WB RT INP	1				34		1			SHORTEN EAST END FOR CLEARANCE TO BULLNOSE
	30	611+28 TO 652+84	EB LT INP	1						1	47	4121	EXTEND WEST END FOR CLEARANCE TO BULLNOSE
	31	653+51 TO 701+86	EB LT INP									4835	USE INPLACE ANCHORS
	33	748+48 TO 771+07	EB LT INP									2259	USE INPLACE ANCHORS
	3	794+55 TO 815+95	WB RT INP							1		2140	ATTACH TO EXISTING ANCHOR WEST & NEW ANCHOR EAST
	38	821+45 TO 831+00	EB RT INP							1		955	ATTACH TO NEW ANCHOR WEST & EXISTING ANCHOR EAST
	58	833+39 TO 835+34	MEDIAN TH 59 RAMP					195					
	4	872+76 TO 892+56	MEDIAN WB RT									1980	USE INPLACE ANCHORS
SP 5680-147 TOTAL				8	12	3713	518	29486	16	3237	29486		
		TOTAL	8	12	3713	518	35635	16	3237	35635			

① SALVAGE POSTS, HARDWARE AND CABLE, PROTECT SOCKETS, SOUL PLATES AND ANCHORS LEFT INPLACE EXCEPT IN AREAS AFFECTED BY TEMPORARY CONNECTION CONSTRUCTION, WHERE THEY WILL NEED TO BE REMOVED AND REPLACED - INCIDENTAL



DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_135tab-plan  
PATH & FILENAME:

6-NOV-2024  
PLOTTED/REVISED:

RIGID TRAFFIC BARRIER																							J
SP	SITE	STATION	LOCATION	REMOVE ECCENTRIC LOADER BCT	REMOVE ENERGY ABSORBING TERMINAL		SALVAGE ENERGY ABSORBING TERMINAL		REMOVE SLOTTED RAIL TERMINAL	REMOVE GUARDRAIL - PLATE BEAM ①	REMOVE GUARDRAIL - BOX BEAM	REMOVE GUARDRAIL - TYPE 31	SALVAGE GUARDRAIL - TYPE 31	ANCHORAGE ASSEMBLY - TYPE 31	END TREATMENT - FLARED TERMINAL ②	TRAFFIC BARRIER DESIGN SPECIAL ③	TRAFFIC BARRIER DESIGN BULLNOSE ④	TRAFFIC BARRIER DESIGN - TYPE 31	TRAFFIC BARRIER DESIGN TRANSITION TYPE 31	INSTALL TRAFFIC BARRIER DESIGN TYPE 31	INSTALL ENERGY ABSORBING TERMINAL		NOTES
				EACH	EACH	TYPE	EACH	TYPE	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	TYPE	
8480-43	PRIOR TO TRAFFIC SWITCH																						
	5	2317+57.5 50 2318+55	WB LT UPDATE												1			100					⑤
	POST TRAFFIC SWITCH REMOVAL																						
	15	2318+43 TO 2319+62	EB RT UPDATE						1	87.5					1			119					⑤
	TRAFFIC TO OUTSIDE LANES TO UPDATE MEDIAN /INSTALL TENSION CABLE																						
	40	2318+10 TO 2319+03	MEDIAN UPDATE		1	BEAT					100						100	87.5					
SP 8480-43 TOTAL					1				1	87.5	100				2		100	306.5					
5680-147	PRIOR TO TRAFFIC SWITCH																						
	5	2318+55 50 2319+57.5	WB LT UPDATE	1						100					1			100					⑤
	6	2379+05 TO 2381+06	WB LT UPDATE	1						87.5					2			200					⑤
	7	359+17 TO 359+67	WB LT TEMP												1	25		25					⑦
	8	606+82 TO 609+07	WB RT TEMP												1			75	50				⑥
	9	815+23 TO 818+10	WB RT TEMP												1			187.5	50				⑥
	10	819+93 TO 818+30	WB LT TEMP												1			87.5	50				⑥
	11	831+71 TO 832+96	WB RT TEMP												1	25		100					⑦
	12	832+05 TO 832+55	WB LT TEMP												1	25		25					⑦
	13	847+70 TO 848+05	WB LT TEMP												1			25					⑪
	14	847+35 TO 848+00	WB RT TEMP												1			25					
	POST TRAFFIC SWITCH REMOVAL																						
	15	2319+62 TO 2320+60	EB RT UPDATE											1				43.5					⑤
	16	2377+86 TO 2379+48	EB RT UPDATE						1	87.5				1	1			162.5					⑤
	19	357+47 TO 358+79	EB RT UPDATE						1	150					1			75	37.5				⑧
	22	539+08 TO 544+08	EB LT INP REMOVE				1	ET2000		450													
	23	542+02 TO 544+65	EB RT UPDATE				1	ET PLUS		150					1			212.5	50				⑥
	24	545+93 TO 548+55	EB LT INP REMOVE				1	ET2000		212.5													
	25	546+25 TO 548+88	EB RT UPDATE						1	37.5				1				212.5	50				⑥
	26	603+58 TO 607+70	EB LT INP REMOVE				1	ET2000		362													
	27	605+04 TO 607+67	EB RT UPDATE				1	ET2000		200					1			212.5	50				⑥
	28	608+94 TO 611+576	EB RT UPDATE						1	37.5				1				212.5	50				⑥
	29	609+25 TO 611+75	EB LT INP REMOVE				1	ET2000		200													
	35	814+73 TO 818+36	EB RT UPDATE		1	FLEAT350				275					1			212.5	50				⑥
	36	814+43 TO 817+56	EB LT INP REMOVE		1	FLEAT350				275													
	37	819+05 TO 819+55	EB RT UPDATE						1	175				1				150	50				⑥
SP 5680-147 SUB TOTAL				2	2		6		5	2799.5				5	16	75		2343.5	487.5				

- ① INCLUDES DESIGN SPECIAL TRAFFIC BARRIER
- ② TYPE 31. SEE STANDARD PLAN SHEET 5-297.613
- ③ SEE STANDARD PLAN SHEETS 5-297.684
- ④ SEE STANDARD PLAN SHEETS 5-297.611
- ⑤ PLACE IN FRONT OF EXISTING PIER STRUT
- ⑥ ATTACH TO INP F STYLE RAIL
- ⑦ TEMP. ATTACH TO EXISTING PIER STRUT
- ⑧ ATTACH TO NEW PIER STRUT
- ⑪ DISCONNECTION OF ANCHORAGE ASSEMBLY & SALVAGE OF 2' W BEAM FLARE (INCIDENTAL)

18-NOV-2024

18-NOV-2024

DISTRICT # 4d5680147\_135tab-plan  
PLOT NAME: 4d5680147\_135tab-plan  
PATH & FILENAME:

RIGID TRAFFIC BARRIER																							J
SP	SITE	STATION	LOCATION	REMOVE ECCENTRIC LOADER BCT	REMOVE ENERGY ABSORBING TERMINAL		SALVAGE ENERGY ABSORBING TERMINAL		REMOVE SLOTTED RAIL TERMINAL	REMOVE GUARDRAIL - PLATE BEAM ①	REMOVE GUARDRAIL - BOX BEAM	REMOVE GUARDRAIL - TYPE 31	SALVAGE GUARDRAIL - TYPE 31	ANCHORAGE ASSEMBLY - TYPE 31	END TREATMENT - FLARED TERMINAL②	TRAFFIC BARRIER DESIGN SPECIAL③	TRAFFIC BARRIER DESIGN BULLNOSE ④	TRAFFIC BARRIER DESIGN - TYPE 31	TRAFFIC BARRIER DESIGN TRANSITION TYPE 31	INSTALL TRAFFIC BARRIER DESIGN TYPE 31	INSTALL ENERGY ABSORBING TERMINAL		NOTES
				EACH	EACH	TYPE	EACH	TYPE	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	TYPE		
SP 5680-147	TRAFFIC TO OUTSIDE LANES TO UPDATE MEDIAN /INSTALL TENSION CABLE																						
	40	2319+03 TO 2319+91	MEDIAN UPDATE		1	BEAT					100						100	87.5					
	41	2378+55 TO 2380+37	MEDIAN UPDATE		2	BEAT					200						200	175					
	42	358+54 TO 360+23	MEDIAN UPDATE		2	BEAT					187.5						200	150					
	44	540+72 TO 543+47	WB RT INP REMOVE				1	ET PLUS		225													
	46	541+38 to 544+22	MEDIAN UPDATE														100	317	100				⑨
	47	545+22 TO 548+18	MEDIAN UPDATE														100	343	100				⑨
	48	545+31 TO 550+31	WB RT INP REMOVE				1	ET PLUS		450													
	8	606+82 TO 607+52	WB RT TEMP REMOVE		1	FLARED							75										
	50	605+76 TO 608+07	MEDIAN UPDATE														100	175	50	75			⑨
	52	609+42 TO 613+68	WB RT INP REMOVE				1	ET2000		375													
	53	609+10 TO 611+44	MEDIAN UPDATE														100	252	100				⑨
	9	815+23 TO 817+60	WB RT TEMP REMOVE		1	FLARED							187.5										
	54	815+73 TO 818+10	MEDIAN UPDATE														100	55	50	187.5			⑨
	55	819+87 TO 823+00	WB RT INP REMOVE				1	ETPLUS		262.5													
	56	819+37 TO 821+76	MEDIAN UPDATE														100	244	100				⑨
	REMOVE WB LT TEMP GUARDRAIL																						
	7	359+17 TO 359+67	WB LT TEMP REMOVE				1	FLARED		25			25										
	57	359+99 TO 361+30	WB LT UPDATE	1						87.5								50	37.5	25	1	FLARED	⑩
	10	816+93 TO 818+30	WB LT TEMP REMOVE		1	FLARED				137.5													
	11	831+71 TO 832+96	WB RT TEMP REMOVE		1	FLARED				25		100											
	12	832+05 TO 832+55	WB LT TEMP REMOVE		1	FLARED				25		25											
	13	847+70 TO 847+95	WB LT TEMP REMOVE		1	FLARED						25											
	14	847+75 TO 848+00	WB RT TEMP REMOVE		1	FLARED						25											⑫
	SP 5680-147 TOTAL			3	14		11		5	4412	487.5	175	287.5	5	16	75	1100	4192	1025	287.5	1		
			TOTAL	3	15		11		6	4499.5	587.5	175	287.5	5	18	75	1200	4498.5	1025	287.5	1		

- ① INCLUDES DESIGN SPECIAL TRAFFIC BARRIER  
② TYPE 31. SEE STANDARD PLAN SHEET 5-297.613  
③ SEE STANDARD PLAN SHEETS 5-297.684  
④ SEE STANDARD PLAN SHEETS 5-297.611
- ⑨ ATTACH TO INPLACE "F" STYLE BARRIER  
⑩ ATTACH TO NEW BARRIER WALL  
⑫ RECONNECT EXISTING ANCHOR ASSEMBLY & INSTALL 2' W BEAM FLARE (INCIDENTAL)

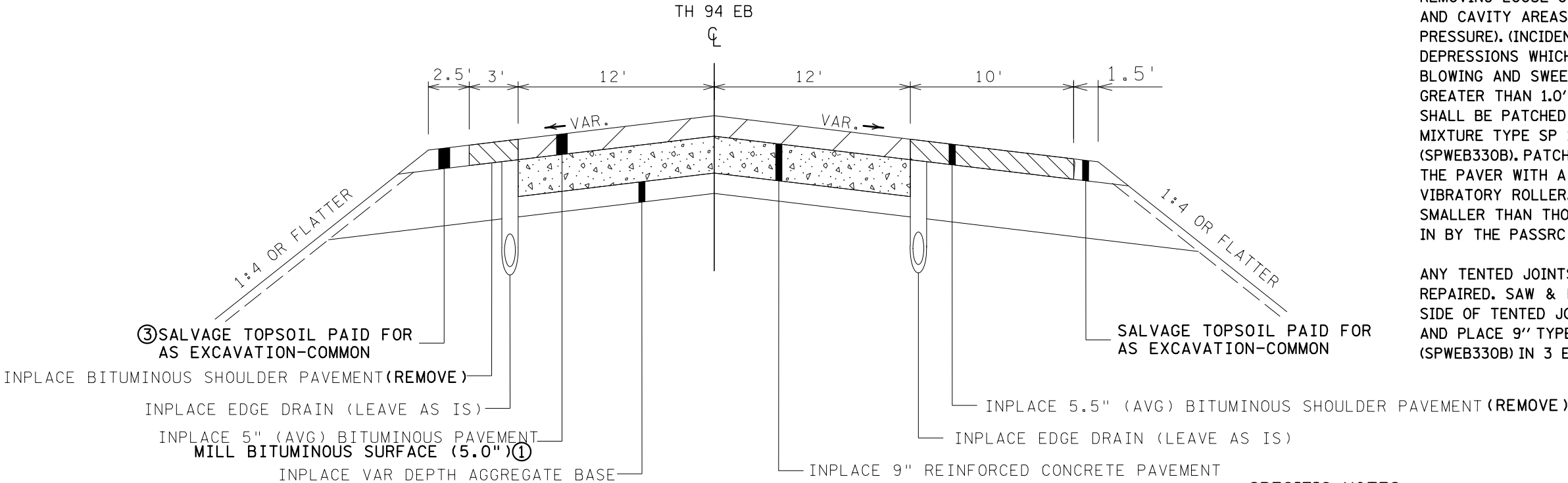
7-NOV-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:

OVERLAY  
INPLACE TYPICAL

② STA. 2265+00.00 TO 2314+24.20 STA. 364+16.24 TO 539+13.49  
STA. 2324+27.40 TO 2374+29.95 STA. 551+96.53 TO 602+96.82  
STA. 2384+39.95 TO 354+13.03 STA. 614+90.10 TO 811+22.44



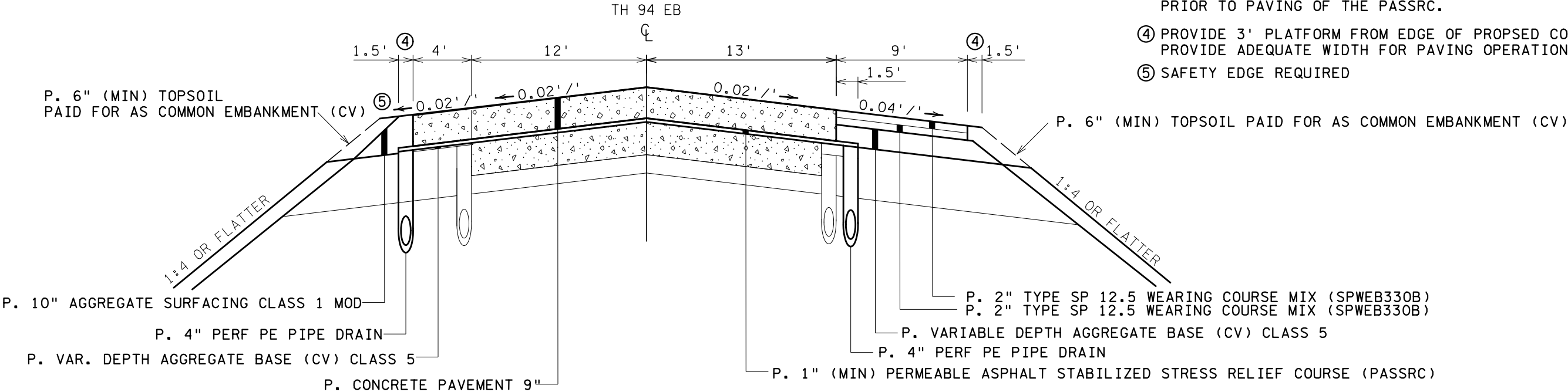
GENERAL NOTES:

PRIOR TO THE PLACEMENT OF THE BITUMINOUS PAVEMENT ON EXISTING OR MILLED SURFACES, THE ENTIRE PAVEMENT SURFACE SHALL BE CLEANED BY POWER SWEEPING AND AIR BLOWING (INCLUDING REMOVING LOOSE OR SPALLED MATERIAL FROM CRACKS AND CAVITY AREAS WITH 100 PSI MINIMUM AIR PRESSURE). (INCIDENTAL) DEPRESSIONS WHICH RESULT AFTER AIR BLOWING AND SWEEPING OPERATIONS THAT ARE GREATER THAN 1.0" IN DEPTH AND 1.5" IN WIDTH SHALL BE PATCHED WITH BITUMINOUS PATCHING MIXTURE TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB330B). PATCHING SHALL BE DONE AHEAD OF THE PAVER WITH A PNEUMATIC TIRED OR A SMALL VIBRATORY ROLLER. DEPRESSIONS, CRACKS AND JOINTS SMALLER THAN THOSE LISTED ABOVE WILL BE FILLED IN BY THE PASSRC PAVING COURSE OPERATION.

ANY TENTED JOINTS FOUND, SHALL BE REPAIRED. SAW & REMOVE EXISTING CONCRETE EITHER SIDE OF TENTED JOINT, COMPLETE SUBGRADE PREPARATION AND PLACE 9" TYPE SP 12.5 WEARING COURSE MIX (SPWEB330B) IN 3 EQUAL LIFTS, PRIOR TO PLACEMENT OF PASSRC.

OVERLAY  
PROPOSED TYPICAL

STA. 2265+00.00 TO 2314+24.20 STA. 364+16.24 TO 539+13.49  
STA. 2324+27.40 TO 2374+29.95 STA. 551+96.53 TO 602+96.82  
STA. 2384+39.95 TO 354+13.03 STA. 614+90.10 TO 811+22.44



SPECIFIC NOTES:

- ① MILL TO CONCRETE
- ② SEE BEGIN PROJECT TRANSITION DETAIL ON SHEET 34
- ③ IN AREAS WHERE TENSION GUARDRAIL IS PRESENT THIS MATERIAL NEEDS TO BE MOVE FROM SITE PRIOR TO PAVING OF THE PASSRC.
- ④ PROVIDE 3' PLATFORM FROM EDGE OF PROPSD CONCRETEPAVEMENT TO PROVIDE ADEQUATE WIDTH FOR PAVING OPERATIONS (INCIDENTAL).
- ⑤ SAFETY EDGE REQUIRED



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 17  
TOTAL SHEETS 153

7-NOV-2024

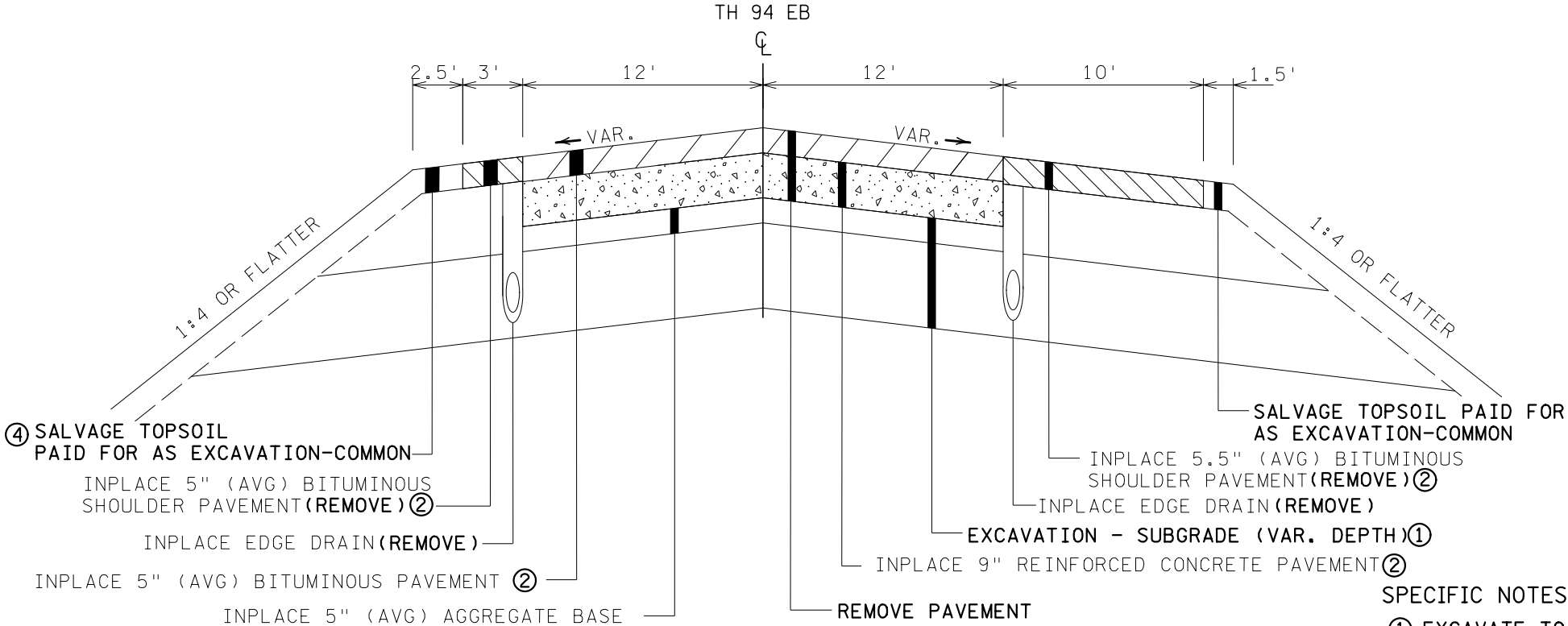
7-NOV-2024

4d5680147\_145typ-plan

4d5680147\_145typ-plan

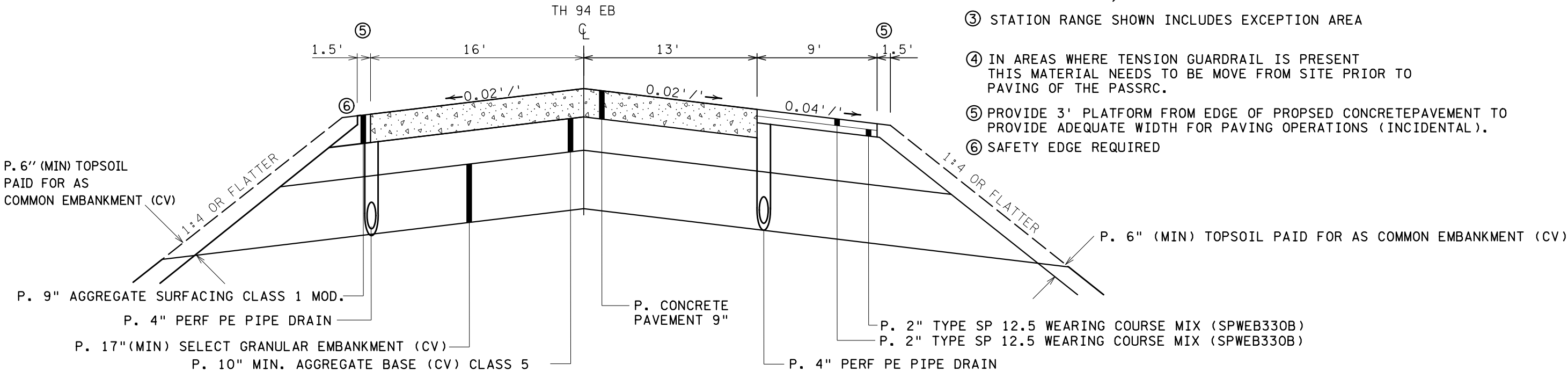
RECONSTRUCTION  
INPLACE TYPICAL

STA. 539+13.49 TO 551+96.53 ③  
STA. 602+96.82 TO 614+90.10 ③



RECONSTRUCTION  
PROPOSED TYPICAL

STA. 539+13.49 TO 551+96.53 ③  
STA. 602+96.82 TO 614+90.10 ③



GENERAL NOTES:

EXCAVATED MATERIALS SHOULD BE USED TO THE FULLEST EXTENT PRACTICAL, SO FAR AS THE EXCAVATED MATERIALS DESIGNATED SUITABLE WITH RESPECT TO THE REQUIREMENTS OF THE PROJECT. SEE MN/DOT SPEC. 2106. MATERIAL NOT UTILIZED ON THE PROJECT SHALL BECOME PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF OFF THE RIGHT-OF-WAY IN ACCORDANCE WITH SPECIFICATION 2104.

EXISTING AGGREGATES AND TOPSOIL SHALL BE SALVAGED AND REUSED IN NEW CONSTRUCTION WHERE POSSIBLE.

GRADING MATERIAL USED TO CONSTRUCT THE EMBANKMENT, UNLESS SPECIFIED AS GRANULAR ELSEWHERE, SHOULD SUBSTANTIALLY MATCH THE INPLACE EMBANKMENT MATERIALS RELATIVE TO TEXTURAL CLASSIFICATION, DENSITY AND MOISTURE CONTENT.

PROVIDE 1:20 LONGITUDINAL TAPERS WHERE APPLICABLE FOR CHANGES IN MATERIALS TYPE TO PREVENT ABRUPT SOILS DIFFERENTIAL. THIS INCLUDES SUBCUTS, EMBANKMENTS, AND BACKFILL AREAS WHERE AN AREA OF GRANULAR SOILS overlies THE PLASTIC SOILS.

TACK COAT SHALL BE APPLIED BETWEEN BITUMINOUS LIFTS AND ON MILLED SURFACES. APPLICATION OF TACK COAT SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION 2357 AND SHALL BE CONSIDERED INCIDENTAL.

SPECIFIC NOTES:

- ① EXCAVATE TO A DEPTH OF 36" BELOW THE PROPOSED PROFILE
- ② AVERAGE OF 4" OF BITUMINOUS OVER 12" OF REINFORCED CONCRETE PAVEMENT  
NW OF BR. 56812, FROM STA 543+53 TO END OF APPROACH PANEL  
NW OF BR 56814, FROM STA 607+63 TO END OF APPROACH PANEL  
SE OF BR 56814, FROM END OF APPROACH PANEL TO STA 609+79  
AVERAGE OF 14" OF BITUMINOUS PAVEMENT  
SE OF BR 56812, FROM END OF APPROACH PANEL TO STA 547+05
- ③ STATION RANGE SHOWN INCLUDES EXCEPTION AREA
- ④ IN AREAS WHERE TENSION GUARDRAIL IS PRESENT THIS MATERIAL NEEDS TO BE MOVE FROM SITE PRIOR TO PAVING OF THE PASSRC.
- ⑤ PROVIDE 3' PLATFORM FROM EDGE OF PROPOSED CONCRETE PAVEMENT TO PROVIDE ADEQUATE WIDTH FOR PAVING OPERATIONS (INCIDENTAL).
- ⑥ SAFETY EDGE REQUIRED



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

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TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 18  
TOTAL SHEETS 153

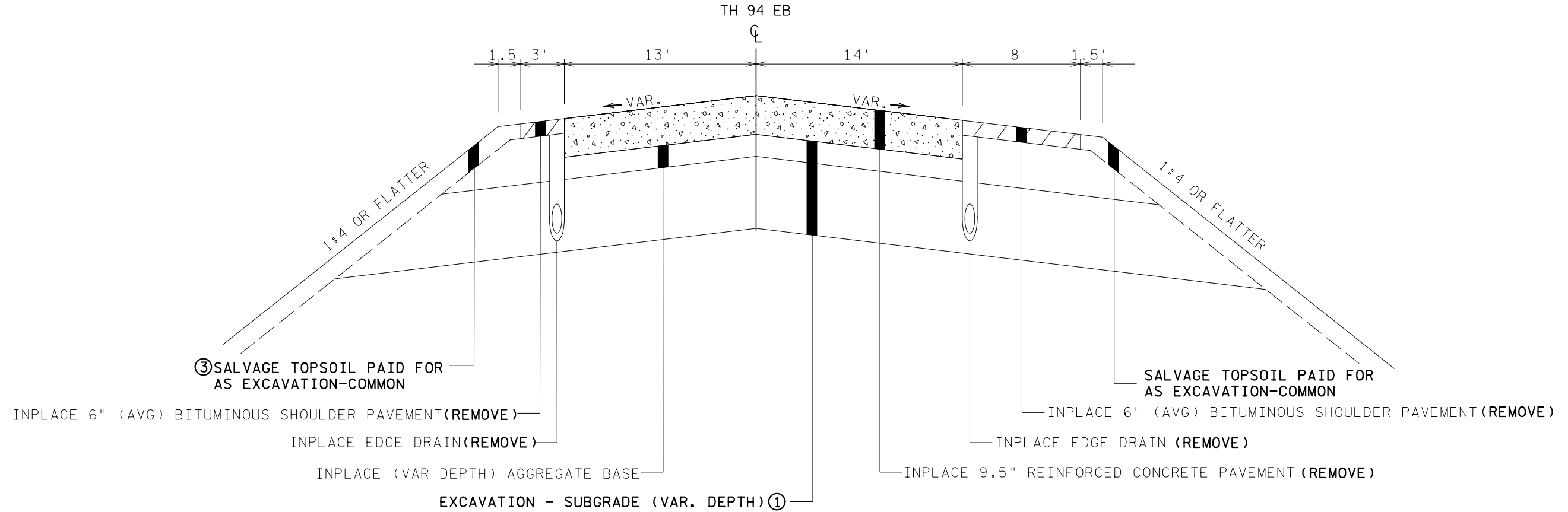
PLOTTED/REVISED: 7-NOV-2024

DISTRICT #  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:

## RECONSTRUCTION

### INPLACE TYPICAL

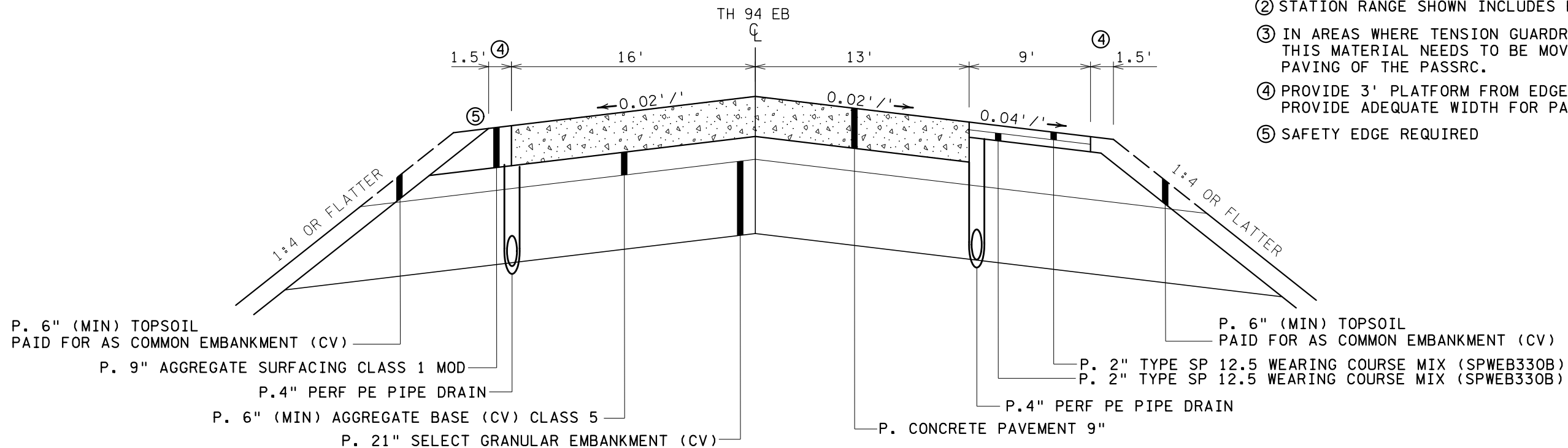
STA. 811+22.44 TO 890+00 ②



## RECONSTRUCTION

### PROPOSED TYPICAL

STA. 811+22.44 TO 890+00 ②



#### SPECIFIC NOTES:

- ① EXCAVATE TO A DEPTH OF 36" BELOW THE PROPOSED PROFILE
- ② STATION RANGE SHOWN INCLUDES EXCEPTION AREA
- ③ IN AREAS WHERE TENSION GUARDRAIL IS PRESENT THIS MATERIAL NEEDS TO BE MOVE FROM SITE PRIOR TO PAVING OF THE PASSRC.
- ④ PROVIDE 3' PLATFORM FROM EDGE OF PROPSD CONCRETEPAVEMENT TO PROVIDE ADEQUATE WIDTH FOR PAVING OPERATIONS (INCIDENTAL).
- ⑤ SAFETY EDGE REQUIRED



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 19  
TOTAL SHEETS 153



7-NOV-2024

7-NOV-2024

DISTRICT # 4d5680147\_145typ-plan  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:

## UNDERPASS RECONSTRUCTION

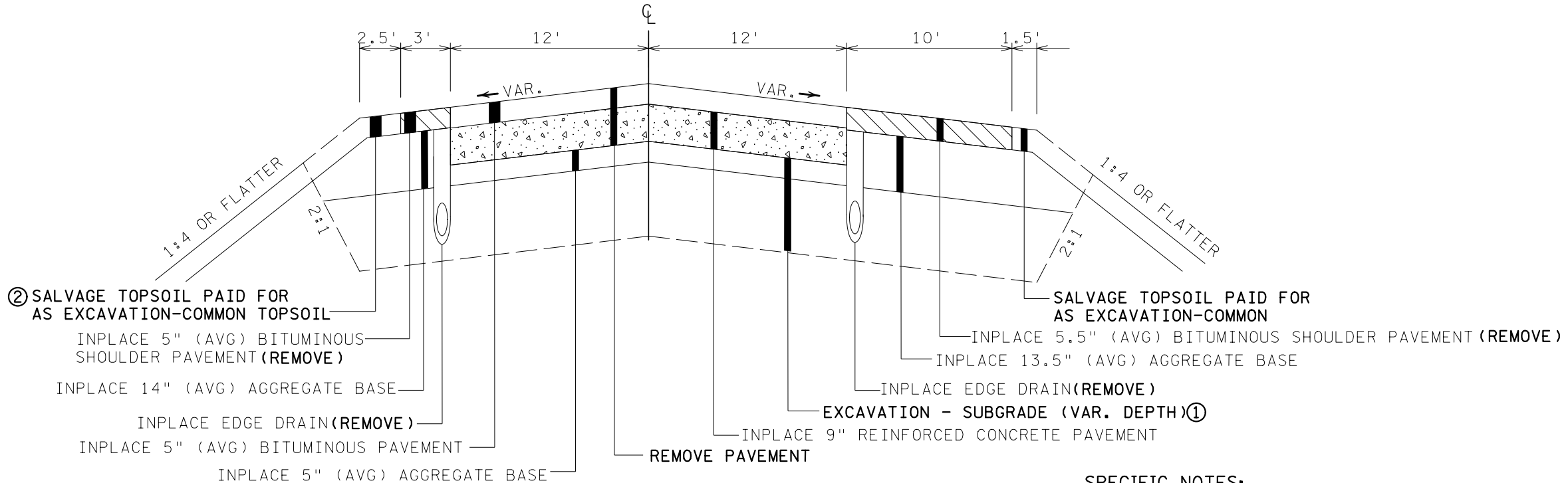
### INPLACE TYPICAL

STA. 2314+24.20 TO 2324+27.40

STA. 2374+29.95 TO 2384+39.95

STA. 354+13.03 TO 364+16.24

TH 94 EB



## UNDERPASS RECONSTRUCTION

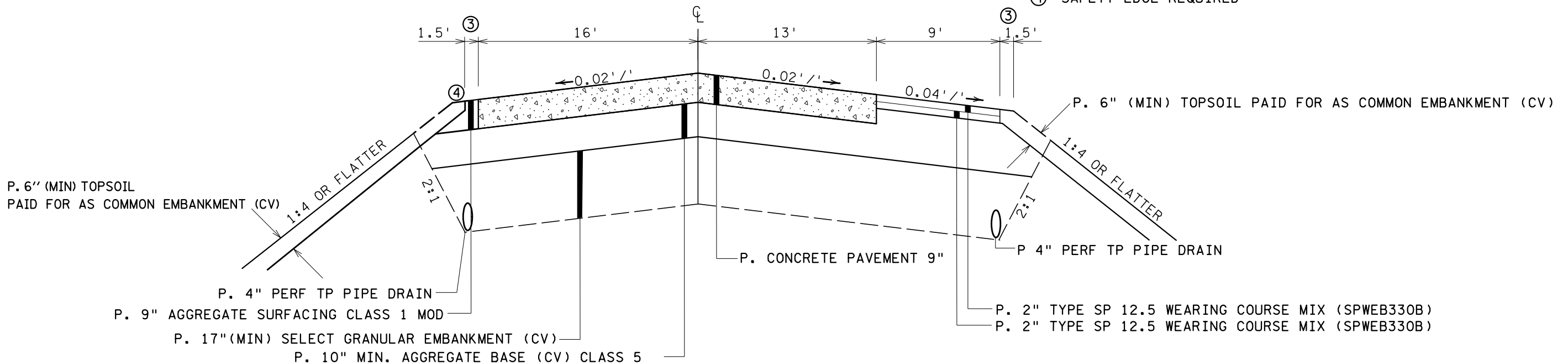
### PROPOSED TYPICAL

STA. 2314+24.20 TO 2324+27.40

STA. 2374+29.95 TO 2384+39.95

STA. 354+13.03 TO 364+16.24

TH 94 EB



#### SPECIFIC NOTES:

- ① EXCAVATE TO A DEPTH OF 36" BELOW THE PROPOSED PROFILE
- ② IN AREAS WHERE TENSION GUARDRAIL IS PRESENT THIS MATERIAL NEEDS TO BE MOVE FROM SITE PRIOR TO PAVING OF THE PASSRC.
- ③ PROVIDE 3' PLATFORM FROM EDGE OF PROPSED CONCRETEPAVEMENT TO PROVIDE ADEQUATE WIDTH FOR PAVING OPERATIONS (INCIDENTAL).
- ④ SAFETY EDGE REQUIRED



*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 20  
TOTAL SHEETS 153

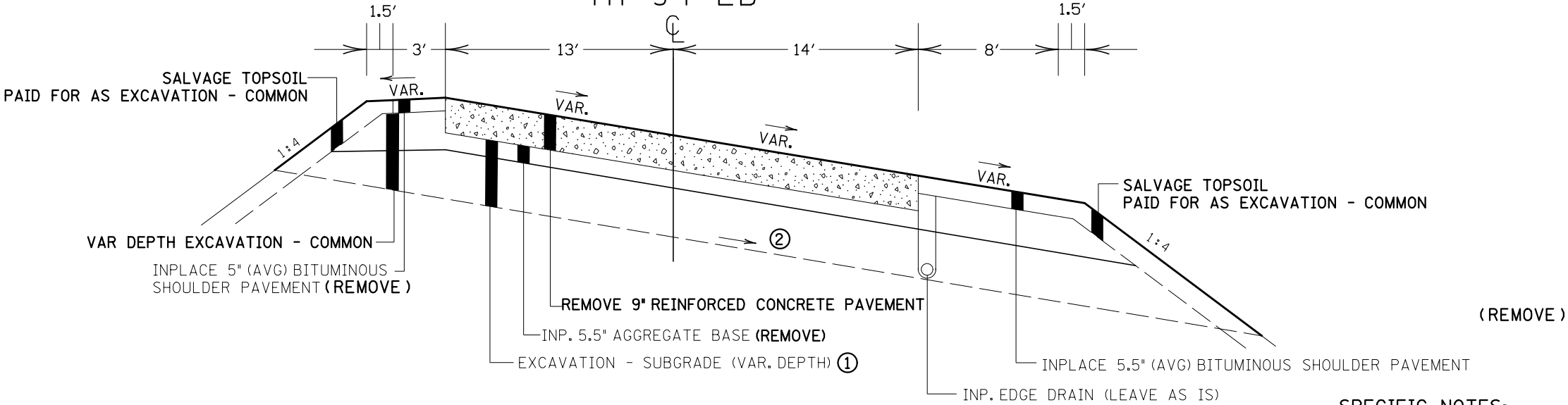
7-NOV-2024

PLOTTED/REVISED:

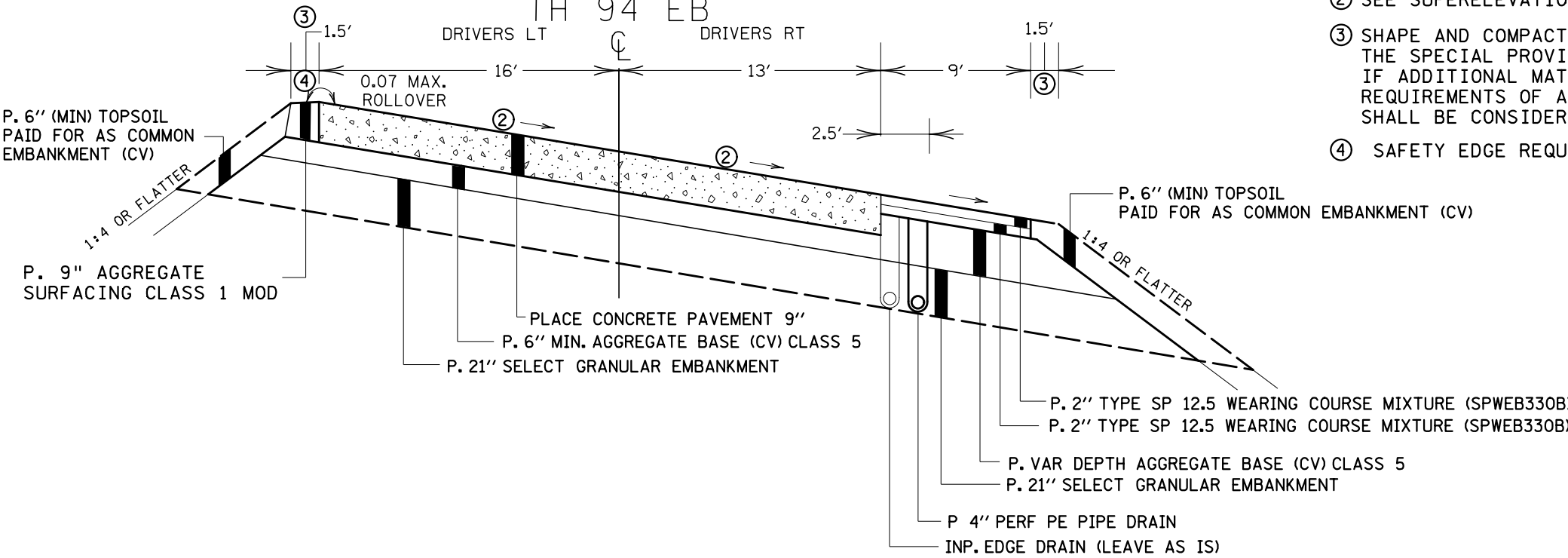
DISTRICT #  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:

SUPERELEVATION TABULATION								
P.I.	DEGREE OF CURVE	SUPER	HIGH SIDE			LOW SIDE		
			BEG. TRANS.	FULL SUPER	END TRANS.	BEG. TRANS.	FULL SUPER	END TRANS.
STATION	FEET	FT/FT	STATION	STATION - STATION	STATION	STATION	STATION - STATION	STATION
857+93.59	2° 00' 00"	0.055	845+76.60 LT	849+36.60 - 866+02.03	869+62.03 LT	847+68.60 RT	849+36.60 - 866+02.03	867+70.03 RT

SUPERELEVATION FOR RECONSTRUCTION  
INPLACE TYPICAL  
TH 94 EB



SUPERELEVATION FOR RECONSTRUCTION  
PROPOSED TYPICAL  
TH 94 EB



- SPECIFIC NOTES:
- ① EXCAVATE TO A DEPTH OF 36" BELOW THE PROPOSED PROFILE
  - ② SEE SUPERELEVATION TABULATION ON THIS SHEET FOR SUPER RATE
  - ③ SHAPE AND COMPACT INPLACE AGGREGATE ACCORDING TO THE SPECIAL PROVISIONS TO ACCOMMODATE PAVING OPERATIONS. IF ADDITIONAL MATERIAL IS REQUIRED, IT WILL MEET THE GRADATION REQUIREMENTS OF AGGREGATE BASE CLASS 5, SPEC. 2211 AND SHALL BE CONSIDERED INCIDENTAL.
  - ④ SAFETY EDGE REQUIRED



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)  
SHEET NO. 21  
TOTAL SHEETS 153

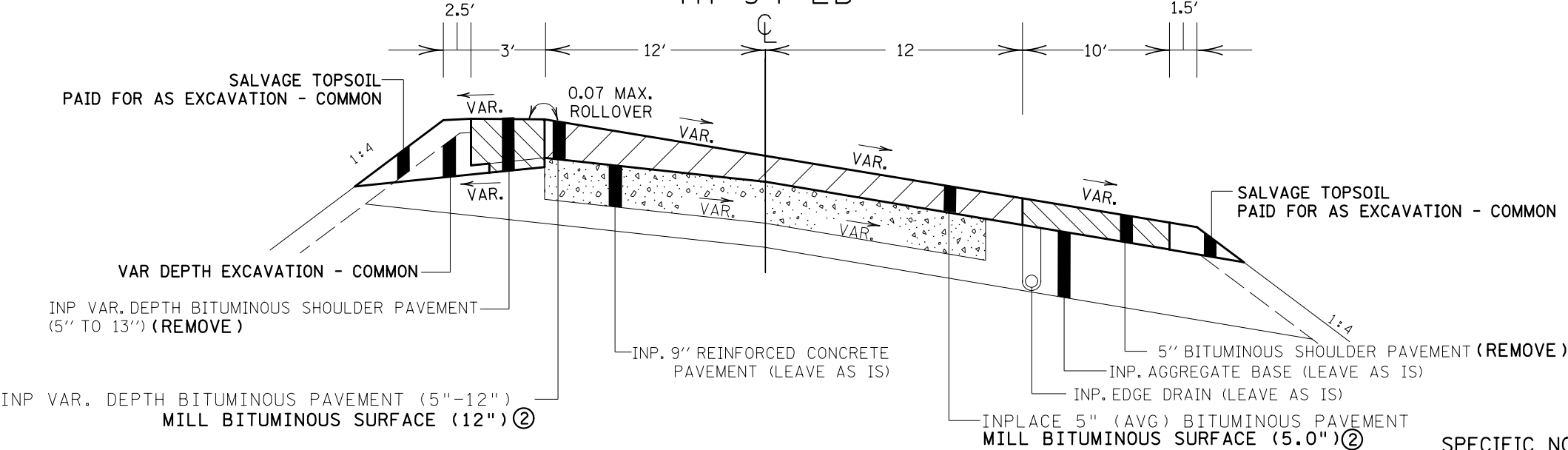
7-NOV-2024

PLOTTED/REVISED:

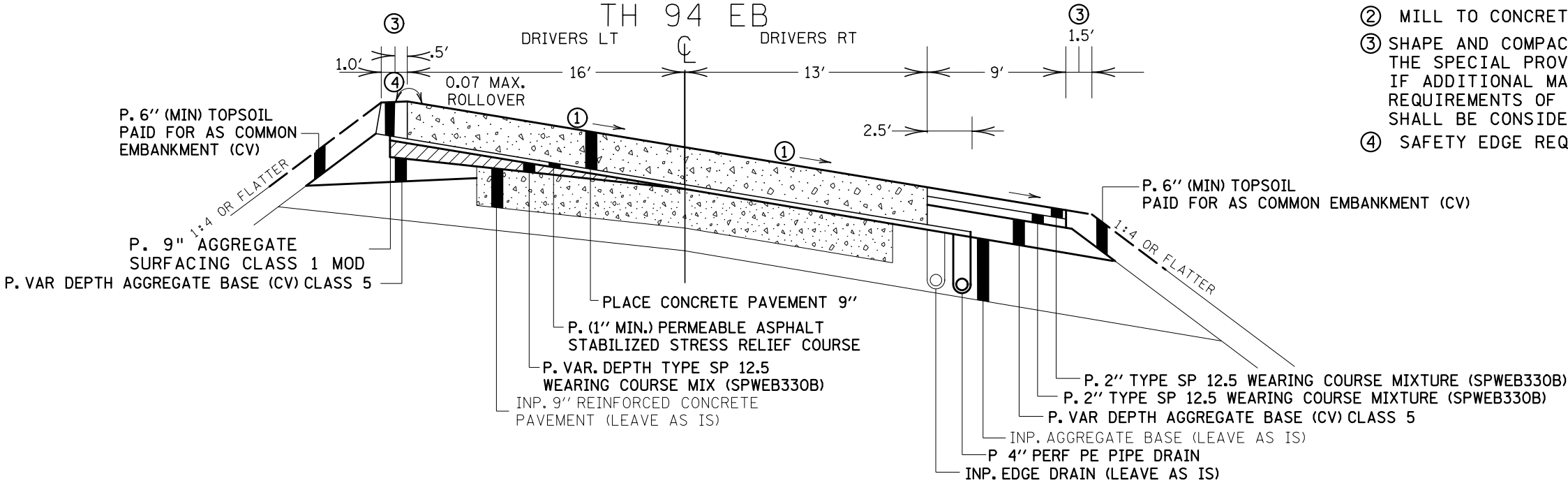
DISTRICT # 4d5680147\_145typ-plan  
PLOT NAME:  
PATH & FILENAME:

SUPERELEVATION TABULATION								
P.I.	DEGREE OF CURVE	SUPER	HIGH SIDE			LOW SIDE		
			BEG. TRANS.	FULL SUPER	END TRANS.	BEG. TRANS.	FULL SUPER	END TRANS.
STATION	FEET	FT/FT	STATION	STATION - STATION	STATION	STATION	STATION - STATION	STATION
2290+72.97	2° 00' 00"	0.055	2273+09.89 RT	2276+69.89 - 2302+43.52	2306+03.52 RT	2275+01.89 LT	2276+69.89 - 2302+43.52	2304+11.52 LT
2360+91.85	1° 30' 00"	0.046	2349+02.94 LT	2352+19.74 - 2369+26.67	2372+43.47 LT	2350+94.94 RT	2352+19.74 - 2369+26.67	2370+51.47 RT
493+18.91	0° 30' 00"	0.020	482+73.56 RT	484+65.56 - 501+68.75	503+60.75 RT			
564+98.84	0° 30' 00"	0.020	551+27.22 LT	553+19.22 - 576+69.49	578+61.49 LT			
641+55.09	1° 00' 00"	0.033	630+14.80 RT	632+69.20 - 650+24.45	652+78.85 RT	632+06.80 LT	632+69.20 - 650+24.45	650+86.85 LT
729+38.11	0° 45' 00"	0.026	717+50.76 LT	719+71.56 - 738+93.08	741+13.88 LT	719+42.76 RT	719+71.56 - 738+93.08	739+21.88 RT
763+06.16	2° 00' 00"	0.055	752+34.52 RT	755+94.52 - 769+78.11	773+38.11 RT	754.26.52 LT	755+94.52 - 769+78.11	771+46.11 LT
793+54.38	2° 00' 00"	0.055	786+42.93 LT	790+02.93 - 797.02.33	800+62.33 LT	788+34.93 RT	790+02.93 - 797+02.33	798+70.33 RT

SUPERELEVATION IN OVERLAY  
INPLACE TYPICAL  
TH 94 EB



SUPERELEVATION OVERLAY PROPOSED TYPICAL  
TH 94 EB



- SPECIFIC NOTES:
- ① SEE SUPERELEVATION TABULATION ON THIS SHEET FOR SUPER RATE
  - ② MILL TO CONCRETE
  - ③ SHAPE AND COMPACT INPLACE AGGREGATE ACCORDING TO THE SPECIAL PROVISIONS TO ACCOMMODATE PAVING OPERATIONS. IF ADDITIONAL MATERIAL IS REQUIRED, IT WILL MEET THE GRADATION REQUIREMENTS OF AGGREGATE BASE CLASS 5, SPEC. 2211 AND SHALL BE CONSIDERED INCIDENTAL.
  - ④ SAFETY EDGE REQUIRED



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 7-NOV-2024

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TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

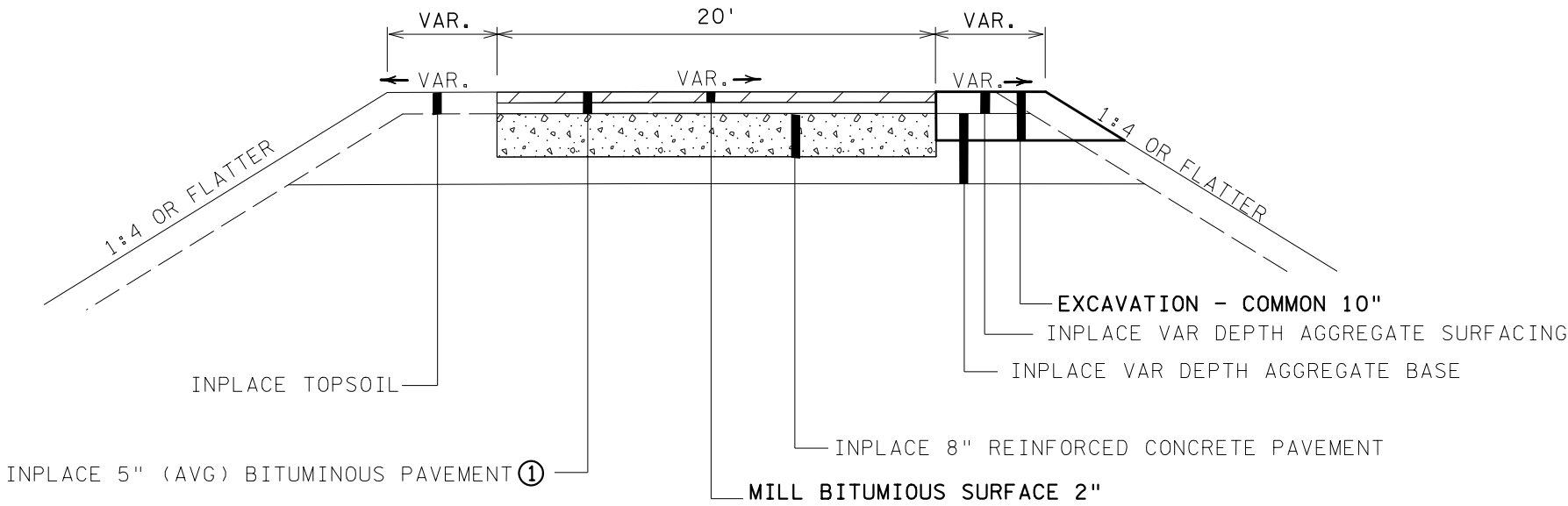
SHEET NO. 22  
TOTAL SHEETS 153



PLOTTED/REVISED: 7-NOV-2024

DISTRICT # 4d5680147\_145typ-plan  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:

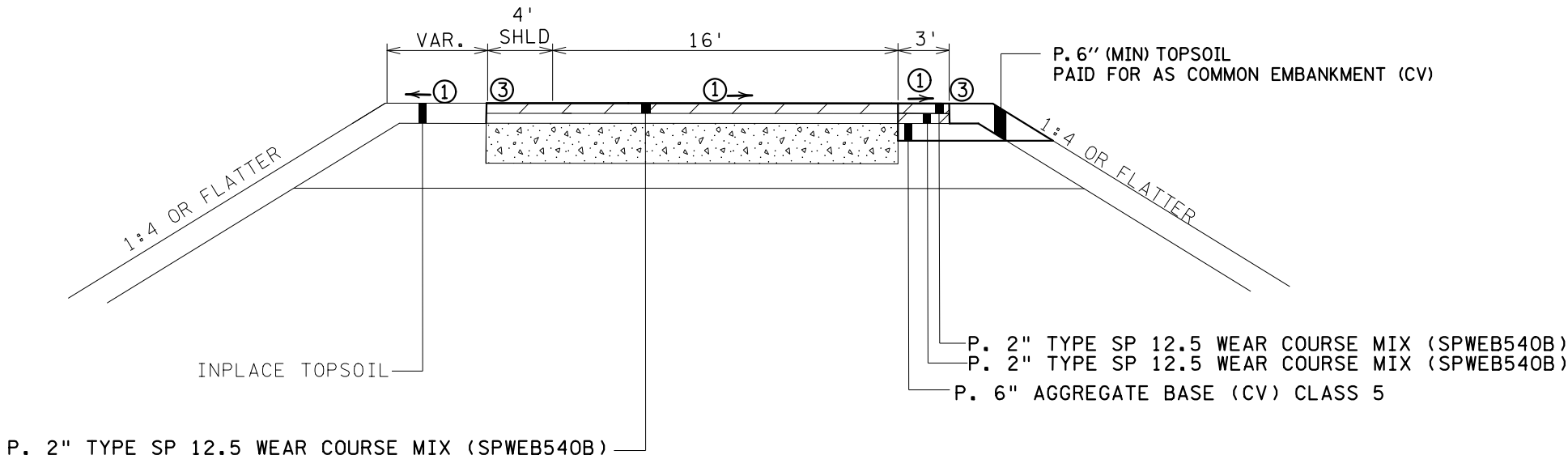
INPLACE TYPICAL  
CSAH 11 AND 88 RAMPS



SPECIFIC NOTES:

- ① MATCH EXISTING CROSS SLOPE
- ② RAMPS TO BE STRIPED AS A 15' THRU LANE WITH 4' SHOULDERS
- ③ SAFETY EDGE REQUIRED

PROPOSED TYPICAL  
CSAH 11 AND 88 RAMPS②



*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
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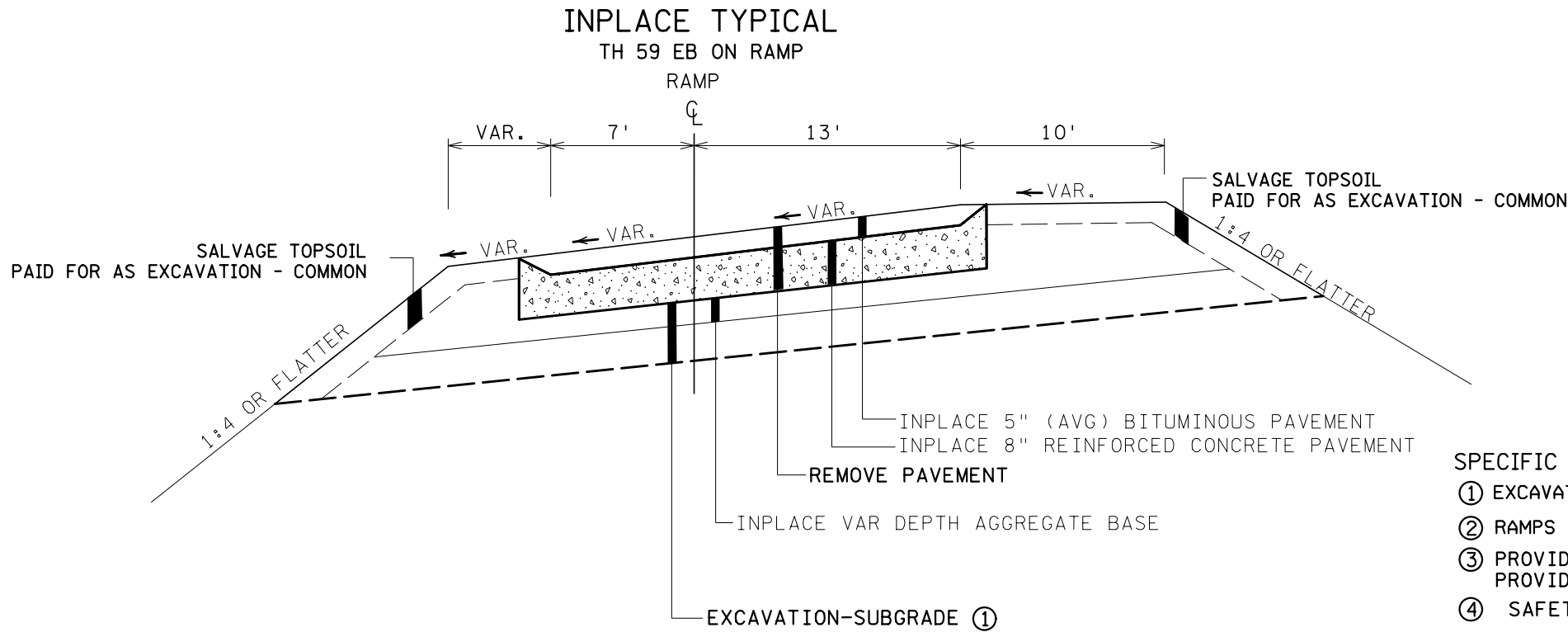
TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 23  
TOTAL SHEETS 153

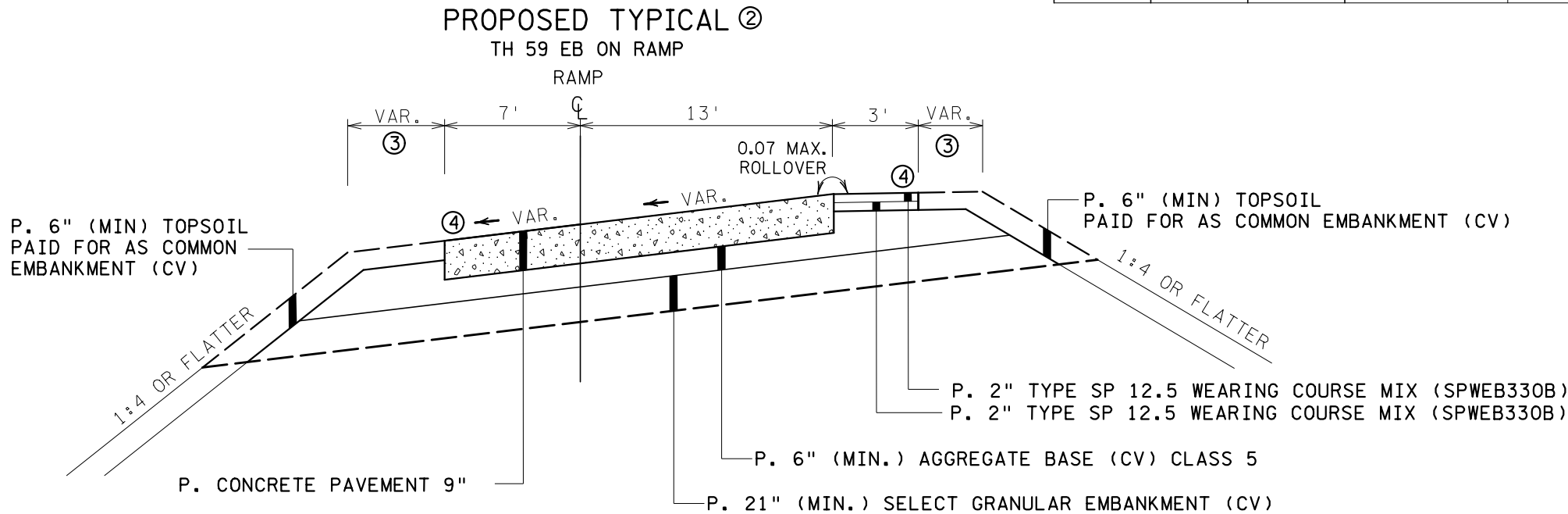
8-NOV-2024

8-NOV-2024



- SPECIFIC NOTES:
- ① EXCAVATE TO A DEPTH OF 36" BELOW THE PROPOSED PROFILE
  - ② RAMPS TO BE STRIPED AS A 15' THRU LANE WITH 4' SHOULDERS
  - ③ PROVIDE 3' PLATFORM FROM EDGE OF PROPSD CONCRETEPAVEMENT TO PROVIDE ADEQUATE WIDTH FOR PAVING OPERATIONS (INCIDENTAL).
  - ④ SAFETY EDGE REQUIRED

SUPERELEVATION TABULATION					
P.I.	DEGREE OF CURVE	SUPER	BEG. TRANS.	FULL SUPER	END TRANS.
STATION	FEET	FT/FT	STATION	STATION - STATION	STATION
183+70.20	7° 30' 00"	0.055	181+34.02 RT	184+70.02 - 189+12.89	192+48.89 RT



DISTRICT #  
PLOT NAME: 4d5680147\_145typ-plan  
PATH & FILENAME:



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LIC. NO. 54689  
DATE: 8-NOV-2024  
LICENSED PROFESSIONAL ENGINEER

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TYPICAL SECTIONS

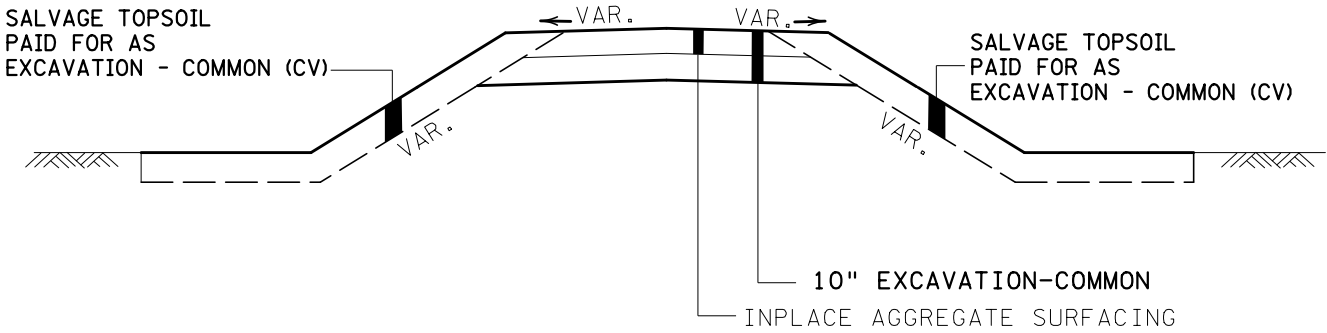
STATE PROJ. NO. 5680-147	SHEET NO. 24
(T.H. 94)	TOTAL SHEETS 153

DISTRICT #  
PLOT NAME:  
PATH & FILENAME:

3-OCT-2024

INPLACE  
EMERGENCY VEHICLE CROSSOVER

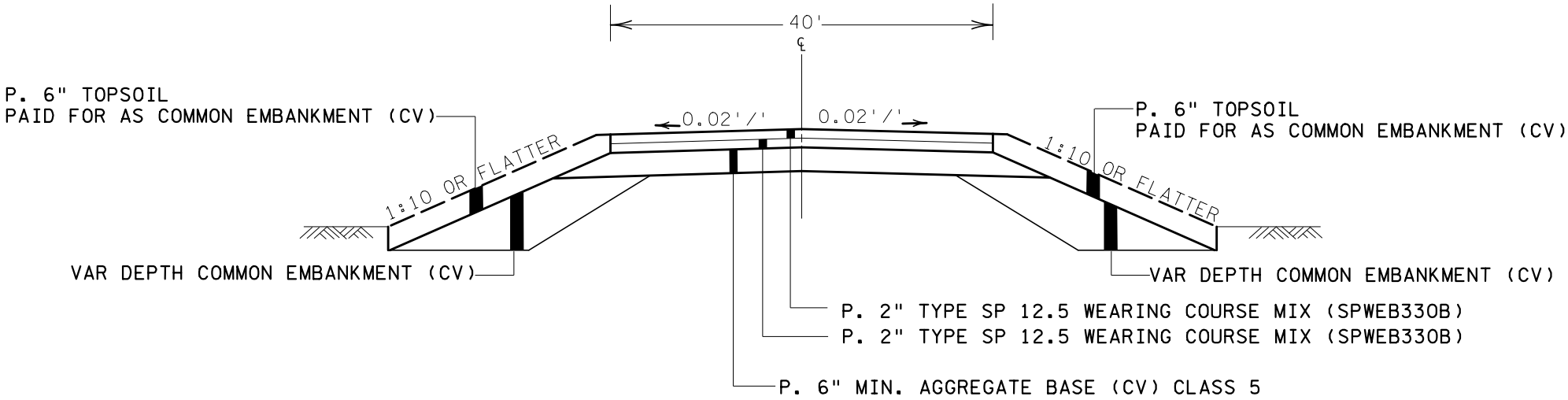
STA. 2256+00 STA. 2396+00  
STA. 350+20 STA. 403+10



PROPOSED ①  
EMERGENCY VEHICLE CROSSOVER

STA. 2256+00 STA. 2396+00  
STA. 350+20 STA. 403+10

SPECIFIC NOTES:  
① PROVIDE 41' RADII OFF TH 94 SHOULDERS



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

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TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 25  
TOTAL SHEETS 153

3-OCT-2024  
PLOTTED/REVISED:

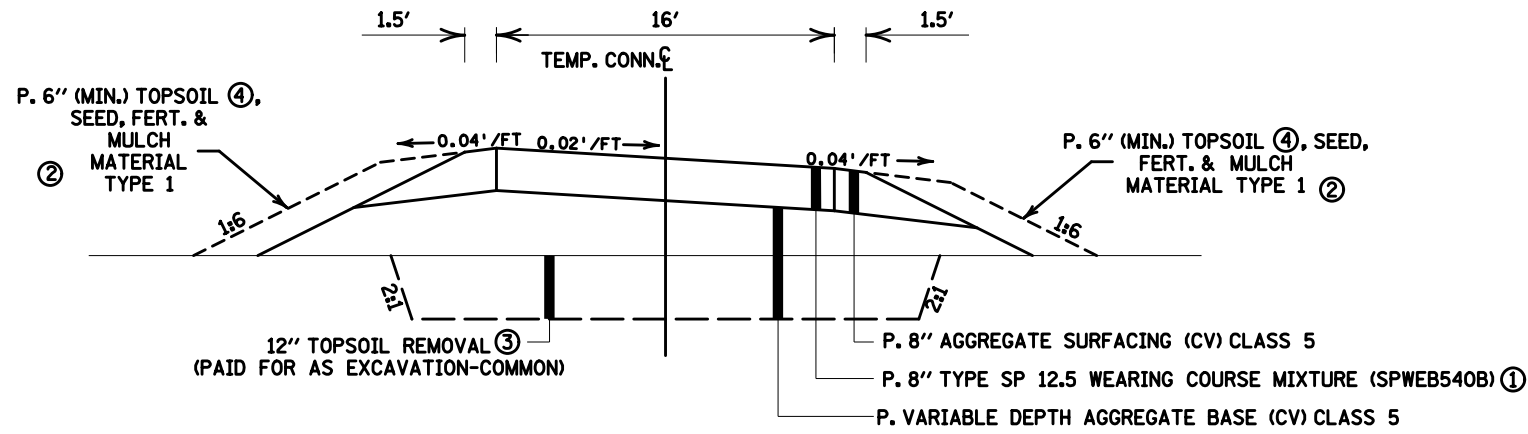
DISTRICT # 4d5680147\_145typ-plan  
PLOT NAME:  
PATH & FILENAME:

DISTRICT #

PLOT NAME:

PATH & FILENAME:

## TYPICAL SECTIONS TEMPORARY CONNECTIONS



### CONSTRUCTION NOTES

- 1 PLACE BITUMINOUS IN (4) 2" LIFTS.
- 2 PLACE ROLLED EROSION PREVENTION CATEGORY 25 IN DITCH BOTTOM.
- 3 TOPSOIL SHALL BE SALVAGED AND REPLACED. TOPSOIL MAY BE STOCKPILED IN THE MEDIAN AT LOCATIONS WHICH WILL NOT ALTER THE INPLACE DRAINAGE. AS APPROVED BY THE ENGINEER.
- 4 PAID FOR AS COMMON EMBANKMENT (CV)
- 5 TEMPORARY CONNECTION 1 HAS CONCRETE SHOULDER WITH MILLED RUMBLE STRIPS. CONSTRUCTION TO BEGIN AT OUTSIDE EDGE OF CONCRETE SHOULDER.

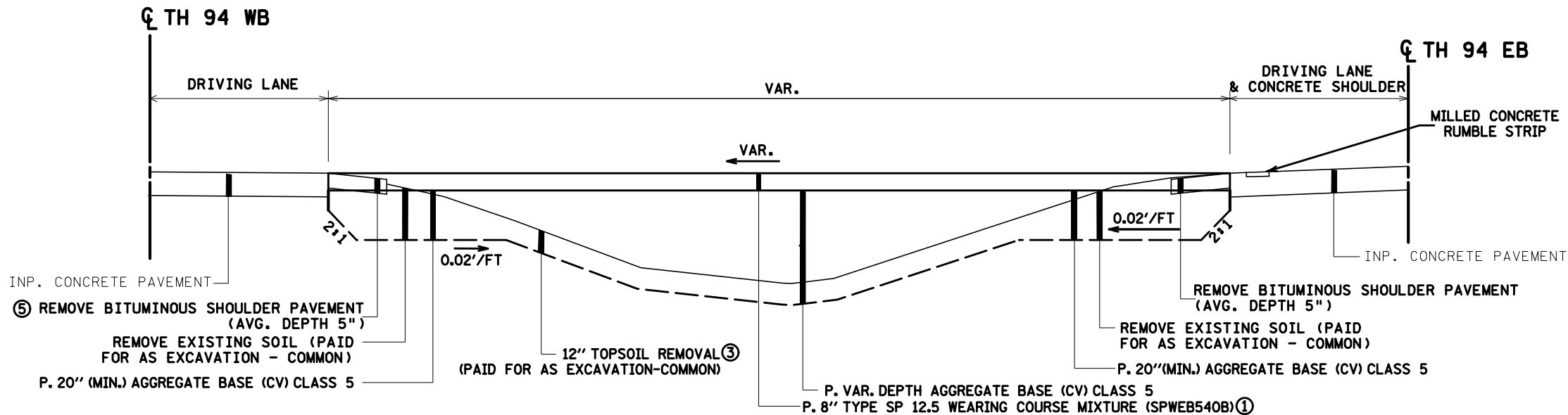
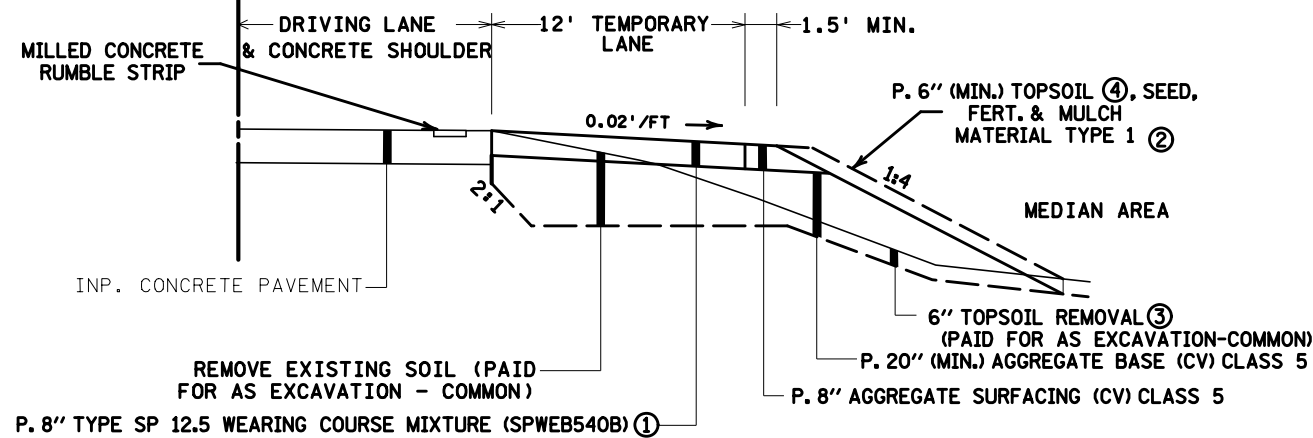
### GENERAL NOTES

SEE CONSTRUCTION PLAN FOR TEMPORARY CONNECTION LOCATIONS

EDGE DRAINS IN PLACE. CONTRACTOR SHALL PROTECT INPLACE DRAINS AND APPURTENANCES DURING CONSTRUCTION AND REMOVAL OF TEMPORARY CROSSTOPS. SUBSURFACE DRAINAGE IS TO BE MAINTAINED AND RE-ESTABLISHED TO EXISTING CONDITIONS AFTER TEMPORARY CROSSTOP REMOVAL. SHALL BE CONSIDERED INCIDENTAL.

FILLING IN INPLACE RUMBLE STRIPS FOR TEMPORARY CONNECTIONS SHALL BE CONSIDERED INCIDENTAL.

## TYPICAL SECTIONS TEMPORARY ACCEL & DECEL LANES CL TH 94



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DATE: 3-OCT-2024

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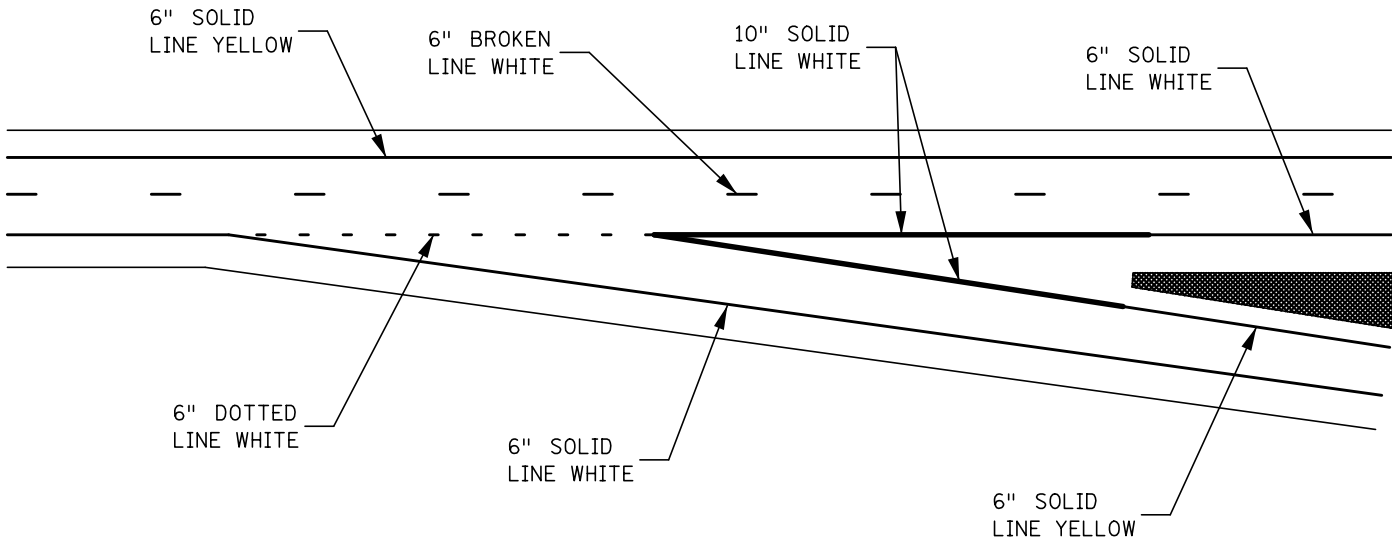
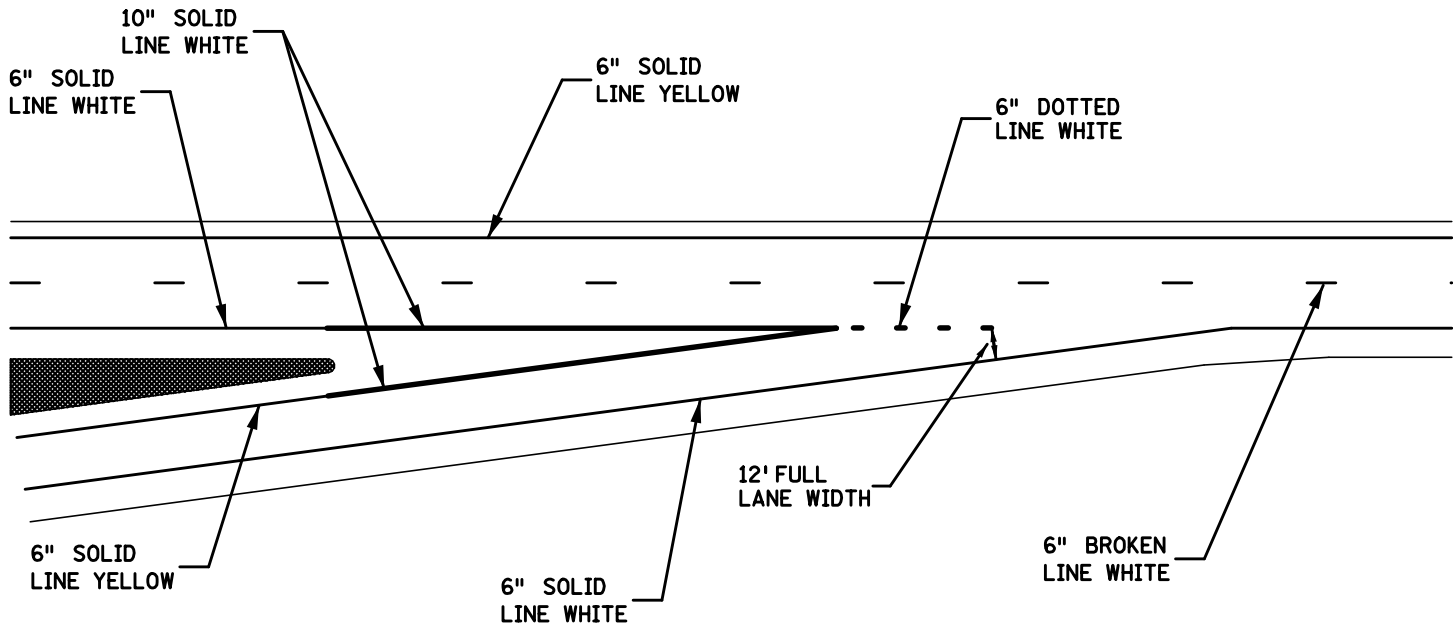
TYPICAL SECTIONS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 26  
TOTAL SHEETS 153

DOTTED AND CHANNELIZING LINE APPLICATIONS FOR  
ENTRANCE RAMP WITH TAPERED ACCELERATION LANE

ADDED DOTTED AND CHANNELIZING LINE APPLICATIONS  
FOR EXIT RAMP WITH TAPERED DECELERATION LANE



PUBLISHED BY OTST: 16 NOV 2021

PUBLISHED BY OTE: 13 SEPT 2023

MODIFIED:



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DATE: 3-OCT-2024

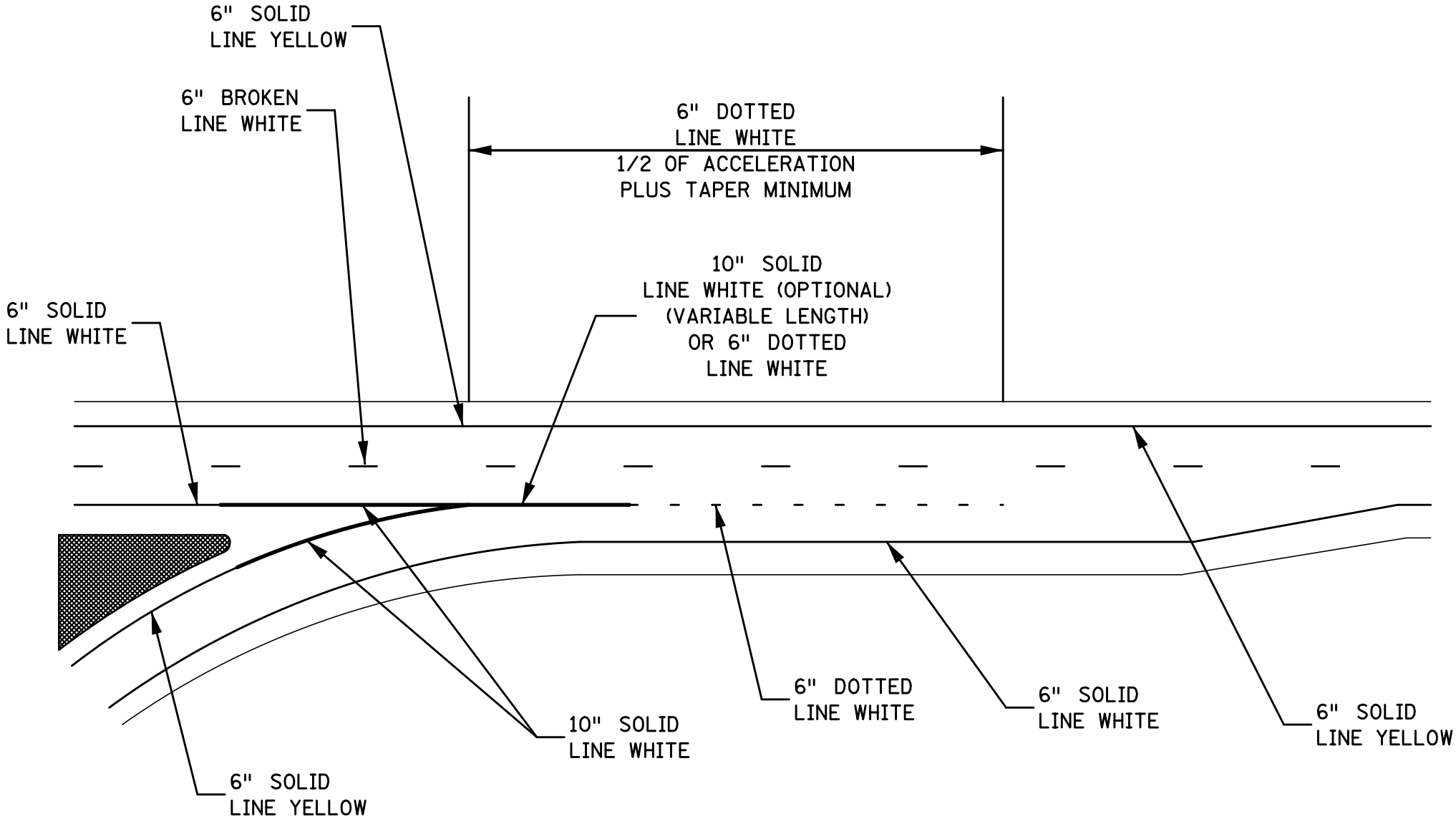
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DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 27  
TOTAL SHEETS 153

DOTTED AND CHANNELIZING LINE APPLICATIONS FOR  
ENTRANCE RAMP WITH PARALLEL ACCELERATION LANE



PLOTTED/REVISED: 3-OCT-2024

DISTRICT #  
PLOT NAME: 4d5680147\_150ddf-plan  
PATH & FILENAME:

PUBLISHED BY OTE: 16 NOV 2021      MODIFIED:



  
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DATE: 3-OCT-2024

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PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF  
MINNESOTA.

DESIGN DETAILS

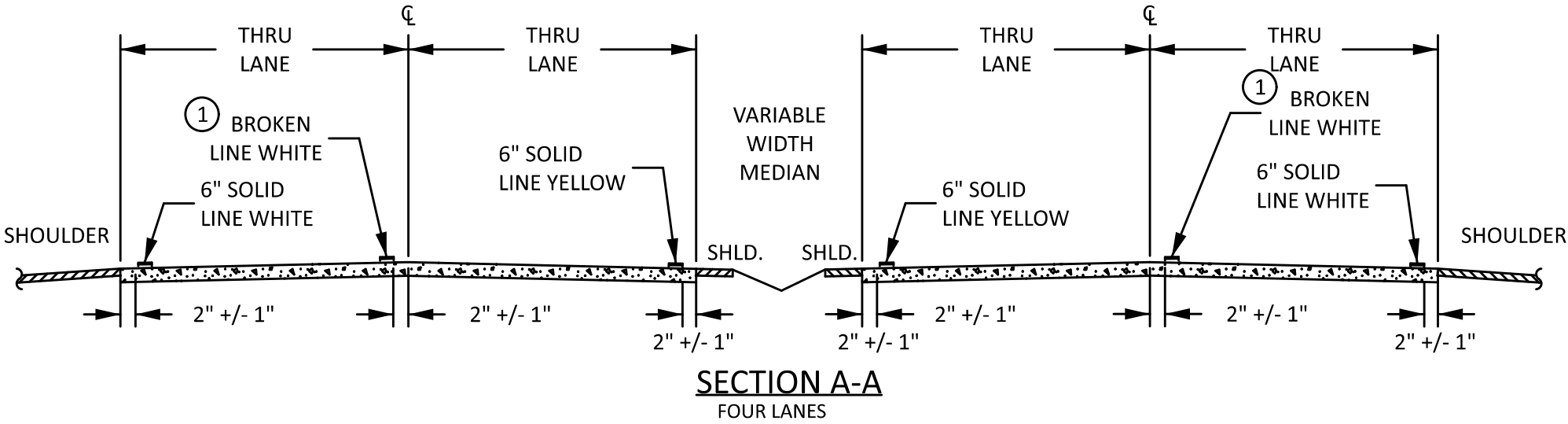
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 28  
TOTAL SHEETS 153

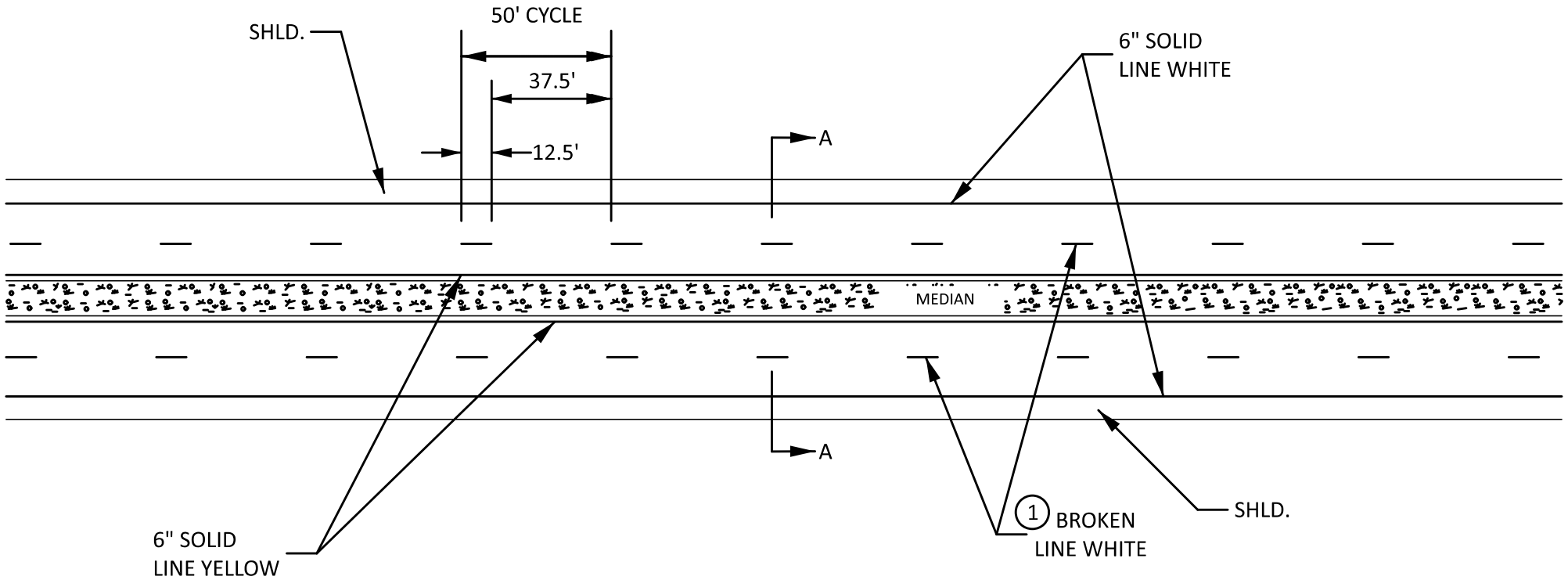
PLOTTED/REVISED: 6-NOV-2024

DISTRICT # 4d5680147\_150ddf-plan  
PLOT NAME:  
PATH & FILENAME:

# FOUR-LANE DIVIDED LANE



\* LIMITS OF CONCRETE PAVEMENT CHANGED TO MATCH PLAN



\* DENOTES MODIFICATION

PUBLISHED BY OTE 26 SEPT 2024

MODIFIED: 6 SEPT 2024



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DATE: 6-NOV-2024

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DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 29  
TOTAL SHEETS 153

APPROPRIATE BREAKS - SHOULDER RUMBLE STRIPS

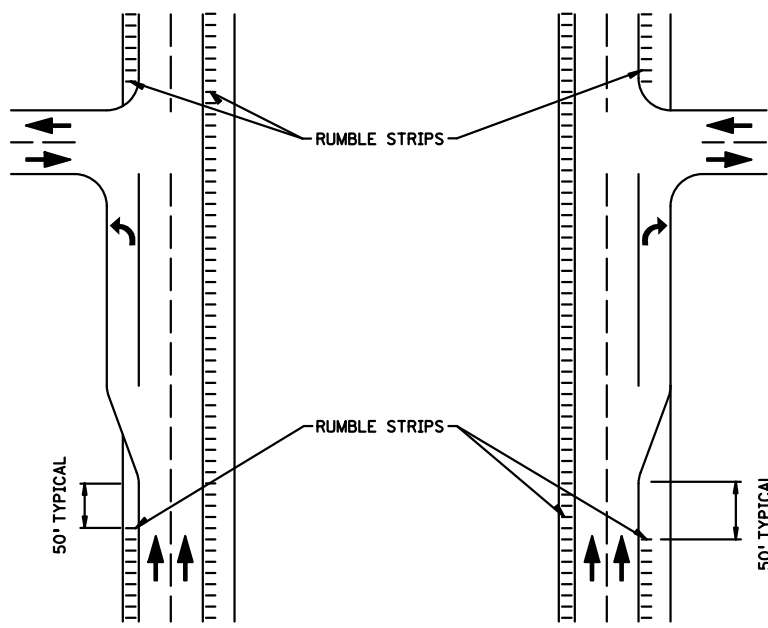


FIGURE 9A  
LEFT TURN LANE

FIGURE 9B  
RIGHT TURN LANE

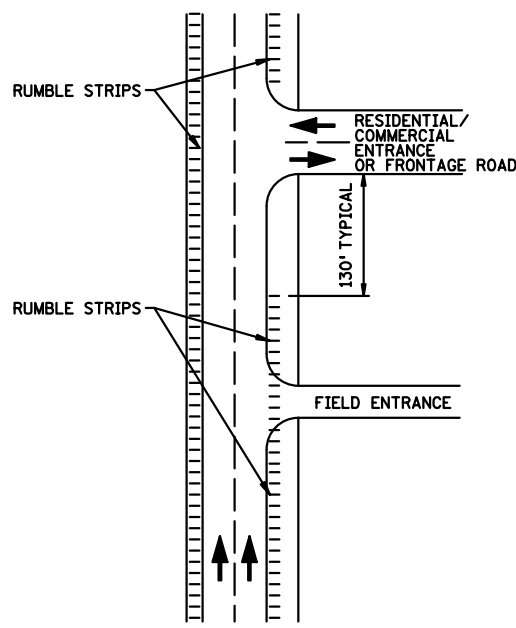


FIGURE 9C  
ENTRANCE ROADS

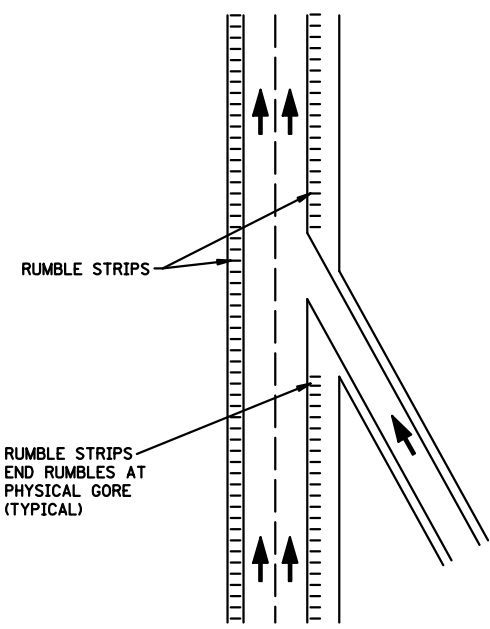


FIGURE 9D  
ENTRANCE RAMP

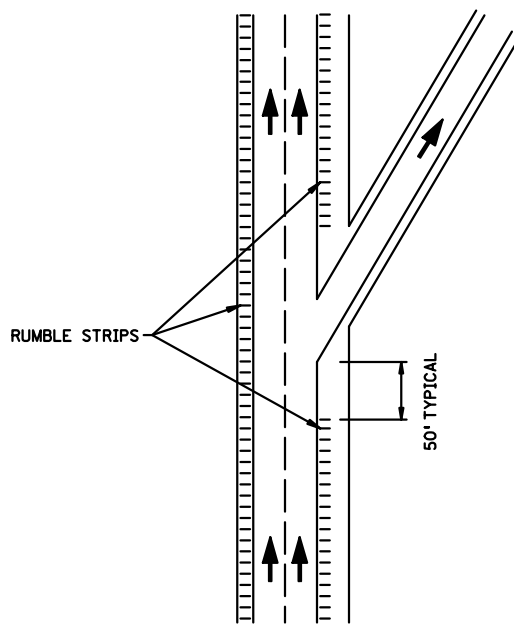


FIGURE 9E  
EXIT RAMP

PUBLISHED BY OTST: 16 NOV 2021

MODIFIED:

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_150ddt-plan  
PATH & FILENAME:



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DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

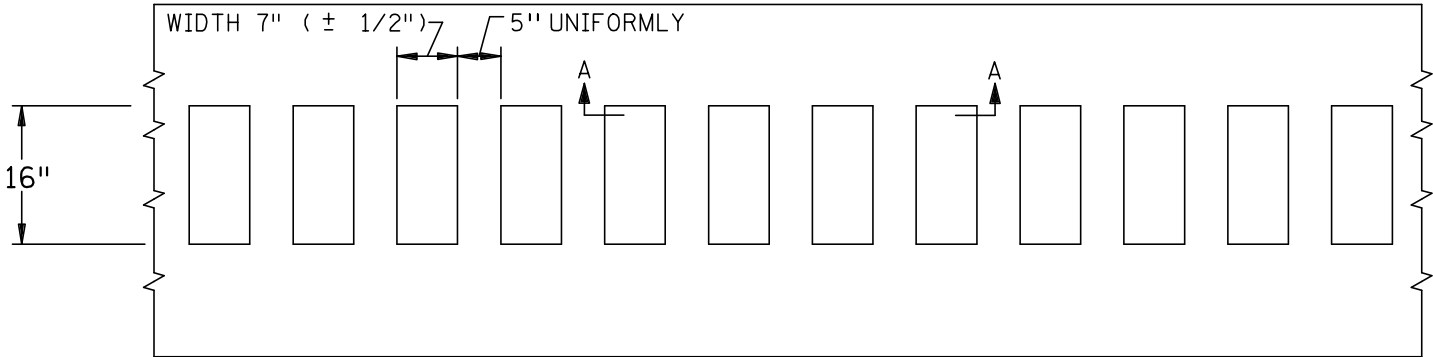
SHEET NO. 30  
TOTAL SHEETS 153



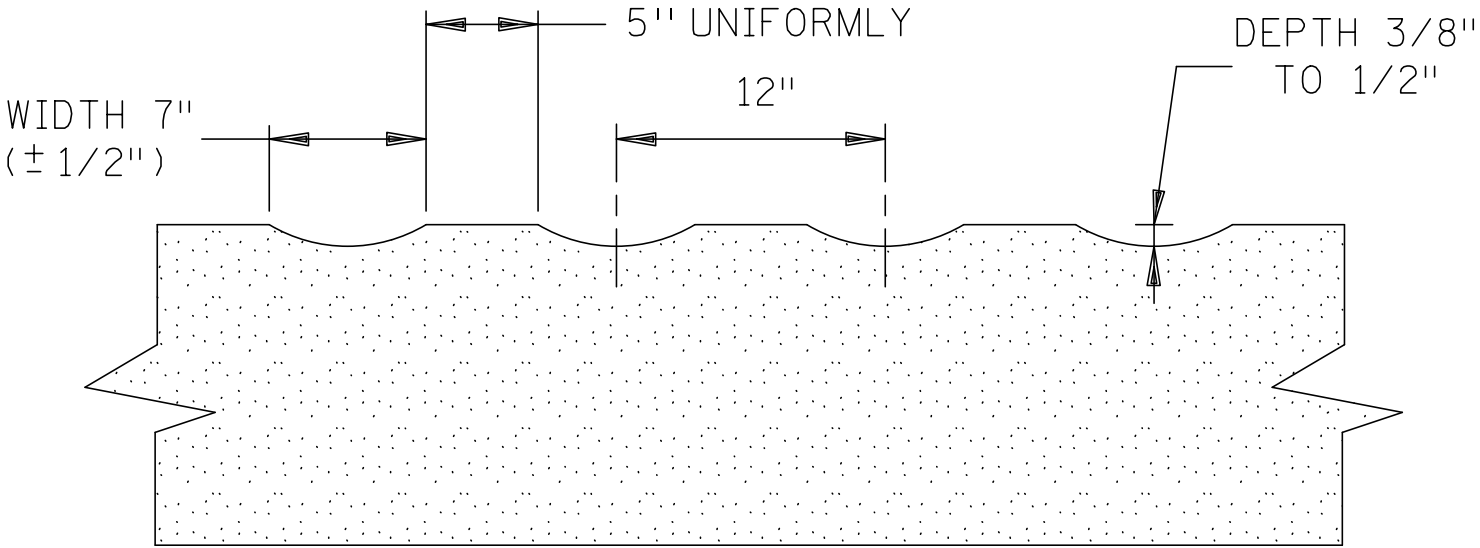
DISTRICT # 4d5680147\_150ddf-plan  
PLOT NAME: 4d5680147\_150ddf-plan  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:

RECTANGULAR CORRUGATED RUMBLE STRIP PATTERN

PLAN VIEW

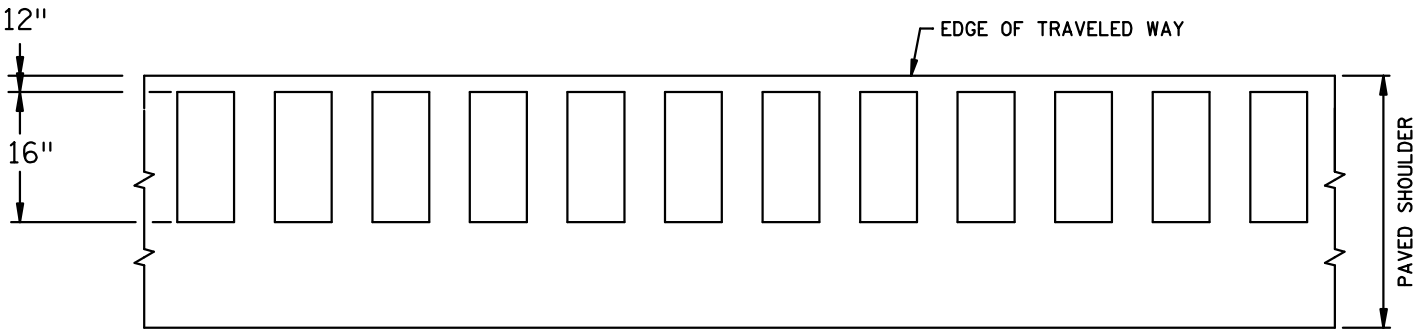


SECTION A-A



BITUMINOUS SHOULDER RUMBLE STRIP  
- CONTINUOUS CYCLE

PLAN VIEW



GENERAL NOTE:  
TYPICAL DETAIL SHOWS RUMBLE LOCATION AND CYCLE. FOR RUMBLE PATTERN AT SPECIFIC LOCATIONS, SEE OTHER SHEETS.

PUBLISHED BY OTST: 19 DEC 2022

MODIFIED:

PUBLISHED BY OTE: 16 NOV 2021

MODIFIED:



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DATE: 3-OCT-2024

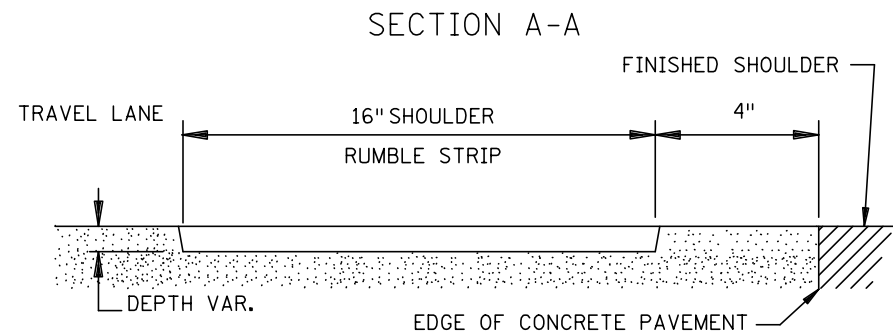
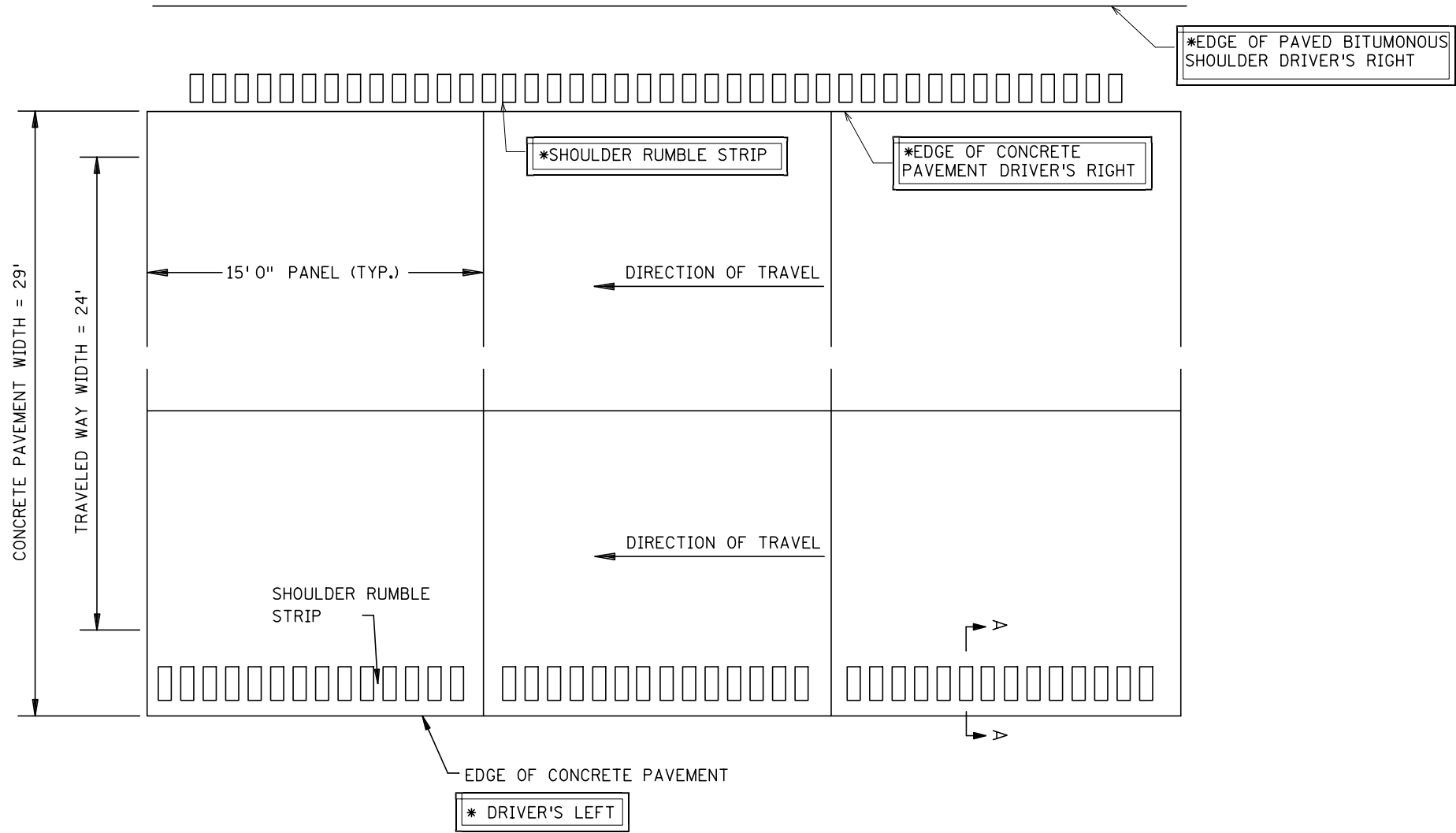
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 31  
TOTAL SHEETS 153

CONCRETE STRUCTURAL RUMBLE STRIP  
PLAN VIEW



\* DENOTES MODIFICATION

PUBLISHED BY OTE: 16 NOV 2021	MODIFIED: BG JUNE 24, 2024
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DESIGN DETAILS

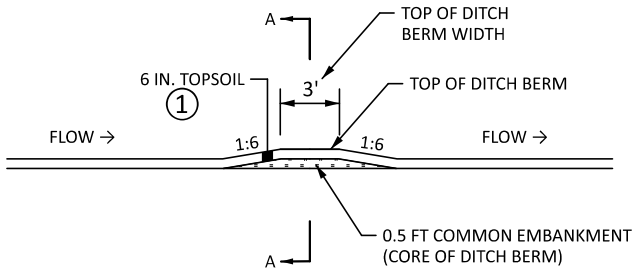
STATE PROJ. NO. 5680-147	SHEET NO. 32
(T.H. 94)	TOTAL SHEETS 153

EARTHEN BERM SEDIMENT CONTROL STRUCTURES  
(PERMANENT DITCH BERM)

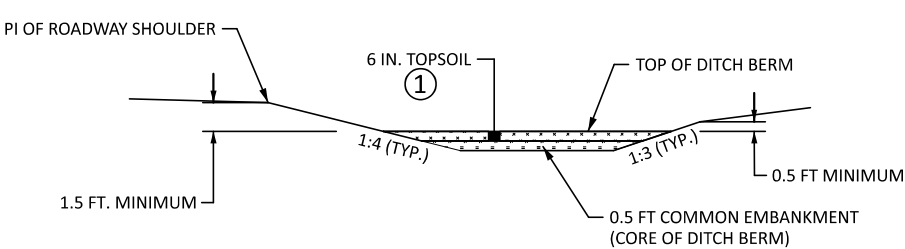
(NOT TO SCALE)

TYPE A: 1' DITCH BERM

DITCH PROFILE VIEW

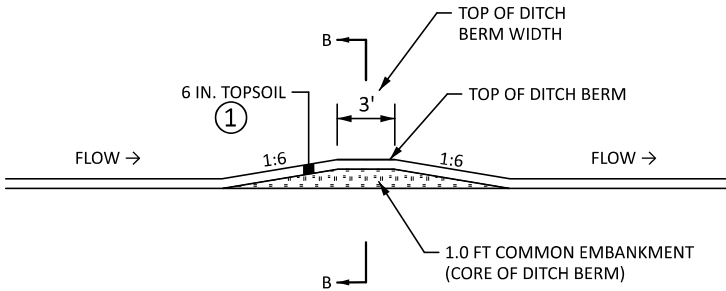


SECTION A-A

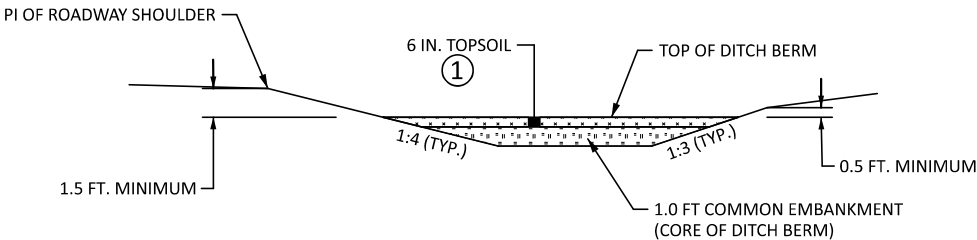


TYPE B: 1.5' DITCH BERM

DITCH PROFILE VIEW

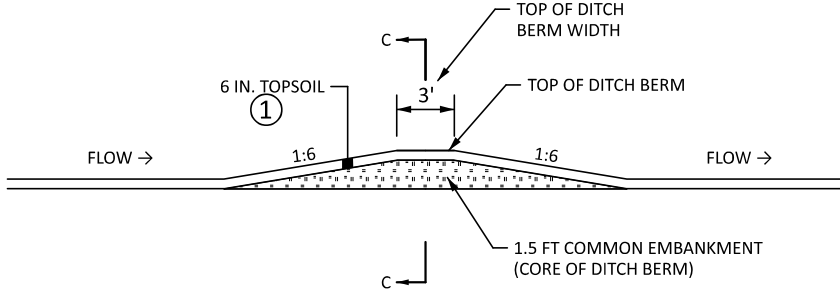


SECTION B-B

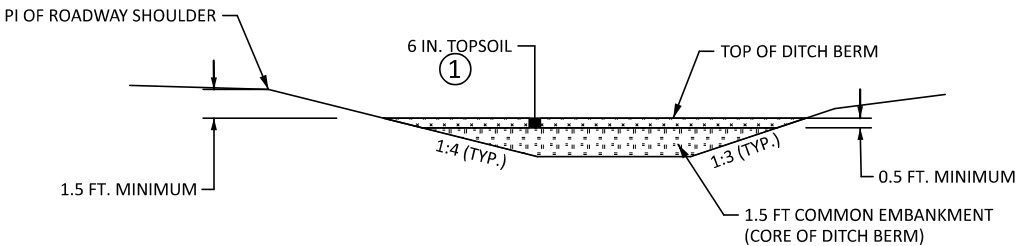


TYPE C: 2' DITCH BERM

DITCH PROFILE VIEW



SECTION C-C

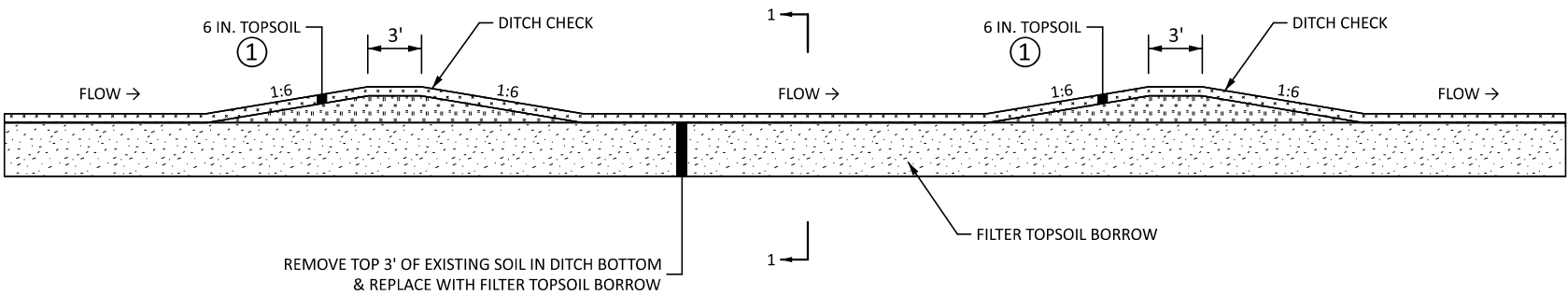


NOTE: SEE THE CONSTRUCTION PLAN SHEETS FOR LOCATIONS OF DITCH CHECKS AND TAB TABLE X FOR QUANTITIES.

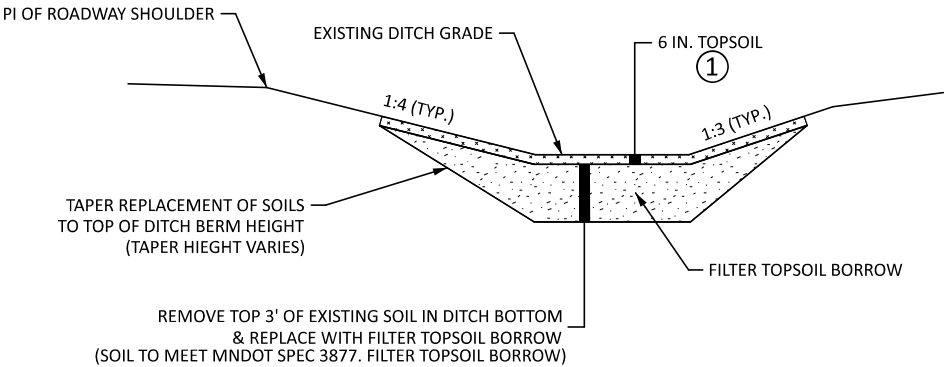
① PAID FOR AS COMMON EMBANKMENT

AMENDMENT OF SOILS IN INFILTRATION AREA  
- STA 328+83 TO 340+29

DITCH PROFILE VIEW



SECTION 1-1



DISTRICT #: 4d5680147\_150odd-plan  
PLOT NAME: 4d5680147\_150odd-plan  
PATH & FILENAME:  
6-NOV-2024  
PLOTTED/REVISED:

DISTRICT #: 4d5680147\_150odd-plan  
PLOT NAME: 4d5680147\_150odd-plan  
PATH & FILENAME:



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LIC. NO. 54689  
DATE: 6-NOV-2024

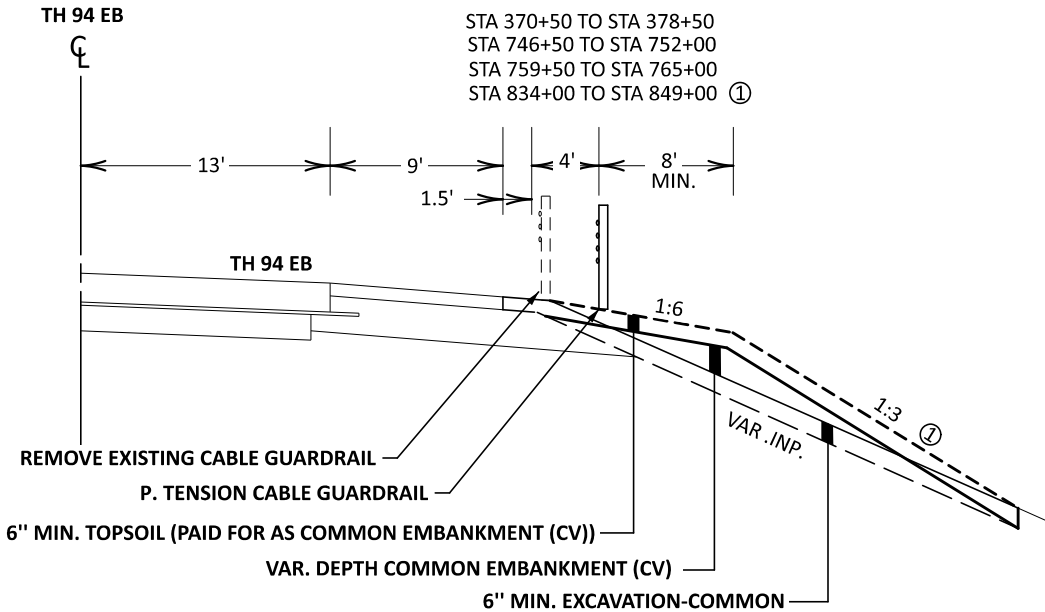
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 33  
TOTAL SHEETS 153

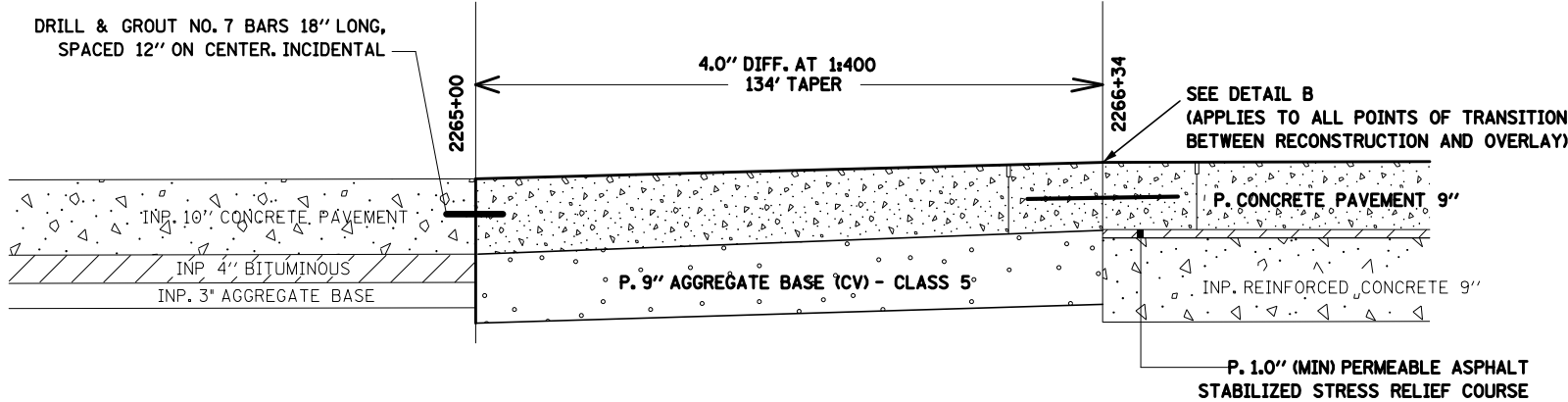
GRADING DETAIL FOR TENSION CABLE GUARDRAIL  
PLACED RIGHT OF EAST BOUND



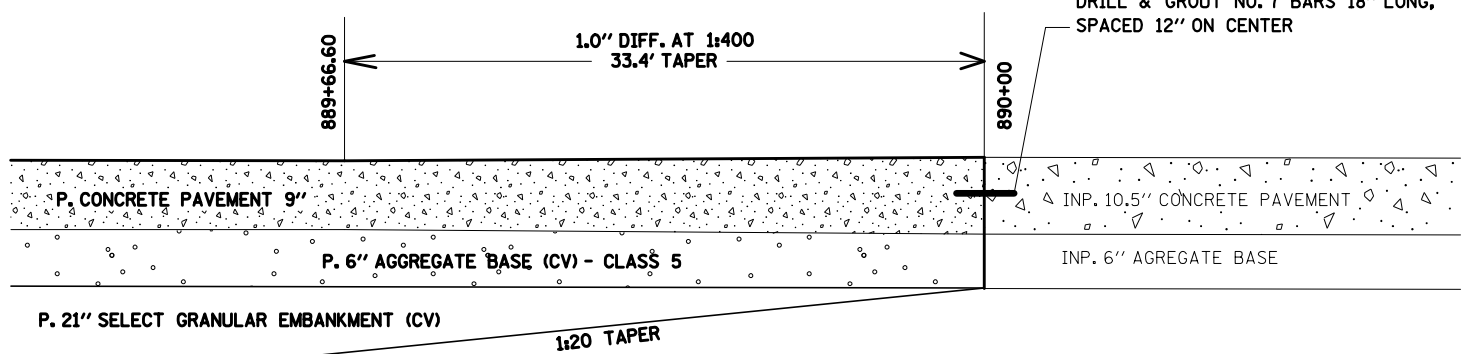
CONSTRUCTION NOTE

① STA 836+00 TO STA 841+50 AND STA 843+50 TO STA 847+50 BREAK SLOPE VARIES FROM 1:3 TO 1:2.6 TIE IN AT TOE OF INSLOPE

BEGIN PROJECT TRANSITION



END PROJECT TRANSITION



LOCATION OF  
SUPPLEMENTAL  
REINFORCEMENT  
AT TRANSITIONS

SEE DETAIL B

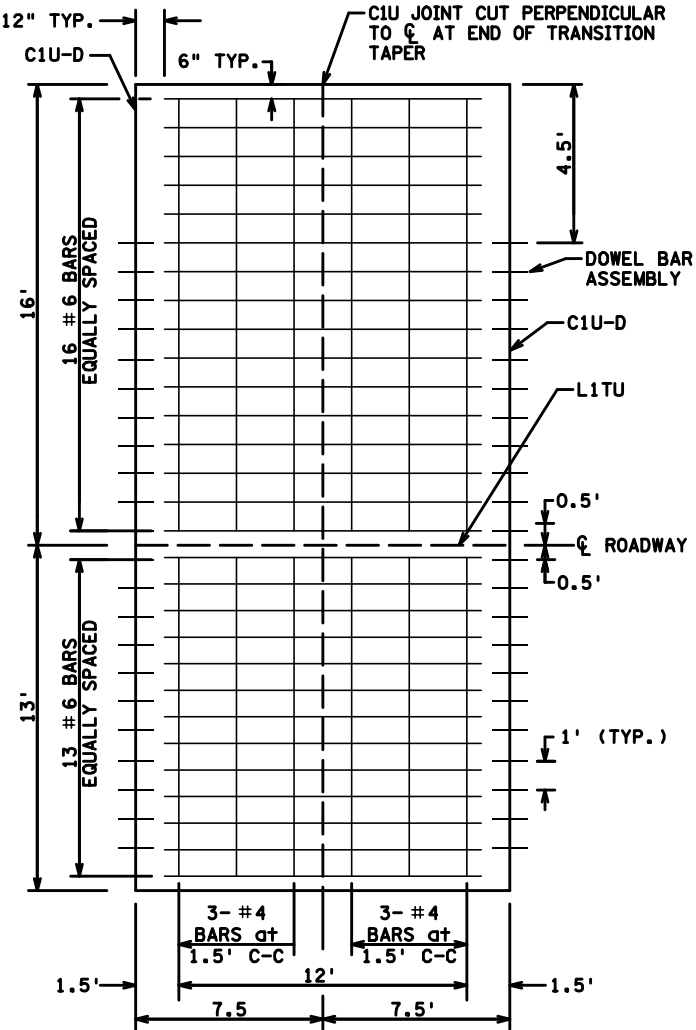
STATION
2266+34.00
2314+24.20
2324+27.40
2374+29.95
2384+39.95
354+13.03
364+16.24
539+13.49
551+96.53
602+96.82
614+90.10
811+22.44

SUPPLEMENTAL REINFORCEMENT BARS

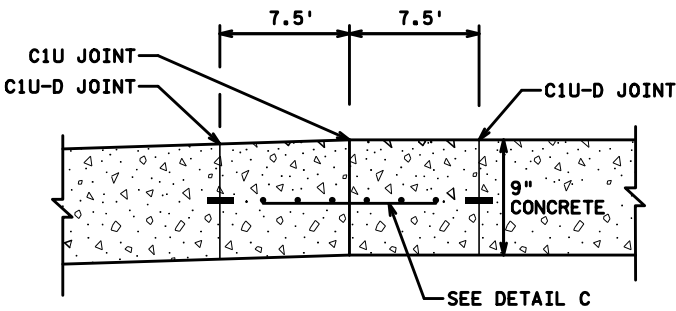
RECONSTRUCTION TO OVERLAY TRANSITION

NOTE

ALL PAVEMENT REINFORCEMENT SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



DETAIL C



DETAIL B

6-NOV-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4d5680147\_150ddt-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

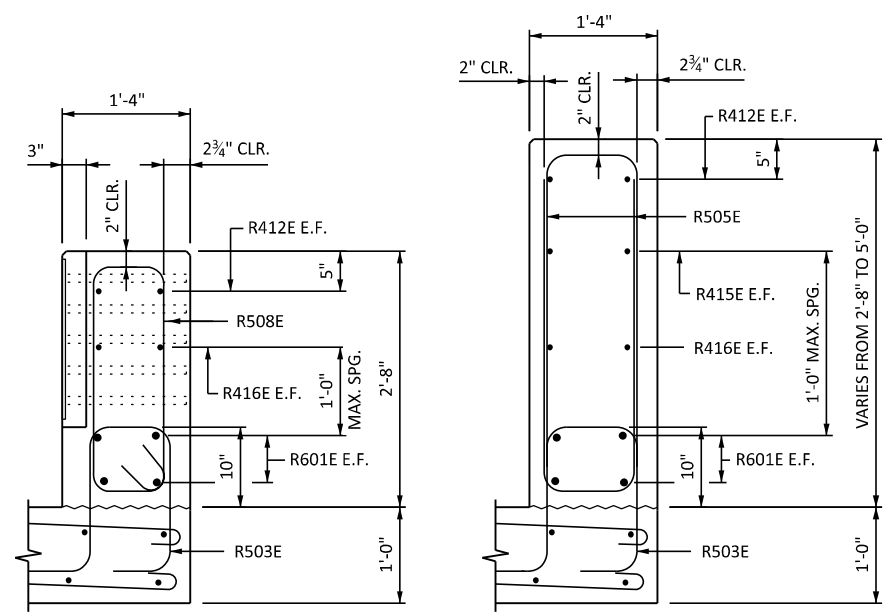
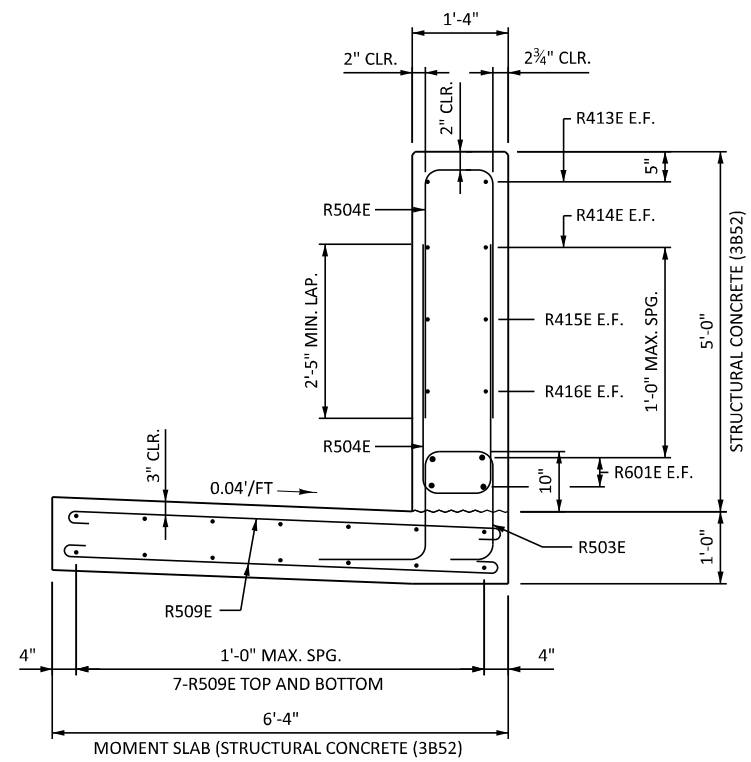
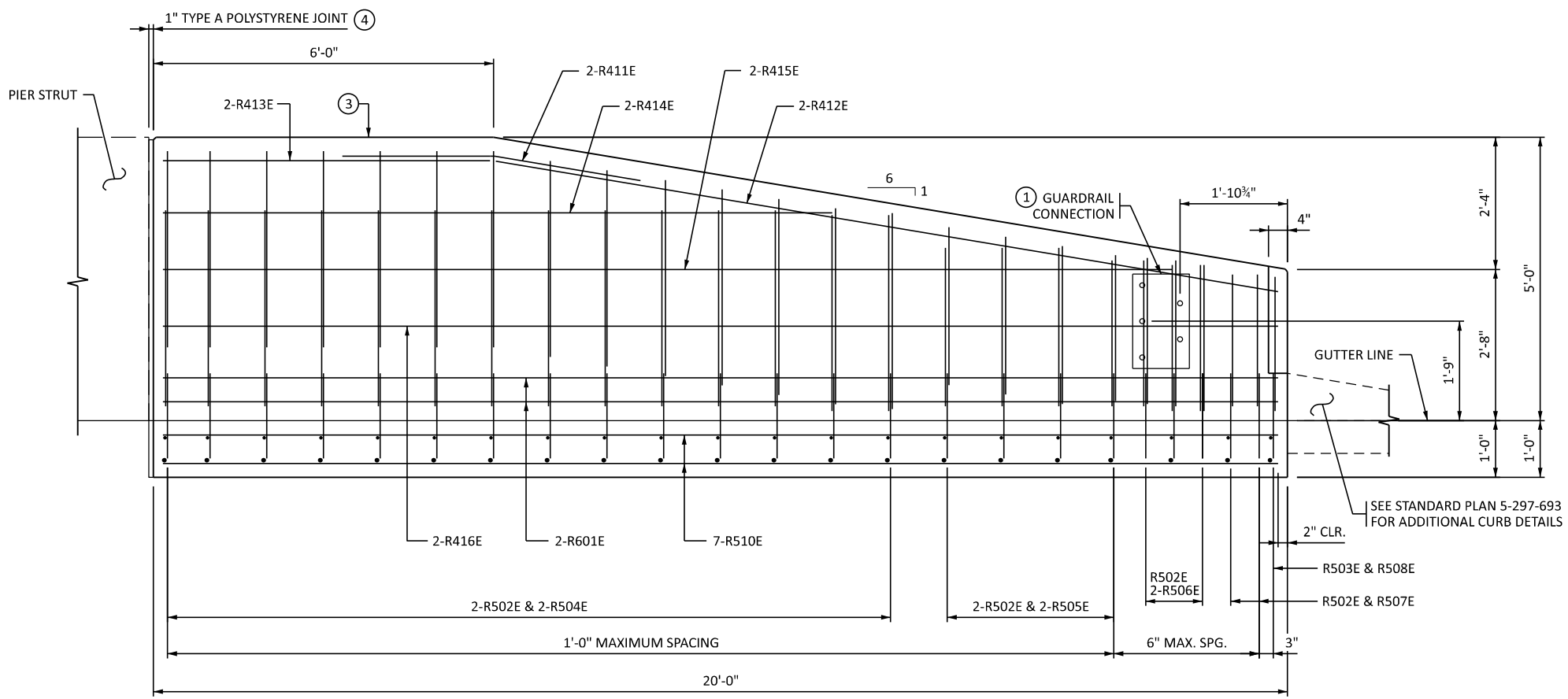
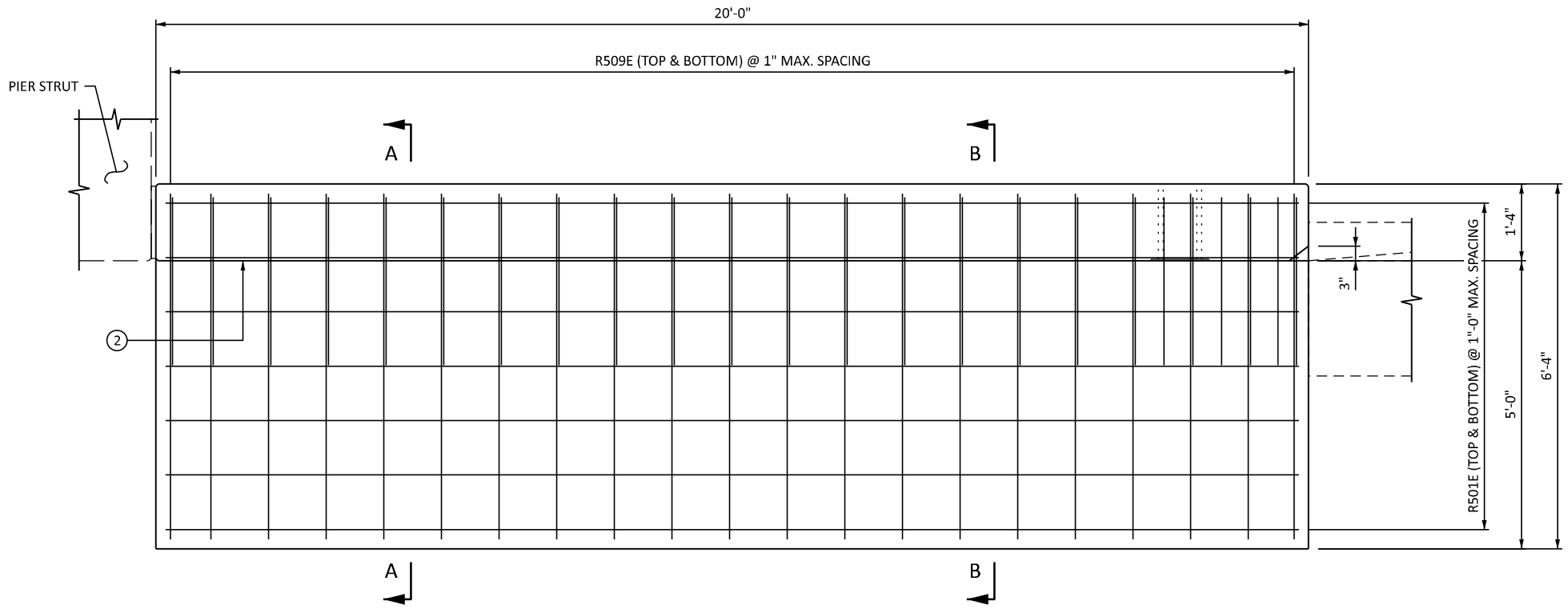
DESIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 34  
TOTAL SHEETS 153

PLOTTED/REVISED: 9/9/2024

DISTRICT #: \$@DISTRICT@\$  
PLOT NAME: \$\$@PLOT\$NAME@\$  
PATH & FILENAME: c:\projectwise\pw\_working\ad\_spre1sco\ad2584764\br56805\_rep.dgn



- NOTES:
- FINISH ALL EDGES OF BARRIER WITH 1/2" CHAMFER EXCEPT WHERE OTHERWISE NOTED.
  - SEE SHEET NO. 36 FOR GUARDRAIL CONNECTION DETAILS. INCLUDED IN ITEM "STRUCTURAL CONCRETE (3B52)".
  - FRONT FACE OF BARRIER TO MATCH FRONT FACE OF PIER STRUT. SEE BRIDGE PLANS FOR PIER STRUT DETAILS.
  - TOP FACE OF BARRIER TO MATCH TOP FACE OF PIER STRUT. SEE BRIDGE PLANS FOR PIER STRUT DETAILS.
  - INCLUDED IN ITEM STRUCTURAL CONCRETE (3B52).



Digitally signed by Cory Stuber  
Date: 2024.09.09 10:36:24-0500  
CORY STUBER  
LIC. NO. 47534  
DATE: 9/9/2024  
LICENSED PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

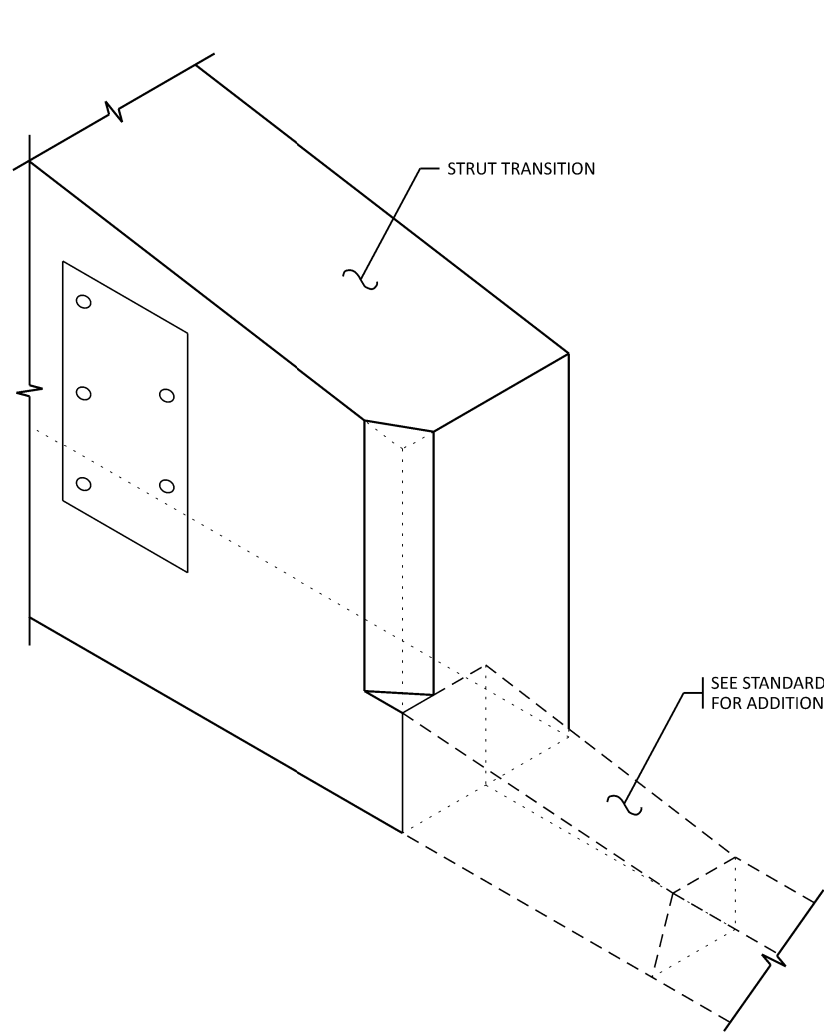
PIER STRUT TRANSITION DETAILS  
(1 OF 2)

STATE PROJ. NO. 5680-147	SHEET NO. 35
(T.H. 94)	TOTAL SHEETS 153

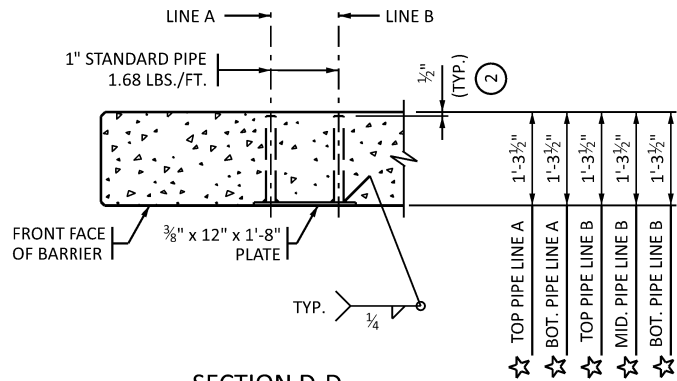
DISTRICT #: \$@DISTRICT@\$  
PLOT NAME: \$\$@PLOT\$NAME@\$  
PATH & FILENAME: c:\projectwise\pw\_working\nega1bes-admin\2584764\Br56805\_rep.dgn

11/5/2024

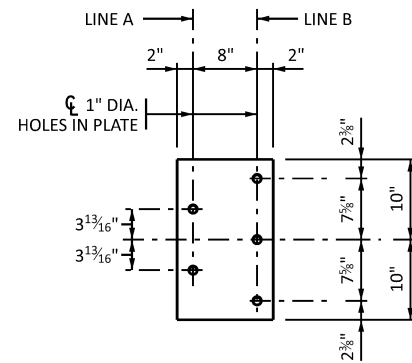
PLOTTED/REVISED:



END OF CONCRETE STRUT TRANSITION



SECTION D-D  
(REINFORCEMENT NOT SHOWN)  
TRIM GUARDRAIL BOLTS SUCH THAT  
NO MORE THAN 1 1/2" PROTRUDES  
FROM BACK FACE OF BARRIER.  
★ DIMENSIONS INCLUDE 3/8" PLATE



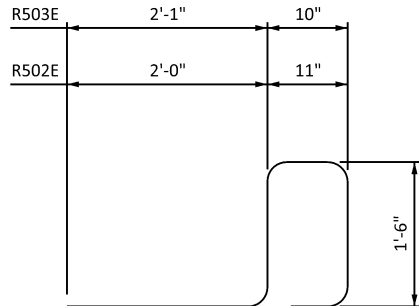
GUARDRAIL CONNECTION DETAIL  
GALVANIZE AFTER FABRICATION PER SPEC. 3394  
ESTIMATED WEIGHT = 34 LBS.

BILL OF REINFORCEMENT FOR ONE PIER STRUT TRANSITION				
BAR	NO.	LENGTH	SHAPE	LOCATION
R601E	4	19'-8"	—	BARRIER LONGITUDINAL
R502E	23	6'-5"	—	BARRIER DOWELS
R503E	1	6'-5"	—	BARRIER DOWELS
R504E	28	8'-0"	—	BARRIER VERTICAL
R505E	8	6'-9"	—	BARRIER VERTICAL
R506E	6	6'-1"	—	BARRIER VERTICAL
R507E	2	7'-7"	—	BARRIER VERTICAL
R508E	1	7'-3"	—	BARRIER VERTICAL
R509E	42	7'-4"	—	MOMENT SLAB TRANSVERSE
R510E	14	19'-8"	—	MOMENT SLAB LONGITUDINAL
R411E	2	5'-4"	—	BARRIER LONGITUDINAL
R412E	2	14'-0"	—	BARRIER LONGITUDINAL
R413E	2	5'-10"	—	BARRIER LONGITUDINAL
R414E	2	11'-10"	—	BARRIER LONGITUDINAL
R415E	2	17'-10"	—	BARRIER LONGITUDINAL
R416E	2	19'-8"	—	BARRIER LONGITUDINAL

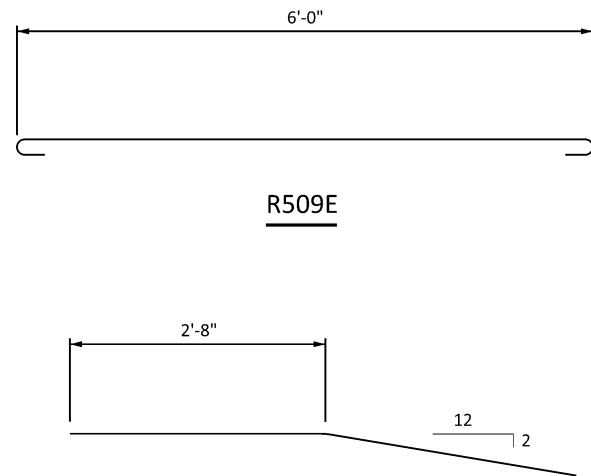
S.P. 5680-147				
SUMMARY OF QUANTITIES FOR PIER 1 & PIER 3 TRANSITION AT BRIDGE 56805				
	ITEM	PIER 1	PIER 3	UNIT
③	STRUCTURAL CONCRETE (3B52)	9	9	CU. YD.
①	REINFORCEMENT BARS (EPOXY COATED)	1340	1340	POUND

NOTES:

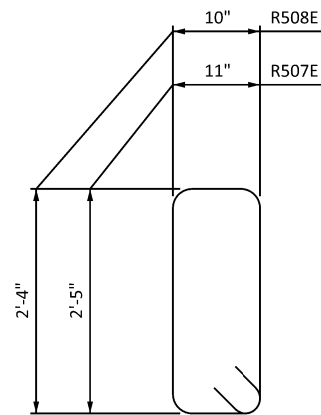
- ① REINFORCEMENT INCLUDED IN ITEM "REINFORCEMENT BARS (EPOXY COATED)"
- ② REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.
- ③ STRUCTURAL CONCRETE (3B52) INCLUDED IN ITEM "STRUCTURAL CONCRETE (3B52)"



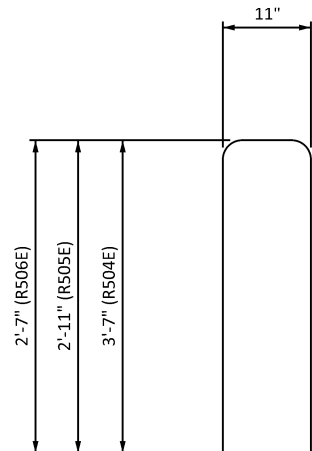
R502E & R503E



R411E



R508E & R507E



R504E, R505E & R506E



LICENSED PROFESSIONAL ENGINEER

CORY STUBER  
LIC. NO. 47534  
DATE: 11/5/2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PIER STRUT TRANSITION DETAILS  
(2 OF 2)

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 36  
TOTAL SHEETS 153



DISTRICT #: DISTRICT #

PLOT NAME: 4D5680147\_170ali-plan

PATH & FILENAME:

3-OCT-2024

3-OCT-2024

3-OCT-2024

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: EB5680											
ARC	PT	PT	2174+41.53 R2						355406.20	251155.2	180°15'03.09"
TANGENT	PT	PT	2174+41.53 R2						355406.2	251155.2	
EQUATION			2275+77.67 R2 BK = 2275+81.89 R3 AH						355361.83	241019.16	
TANGENT	PC	PC	2275+81.89 R3						355361.83	241019.16	180°15'03.09"
ARC	PC	PC	2275+81.89 R3						355361.83	241019.16	180°15'03.09"
ARC	HPI	HPI	2290+72.97 R3	54°59'33.27" LT	02°00'00.00"	2864.789	1491.079	2749.629	355355.3	239528.09	PI
ARC	CC	CC							358226.59	241006.62	
ARC	PT	PT	2303+31.52 R3						356572.85	238667.35	125°15'29.83"
TANGENT	PT	PT	2303+31.52 R3						356572.85	238667.35	
EQUATION			2351+43.35 R3 BK = 2351+46.14 R4 AH						360501.99	235889.66	
TANGENT	PC	PC	2351+46.14 R4						360501.99	235889.66	125°15'29.83"
ARC	PC	PC	2351+46.14 R4						360501.99	235889.66	125°15'29.83"
ARC	HPI	HPI	2360+91.85 R4	27°48'42.89" RT	01°30'00.00"	3819.719	945.706	1854.128	361274.21	235343.74	PI
ARC	CC	CC							358297.00	232770.64	
ARC	PT	PT	2370+04.23 R5						361702.52	234500.58	153°04'12.72"
TANGENT	PT	PT	2370+04.23 R5						361702.52	234500.58	
EQUATION			2370+00.27 R4 BK = 2370+04.23 R5 AH						361702.52	234500.58	
TANGENT	PC	PC	2411+84.28 R5						363595.66	230773.8	153°04'12.72"
ARC	PC	PC	2411+84.28 R5						363595.66	230773.8	153°04'12.72"
ARC	HPI	HPI	2421+05.14 R5	06°07'59.53" LT	00°20'00.00"	17188.734	920.86	1839.961	364012.72	229952.8	PI
ARC	CC	CC							378920.48	238558.56	
ARC	PT	PT	282+50.38 R6						364515.1	229181.05	146°56'13.19"
TANGENT	PT	PT	282+50.38 R6						364515.1	229181.05	
EQUATION			2430+24.24 R5 BK = 282+50.38 R6 AH						364515.1	229181.05	
TANGENT	PC	PC	415+15.27 R7						371754.3	218060.46	146°56'13.19"
ARC	PC	PC	415+15.27 R7						371754.3	218060.46	146°56'13.19"
ARC	HPI	HPI	425+58.66 R7	05°12'47.98" RT	00°15'00.00"	22918.312	1043.386	2085.331	372323.53	217186.03	PI
ARC	CC	CC							352547.12	205557.13	
EQUATION			415+19.65 R6 BK = 415+15.27 R7 AH						371754.3	218060.46	
ARC	PT	PT	436+00.61 R7						372810.95	216263.49	152°09'01.17"
TANGENT	PT	PT	436+00.61 R7						372810.95	216263.49	
TANGENT	PC	PC	484+33.56 R8						375067.73	211992.11	152°09'01.17"
ARC	PC	PC	484+33.56 R8						375067.73	211992.11	152°09'01.17"
ARC	HPI	HPI	493+18.91 R8	08°50'09.57" LT	00°30'00.00"	11459.156	885.355	1767.198	375481.33	211209.3	PI
ARC	CC	CC							385199.64	217345.29	
EQUATION			484+31.53 R7 BK = 484+33.56 R8 AH						375067.73	211992.11	
ARC	PT	PT	502+00.75 R8						376010.26	210499.31	143°18'51.60"
TANGENT	PT	PT	502+00.75 R8						376010.26	210499.31	
TANGENT	PC	PC	552+87.22 R9						379042.18	206429.56	143°18'51.60"
ARC	PC	PC	552+87.22 R9						379042.18	206429.56	143°18'51.60"
ARC	HPI	HPI	564+98.84 R9	12°04'16.76" RT	00°30'00.00"	11459.156	1211.617	2414.264	379766.03	205457.93	PI
ARC	CC	CC							369852.79	199583.58	
EQUATION			552+75.73 R8 BK = 552+87.22 R9 AH						379042.18	206429.56	
ARC	PT	PT	577+01.49 R9						380270.67	204356.41	155°23'08.36"
TANGENT	PT	PT	577+01.49 R9						380270.67	204356.41	
TANGENT	PC	PC	632+16.40 R10						382575.43	199325.72	155°23'08.36"
ARC	PC	PC	632+16.40 R10						382575.43	199325.72	155°23'08.36"
ARC	HPI	HPI	641+55.09 R10	18°36'30.63" LT	01°00'00.00"	5729.578	938.691	1860.851	382966.4	198472.33	PI
ARC	CC	CC							387784.37	201712.14	
EQUATION			632+34.99 R9 BK = 632+16.40 R10 AH						382575.43	199325.72	

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: EB5680											
ARC	PT	PT	650+77.25 R10						383609.25	197788.31	136°46'37.73"
TANGENT	PT	PT	650+77.25 R10						383609.25	197788.31	
TANGENT	PC	PC	719+29.96 R11						388304.93	192791.92	136°46'37.73"
ARC	PC	PC	719+29.96 R11						388304.93	192791.92	136°46'37.73"
ARC	HPI	HPI	729+38.11 R11	15°02'07.57" RT	00°45'00.00"	7639.437	1008.154	2004.725	388995.35	192057.28	PI
ARC	CC	CC							382738.1	187560.14	
EQUATION			719+33.88 R10 BK = 719+29.96 R11 AH						388304.93	192791.92	
ARC	PT	PT	739+34.68 R11						389471.56	191168.68	151°48'45.30"
TANGENT	PT	PT	739+34.68 R11						389471.56	191168.68	
TANGENT	PC	PC	755+06.52 R12						390212.19	189786.68	151°48'45.30"
ARC	PC	PC	755+06.52 R12						390212.19	189786.68	151°48'45.30"
ARC	HPI	HPI	763+06.16 R12	31°11'30.62" LT	02°00'00.00"	2864.789	799.644	1559.592	390589.91	189081.87	PI
ARC	CC	CC							392737.24	191139.89	
EQUATION			755+02.63 R11 BK = 755+06.52 R12 AH						390212.19	189786.68	
ARC	PT	PT	770+66.11 R12						391278.05	188674.57	120°37'14.68"
TANGENT	PT	PT	770+66.11 R12						391278.05	188674.57	
TANGENT	TS	TS	787+02.93 R12						392686.62	187840.85	120°37'14.68"
CLOTHOID	TS	TS	787+02.93 R12						392686.62	187840.85	
CLOTHOID	SPI	SPI	789+02.96 R12	03°00'00.00"RT		100.026	200.029	300	392858.76	187738.97	PI
CLOTHOID	SC	SC	790+02.93 R12						392942.05	187683.58	
ARC	SC	SC	790+02.93 R12						392942.05	187683.58	123°37'14.68"
ARC	HPI	HPI	793+54.38 R12	13°59'17.27" RT	02°00'00.00"	2864.789	351.451	699.407	393234.71	187488.99	PI
ARC	CC	CC							391355.84	185298.01	
ARC	CS	CS	797+02.33 R12						393471.66	187229.42	137°36'31.95"
CLOTHOID	CS	CS	797+02.33 R12						393471.66	187229.42	
CLOTHOID	SPI	SPI	798+02.36 R12	03°00'00.00"RT		100.026	200.029	300	393539.09	187155.54	PI
CLOTHOID	ST	ST	800+08.65 R13						393666.04	187000.96	
TANGENT	ST	ST	800+08.65 R13						393666.04	187000.96	
EQUATION			800+02.33 R12 BK = 800+08.65 R13 AH						393666.04	187000.96	
TANGENT	TS	TS	846+36.60 R13						396602.98	183424.33	140°36'31.95"
CLOTHOID	TS	TS	846+36.60 R13						396602.98	183424.33	
CLOTHOID	SPI	SPI	848+36.63 R13	03°00'00.00"RT		100.026	200.029	300	396729.92	183269.74	PI
CLOTHOID	SC	SC	849+36.60 R13						396789.27	183189.22	
ARC	SC	SC	849+36.60 R13						396789.27	183189.22	143°36'31.95"
ARC	HPI	HPI	857+93.59 R13	33°18'31.11" RT	02°00'00.00"	2864.789	856.989	1665.432	397297.72	182499.35	PI
ARC	CC	CC							394483.15	181489.56	
ARC	CS	CS	866+02.03 R13						397343.8	181643.61	176°55'03.06"
CLOTHOID	CS	CS	866+02.03 R13						397343.8	181643.61	
CLOTHOID	SPI	SPI	867+02.06 R13	03°00'00.00"RT		100.026	200.029	300	397349.18	181543.72	PI
CLOTHOID	ST	ST	869+02.03 R13						397349.47	181343.7	
TANGENT	ST	ST	869+02.03 R13						397349.47	181343.7	
TANGENT	TS	TS	996+13.67 R14						397367.76	168636.56	179°55'03.06"
CLOTHOID	TS	TS	996+13.67 R14						397367.76	168636.56	



  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ALIGNMENT PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 37  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT # 4D5680147\_170ali-plan

PATH & FILENAME:

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER1											
ARC	PC	PC	10+00.00 R1						355370.01	242975.12	180°14'41.18"
ARC	HPI	HPI	11+99.67 R1	11°56'13.65" LT	03°00'00.00"	1909.859	199.675	397.904	355369.15	242775.45	PI
ARC	CC	CC							357279.85	242966.96	
ARC	PT	PT	13+97.90 R1						355409.62	242579.91	168°18'27.53"
TANGENT	PT	PT	13+97.90 R1						355409.62	242579.91	
TANGENT	PC	PC	14+04.67 R1						355410.99	242573.29	168°20'31.20"
ARC	PC	PC	14+04.67 R1						355410.99	242573.29	168°18'01.40"
ARC	HPI	HPI	16+04.34 R1	11°56'13.63" RT	03°00'00.00"	1909.859	199.675	397.904	355451.48	242377.76	PI
ARC	CC	CC							353540.81	242186.01	
ARC	PT	PT	18+02.57 R1						355450.65	242178.09	180°14'15.03"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER2											
ARC	PC	PC	10+00.00 R1						356847.67	238553.4	128°58'50.39"
ARC	HPI	HPI	11+22.27 R1	19°08'02.02" RT	07°53'53.16"	725.438	122.268	242.259	356942.72	238476.49	PI
ARC	CC	CC							356391.33	237989.47	
ARC	PT	PT	12+42.26 R1						357007.31	238372.67	148°06'52.40"
TANGENT	PT	PT	12+42.26 R1						357007.31	238372.67	
TANGENT	PC	PC	12+64.82 R1						357019.22	238353.51	148°06'52.51"
ARC	PC	PC	12+64.82 R1						357019.22	238353.51	148°06'52.45"
ARC	HPI	HPI	13+59.85 R1	15°14'42.23" LT	08°04'08.03"	710.082	95.029	188.936	357069.42	238272.82	PI
ARC	CC	CC							357622.16	238728.59	
ARC	PT	PT	14+53.76 R1						357139.07	238208.17	132°52'10.22"
TANGENT	PT	PT	14+53.76 R1						357137.79	238209.35	
TANGENT	END	END	14+57.40 R1						357140.46	238206.87	132°52'10.23"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER2A											
ARC	PC	PC	10+00.00 R1						356984.35	238454.7	128°03'21.25"
ARC	HPI	HPI	11+29.33 R1	21°18'51.64" RT	08°20'10.98"	687.298	129.334	255.679	357086.19	238374.98	PI
ARC	CC	CC							356560.68	237913.52	
ARC	PT	PT	12+55.68 R1						357152.08	238263.69	149°22'12.90"
TANGENT	PT	PT	12+55.68 R1						357152.08	238263.69	
TANGENT	PC	PC	13+34.50 R1						357192.24	238195.87	149°22'07.46"
ARC	PC	PC	13+34.50 R1						357192.24	238195.87	149°22'17.37"
ARC	HPI	HPI	14+19.73 R1	05°59'37.82" LT	03°31'09.35"	1628.062	85.235	170.315	357235.67	238122.52	PI
ARC	CC	CC							358593.17	239025.31	
ARC	PT	PT	15+04.81 R1						357286.51	238054.11	143°22'39.55"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER3											
ARC	PC	PC	10+00.00 R1						358342.69	237286.65	104°10'57.32"
ARC	HPI	HPI	10+71.16 R1	06°07'07.43" LT	04°18'12.05"	1331.424	71.16	142.185	358411.68	237269.22	PI
ARC	CC	CC							358668.91	238577.49	
ARC	PT	PT	11+42.19 R1						358482.14	237259.23	98°03'49.89"
TANGENT	PT	PT	11+42.19 R1						358482.14	237259.23	
TANGENT	PC	PC	12+20.45 R1						358559.64	237248.25	98°03'49.89"
ARC	PC	PC	12+20.45 R1						358559.64	237248.25	98°03'49.89"
ARC	HPI	HPI	13+59.32 R1	22°38'23.85" RT	08°15'33.80"	693.705	138.867	274.112	358697.13	237228.77	PI
ARC	CC	CC							358462.33	236561.41	
ARC	PT	PT	14+94.57 R1						358816.53	237157.87	120°42'13.73"
TANGENT	PT	PT	14+94.57 R1						358816.53	237157.87	
TANGENT	END	END	14+95.96 R1						358815.33	237158.58	300°35'03.05"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER3A											
ARC	PC	PC	10+00.00 R1						358515.66	237225.02	116°49'39.46"
ARC	HPI	HPI	10+98.43 R1	15°00'10.26" LT	07°39'54.46"	747.486	98.427	195.729	358603.49	237180.6	PI
ARC	CC	CC							358853.01	237892.06	
ARC	PRC	PRC	11+95.73 R1						358699.83	237160.43	101°49'29.20"
ARC	PRC	PRC	11+95.73 R1						358718.63	237156.5	101°49'29.20"
ARC	HPI	HPI	13+29.91 R1	20°56'53.32" RT	07°53'37.83"	725.829	134.185	265.373	358849.97	237129	PI
ARC	CC	CC							358569.9	236446.07	
ARC	PRC	PRC	14+61.10 R1						358962.79	237056.36	122°46'22.52"
ARC	PRC	PRC	14+61.10 R1						358962.79	237056.36	302°46'22.52"
ARC	HPI	HPI	15+95.29 R1	20°56'53.32" LT	07°53'37.83"	725.829	134.185	265.373	358849.97	237129	PI
ARC	CC	CC							358569.9	236446.07	
ARC	PT	PT	11+95.73 R1						358718.63	237156.5	281°49'29.20"
TANGENT	PT	PT	17+26.48 R1						358718.63	237156.5	
TANGENT	END	END	17+47.96 R1						358697.6	237160.9	281°49'29.20"



  
ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024  
LICENSED PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ALIGNMENT PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 38  
TOTAL SHEETS 153



3-OCT-2024  
PLOTTED/REVISED:

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER4											
ARC	PC	PC	10+00.00 R1						393983.01	186729.66	145°10'58.16"
ARC	HPI	HPI	11+23.96 R1	18°51'20.86" RT	07°40'30.06"	746.523	123.96	245.678	394053.79	186627.89	PI
ARC	CC	CC							393370.13	186303.43	
ARC	PT	PT	12+45.68 R1						394087.87	186508.71	164°02'19.03"
TANGENT	PT	PT	12+45.68 R1						394087.87	186508.71	
TANGENT	PC	PC	12+64.75 R1						394093.12	186490.37	164°02'19.03"
ARC	PC	PC	12+64.75 R1						394093.12	186490.37	163°58'40.83"
ARC	HPI	HPI	13+60.74 R1	15°16'04.91" LT	08°00'02.91"	716.125	95.984	190.831	394119.61	186398.12	PI
ARC	CC	CC							394781.43	186688.03	
ARC	PT	PT	14+55.58 R1						394169.46	186316.09	148°42'35.92"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER5											
ARC	PC	PC	10+00.00 R1						397436.92	179482.47	179°45'28.05"
ARC	HPI	HPI	11+99.89 R1	11°51'28.68" RT	02°58'36.42"	1924.755	199.888	398.348	397437.77	179282.58	PI
ARC	CC	CC							395512.19	179474.33	
ARC	PT	PT	13+98.35 R1						397397.52	179086.78	191°36'56.73"
TANGENT	PT	PT	13+98.35 R1						397397.52	179086.78	
TANGENT	PC	PC	14+04.66 R1						397396.25	179080.6	191°36'51.75"
ARC	PC	PC	14+04.66 R1						397396.25	179080.6	191°36'51.11"
ARC	HPI	HPI	16+01.14 R1	11°40'09.82" LT	02°58'47.66"	1922.739	196.481	391.603	397356.7	178888.14	PI
ARC	CC	CC							399279.62	178693.52	
ARC	PT	PT	17+96.26 R1						397356.89	178691.66	179°56'41.29"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: XOVER4A											
ARC	PC	PC	10+00.00 R1						394084.84	186590.95	147°07'39.44"
ARC	HPI	HPI	11+30.77 R1	21°03'59.58" RT	08°08'47.57"	703.314	130.774	258.595	394155.82	186481.12	PI
ARC	CC	CC							393494.14	186209.22	
ARC	PT	PT	12+58.59 R1						394182.58	186353.11	168°11'39.02"
TANGENT	PT	PT	12+58.59 R1						394182.58	186353.11	
TANGENT	PC	PC	13+34.42 R1						394198.09	186278.89	168°11'32.91"
ARC	PC	PC	13+34.42 R1						394198.09	186278.89	168°11'51.27"
ARC	HPI	HPI	14+02.40 R1	05°51'48.63" LT	04°19'00.13"	1327.304	67.976	135.833	394212	186212.35	PI
ARC	CC	CC							395497.34	186550.37	
ARC	PT	PT	14+70.26 R1						394232.63	186147.58	162°20'02.64"

ALIGNMENT TABULATION											
ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
				SPIRAL CURVE DATA					EASTING (X)	NORTHING (Y)	
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: TH59_RAMP											
TANGENT	START	START	175+44.78						396602.98	183424.33	
TANGENT	TS	TS	181+70.02						396224.81	183922.22	322°46'53.65"
CLOTHOID	TS	TS	181+70.02						396224.81	183922.22	
CLOTHOID	SPI	SPI	183+70.20	07°30'00.00"RT		100.163	200.18	300	396103.73	184081.63	PI
CLOTHOID	SC	SC	184+70.02						396054.07	184168.62	
ARC	SC	SC	184+70.02						396054.07	184168.62	330°16'53.65"
ARC	HPI	HPI	186+94.25	22°08'36.22" RT	05°00'00.00"	1145.916	224.232	442.868	395942.91	184363.36	PI
ARC	CC	CC							397049.27	184736.7	
ARC	CS	CS	189+12.89						395913.35	184585.64	352°25'29.87"
CLOTHOID	CS	CS	189+12.89						395913.35	184585.64	
CLOTHOID	SPI	SPI	190+13.05	07°30'00.00"RT		100.163	200.18	300	395900.15	184684.93	PI
CLOTHOID	ST	ST	192+12.89						395899.89	184885.11	
TANGENT	ST	ST	192+12.89						395899.89	184885.11	
TANGENT	END	END	199+02.39						395898.98	185574.61	359°55'29.87"

DISTRICT #: DISTRICT #  
PLOT NAME: 4D5680147\_170ali-plan  
PATH & FILENAME:



  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ALIGNMENT PLANS

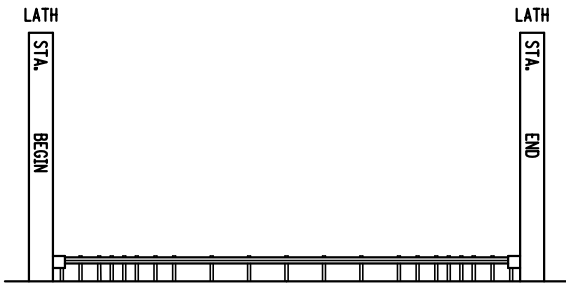
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 39  
TOTAL SHEETS 153

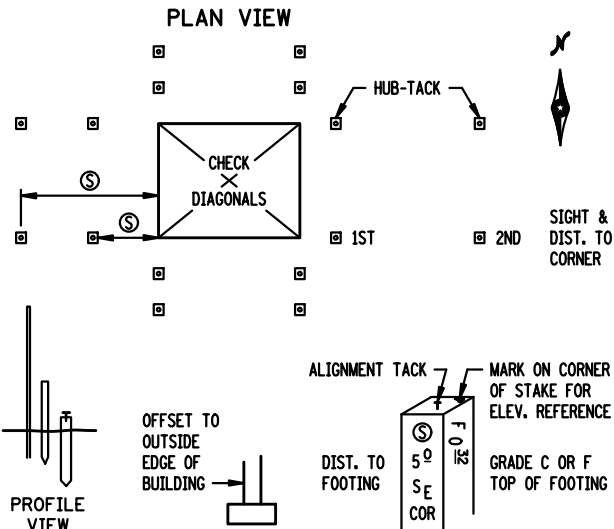


3-OCT-2024  
PLOTTED/REVISED:

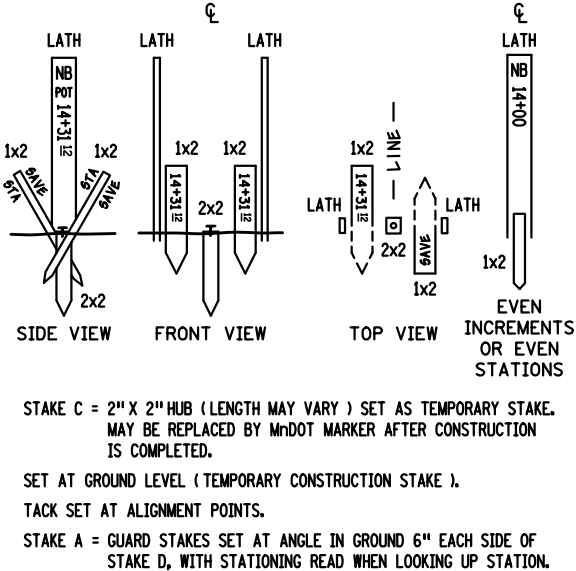
GUARDRAIL ( GUARD )



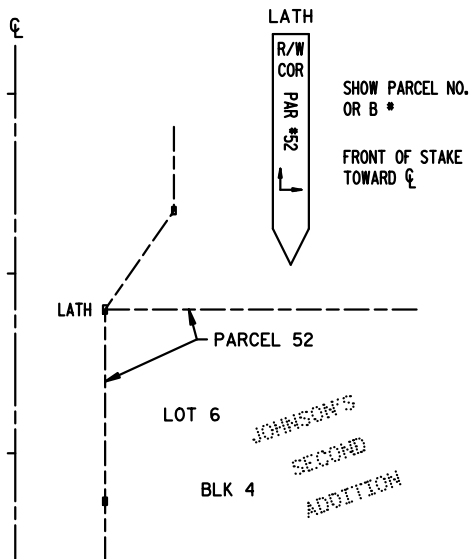
BUILDING ( BUILD )  
FOUNDATION / FOOTING



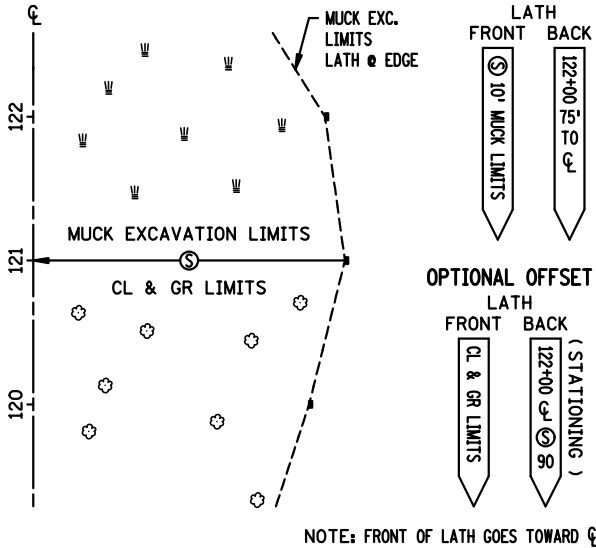
ALIGNMENT POINTS ( ALIGN )



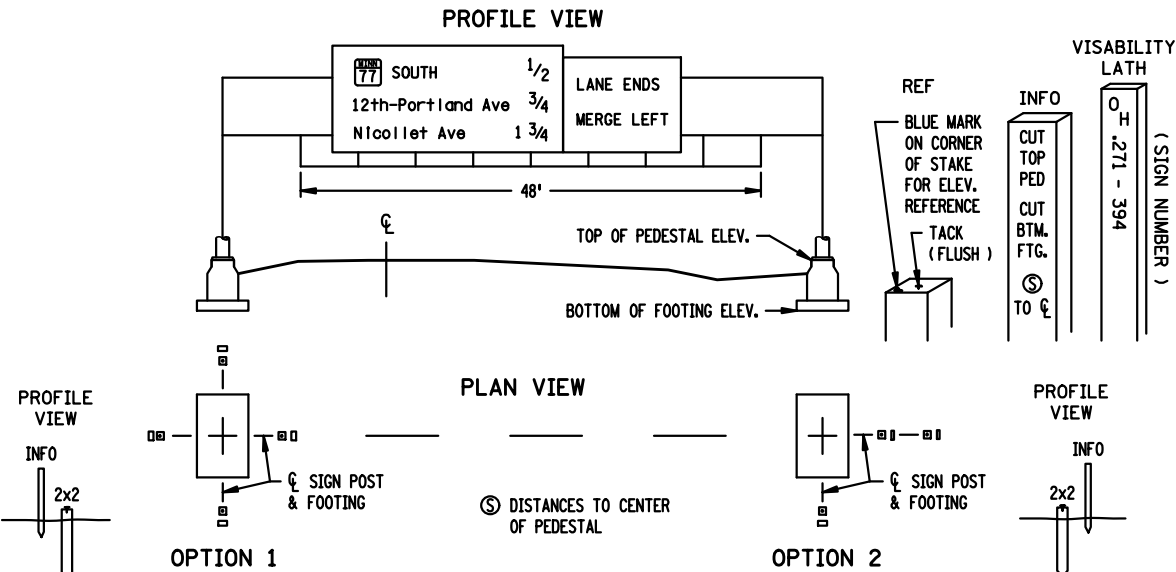
R/W & TEMP. EASEMENT ( R/W )



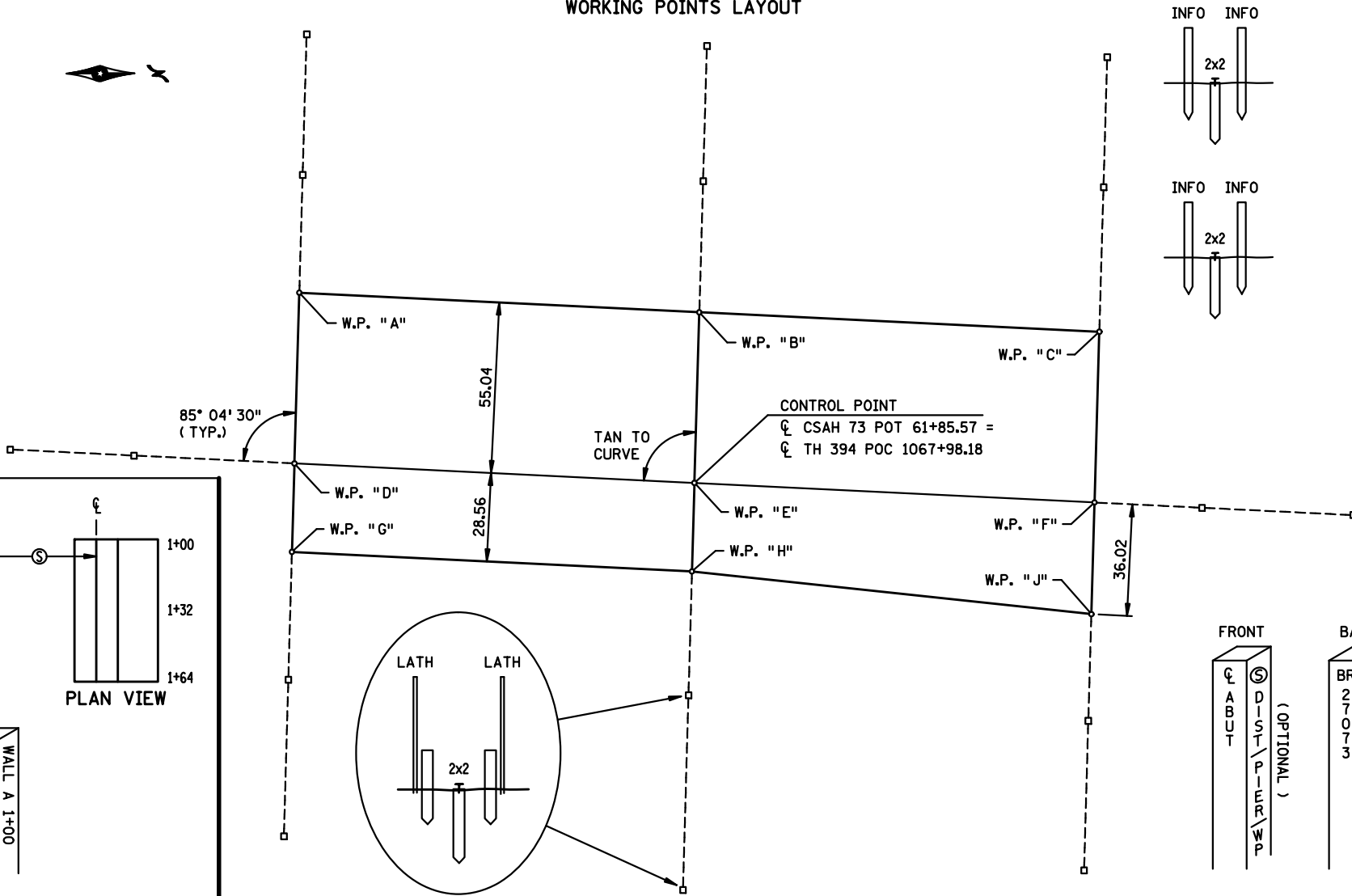
CLEAR & GRUBBING LIMITS ( CLEAR )  
OR MUCK EXCAVATION LIMITS ( MUCK )



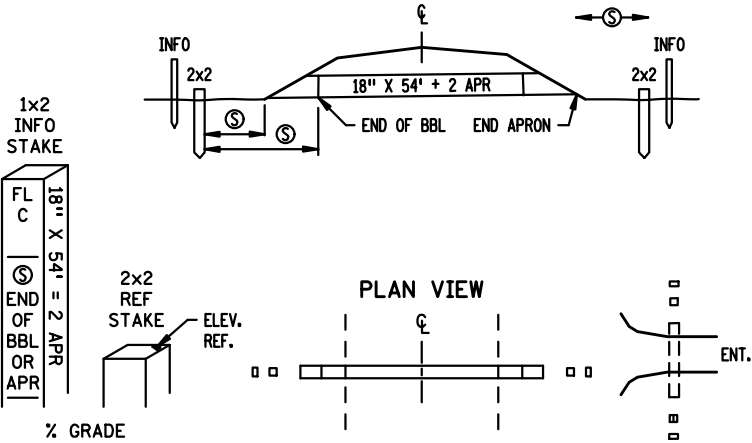
OVERHEAD SIGNS ( SIGN )



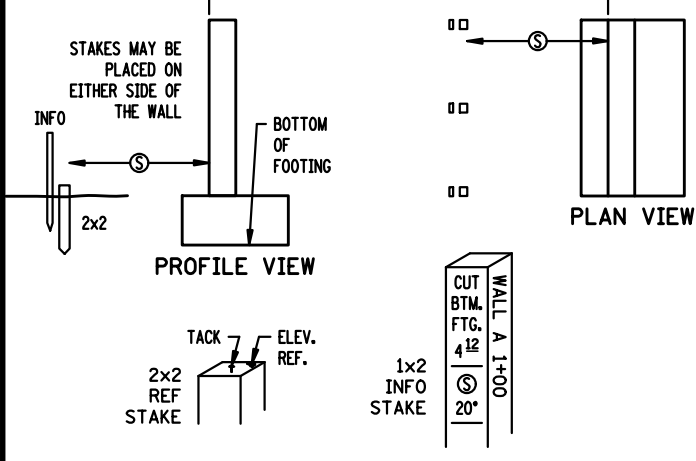
BRIDGESTAKING ( BRIDGE )  
WORKING POINTS LAYOUT



CULVERT  
PROFILE VIEW



WALL



LEAD  
EXPERT  
OFFICE

BRYAN DODDS  
DIRECTOR  
OFFICE OF LAND MANAGEMENT

STAKING INFORMATION SHEET

APPROVED: 08-06-2014  
REVISED:

Christopher Roy  
CHRISTOPHER ROY  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.115

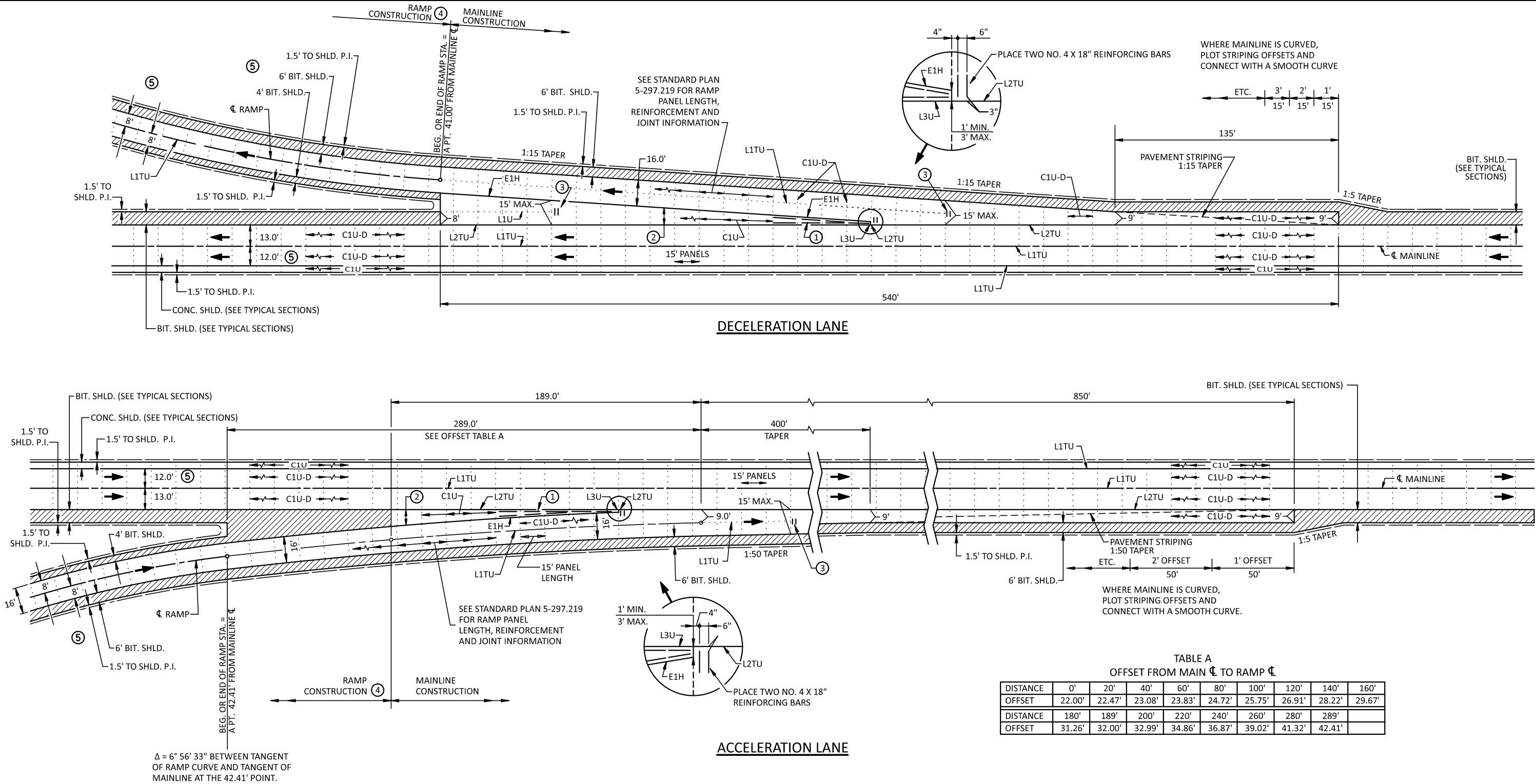
2 OF 2

STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 41  
TOTAL SHEETS 153

DISTRICT #  
PLOT NAME: 4D5680147\_spn115-2  
PATH & FILENAME:



CONSTRUCTION NOTES:

CONSTRUCT THE ACCELERATION AND DECELERATION LANES, INCLUDING TAPERS (PAVEMENT AND BASE THICKNESS, PANEL LENGTHS, JOINTS, AND REINFORCEMENT), THE SAME AS THE MAINLINE, EXCEPT WHERE NOTED OTHERWISE.

PROVIDE EPOXY-COATED TIE BARS IN ACCORDANCE WITH SPEC. 3301.

LANE AND SHOULDER WIDTHS MAY VARY FROM AS SHOWN. SEE CONSTRUCTION PLANS FOR ACTUAL PROPOSED WIDTHS.

① IN GORE AREAS 6 FEET WIDE OR LESS, MAKE THE PAVEMENT AND BASE THICKNESS THE SAME AS THE MAINLINE. EXTEND THE ADJACENT MAINLINE C1U-D JOINTS THROUGH THE GORE AREA AS C1U JOINTS. PLACE A NO. 4 REINFORCEMENT BAR 4 INCHES FROM AND ALONG EACH SIDE OF THE GORE TAPER. WHEN GORE AREAS ARE GREATER THAN 6 FEET WIDE, TIE THE MAINLINE TO THE GORE WITH AN L2TU JOINT.

② CONSTRUCT 15-FOOT PANELS (MAINLINE THICKNESS) WHEN GORE WIDTH IS 6 FEET OR GREATER. SEPARATE THIS AREA FROM OTHER CONCRETE PAVEMENT WITH AN E1H JOINT. WHEN THE WIDTH EXCEEDS 15 FEET, CONSTRUCT ONE L1TU RELIEF JOINT.

③ PLACE TWO NO. 4 X 18" REINFORCING BARS AT ENDS OF LONGITUDINAL JOINTS, SPACED 4" AND 10" FROM JOINT.

④ TRANSITION THE MAINLINE THICKNESS OVER TWO RAMP PANELS TO THE RAMP THICKNESS.

\*⑤ SEE TYPICALS FOR PROPOSED LANE WIDTHS.

\*DENOTES MODIFICATION FROM STANDARD PLAN

MODIFIED

LEAD  
EXPERT  
OFFICE

CURT TURGEON  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

ACCELERATION AND DECELERATION LANE (OPEN)  
CONCRETE PAVEMENT  
15-FOOT PANEL LENGTH

APPROVED:  
10-04-2024

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.209

1 OF 1



ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024  
LICENSED PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

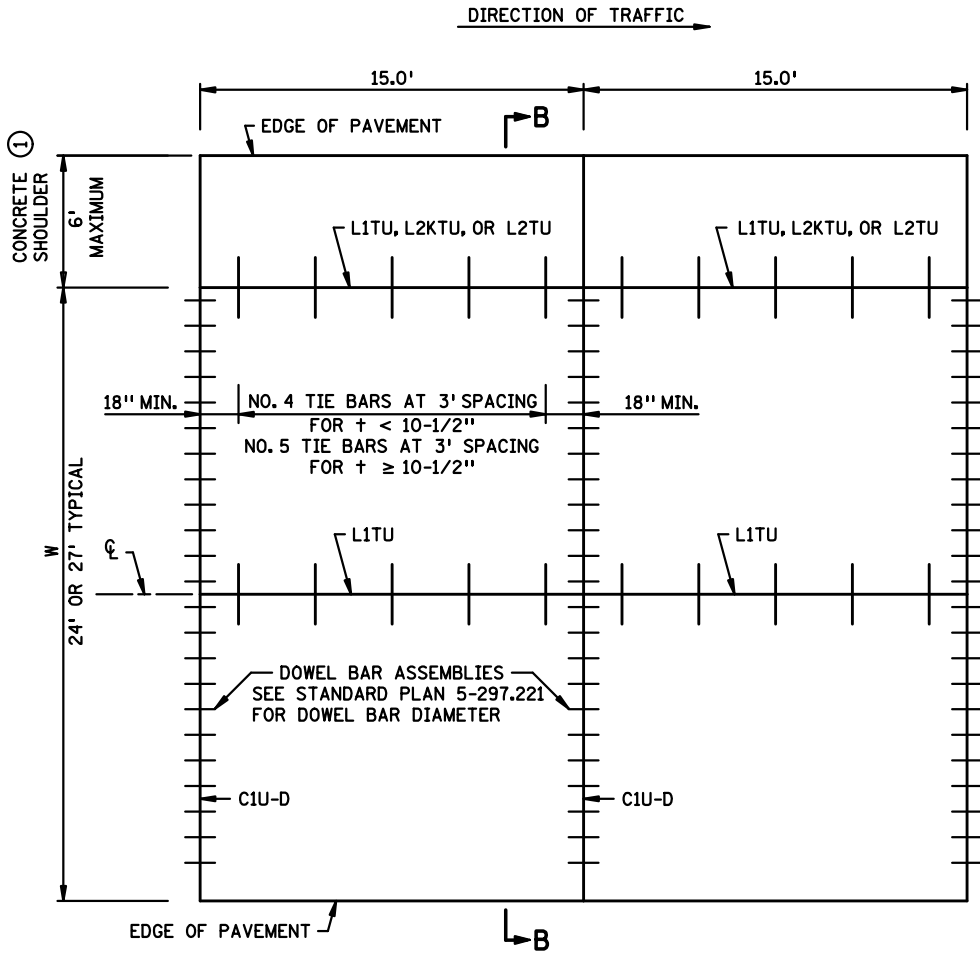
SHEET NO. 42  
TOTAL SHEETS 153



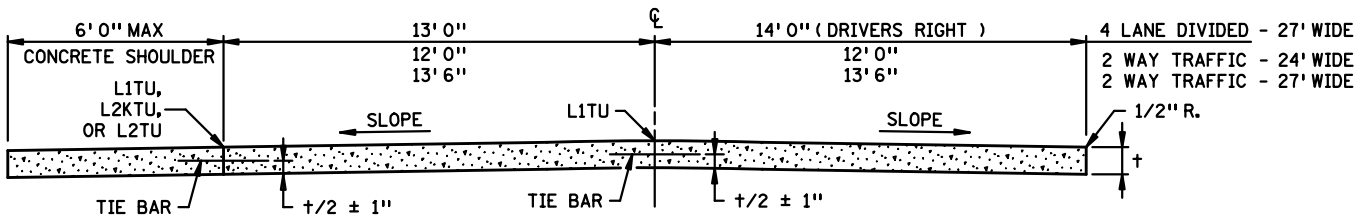
3-OCT-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_spn217-2  
PATH & FILENAME:



MAINLINE PAVEMENT WITH  
INSIDE CONCRETE SHOULDER  
DOWELED



SECTION B-B

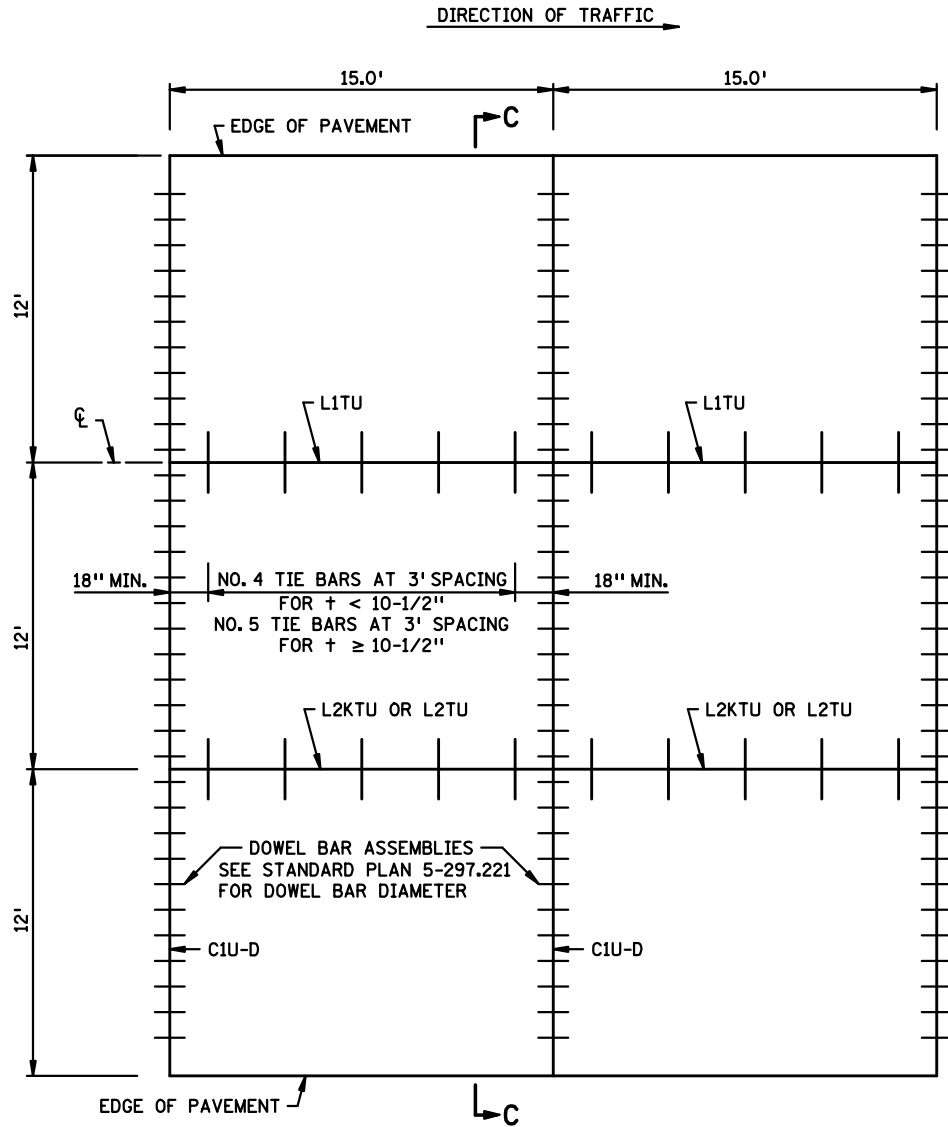
GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS,  $t$ .

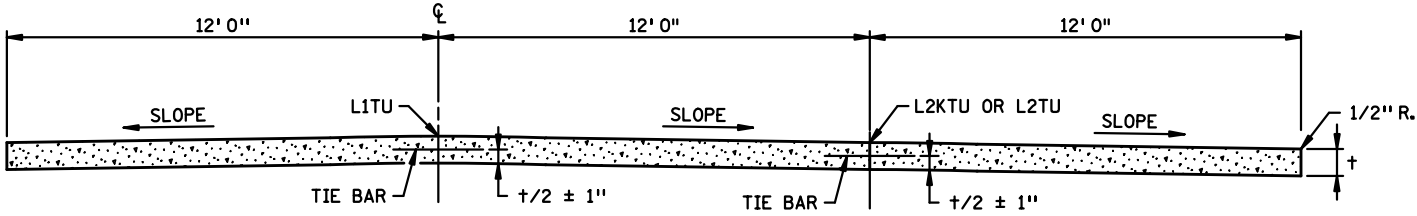
DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.



MAINLINE PAVEMENT URBAN  
DOWELED



SECTION C-C

LEAD  
EXPERT  
OFFICE

GLENN ENGSTROM  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

CONCRETE MAINLINE PAVEMENT  
15.0 FT. PANEL LENGTH  
URBAN OR CONCRETE SHOULDERS

APPROVED: 02-16-2016  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.217

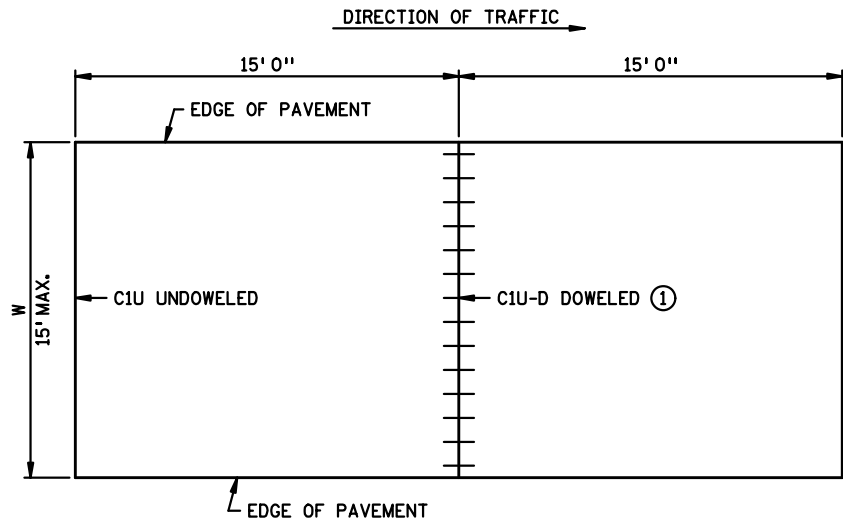
2 OF 2



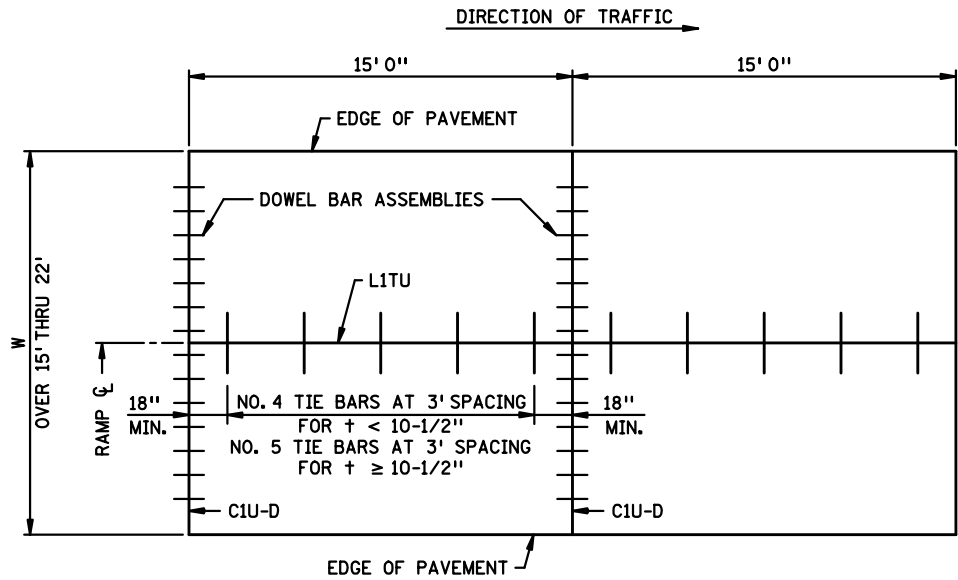
STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

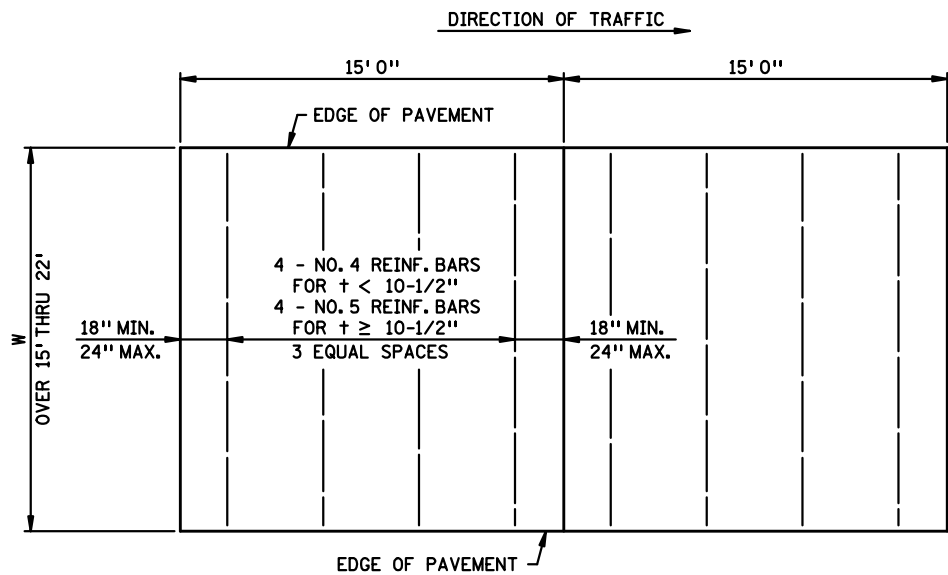
SHEET NO. 43  
TOTAL SHEETS 153



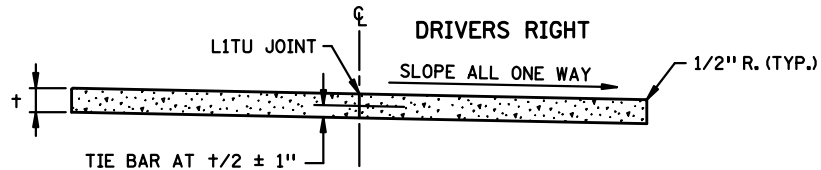
RAMP PAVEMENT 1 FT. THRU 15 FT. WIDTH



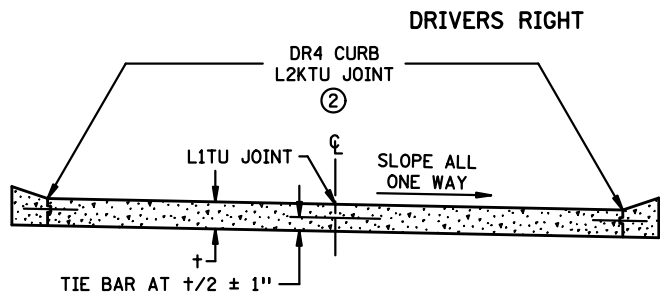
RAMP PAVEMENT OVER 15 FT. THRU 22 FT. WIDTH  
DOWELED



PANEL REINFORCEMENT  
PANELS OVER 15 FT. THRU 22 FT. WIDTHS  
IT IS PREFERRED TO ADD A LONGITUDINAL JOINT  
RATHER THAN PAVE GREATER THAN 15 FT. IN WIDTH.  
PLACEMENT DEPTH SHALL BE PLANNED  $\pm/2 \pm 1$ "



RURAL DESIGN RAMP  
CROSS SECTION



URBAN DESIGN RAMP  
CROSS SECTION

NOTES:

WHEN RAMP THICKNESS IS LESS THAN 7", USE L2TU JOINTS  
INSTEAD OF L2KTU JOINTS.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE  
SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS  
SLOPES AND PAVEMENT THICKNESS,  $\pm$ .

ALL REINFORCING BARS SHALL BE EPOXY COATED AND  
COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE  
STANDARD PLATE 1070.

① DOWELS USED WHEN PAVEMENT WIDTH IS GREATER THAN  
OR EQUAL TO 4'.

② THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT  
INTEGRANT CURBS IN PLACE OF DR4 CURB WITH L2KTU  
JOINTS. IN EITHER OPTION, DOWEL BAR ASSEMBLIES WILL  
NOT BE REQUIRED IN THE CURB AREA. PAYMENT WILL BE  
BASED ON THE DR4 CURB OPTION, REGARDLESS OF THE  
METHOD OF CONSTRUCTION USED. DR4 JOINTS SHALL BE  
SEALED.

LEAD  
EXPERT  
OFFICE

GLENN ENGSTROM  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

CONCRETE RAMP / LOOP PAVEMENT  
15 FT. PANEL LENGTH

APPROVED: 02-16-2016  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.219

1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 44

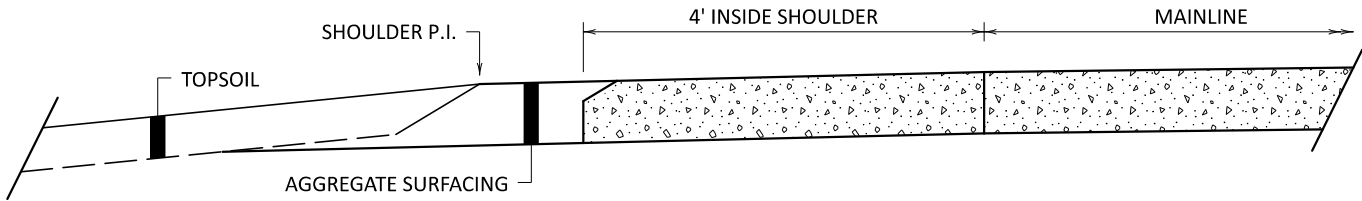
(T.H. 94)

TOTAL SHEETS 153

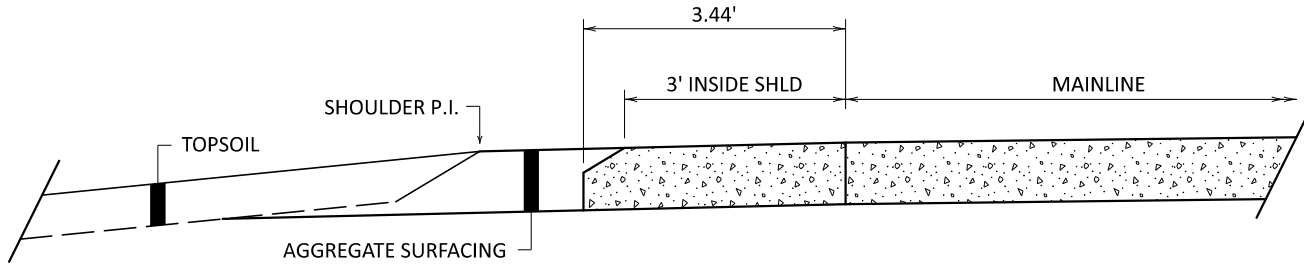
3-OCT-2024

PLOTTED/REVISED:

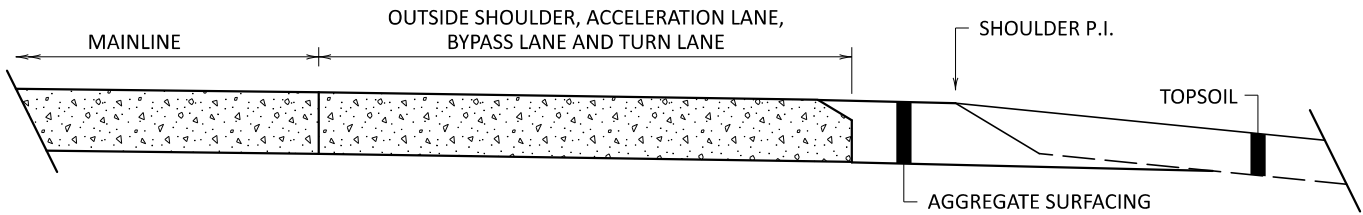
DISTRICT #  
PLOT NAME: 4D5680147\_spn220-1  
PATH & FILENAME:



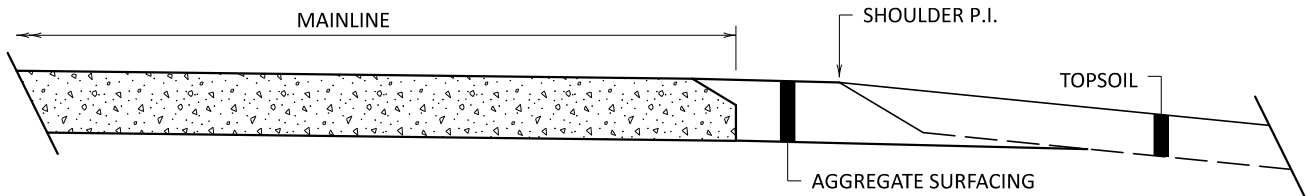
4' INSIDE CONCRETE SHOULDER ①



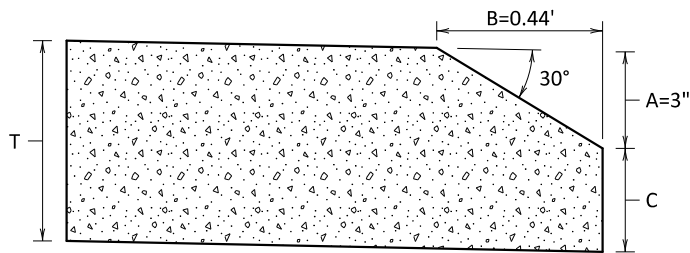
3' INSIDE CONCRETE SHOULDER ②



CONCRETE PAVEMENT WITH OUTSIDE SHOULDER (8' OR LESS), ACCELERATION LANES, BYPASS LANES OR TURN LANES ①



CONCRETE PAVEMENT WITH AGGREGATE SHOULDERING ①



CONCRETE SAFETY EDGE HEIGHT

CONCRETE SAFETY EDGE HEIGHT	
PAVEMENT THICKNESS, T	EDGE HEIGHT C=T-3
5"	2"
6"	3"
7"	4"
8"	5"
9"	6"
10"	7"

NOTES:

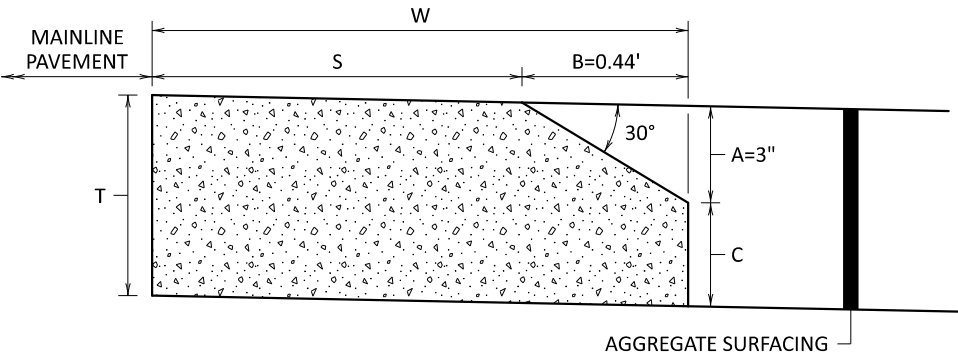
CONSTRUCT THE SAFETY EDGE ALONG ALL CONCRETE PAVEMENT EDGES ADJACENT TO AGGREGATE SURFACING. THIS INCLUDES:  
- MAINLINE ROADWAYS  
- SHOULDERS 8' WIDE OR LESS  
- RAMPS AND LOOPS  
- ACCELERATION, BYPASS AND TURN LANES

PROVIDE THE SAFETY EDGE ALONG THE ROADWAY THROUGH UNPAVED ENTRANCES SUCH AS FARM ACCESSSES, UNPAVED DRIVEWAYS, AND GRAVEL ROAD ACCESSSES. FOR PAVED PUBLIC ENTRANCES AND PAVED DRIVEWAYS, STOP THE SAFETY EDGE AND MATCH THE PROPOSED CONSTRUCTED PAVEMENT TO THE EXISTING CONDITIONS OR FOLLOW THE DESIGN PLANS. SHORT SECTIONS OF HANDWORK MAY BE NECESSARY FOR TRANSITIONS AND TURNOUTS.

SAFETY EDGE IS OPTIONAL FOR PAVED SHOULDER WIDTHS GREATER THAN 8'.

SEE TYPICAL SECTIONS FOR SAFETY EDGE PLACEMENT LOCATIONS.

- ① INTEGRATE THE CONCRETE SAFETY EDGE WITHIN THE DESIGNED PAVEMENT EDGE. DO NOT ADD THE CONCRETE SAFETY EDGE TO THE OUTSIDE EDGE OF THE DESIGNED PAVEMENT WIDTH.
- ② WHEN CONSTRUCTING A 3' INSIDE SHOULDER, PLACE THE SAFETY EDGE OUTSIDE THE 3' SHOULDER WIDTH, PROVIDING AT LEAST 3' OF TOP CONCRETE SHOULDER SURFACE WIDTH.



CONCRETE SAFETY EDGE WIDTH  
FOR CONCRETE SHOULDERS ≤ 8' WIDE

CONCRETE SAFETY EDGE WIDTH			
DESIGNED SHOULDER WIDTH	PAVED SHOULDER WIDTH, W	SAFETY EDGE WIDTH, B	TOP SURFACE WIDTH, S
3'	3.44'	0.44'	3'
4'	4'	0.44'	3.56'
6'	6'	0.44'	5.56'
8'	8'	0.44'	7.56'

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OFFICE

CURT TURGEON  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

SAFETY EDGE  
CONCRETE PAVEMENT

APPROVED: 02-21-2024  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.220

1 OF 2



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

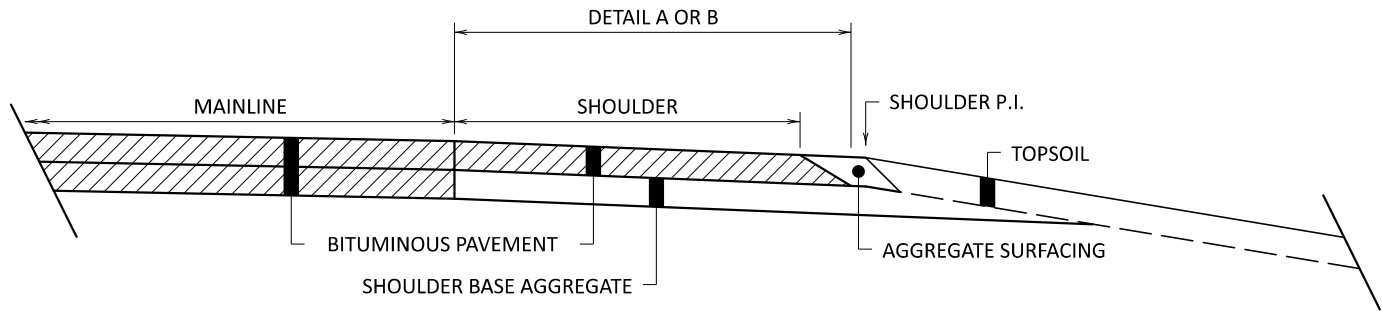
SHEET NO. 45  
TOTAL SHEETS 153

3-OCT-2024

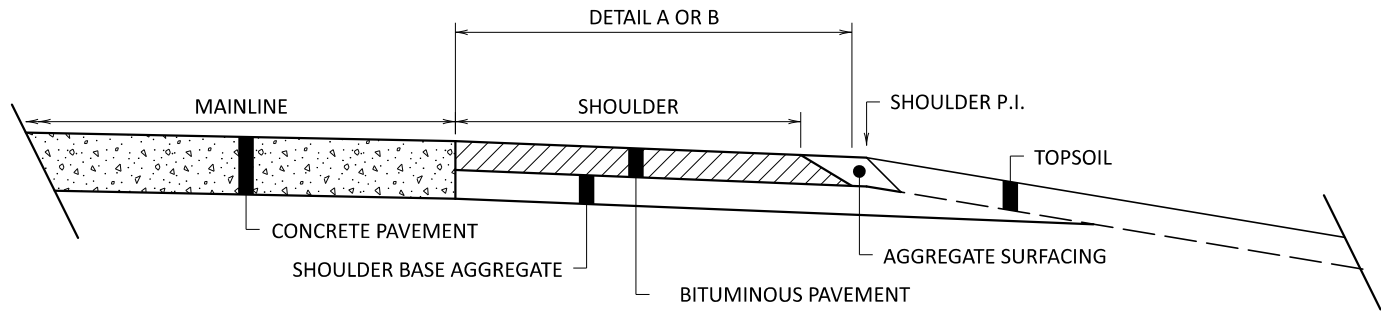
3-OCT-2024

DISTRICT # 4D5680147\_spn220-2

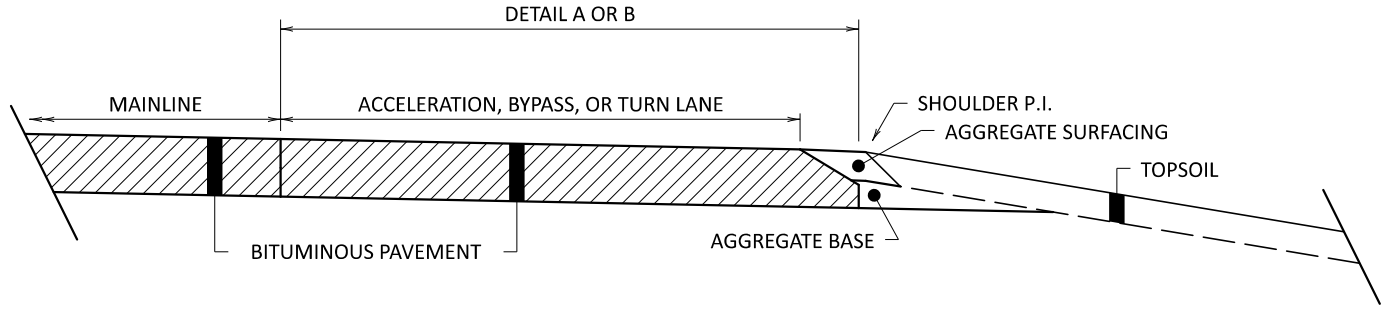
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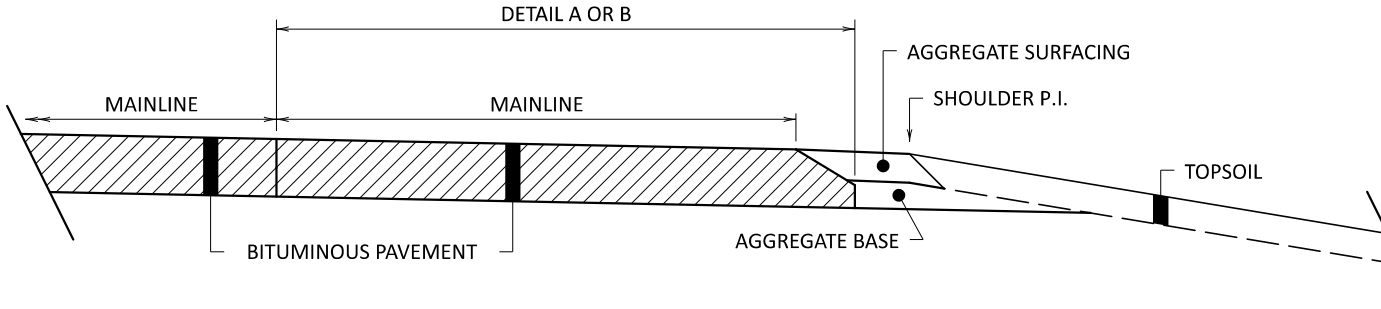
BITUMINOUS PAVEMENT WITH BITUMINOUS SHOULDERS (8' OR LESS)



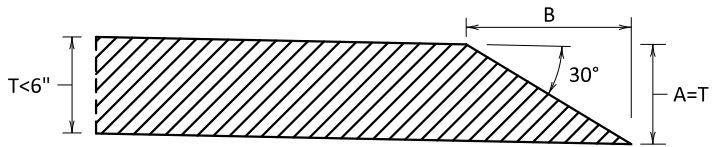
CONCRETE PAVEMENT WITH BITUMINOUS SHOULDERS (8' OR LESS)



BITUMINOUS PAVEMENT WITH ACCELERATION LANES, BYPASS LANES OR TURN LANES

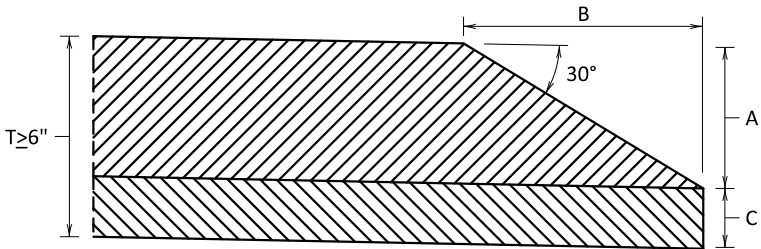


BITUMINOUS PAVEMENT WITH AGGREGATE SHOULDERING



DETAIL A  
PAVEMENT THICKNESS < 6"

FOR BITUMINOUS PAVEMENT THICKNESS < 6"	
PAVEMENT THICKNESS, T	B
2"	3.5"
3"	5.2"
4"	6.9"
5"	8.7"



DETAIL B  
PAVEMENT THICKNESS ≥ 6"

FOR BITUMINOUS PAVEMENT THICKNESS ≥ 6"			
PAVEMENT THICKNESS, T	A	B	C
6"	5"	8.7"	1"
8"	5"	8.7"	3"
10"	5"	8.7"	5"
12"	5"	8.7"	7"

NOTES:

CONSTRUCT THE SAFETY EDGE ALONG ALL BITUMINOUS PAVEMENT EDGES ADJACENT TO AGGREGATE SURFACING. THIS INCLUDES:

- MAINLINE ROADWAYS
- SHOULDERS 8' WIDE OR LESS
- RAMP AND LOOPS
- ACCELERATION, BYPASS AND TURN TURN LANES

CONSTRUCT THE SAFETY EDGE USING A MANUFACTURED SHOE DEVICE ATTACHED TO THE PAVING MACHINE. A SINGLE-PLATE STRIKE-OFF METHOD IS NOT ALLOWED.

PROVIDE THE SAFETY EDGE ALONG THE ROADWAY THROUGH UNPAVED ENTRANCES SUCH AS FARM ACCESSES, UNPAVED DRIVEWAYS, AND GRAVEL ROAD ACCESSES. FOR PAVED PUBLIC ENTRANCES AND PAVED DRIVEWAYS, STOP THE SAFETY EDGE AND MATCH THE PROPOSED CONSTRUCTED PAVEMENT TO THE EXISTING CONDITIONS OR FOLLOW THE DESIGN PLANS. SHORT SECTIONS OF HANDWORK MAY BE NECESSARY FOR TRANSITIONS AND TURNOUTS.

SAFETY EDGE IS OPTIONAL FOR PAVED SHOULDER WIDTHS GREATER THAN 8'.

SEE TYPICAL SECTIONS FOR SAFETY EDGE PLACEMENT LOCATIONS.

THE SAFETY EDGE IS ADDED TO THE OUTSIDE OF THE REQUIRED BITUMINOUS TOP SURFACE WIDTH SHOWN IN THE PLANS.

LEAD  
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DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

SAFETY EDGE  
BITUMINOUS PAVEMENT

APPROVED: 02-21-2024  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.220

2 OF 2



STANDARD PLANS

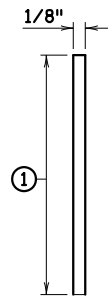
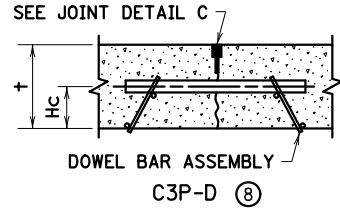
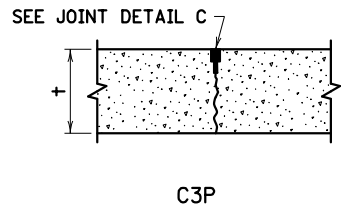
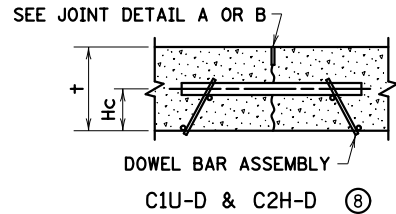
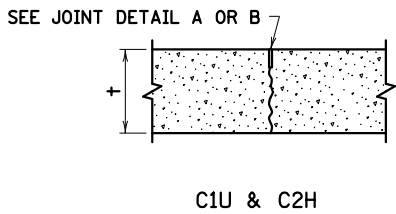
STATE PROJ. NO. 5680-147

SHEET NO. 46

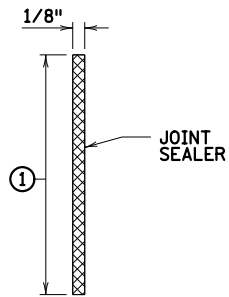
(T.H. 94)

TOTAL SHEETS 153

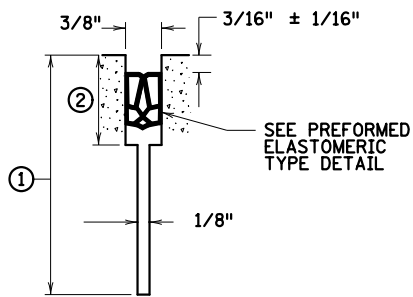




JOINT DETAIL A ③⑤  
SAWED & UNSEALED

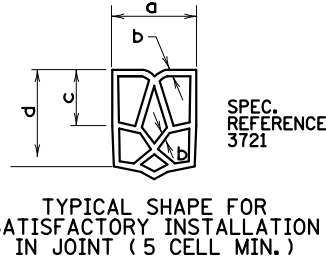


JOINT DETAIL B ④⑤  
SAWED & SEALED



JOINT DETAIL C ④⑤  
SAWED AND SEALED

REQUIRED DIMENSIONS②	
JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



PREFORMED ELASTOMERIC TYPE DETAIL ②

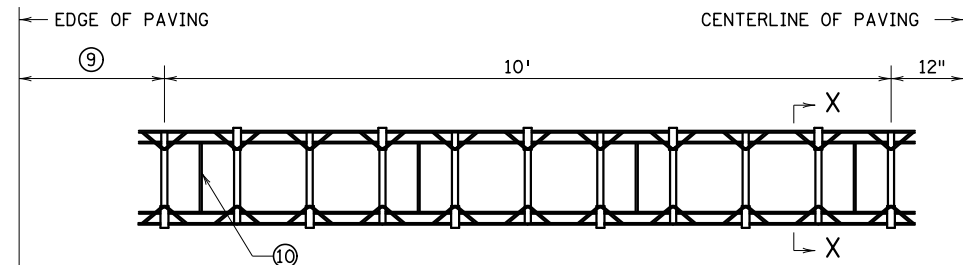
CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE				
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"

**LEGEND**

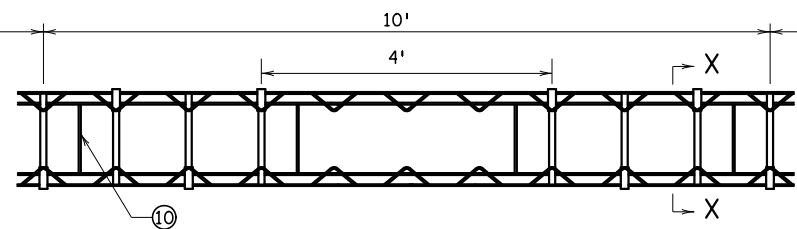
C = CONTRACTION JOINT  
NO. = JOINT REFERENCE  
U = UNSEALED  
H = HOT POURED  
P = PREFORMED  
-D = DOWEL BARS

**EXAMPLE**

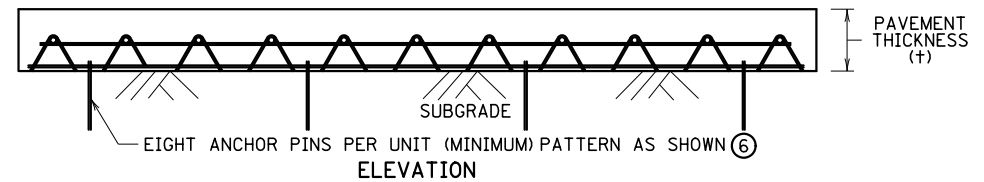
C2H-D



PLAN VIEW  
ELEVEN DOWEL BASKET (SPACED AT 12")

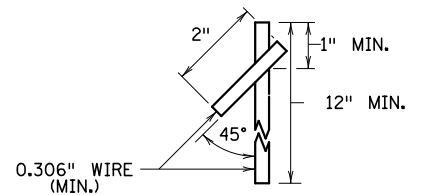
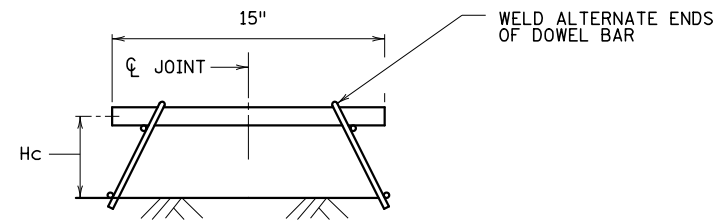


PLAN VIEW  
EIGHT DOWEL BASKET (WHEEL PATH DOWELS SPACED AT 12")



CONTRACTION JOINT DOWEL BAR ASSEMBLIES

DOWEL BAR TABLE		
† PAVEMENT THICKNESS (IN.)	DOWEL BAR DIAMETER (IN.)	Hc HEIGHT TO CENTER OF DOWEL BAR (IN.)
7 - 7 1/2	1	3
8 - 10	1 1/4	4
≥ 10 1/2	1 1/2	5



NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE/RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

① JOINT DEPTH AND TOLERANCE:  $\pm 3 \pm 1/4$ ".

② JOINT DEPTH 1/4" MORE THAN THE PREFORMED SEALER WHEN COMPRESSED TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION APPLIES AT ANY POINT THROUGHOUT "c" DEPTH. SHARP CORNERS NOT PERMITTED. PROVIDE CORNERS WITH SUITABLE FILLET.

③ CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

④ CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.

⑤ JOINT WIDTH TOLERANCE IS  $\pm 1/16$ " TO  $-1/32$ ".

⑥ EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.

⑦ ANCHOR PIN REQUIREMENTS FOR CONCRETE PAVEMENT ON GRADE CONSTRUCTION. FOR CONCRETE OVERLAYS, ANCHOR PIN REQUIREMENT AS APPROVED BY THE ENGINEER.

⑧ TOLERANCES:  
- PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE  $\pm 1/8$ " IN 15".  
- PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT  $\pm 1/4$ " IN 15".  
- SAW CONTRACTION JOINTS PERPENDICULAR TO THE CENTERLINE OF THE PAVEMENT AND CENTERED ON THE DOWEL BAR  $\pm 3$ ".  
- HEIGHT (Hc) TO CENTER OF DOWEL BAR  $\pm 1/2$ ".

⑨ DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:  
- 3' 0" FOR 14' 0" LANE.  
- 2' 6" FOR 13' 6" LANE.  
- 2' 0" FOR 13' 0" LANE.  
- 1' 0" FOR 12' 0" LANE.

⑩ CONTRACTOR OPTION TO CUT AND BEND SPACER WIRES AFTER STAKING.

LEAD  
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OFFICE

GLENN ENGSTROM  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

PAVEMENT JOINTS  
CONTRACTION (DESIGN C)

APPROVED: 10-03-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.221

1 OF 4



STANDARD PLANS

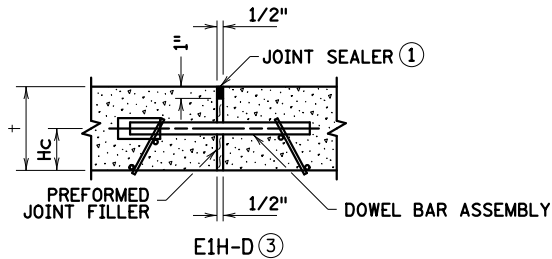
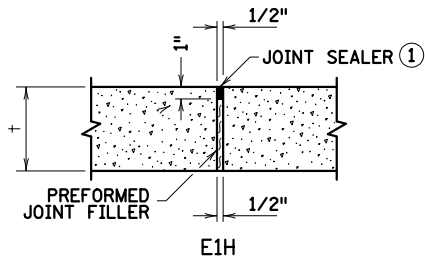
STATE PROJ. NO. 5680-147

SHEET NO. 47

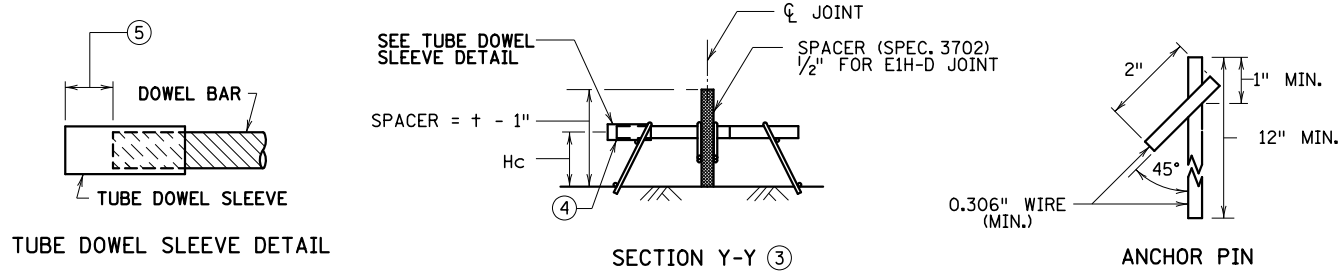
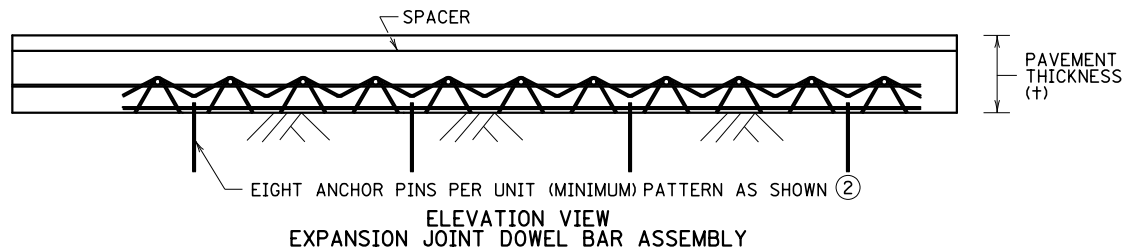
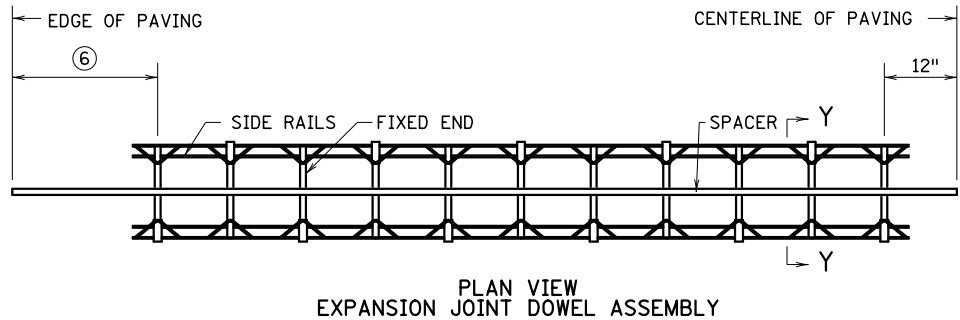
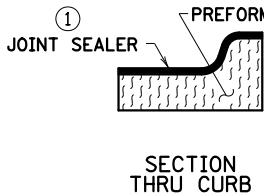
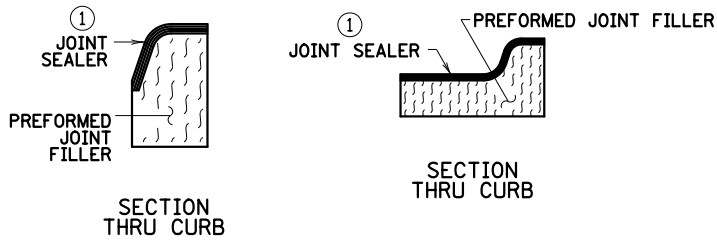
(T.H. 94)

TOTAL SHEETS 153

DISTRICT #: 4D5680147\_spn221-2  
PLOT NAME: 4D5680147\_spn221-2  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE				
JOINT REFERENCE		PREFORMED JOINT FILLER SPEC.	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	3702	3725	1/2"
<div>LEGEND</div> <div>E = EXPANSION JOINT</div> <div>NO. = JOINT REFERENCE</div> <div>H = HOT POURED</div> <div>-D = DOWEL BARS</div> <div>EXAMPLE</div> <div>E1H-D</div>				



DOWEL BAR TABLE		
+ PAVEMENT THICKNESS (IN.)	DOWEL BAR DIAMETER (IN.)	Hc HEIGHT TO CENTER OF DOWEL BAR (IN.)
7 - 7 1/2	1	3
8 - 10	1 1/4	4
≥ 10 1/2	1 1/2	5

NOTES:

- WHEN USING THE EXPANSION JOINT DOWEL ASSEMBLY, CONTACT THE CONCRETE OFFICE.
- SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.
- PROVIDE PREFORMED JOINT FILLER MATERIAL IN ACCORDANCE WITH SPEC. 3702.
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ① JOINT SEALER SPEC. 3725. CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE.
- ② EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.
- ③ TOLERANCES:
- PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE ±1/8" IN 15".
  - PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT ±1/4" IN 15"
  - HEIGHT (Hc) TO CENTER OF DOWEL BAR ± 1/2".
- ④ PLACE METAL INSTALLATION SHIELDS FOR EXPANSION JOINTS PARALLEL TO THE PAVEMENT SURFACE AND THE PAVEMENT CENTERLINE WITHIN A TOLERANCE OF 1/4" WITHIN THE LENGTH OF BAR.
- ⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE IS 1" MINIMUM.
- ⑥ DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
- 3' 0" FOR 14' 0" LANE.
  - 2' 6" FOR 13' 6" LANE.
  - 2' 0" FOR 13' 0" LANE.
  - 1' 0" FOR 12' 0" LANE.

LEAD  
EXPERT  
OFFICE

GLENN ENGSTROM  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

PAVEMENT JOINTS  
EXPANSION (DESIGN E)

APPROVED: 10-03-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.221

2 OF 4



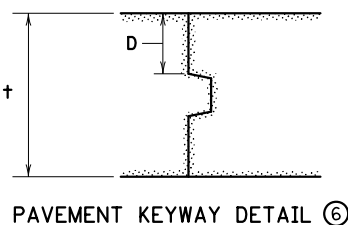
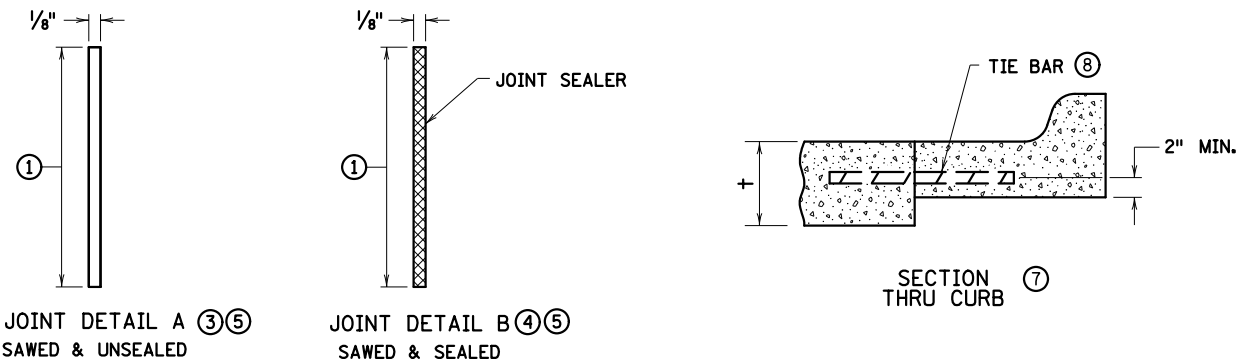
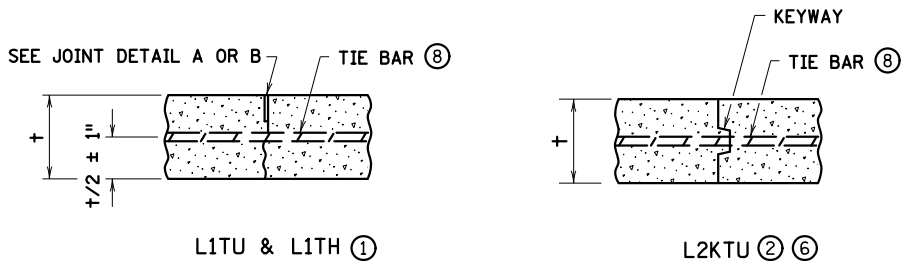
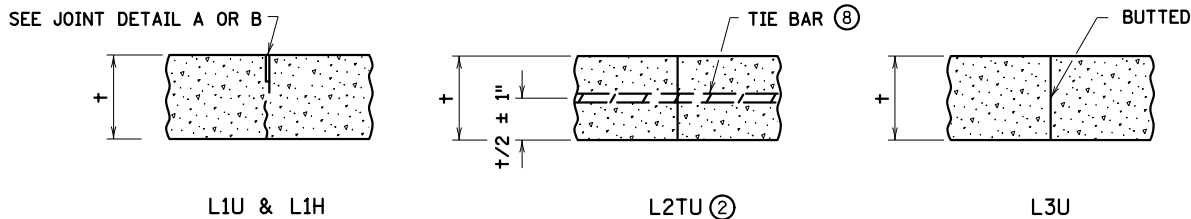
STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 48

(T.H. 94)

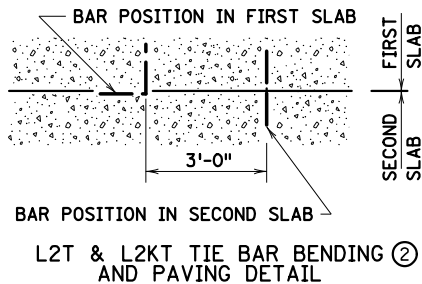
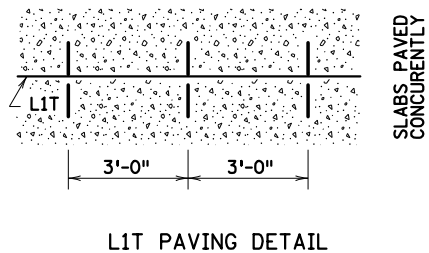
TOTAL SHEETS 153



FIXED FORM KEYWAY TABLE ⑥	
† PAVEMENT THICKNESS	D (MIN. DEPTH)
< 7"	2-1/2"
7" TO 7-1/2"	3"
8" TO 9-1/2"	4"
≥ 10"	5"

SLIPFORM KEYWAY TABLE ⑥	
† PAVEMENT THICKNESS	D (MIN. DEPTH)
< 10"	NO KEYWAY
≥ 10"	5"

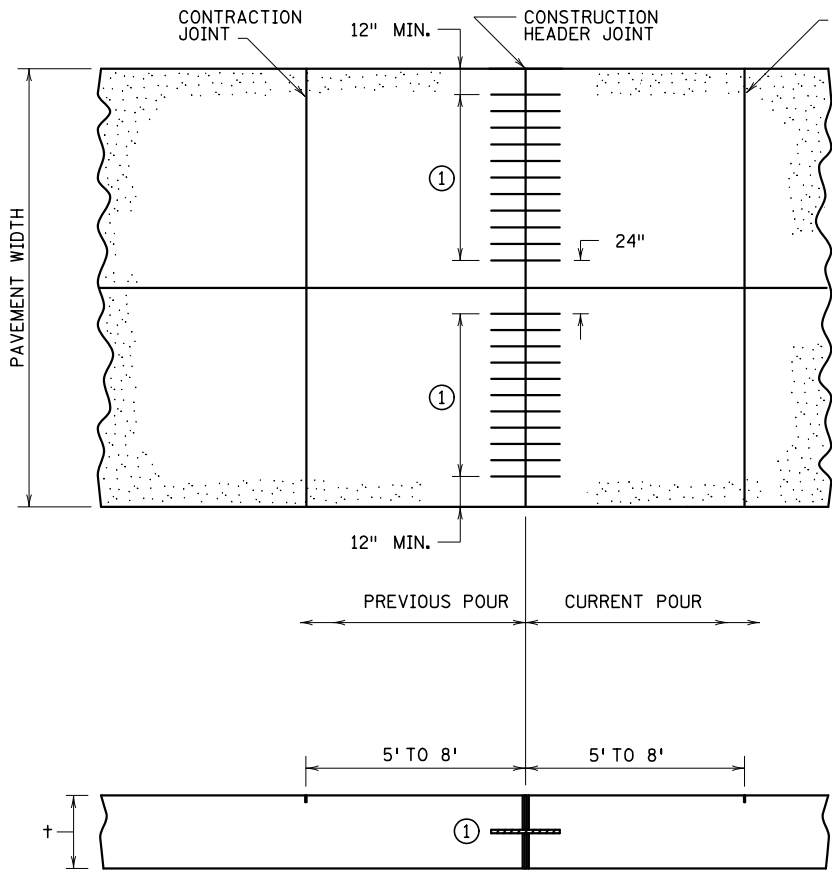
LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE					
JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
L3U			NONE	UNSEALED	
<div><div>LEGEND</div><div>L = LONGITUDINAL JOINT NO. = JOINT REFERENCE 1 = PAVED CONSTRUCTION JOINT 2 = TIED CONSTRUCTION JOINT 3 = BUTTED CONSTRUCTION JOINT K = KEYWAY T = TIE BARS U = UNSEALED H = HOT POURED</div></div> <div><div>EXAMPLE</div><div>L2KTU</div></div>					



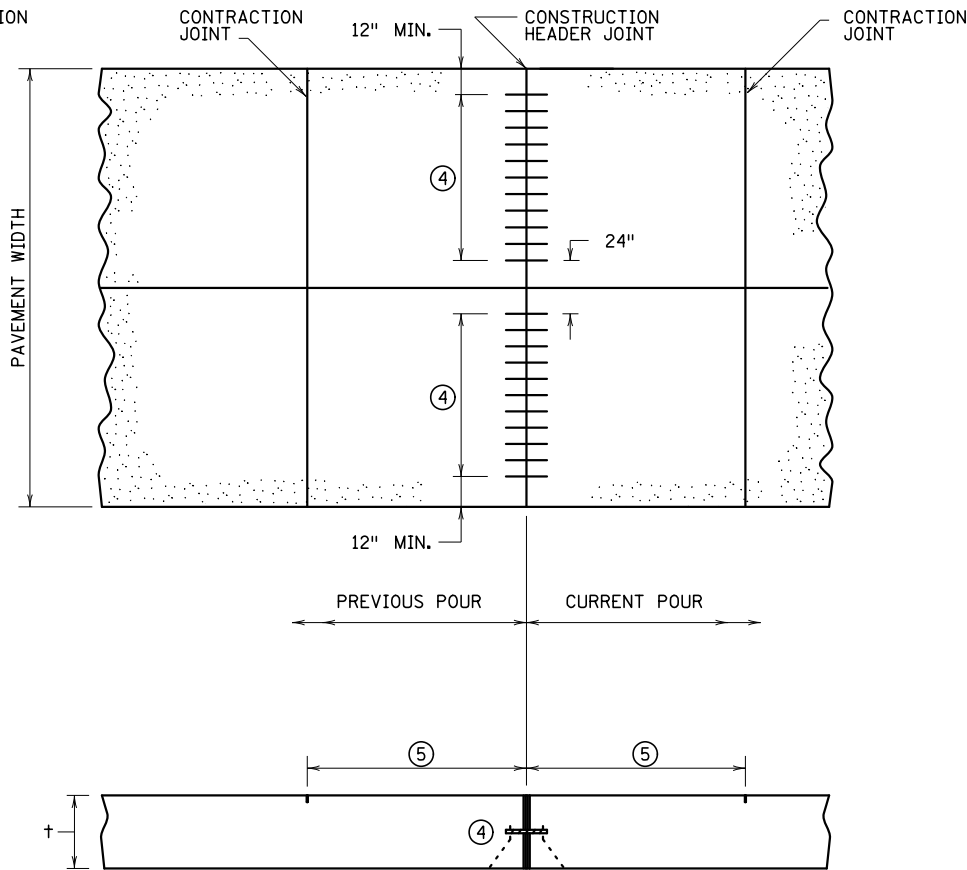
NOTES:

- PROVIDE EPOXY-COATED TIE BARS COMPLYING WITH SPEC. 3301.
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.
- SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
- LONGITUDINAL JOINTS SAWED WIDER THAN 1/8", CONTACT THE CONCRETE UNIT FOR SEALING RECOMMENDATIONS.
- ① JOINT DEPTH AND TOLERANCE:  $\pm 3 \pm 1/4$ ".
- ② BEND TIE BARS 90 DEGREES WHEN INSERTED IN THE L2 JOINTS, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

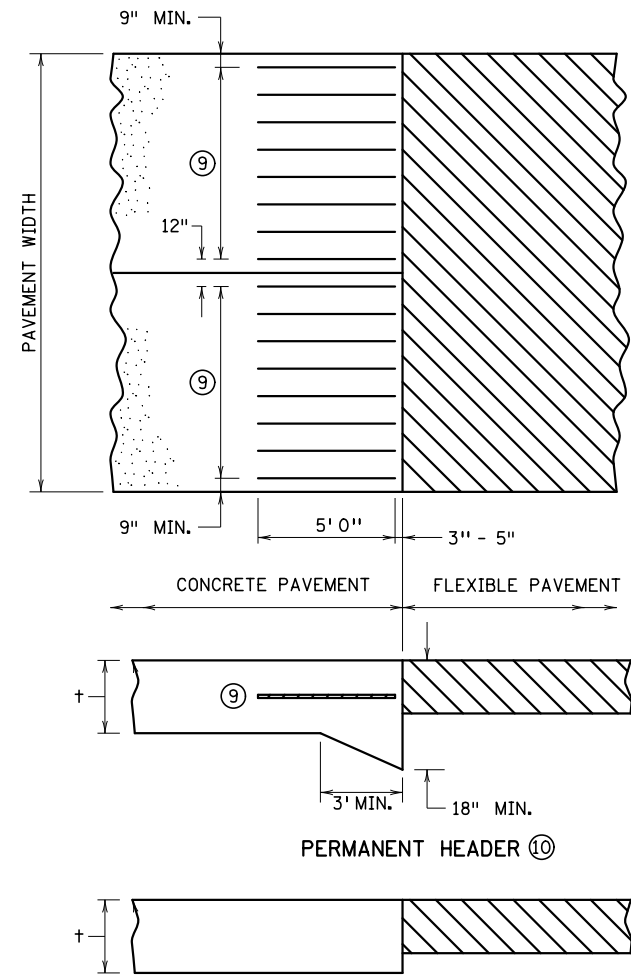
- ③ CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
- ④ CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.
- ⑤ JOINT WIDTH TOLERANCE IS  $\pm 1/16$ " TO  $-1/32$ ".
- ⑥ CONTRACTOR'S OPTION TO USE KEYWAY WHEN:  
- PLACING FIXED FORM CONSTRUCTION.  
- PLACING SLIPFORM CONSTRUCTION WHEN  $\pm \geq 10$ ".
- USE OF KEYWAY FOR ANY OTHER APPLICATION REQUIRES APPROVAL BY THE ENGINEER. OTHER KEYWAY SHAPES MAY BE USED WITH THE APPROVAL OF THE CONCRETE ENGINEER.
- ⑦ WHEN CURB AND GUTTER IS NOT CONSTRUCTED AT THE SAME DEPTH AS ADJACENT CONCRETE, PLACE TIE BAR MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.
- ⑧ PROVIDE NO. 4 TIE BAR, 30" LONG, SPACED AT 3' ON CENTER.



REINFORCEMENT BAR CONSTRUCTION HEADERS

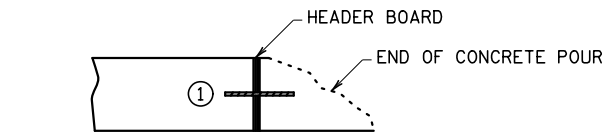


DOWEL BAR CONSTRUCTION HEADERS

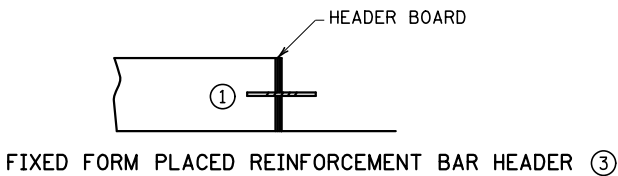


PERMANENT HEADER ⑩

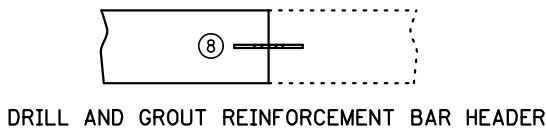
TERMINAL HEADER ⑪



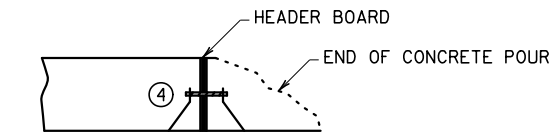
SLIPFORM PLACED REINFORCEMENT BAR HEADER ②



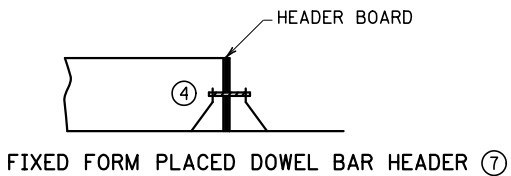
FIXED FORM PLACED REINFORCEMENT BAR HEADER ③



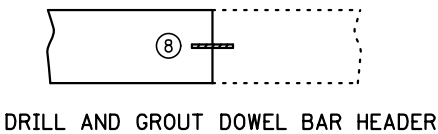
DRILL AND GROUT REINFORCEMENT BAR HEADER



SLIPFORM PLACED DOWEL BAR HEADER ⑥



FIXED FORM PLACED DOWEL BAR HEADER ⑦



DRILL AND GROUT DOWEL BAR HEADER

NOTES:

- PROVIDE EPOXY-COATED REINFORCEMENT BARS IN ACCORDANCE WITH SPEC. 3301.
- ① PROVIDE NO. 4 REINFORCEMENT BARS, 30" LONG, SPREAD 12" ON CENTER AT DEPTH OF  $T/2 \pm 1"$ .
  - ② PAVE PAST THE HEADER LOCATION. REMOVE END OF CONCRETE POUR. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. PLACE THE CONCRETE BEHIND THE BOARD AND INSERT THE REINFORCEMENT BARS. CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE BOARD.
  - ③ SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. PLACE THE CONCRETE BEHIND THE BOARD AND INSERT THE REINFORCEMENT BARS. CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE BOARD.
  - ④ PROVIDE DOWEL BARS IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.
  - ⑤ DISTANCE EQUAL TO OR LESS THAN THE DESIGNED CONTRACTION JOINT SPACING IN ACCORDANCE WITH THE CONTRACT.
  - ⑥ PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PAVE PAST THE HEADER LOCATION AND FINISH CONCRETE BEHIND THE HEADER BOARD. THOROUGHLY REMOVE ALL CONCRETE FROM THE EXPOSED DOWELS.
  - ⑦ PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PLACE, CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.
  - ⑧ DRILL AND GROUT 18" LONG DOWEL OR REINFORCEMENT BARS SPACED AT 12" ON CENTER AT A DEPTH OF  $T/2 \pm 1"$ . DRILL THE HOLE  $1/8"$  GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE BAR BEING PLACED TO A DEPTH OF 9". INJECT A MNDOT-APPROVED EPOXY OR NON-SHRINK GROUT IN THE BACK OF THE DRILL HOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    - FOR DOWEL BAR HEADERS, USE DOWEL BARS HAVING A DIAMETER IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.
    - FOR REINFORCEMENT BAR HEADERS, USE NO. 4 REINFORCEMENT BARS.
  - ⑨ PROVIDE NO. 7 REINFORCEMENT BARS, 5' LONG, SPACED 18" ON CENTER AT DEPTH OF  $T/2 \pm 1"$ .
  - ⑩ USE PERMANENT HEADER WHEN LONG SECTIONS OF CONCRETE (400' OR GREATER) ABUT BITUMINOUS. CONTACT THE CONCRETE UNIT WHEN FUTURE CONCRETE IS BEING CONSTRUCTED ADJACENT TO AN EXISTING PERMANENT HEADER.
  - ⑪ USE TERMINAL HEADER WHEN SHORT SECTIONS OF CONCRETE (LESS THAN 400') ABUT BITUMINOUS (ON SIDE STREETS, FOR EXAMPLE).

LEAD  
EXPERT  
OFFICE

GLENN ENGSTROM  
DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

PAVEMENT JOINTS  
CONSTRUCTION AND TERMINAL HEADERS

APPROVED: 10-03-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.221

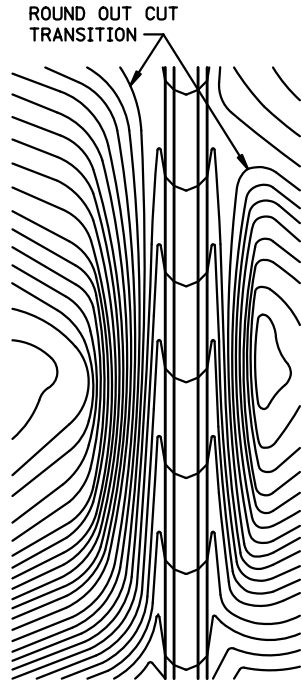
4 OF 4



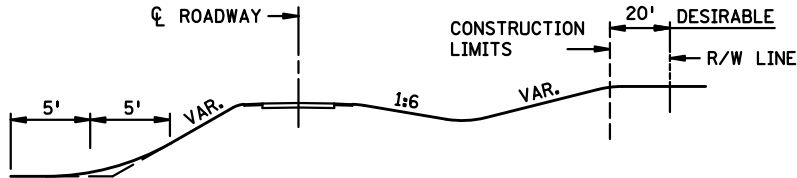
STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

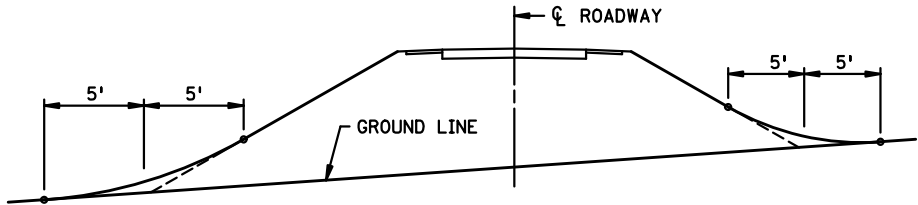
SHEET NO. 50  
TOTAL SHEETS 153



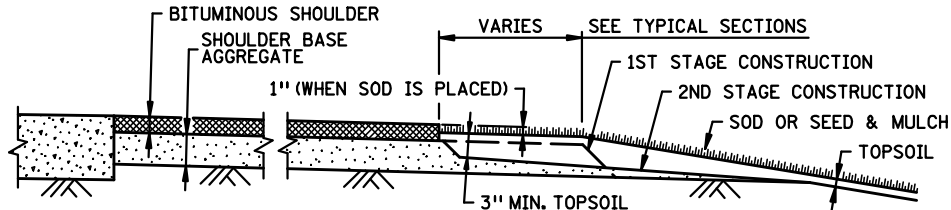
CONTOURING ROAD CUTS



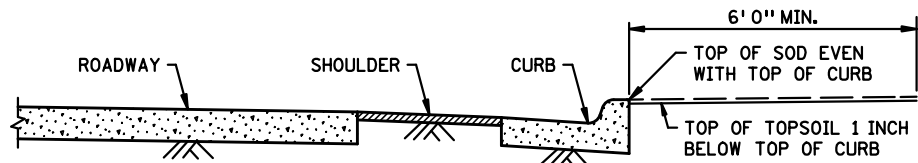
ROUNDING SHOULDERS AND BACKSLOPES



SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

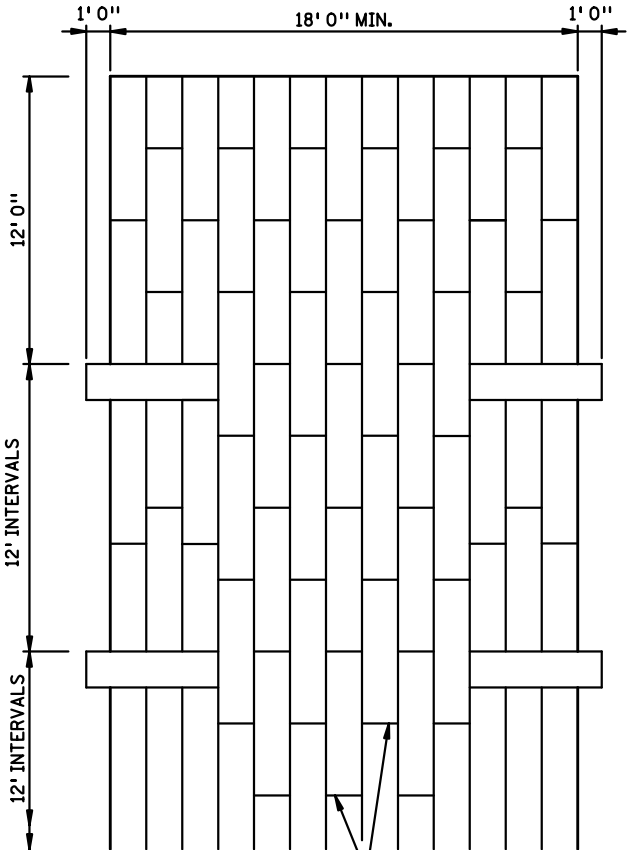


SHAPING AND TOPSOILING INSLOPES

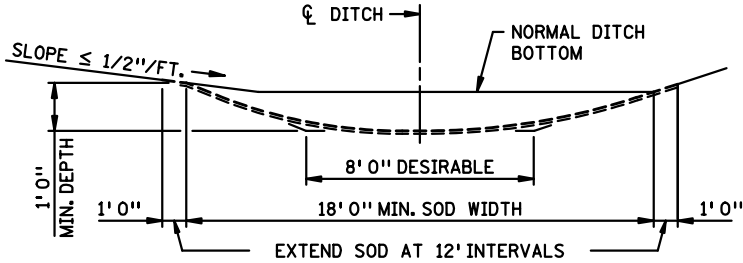


SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

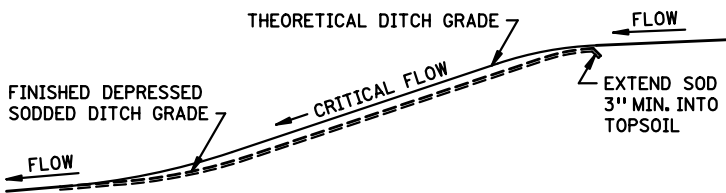
NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.



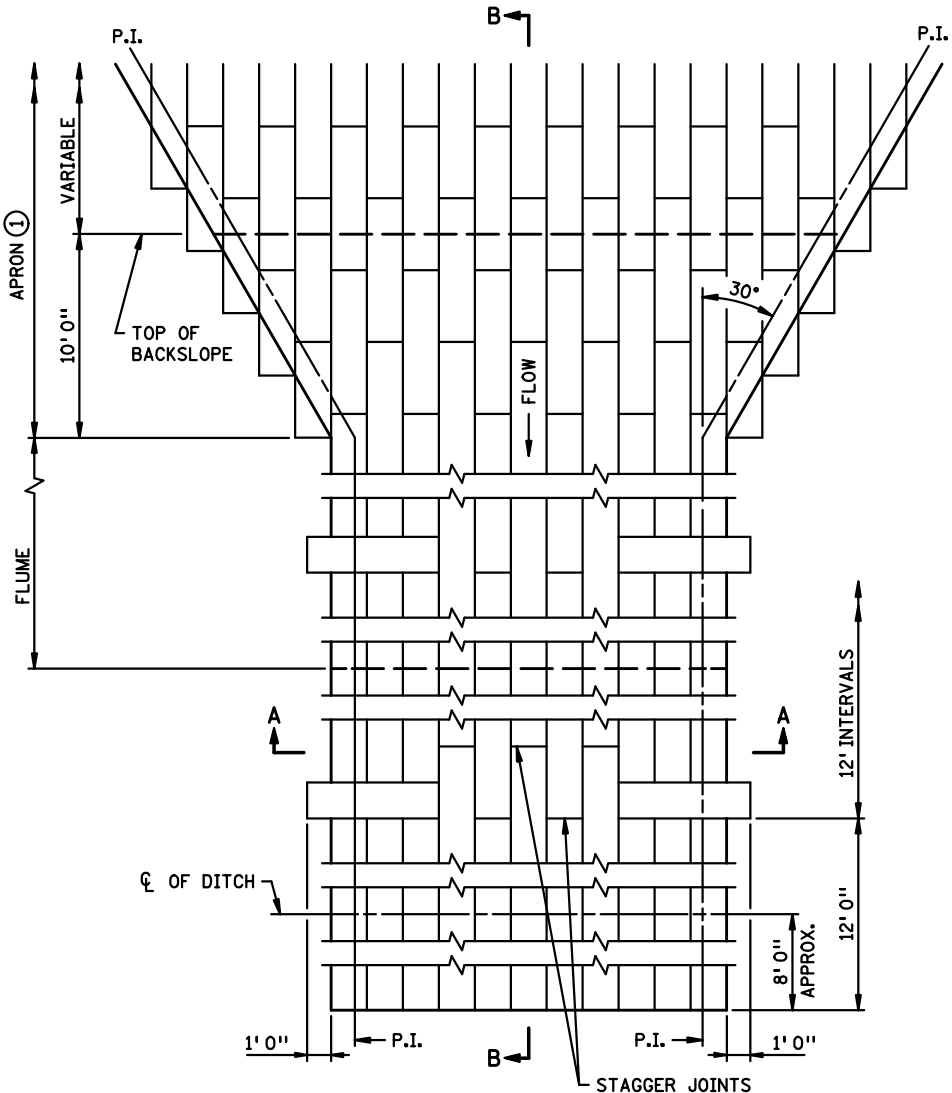
PLAN VIEW



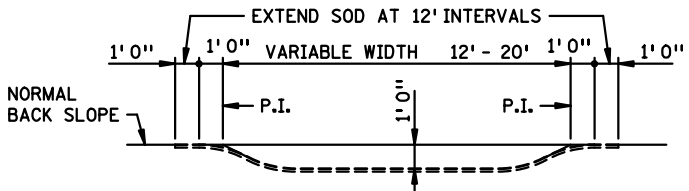
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN  $1/2''/\text{FT.}$ ), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



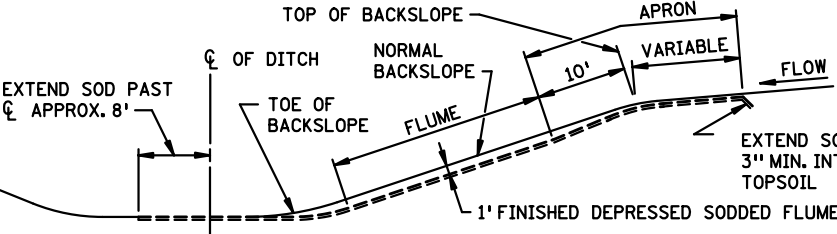
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

LEAD EXPERT OFFICE  
LYNN CLARKOWSKI  
CHIEF ENVIRONMENTAL OFFICER  
OFFICE OF ENVIRONMENTAL STEWARDSHIP

PERMANENT EROSION CONTROL  
ALONG ROADWAYS, DITCHES AND FLUMES

APPROVED: 02-28-2017  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.404

1 OF 3



STANDARD PLANS

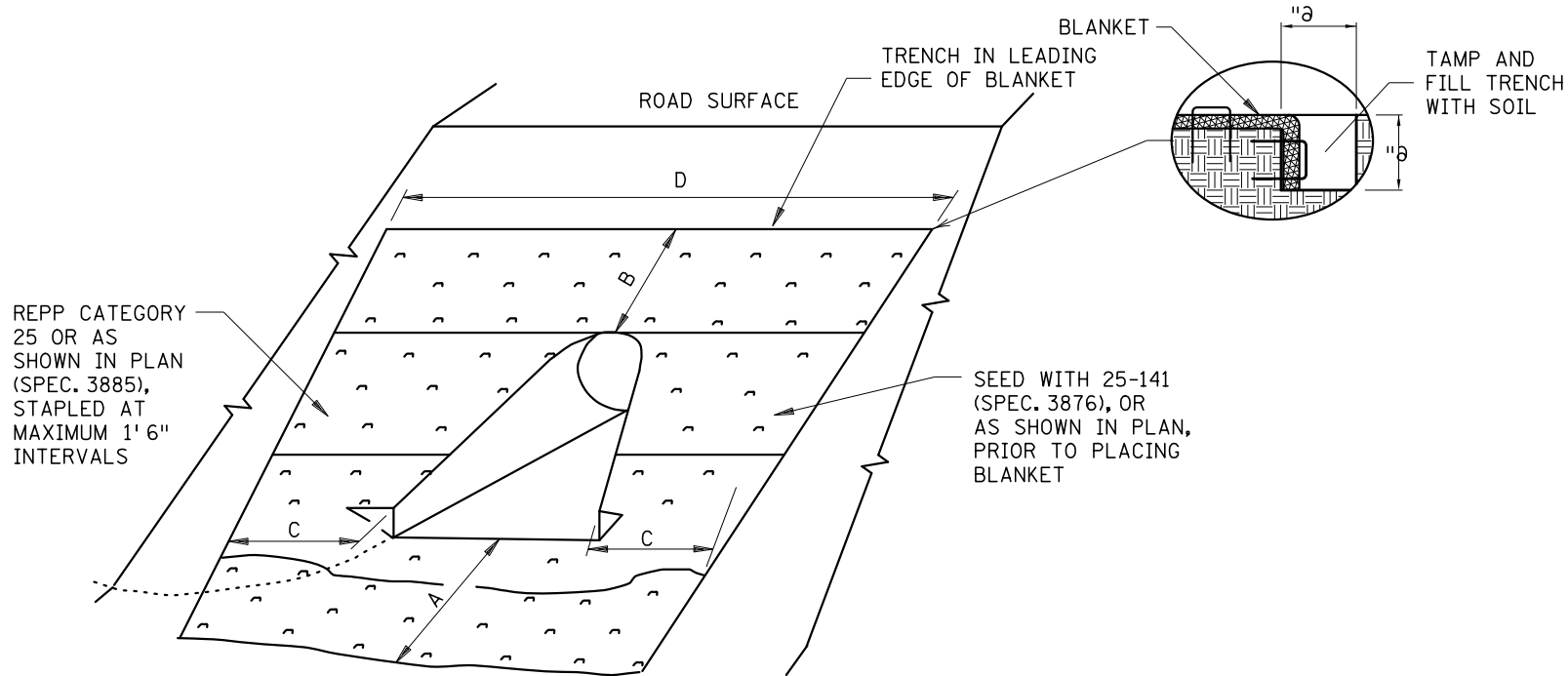
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 51  
TOTAL SHEETS 153

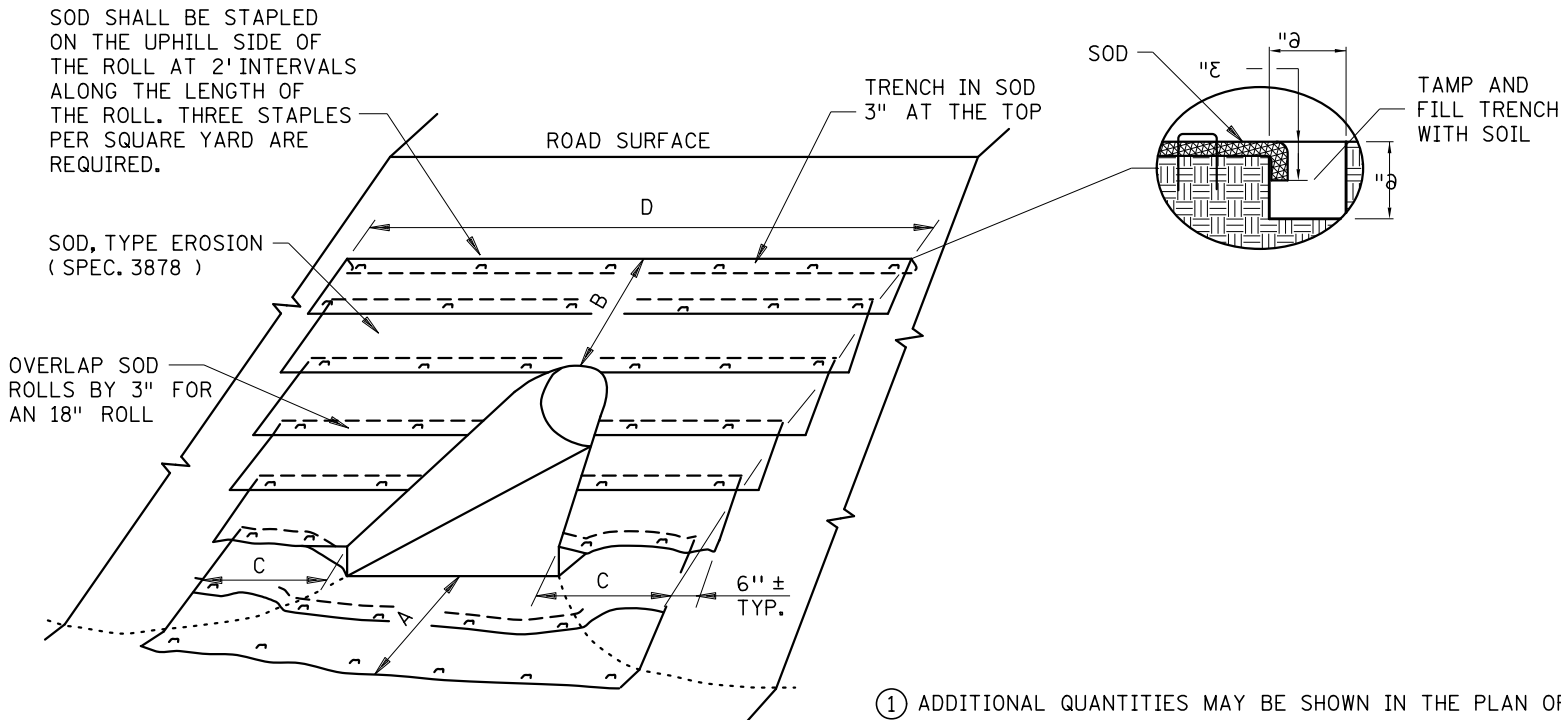


3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_sph404-2  
PATH & FILENAME:



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON ①									
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)			
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'
18"	13	12	12	14	16	N/A	3'	3'	3'
21"	14	14	14	16	18	14	3'	3'	3'
24"	16	15	16	19	21	17	3'	3'	3'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'
30"	23	22	25	30	32	N/A	3'	4.5'	3'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'

CULVERT OUTLET APRON ①									
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)			
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'
18"	13	13	12	14	15	N/A	6'	1.5'	3'
21"	16	14	16	18	19	15	6'	1.5'	3'
24"	18	18	18	21	22	18	7.5'	1.5'	3'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'
30"	23	23	24	28	29	N/A	9'	1.5'	3'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

LEAD  
EXPERT  
OFFICE

MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER  
OFFICE OF  
ENVIRONMENTAL STEWARDSHIP

PERMANENT EROSION CONTROL  
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

APPROVED: 01-08-2020  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.404

2 OF 3



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 52

(T.H. 94)

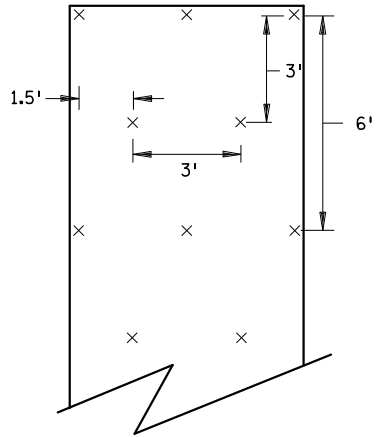
TOTAL SHEETS 153

3-OCT-2024

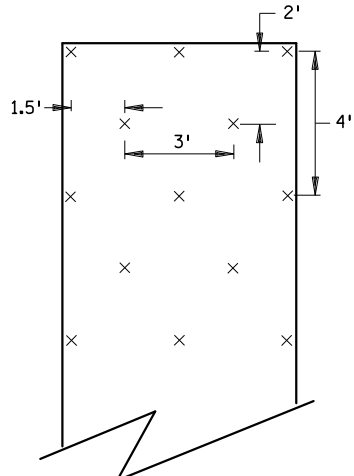
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_spr404-3

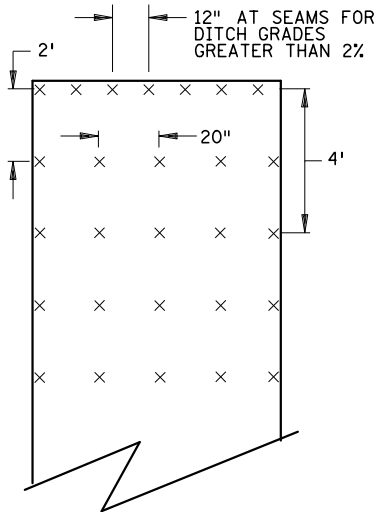
PATH & FILENAME:



SLOPES FLATTER THAN 1:2  
120 STAPLES PER 100 SQ YD

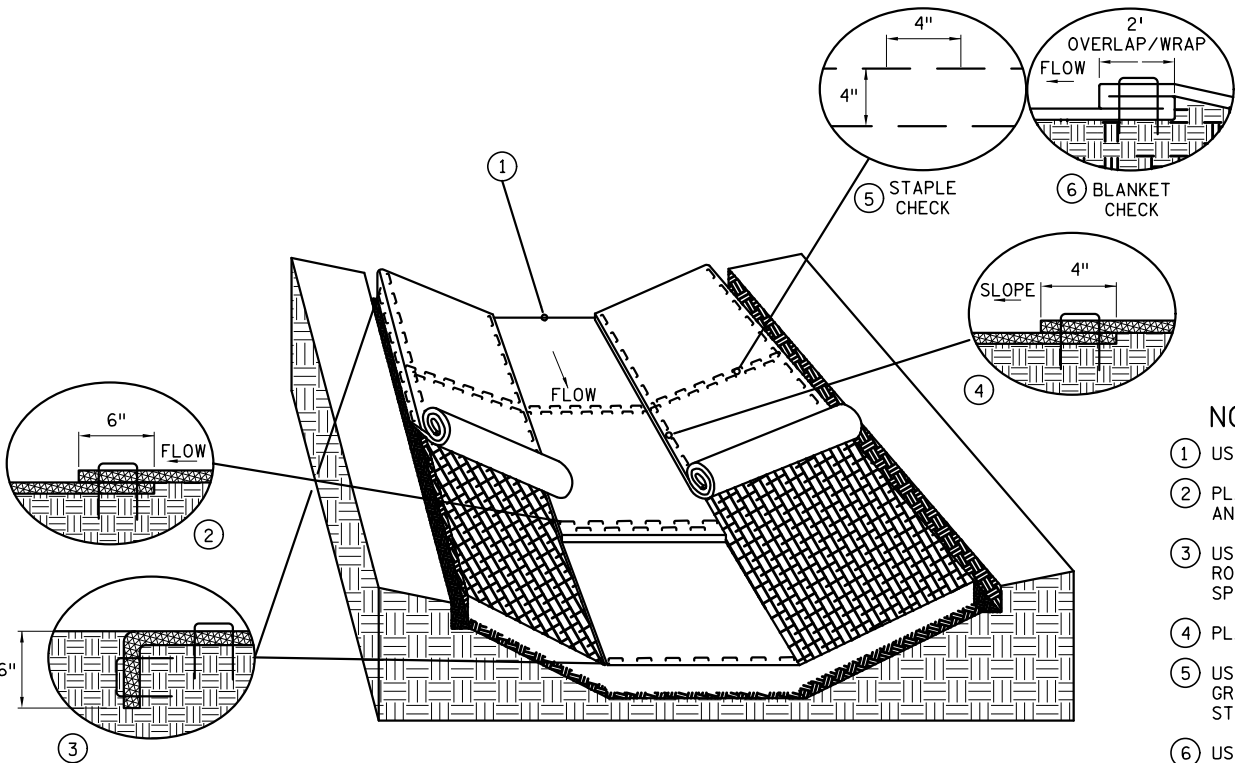


SLOPES 1:2 TO 1:1  
170 STAPLES PER 100 SQ YD

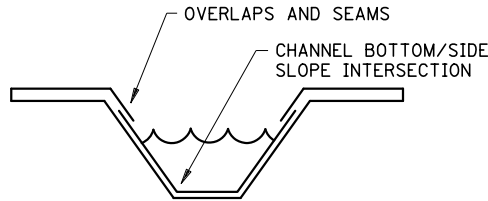


CHANNEL AND DITCH APPLICATIONS  
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



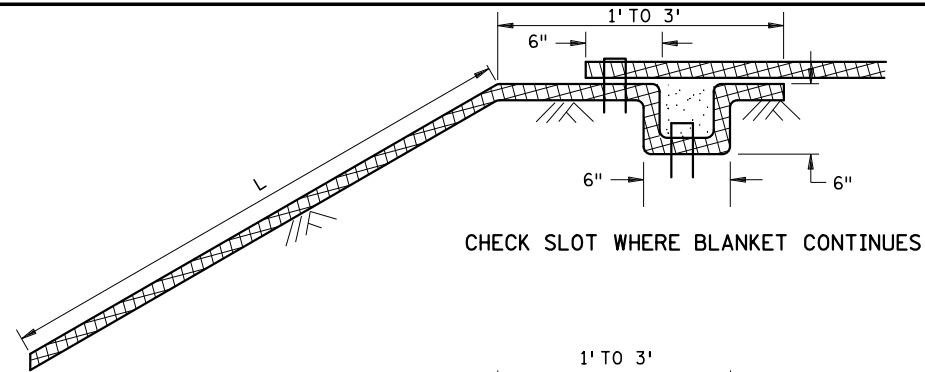
DITCH BLANKET STAPLE DETAIL



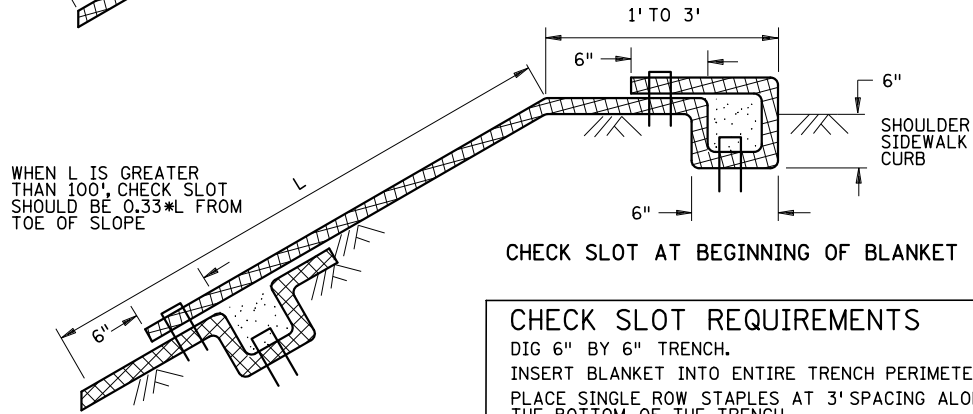
DITCH BLANKET CRITICAL POINTS ⑦

NOTES:

- ① USE CHECK SLOT DETAIL (NO ALTERNATES).
- ② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- ③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
- ④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
- ⑤ USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
- ⑥ USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:  
2.5%-3% 100' INTERVALS  
3%-5% 50' INTERVALS  
5%-7% 25' INTERVALS
- ⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



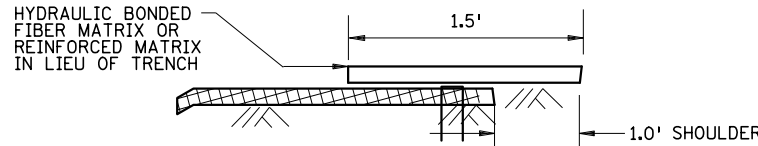
CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

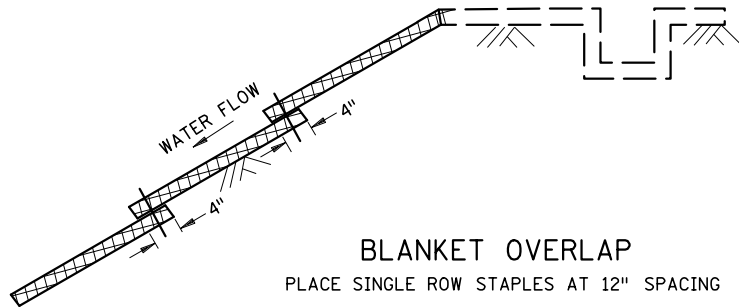
CHECK SLOT REQUIREMENTS

DIG 6" BY 6" TRENCH.  
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.  
BACKFILL TRENCH WITH SOIL AND TAMP.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT ALTERNATIVE  
PLACE SINGLE ROW STAPLES AT 12" SPACING

CHECK SLOT DETAILS



BLANKET OVERLAP  
PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.  
PREPARE SOIL AS PER SPECIFICATION 2574.  
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.  
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".  
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.  
THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/2 FROM THE BOTTOM OF THE SLOPE.

LEAD  
EXPERT  
OFFICE

MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER  
OFFICE OF  
ENVIRONMENTAL STEWARDSHIP

PERMANENT EROSION CONTROL  
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

APPROVED: 01-08-2020  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.404

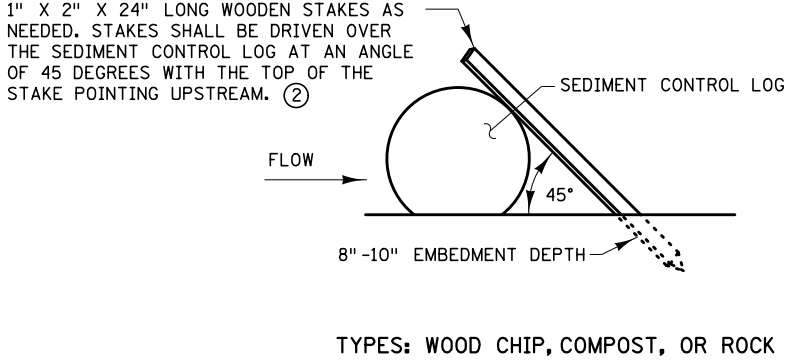
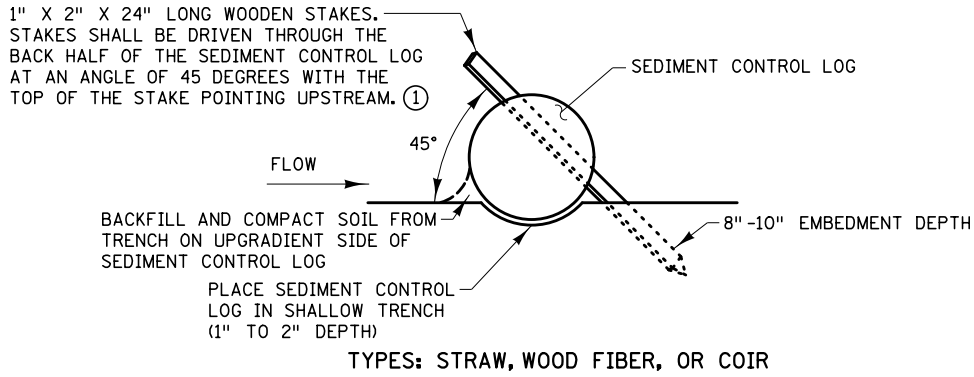
3 OF 3



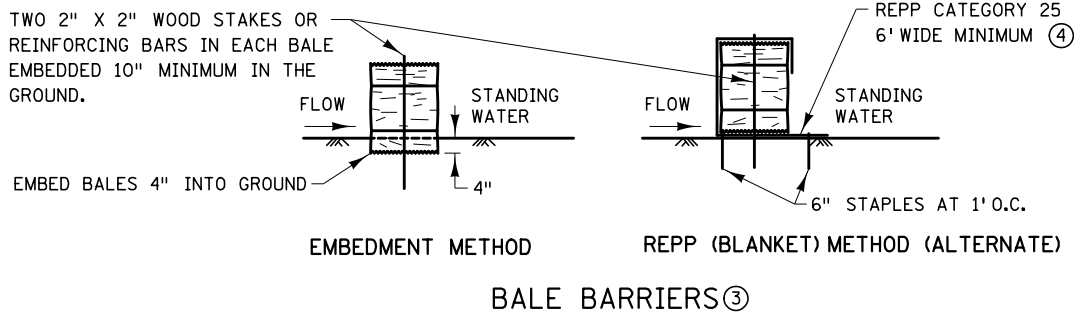
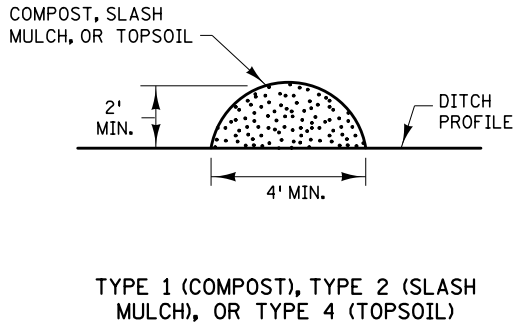
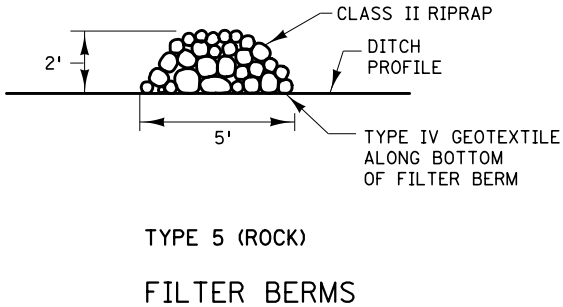
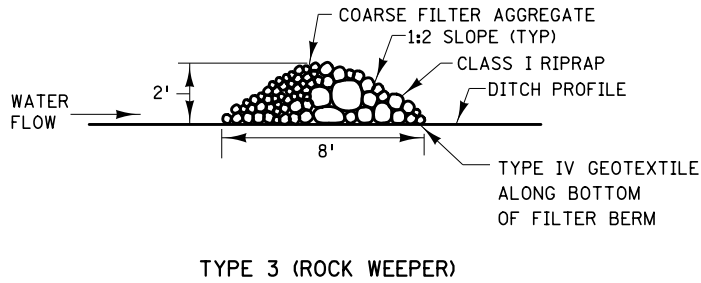
STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 53  
TOTAL SHEETS 153



SEDIMENT CONTROL LOGS



NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- ④ INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

LEAD  
EXPERT  
OFFICE

MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER  
OFFICE OF  
ENVIRONMENTAL STEWARDSHIP

TEMPORARY SEDIMENT CONTROL  
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

APPROVED: 01-08-2020  
REVISED:

*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.405

2 OF 8



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 54  
TOTAL SHEETS 153

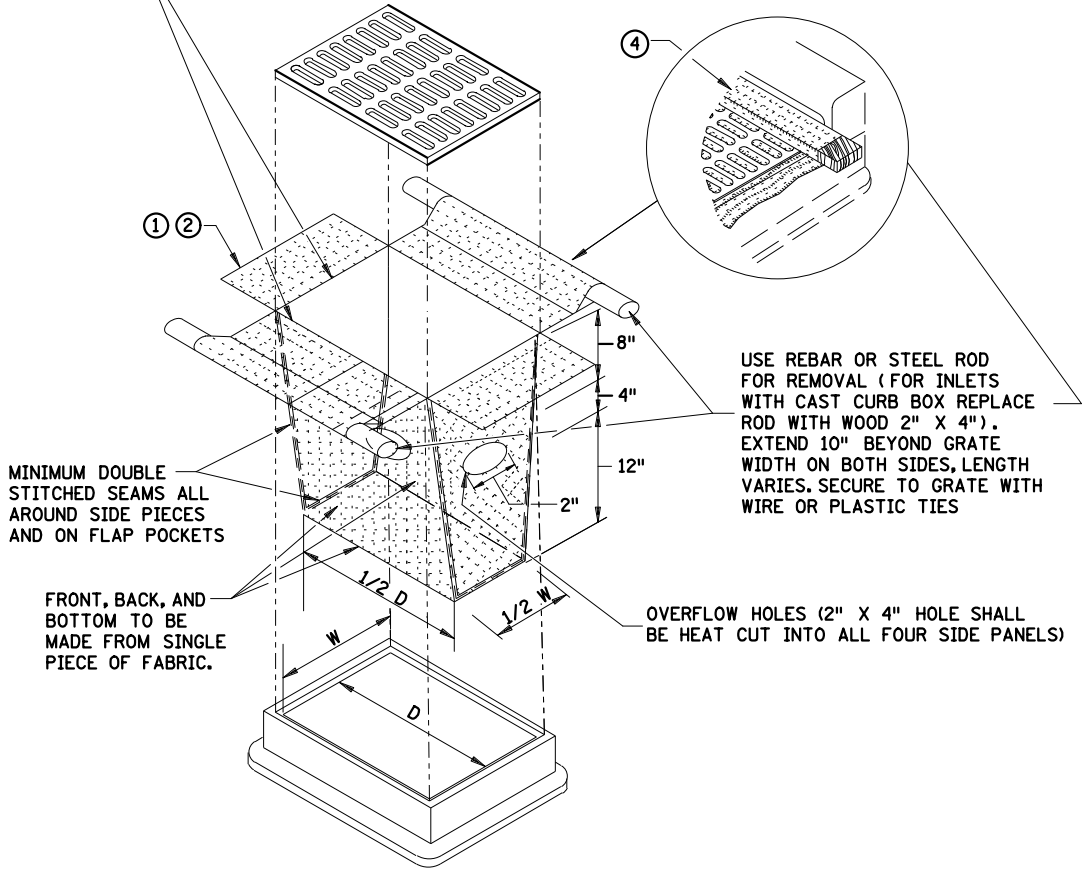


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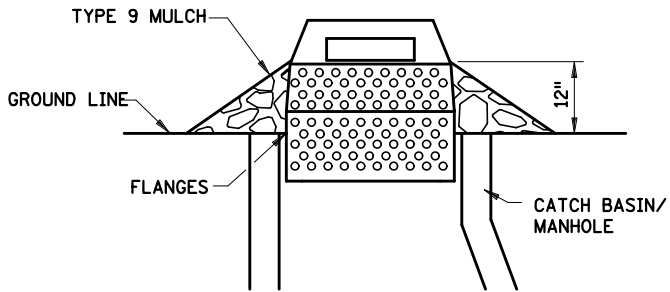
DISTRICT #  
PLOT NAME: 4D5680147\_spr405-4  
PATH & FILENAME:

INLET SPECIFICATIONS AS PER THE PLAN  
DIMENSION LENGTH AND WIDTH TO MATCH  
FLAP POCKET



### FILTER BAG INSERT ③

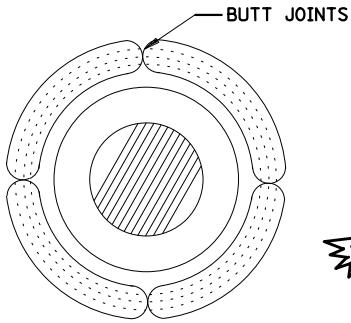
(CAN BE INSTALLED IN ANY INLET TYPE  
WITH OR WITHOUT A CURB BOX)



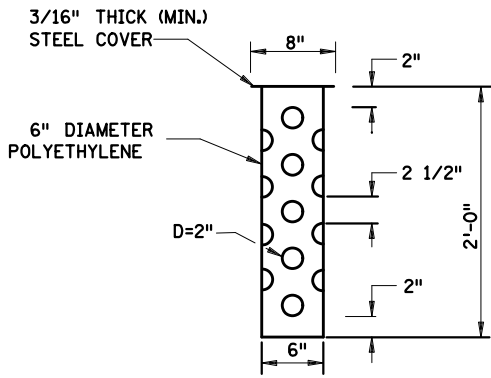
### SEDIMENT CONTROL INLET HAT

NOTE:  
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL  
OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE  
THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW  
FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING,  
FLANGES AND A LID/COVER.

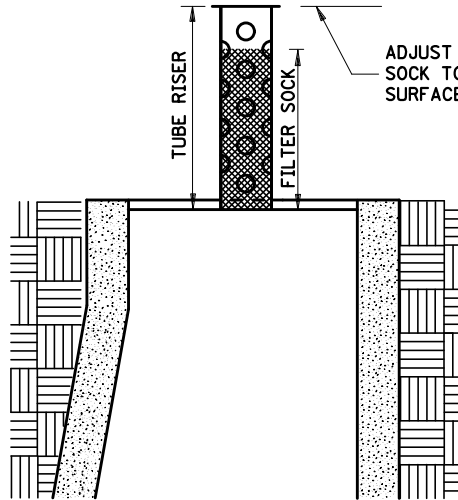
ENDS SECURELY CLOSED TO  
PREVENT LOSS OF OPEN GRADED  
AGGREGATE FILL. SECURED WITH  
50 PSI. ZIP TIE.



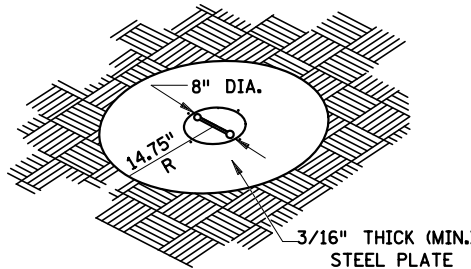
### ROCK LOG/COMPOST LOG



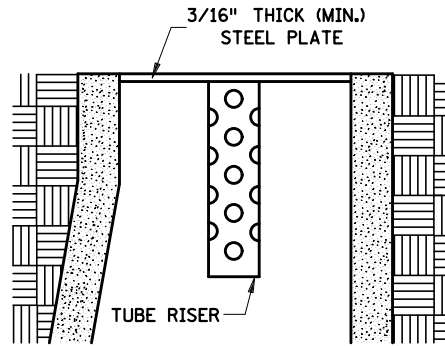
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### SECTION (UP POSITION)



### PERSPECTIVE VIEW



### SECTION (DOWN POSITION)

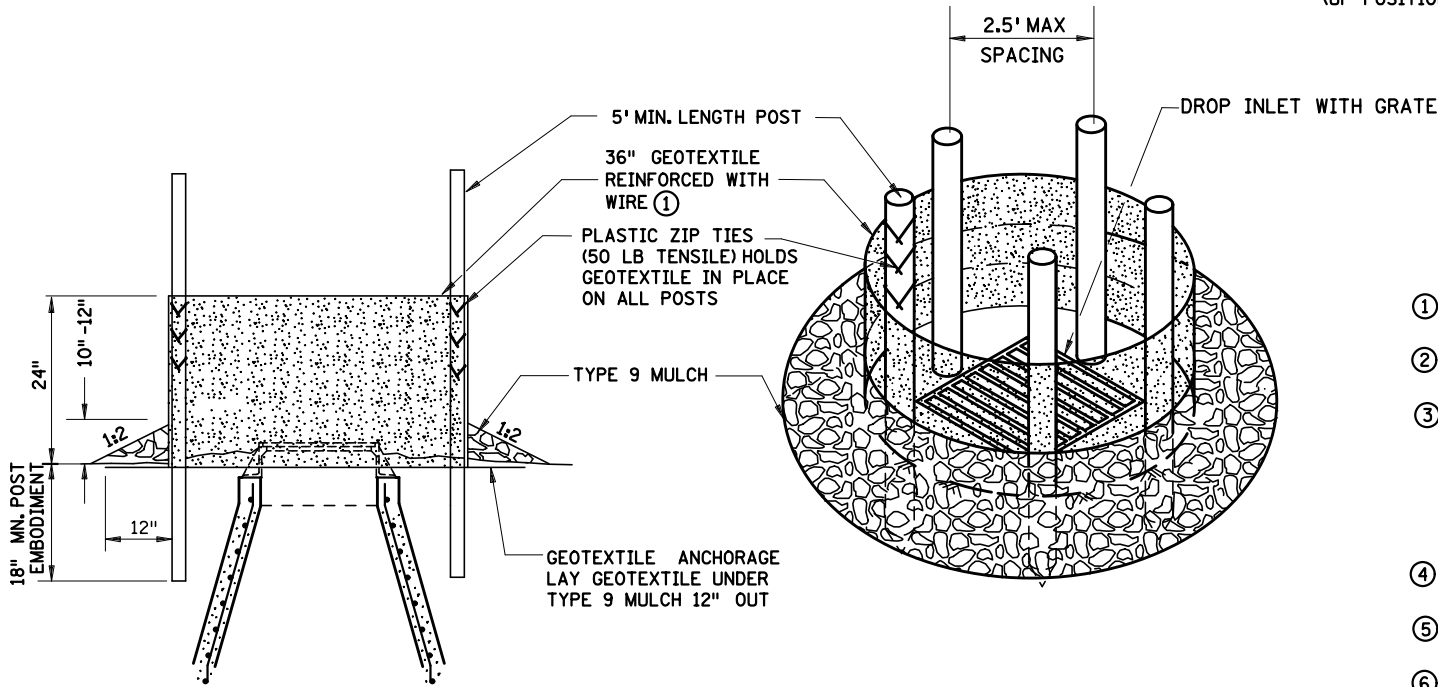
### POP-UP HEAD

#### NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY  
THAT WOULD IMPEED TRAFFIC FLOW.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:  
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.



### SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

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TEMPORARY SEDIMENT CONTROL  
STORM DRAIN INLET PROTECTION

APPROVED: 02-28-2017  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.405

4 OF 8

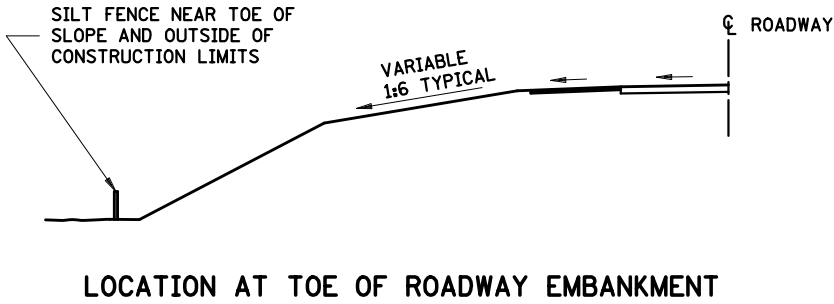
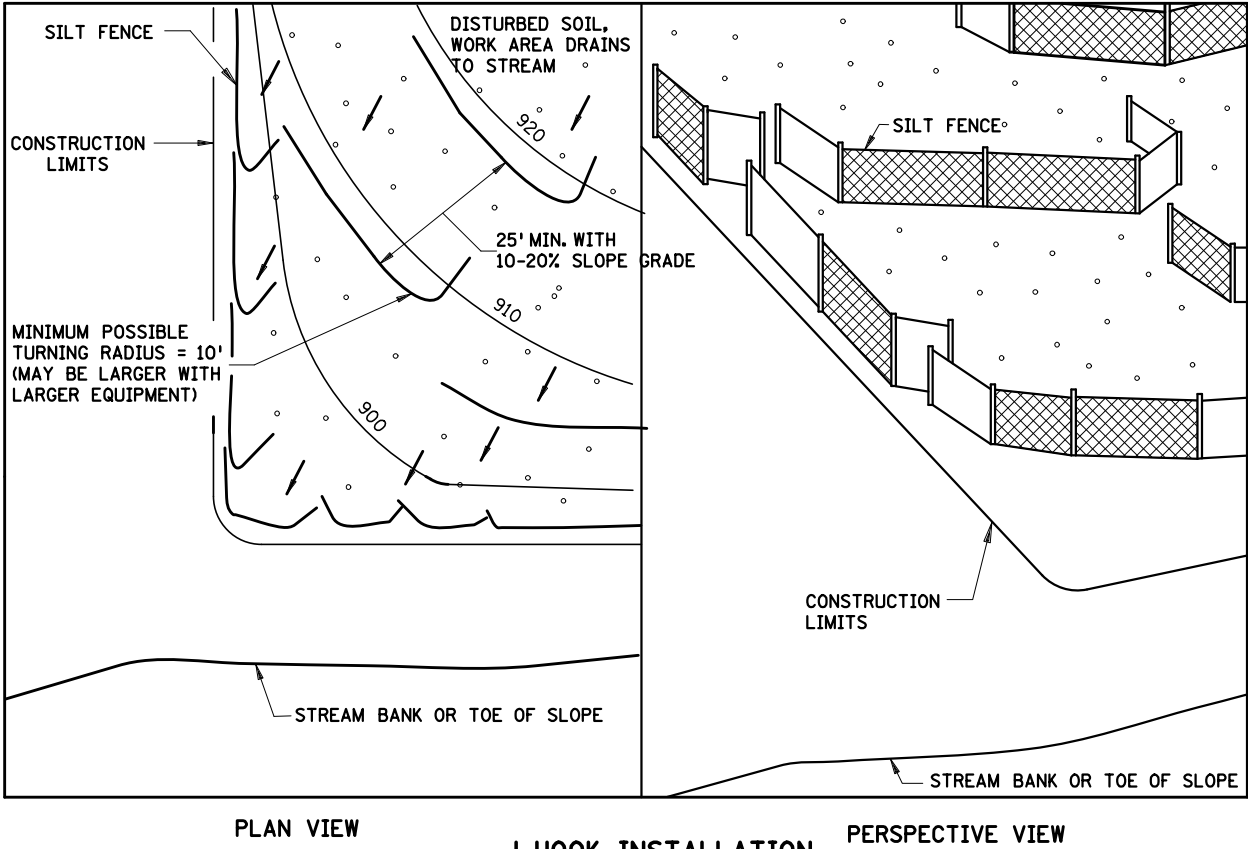
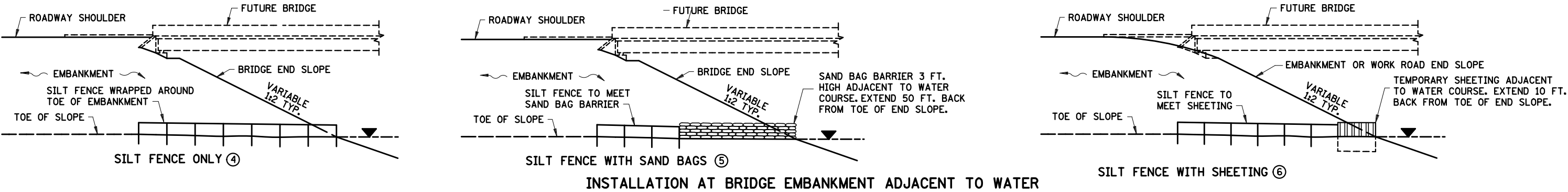
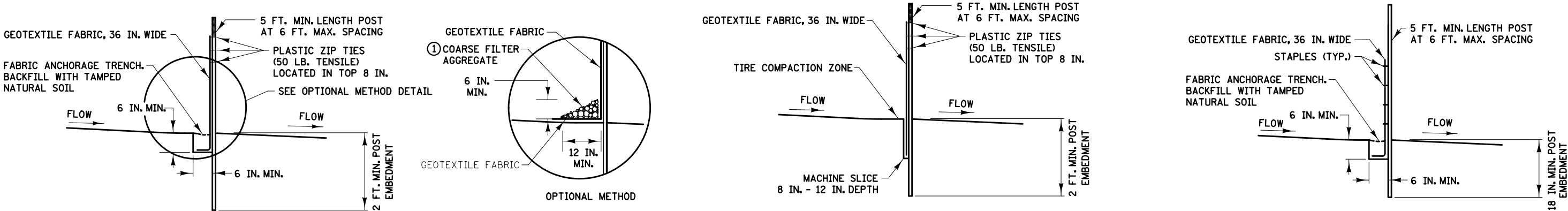


STANDARD PLANS



STATE PROJ. NO. 5680-147  
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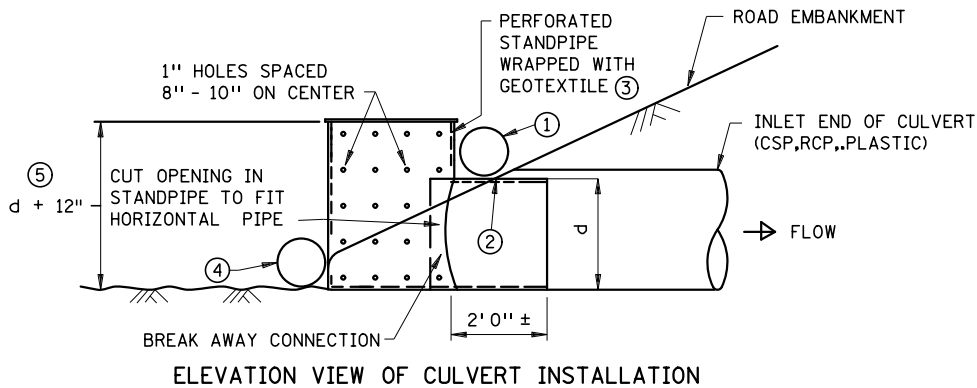
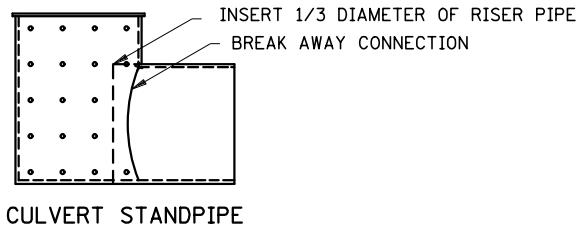
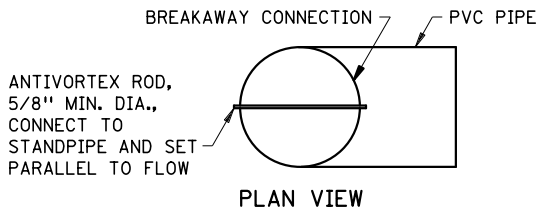
DISTRICT # 3-OCT-2024  
PLOT NAME: 4D5680147\_spr405-6  
PATH & FILENAME:  
PLOTTED/REVISED:



- NOTES:**
- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

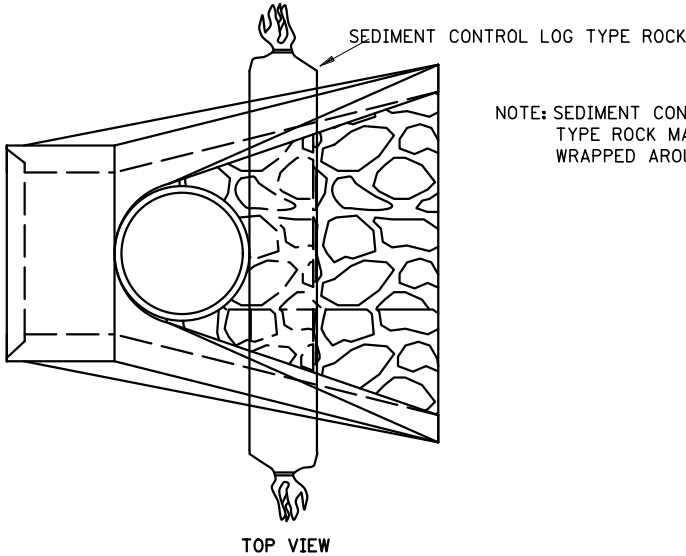
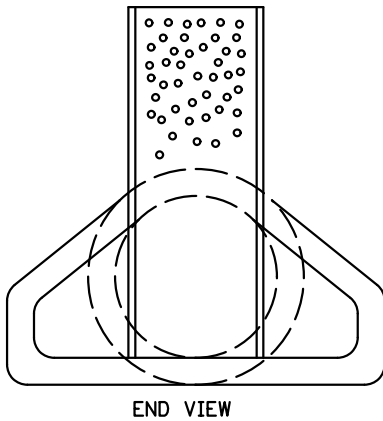
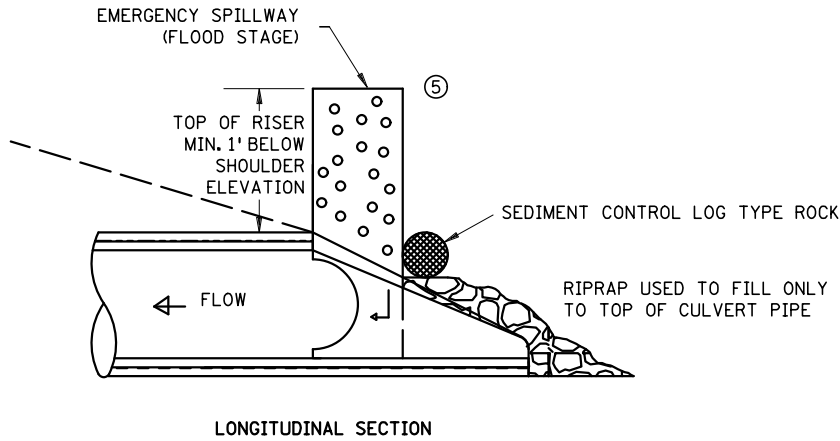
LEAD EXPERT OFFICE	LYNN CLARKOWSKI CHIEF ENVIRONMENTAL OFFICER OFFICE OF ENVIRONMENTAL STEWARDSHIP			TEMPORARY SEDIMENT CONTROL SILT FENCE	APPROVED: 02-28-2017 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.405	6 OF 8
 DEPARTMENT OF TRANSPORTATION				STANDARD PLANS		STATE PROJ. NO. 5680-147	SHEET NO. 56	
						(T.H. 94)	TOTAL SHEETS 153	

DISTRICT # 3-OCT-2024  
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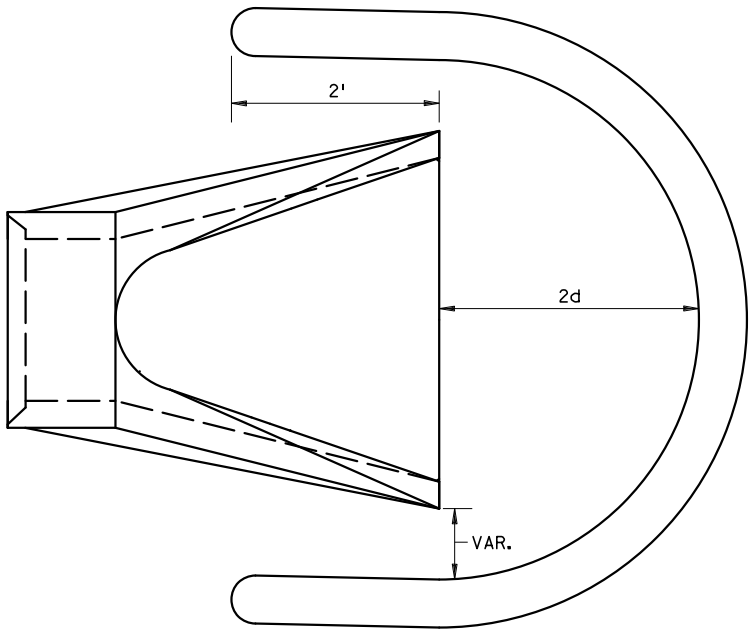


CULVERT STANDPIPE INSERT (D-RISER)

d = CULVERT SIZE: 12" - 36"

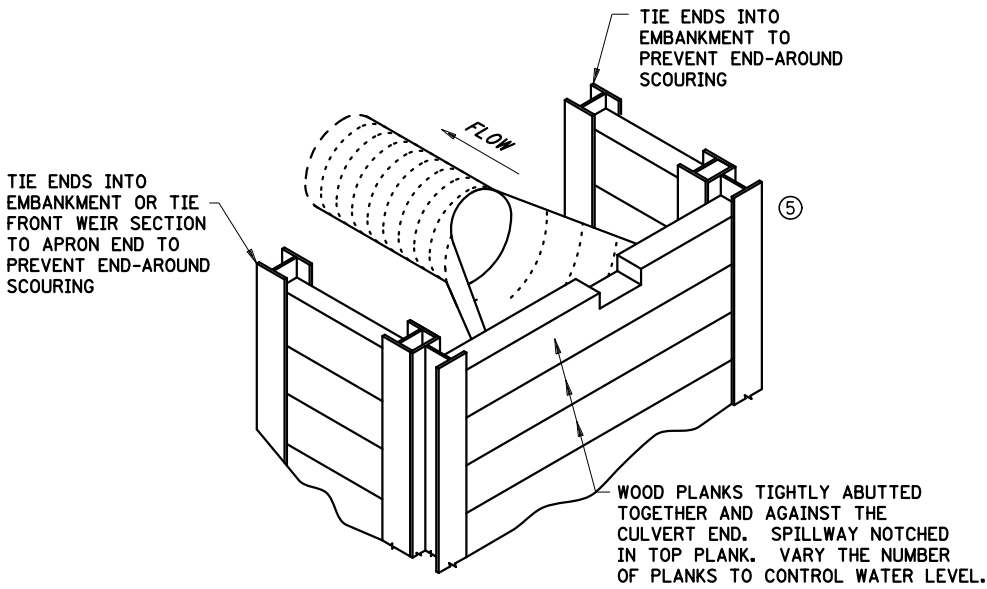


CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR  
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12"-36"



WOOD PLANK WEIR

- NOTES:
- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
- ② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
- ③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
- ④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
- ⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

LEAD EXPERT OFFICE

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TEMPORARY SEDIMENT CONTROL  
CULVERT END CONTROLS

APPROVED: 02-28-2017  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.405

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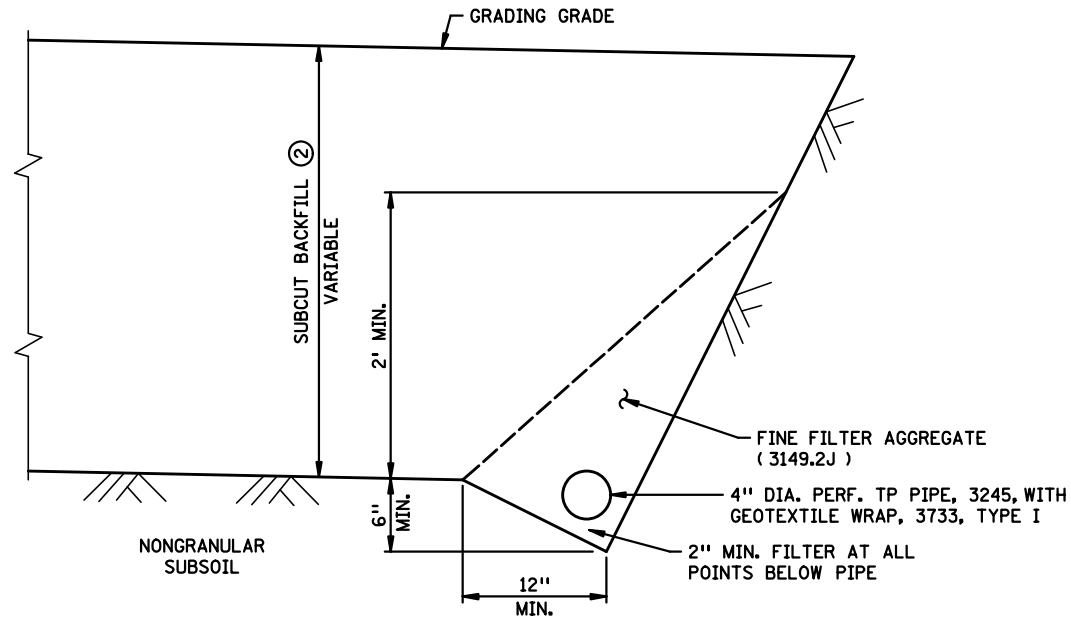


STANDARD PLANS

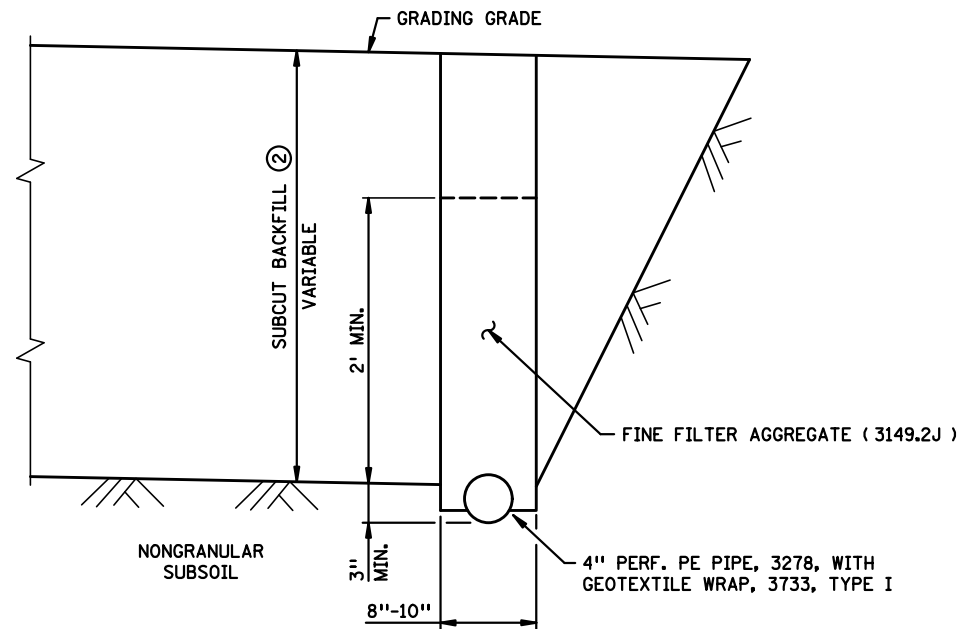
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(T.H. 94)

SHEET NO. 57  
TOTAL SHEETS 153

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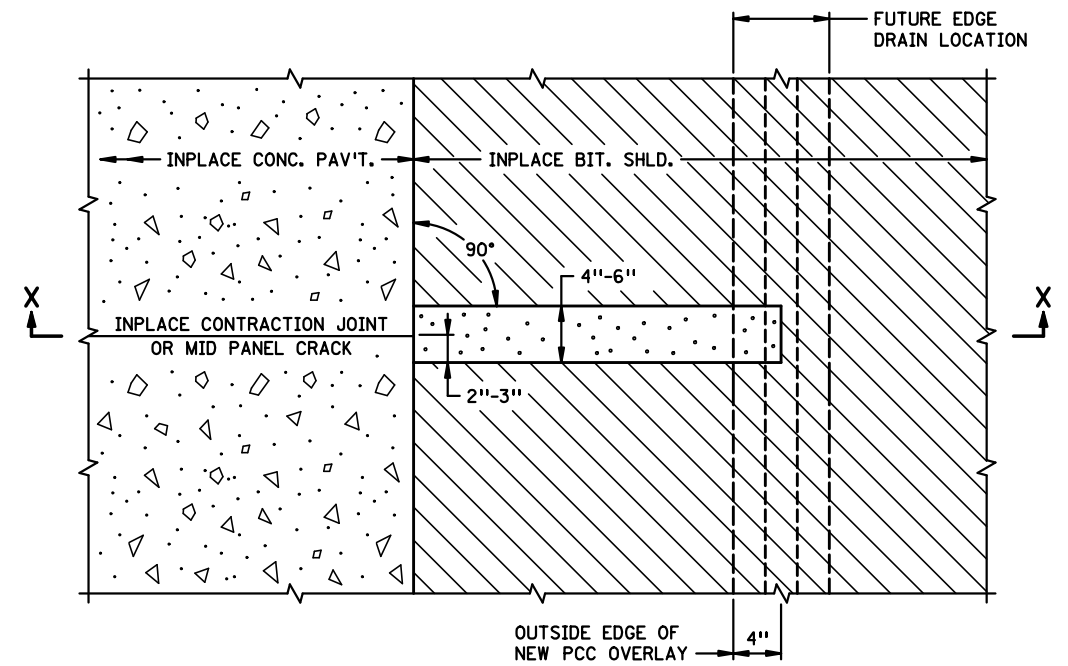
TYPICAL SECTION ( OPTION NO. 1 ) ①



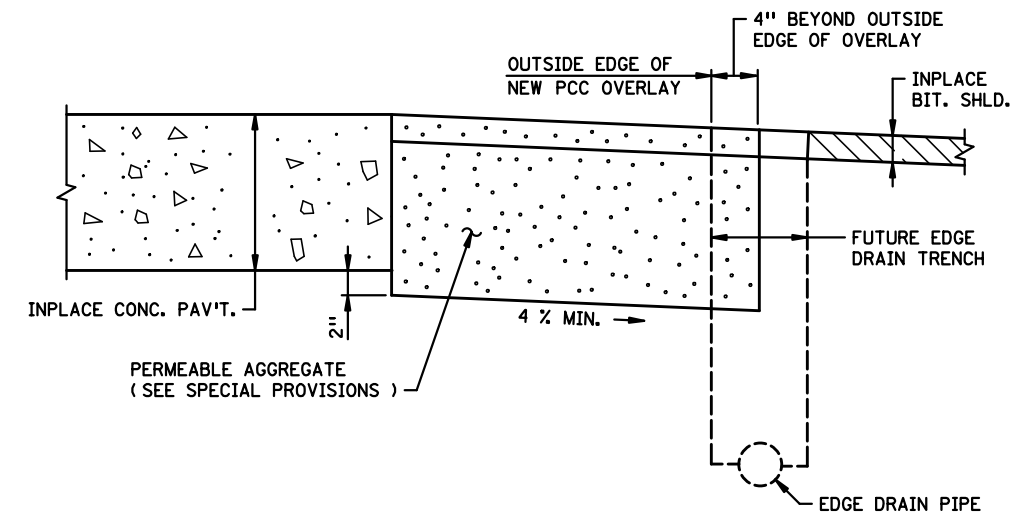
TYPICAL SECTION ( OPTION NO. 2 ) ①

SUBSURFACE DRAIN, SUBCUT DRAIN TYPE

- NOTES:
- ① MAY NEED TO BE MODIFIED FOR SPECIFIC PROJECTS. SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. OPTION NO. 2 MAY ONLY BE USED WHEN PIPE IS TO BE PLACED BY MACHINE TRENCHER.
  - ② GRANULAR, SELECT GRANULAR OR SELECT GRANULAR MODIFIED. ( AS SHOWN IN DESIGN RECOMMENDATION LETTER ).



PLAN VIEW



SECTION X-X

INTERCEPTOR DRAIN DETAIL ①

- NOTE:
- ① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

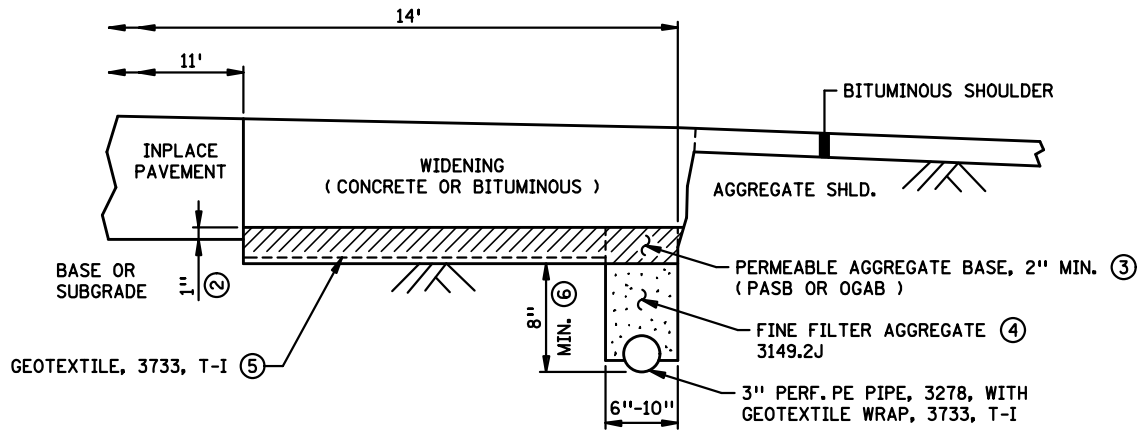
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				STANDARD PLANS	STATE PROJ. NO. 5680-147 (T.H. 94)	SHEET NO. 58 TOTAL SHEETS 153	



3-OCT-2024

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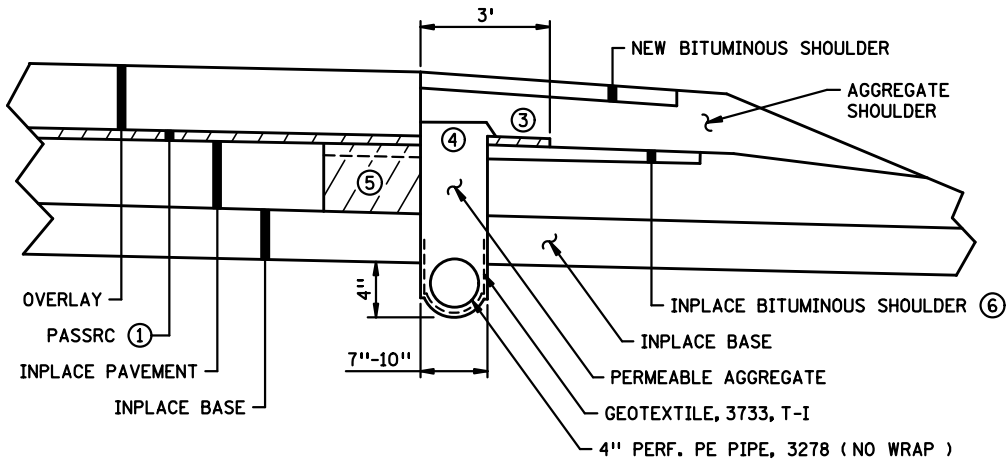
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PLOT NAME: 4D5680147\_spn432-1  
PATH & FILENAME:



### SUBSURFACE DRAIN, WIDENED PAVEMENT DESIGN WITH PAVEMENT EDGE DRAIN ①

#### NOTES:

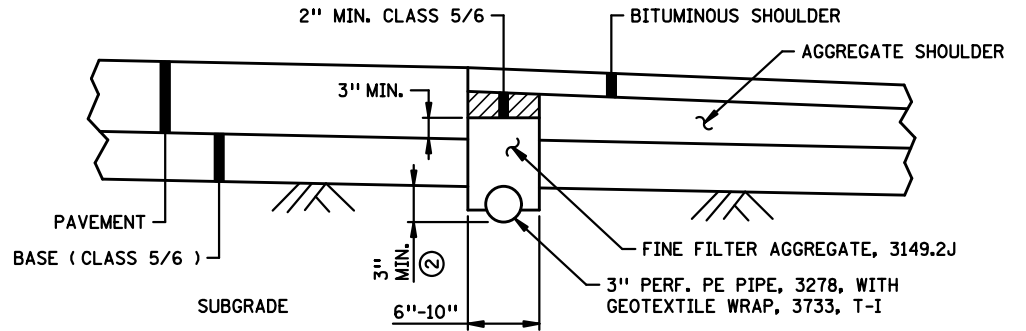
- ① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
- ② PERMEABLE BASE SHOULD OVERLAP PAVEMENT MAXIMUM AMOUNT PERMITTED BY STRUCTURAL DESIGN, BUT BOTTOM SHOULD NOT BE ABOVE THE BOTTOM OF INPLACE PAVEMENT.
- ③ AS REQUIRED BY DESIGN STANDARDS.  
PASB - PERMEABLE ASPHALT STABILIZED BASE.  
OGAB - OPEN GRADED AGGREGATE BASE.  
PAB - OPTION
- ④ DRAIN SHALL BE PAVEMENT EDGE DRAIN TYPE. AFTER COMPACTION, FINE FILTER AGGREGATE IN DRAIN SHALL EXTEND AT LEAST 4" ABOVE THE BOTTOM OF THE FUTURE PERMEABLE AGGREGATE BASE.
- ⑤ GEOTEXTILE MAY BE DELETED IF CLASS 5 OR 6 BASE EXISTS INPLACE UNDER PERMEABLE BASE.
- ⑥ IF CLASS 5 OR 6 BASE IS INPLACE BELOW THE PAB, BOTTOM OF PIPE SHOULD BE A MINIMUM OF 3" BELOW BASE/SUBGRADE INTERFACE OR A MINIMUM OF 8", WHICHEVER IS DEEPER.



### SUBSURFACE DRAIN, PERMEABLE BASE & DRAIN USED WITH PASSRC ①②

#### NOTES:

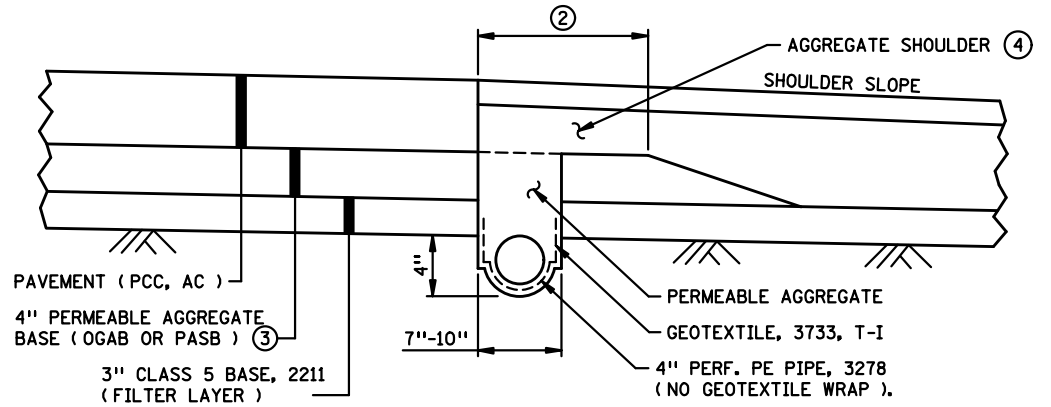
- ① PASSRC - PERMEABLE ASPHALT STABILIZED STRESS RELIEF COURSE.
- ② SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
- ③ WIDTH AS NEEDED TO SUPPORT PAVER TRACK.
- ④ PERMEABLE AGGREGATE TO BE HEAPED 2" ABOVE TOP OF PASSRC AFTER COMPACTION.
- ⑤ INTERCEPTOR DRAINS TYPICALLY USED AT THIS LOCATION. SEE DETAIL & SPECIAL PROVISIONS IF APPLICABLE.
- ⑥ IF THE BITUMINOUS SHOULDER REMAINS INPLACE, THE PASSRC AND SHOULDER CAN BE REMOVED BY MILLING, TRENCHING, OR OTHER METHOD, PROVIDED THE REMAINING BITUMINOUS SHOULDER IS NOT DISTURBED/DISPLACED.



### SUBSURFACE DRAIN, PAVEMENT EDGE DRAIN TYPE ①

#### NOTES:

- ① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
- ② DESIGN FOR 15" COVER FROM TOP OF PIPE TO TOP OF SHOULDER (12" MINIMUM).



### SUBSURFACE DRAIN, PERMEABLE AGGREGATE BASE TYPE ① (RIGHT SIDE OF ROADWAY SHOWN)

#### NOTES:

- ① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. TYPICAL SECTION SHOWN IS FOR PERMEABLE ASPHALT STABILIZED BASE (PASB). DRAIN TRENCH FOR OPEN GRADED AGGREGATE BASE (OGAB) IS MOVED 6" AWAY FROM THE PAVEMENT EDGE.
- ② USE 36" FOR EITHER PASB OR OGAB UNDER PCC PAVEMENT. USE 12" FOR PASB UNDER AC PAVEMENT.
- ③ OGAB - OPEN GRADED AGGREGATE BASE.  
PASB - PERMEABLE ASPHALT STABILIZED BASE.  
USE PASB WITH AC PAVEMENTS.  
USE PASB OR OGAB WITH PCC PAVEMENTS.
- ④ CLASS 3, 5 OR 6, AS SPECIFIED

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SUBSURFACE DRAINS

APPROVED: 08-06-2014  
REVISED:

*Christopher Roy*  
CHRISTOPHER ROY  
STATE DESIGN ENGINEER

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1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 59

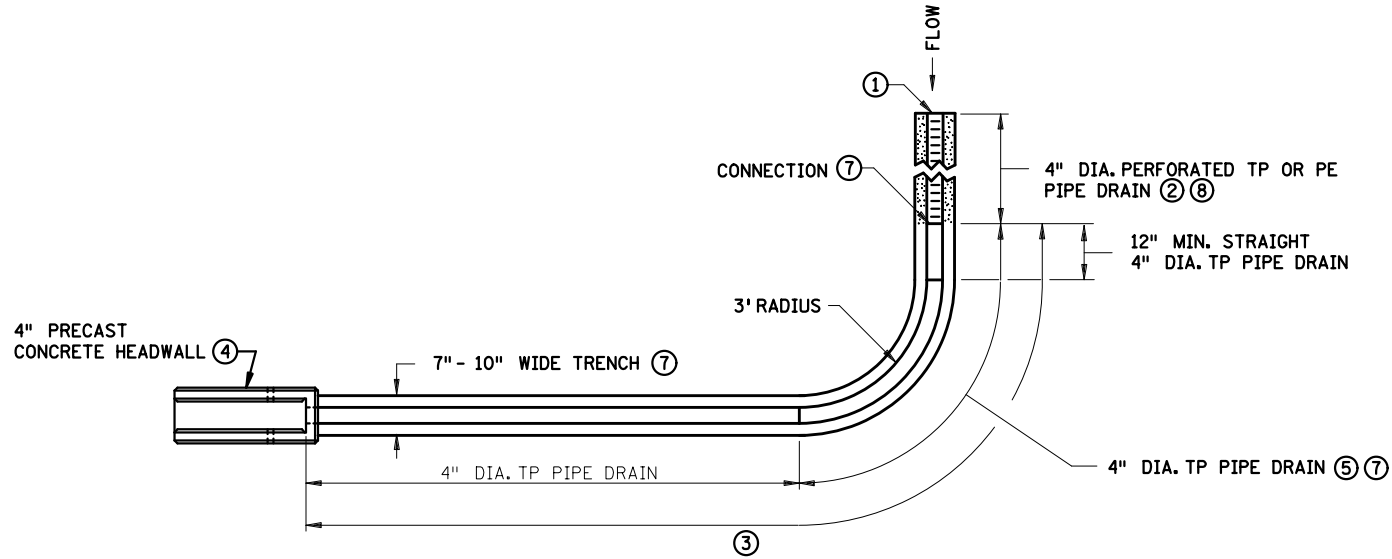
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TOTAL SHEETS 153

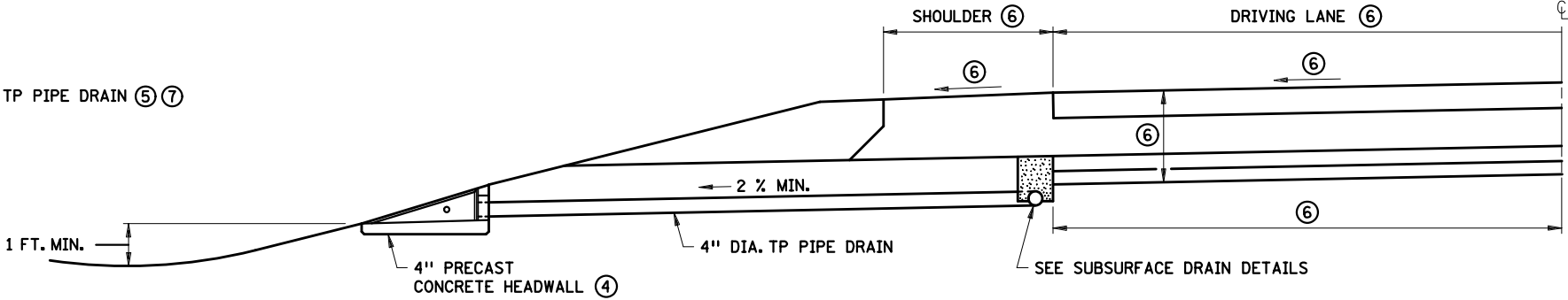
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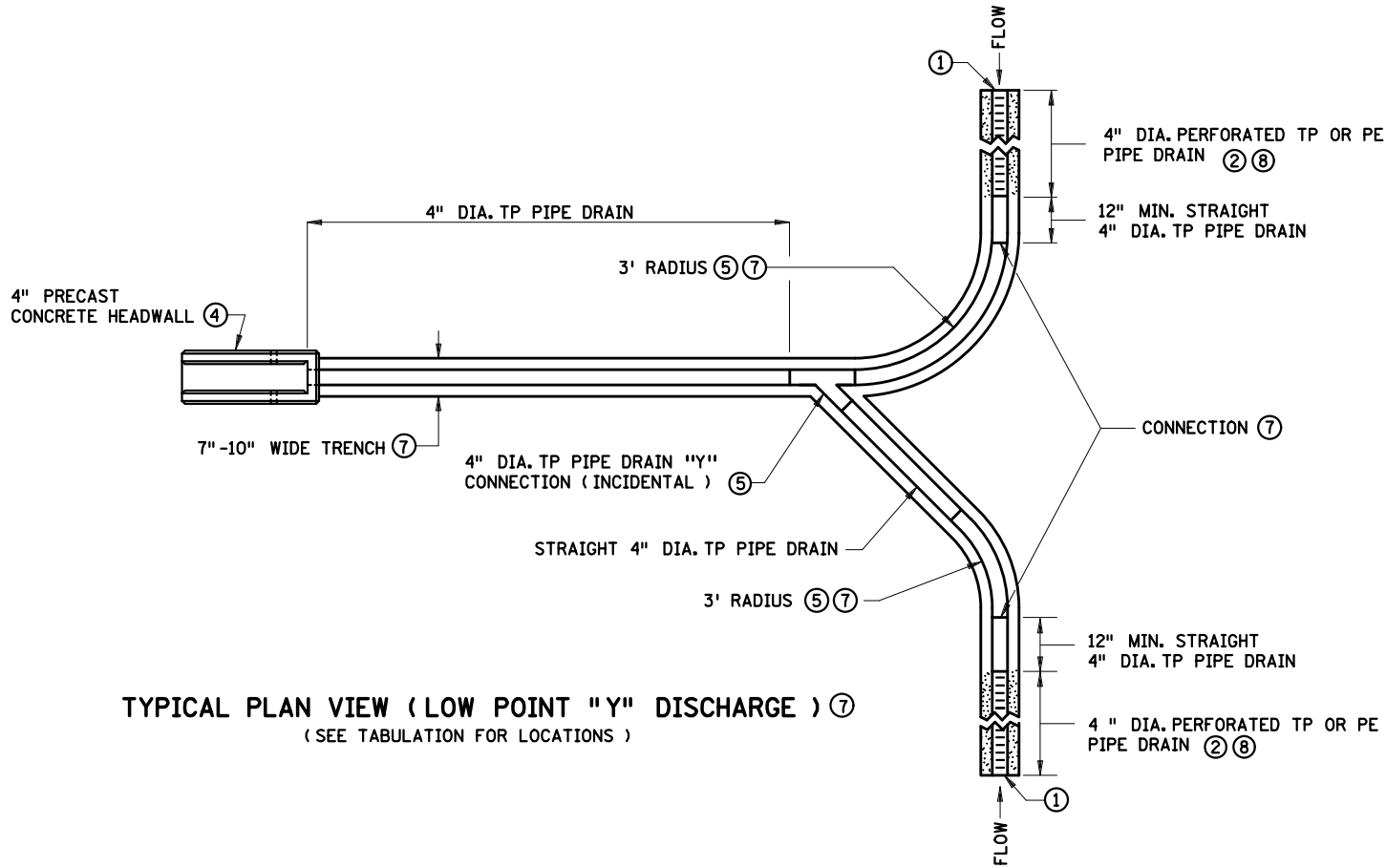
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PLOT NAME: 4D5680147\_sph433-1  
PATH & FILENAME:



**TYPICAL PLAN VIEW ( SINGLE DISCHARGE ) ⑦**  
( SEE TABULATION FOR LOCATIONS )



**TYPICAL EDGE DRAIN AND DISCHARGE CROSS SECTION ⑦**  
( SEE TABULATION FOR LOCATIONS )



**TYPICAL PLAN VIEW ( LOW POINT "Y" DISCHARGE ) ⑦**  
( SEE TABULATION FOR LOCATIONS )

- NOTES:**
- ① THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, THE CAPS ARE INCIDENTAL. PLACE PERFORATED PIPE WITH THE PERFORATIONS DOWN.
  - ② MAXIMUM LENGTH 500 FT., EXCEPT 300 FT. MAXIMUM FOR GRADES LESS THAN 0.2% . LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH PERFORATED TP OR PE PIPE DRAIN.
  - ③ LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH DIA. TP PIPE DRAIN.
  - ④ PRECAST CONCRETE HEADWALL STANDARD PLATE 3131 PAID FOR AS SPEC. 2502, 4 INCH PRECAST CONCRETE HEADWALL.
  - ⑤ DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR "Y " AND EXTRA CONNECTION, 11 INCH TP PIPE AND COUPLING TO BE INCIDENTAL.
  - ⑥ SEE ROADWAY TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
  - ⑦ SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
  - ⑧ 3 INCH OR 4 INCH DIAMETER.

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SUBSURFACE DRAINS  
OUTLET PIPES FOR EDGE AND SUBCUT DRAINS

APPROVED: 08-06-2014  
REVISED:

*Christopher Roy*  
CHRISTOPHER ROY  
STATE DESIGN ENGINEER

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PLAN  
5-297.433

1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 60  
TOTAL SHEETS 153

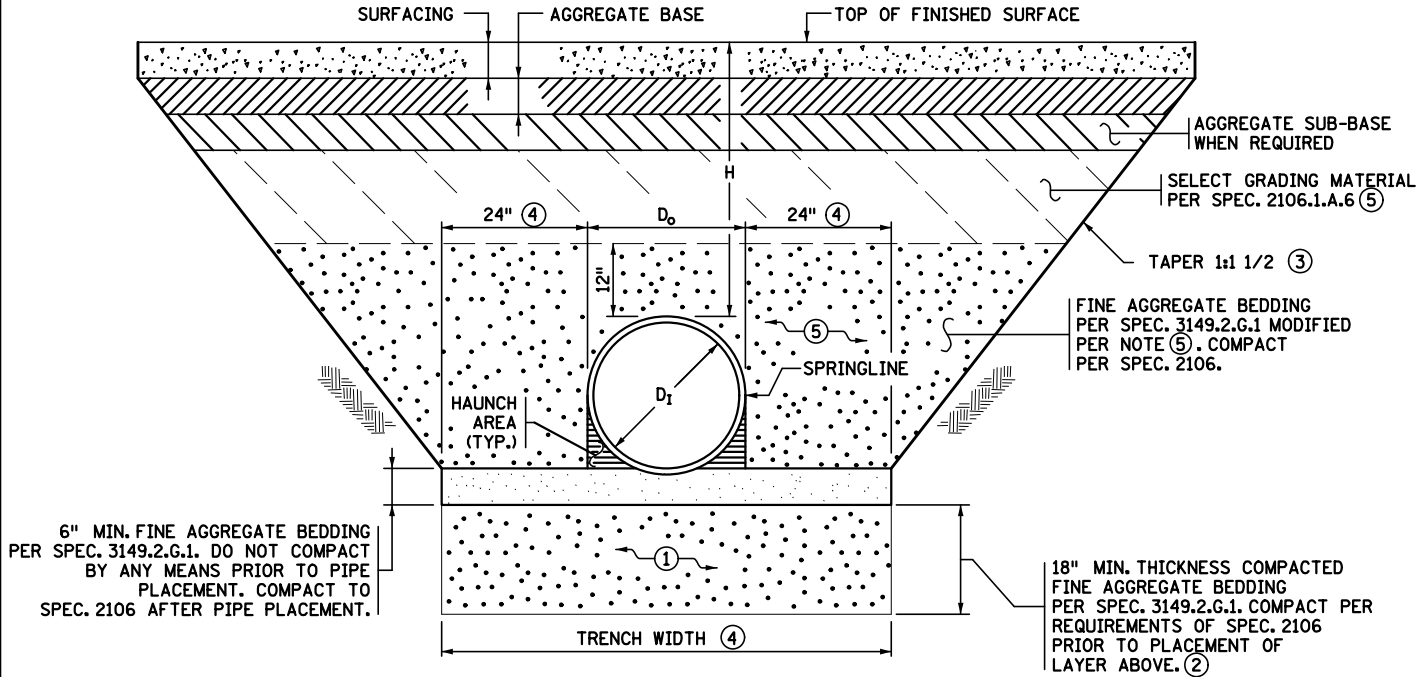
3-OCT-2024

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DISTRICT # 405680147\_spr440-1

PLOT NAME: 405680147\_spr440-1

PATH & FILENAME:



STANDARD FLEXIBLE PIPE CULVERT BEDDING

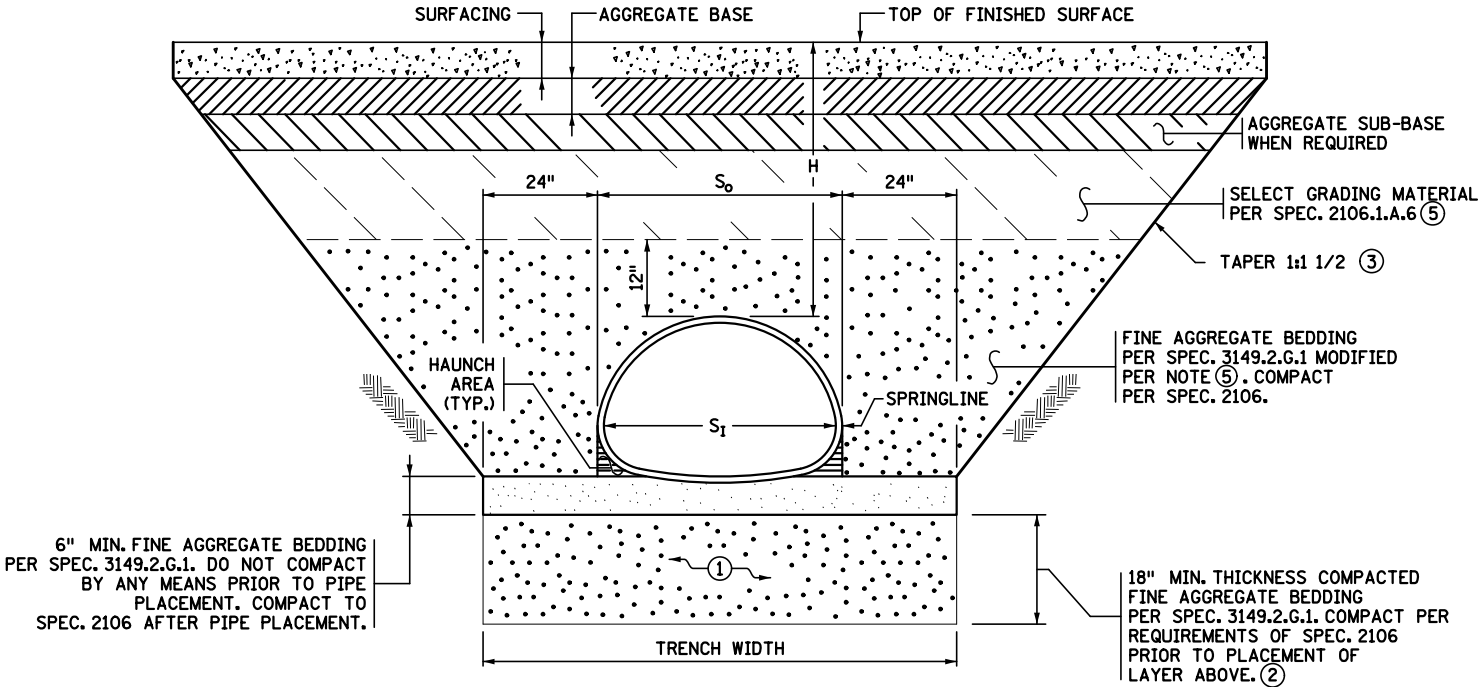
PLASTIC PIPE WITH H > 10 FT. (4)	
PIPE DIA.	TRENCH WIDTH (FEET)
12"	5'-2"
15"	5'-6"
18"	5'-9"
24"	6'-6"
30"	8'-0"
36"	9'-6"
42"	11'-0"
48"	12'-6"

CONSTRUCTION SEQUENCE

1. PLACE AND COMPACT 18" OF FINE AGGREGATE BEDDING TO THE REQUIREMENTS OF SPEC. 2106.
2. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL (SPEC. 3149.2.G.1) TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
3. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
4. FURNISH AND INSTALL PIPE TO GRADE.
5. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF A SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE HAUNCH UNDER THE PIPE), THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
6. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
7. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE TO 12" ABOVE TOP OF PIPE WHEN COMPACTED.
8. COMPLETE REMAINING BACKFILL.
9. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

-LEGEND-

- D<sub>1</sub> = INSIDE DIAMETER OF ROUND PIPE (INCHES).  
D<sub>0</sub> = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).  
S<sub>1</sub> = INSIDE SPAN OF PIPE-ARCH (INCHES).  
S<sub>0</sub> = OUTSIDE SPAN OF PIPE-ARCH (INCHES).  
H = FILL COVER HEIGHT OVER PIPE (FEET).
- = UNDISTURBED SOIL
- = COMPACTED BEDDING
- = LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT



STANDARD FLEXIBLE PIPE ARCH CULVERT BEDDING

NOTES

- STANDARD BEDDING FOR FLEXIBLE PIPE CULVERTS WITHOUT TREATMENTS.
- METAL ENTRANCE CULVERTS (FIELD AND DRIVEWAY CULVERTS) DO NOT NEED BEDDING UNLESS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.
- PLASTIC ENTRANCE CULVERTS REQUIRE BEDDING PER SPEC. 2501.3.C.4. BEDDING COSTS FOR PLASTIC ENTRANCE CULVERTS WILL BE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.
- FLEXIBLE PIPE INCLUDES METAL AND PLASTIC MATERIAL SUCH AS CORRUGATED POLYPROPYLENE (PP) AND CORRUGATED POLYETHYLENE (CP).
- UNLESS OTHERWISE NOTED IN THE PLAN, BEDDING QUANTITIES ARE COMPUTED FOR THE FULL LENGTH OF THE PIPE AND APRON, AND WILL NOT BE ADJUSTED FOR CHANGES TO MEET OSHA REQUIREMENTS.
- WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.
- CONTRACT PAY ITEM FOR FINE AGGREGATE BEDDING INCLUDES THE COST OF EXCAVATION, PLACEMENT AND COMPACTION.
- EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.
- EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
- ALL SLOPES SHOWN AS (V) : (H).
- PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.
- PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501.
- PLACE MULTIPLE PIPE CULVERTS WITH A CLEARANCE OF 24 INCHES OR GREATER BETWEEN STRINGS OF PIPE.
- ① IF APPROVED BY THE ENGINEER, IN WET CONDITIONS THE CONTRACTOR MAY SUBSTITUTE 18" OF COARSE FILTER AGGREGATE PER 3149.2.H COMPACTED TO THE QUALITY COMPACTION REQUIREMENTS OF SPEC. 2106. WRAP WITH GEOTEXTILE FABRIC TYPE IV PER SPEC. 3733. SEAM ALL FABRIC SIDES AND ENDS PER SPEC. TABLE 3733-1 INCLUDING FOOTNOTE (e) OR OVERLAP A MINIMUM OF 3 FT., ALL AT NO ADDITIONAL COST.
- ② FOR INSTALLATIONS ON INTACT BEDROCK, OMIT THIS LAYER.
- ③ OVER-EXCAVATION BENEATH TAPERS IS NOT PERMITTED UNLESS REQUIRED BY OSHA. (TYP.)
- ④ USE THERMOPLASTIC PIPE TABLE FOR TRENCH WIDTHS FOR THERMOPLASTIC PIPES WITH MORE THAN 10 FT. OF FILL OVER THE PIPE.
- ⑤ MAXIMUM EMBANKMENT PARTICLE SIZE WITHIN 2 FT. OF PIPE IS 3" FOR METAL PIPES AND 1" FOR THERMOPLASTIC PIPES.

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KEVIN WESTERN  
STATE BRIDGE ENGINEER

STANDARD CULVERT BEDDING FOR FLEXIBLE PIPE  
(WITHOUT TREATMENTS)

APPROVED: 01-18-2019  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.440

1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 61

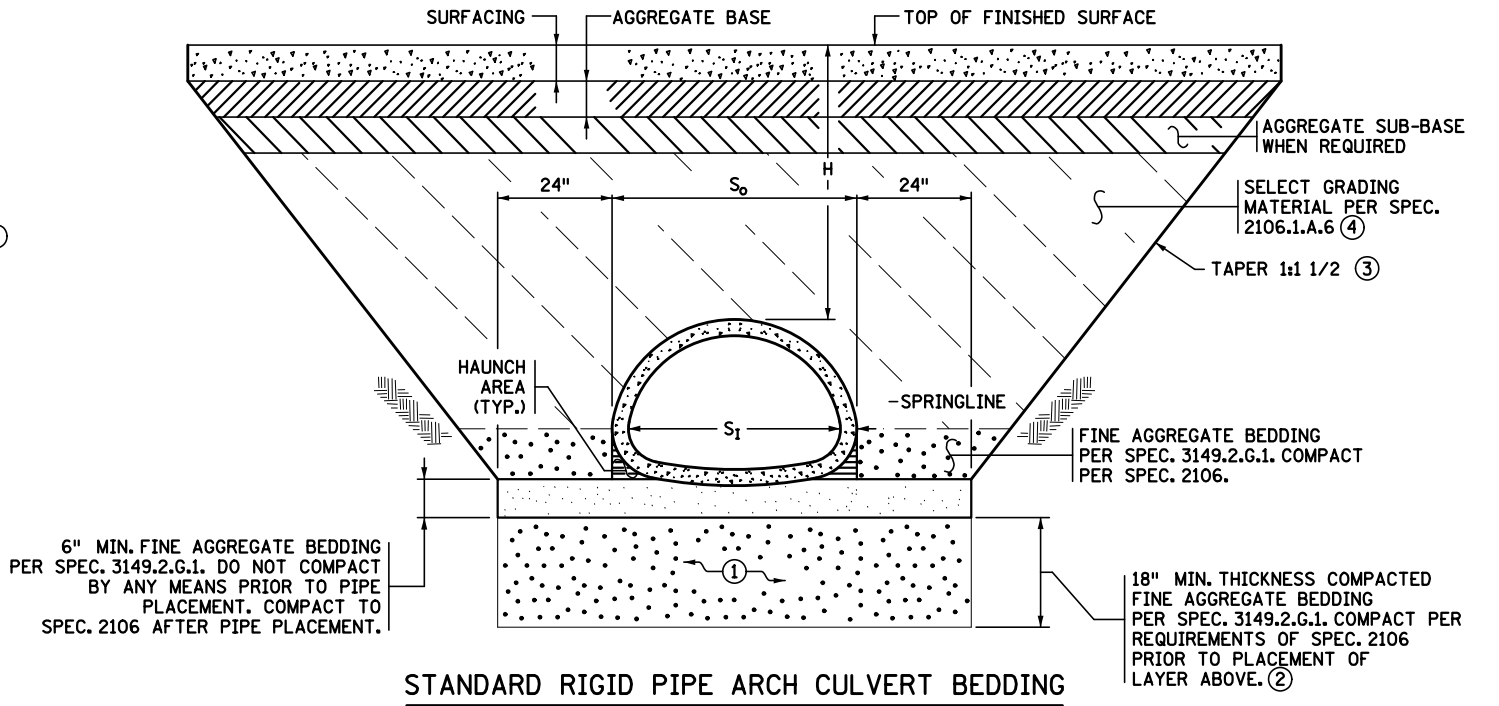
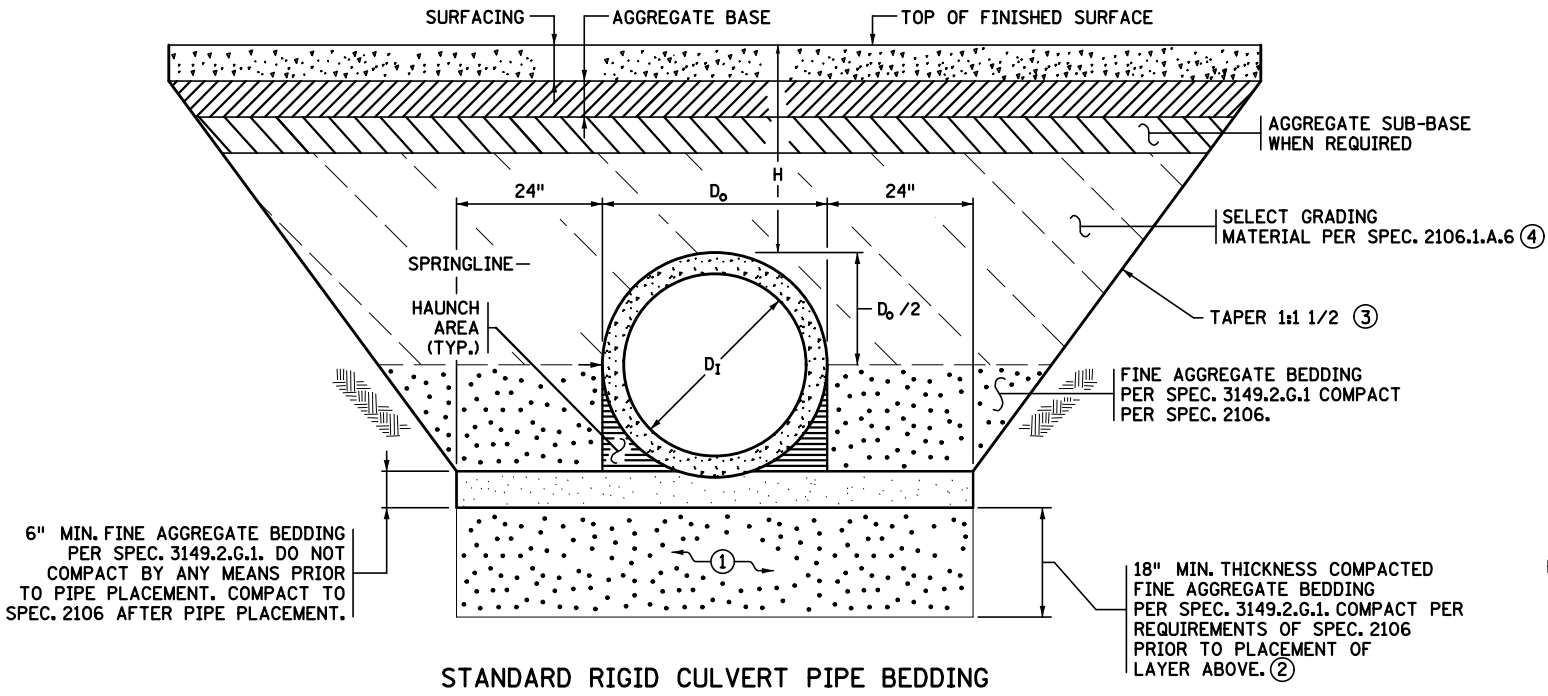
(T.H. 94)

TOTAL SHEETS 153

3-OCT-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_spr441-1  
PATH & FILENAME:



#### -LEGEND-

- $D_1$  = INSIDE DIAMETER OF ROUND PIPE (INCHES).  
 $D_0$  = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).  
 $S_1$  = INSIDE SPAN OF PIPE-ARCH (INCHES).  
 $S_0$  = OUTSIDE SPAN OF PIPE-ARCH (INCHES).  
 $H$  = FILL COVER HEIGHT OVER PIPE (FEET).  
= UNDISTURBED SOIL  
= COMPACTED BEDDING  
= LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT

#### CONSTRUCTION SEQUENCE

1. PLACE AND COMPACT 18" OF FINE AGGREGATE BEDDING TO THE REQUIREMENTS OF SPEC. 2106.
2. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL (SPEC. 3149.2.G.1) TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
3. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
4. FURNISH AND INSTALL PIPE TO GRADE.
5. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF A SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE PIPE IN THE HAUNCH AREA) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
6. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
7. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE WHEN COMPACTED.
8. COMPLETE REMAINING BACKFILL.

#### NOTES

- STANDARD BEDDING FOR RIGID PIPE CULVERTS WITHOUT TREATMENTS.
- RIGID PIPE INCLUDES CONCRETE.
- ENTRANCE CULVERTS (FIELD AND DRIVEWAY CULVERTS) DO NOT NEED BEDDING UNLESS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.
- UNLESS OTHERWISE NOTED IN THE PLAN, BEDDING QUANTITIES ARE COMPUTED FOR THE FULL LENGTH OF THE PIPE AND APRON, AND WILL NOT BE ADJUSTED FOR CHANGES TO MEET OSHA REQUIREMENTS.
- WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.
- CONTRACT PAY ITEM FOR FINE AGGREGATE BEDDING INCLUDES THE COST OF EXCAVATION, PLACEMENT AND COMPACTION.
- EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.
- EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
- ALL SLOPES SHOWN AS (V):(H).
- PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.
- PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501.
- PLACE MULTIPLE PIPE CULVERTS WITH A CLEARANCE OF 24 INCHES OR GREATER BETWEEN STRINGS OF PIPE.
- ① IF APPROVED BY THE ENGINEER, IN WET CONDITIONS THE CONTRACTOR MAY SUBSTITUTE 18" OF COARSE FILTER AGGREGATE PER SPEC. 3149.2.H COMPACTED TO THE QUALITY COMPACTION REQUIREMENTS OF SPEC. 2106. WRAP WITH GEOTEXTILE FABRIC TYPE IV PER SPEC. 3733. SEAM ALL FABRIC SIDES AND ENDS PER SPEC. TABLE 3733-1 INCLUDING FOOTNOTE (e) OR OVERLAP A MINIMUM OF 3 FT., ALL AT NO ADDITIONAL COST.
- ② FOR INSTALLATIONS ON INTACT BEDROCK, OMIT THIS LAYER.
- ③ OVER-EXCAVATION BENEATH TAPERS IS NOT PERMITTED UNLESS REQUIRED BY OSHA. (TYP.)
- ④ MAXIMUM EMBANKMENT PARTICLE SIZE WITHIN 2 FT. OF RIGID PIPE IS 3".

LEAD  
EXPERT  
OFFICE

KEVIN WESTERN  
STATE BRIDGE ENGINEER

STANDARD CULVERT BEDDING FOR RIGID PIPE  
(WITHOUT TREATMENTS)

APPROVED: 01-18-2019  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.441

1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147

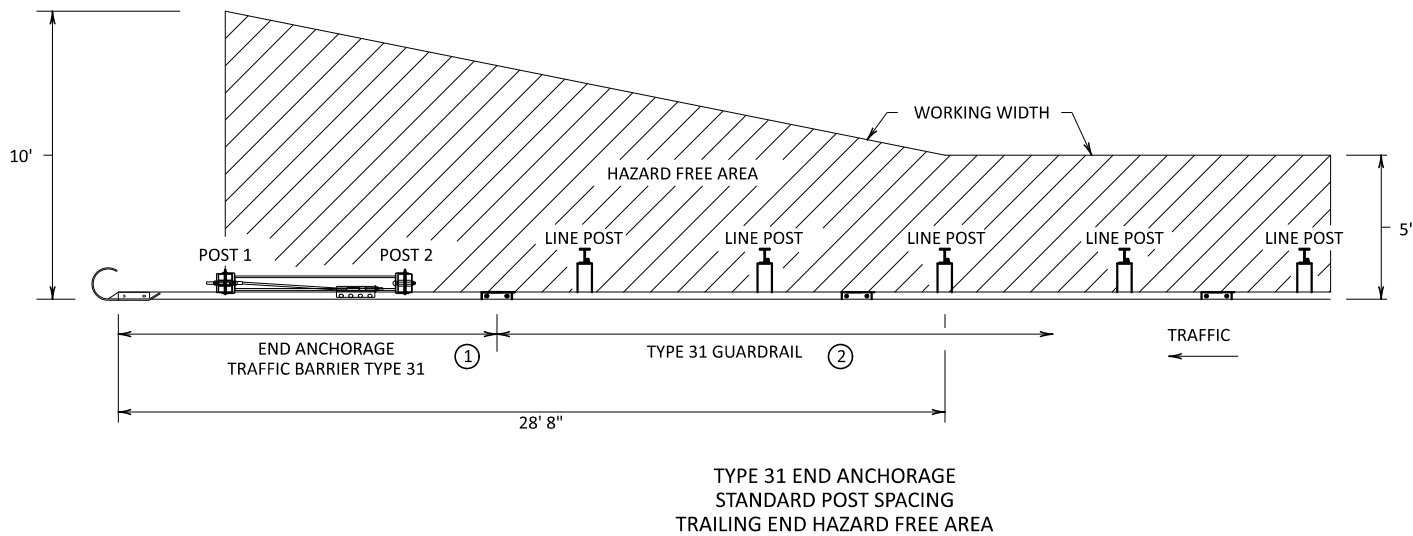
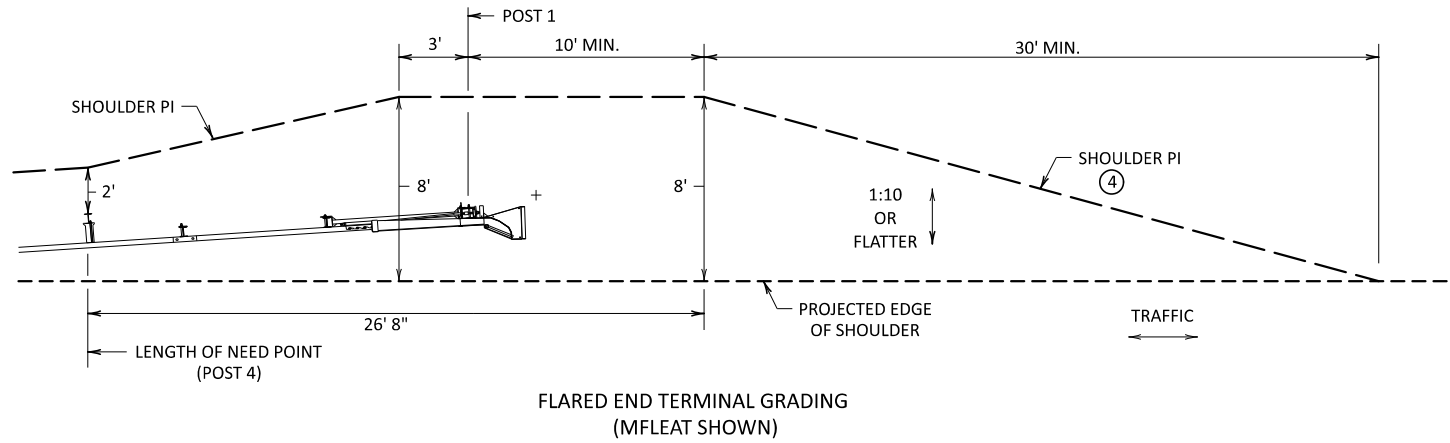
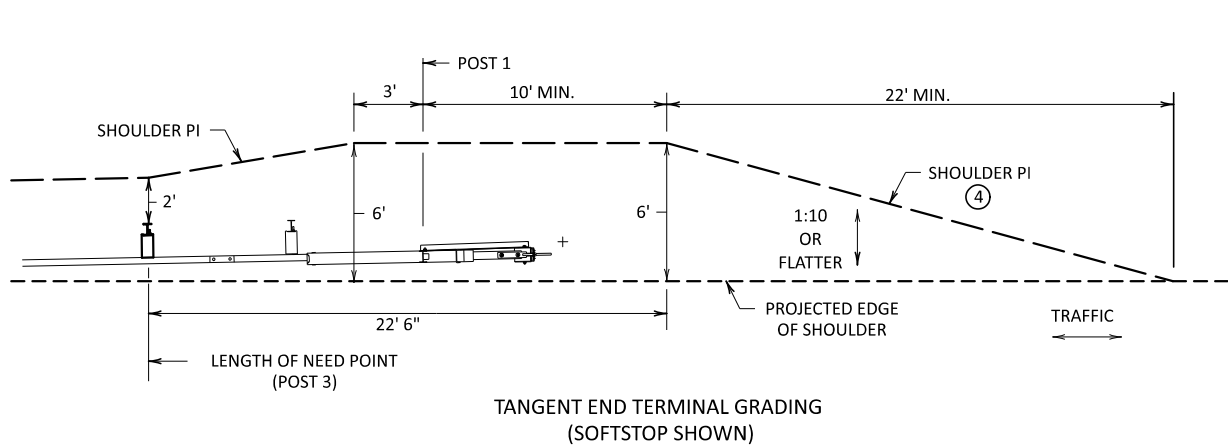
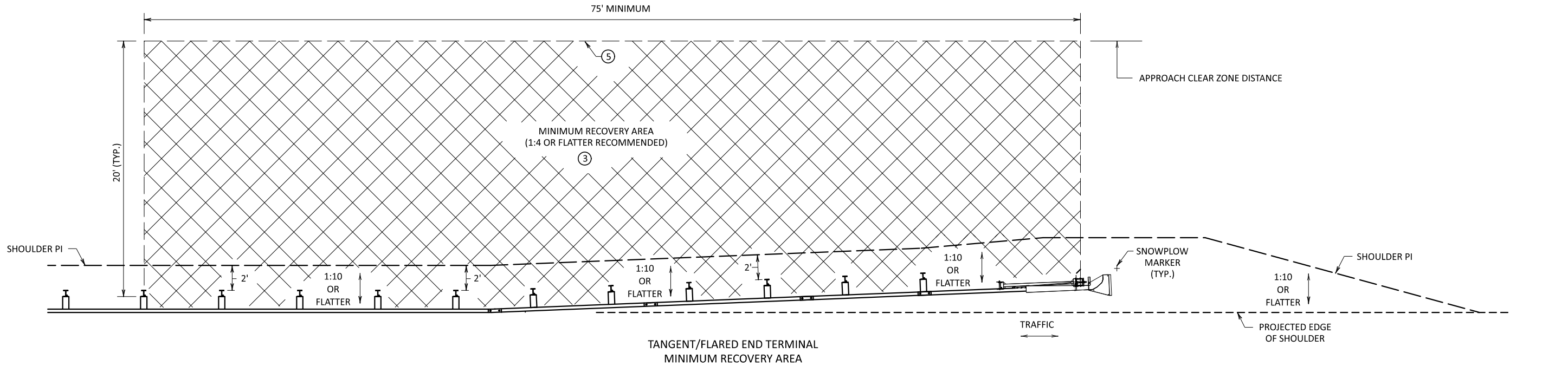
SHEET NO. 62

(T.H. 94)

TOTAL SHEETS 153



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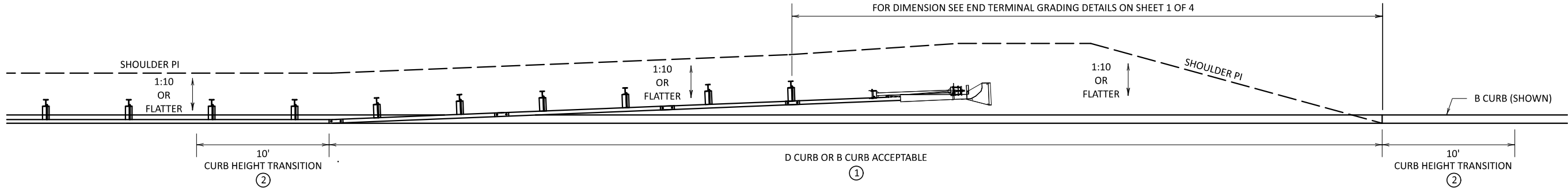


- NOTES:
- ① SEE STANDARD PLAN 5-297.692.
  - ② SEE STANDARD PLAN 5-297.690.
  - ③ THIS AREA FREE OF FIXED OBJECTS. SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3, THIS AREA SHOULD BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.
  - ④ SMOOTHLY TRANSITION THE GRADING PLATFORM TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE.
  - ⑤ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).

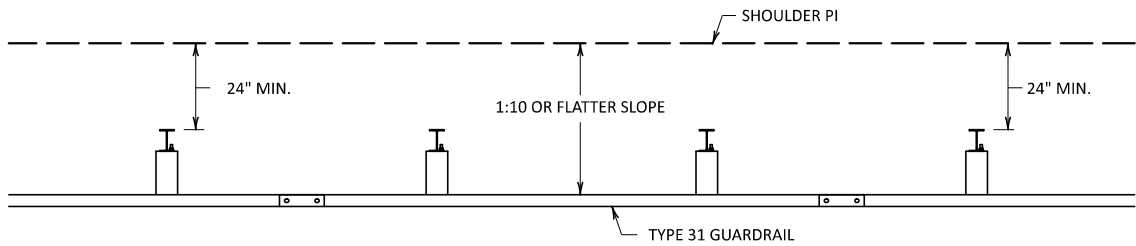
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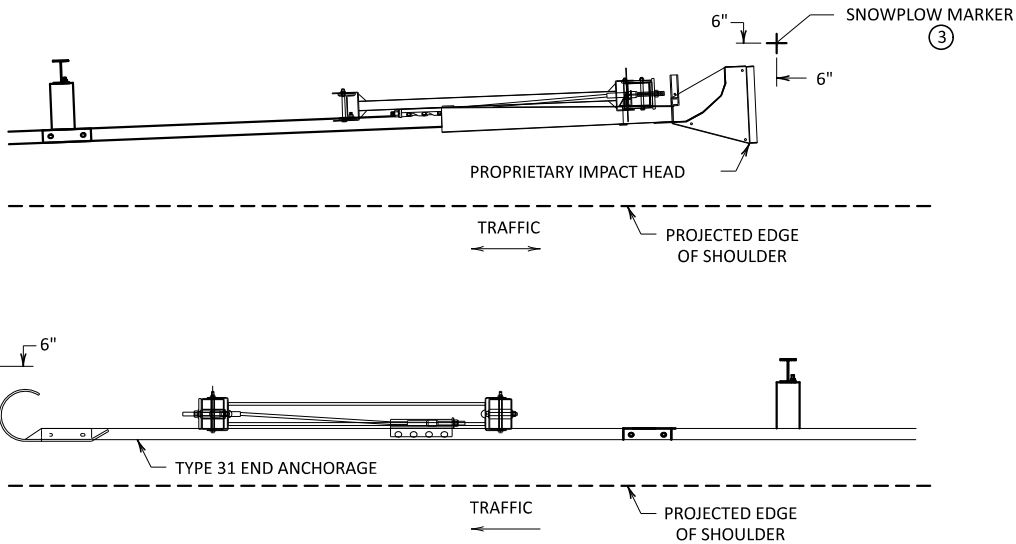
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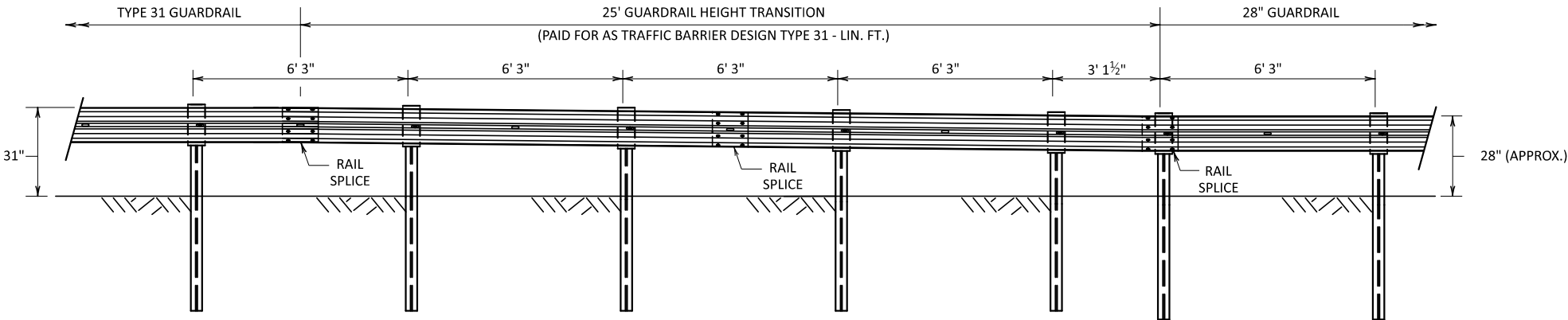
INPLACE CURB AT END TERMINAL



GRADING REQUIREMENTS AT TYPE 31 GUARDRAIL



SNOWPLOW MARKER LOCATION AT END TERMINAL/END ANCHORAGE

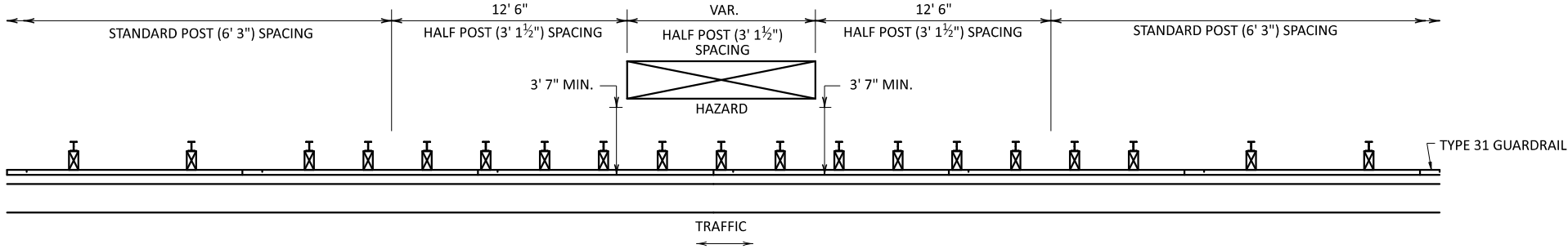


TYPE 31 W-BEAM GUARDRAIL HEIGHT TRANSITION TO 28" ④

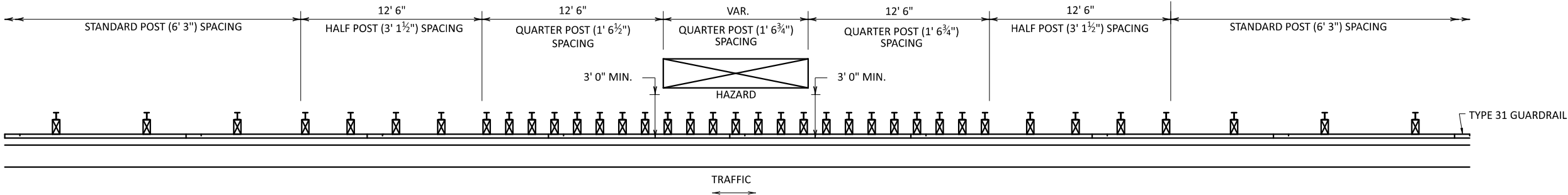
- NOTES:
- ① IF INPLACE CURB IS OVER 4" HEIGHT, MILL TO 3" HEIGHT.
  - ② CONTINUE MILLING FROM 3" MILLED HEIGHT TO MATCH INPLACE CURB HEIGHT.
  - ③ SNOWPLOW MARKER (X3-5) WITH A SQUARE-TUBE THREE-WALL SIGN BASE PER STANDARD PLAN 5-297.721. TOP OF POST SHALL BE 3' ABOVE THE HEIGHT OF THE END TERMINAL/END ANCHORAGE. PLACE MARKER AT BOTH ENDS OF GUARDRAIL RUN.
  - ④ USE ONLY WHEN CONNECTING TO GUARDRAIL TYPES 8338 AND 8307.

LEAD EXPERT OFFICE	NANCY YOO DESIGN SUPPORT DIRECTOR OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT	 DEPARTMENT OF TRANSPORTATION		GUARDRAIL / END TREATMENTS MISCELLANEOUS DETAILS	APPROVED: 05-14-2021 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.601	2 OF 4
			STANDARD PLANS			STATE PROJ. NO. 5680-147 (T.H. 94)	SHEET NO. 64 TOTAL SHEETS 153	

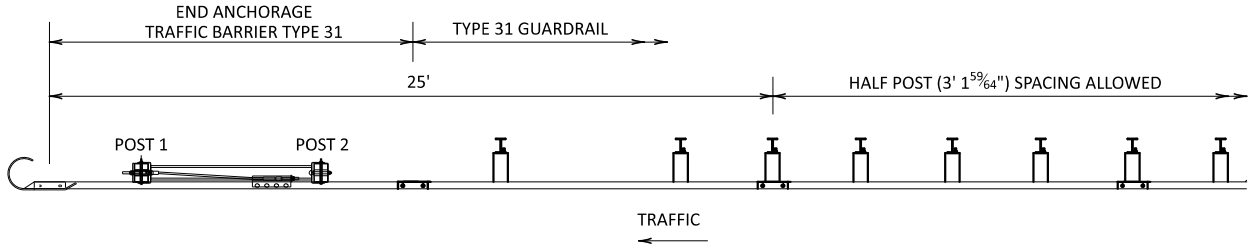
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PLOT NAME: 4D5680147\_sph601-3  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



GUARDRAIL STIFFENING GENERAL - HALF POST SPACING

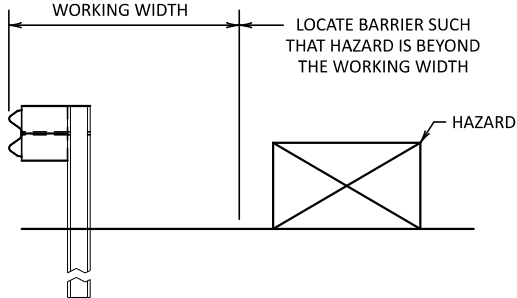


GUARDRAIL STIFFENING GENERAL - QUARTER POST SPACING



GUARDRAIL STIFFENING AT TYPE 31 END ANCHORAGE

ESTIMATED WORKING WIDTH FOR TYPE 31 GUARDRAIL	
STANDARD POST (6' 3") SPACING	5' 0"
STANDARD POST (6' 3") SPACING 9' POST AT 1:2 BREAKLINE	5' 5"
HALF POST (3' 1 1/2") SPACING	3' 7"
QUARTER POST (1' 6 3/4") SPACING	3' 0"



BARRIER LOCATION / WORKING WIDTH

NOTES:  
REGARDLESS OF TRAFFIC DIRECTION, ALL GUARDRAIL STIFFENING SHALL  
TRANSITION INTO AND OUT OF EACH POST SPACING SEGMENT.

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OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

GUARDRAIL / END TREATMENTS  
MISCELLANEOUS DETAILS

APPROVED: 05-14-2021  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.601

3 OF 4

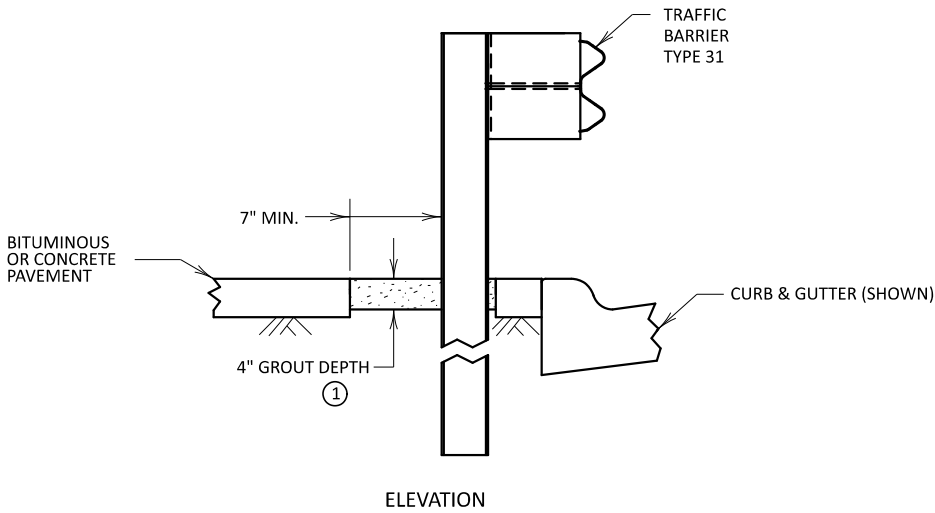
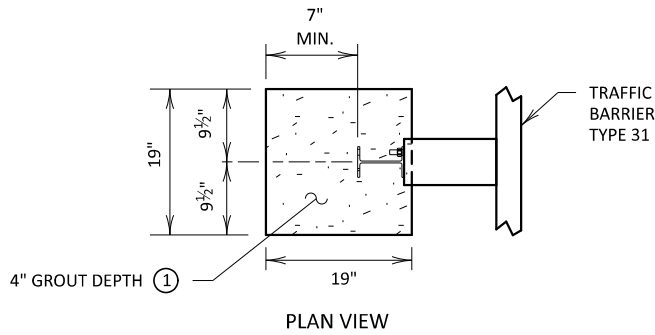


STANDARD PLANS

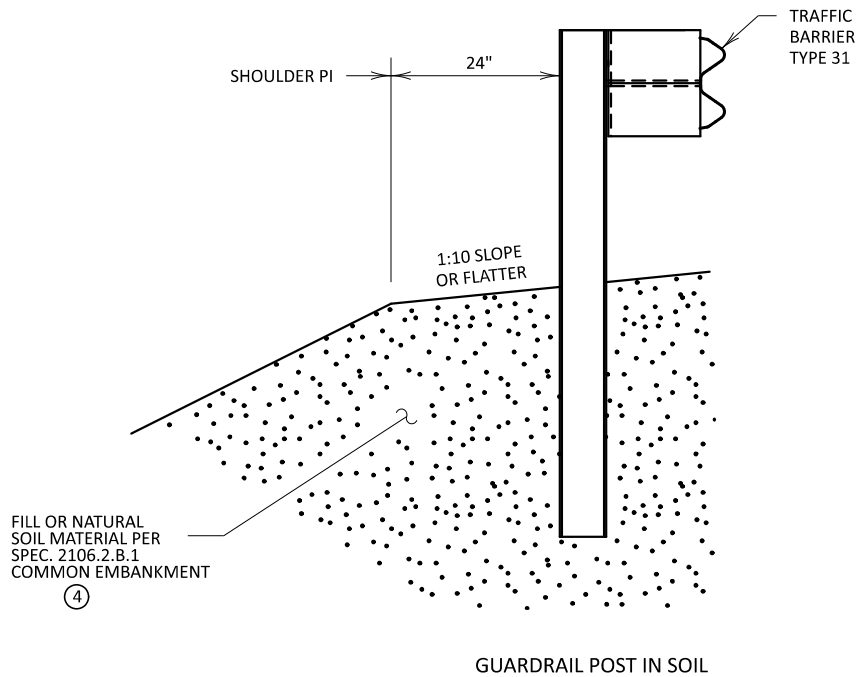
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 65  
TOTAL SHEETS 153

DISTRICT # 3-OCT-2024  
PLOT NAME: 4D5680147\_sph601-4  
PATH & FILENAME:

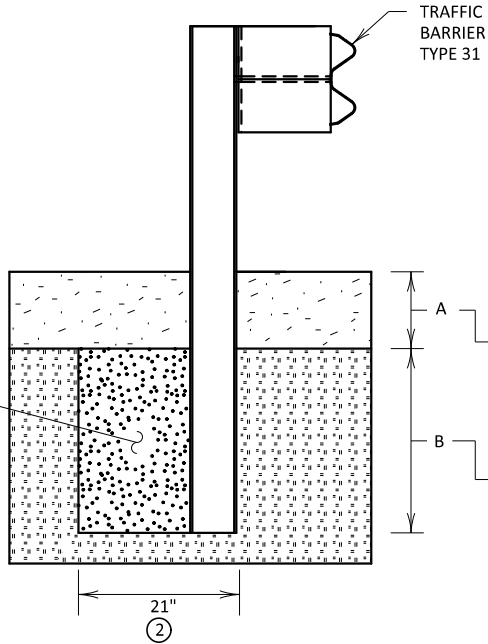


POST LEAVE-OUT FOR  
TRAFFIC BARRIER TYPE 31



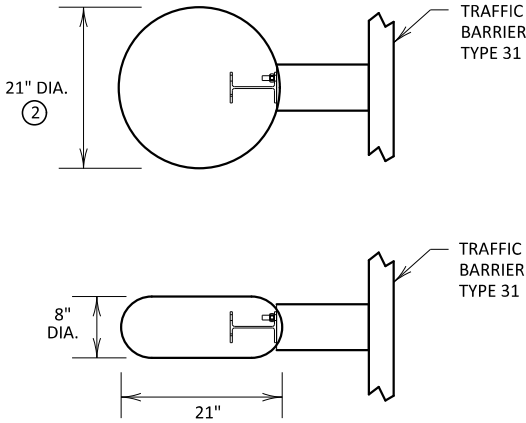
GUARDRAIL POST IN SOIL

COARSE AGGREGATE  
BEDDING TYPE 3149.  
BACKFILL IN ROCK,  
LAYERED AND  
COMPACTED.



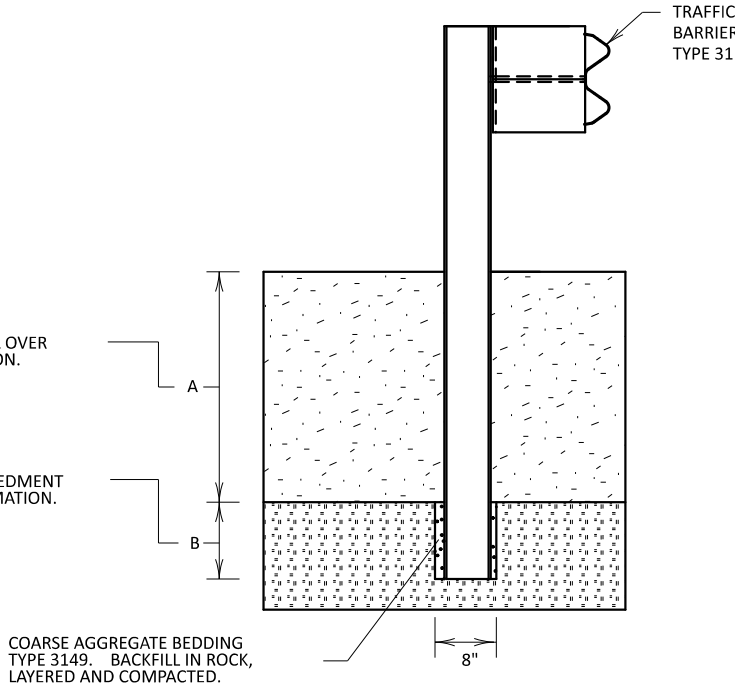
- FOR OVERLYING SOIL DEPTHS (A) RANGING FROM  
0" TO 18", THE DEPTH INTO ROCK (B) IS 24".

ELEVATION



PLAN VIEWS ③

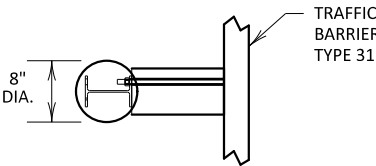
GUARDRAIL POST IN ROCK  
0" TO 18" OVERLYING SOIL DEPTH  
(POST HOLE IN ROCK SPECIAL)



COARSE AGGREGATE BEDDING  
TYPE 3149. BACKFILL IN ROCK,  
LAYERED AND COMPACTED.

- FOR OVERLYING SOIL DEPTHS (A) RANGING FROM  
18" TO FULL POST EMBEDMENT DEPTH. THE  
REQUIRED DEPTH INTO ROCK (B) IS EQUAL TO  
FULL POST EMBEDMENT DEPTH MINUS (A). FULL  
POST EMBEDMENT DEPTH FOR BLOCKED OUT  
W-BEAM IS APPROXIMATELY 42".

ELEVATION



PLAN VIEW

GUARDRAIL POST IN ROCK  
18" OR GREATER OVERLYING SOIL DEPTH  
(POST HOLE IN ROCK)

NOTES:

- ① GROUT IS ONE PART TYPE 1A CEMENT, 14 PARTS SAND, AND 5 PARTS WATER, BY VOLUME.
- ② 24" DIAMETER ACCEPTABLE.
- ③ EITHER HOLE CONFIGURATION (CIRCULAR OR ELONGATED) ACCEPTABLE.
- ④ MATERIAL SHALL NOT CONTAIN GEOFOAM, TIRE SHREDS, OR OTHER LIGHTWEIGHT FILL MATERIALS. POST SHALL NOT BE DRIVEN THROUGH PAVEMENT OR GEOCELL SLOPE REINFORCEMENT.

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NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

GUARDRAIL / END TREATMENTS  
MISCELLANEOUS DETAILS

APPROVED: 05-14-2021  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.601

4 OF 4



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 66

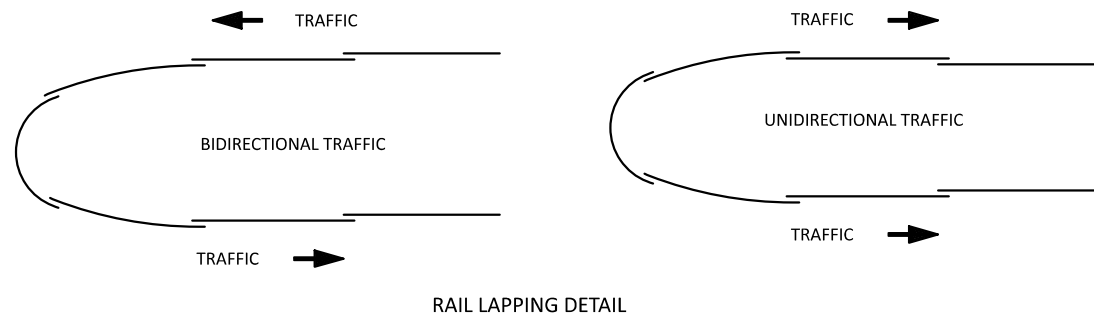
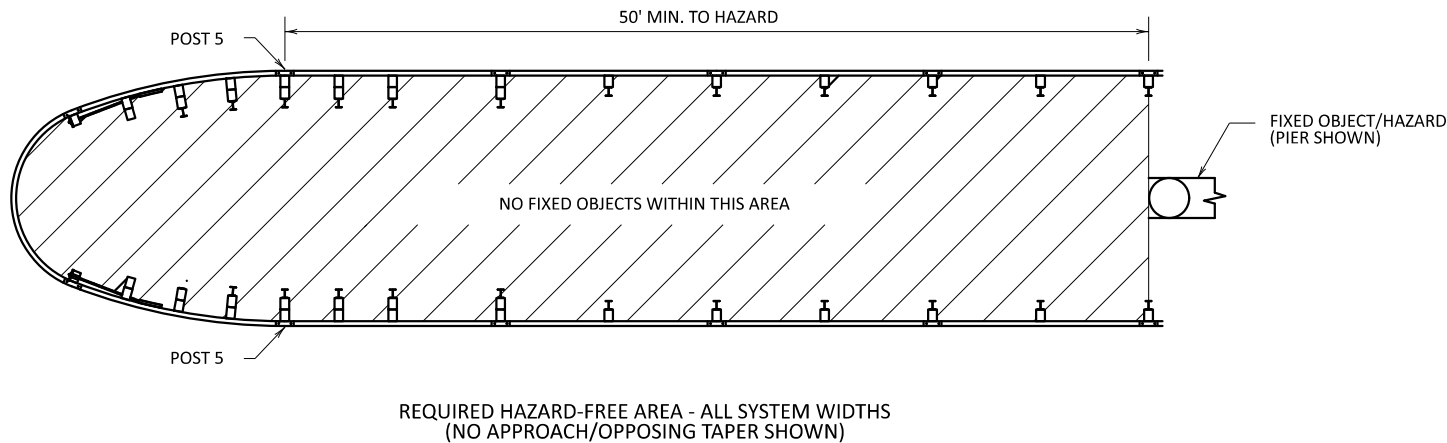
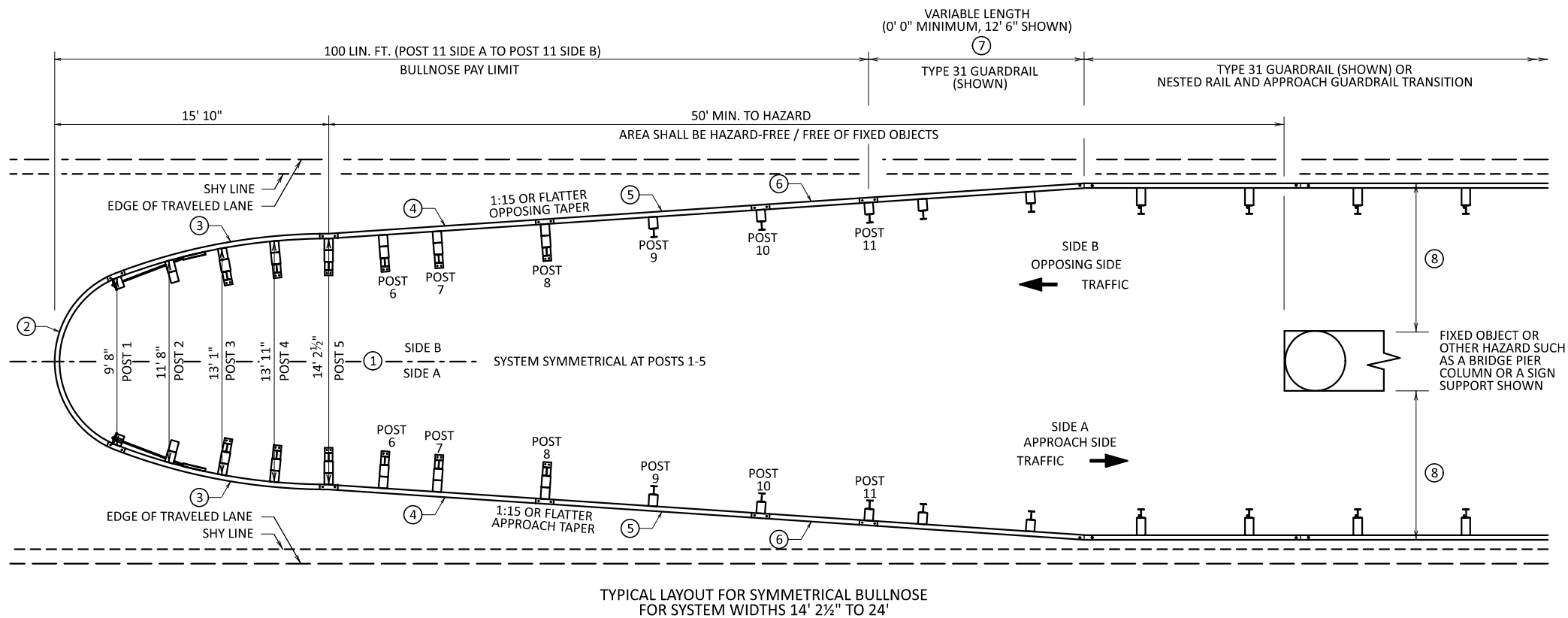
(T.H. 94)

TOTAL SHEETS 153

3-OCT-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_spn611-1  
PATH & FILENAME:



- NOTES:
- MINIMUM WIDTH OF SYSTEM IS 14' 2 1/2".
  - POST SPACING BETWEEN INDIVIDUAL POSTS FROM POST 1 TO POST 7 IS 3' 1 1/2".
  - POST SPACING BETWEEN INDIVIDUAL POSTS FROM POST 7 TO POST 11 IS 6' 3".
  - ALL THRIE-BEAM RAIL IS 12 GAUGE, EXCEPT WHERE NOTED.
  - ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- ① DIMENSION FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST OR BLOCK.
- ② SLOTTED RAIL NO. 1, SEE STANDARD PLATE 8358.
- ③ SLOTTED RAIL NO. 2, RADIAL OPTION, FROM POST 1 TO 5. SEE STANDARD PLATE 8358.
- ④ SLOTTED RAIL NO. 3 FROM POST 5 TO 8. SEE STANDARD PLATE 8358.
- ⑤ STANDARD THRIE-BEAM GUARDRAIL FROM POST 8 TO 10. SEE STANDARD PLATE 8357.
- ⑥ 10 GAUGE W-BEAM TO THRIE-BEAM TRANSITION RAIL, SEE SHEET 3 OF 6 FOR TRANSITION OPTIONS. SEE STANDARD PLATE 8356.
- ⑦ EXTEND RAIL AT 1:15 OR FLATTER TAPER RATE BEYOND POST 11 AS NEEDED, LENGTH DEPENDENT ON MEDIAN WIDTH OR WORKING WIDTH REQUIREMENTS.
- ⑧ DISTANCE SHALL BE EQUAL TO OR GREATER THAN THE BARRIER WORKING WIDTH.

LEAD  
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NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

THRIE-BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
SYSTEM WIDTHS 14' 2-1/2" TO 24' MISC. DETAILS

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

1 OF 6

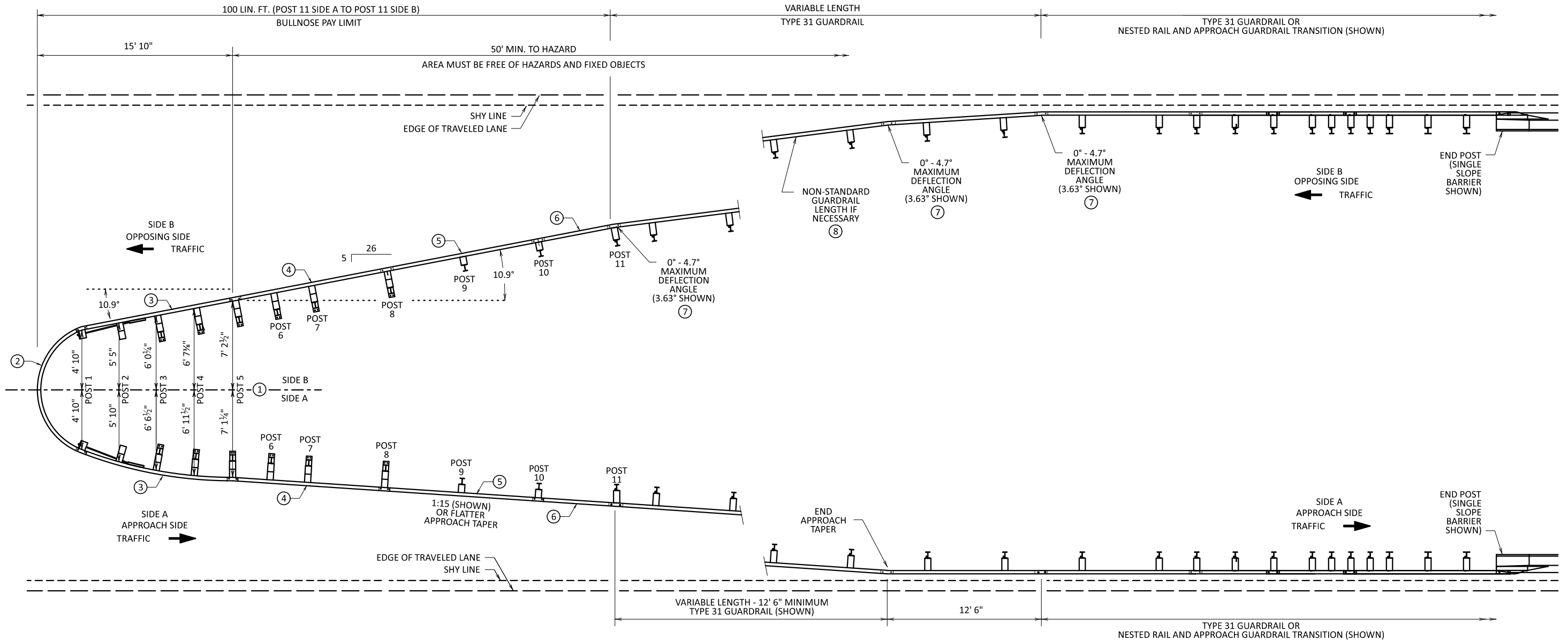


STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 67  
TOTAL SHEETS 153

DISTRICT # 3-OCT-2024  
PLOT NAME: 4D5680147\_spn611-2  
PATH & FILENAME:



TYPICAL LAYOUT FOR ASYMMETRICAL BULLNOSE  
FOR SYSTEM WIDTHS GREATER THAN 24'

NOTES:  
FOR MEDIANS WIDER THAN 24', BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN.  
APPROACH TAPER IS OPTIONAL AND MUST BE 1:25 OR FLATTER IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 (SHOWN) OR FLATTER IF BEYOND THE SHY LINE.  
POST SPACING BETWEEN INDIVIDUAL POSTS FROM POST 1 TO POST 7 IS 3' 1 1/2".  
POST SPACING BETWEEN INDIVIDUAL POSTS FROM POST 7 TO POST 11 IS 6' 3".  
ALL THRIE-BEAM RAIL IS 12 GAUGE, EXCEPT WHERE NOTED.  
ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

- ① POSTS 1-5 LAYOUT DIMENSIONS FROM BACK OF RAIL TO SYMMETRY LINE OF SLOTTED RAIL NO. 1.
- ② SLOTTED RAIL NO. 1, SEE STANDARD PLATE 8358.
- ③ SLOTTED RAIL NO. 2 FROM POST 1 TO 5, RADIAL OPTION ON APPROACH SIDE, TANGENT OPTION ON OPPOSING SIDE. SEE STANDARD PLATE 8358.
- ④ SLOTTED RAIL NO. 3 FROM POST 5 TO 8. SEE STANDARD PLATE 8358.
- ⑤ STANDARD THRIE-BEAM GUARDRAIL FROM POST 8 TO 10. SEE STANDARD PLATE 8357.
- ⑥ 10 GAUGE W-BEAM TO THRIE-BEAM TRANSITION RAIL, SEE SHEET 3 OF 6 FOR TRANSITION OPTIONS. SEE STANDARD PLATE 8356.
- ⑦ BEND RAIL IN FIELD AS REQUIRED TO MAKE CONNECTION. MAXIMUM DEFLECTION ANGLE IS 4.7°. (3.63° SHOWN).
- ⑧ SAW/DRILL/PUNCH RAIL AS REQUIRED, DO NOT TORCH-CUT. REPAIR GALVANIZED COATINGS IN ACCORDANCE WITH ASTM A780 AS NEEDED (INCIDENTAL).

LEAD  
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OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

THRIE-BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
SYSTEM WIDTHS OVER 24'

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

2 OF 6



STANDARD PLANS

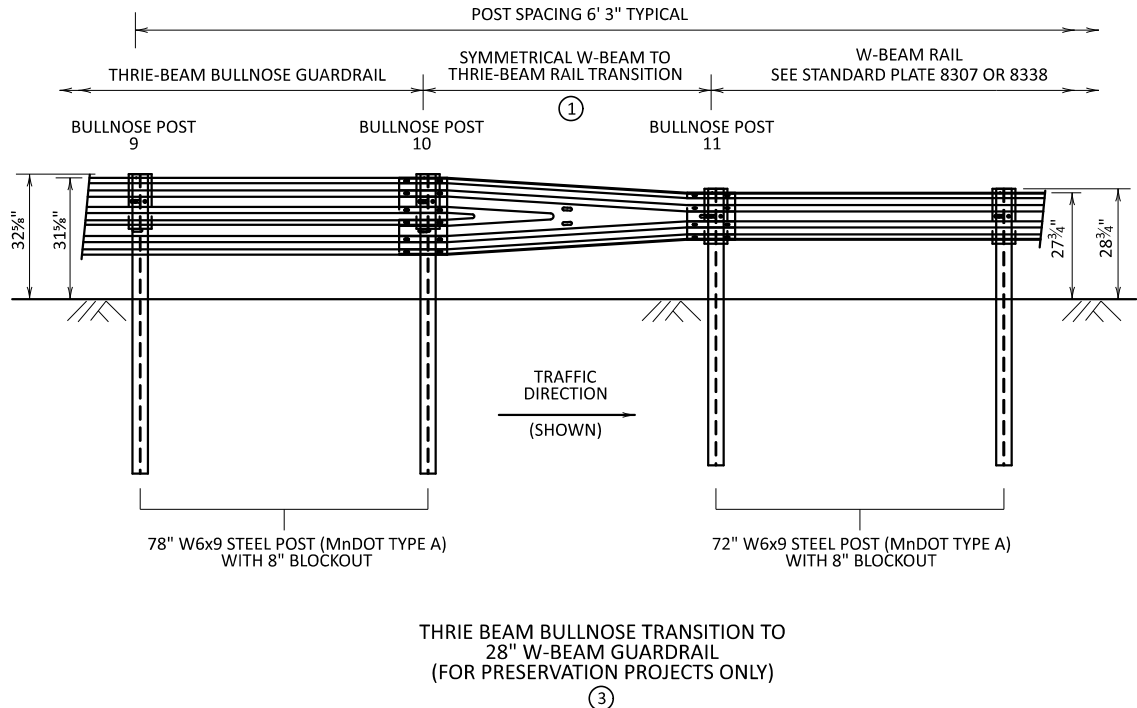
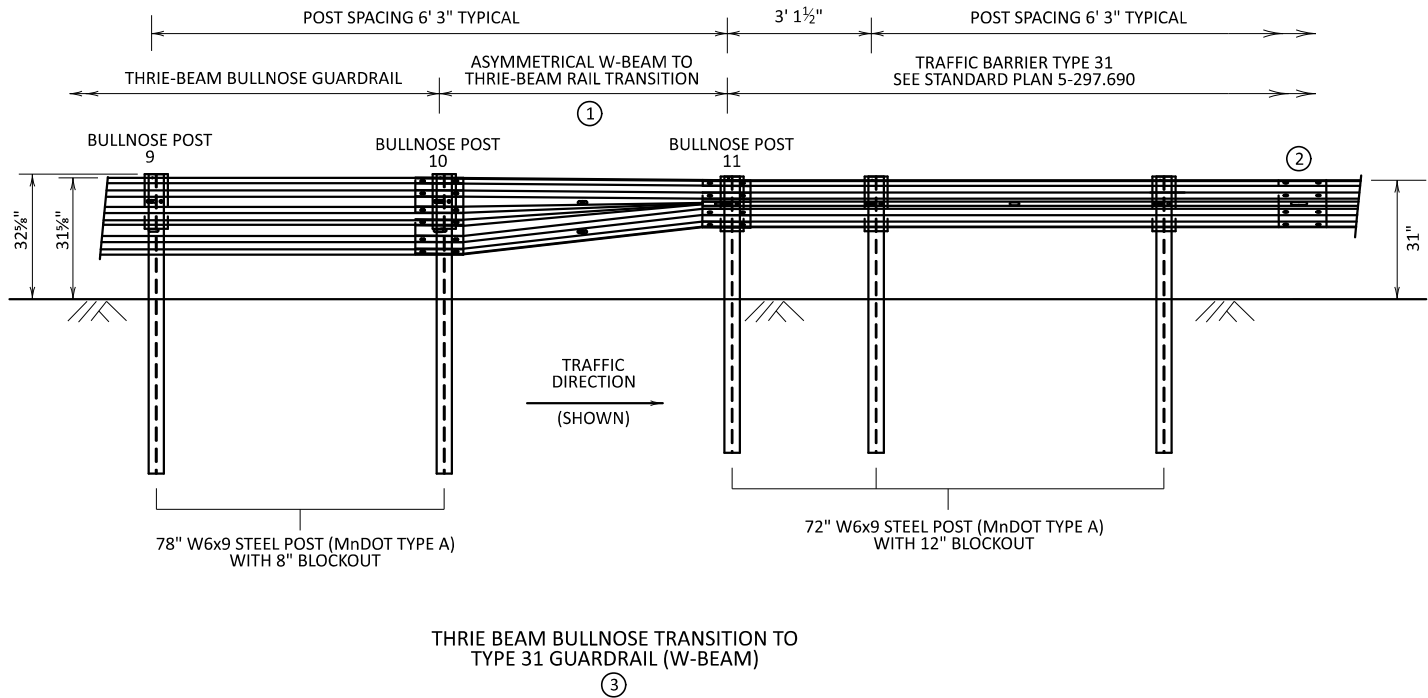
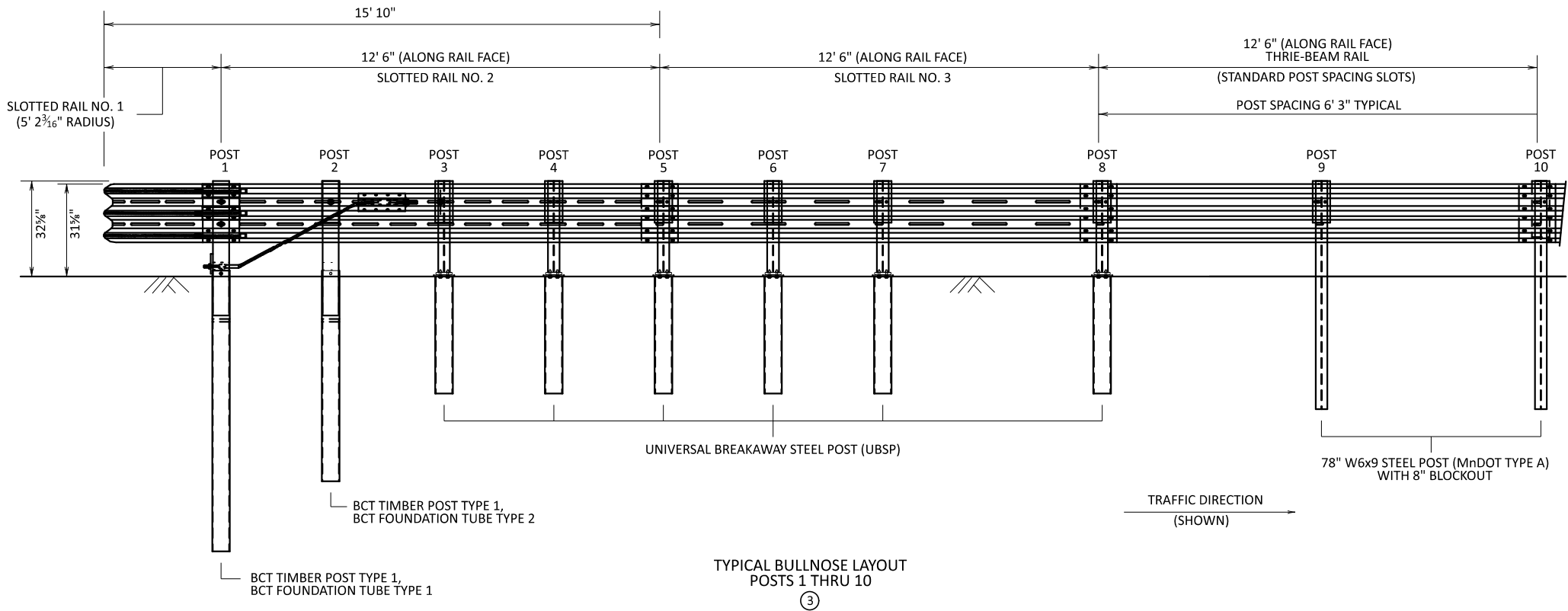
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 68  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT # 4D5680147\_sph611-3  
PLOT NAME: 4D5680147\_sph611-3  
PATH & FILENAME:



- NOTES:
- FOR BCT TIMBER POST, SEE STANDARD PLATE 8365.
  - FOR BCT FOUNDATION TUBE, SEE STANDARD PLATE 8366.
  - FOR UNIVERSAL BREAKAWAY STEEL POST, SEE STANDARD PLATE 8362.
  - FOR STEEL POSTS, SEE STANDARD PLATE 8361.
  - FOR BLOCKOUTS, SEE STANDARD PLATE 8369.
- ① 6' 3" 10-GAUGE W-BEAM TO THRIE-BEAM TRANSITION RAIL. SEE STANDARD PLATE 8356.
- ② GUARDRAIL HEIGHT SHALL TRANSITION FROM 31 5/16" AT POST 11 TO 31" AT THIS LOCATION. 12' 6" RAIL LENGTH SHOWN, 25' RAIL LENGTH ALLOWED.
- ③ MIRROR DETAIL FOR OPPOSING SIDE.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

THRIE-BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
BULLNOSE TRANSITION TO W-BEAM RAIL

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

3 OF 6



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 69

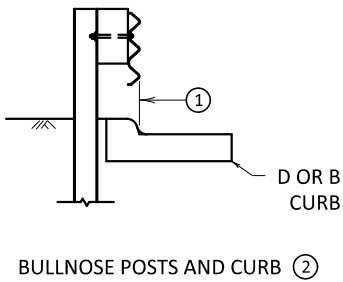
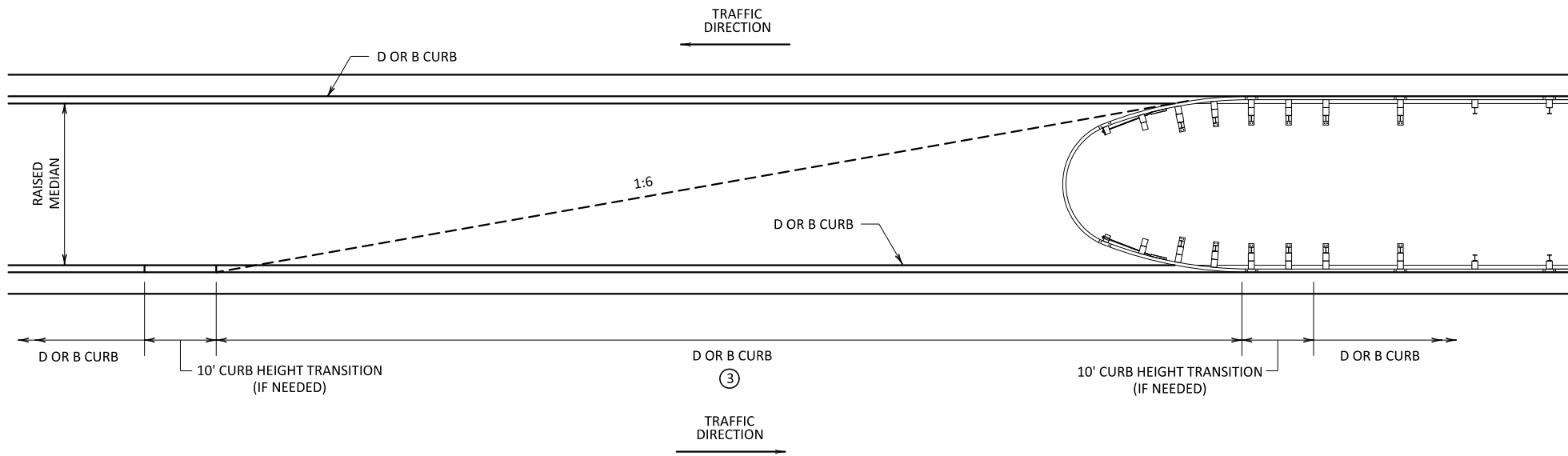
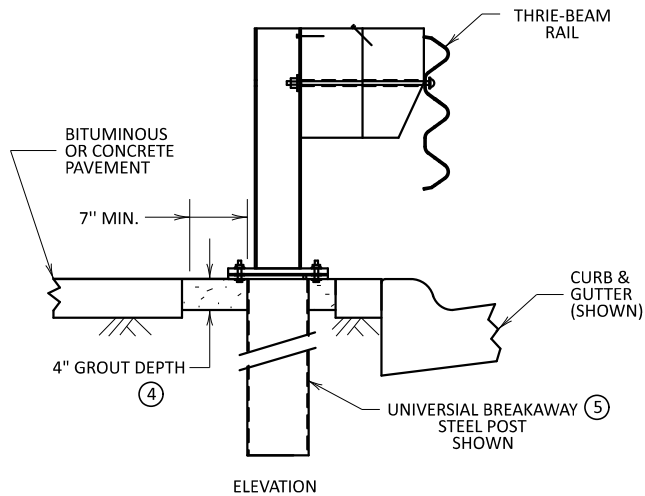
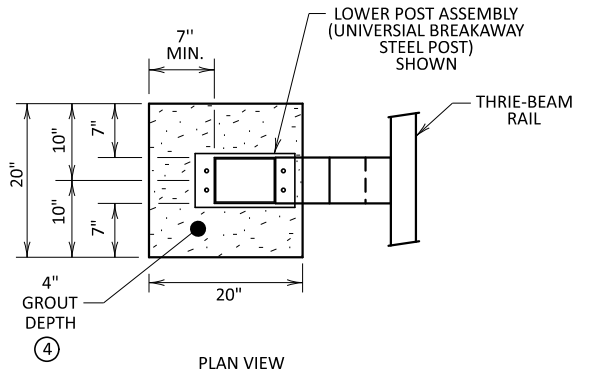
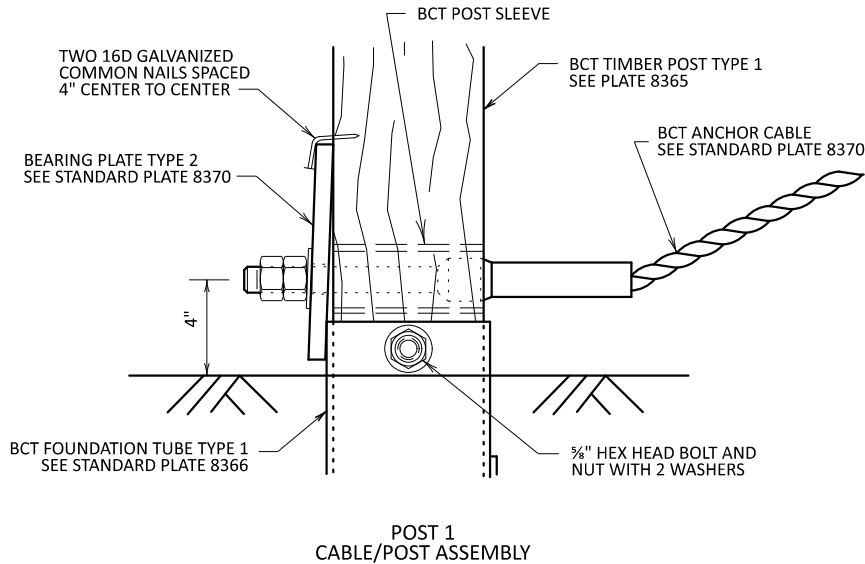
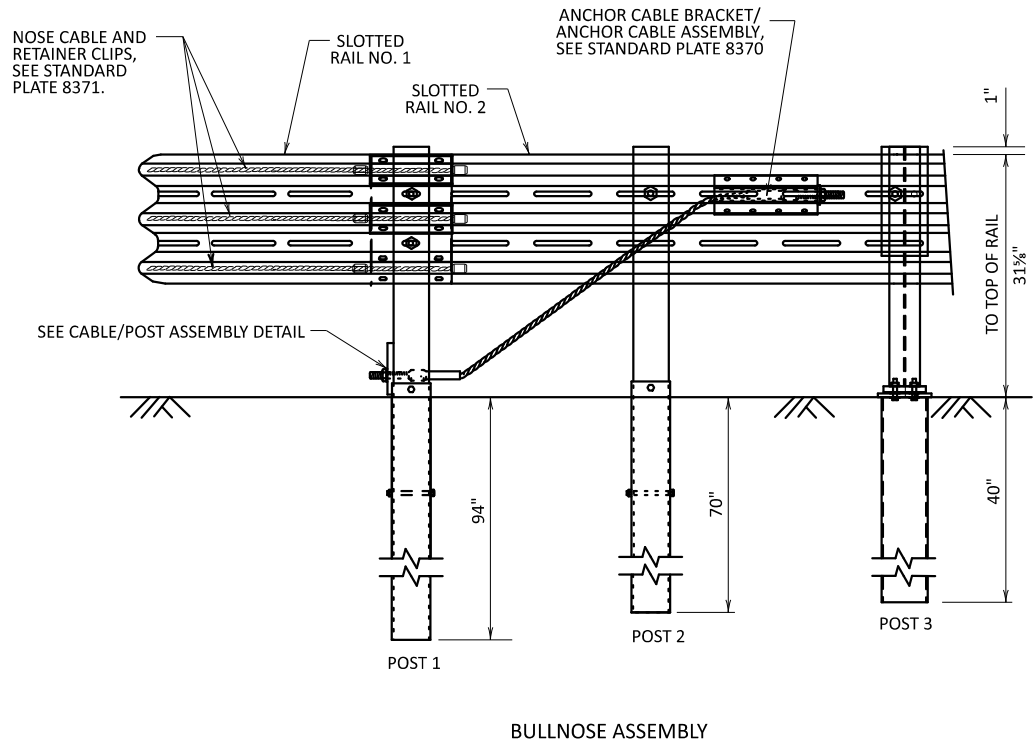
(T.H. 94)

TOTAL SHEETS 153



3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_snp611-4  
PATH & FILENAME:



- NOTES:
- 1 CURB FACE AT FACE OF RAIL. IF CURB FACE IS IN FRONT OF RAIL FACE AND OVER 4" HIGH, MILL TO 3" HIGH.
  - 2 BULLNOSE POSTS 9 AND 10 SHOWN, VALID FOR ALL POSTS.
  - 3 IF INPLACE CURB IS OVER 4" HIGH, MILL TO 3" HIGH. 10' TRANSITION TO TALLER EXISTING CURB AT EACH END AS NEEDED.
  - 4 GROUT IS ONE PART TYPE 1A CEMENT, 14 PARTS SAND, AND 5 PARTS WATER, BY VOLUME.
  - 5 UNIVERSAL BREAKAWAY STEEL POST FOR POSTS 3-8. BCT FOUNDATION TUBE FOR POSTS 1-2.
  - 6 FOR BULLNOSE POSTS 9-11, SEE POST LEAVE-OUT FOR TRAFFIC BARRIER TYPE 31 DETAIL ON STANDARD PLAN 5-297.601.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

THRIE-BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
NOSE ASSEMBLY, CURB DETAILS, AND LEAVE-OUT DETAILS

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

4 OF 6



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

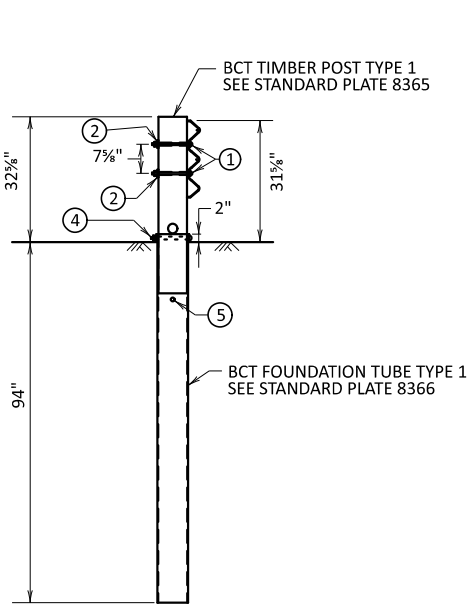
SHEET NO. 70  
TOTAL SHEETS 153



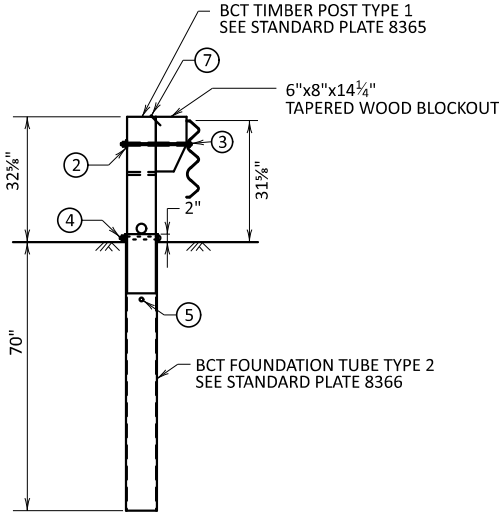
3-OCT-2024

PLOTTED/REVISED:

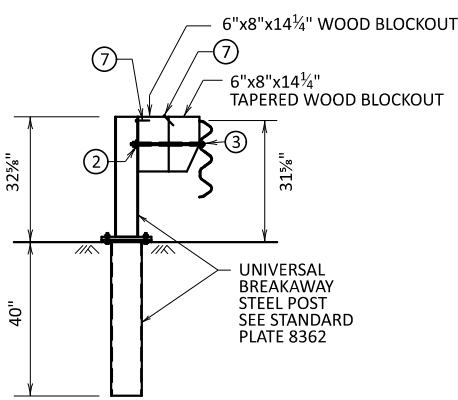
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PLOT NAME: 4D5680147\_sph611-5  
PATH & FILENAME:



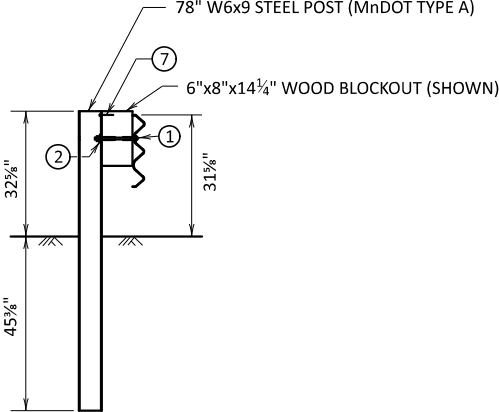
POST 1



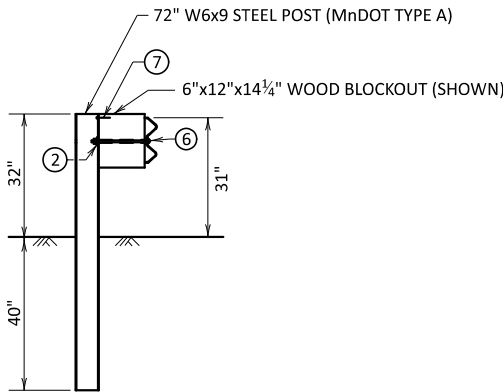
POST 2



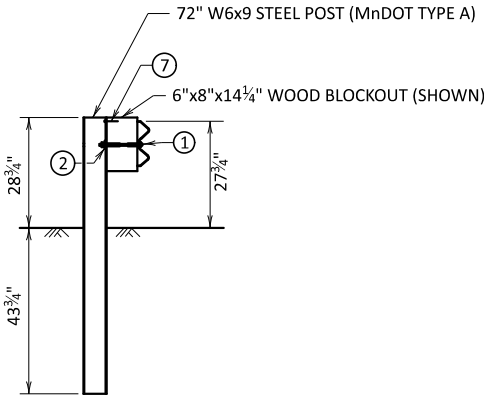
POSTS 3-8



POSTS 9-10



POST 11  
(WHEN CONNECTED TO  
TYPE 31 GUARDRAIL)



POST 11  
(WHEN CONNECTED TO  
28" GUARDRAIL)

- NOTES:
- ALL RAIL AND HARDWARE COMPONENTS IN ACCORDANCE WITH AASHTO SPEC. M180.
- ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- PLACE GUARDRAIL BOLTS IN UPSTREAM HOLE.
- FOR STEEL POST DETAILS, SEE STANDARD PLATE 8361.
- FOR BLOCKOUT DETAILS, SEE STANDARD PLATE 8369.
- ① 5/8" DIA. x10" LONG GUARDRAIL BOLT (ASTM A307) AND RECESSED NUT (ASTM A563A) (TYP.).
- ② 5/8" DIA. FLAT WASHER, (ASTM A307) (TYP.). (C7, FBB03)
- ③ 5/8" DIA. x18" LONG GUARDRAIL BOLT (ASTM A307) AND RECESSED NUT (E2, FWC16a) (ASTM A563A).
- ④ 5/8" DIA. x10" LONG HEX BOLT (ASTM A307) AND NUT (ASTM A563A) AND TWO 5/8" DIA. FLAT WASHERS (ASTM F844). (C5, FBB04)
- ⑤ 7/8" DIA. x8" LONG HEX BOLT (ASTM A307) AND NUT (ASTM A563A), AND TWO 7/8" DIA. FLAT WASHERS (ASTM F844).
- ⑥ 5/8" DIA. x14" LONG GUARDRAIL BOLT (ASTM A307) AND RECESSED NUT (C2, E3, FBX22a, FWC22a) (ASTM A563A) (TYP.).
- ⑦ BLOCKOUT SHALL NOT ROTATE. USE TWO 16D DOUBLE-HEADED NAILS TO KEEP WOOD BLOCKOUT(S) FROM ROTATING.
- ⑧ USE ONLY WHEN CONNECTING TO GUARDRAIL TYPES 8338 AND 8307

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

THRIE-BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
POST, BLOCK, AND HARDWARE DETAILS

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

5 OF 6



STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 71

(T.H. 94)

TOTAL SHEETS 153

DISTRICT #: DISTRICT #  
PLOT NAME: 4D5680147\_spn611-6  
PATH & FILENAME:



<p><b>LEAD EXPERT OFFICE</b></p>	<p><b>NANCY YOO</b> DESIGN SUPPORT DIRECTOR OFFICE OF PROJECT MANAGEMENT &amp; TECHNICAL SUPPORT</p>
--	--

APPROVED: 02-09-2023  
REVISED:

  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.611

5 OF 6



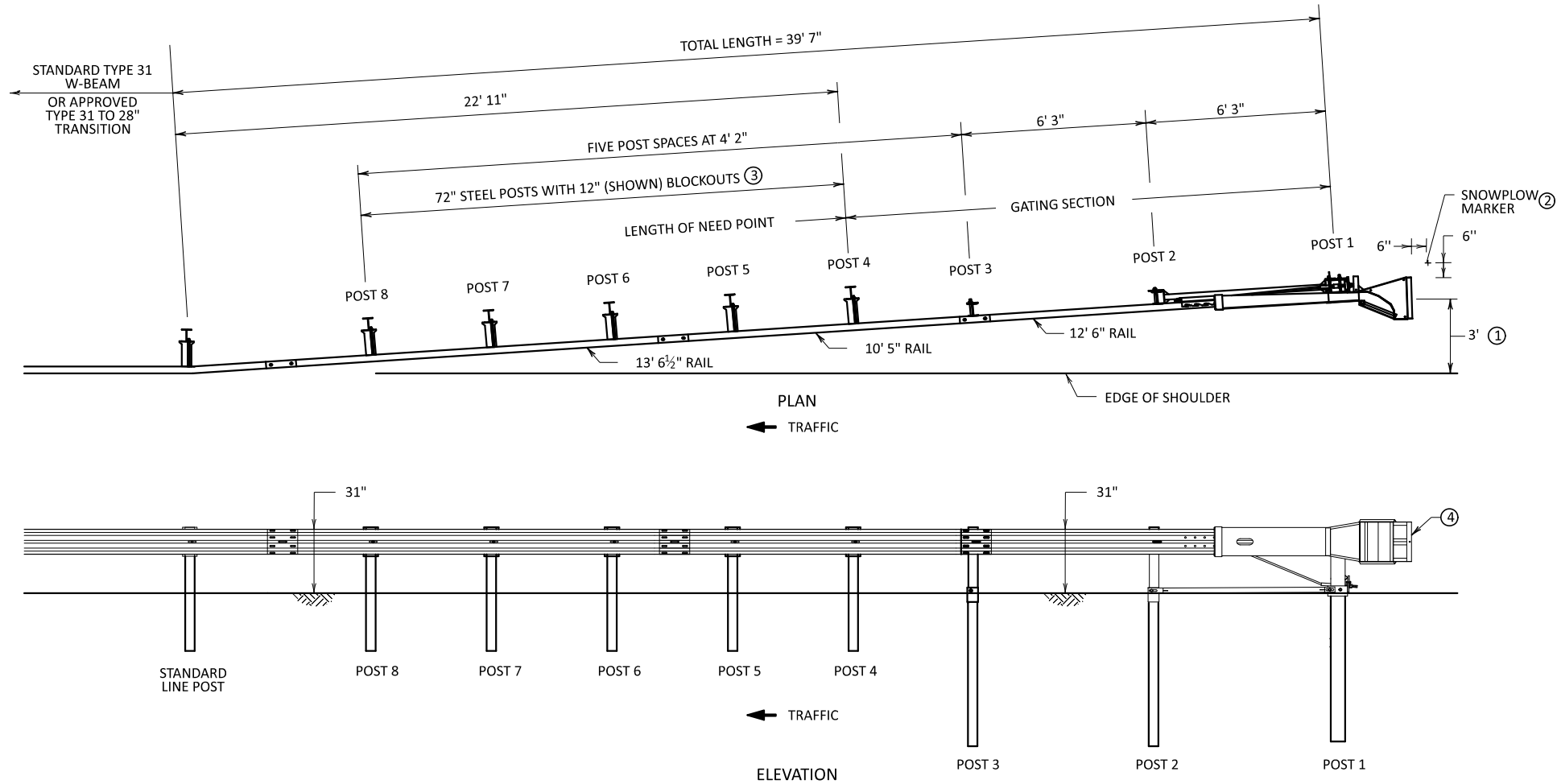
## STANDARD PLANS

STATE PROJ. NO.	5680-147
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SHEET NO. 72

(T.H. 94)	
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TOTAL SHEETS	153
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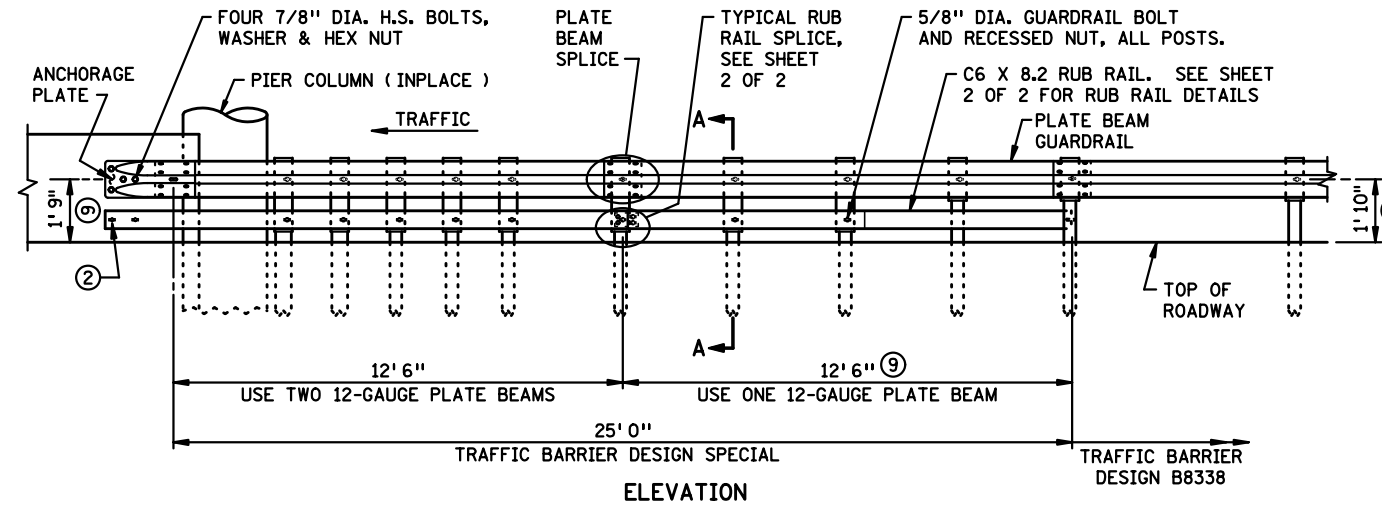
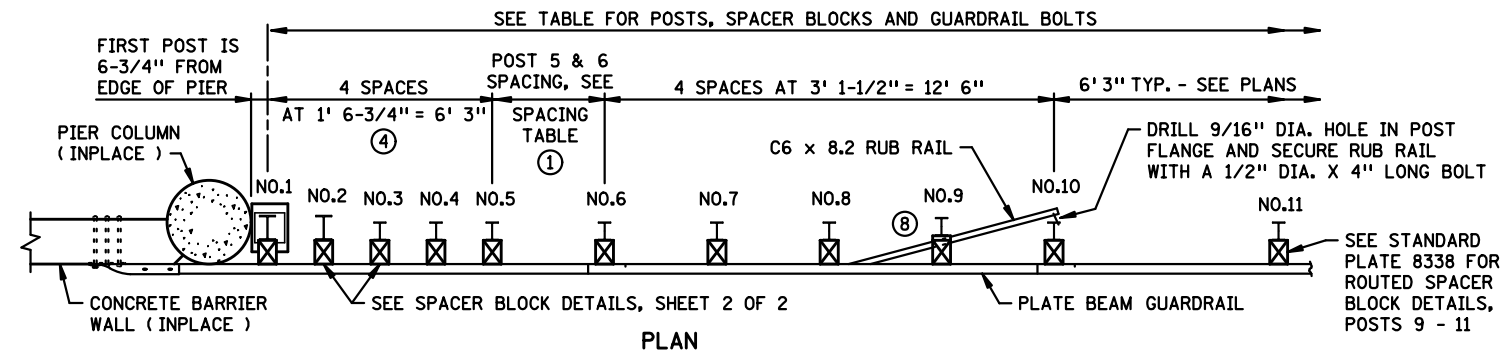
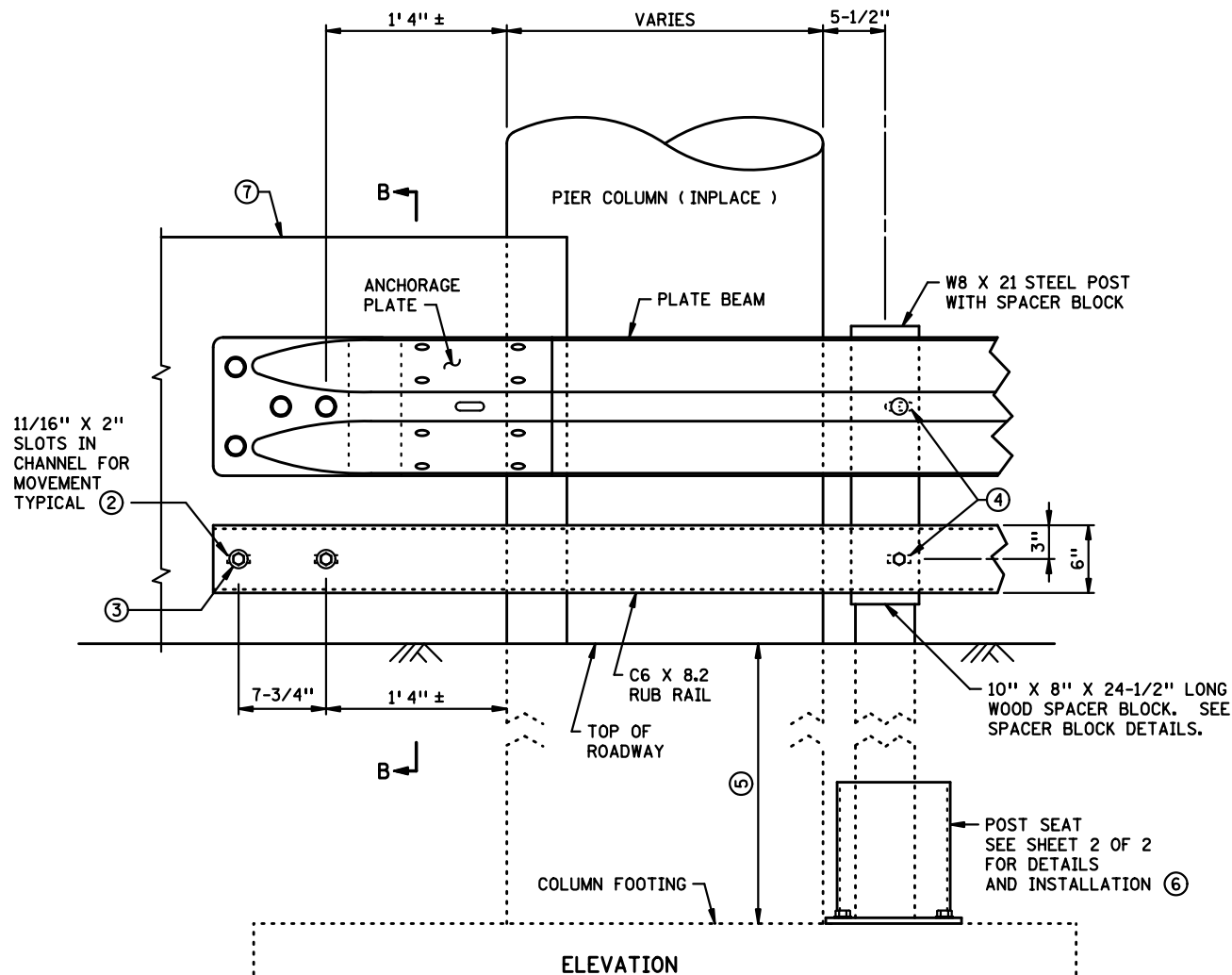
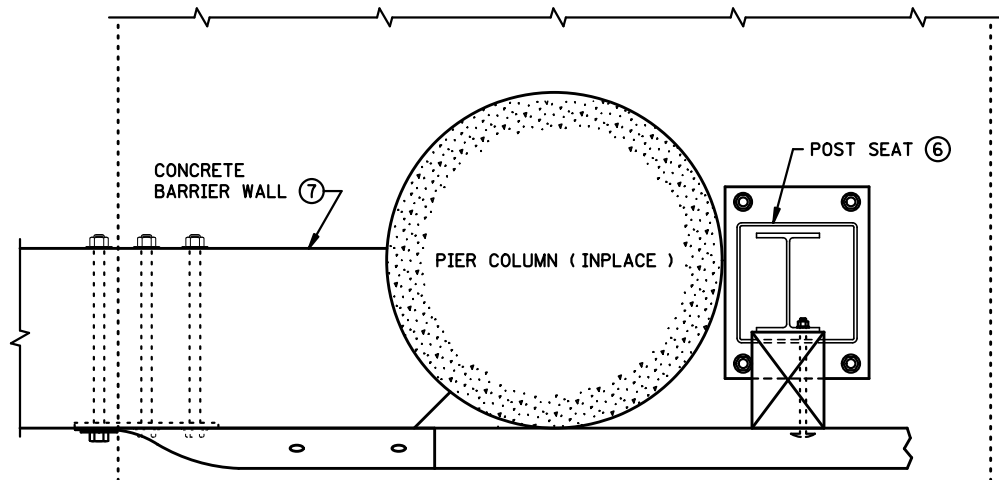


MFLEAT  
(ROAD SYSTEMS INC.)

- NOTES:
- THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.
- THESE DETAILS ARE FOR DESIGN GUIDANCE INFORMATION ONLY. CHECK WITH MANUFACTURER FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS.
- ALL TERMINAL RAIL MUST BE STRAIGHT. CURVED TERMINAL RAIL IS NOT ALLOWED.
- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS, AND BEARING PLATES SHALL BE GALVANIZED PER MNDOT SPEC. 3392.
- POSTS 1 - 3 ARE PROPRIETARY HINGED POSTS.
- THE RAIL IS DESIGNED TO EXIT THE IMPACT HEAD ON THE TRAFFIC SIDE OF THE TERMINAL.
- PLACE STEEL I-BEAM POST DELINEATORS PER THE APPROVED PRODUCTS LIST ON THE TOP OF THE FIRST FIVE I-BEAM POSTS OF UPSTREAM TERMINAL AND THE LAST FIVE I-BEAM POSTS OF DOWNSTREAM TERMINAL. ATTACH USING ADHESIVE (PER MANUFACTURER RECOMMENDATION). THE RETROREFLECTIVE SHEETING SHALL FACE TRAFFIC AND MATCH THE COLOR OF THE ADJACENT EDGE LINE.
- ① MEASURED TO THE FACE OF RAIL AT POST 1.
- ② SEE STANDARD PLAN 5-297.601.
- ③ 8" BLOCKOUTS ARE ACCEPTABLE.
- ④ 18" X 18" OBJECT MARKER (OM3-R OR OM3-L) PER MNDOT STANDARD SIGNS AND MARKINGS MANUAL. ALTERNATING STRIPES SHALL BE SLOPED DOWN TOWARD THE SIDE ON WHICH TRAFFIC IS TO PASS THE OBSTRUCTION.

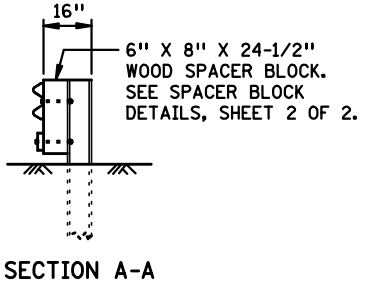
DISTRICT #: DISTRICT #  
PLOT NAME: 4D5680147\_sph613-1  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:

LEAD EXPERT OFFICE	NANCY YOO DESIGN SUPPORT DIRECTOR OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT				PROPRIETARY END TERMINAL - FLARED FOR TYPE 31 GUARDRAIL		APPROVED: 11-02-2021 REVISED:		 THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN		1 OF 1
										5-297.613		
					STANDARD PLANS		STATE PROJ. NO. 5680-147		SHEET NO. 73			
							(T.H. 94)		TOTAL SHEETS 153			



POST SPACING TABLE (1)

PIER COLUMN DIA.	SPACING BETWEEN POSTS 5 & 6
28"	3' 1"
30"	2' 11"
32"	2' 9"
34"	2' 7"
36"	2' 5"
38"	2' 3"
40"	2' 1"
42"	1' 11"
44"	1' 9"
46"	1' 7"



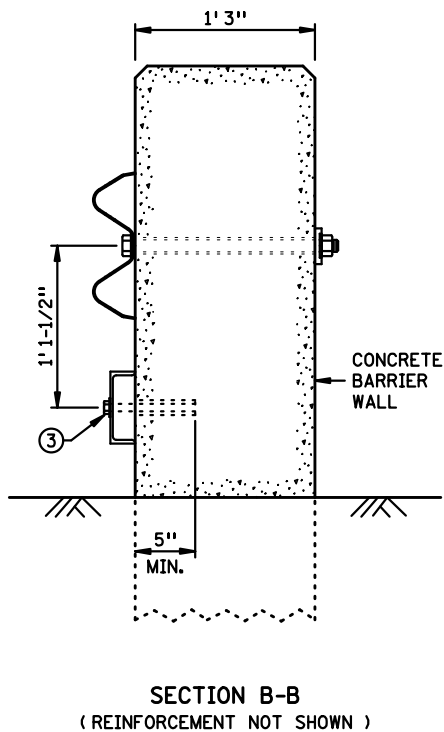
POST, SPACER BLOCK & BOLT TABLE

DESCRIPTION	POST NO.	SIZE
POST	1 & 2	W8 X 21 X 8' 0" MIN. LONG
	3 - 11	W6 X 9 X 6' 0" MIN. LONG
SPACER BLOCK	1 - 8	6" X 8" X 24-1/2"
	9 - 11	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 11	5/8" DIA. X 10" - GUARDRAIL
	1 - 8	5/8" DIA. X 12" - RUB RAIL

NOTES:

ALL STRUCTURAL STEEL AND HARDWARE SHALL MEET THE REQUIREMENTS OF SPEC. 2554 (AASHTO M180).  
SEE STANDARD PLATES MANUAL FOR GUARDRAIL DETAILS, UNLESS OTHERWISE NOTED.

- THE SPACING BETWEEN POSTS 5 AND 6 SHALL BE 1' 6'-3/4" MINIMUM AND 3' 1'-1/2" MAXIMUM.
- END SHOE REQUIRED IF TWO WAY TRAFFIC AND NO MEDIAN.
- 5/8" DIA. HEX HEAD BOLT, ROUND WASHER, WITH AN APPROVED CONCRETE ANCHOR. GALVANIZE PER SPEC. 3392.
- FIELD PUNCH SLOTS FOR POSTS NO. 1, 2, 3, 4, & 5.
- IF EMBEDMENT IS GREATER THAN 3' 0" OR IF EMBEDMENT IS 2' 6" TO 3' 0" AND ADJACENT POSTS ARE EMBEDDED 3' 0" OR MORE, THE POST SEAT IS NOT REQUIRED.
- CHECK PIER COLUMN FOOTING SIZE FOR ADEQUATE SUPPORT OF POST SEAT IF REQUIRED.
- SEE BARRIER WALL DETAILS.
- ADDITIONAL BLOCKING REQUIRED AT POST NO. 9.
- GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BARRIER WALL. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BARRIER WALL.

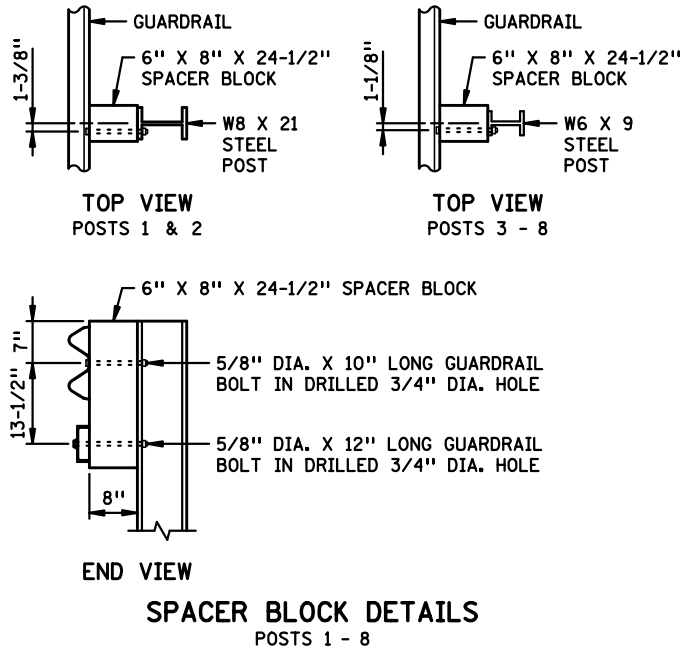
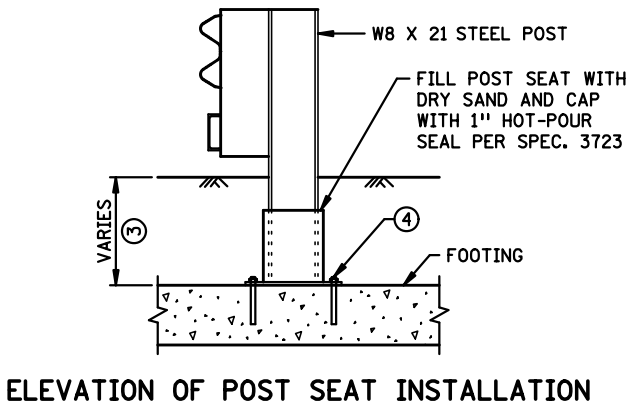
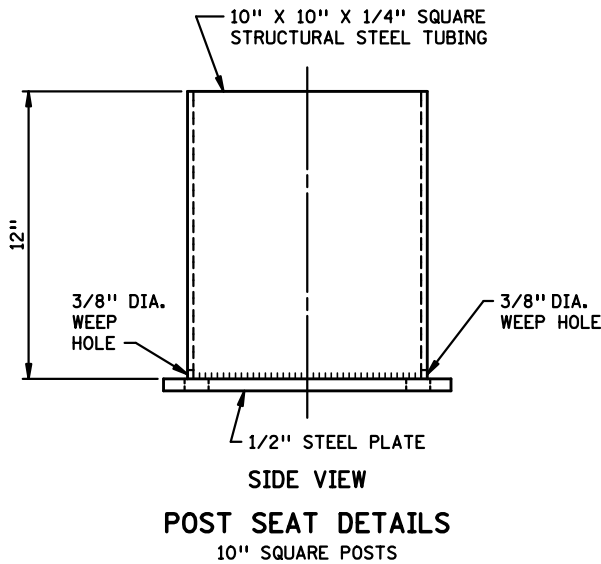
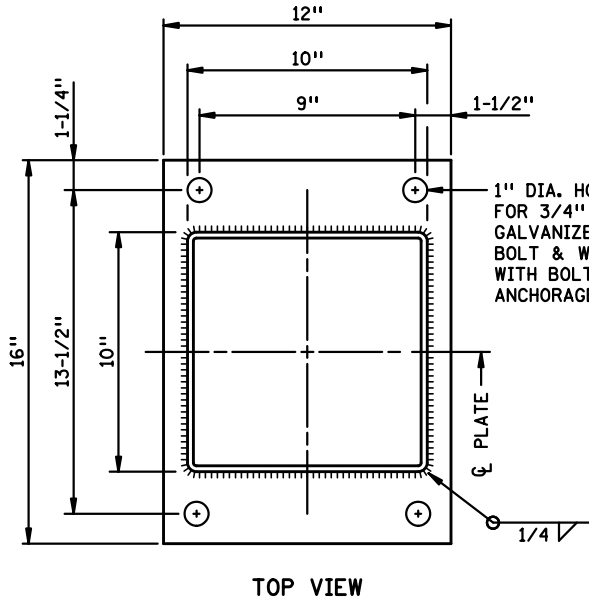
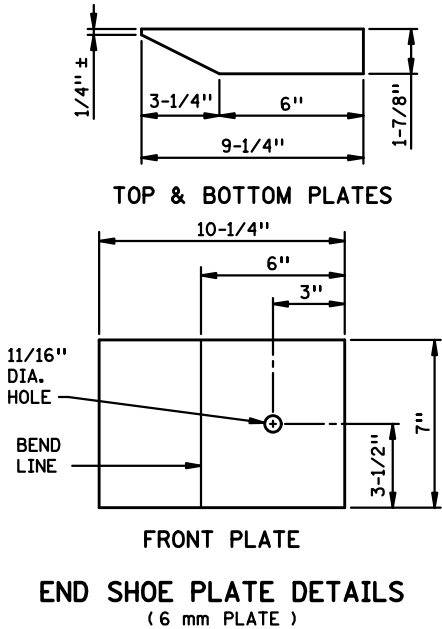
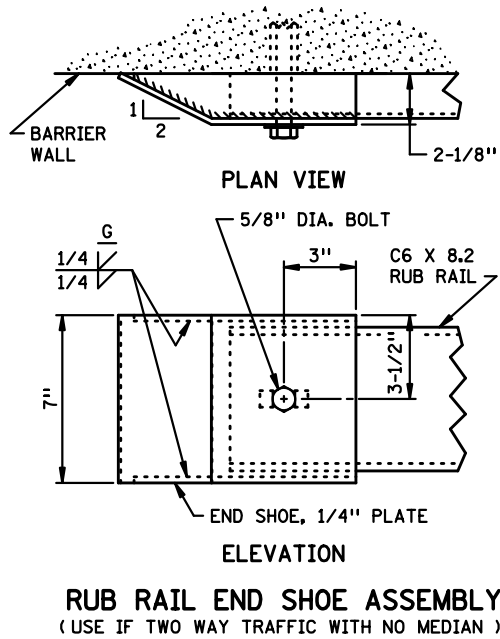
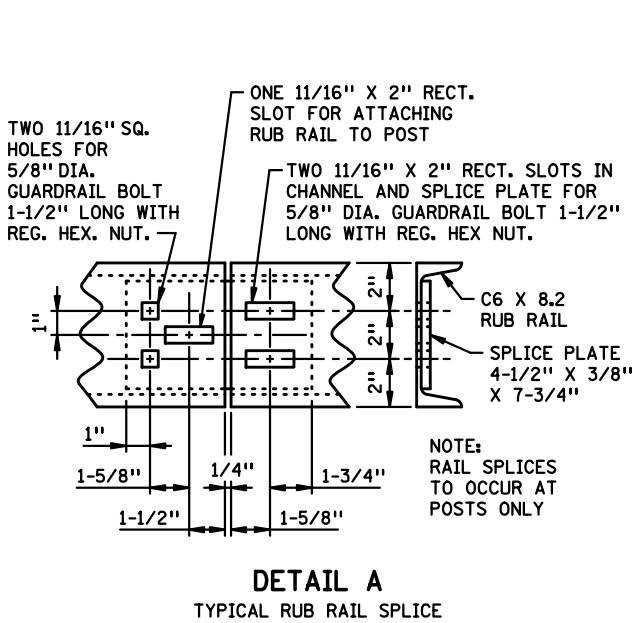
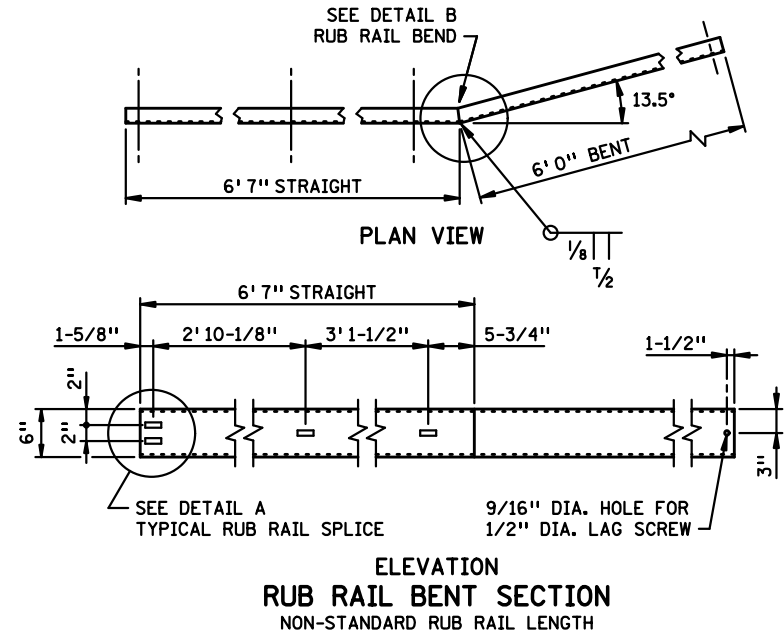
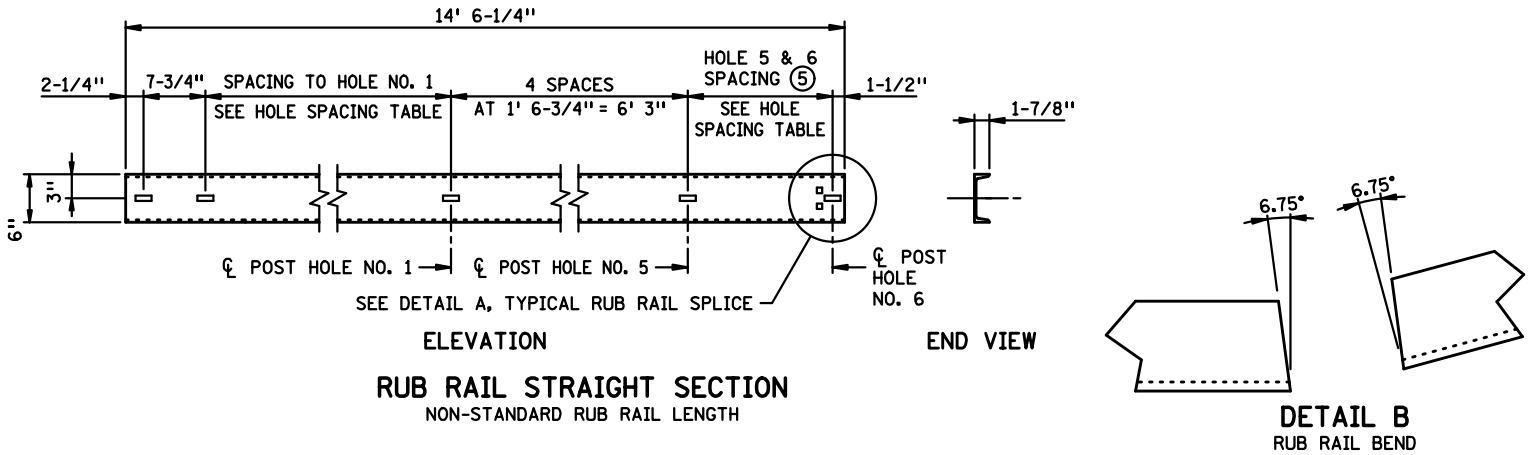


TRAFFIC BARRIER DESIGN SPECIAL

W-BEAM TRANSITION TO PIER COLUMNS WITHOUT APPROACH CURB - (STEEL POST)		APPROVED: 11-17-2016 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.684	1 OF 2
mm DEPARTMENT OF TRANSPORTATION		STANDARD PLANS		STATE PROJ. NO. 5680-147 (T.H. 94)	SHEET NO. 74 TOTAL SHEETS 153

3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_sph684-2  
PATH & FILENAME:



RUB RAIL HOLE SPACING TABLE ①

PIER SIZE ROUND DIA. RECTANGLE OR SQ. SIDE	SPACING TO POST HOLE NO. 1	SPACING BETWEEN POST HOLES 5 AND 6
28"	4' 2-3/4"	3' 1"
30"	4' 4-3/4"	2' 11"
32"	4' 6-3/4"	2' 9"
34"	4' 8-3/4"	2' 7"
36"	4' 10-3/4"	2' 5"
38"	5' 0-3/4"	2' 3"
40"	5' 2-3/4"	2' 1"
42"	5' 4-3/4"	1' 11"
44"	5' 6-3/4"	1' 9"
46"	5' 8-3/4"	1' 7"

NOTES:

GALVANIZE POST SEAT AFTER FABRICATION PER SPEC. 3394.  
SEE SPEC. 3306 FOR STRUCTURAL POST SEAT STEEL REQUIREMENTS.  
GALVANIZE ALL HARDWARE PER SPEC. 3392.  
USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN.  
RUB RAIL IS C6 X 8.2

STRUCTURAL STEEL TO BE 3306 UNLESS OTHERWISE NOTED.

ALL SLOTTED HOLES ARE 11/16" X 2".

ALL SQUARE HOLES ARE 11/16".

GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.

- ① THE SPACING BETWEEN POST HOLES 5 AND 6 SHALL BE 1' 6-3/4" MINIMUM AND 3' 1-1/2" MAXIMUM.
- ② NON-STANDARD LENGTHS, SEE RUB RAIL DETAILS FOR STRAIGHT AND BENT SECTIONS.
- ③ IF EMBEDMENT IS GREATER THAN 3' 0" OR IF EMBEDMENT IS 2' 6" TO 3' 0" AND ADJACENT POSTS ARE EMBEDDED 3' 0" OR MORE, POST SEAT IS NOT REQUIRED.
- ④ 3/4" BOLT ANCHORAGES FOR FASTENING POST SEAT SHALL HAVE AN ULTIMATE PULL OUT STRENGTH OF AT LEAST 13,500 LBS. AND SHALL BE PLACED IN SOUND CONCRETE TO A DEPTH OF 6-1/2" MINIMUM.

TRAFFIC BARRIER DESIGN SPECIAL

W-BEAM TRANSITION TO PIER COLUMNS  
WITHOUT APPROACH CURB - (STEEL POST)

APPROVED: 11-17-2016  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.684

2 OF 2



STANDARD PLANS

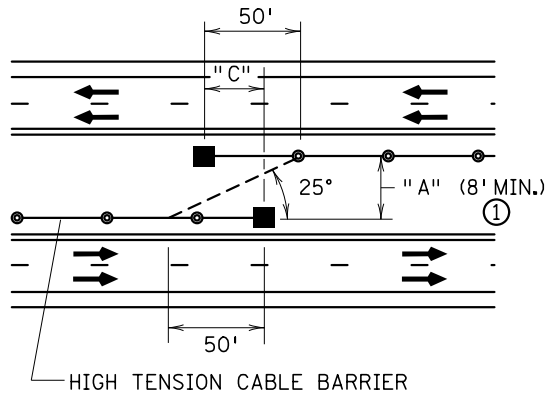
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 75  
TOTAL SHEETS 153

3-OCT-2024

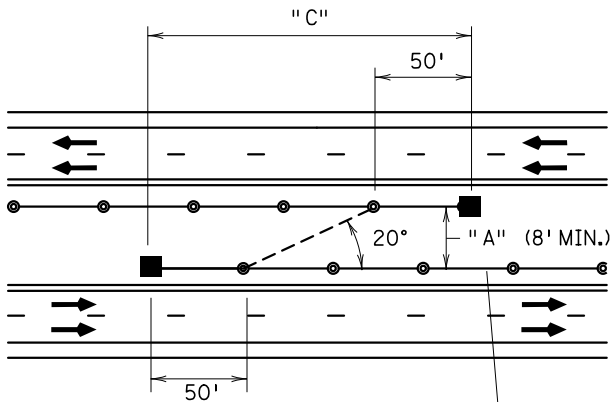
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_sph688-1  
PATH & FILENAME:



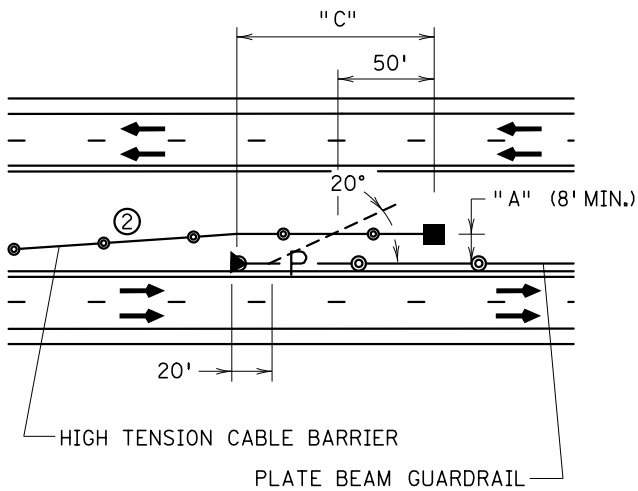
DEPARTING END DIMENSIONS	
"A"	"C" (OVERLAP)
8'	83'
12'	74'
16'	66'
20'	57'
24'	49'
28'	40'
32'	31'
36'	23'
40'	14'
44'	6'
>=47'	OVERLAP NOT REQUIRED

OVERLAP AT DEPARTING ENDS OF CABLE BARRIER



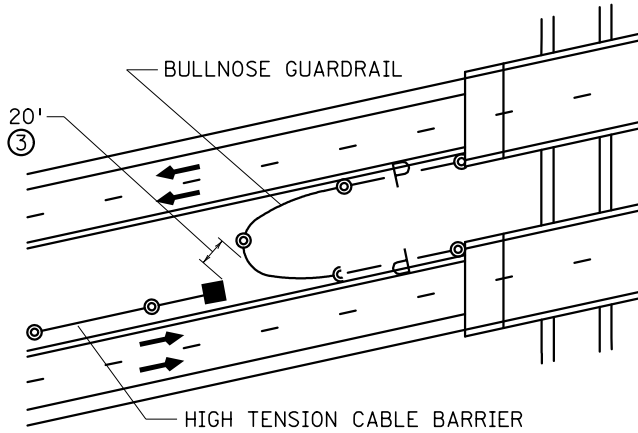
APPROACH END DIMENSIONS	
"A"	"C" (OVERLAP)
8'	122'
12'	133'
16'	144'
20'	155'
24'	166'
28'	177'
32'	188'
36'	199'
40'	210'
44'	221'
48'	232'
52'	243'
56'	254'

OVERLAP AT APPROACH ENDS OF CABLE BARRIER

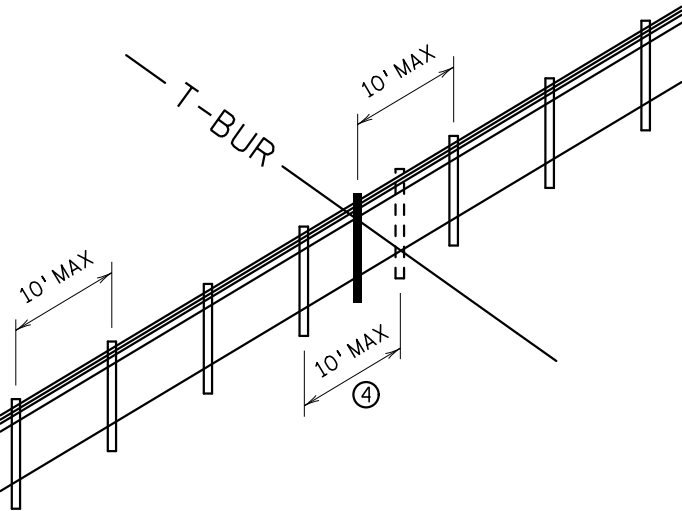
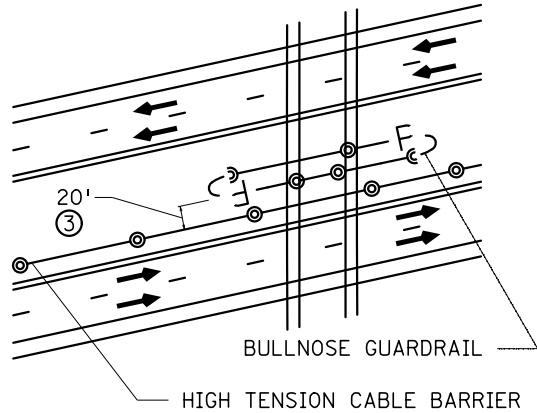


APPROACH END DIMENSIONS	
"A"	"C" (OVERLAP)
8'	92'
12'	103'
16'	114'
20'	125'
24'	136'
28'	147'
32'	158'
36'	169'
40'	180'
44'	191'
48'	202'
52'	213'
56'	224'

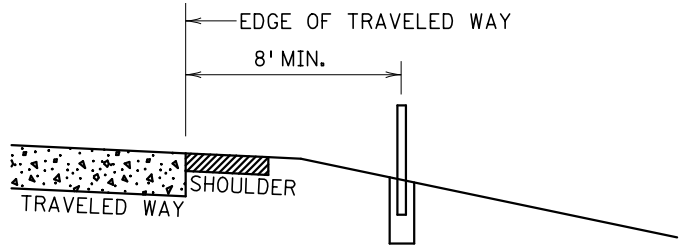
OVERLAP AT PLATE BEAM GUARDRAIL



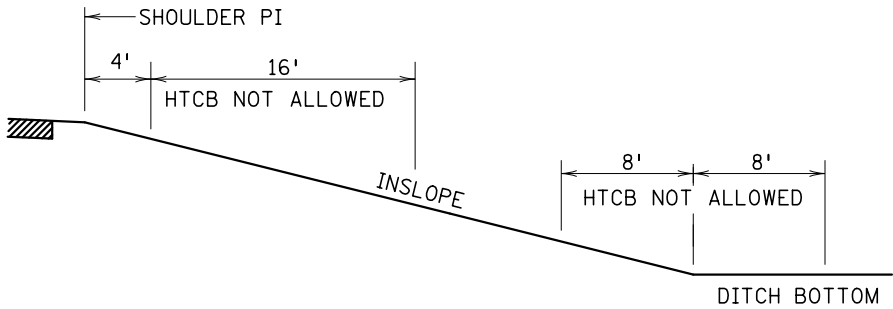
CLEARANCES AT BRIDGE PIER/BULLNOSE



POST SPACING AT UTILITY CROSSING



PLACEMENT ADJACENT TO TRAVELED WAY  
(ON INSLOPES 1V:4H OR FLATTER)



PLACEMENT ON 1V:4H SLOPE AND ON SLOPES BETWEEN  
1V:6H AND 1V:4H TO AVOID OVERRIDES/UNDERRIDES  
(HTCB ON INSLOPES FLATTER THAN 1V:6H  
DO NOT REQUIRE SPECIAL PLACEMENT)

- NOTES:
- STEEPEST INSLOPE FOR HTCB PLACEMENT IS 1V:4H.
  - CABLE SPLICE HARDWARE PER MANUFACTURER RECOMMENDATION. TWO SPLICES PER LINE POST MAXIMUM. PROVIDE SWAGED FITTINGS FOR ALL CABLE CONNECTIONS.
  - ALL LINE POST SOCKETS AND LINE POSTS SHALL BE PLUMB, SEE MANUFACTURER'S SPECIFICATIONS.
  - LINE POST SOCKET LOCATION SHALL MEET THE SOIL REQUIREMENTS PER MDOT GEOTECHNICAL ENGINEERING SECTION.
  - ① IF DIMENSION "A" IS GREATER THAN 47' OVERLAP NOT REQUIRED.
  - ② USE 1:25 TAPER IF NEEDED TO OBTAIN 8' CLEARANCE.
  - ③ RECOMMENDED CLEARANCE.
  - ④ MODIFY POST SPACING TO AVOID UTILITY CONFLICTS. POST SPACING NOT TO EXCEED 10'.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

HIGH TENSION CABLE BARRIER (HTCB)  
MEDIAN PLACEMENT, OVERLAP, AND UTILITY CROSSINGS

APPROVED: 02-28-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.688

1 OF 2

MD  
DEPARTMENT OF  
TRANSPORTATION

STANDARD PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 76

(T.H. 94)

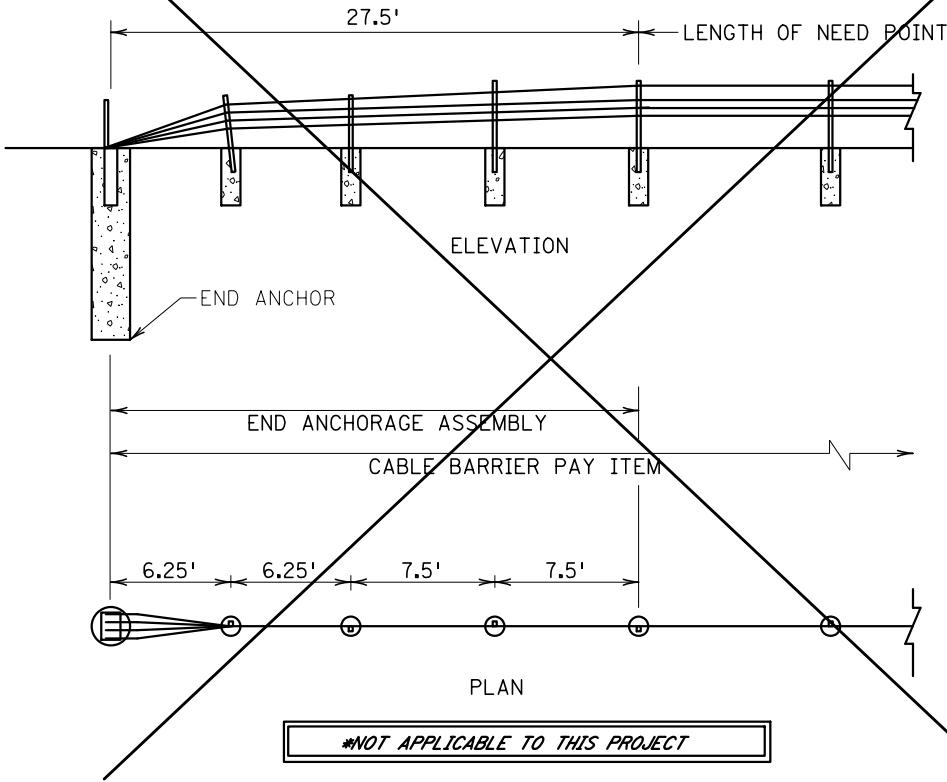
TOTAL SHEETS 153



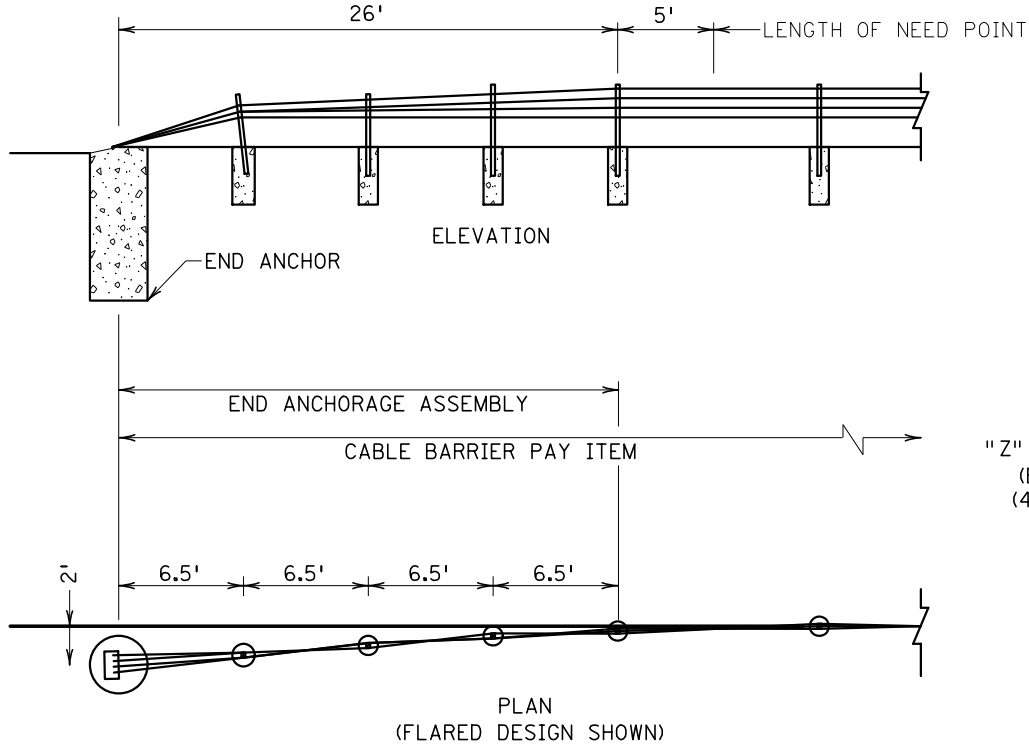
3-OCT-2024

3-OCT-2024

DISTRICT #  
PLOT NAME: 4D5680147\_sph688-2  
PATH & FILENAME:



"C" POST SYSTEM  
(GIBRALTER TL-4  
CABLE BARRIER SYSTEM)



"Z" POST SYSTEM  
(BRIFEN TL-4  
(4-ROPE) WRSF)

NOTES:  
THESE ARE PROPRIETARY ITEMS IN ACCORDANCE WITH SPEC. 1703.  
SEE SPECIAL PROVISIONS FOR POST DELINEATORS AND OBJECT MARKERS.  
SEE SPECIAL PROVISIONS FOR END ANCHORAGE AND LINE POST ASSEMBLY  
FOUNDATION DESIGN REQUIREMENTS, IN ACCORDANCE WITH SPEC. 2554.  
FIELD-LOCATE ALL UTILITIES IN THE END ANCHORAGE ASSEMBLY AREAS.  
CHECK WITH MANUFACTURER FOR SPECIFIC OFFSET REQUIREMENTS.  
SET ALL POSTS WITHIN END ANCHORAGE IN CONCRETE FOUNDATIONS  
WITH A MINIMUM DEPTH OF 5'. CONCRETE MIX 3G52.  
EPOXY COAT ALL REINFORCEMENT BARS IN ACCORDANCE WITH SPEC. 3301.

THESE DETAILS ARE FOR DESIGN GUIDANCE INFORMATION ONLY.  
CHECK WITH MANUFACTURER FOR CURRENT DETAILS AND  
INSTALLATION INSTRUCTIONS.

\*DENOTES MODIFICATION FROM STANDARD PLAN

MODIFIED

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

HIGH TENSION CABLE BARRIER (HTCB)  
END ANCHORAGE SYSTEMS

APPROVED: 02-28-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.688

2 OF 2



ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024  
LICENSED PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR  
UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF  
MINNESOTA.

STANDARD PLANS

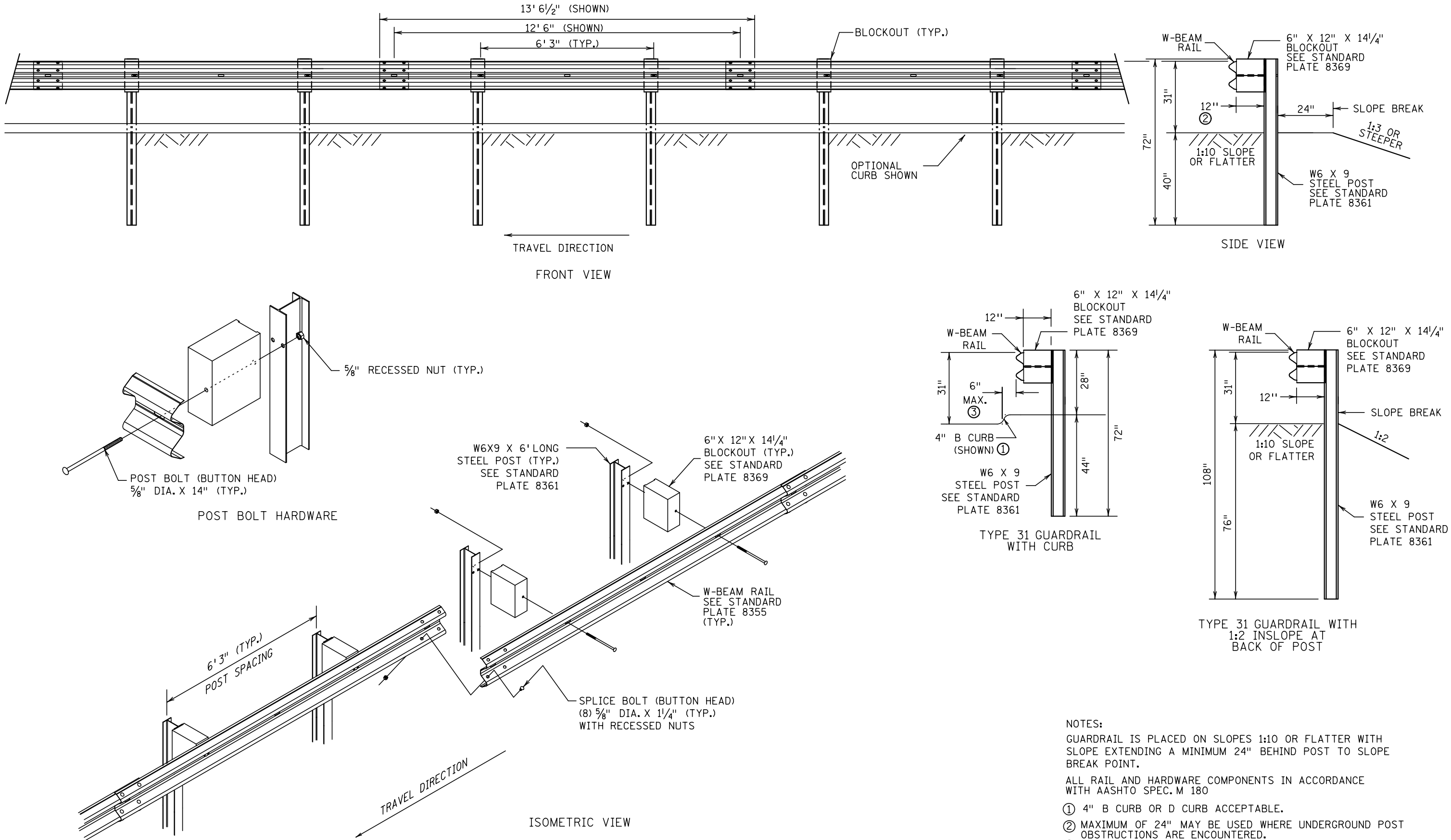
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 77  
TOTAL SHEETS 153

3-OCT-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_sph690-1  
PATH & FILENAME:



LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

TRAFFIC BARRIER TYPE 31  
ASSEMBLY DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.690

1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147

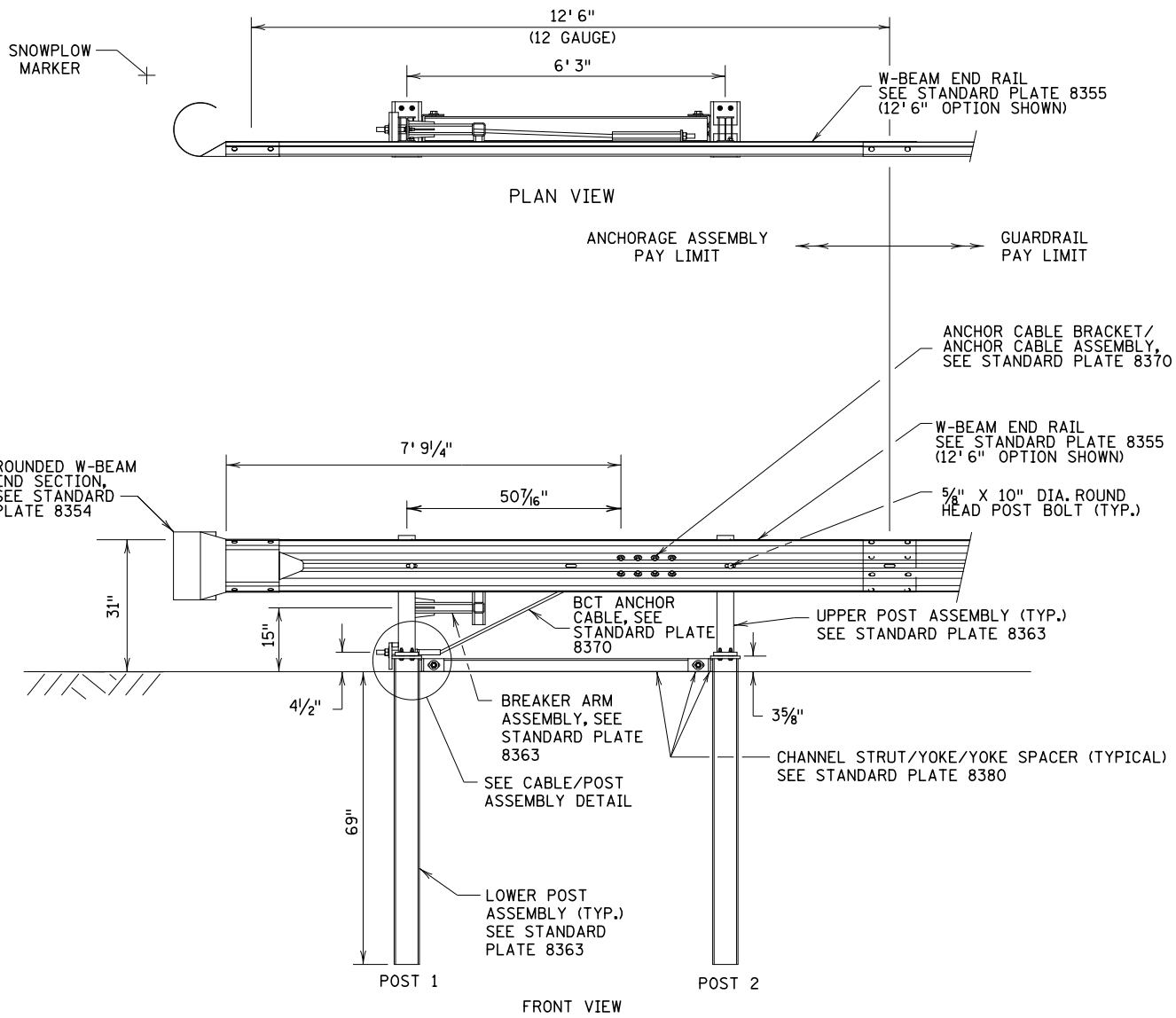
SHEET NO. 78

(T.H. 94)

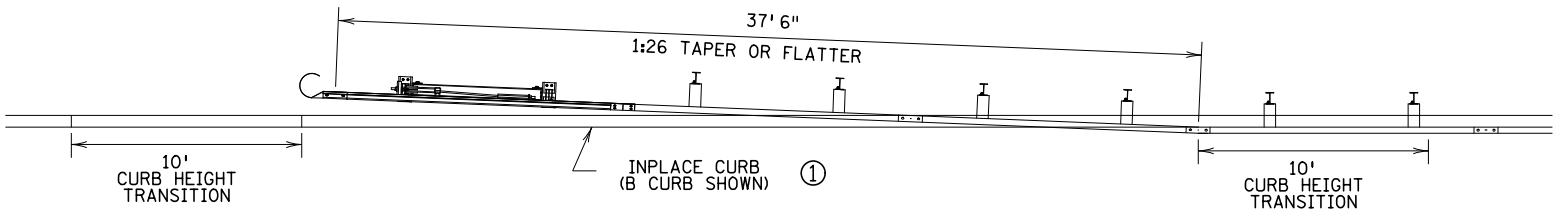
TOTAL SHEETS 153



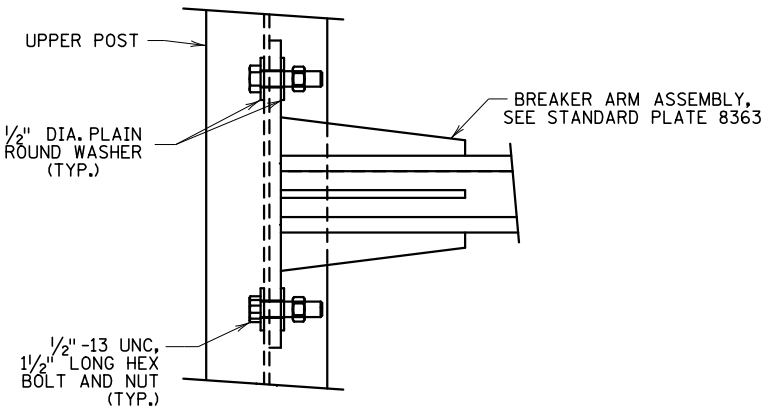
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PLOT NAME: 405680147\_sph692-1  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



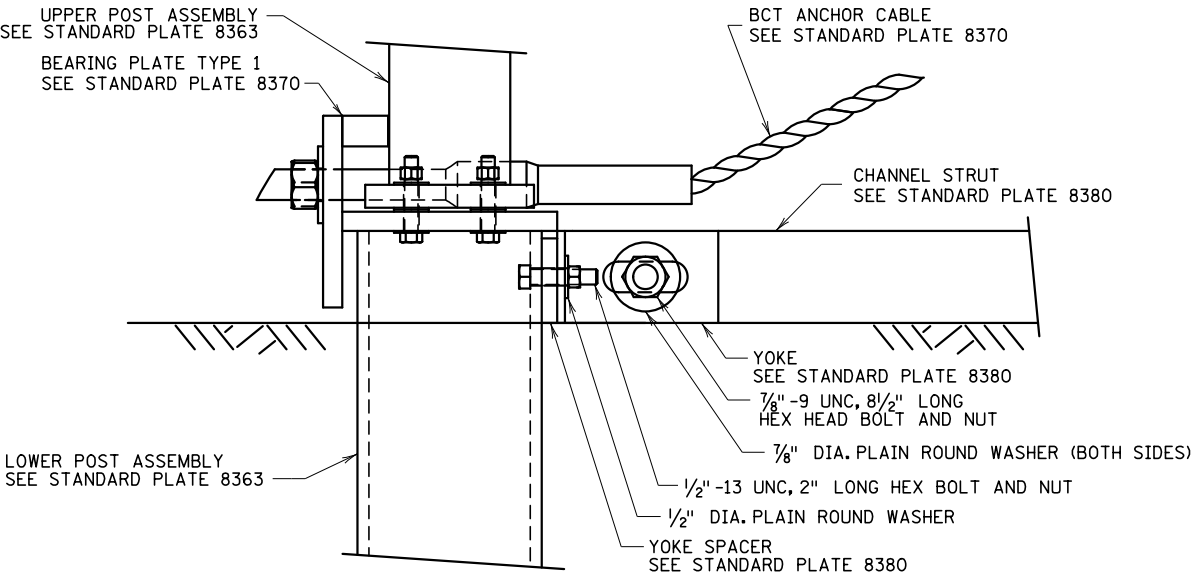
END RAIL DETAIL



CURB AT END ANCHORAGE



BREAKER ARM ASSEMBLY CONNECTION AT POST



POST 1 CABLE/YOKE ASSEMBLY

NOTES:

ALL RAIL AND HARDWARE COMPONENTS IN ACCORDANCE WITH AASHTO SPEC. M 180.

① WHERE INPLACE CURB HEIGHT IS GREATER THAN 4" MILL TO 3" HEIGHT (INCIDENTAL). PROVIDE 10' CURB HEIGHT TRANSITIONS AS SHOWN.

LEAD EXPERT OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

TRAFFIC BARRIER TYPE 31 END ANCHORAGE  
ASSEMBLY DETAILS

APPROVED: 02-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.692

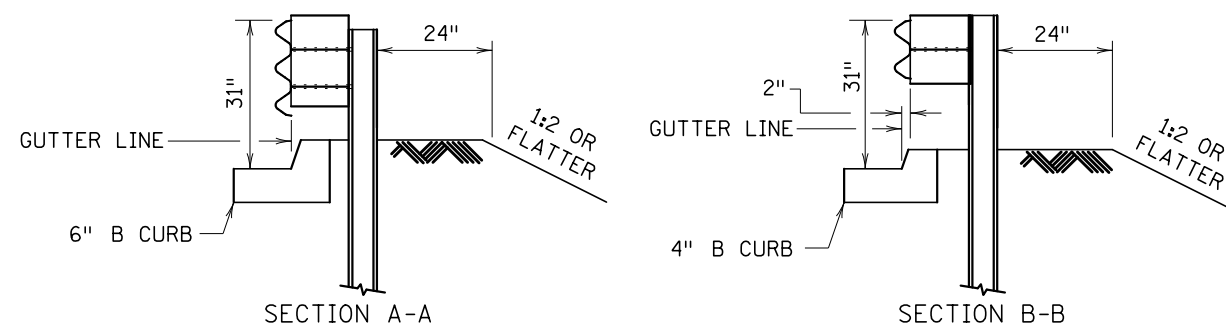
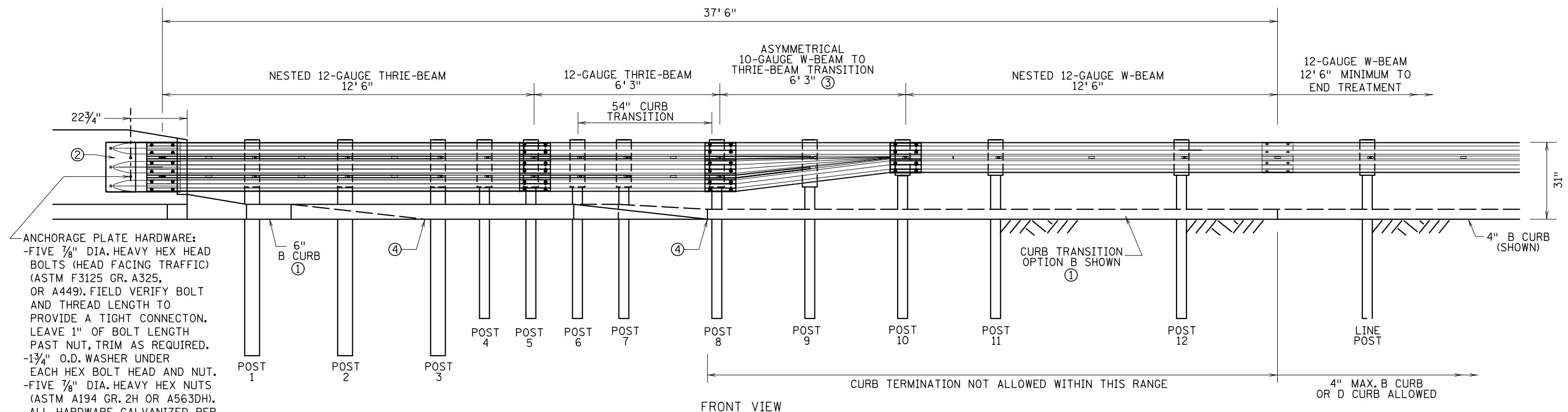
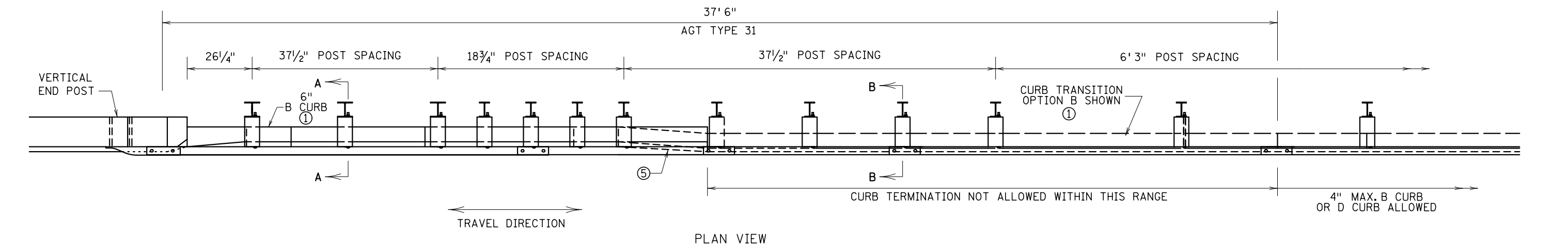
1 OF 1



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 79  
TOTAL SHEETS 153



TRANSITION POST AND BLOCKOUT SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1-3	84" - W6 x 15	6" x 12" x 19"
4-9	72" - W6 x 9	6" x 12" x 19"
10-12	72" - W6 x 9	6" x 12" x 14 <sup>1</sup> / <sub>4</sub> "

NOTES:

APPROACH GUARDRAIL TRANSITION SHALL BE USED ON THE APPROACH END, AND SHALL BE USED ON THE DEPARTING/TRAILING END IF GUARDRAIL IS NEEDED. GUARDRAIL BEAM AND HARDWARE IN ACCORDANCE WITH AASHTO SPEC. M 180. REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.

- ① SEE CURB DETAILS ON SHEET 2 OF 3.
- ② THREE BEAM ANCHORAGE PLATE (STANDARD PLATE 8350) IS INCIDENTAL.
- ③ SEE STANDARD PLATE 8356.
- ④ CURB MAY BE TERMINATED AT THIS LOCATION, SEE CONSTRUCTION PLAN SHEETS FOR LOCATION. SEE CURB DETAILS ON SHEET 2 OF 3.
- ⑤ GUTTER LINE TAPERS 2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

**LEAD  
EXPERT  
OFFICE**

**NANCY YOO**  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

### APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31 AT VERTICAL END POST ASSEMBLY DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.693

1 OF 3



## STANDARD PLANS

STATE PROJ. NO.	5680-147
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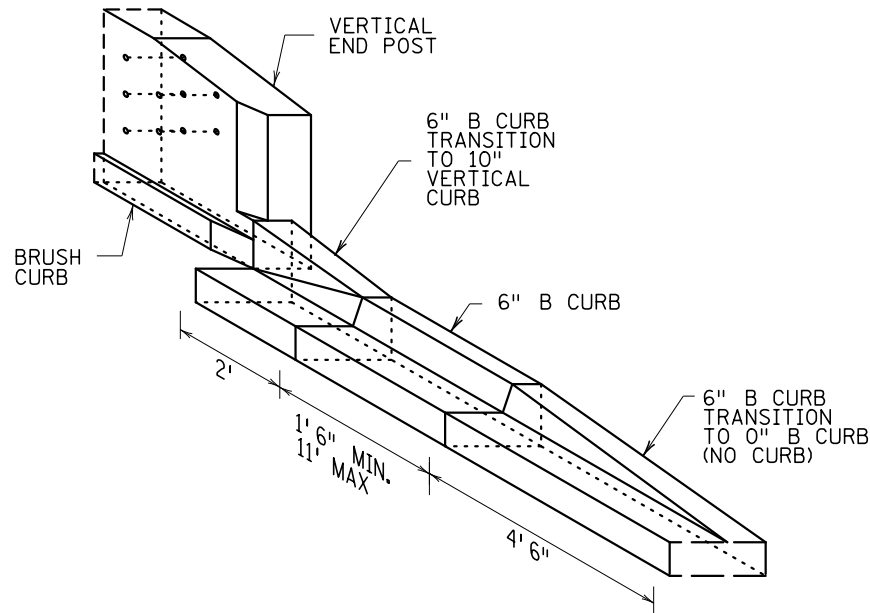
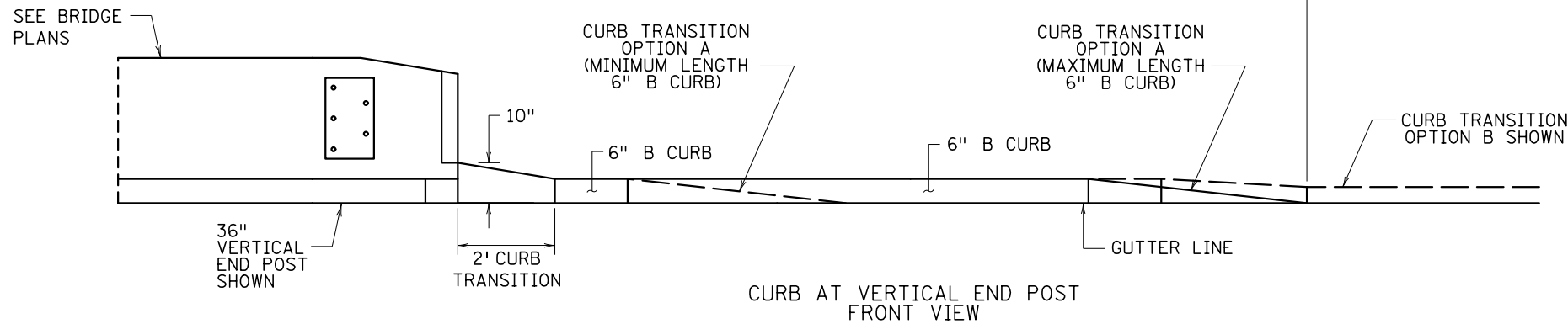
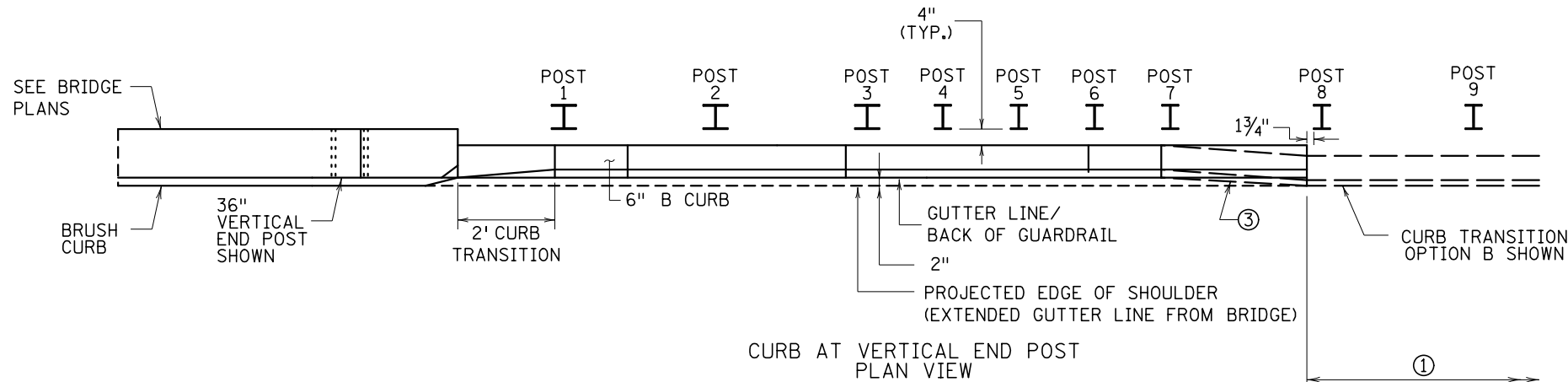
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(T.H. 94)	TOTAL SHEETS	153
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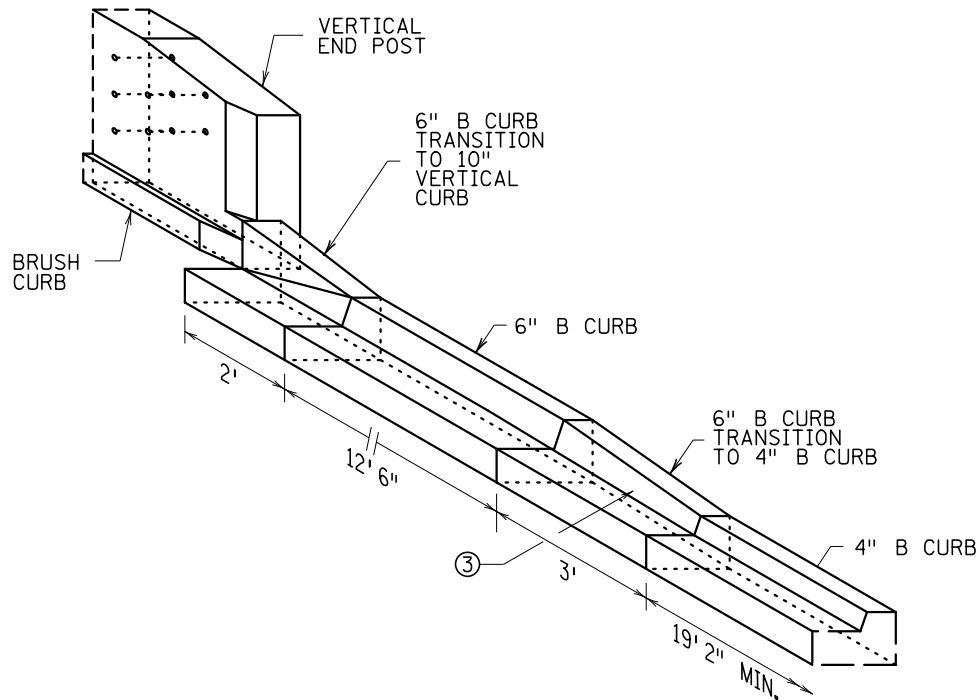
3-OCT-2024

PLOTTED/REVISED:

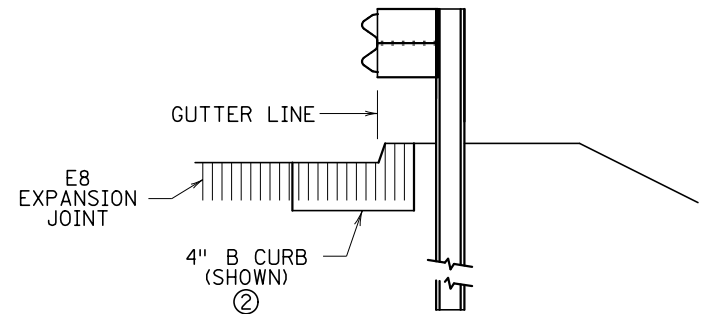
DISTRICT #  
PLOT NAME: 4D5680147\_sph693-2  
PATH & FILENAME:



CURB TRANSITION - OPTION A  
6" B CURB ONLY



CURB TRANSITION - OPTION B ①  
6" B CURB TO 4" B CURB



EXPANSION JOINT AT CURB

NOTES:

- DESIGN B CURB REQUIRED WITH THIS SYSTEM.
- DESIGN D CURB ALLOWED BEYOND THE 37' 6" DISTANCE FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE.
- REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
- ① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND 37' 6" FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE. SEE SHEET 1 OF 3.
- ② AT CURB CONTAINING E8 EXPANSION JOINT, PLACE THE BACK FACE OF GUARDRAIL AT THE GUTTER LINE.
- ③ GUTTER LINE TAPERS 2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
AT VERTICAL END POST  
CURB DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.693

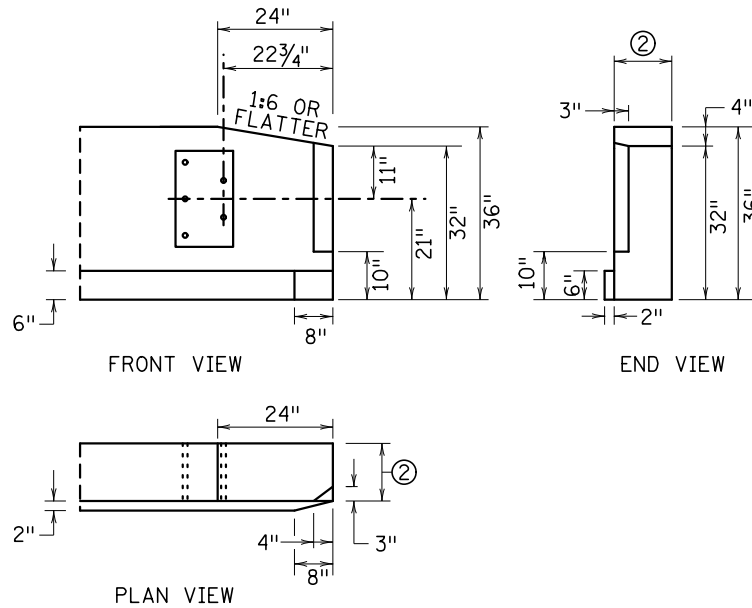
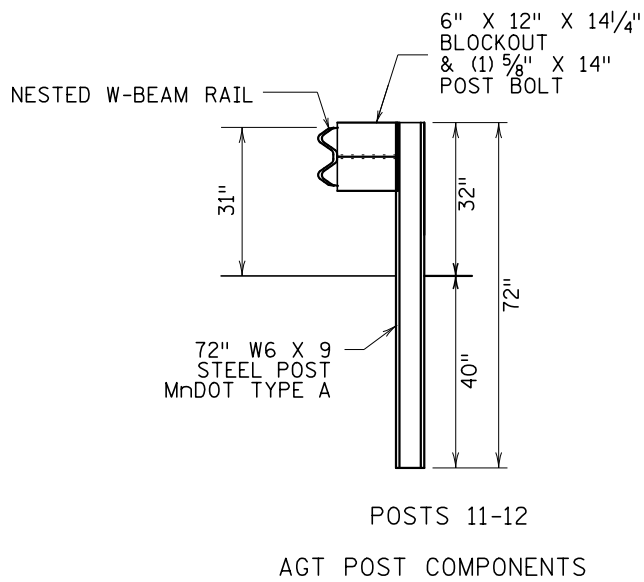
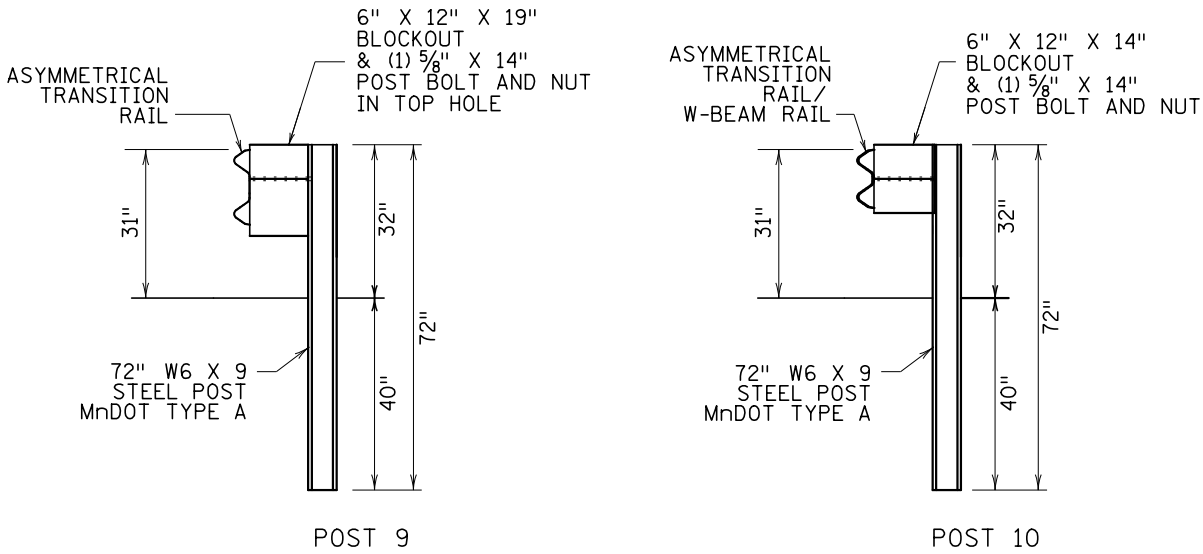
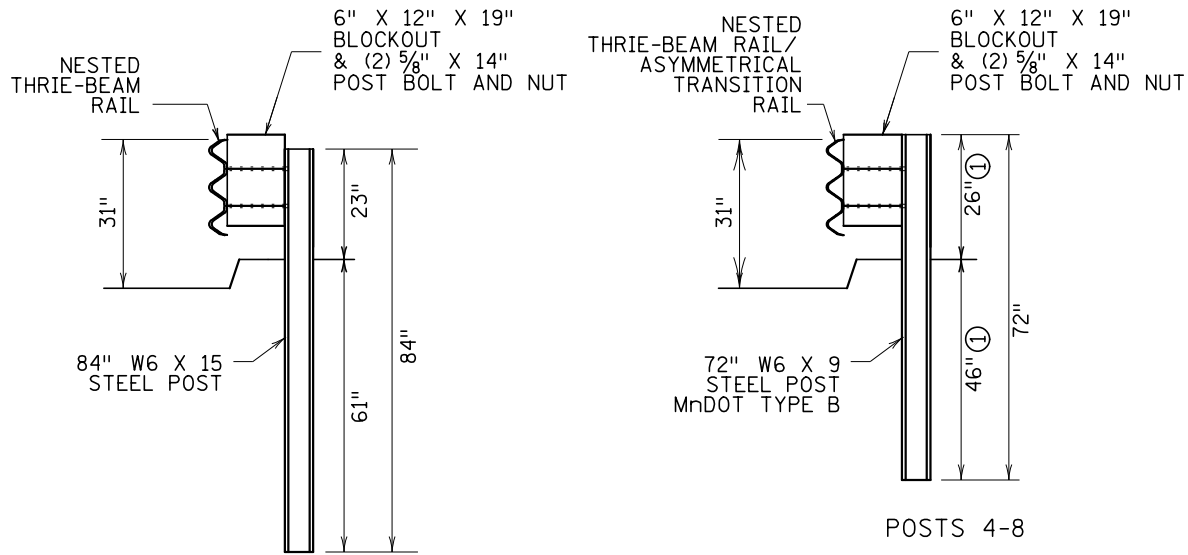
2 OF 3



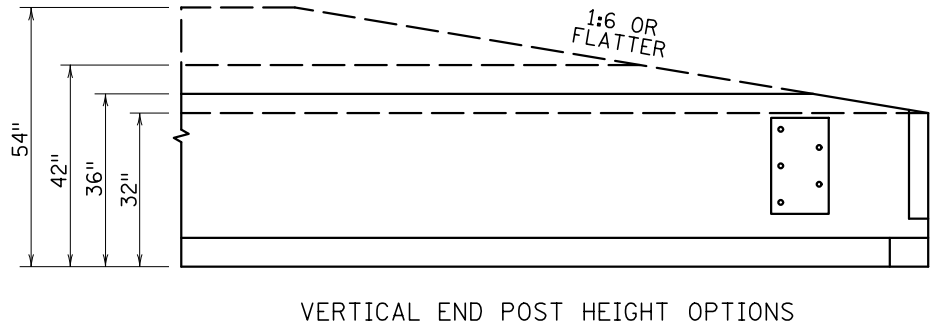
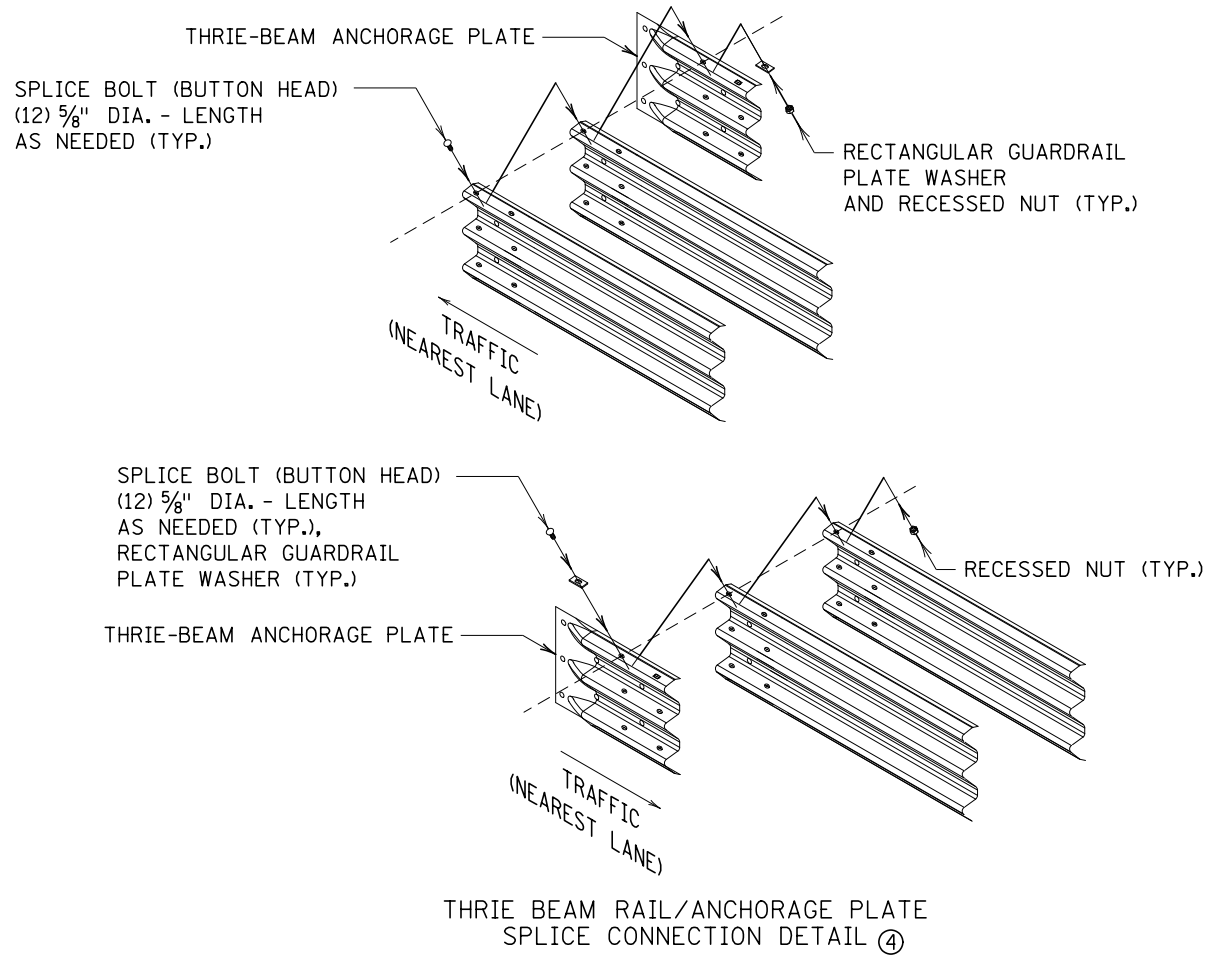
STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 81  
TOTAL SHEETS 153



VERTICAL END POST ③  
(36" HEIGHT SHOWN)



- NOTES:
- FOR GUARDRAIL STEEL POSTS, SEE STANDARD PLATE 8361.
  - FOR GUARDRAIL BLOCKOUTS, SEE STANDARD PLATE 8369.
  - GUARDRAIL BEAM AND HARDWARE IN ACCORDANCE WITH AASHTO SPEC. M 180.
  - ① DIMENSIONS APPLICABLE FOR POSTS 4-5. DIMENSIONS VARY AT POSTS 6-8 WHERE CURB HEIGHT TRANSITIONS TO NO HEIGHT.
  - ② SEE BRIDGE PLAN.
  - ③ 36" HEIGHT SHOWN. 32", 48", AND 54" HEIGHT AVAILABLE.
  - ④ DRILL ANCHORAGE PLATE AS NEEDED FOR FIT, REPAIR GALVANIZED COATINGS IN ACCORDANCE WITH ASTM SPEC. A780.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
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OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
AT VERTICAL END POST  
MISCELLANEOUS AND COMPONENT DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.693

3 OF 3



STANDARD PLANS

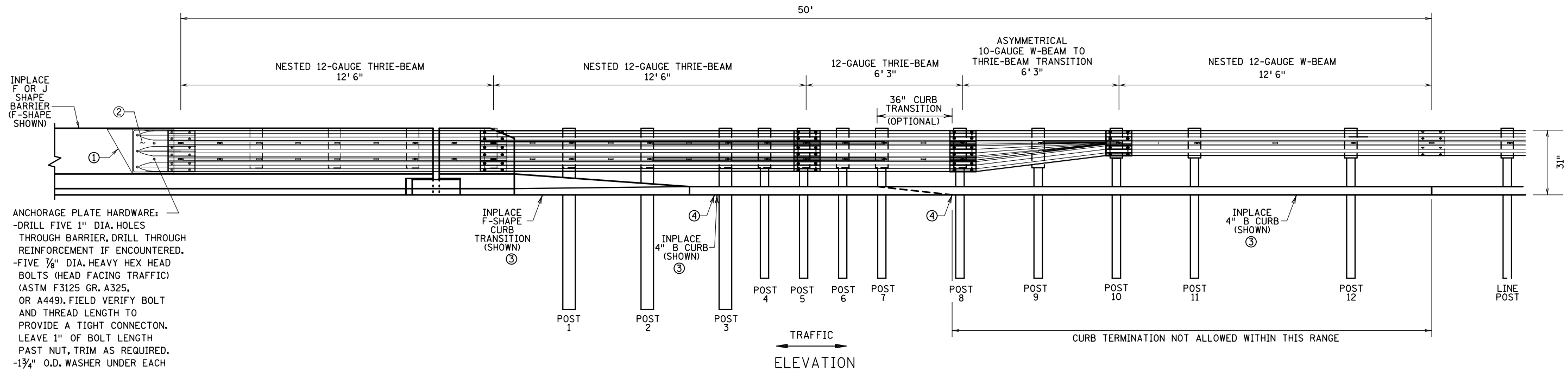
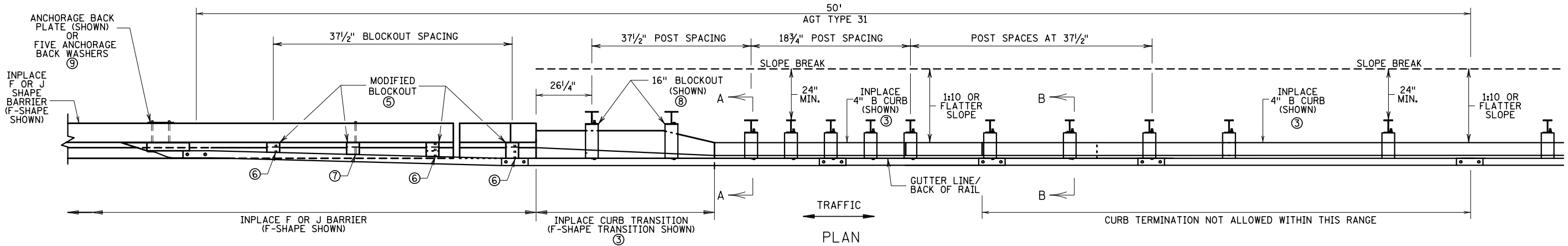
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 82  
TOTAL SHEETS 153

3-OCT-2024

PLOTTED/REVISED:

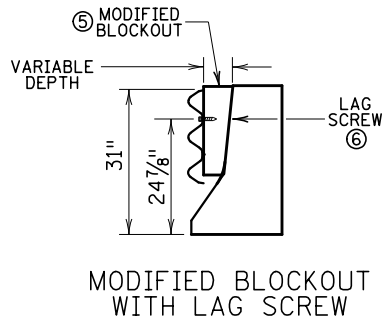
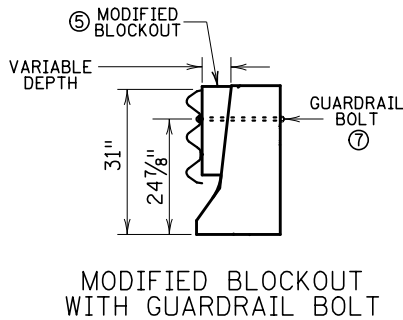
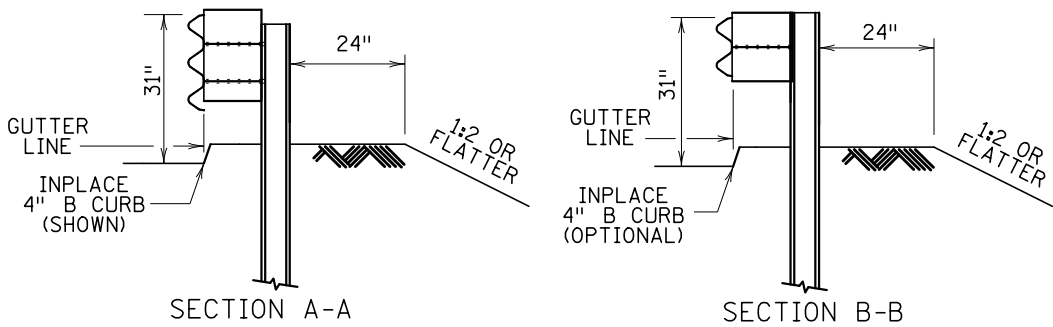
DISTRICT #  
PLOT NAME: 4D5680147\_sph695-1  
PATH & FILENAME:



ANCHORAGE PLATE HARDWARE:  
-DRILL FIVE 1" DIA. HOLES THROUGH BARRIER, DRILL THROUGH REINFORCEMENT IF ENCOUNTERED.  
-FIVE 7/8" DIA. HEAVY HEX HEAD BOLTS (HEAD FACING TRAFFIC) (ASTM F3125 GR. A325, OR A449). FIELD VERIFY BOLT AND THREAD LENGTH TO PROVIDE A TIGHT CONNECTION. LEAVE 1" OF BOLT LENGTH PAST NUT, TRIM AS REQUIRED.  
-1 3/4" O.D. WASHER UNDER EACH HEX NUT.  
-FIVE 7/8" DIA. HEAVY HEX NUTS (ASTM A194 GR. 2H OR A563DH).  
-ALL HARDWARE GALVANIZED IN ACCORDANCE WITH ASTM A153 AND A780.

TRANSITION POST AND BLOCKOUT SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1-2	84" - W6 x 15	6 x 12 x 19" (6)
3	84" - W6 x 15	6 x 12 x 19"
4-9	72" - W6 x 9	6 x 12 x 19"
10-12	72" - W6 x 9	6 x 12 x 14 1/4"

- NOTES:  
GUARDRAIL BEAM AND HARDWARE IN ACCORDANCE WITH AASHTO SPEC. M 180.
- THRIE BEAM WEDGE PLATE (STANDARD PLATE 8352) IS INCIDENTAL.
  - THRIE-BEAM ANCHORAGE PLATE (STANDARD PLATE 8350) IS INCIDENTAL.
  - SEE CURB DETAILS ON SHEETS 2 AND 3.
  - CURB MAY BE TERMINATED AT THIS LOCATION, SEE CONSTRUCTION PLAN SHEETS. SEE CURB DETAILS ON SHEETS 2 AND 3.
  - CUT 6" X 12" X 19" WOOD BLOCKOUT TO FIT FLUSH ON BARRIER AND PLUMB AT PLATE BEAM RAIL.
  - SECURE BLOCKOUT TO PLATE BEAM RAIL WITH 1/2" DIA. X 4" LONG LAG SCREW.
  - 3/4" HOLE DRILLED THRU BARRIER, AND REINFORCEMENT IF ENCOUNTERED. SECURE BLOCKOUT AND RAIL TO BARRIER USING ONE 5/8" DIA. GUARDRAIL BOLT, RECESSED NUT, AND 1 3/4" O.D. WASHER. VARIABLE LENGTH, LEAVE 1" OF BOLT LENGTH PAST NUT, TRIM AS REQUIRED.
  - WHERE INPLACE CURB PROHIBITS 12" DEPTH BLOCKOUTS, 16" DEPTH IS ALLOWED USING TWO 8" DEPTH BLOCKOUTS.
  - ANCHORAGE BACK PLATE FOR BARRIERS WITHOUT COPING, ANCHORAGE BACK WASHERS FOR BARRIERS WITH COPING.



LEAD EXPERT OFFICE  
NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
AT F-SHAPE AND J-SHAPE BARRIER  
ASSEMBLY DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.695

1 OF 4



STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 83  
TOTAL SHEETS 153



PLOT NAME: 4D5680147\_spn695-2  
PATH & FILENAME:



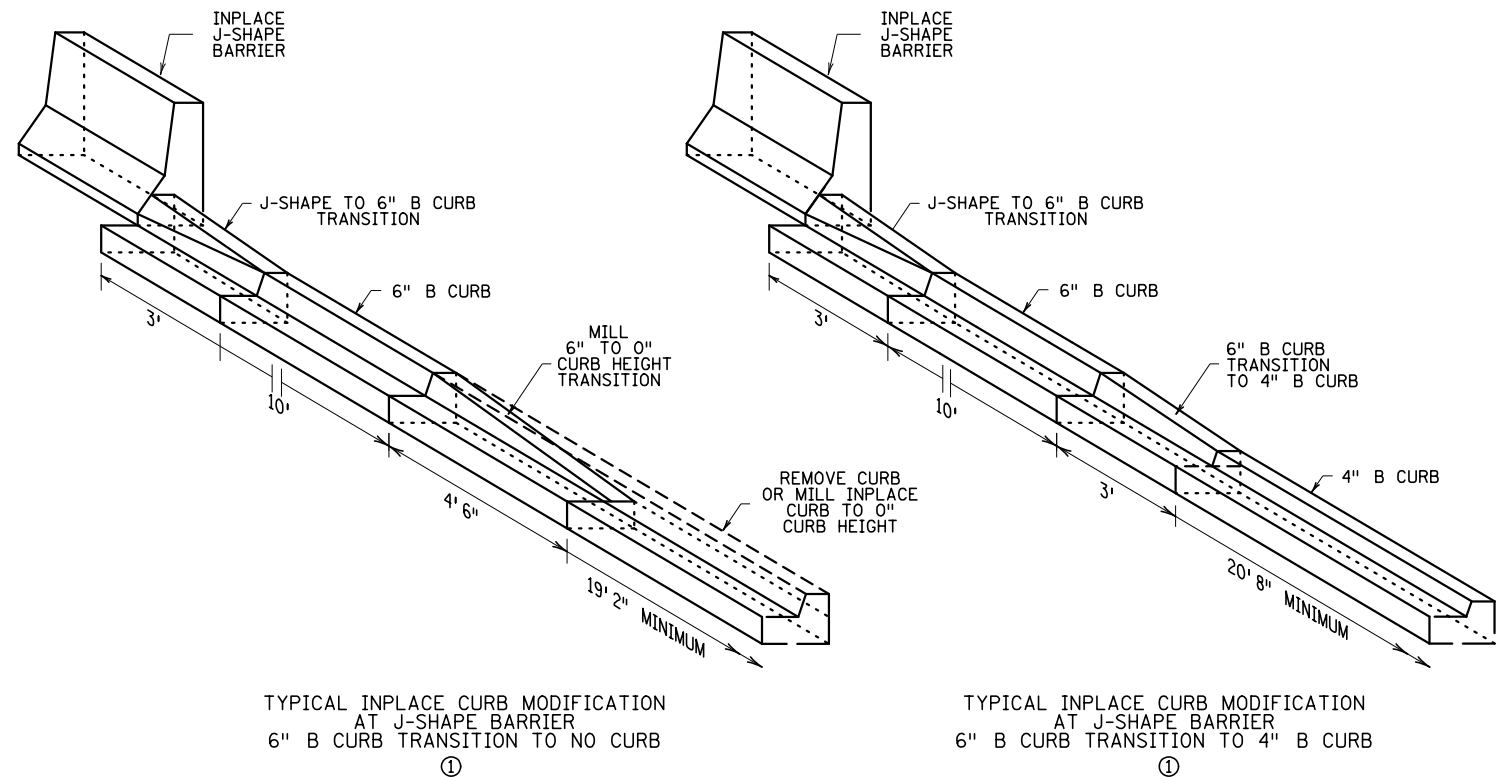
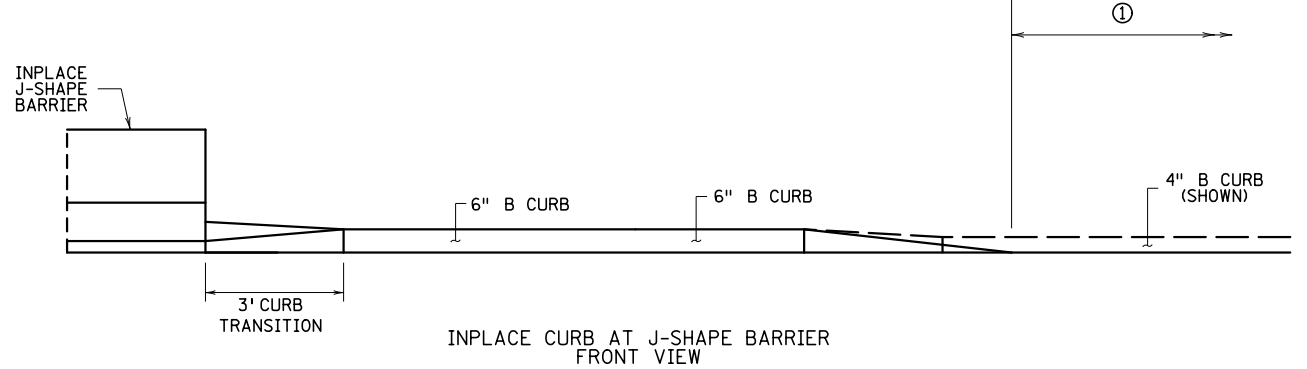
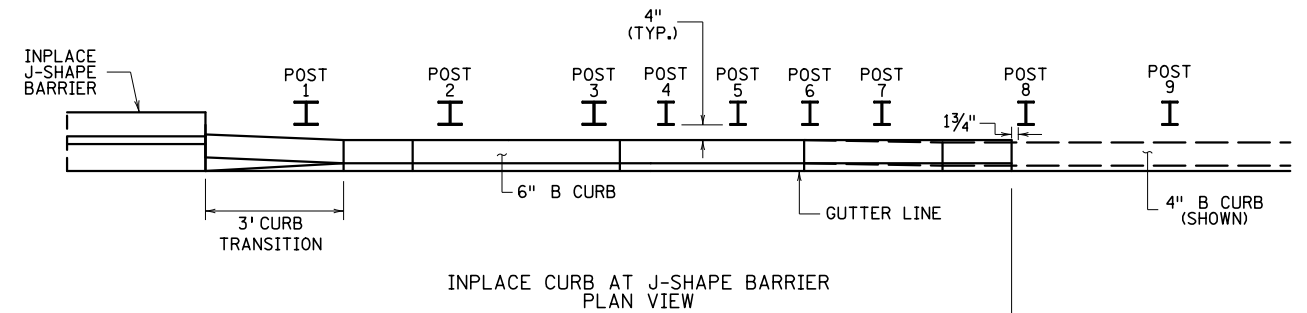
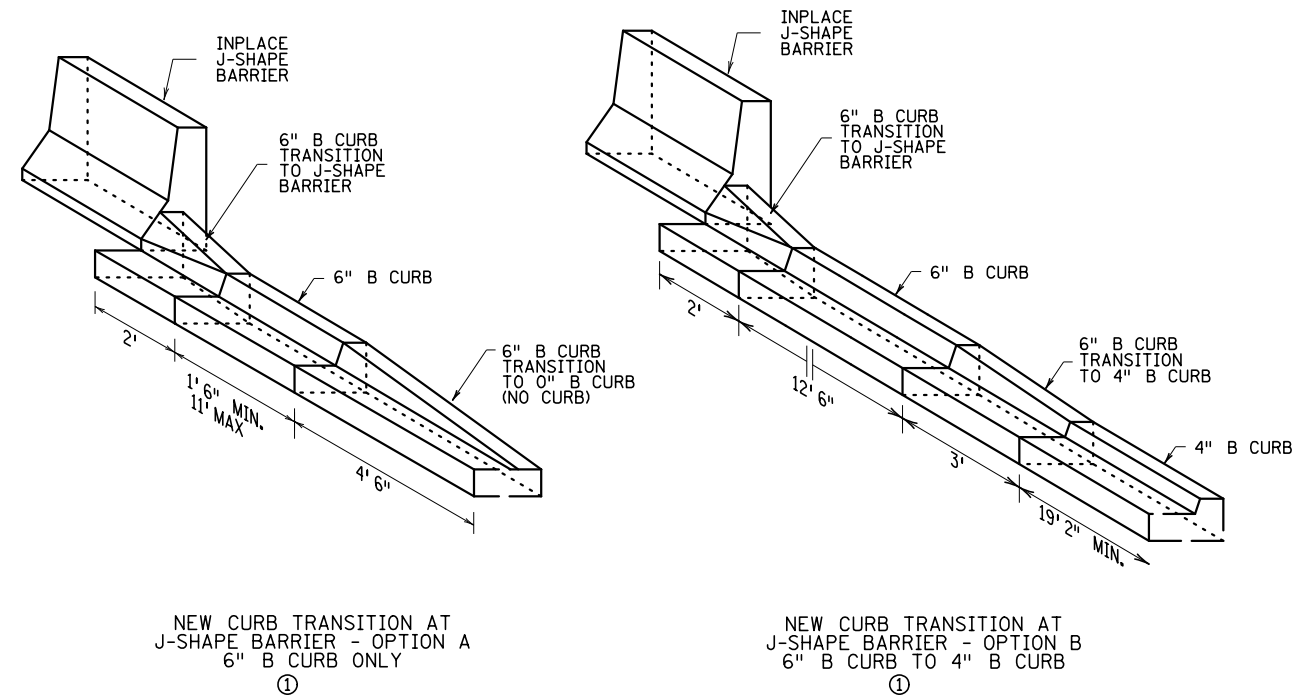
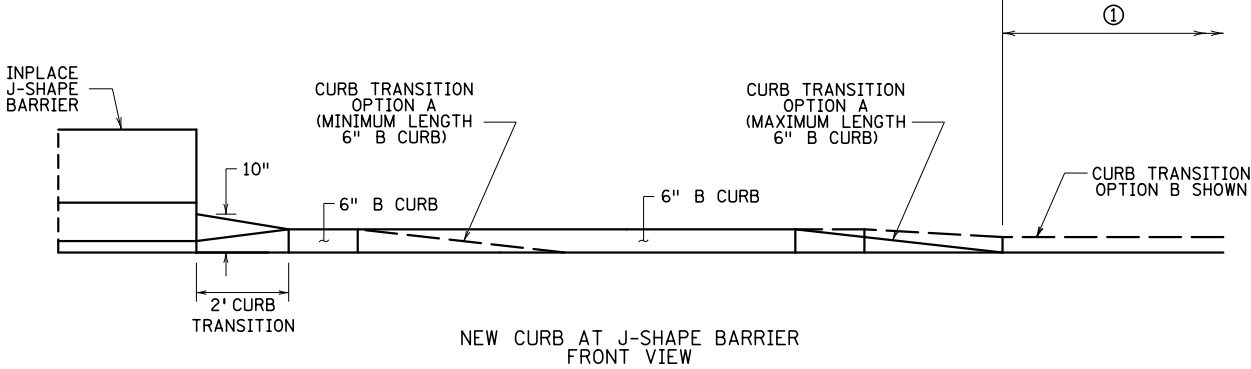
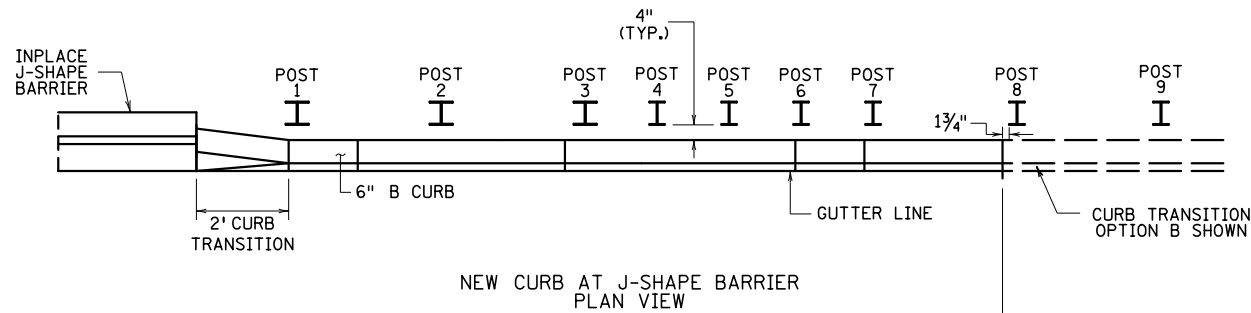
2 OF 4

SHEET NO.	84
TOTAL SHEETS	153



3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_sph695-3  
PATH & FILENAME:



NOTES:  
① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND 36' 8" FROM THE INPLACE J-SHAPE BARRIER. SEE SHEET 1 OF 4.

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OFFICE

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DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
AT F-SHAPE AND J-SHAPE BARRIER  
J-SHAPE BARRIER CURB DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.695

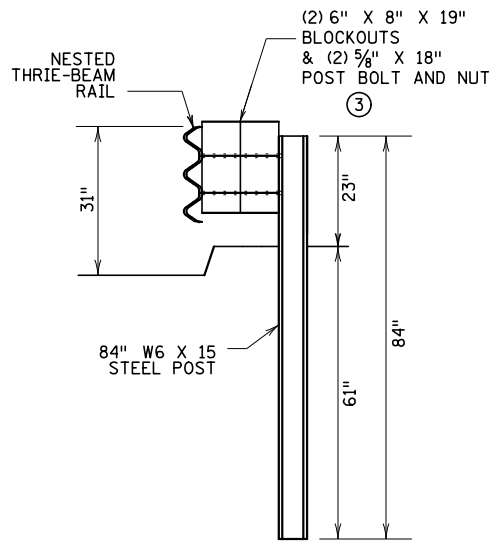
3 OF 4



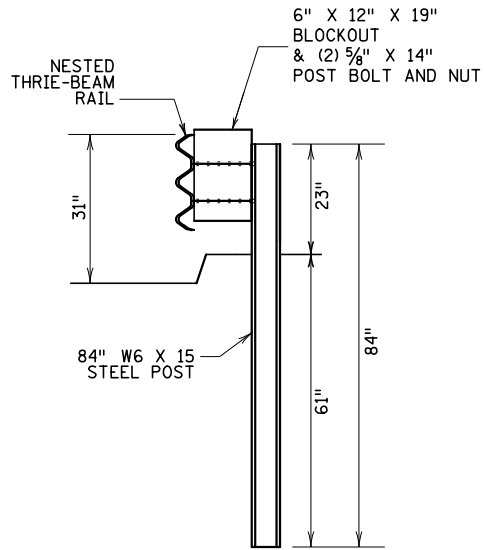
STANDARD PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

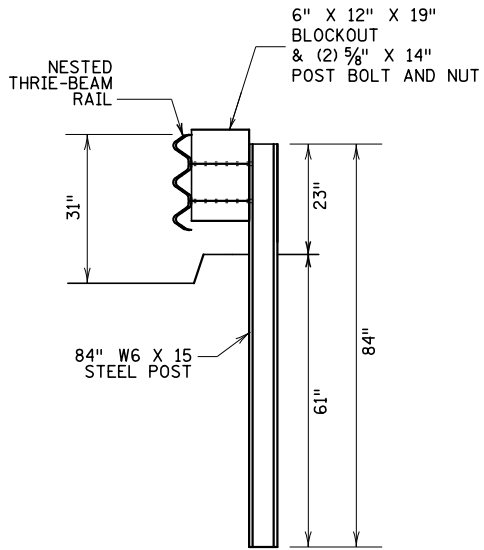
SHEET NO. 85  
TOTAL SHEETS 153



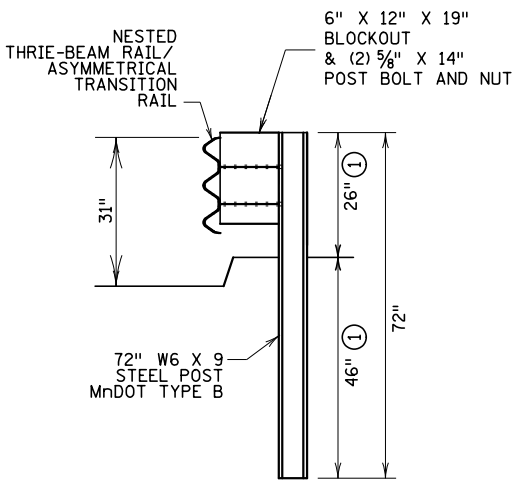
POSTS 1-2  
W/ INPLACE CURB



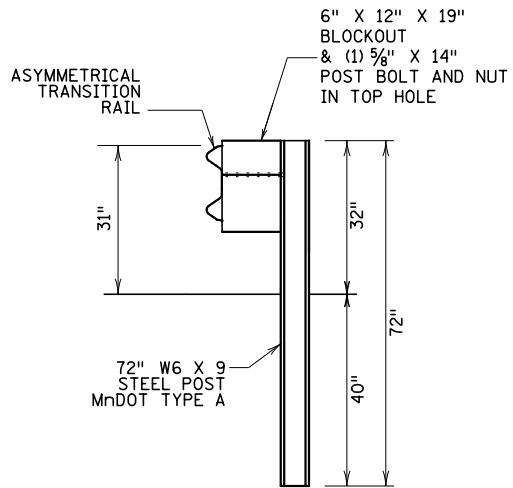
POSTS 1-2  
W/ NEW CURB



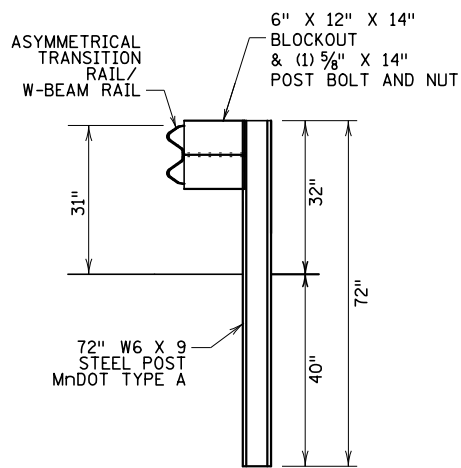
POST 3



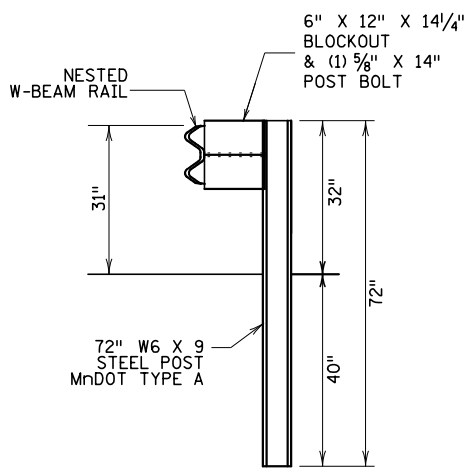
POSTS 4-8



POST 9

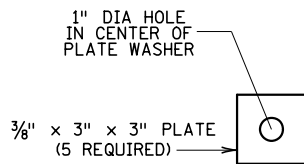


POST 10

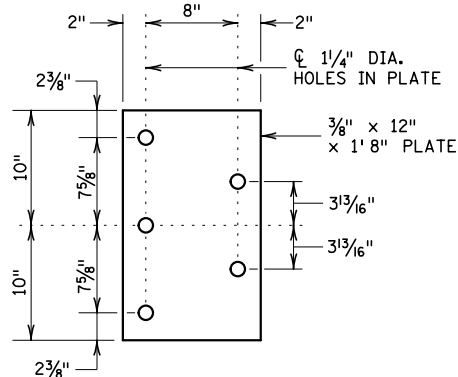


POSTS 11-12

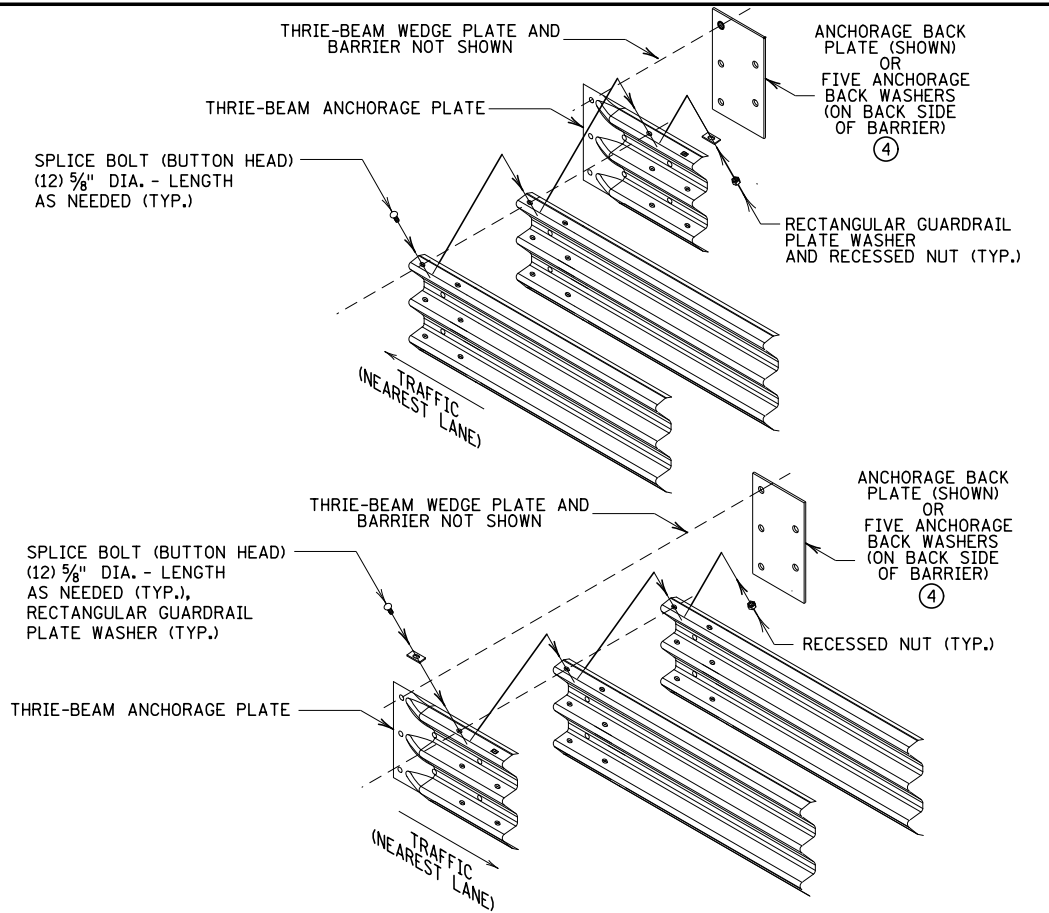
AGT POST COMPONENTS



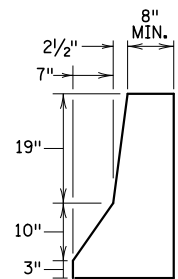
ANCHORAGE BACK WASHER ④  
FOR BARRIERS WITH COPING  
ON BACK OF BARRIER



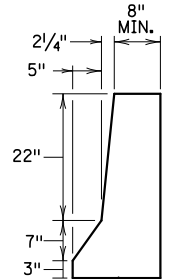
ANCHORAGE BACK PLATE ④  
FOR BARRIERS WITHOUT COPING  
ON BACK OF BARRIER



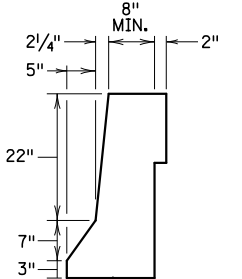
THRIE BEAM RAIL/ANCHORAGE PLATE  
SPLICE CONNECTION DETAIL ②



TYPICAL  
J-SHAPE  
SAFETY  
BARRIER  
DIMENSIONS



TYPICAL  
F-SHAPE  
SAFETY  
BARRIER  
DIMENSIONS  
(WITHOUT COPING)



TYPICAL  
F-SHAPE  
SAFETY  
BARRIER  
DIMENSIONS  
(WITH COPING)

NOTES:

FOR GUARDRAIL STEEL POSTS, SEE STANDARD PLATE 8361.

FOR GUARDRAIL BLOCKOUTS, SEE STANDARD PLATE 8369.

GUARDRAIL BEAM AND HARDWARE IN ACCORDANCE WITH AASHTO SPEC. M 180.

- DIMENSIONS APPLICABLE FOR POSTS 4-5. DIMENSIONS VARY AT POSTS 4-6 WHERE CURB HEIGHT TRANSITIONS TO NO HEIGHT.
- DRILL THRIE-BEAM ANCHORAGE PLATE AS NEEDED FOR FIT. REPAIR GALVANIZED COATINGS IN ACCORDANCE WITH ASTM SPEC. A780 AS NEEDED.
- 12" BLOCKOUT ACCEPTABLE IF INPLACE CURB ALLOWS.
- ANCHORAGE BACK PLATE FOR BARRIERS WITHOUT COPING, ANCHORAGE BACK WASHERS FOR BARRIERS WITH COPING. STRUCTURAL STEEL IN ACCORDANCE WITH SPEC. 3306. GALVANIZE AFTER FABRICATION IN ACCORDANCE WITH SPEC. 3394.

LEAD  
EXPERT  
OFFICE

NANCY YOO  
DESIGN SUPPORT DIRECTOR  
OFFICE OF PROJECT MANAGEMENT  
& TECHNICAL SUPPORT

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
AT F-SHAPE AND J-SHAPE BARRIER  
MISCELLANEOUS AND COMPONENT DETAILS

APPROVED: 07-05-2022  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.695

4 OF 4



STANDARD PLANS

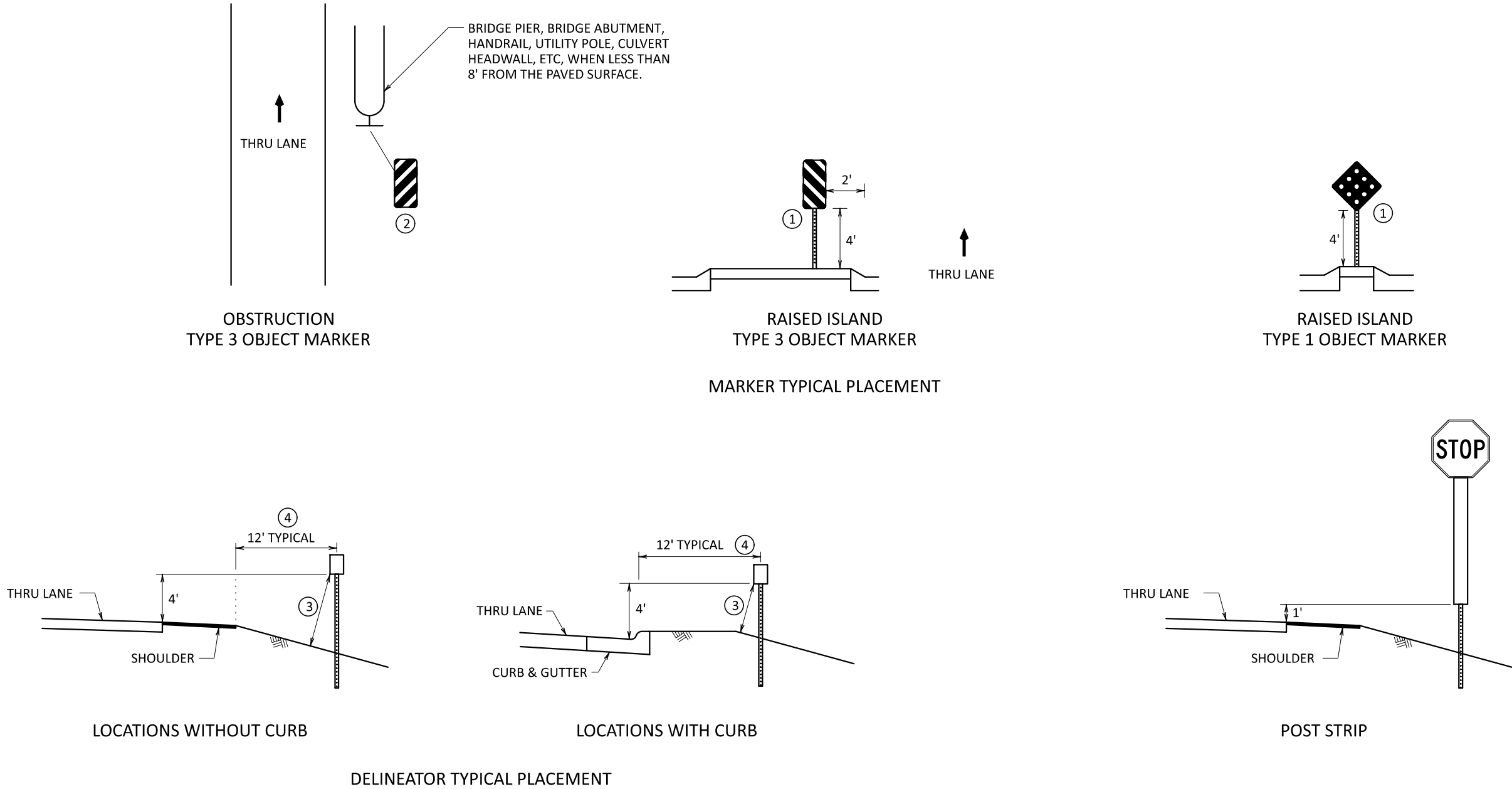
STATE PROJ. NO. 5680-147

SHEET NO. 86

(T.H. 94)

TOTAL SHEETS 153

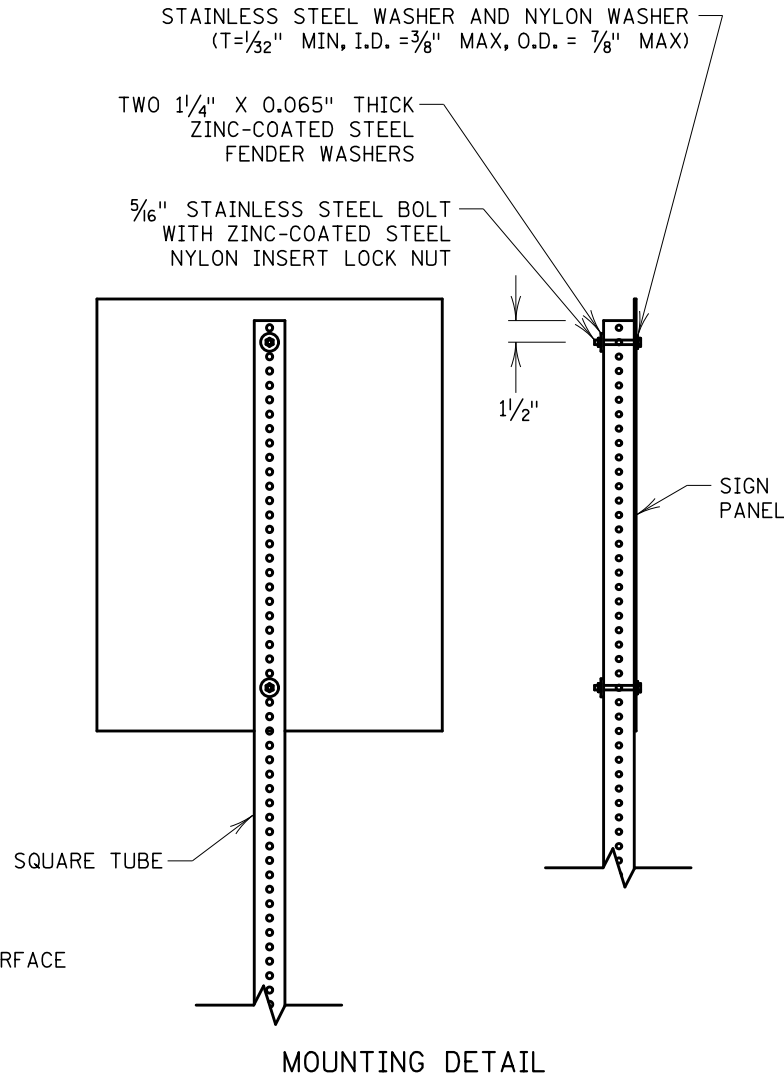
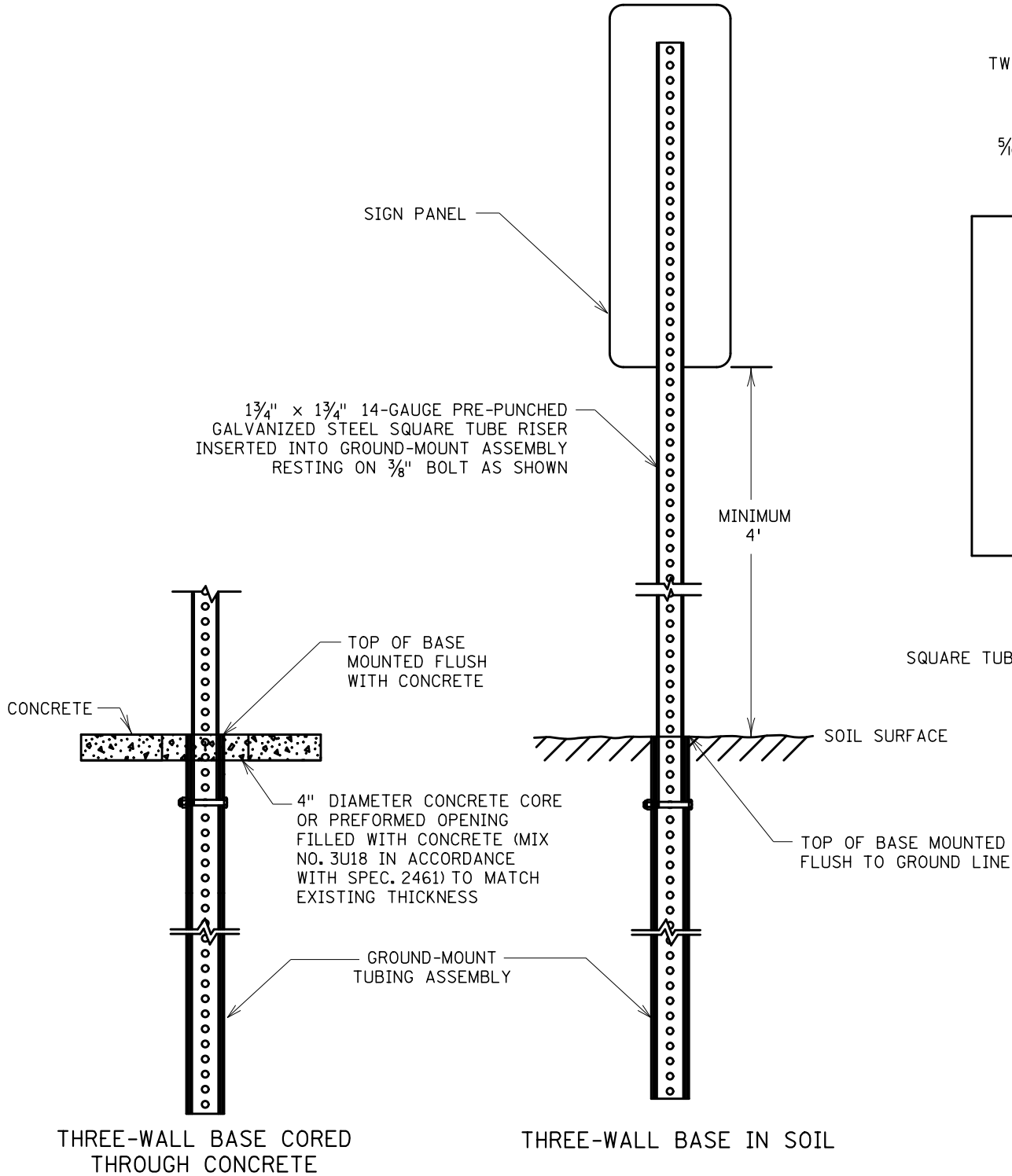
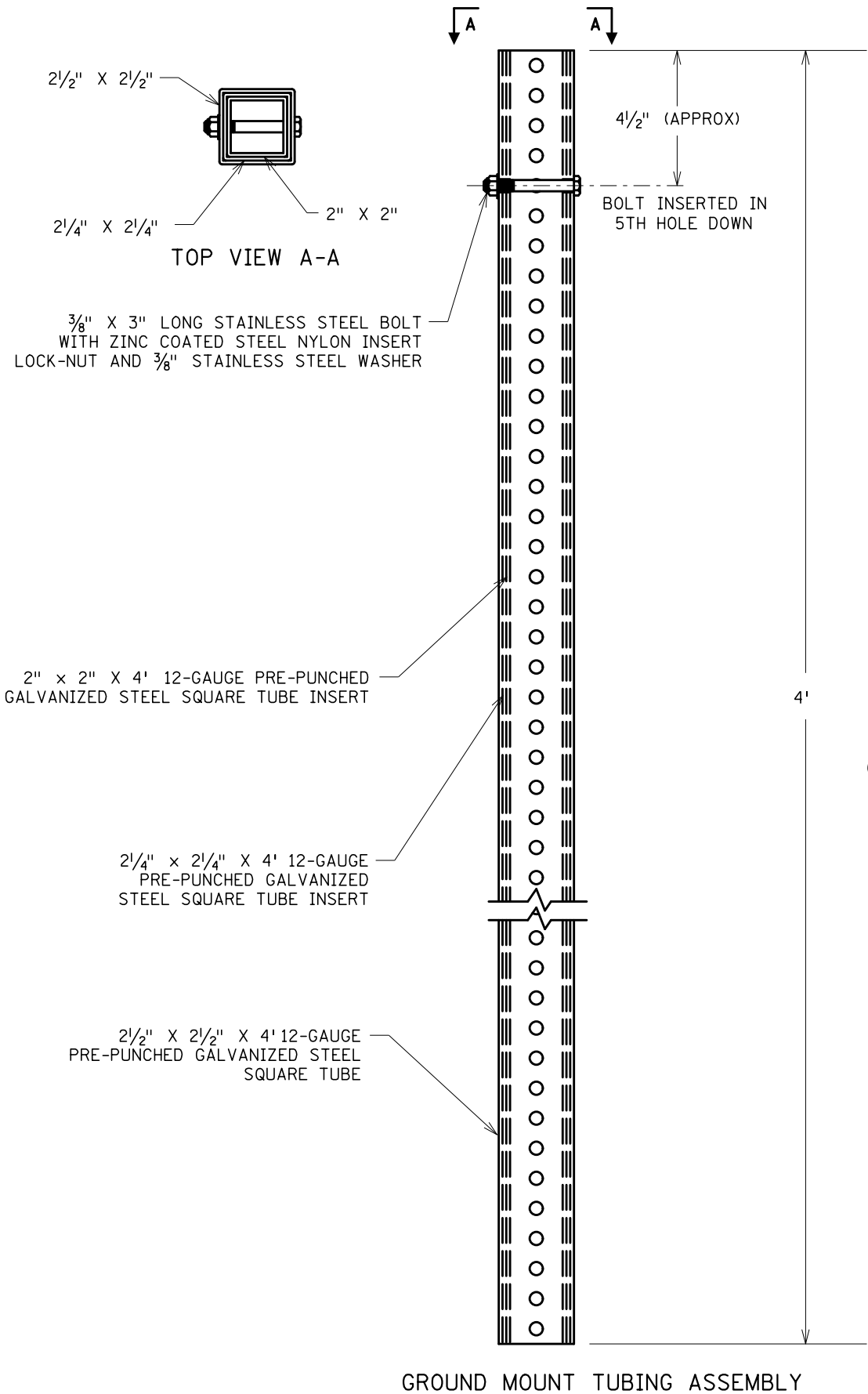




- NOTES:
- FOR DELINEATOR OFFSETS AT RAMP GORES, SEE STANDARD PLAN 5-297.703.
  - ① PLACE MARKER AS CLOSE TO THE BEGINNING OF MEDIAN AS POSSIBLE.
  - ② PLACE THE EDGE OF THE OBJECT MARKER THAT IS CLOSEST TO THE ROAD USER IN LINE WITH THE CLOSEST EDGE OF THE OBSTRUCTION. ANGLE THE STRIPES DOWNWARD TOWARDS THE SIDE TRAFFIC IS TO PASS THE OBSTRUCTION.
  - ③ THE CRASHWORTHY HEIGHT FROM THE GROUND TO ANY PORTION OF THE SIGN PANEL IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE.
  - ④ ADJUST OFFSET TO MATCH OTHER SIGN OFFSETS ALONG ROADWAY CORRIDOR, BUT NOT MORE THAN 12' NOR LESS THAN 2'.

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING				DELINEATOR AND MARKER PLACEMENT		APPROVED: 06-04-2024 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.702	1 OF 1
	 DEPARTMENT OF TRANSPORTATION					STANDARD PLANS		STATE PROJ. NO. 5680-147	SHEET NO. 87	
								(T.H. 94)	TOTAL SHEETS 153	

DISTRICT # 4D5680147\_spn721-1  
PLOT NAME: 4D5680147\_spn721-1  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



NOTES:

THE CRASH RESPONSE FOR THIS STRUCTURE IS BENDABLE.

TO MEET CRASHWORTHY REQUIREMENTS THE DISTANCE BETWEEN THE BOTTOM OF THE SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE SIGN PANEL SHALL BE A MINIMUM OF 4'. SEE TABULATIONS FOR MOUNTING HEIGHT.

SQUARE TUBE SIGN POSTS PER MnDOT SPEC. 3402.

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	THREE-WALL BASE FOR 1 3/4" SQUARE-TUBE RISER POST	APPROVED: 11-29-2022 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.721	1 OF 1
		STANDARD PLANS		STATE PROJ. NO. 5680-147 (T.H. 94)	SHEET NO. 88 TOTAL SHEETS 153	



100  
SCALE IN FEET

WILKIN COUNTY

TH 94 WB

TH 94 EB

MINNESOTA INFORMATION TECHNOLOGY SERVICES  
F/O -BUR F/O -BUR

MINNESOTA INFORMATION TECHNOLOGY SERVICES  
/O -BUR-----F/O -BUR-----F/

MINNESOTA INFORMATION TECHNOLOGY SERVICES  
F/O -BUR

SEC 24 T135N R45W

OTTER TAIL POWER COMPANY  
OTTER TAIL POWER COMPANY OHP  
GREAT RIVER ENERGY OHP  
WILKIN COUNTY

OHP WILKIN COUNTY

SEC 25 T135N R45W

STA. 2305+54  
INP 18" X 16' RCP  
+ CMP APR AND GRATE  
LEAVE AS IS  
PIPE ID #21448372

P. 18" X 398' CS PIPE CULVERT  
+ (2) CS SAFETY APRONS W/GRATE DESIGN 3128 (1:6 SLOPE)




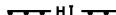








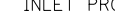
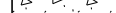


PT. 2303+31.52

CONSTRUCT TEMP DECEL LANE

① FILL QUANTITY PROVIDED FOR AREA  
BETWEEN XOVER2 AND XOVER2A

STA. 2305+86  
INP 18" X 16' RCP  
+CMP APR AND GRATE  
LEAVE AS IS  
PIPE ID #21448373  
ATION TECHNOLOGY SERVICES

### LEGEND

	REFERENCE POINT		SEDIMENT CONTROL LOG
	CULVERT END CONTROL		SILT FENCE TYPE HI
	INLET PROTECTION		TURF ESTABLISHMENT
	TENSION CABLE GUARD RAIL		BITUMINOUS PAVEMENT
	PLATE BEAM GUARD RAIL		EXISTING RIGHT OF WAY
	SAWCUT		DRAINAGE FLOW ARROW
	CULVERT / APRON		SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)
	SPECIAL EXCAVATION AREA		DITCH CHECK TYPE



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

## CONSTRUCTION PLANS

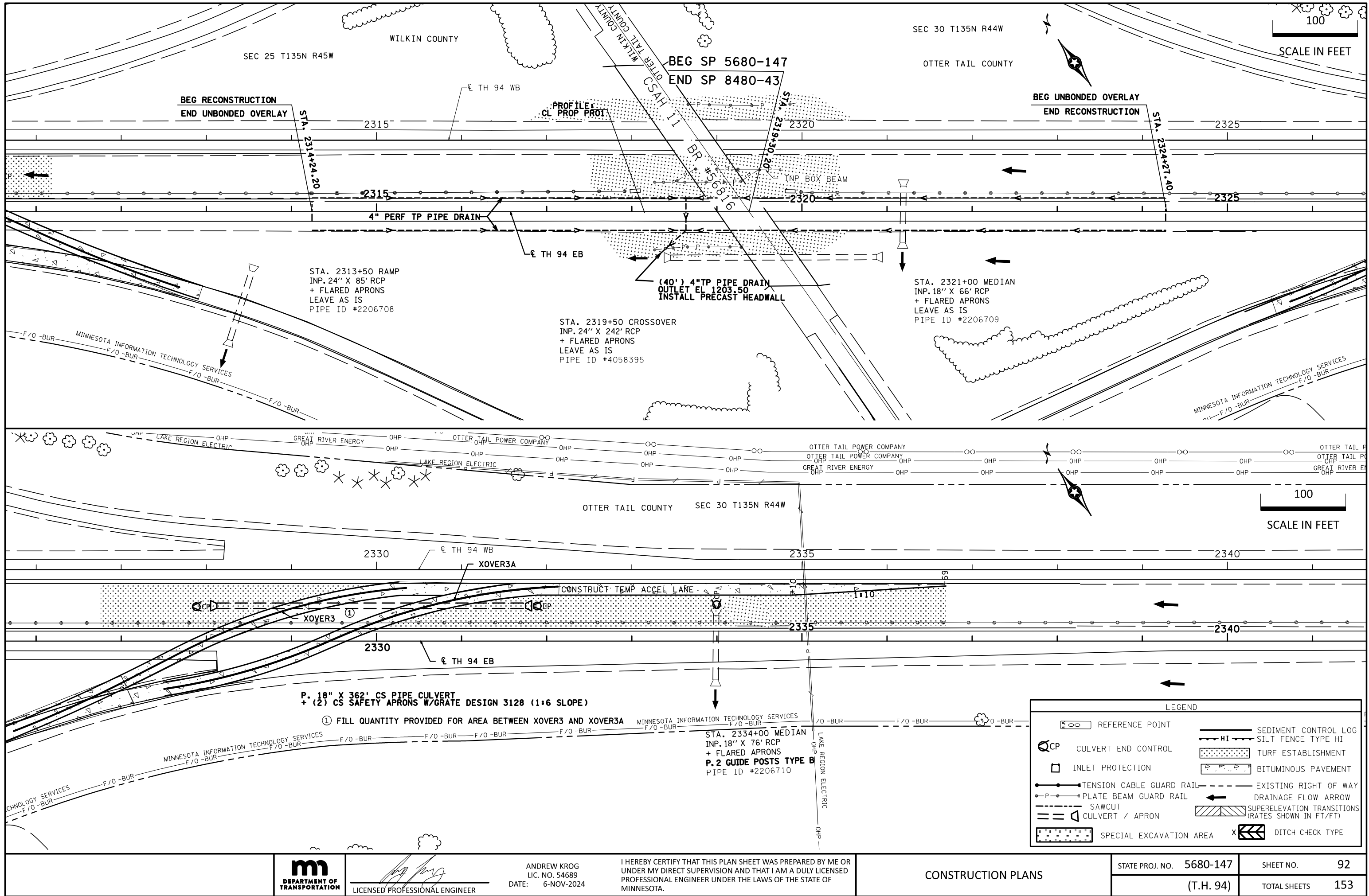
STATE PROJ. NO.	5680-147	SHEET NO.	91
	(T.H. 94)	TOTAL SHEETS	153



6-NOV-2024

6-NOV-2024

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

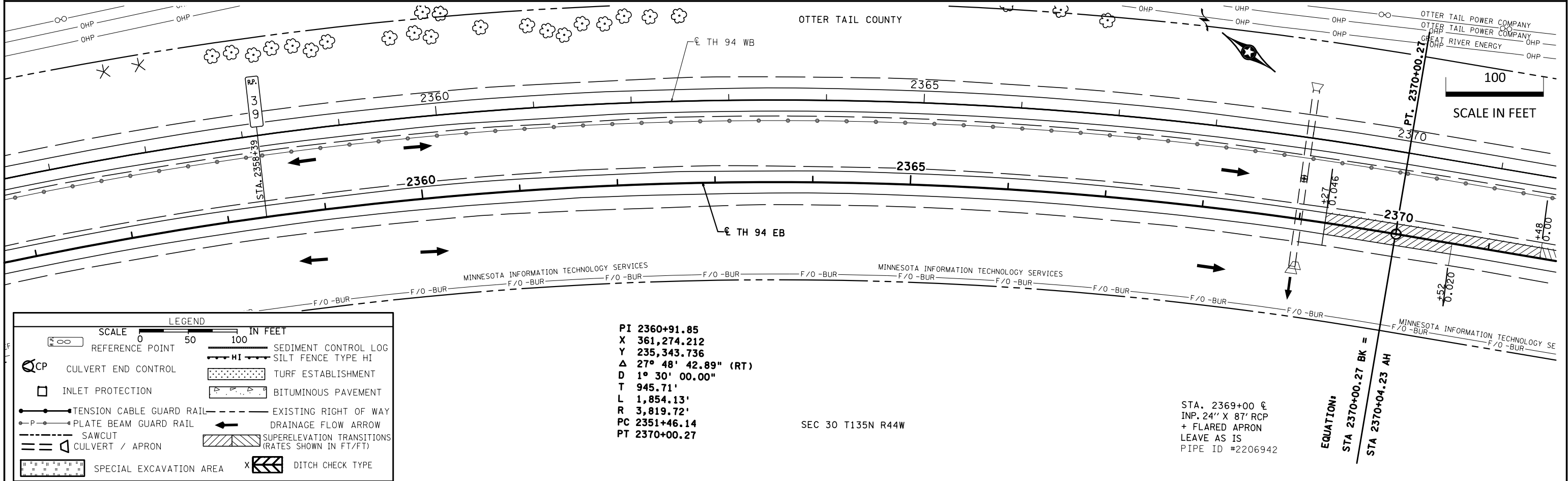
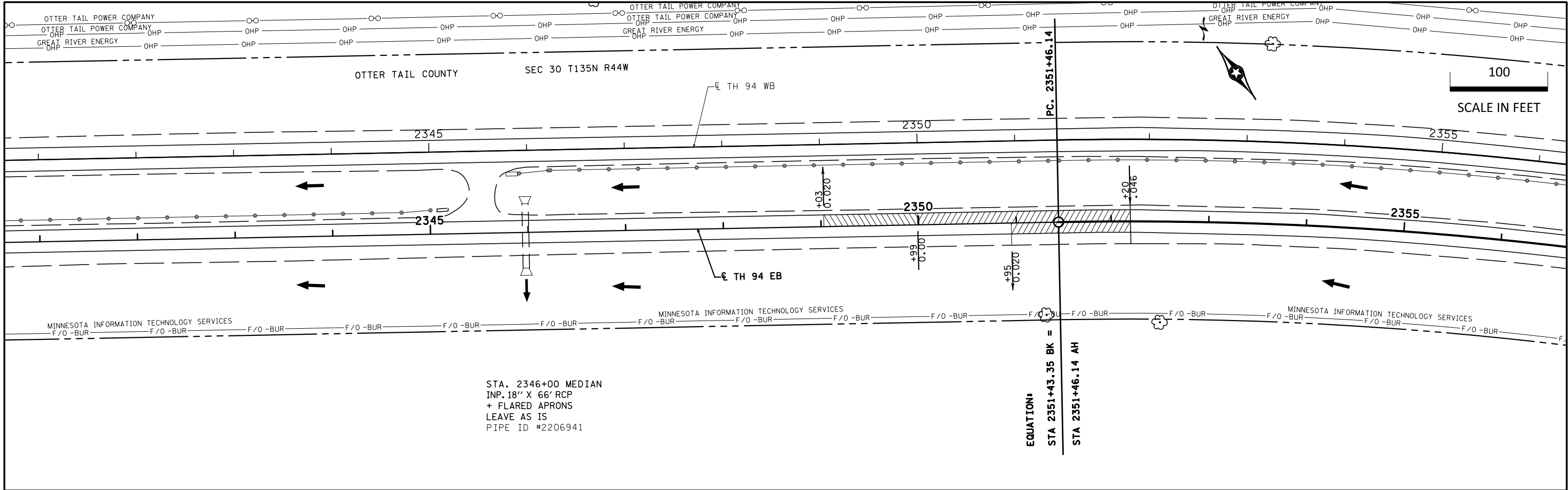
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 92  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LEGEND

SCALE 0 50 100 IN FEET

REFERENCE POINT

CULVERT END CONTROL

INLET PROTECTION

TENSION CABLE GUARD RAIL

PLATE BEAM GUARD RAIL

SAWCUT

CULVERT / APRON

SPECIAL EXCAVATION AREA

SEDIMENT CONTROL LOG

SILT FENCE TYPE HI

TURF ESTABLISHMENT

BITUMINOUS PAVEMENT

EXISTING RIGHT OF WAY

DRAINAGE FLOW ARROW

SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)

DITCH CHECK TYPE

PI 2360+91.85  
X 361,274.212  
Y 235,343.736  
Δ 27° 48' 42.89" (RT)  
D 1° 30' 00.00"  
T 945.71'  
L 1,854.13'  
R 3,819.72'  
PC 2351+46.14  
PT 2370+00.27

SEC 30 T135N R44W



LICENSED PROFESSIONAL ENGINEER

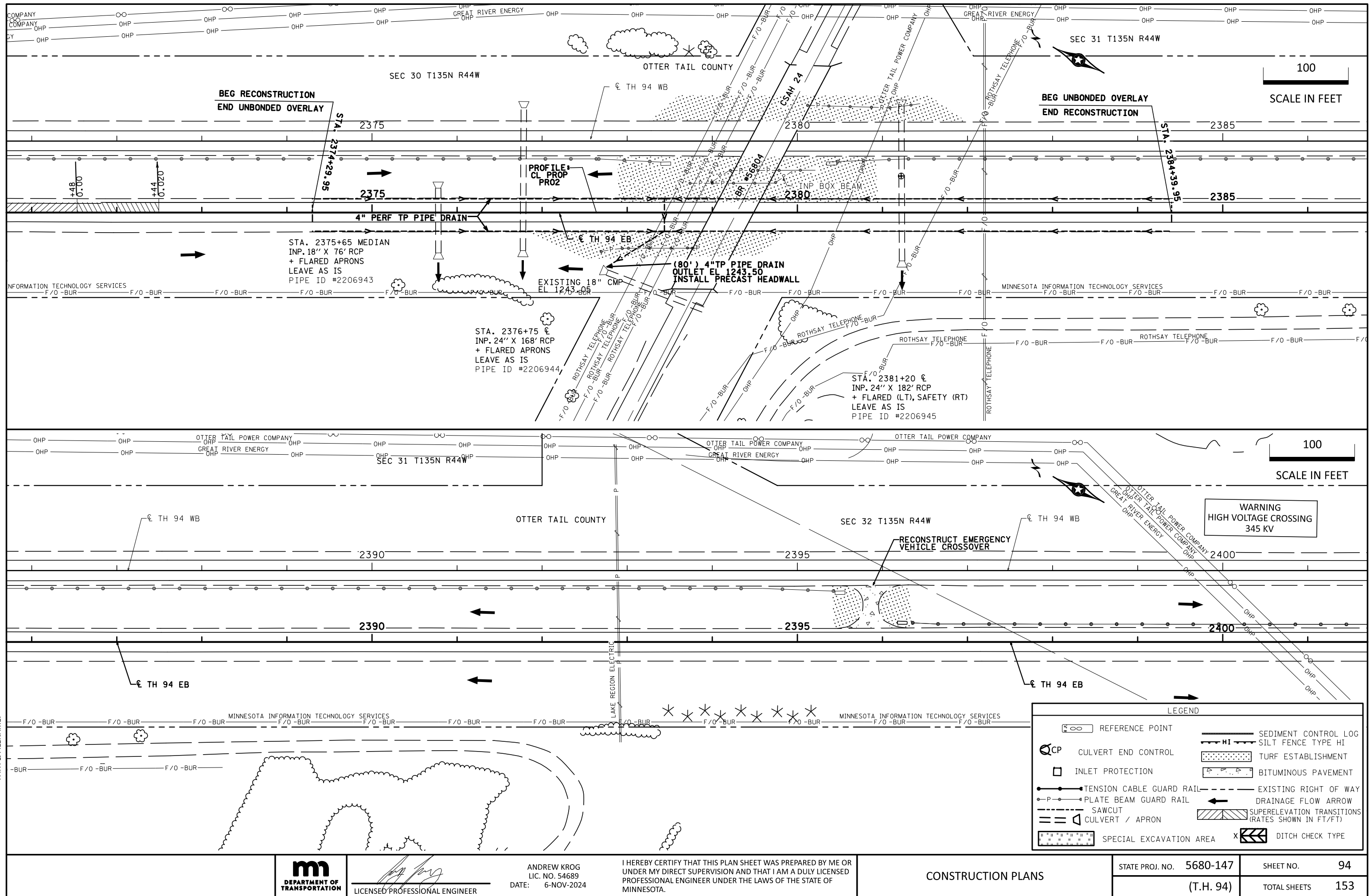
ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

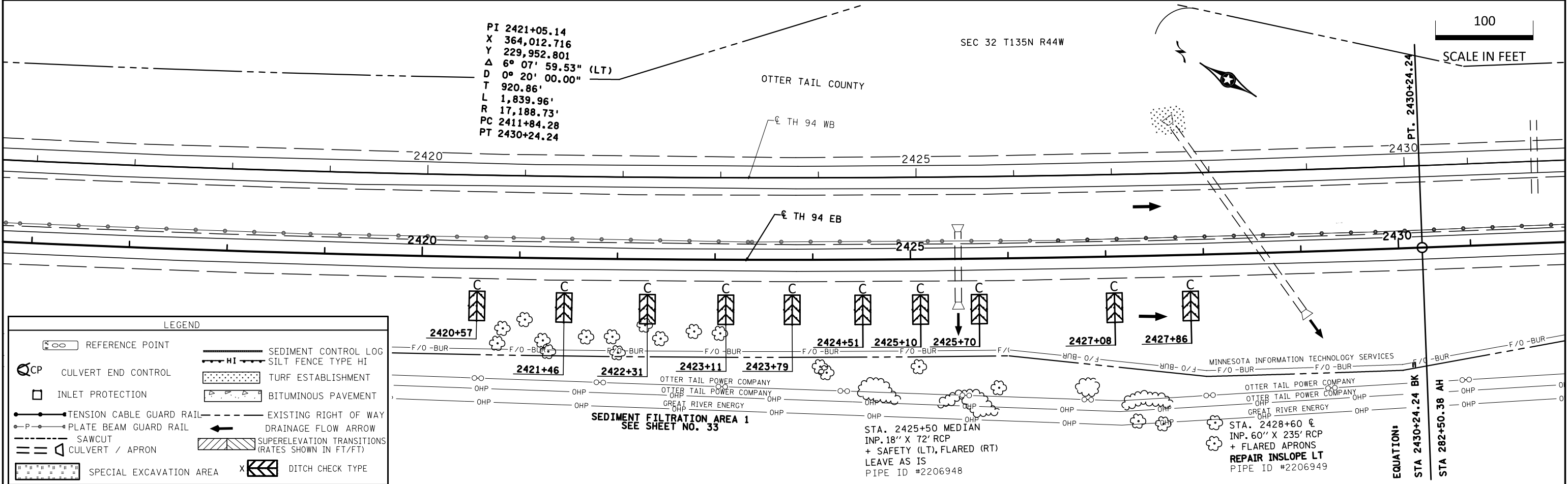
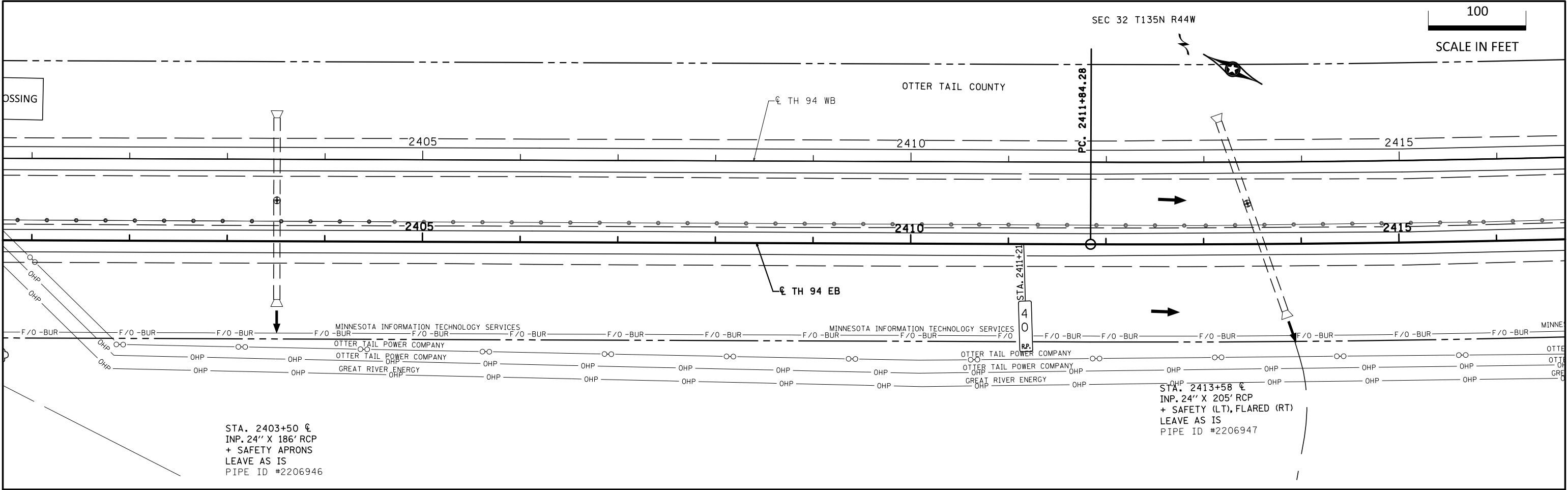
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 93  
TOTAL SHEETS 153





6-NOV-2024

DISTRICT # 4d5680147\_185cpp-plan

PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

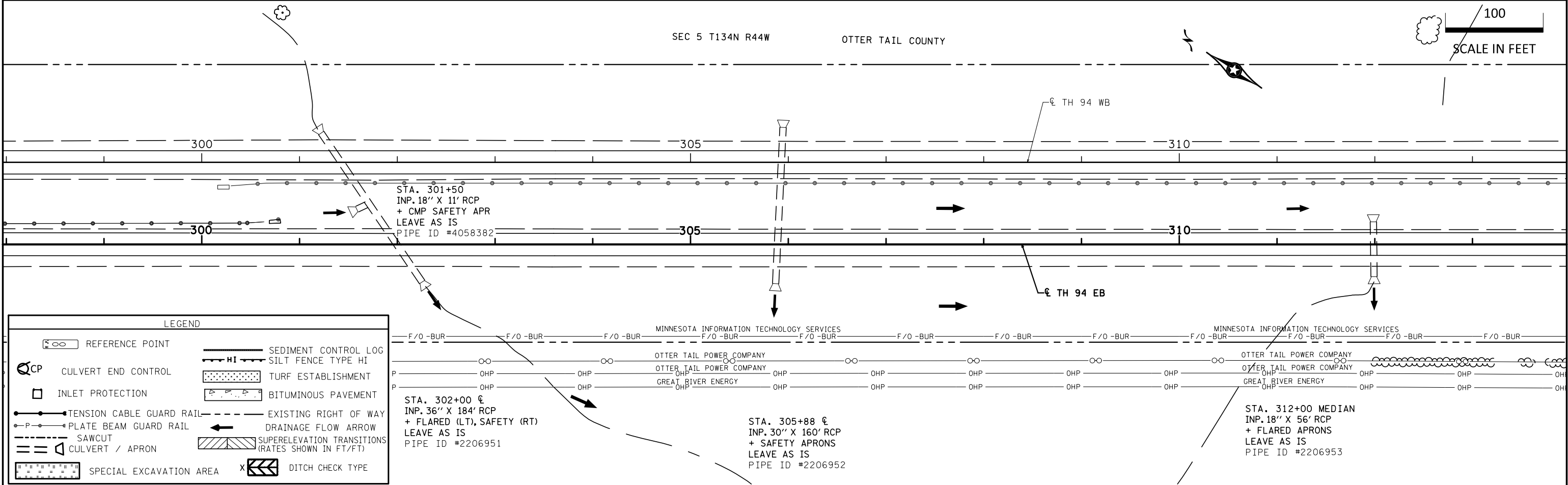
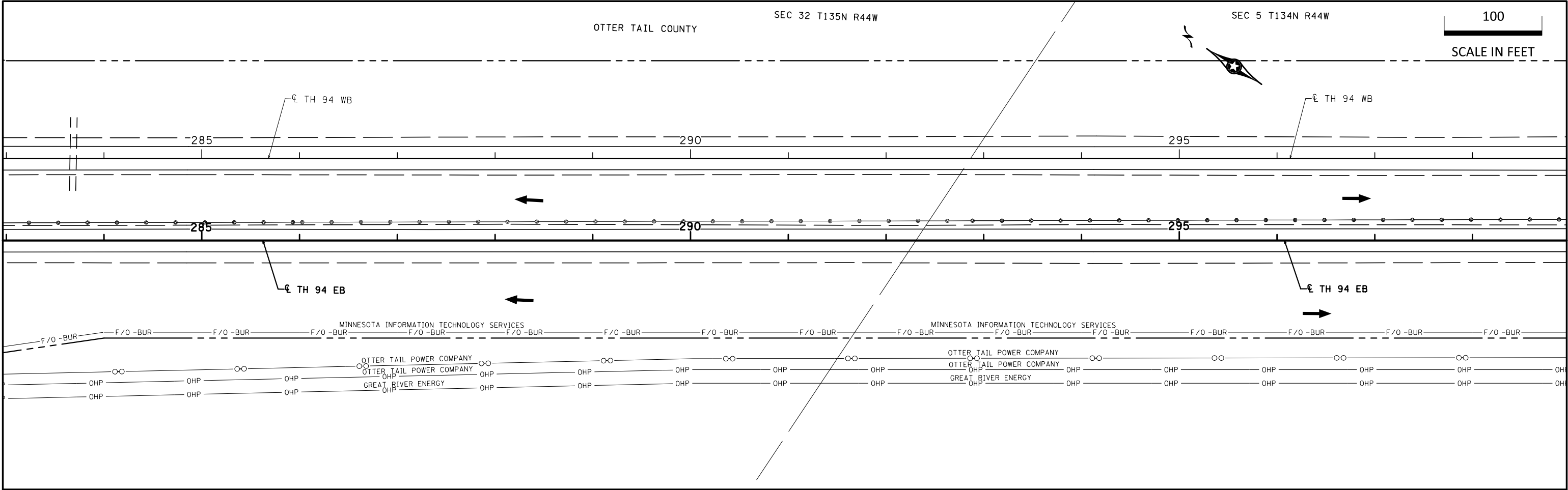
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 95  
TOTAL SHEETS 153



DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 96  
TOTAL SHEETS 153

OTTER TAIL COUNTY

SCALE IN FEET

6-NOV-2024

PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:

PLOT NAME:

PLOT NAME: 4d5  
PATH & FILENAME:

OTTER TAIL COUNTY

SCALE IN FEET

**BEGIN  
EXCAVATION**  
328+83

END  
EXCAVATION

STA. 343+22 @  
INP. 42" X 206' RCP  
+ FLARED APRONS  
LEAVE AS IS  
PIPE ID #2206955

### LEGEND

 REFERENCE POINT

$\odot_{CP}$  CULVERT END CONTROL

 INLET PROTECTION

●—●—● TENSION CABLE GUARD R

----- SAWCUT

==  CULVERT / APRON

 SPECIAL EXCAVATION AREA

SEDIMENT CONTROL LOG

XXXXXXXXXXXX TUBE ESTABLISHMENT

 TURF ESTABLISHMENT


BITUMINOUS PAVEMENT


--- EXISTING RIGHT OF WAY

← DRAINAGE FLOW ARROW

 SUPERELEVATION TRANSITION

(RATES SHOWN IN FT/FT)

Y  DITCH CHECK TYPE

X  DITCH CHECK TYPE

CONSTRUCT INFILTRATION AREA 2  
SEE DETAIL ON SHEET 33



**MASSACHUSETTS**  
**DEPARTMENT OF**  
**TRANSPORTATION**

LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
E: 6-NOV-2024

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UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF  
MINNESOTA.

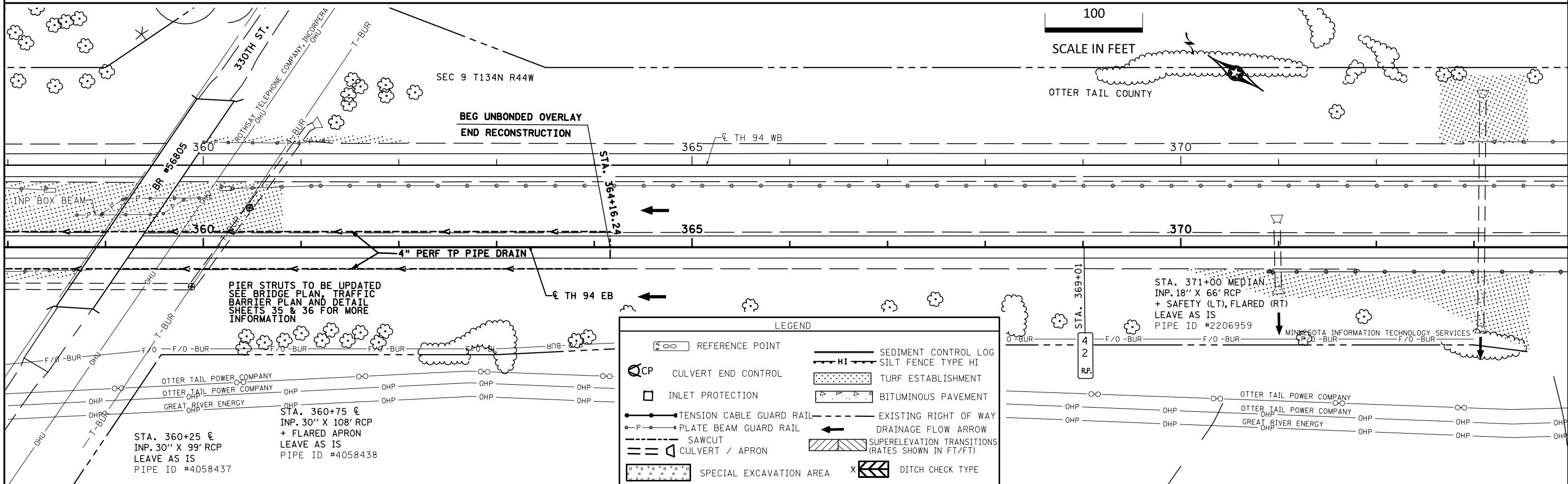
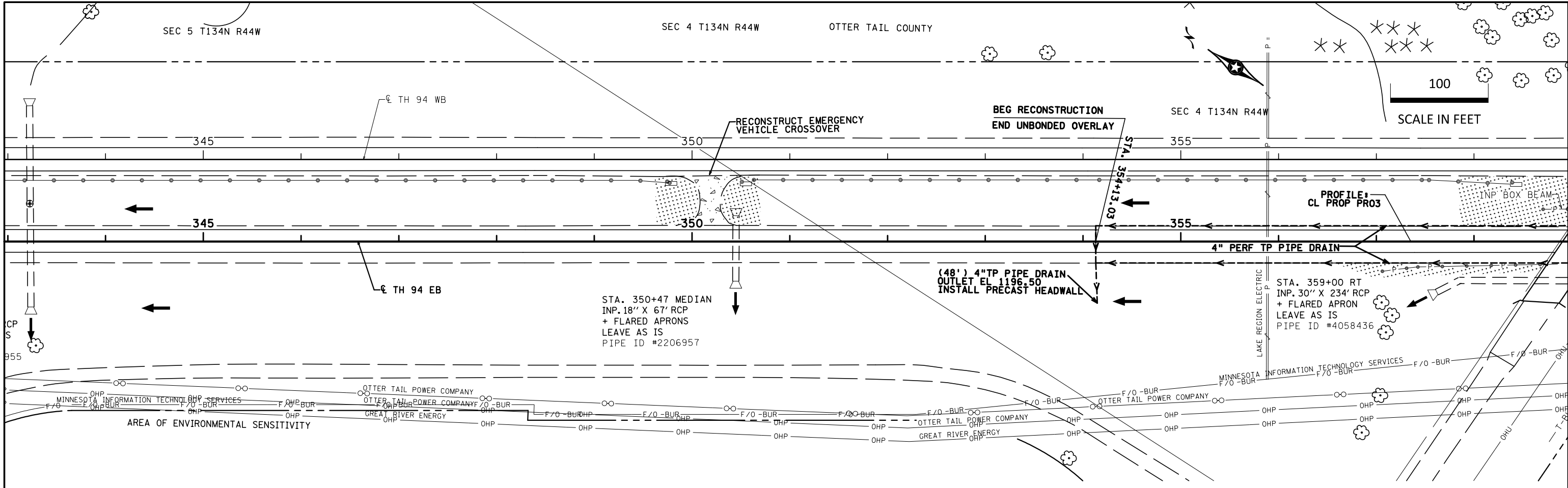
## CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO.	97
TOTAL SHEETS	153

6-NOV-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LEGEND

REFERENCE POINT	SEDIMENT CONTROL LOG
CULVERT END CONTROL	SILT FENCE TYPE HI
INLET PROTECTION	TURF ESTABLISHMENT
TENSION CABLE GUARD RAIL	BITUMINOUS PAVEMENT
PLATE BEAM GUARD RAIL	EXISTING RIGHT OF WAY
SAWCUT	DRAINAGE FLOW ARROW
CULVERT / APRON	SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)
SPECIAL EXCAVATION AREA	DITCH CHECK TYPE

**DEPARTMENT OF TRANSPORTATION**

**LICENSED PROFESSIONAL ENGINEER**

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147	SHEET NO. 98
(T.H. 94)	TOTAL SHEETS 153



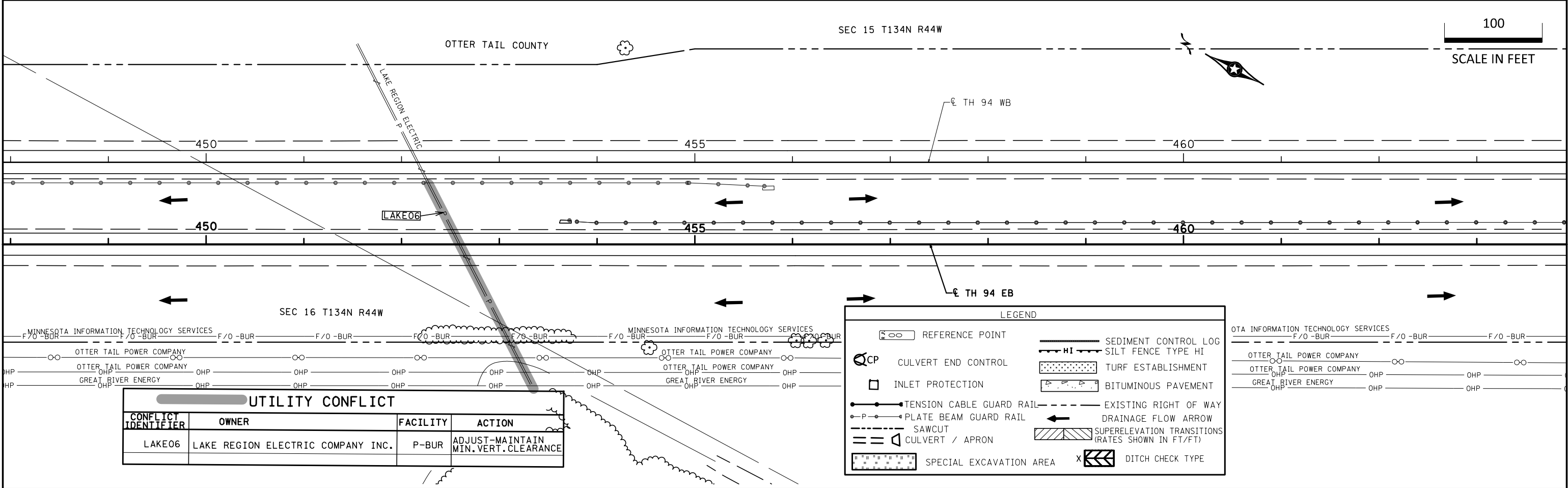
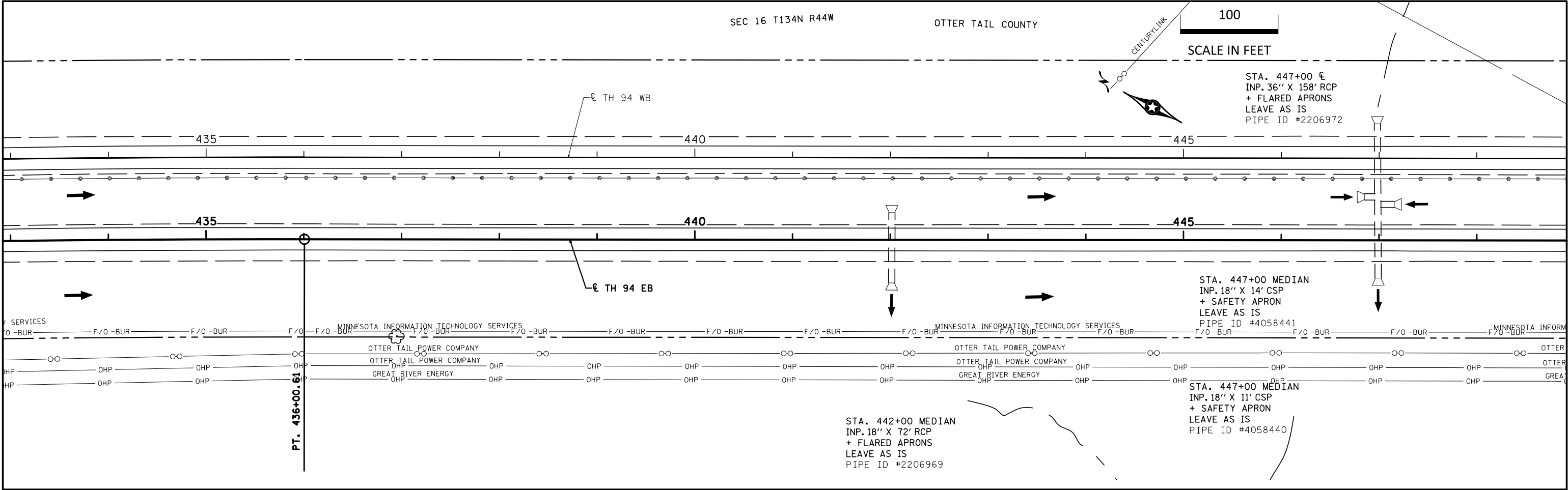




8-NOV-2024

8-NOV-2024

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 8-NOV-2024

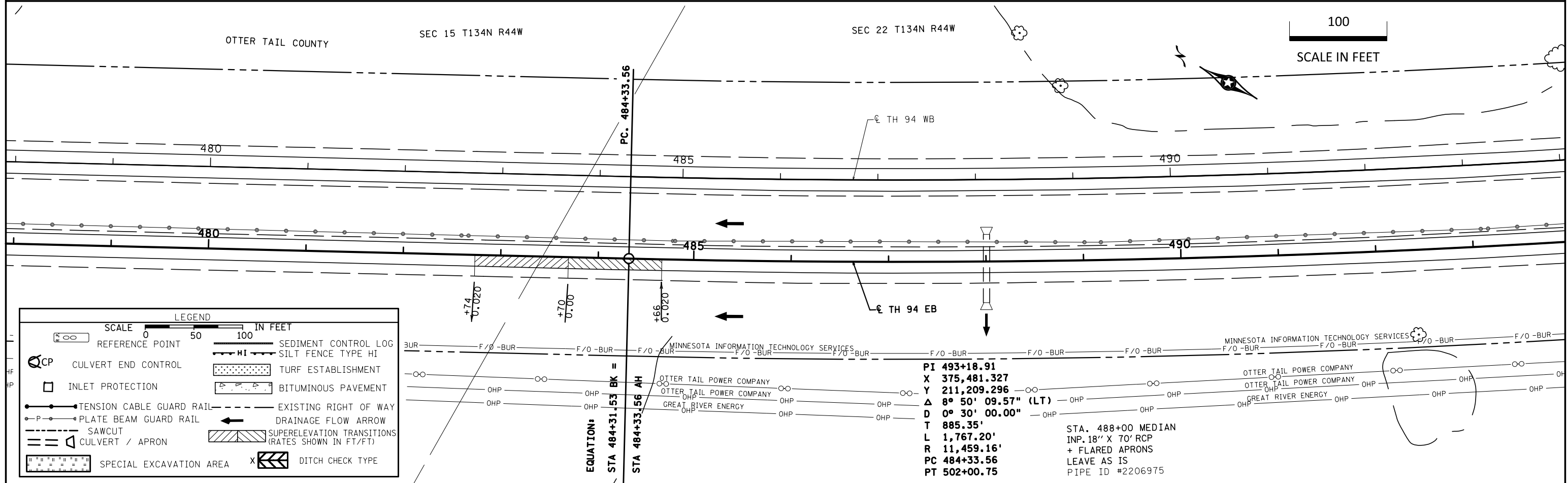
I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CONSTRUCTION PLANS

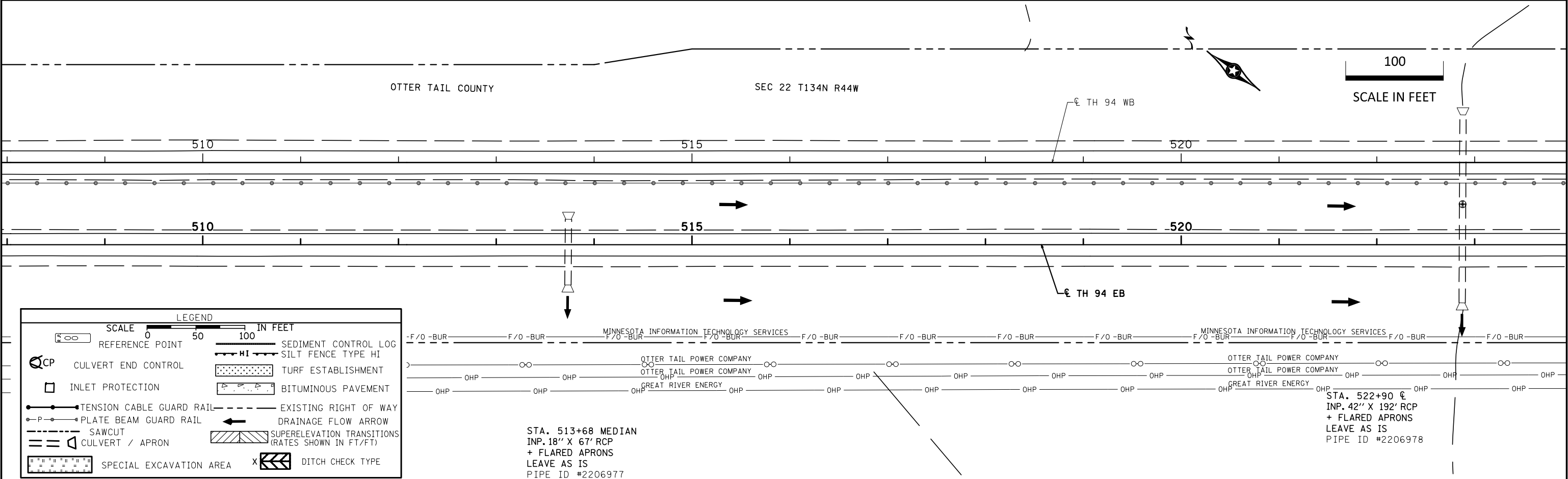
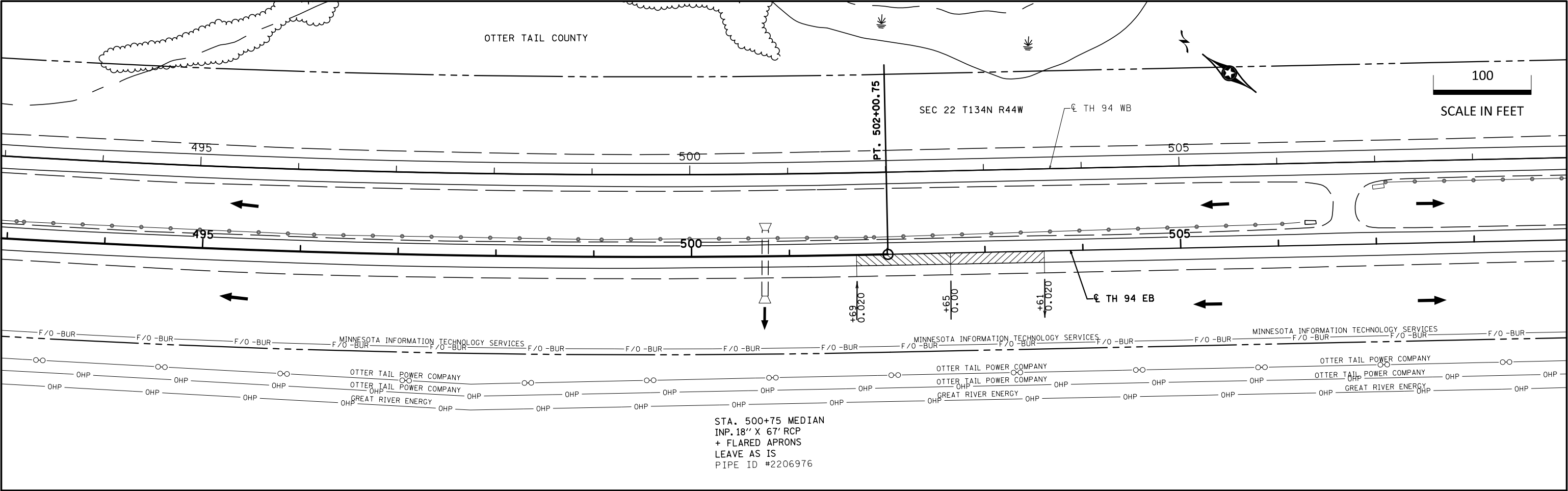
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 101  
TOTAL SHEETS 153

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



LEGEND

SCALE 0 50 100 IN FEET

REFERENCE POINT

CP CULVERT END CONTROL

INLET PROTECTION

TENSION CABLE GUARD RAIL

PLATE BEAM GUARD RAIL

SAWCUT

CULVERT / APRON

SPECIAL EXCAVATION AREA

SEDIMENT CONTROL LOG

SILT FENCE TYPE HI

TURF ESTABLISHMENT

BITUMINOUS PAVEMENT

EXISTING RIGHT OF WAY

DRAINAGE FLOW ARROW

SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)

DITCH CHECK TYPE



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

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CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 103  
TOTAL SHEETS 153



100  
-----  
SCALE IN FEET

Q TH 94 WB

- 530

—535—

—525—

530

—535.

**—525—**

TH 94 EB

MINNESOTA INFORMATION TECHNOLOGY SERVICES  
F/O-BUR F/O-BUR

MINNESOTA INFORMATION TECHNOLOGY SERVICE  
F/O -BIR F/O -BIR

OTTER TAIL POWER COMPANY  
OTTER TAIL POWER COMPANY  
OHP  
GREAT RIVER ENERGY  
OHP

OTTER TAIL POWER COMPAN  
OTTER TAIL POWER COMPAN  
OHP  
GREAT RIVER ENERGY  
OHP OHP

PLOTTED/REVISED: 6-NOV-2024

100

---

SCALE IN FEET

OTTER TAIL COUNTY

SEC 23 T134N R44W

STA. 548+28 @  
INP. 36" X 236' RCP  
+ FLARED APRONS  
LEAVE AS IS  
PIPE ID #2206980

END UNBONDED OVERLAY  
BEG RECONSTRUCTION

BEG EXCEPTION  
END RECONSTRUCTION

BEG RECONSTRUCTION  
END EXCEPTION

**BEG UNBONDED OVERLAY**  
**END RECONSTRUCTION**

PROFILE:  
CL PROP  
PROA

PROFILE  
CL PROP

















EB LT REMOVE CONC. PAVT.  
(CURB TRANSITION-INCLUDES INTEGRANT CURB)  
P. 16' CONCRETE CURB & GUTTER DESIGN B424

REMOVE 22' CURB & GUTTER  
P.22' CONCRETE CURB &  
GUTTER DESIGN B424  
ADJUST FRAME AND  
RING CASTING

**EQUATION:**

STA 552+75.73 BK	STA 552+87.22 AH
------------------	------------------

### LEGEND

	REFERENCE POINT		SEDIMENT CONTROL LOG
	CULVERT END CONTROL		SILT FENCE TYPE HI
	INLET PROTECTION		TURF ESTABLISHMENT
	TENSION CABLE GUARD RAIL		BITUMINOUS PAVEMENT
	PLATE BEAM GUARD RAIL		EXISTING RIGHT OF WAY
	SAWCUT		DRAINAGE FLOW ARROW
	CULVERT / APRON		SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)
	SPECIAL EXCAVATION AREA		DITCH CHECK TYPE

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_1  
PATH & FILENAME:



**MASSACHUSETTS**  
**DEPARTMENT OF**  
**TRANSPORTATION**

LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

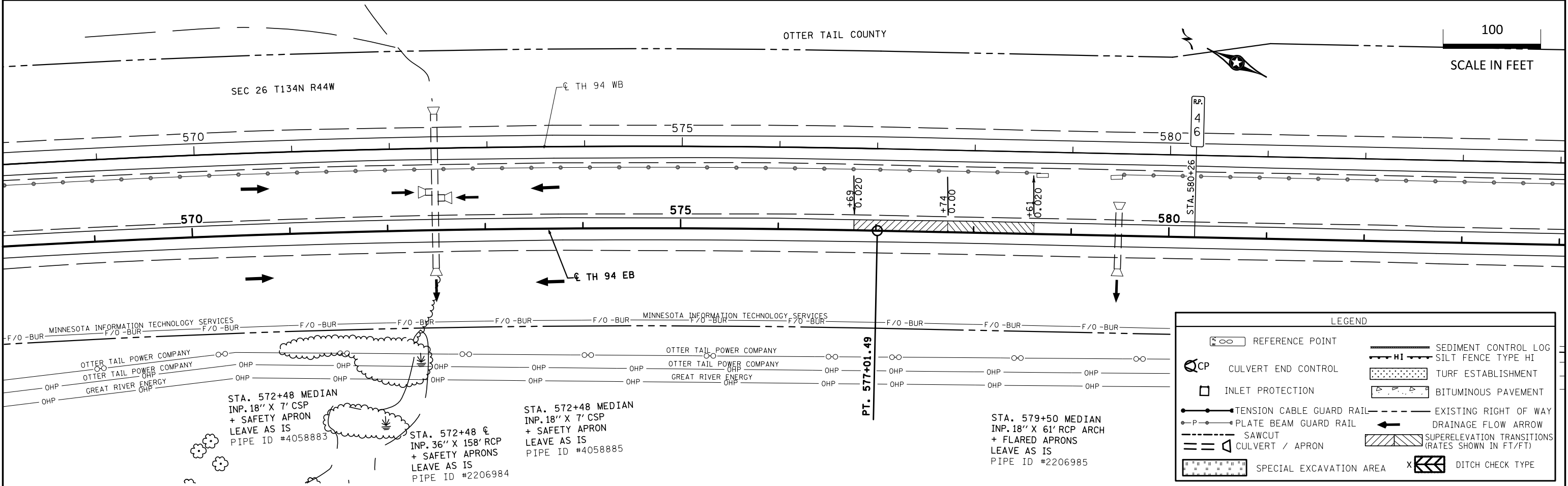
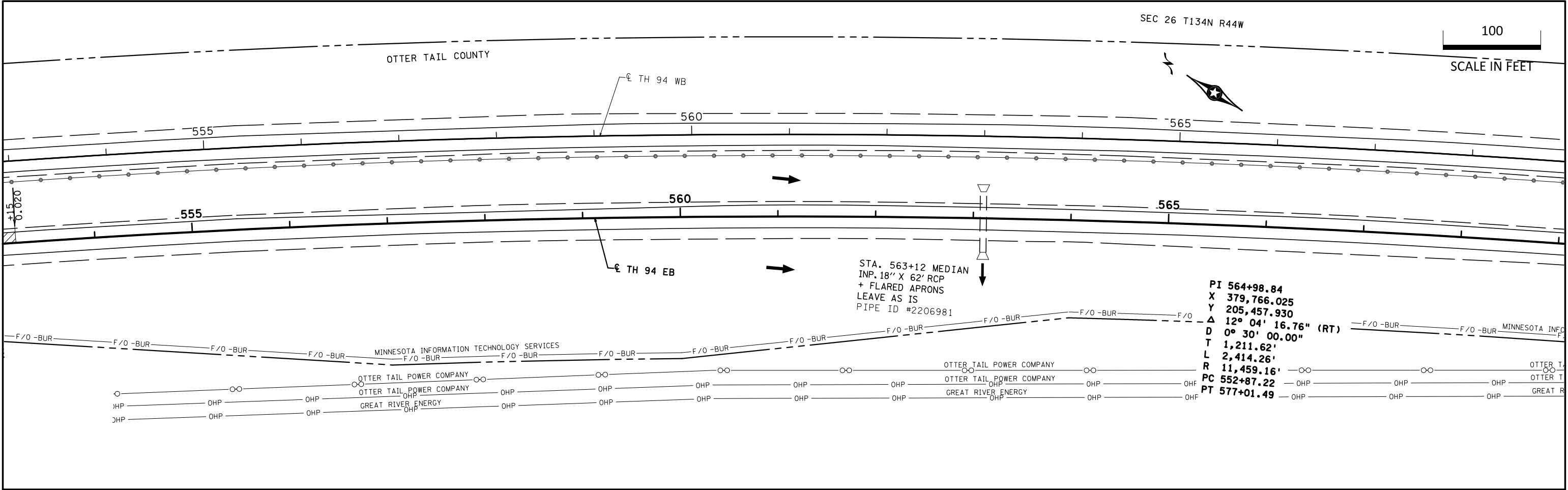
## CONSTRUCTION PLANS

STATE PROJ. NO.	5680-147
	(T.H. 94)

SHEET NO.	104
TOTAL SHEETS	153

6-NOV-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LEGEND

REFERENCE POINT

CULVERT END CONTROL

INLET PROTECTION

TENSION CABLE GUARD RAIL

PLATE BEAM GUARD RAIL

SAWCUT

CULVERT / APRON

SPECIAL EXCAVATION AREA

SEDIMENT CONTROL LOG

SILT FENCE TYPE HI

TURF ESTABLISHMENT

BITUMINOUS PAVEMENT

EXISTING RIGHT OF WAY

DRAINAGE FLOW ARROW

SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)

DITCH CHECK TYPE

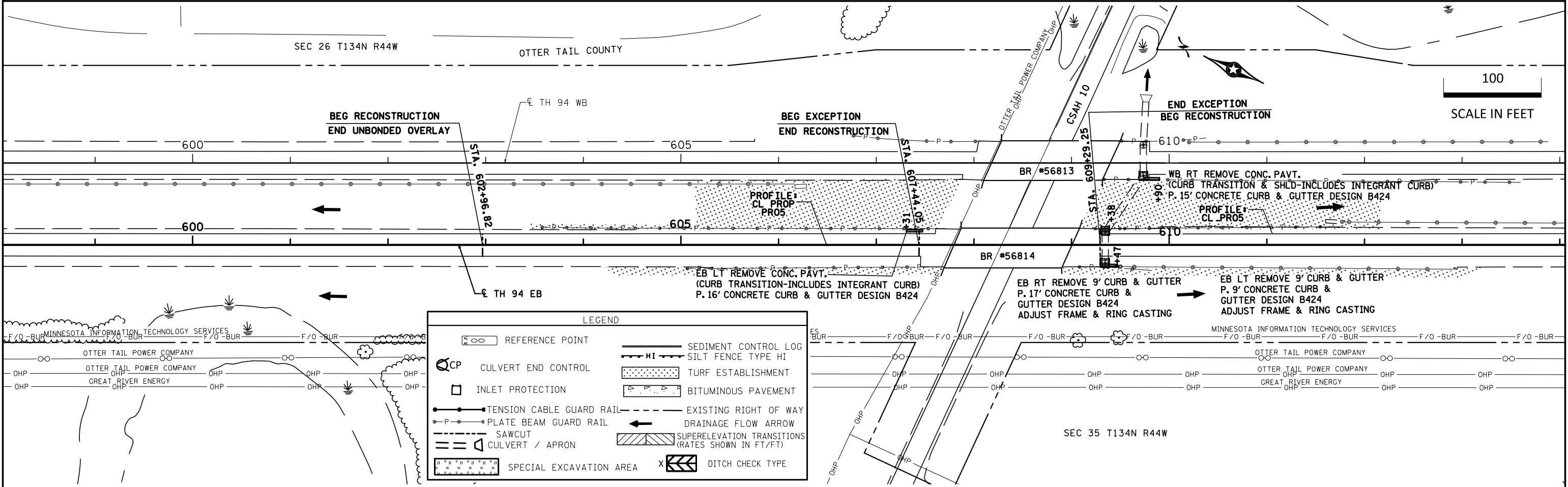
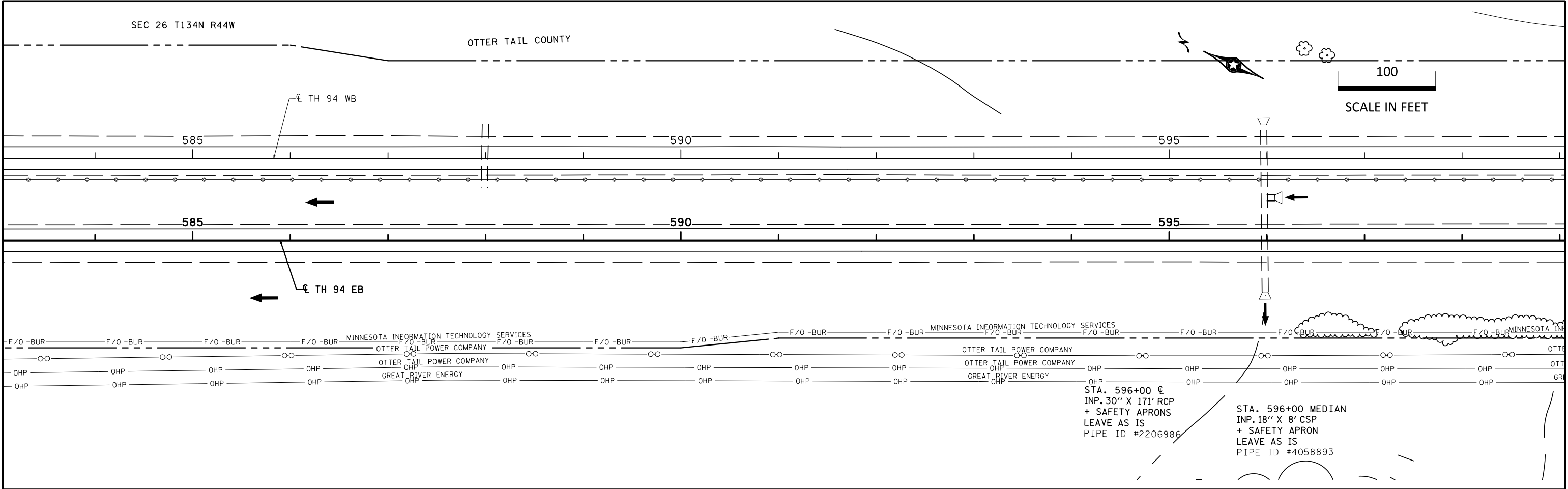
6-NOV-2024

6-NOV-2024

4d5680147\_185cpp-plan

4d5680147\_185cpp-plan

4d5680147\_185cpp-plan



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

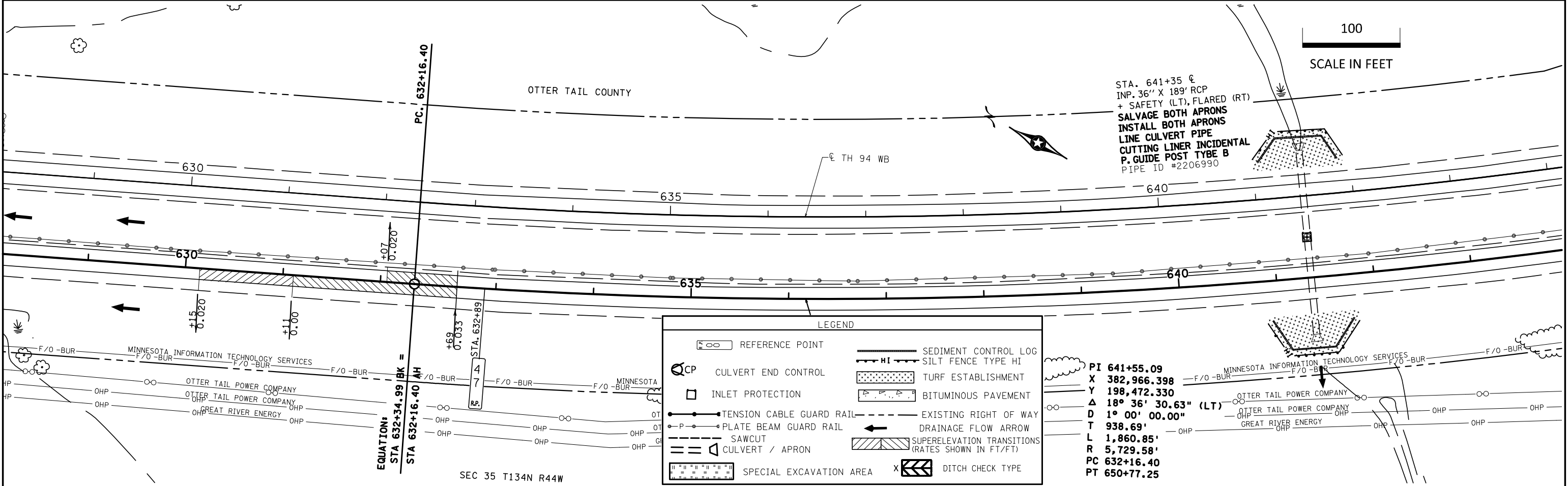
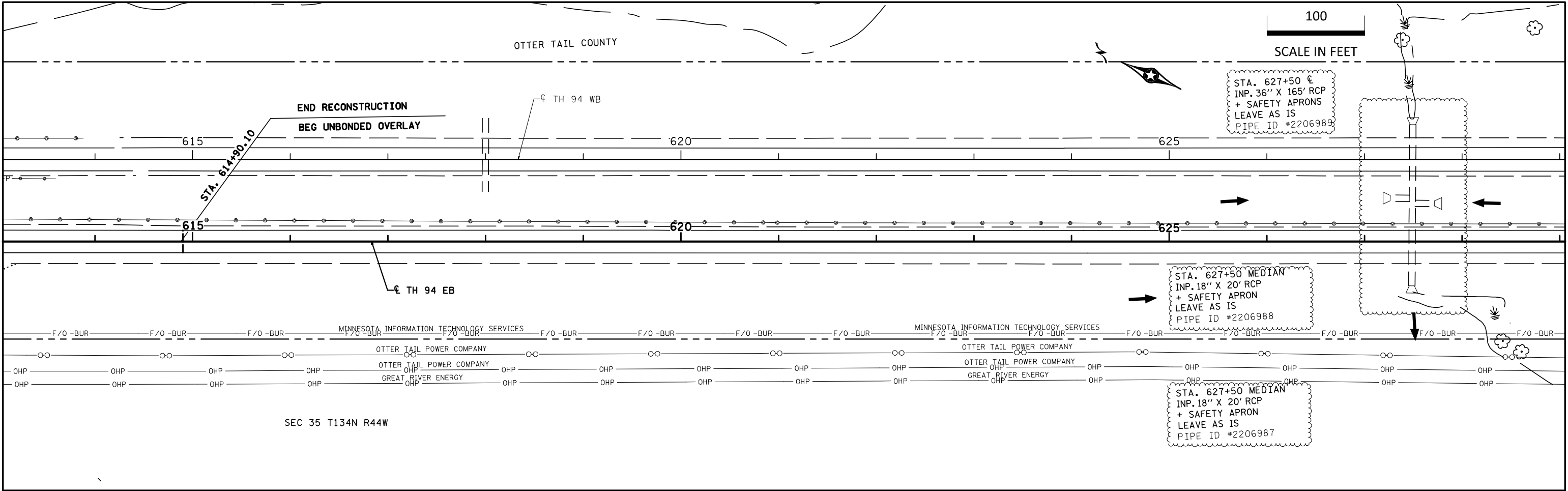
STATE PROJ. NO. 5680-147  
(T.H. 94)


SHEET NO. 106  
TOTAL SHEETS 153

10-JAN-2025

10-JAN-2025

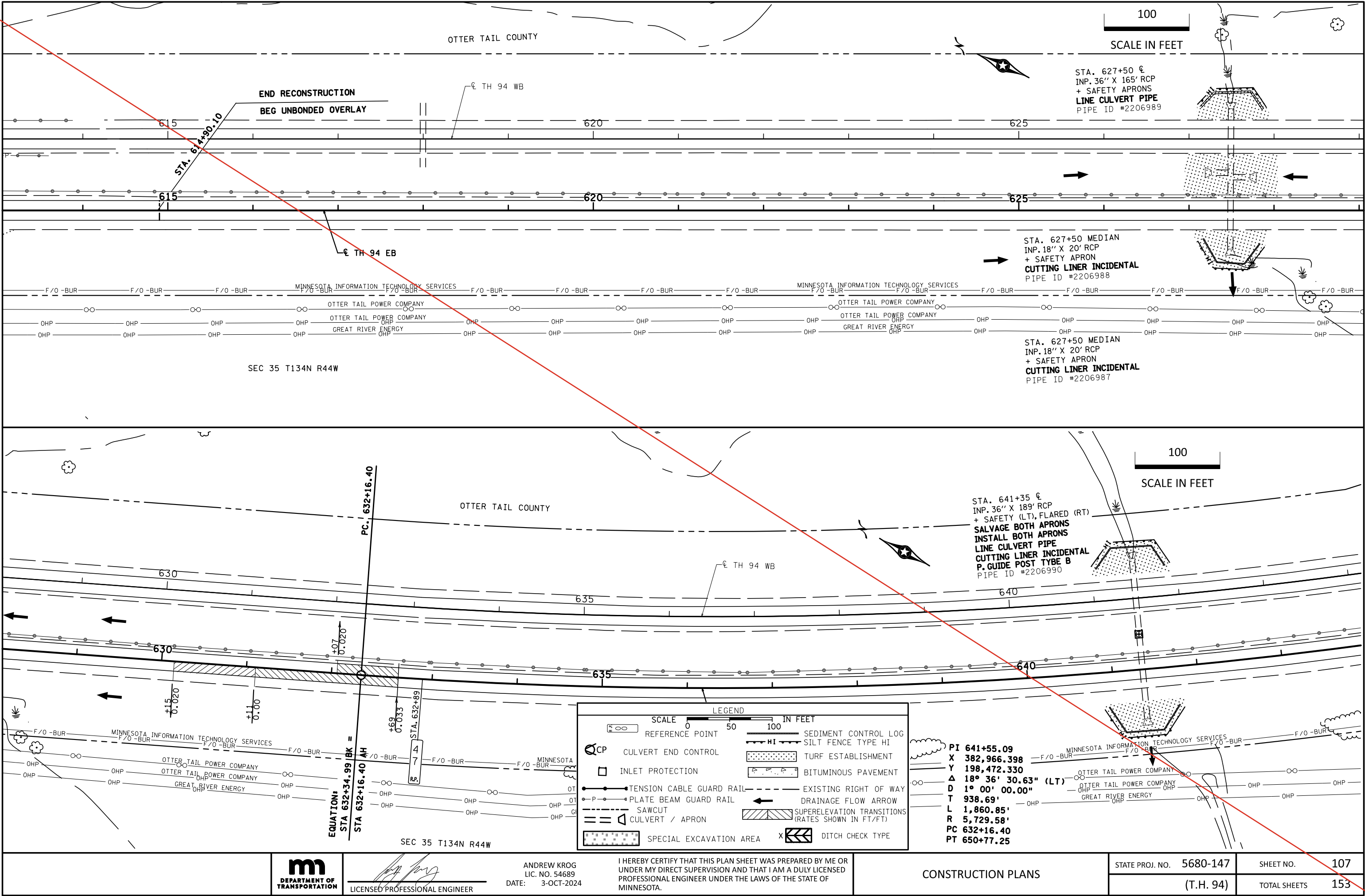
DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



PLAN REVISIONS				ANDREW KROG LIC. NO. 54689 DATE: 10-JAN-2025	I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	CONSTRUCTION PLANS	STATE PROJ. NO. 5680-147	SHEET NO. 107R
DATE	REVISION	APPROVER					(TH 94)	TOTAL SHEETS 153
1/10/2025	REMOVED PIPE WORK AT STA 627+50	A.K.						

3-OCT-2024  
PLOTTED/REVISED:

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME:  
PATH & FILENAME:



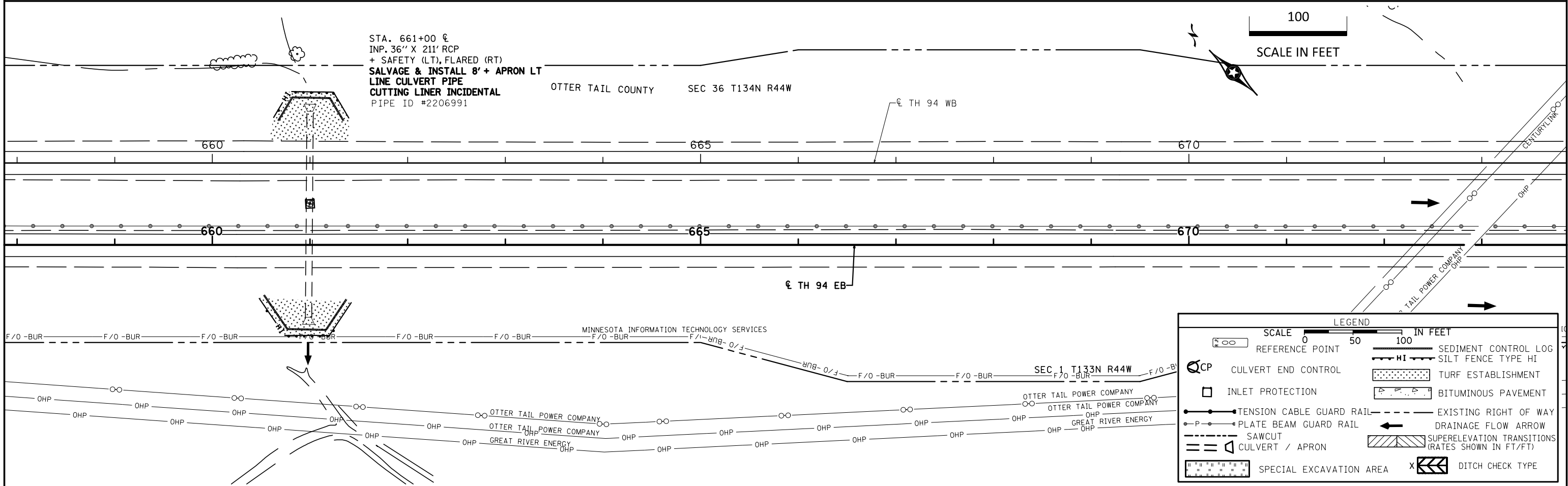
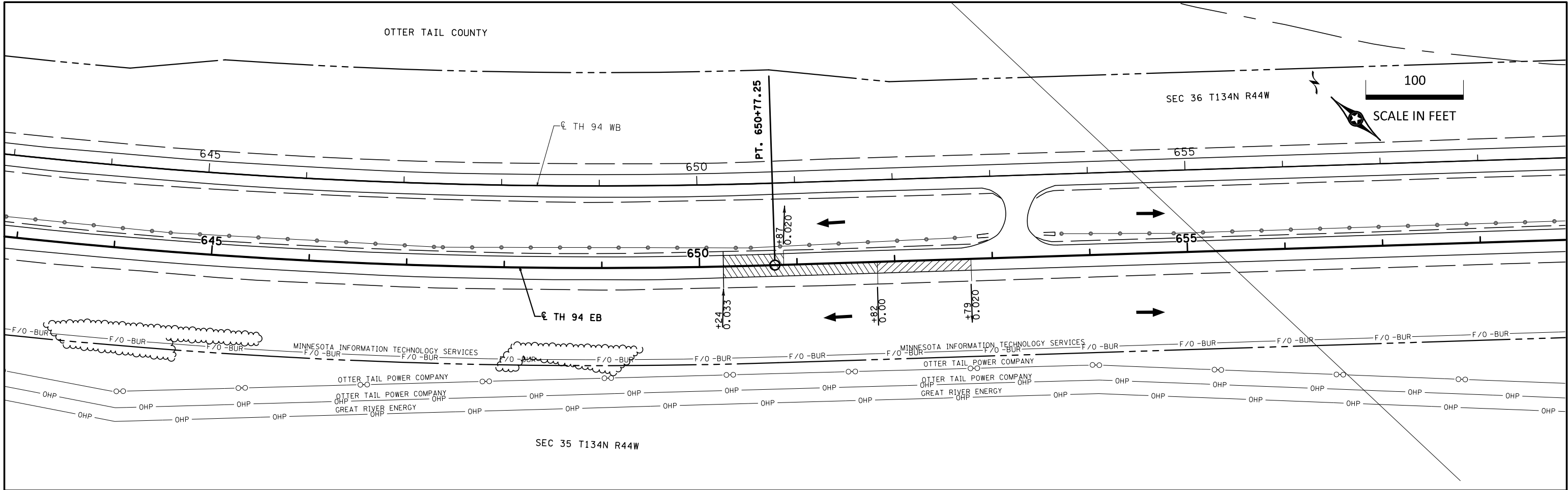


3-OCT-2024

3-OCT-2024

DISTRICT # 4d5680147\_185cpp-plan

PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

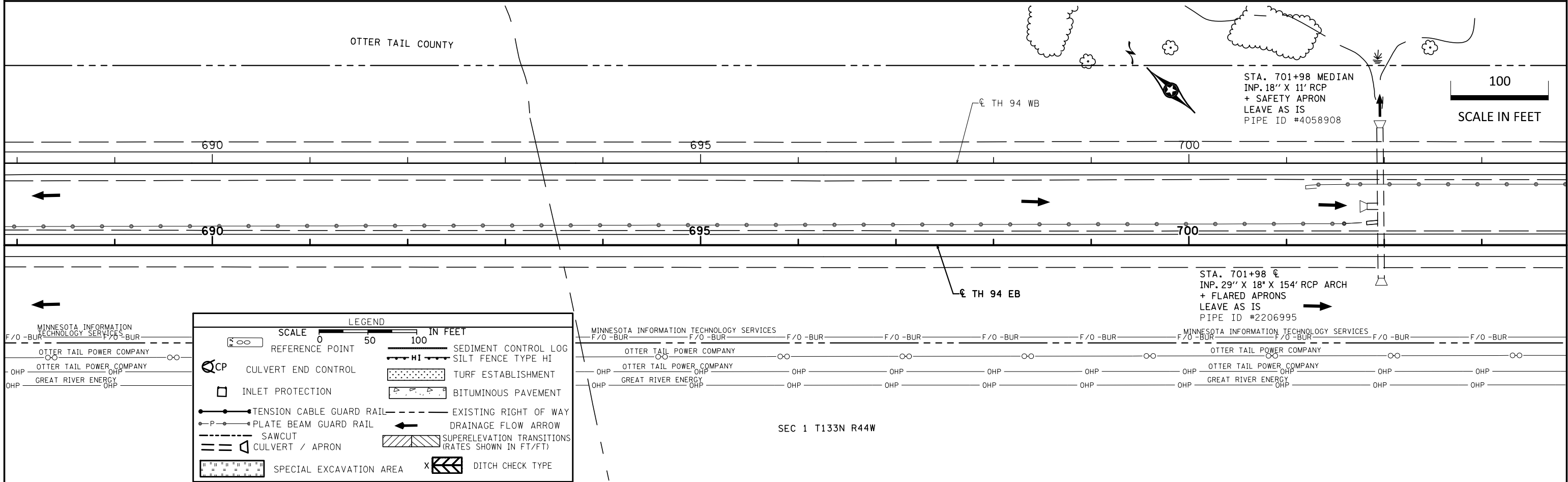
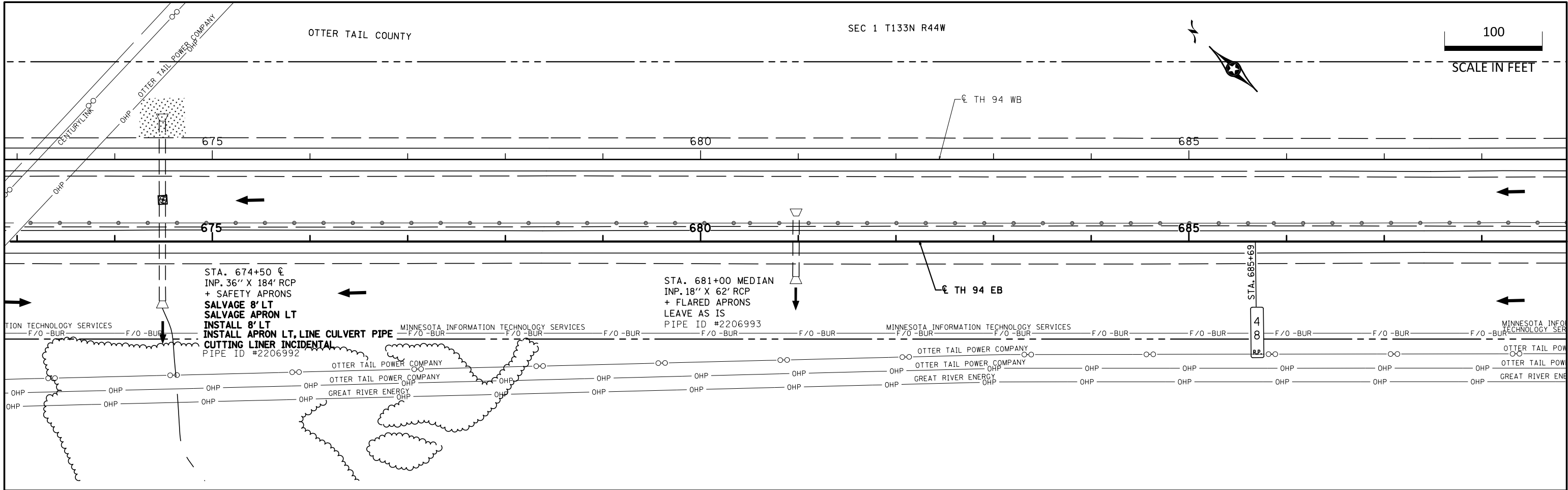
CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 108  
TOTAL SHEETS 153

3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME:  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

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CONSTRUCTION PLANS

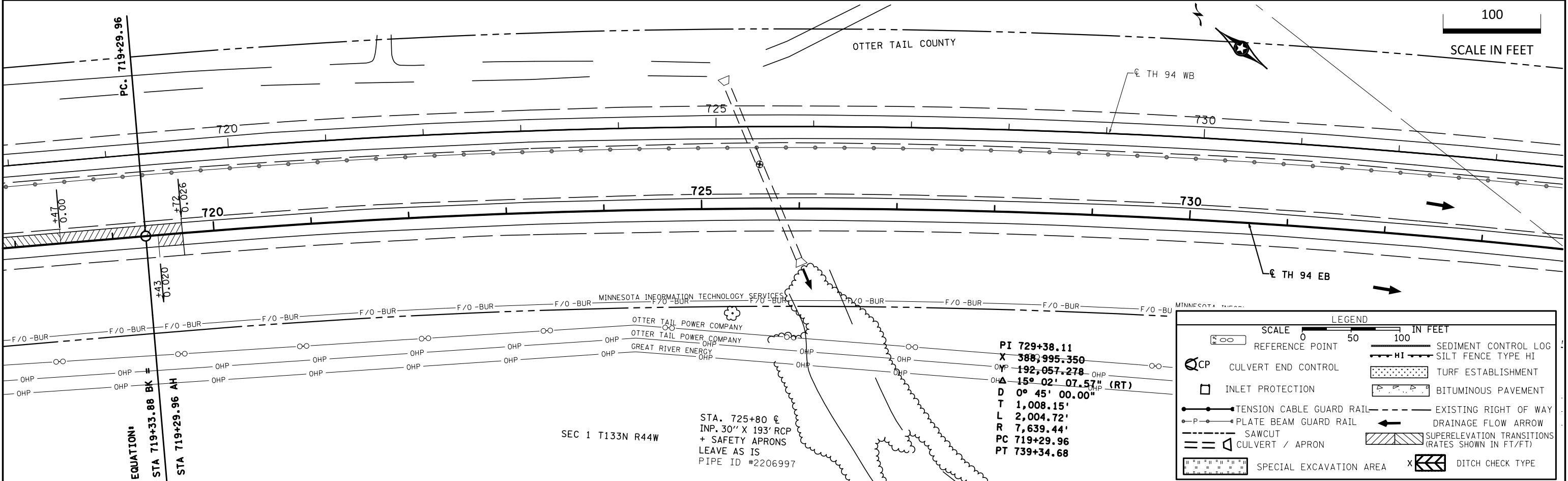
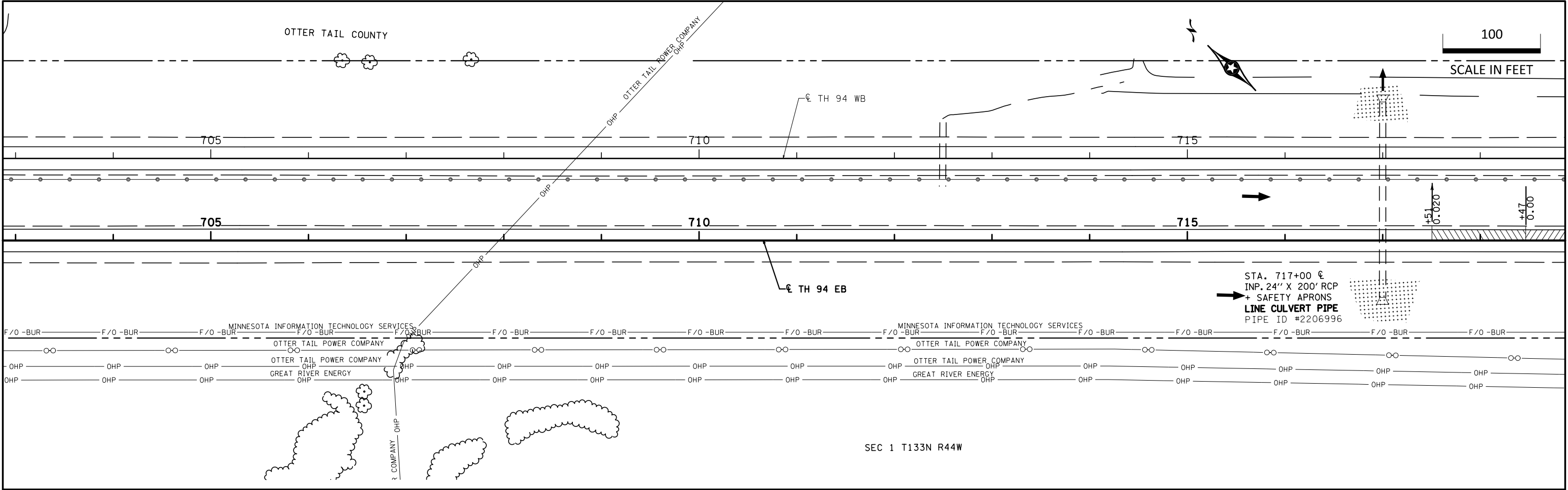
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 109  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT # 4d5680147\_185cpp-plan  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

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CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 110  
TOTAL SHEETS 153

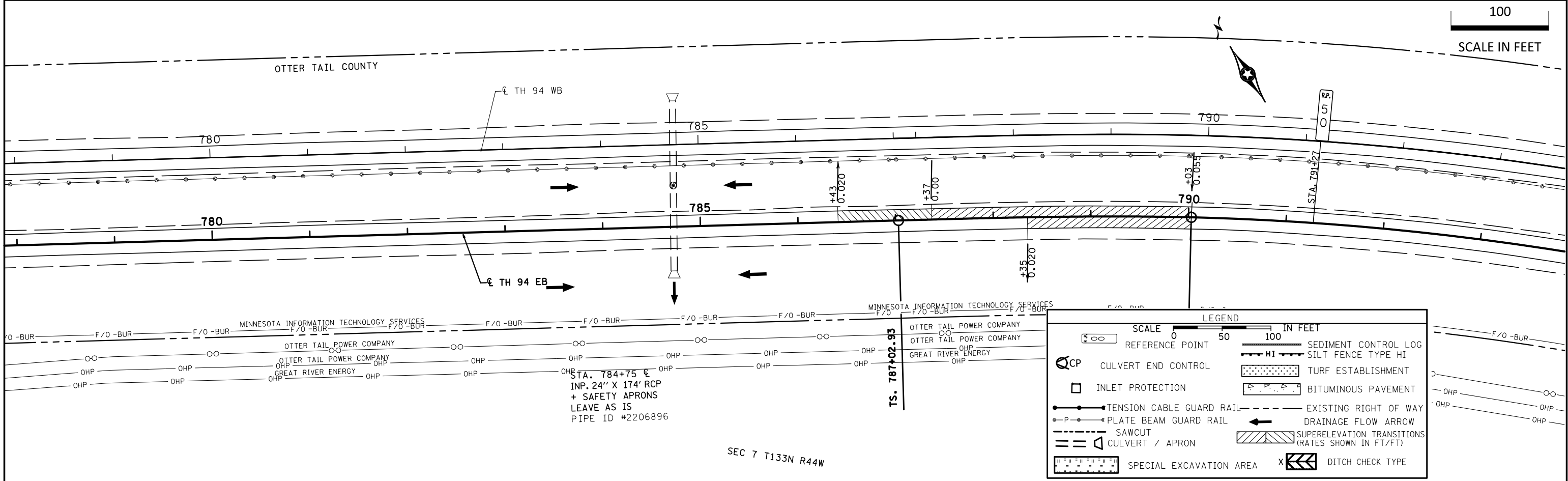
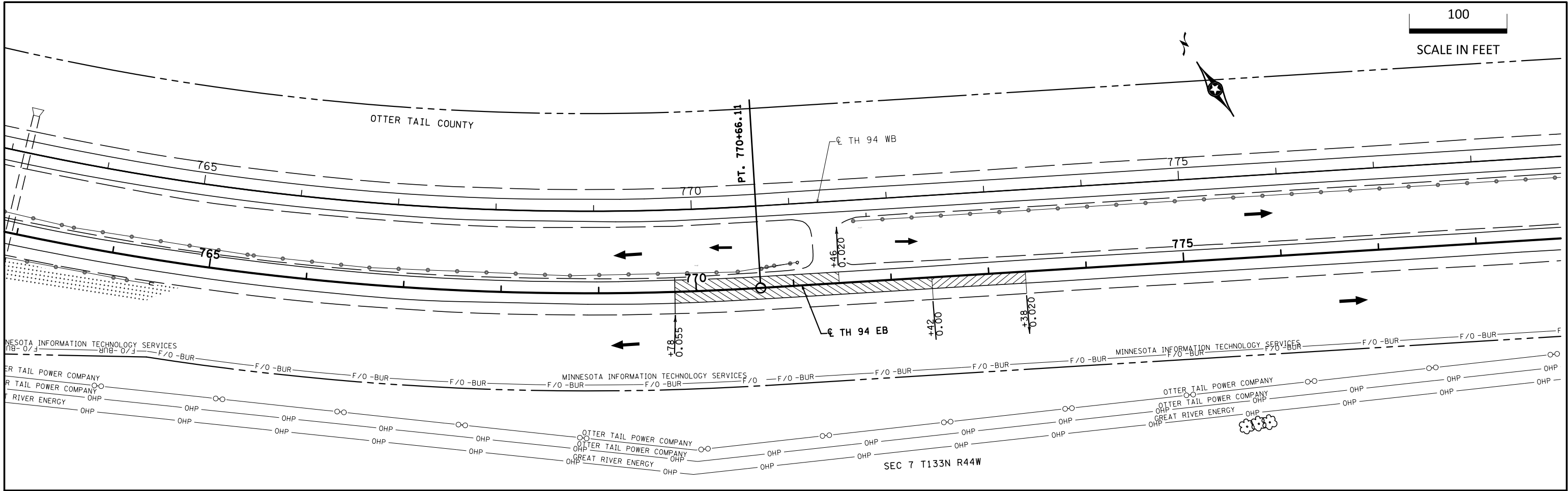






3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
4d5680147\_185cpp-plan  
PLOT NAME:  
PATH & FILENAME:



LEGEND	
SCALE 0 50 100 IN FEET	REFERENCE POINT
CP	CULVERT END CONTROL
INLET PROTECTION	
TENSION CABLE GUARD RAIL	
PLATE BEAM GUARD RAIL	
SAWCUT	
CULVERT / APRON	
SPECIAL EXCAVATION AREA	
SEDIMENT CONTROL LOG	
SILT FENCE TYPE HI	
TURF ESTABLISHMENT	
BITUMINOUS PAVEMENT	
EXISTING RIGHT OF WAY	
DRAINAGE FLOW ARROW	
SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)	
DITCH CHECK TYPE	



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
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CONSTRUCTION PLANS

















STATE PROJ. NO. 5680-147	SHEET NO. 112
(T.H. 94)	TOTAL SHEETS 153

PLOTTED/REVISED:

DISTRICT #: DISTRICT #



**LEGEND**

	REFERENCE POINT		SEDIMENT CONTROL LOG
	CULVERT END CONTROL		SILT FENCE TYPE HI
	INLET PROTECTION		TURF ESTABLISHMENT
	TENSION CABLE GUARD RAIL		BITUMINOUS PAVEMENT
	PLATE BEAM GUARD RAIL		EXISTING RIGHT OF WAY
	SAWCUT		DRAINAGE FLOW ARROW
	CULVERT / APRON		SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)
	SPECIAL EXCAVATION AREA		DITCH CHECK TYPE



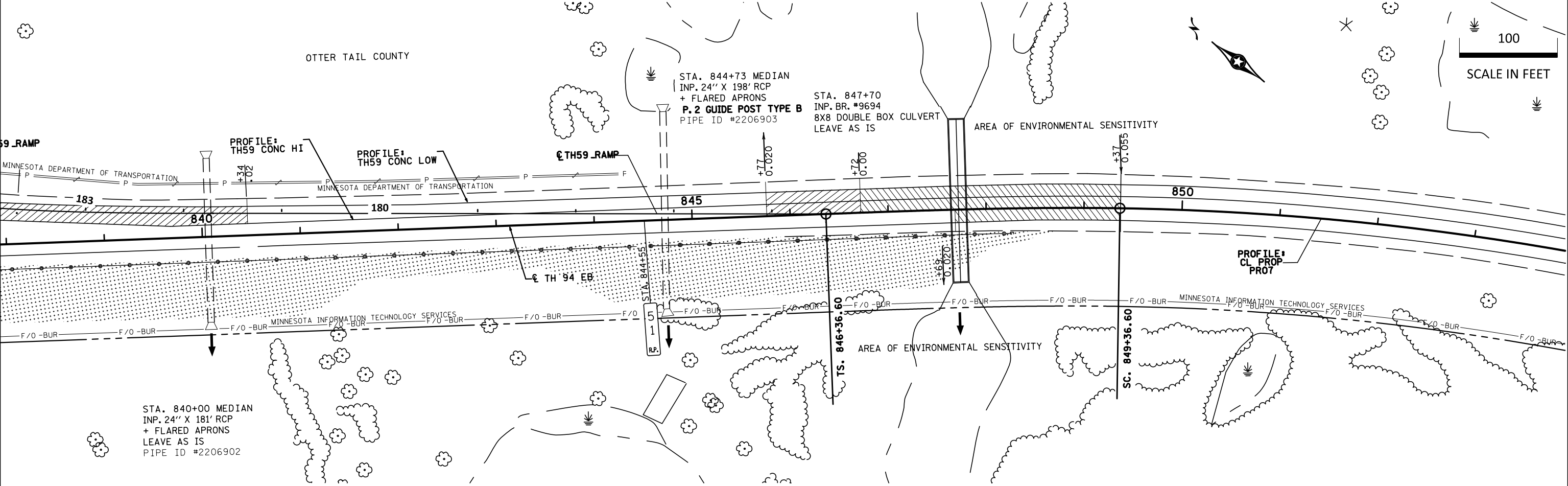
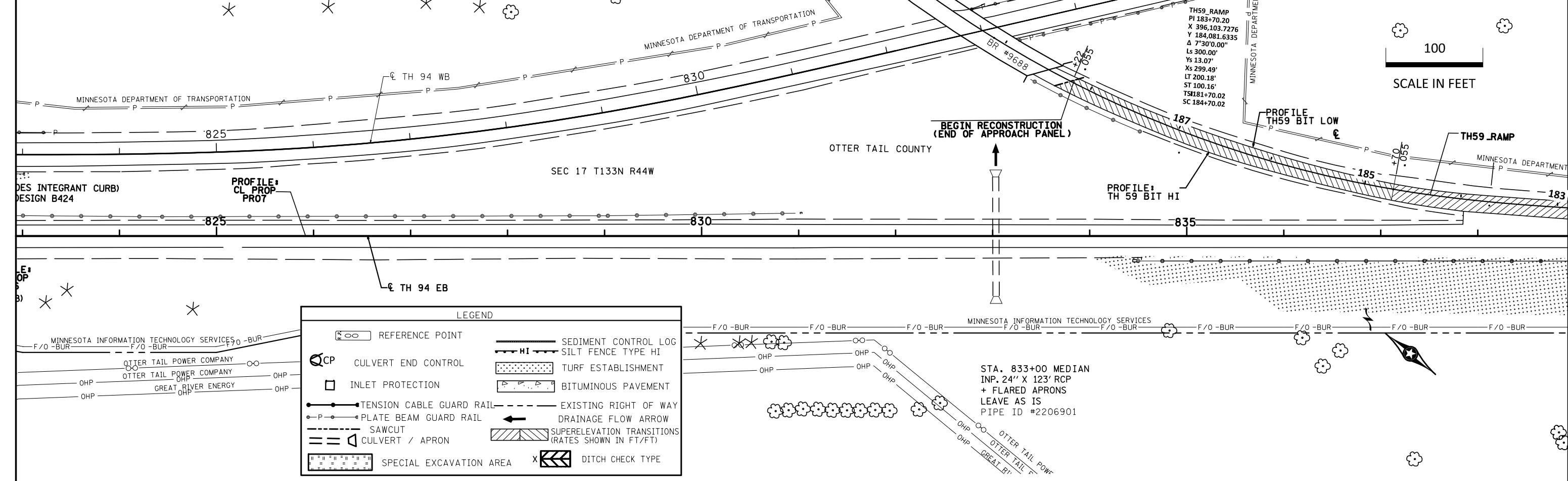


6-NOV-2024

6-NOV-2024

DISTRICT # 4d5680147\_185cpp-plan

PLOT NAME: 4d5680147\_185cpp-plan



LICENSED PROFESSIONAL ENGINEER

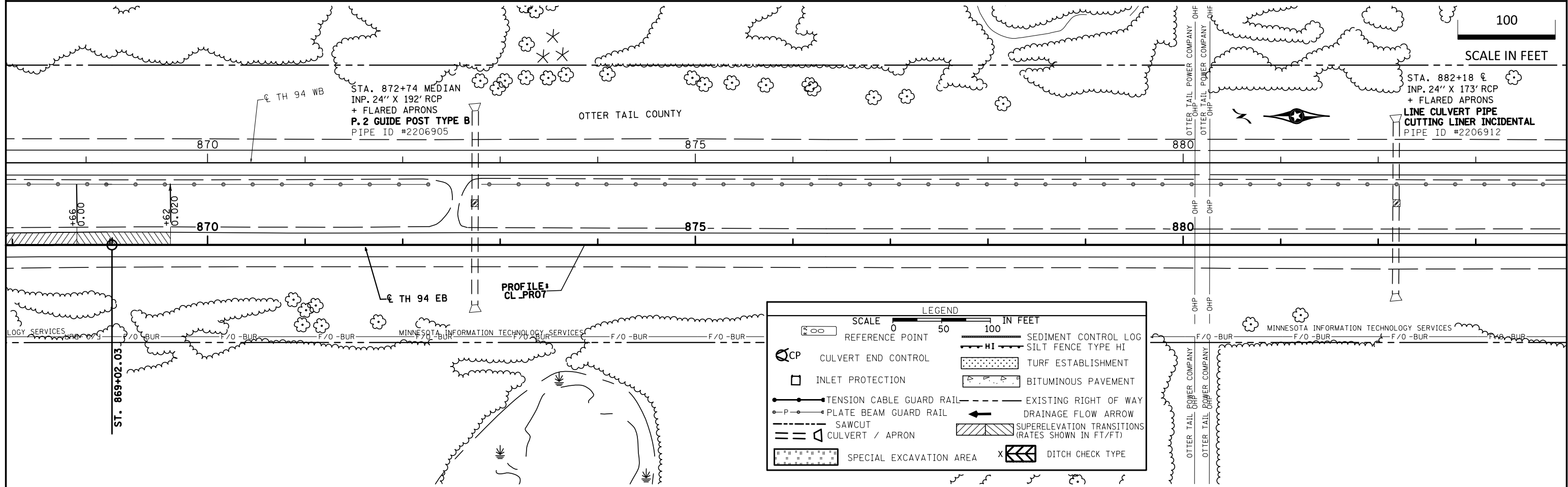
ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147	SHEET NO. 115
(T.H. 94)	TOTAL SHEETS 153

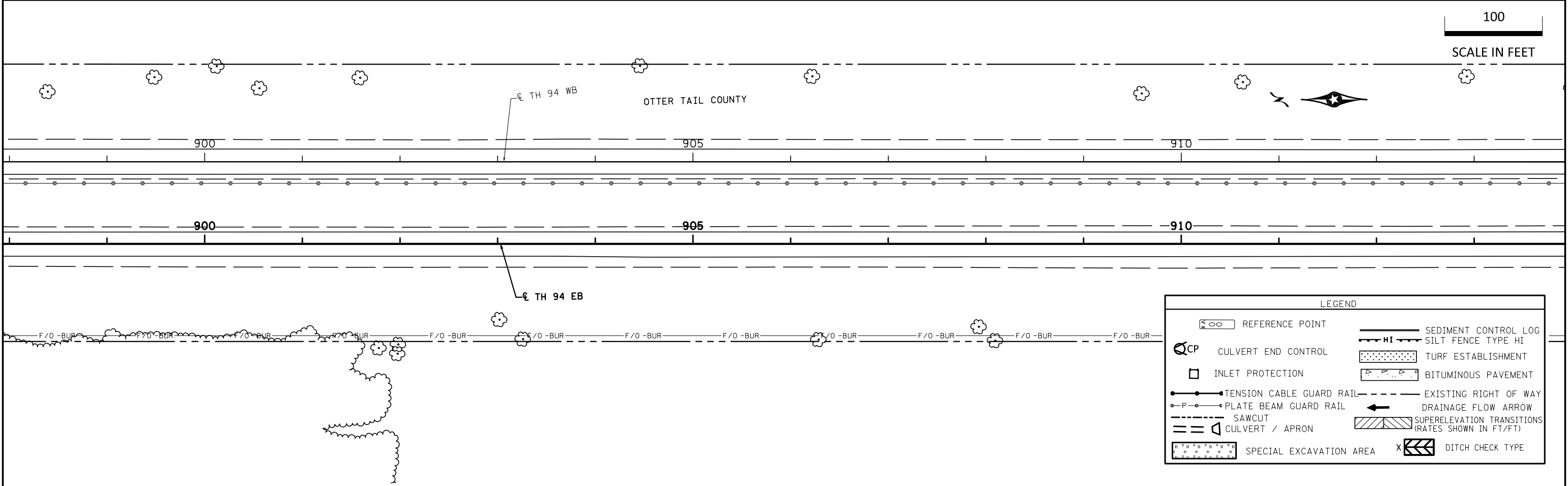
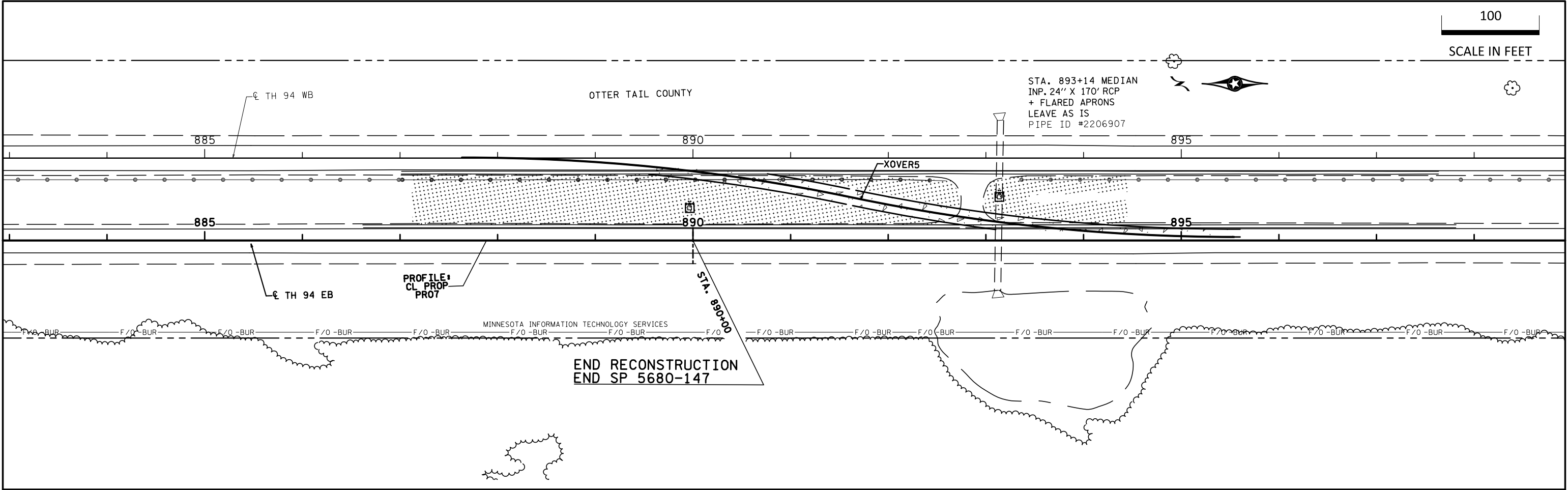
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PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:





6-NOV-2024  
PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4d5680147\_185cpp-plan  
PATH & FILENAME:



LEGEND			
	REFERENCE POINT		SEDIMENT CONTROL LOG
	CULVERT END CONTROL		SILT FENCE TYPE HI
	INLET PROTECTION		TURF ESTABLISHMENT
	TENSION CABLE GUARD RAIL		BITUMINOUS PAVEMENT
	PLATE BEAM GUARD RAIL		EXISTING RIGHT OF WAY
	SAWCUT		DRAINAGE FLOW ARROW
	CULVERT / APRON		SUPERELEVATION TRANSITIONS (RATES SHOWN IN FT/FT)
	SPECIAL EXCAVATION AREA		DITCH CHECK TYPE



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

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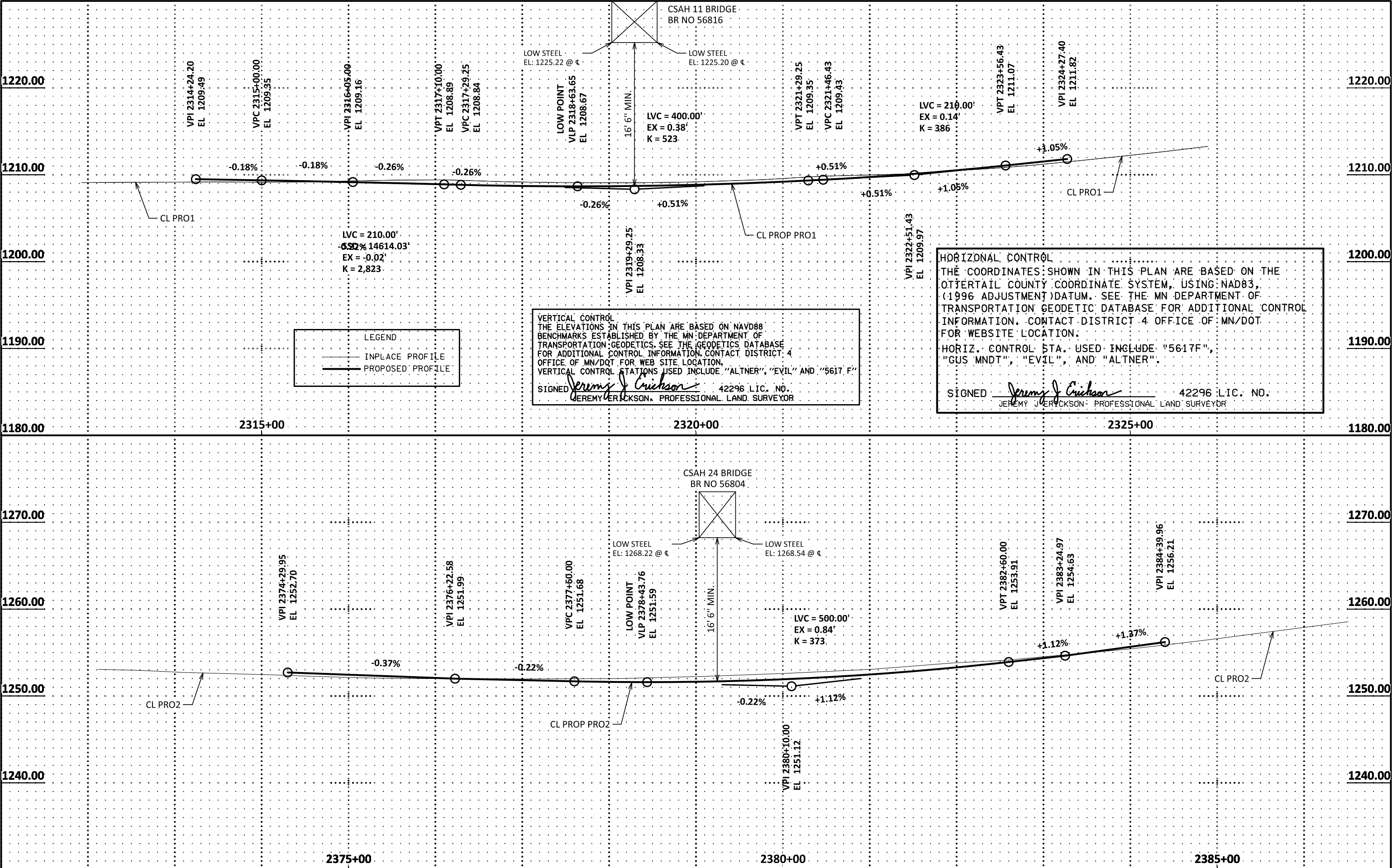
CONSTRUCTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 117  
TOTAL SHEETS 153



DISTRICT #: 405680147\_190pro-plan  
PLOT NAME: 405680147\_190pro-plan  
PATH & FILENAME:  
6-NOV-2024  
PLOTTED/REVISED:

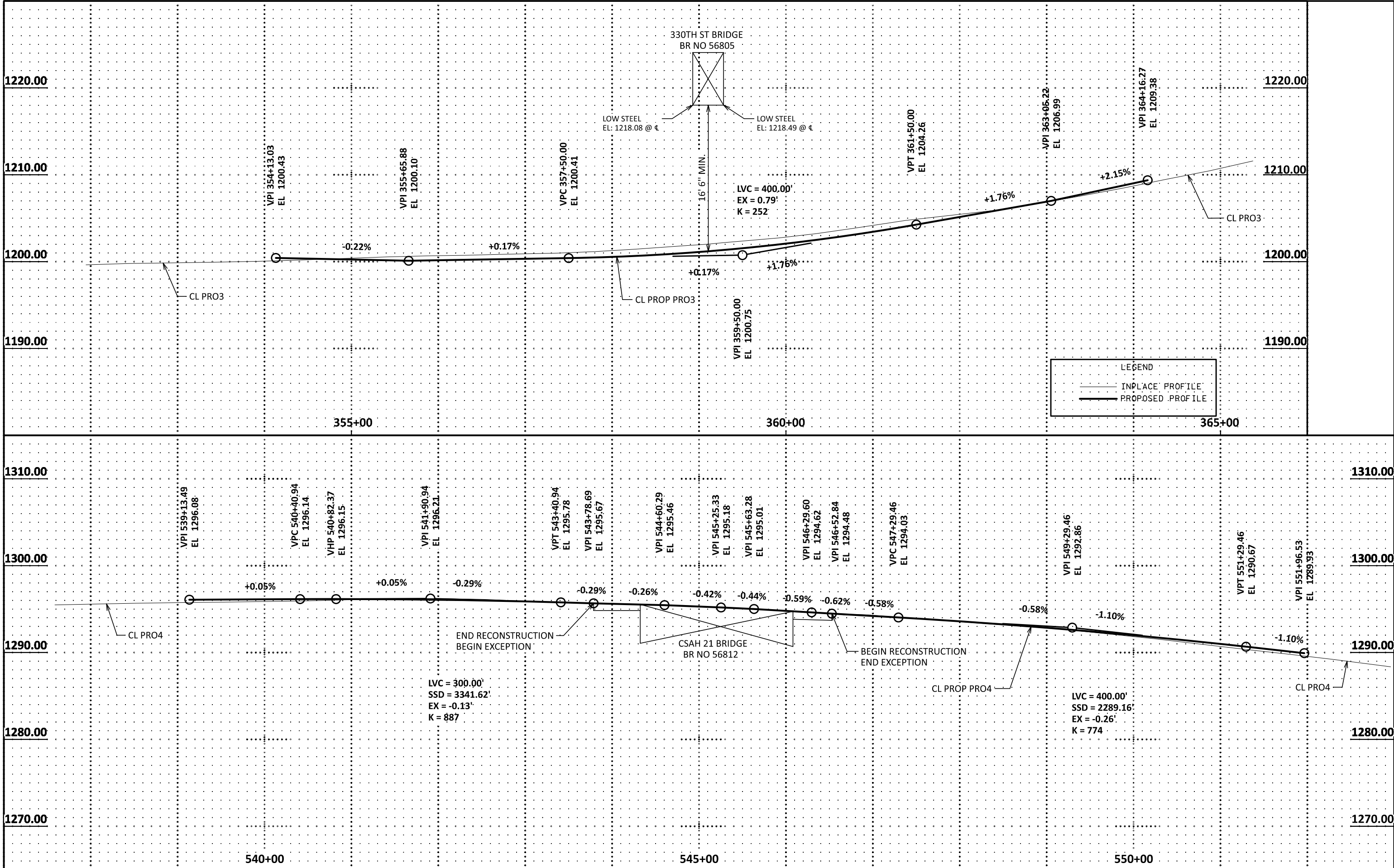


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PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:

DISTRICT #: 4D5680147\_190pro-plan  
PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:

6-NOV-2024

6-NOV-2024



ANDREW KROG  
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PROFILES

STATE PROJ. NO. 5680-147  
(T.H. 94)

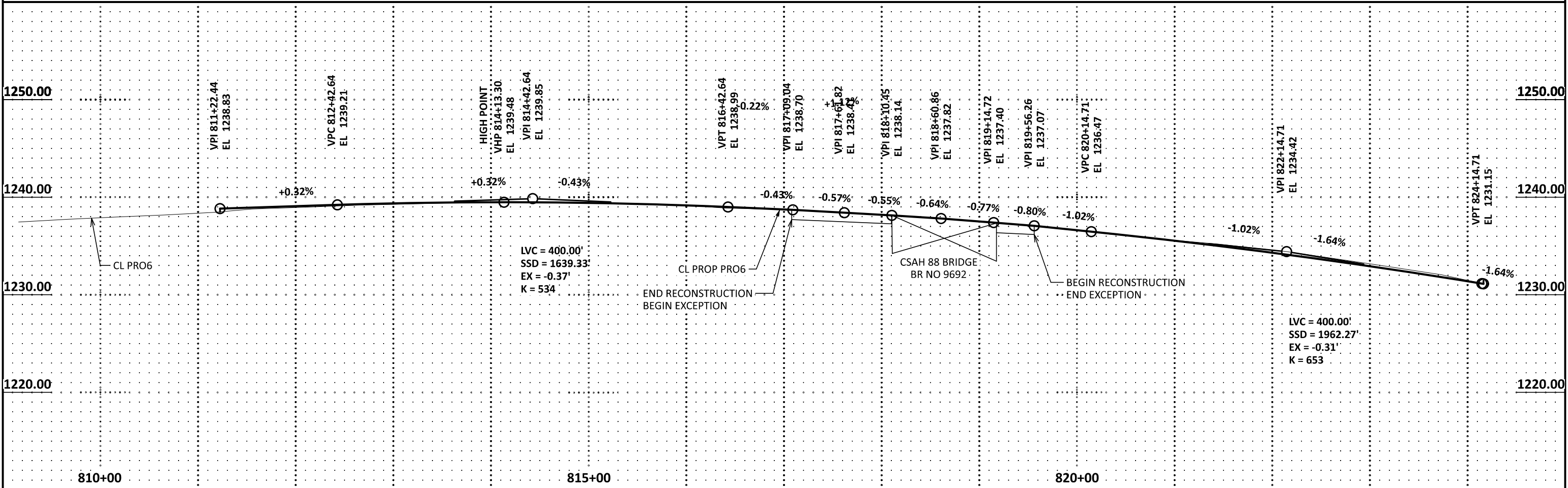
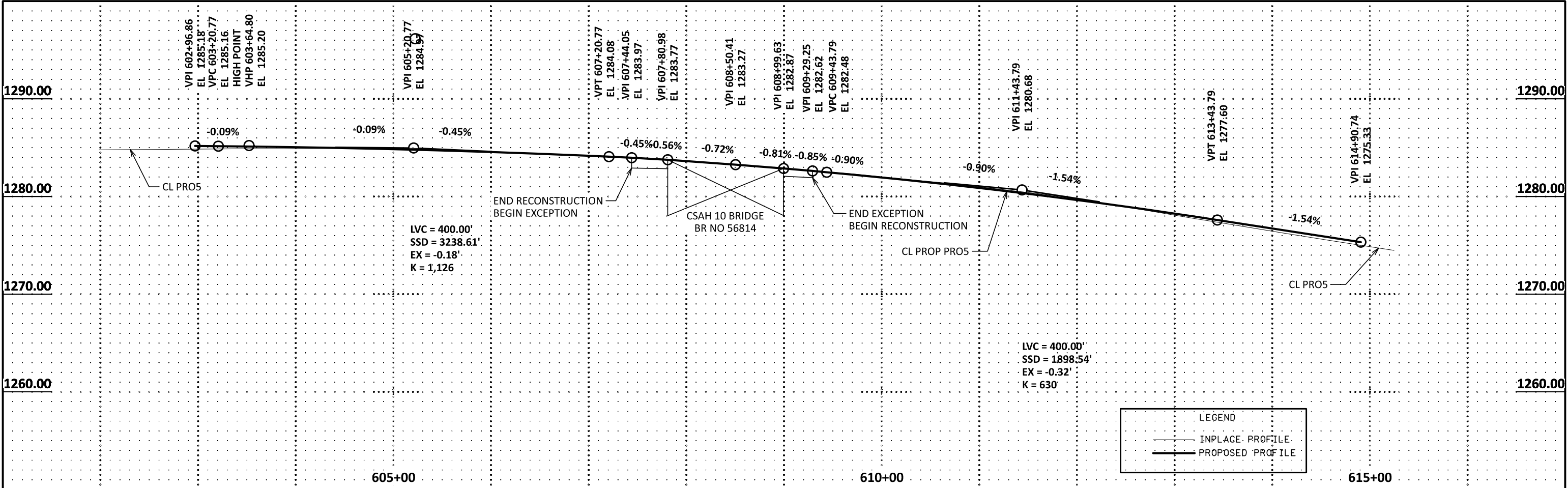
SHEET NO. 119  
TOTAL SHEETS 153

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PLOT NAME: 405680147\_190pro-plan  
PATH & FILENAME:

DISTRICT #  
PLOT NAME:  
PATH & FILENAME:

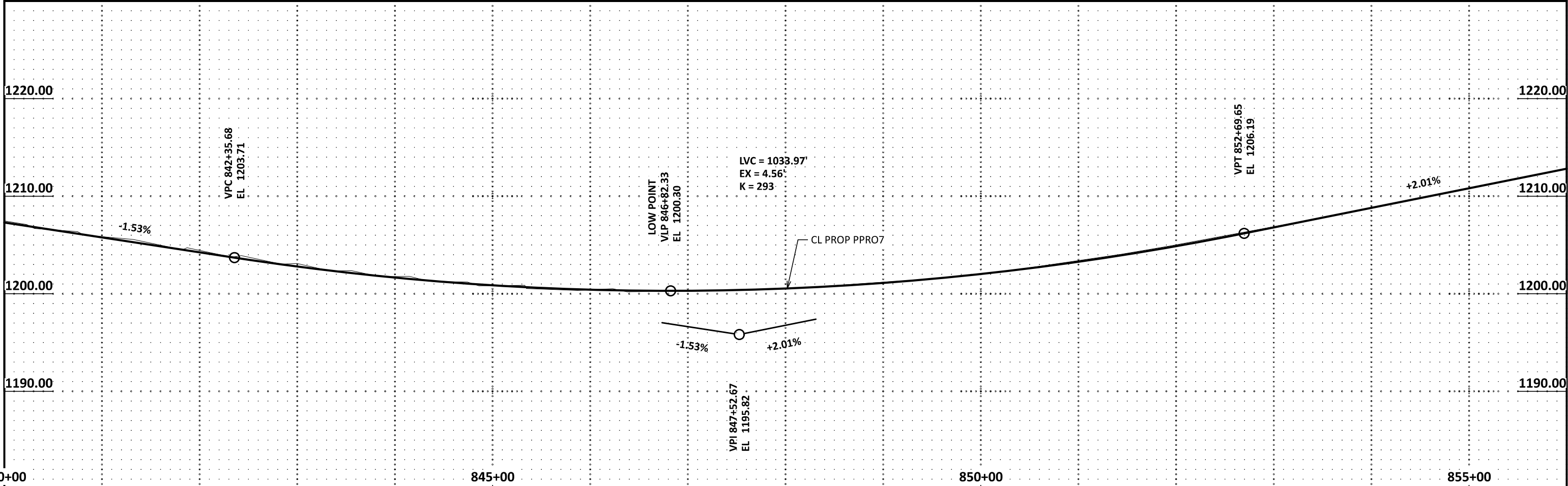
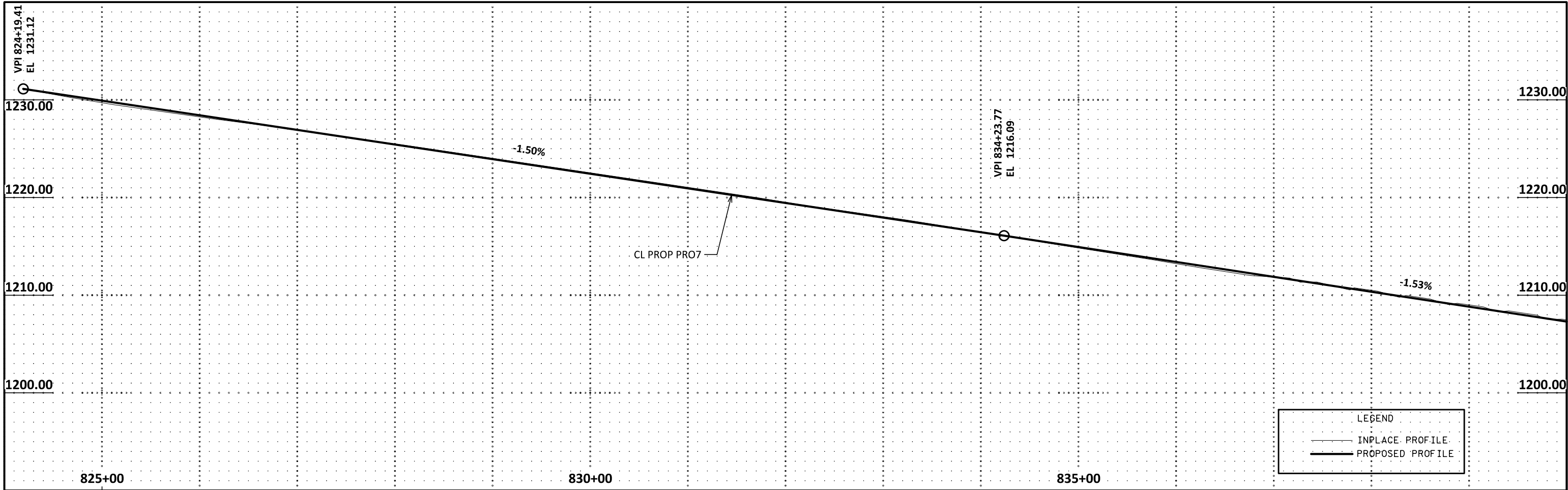
6-NOV-2024



6-NOV-2024



**PLOTTED/REVISED:**

DISTRICT #: DISTRICT #

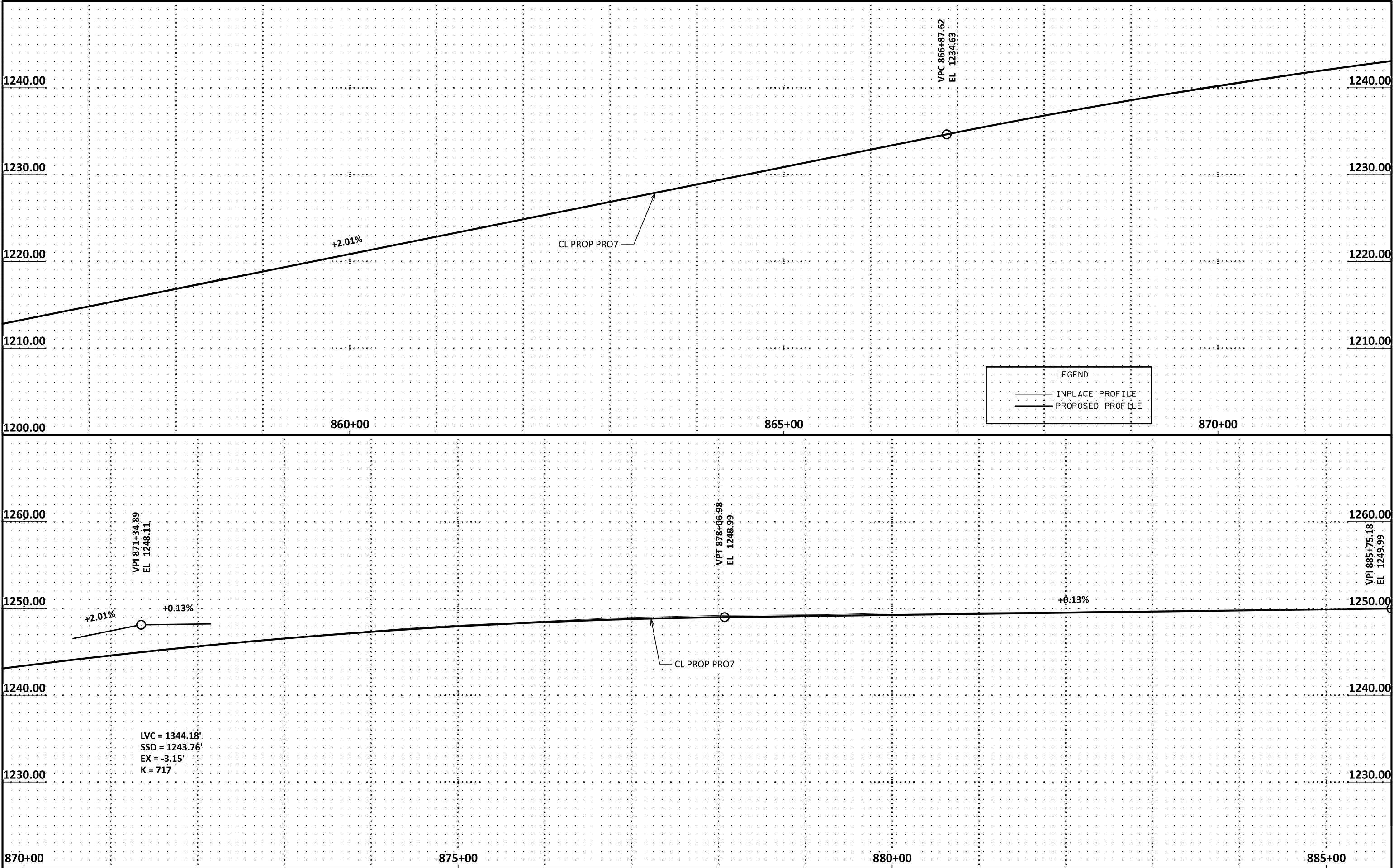


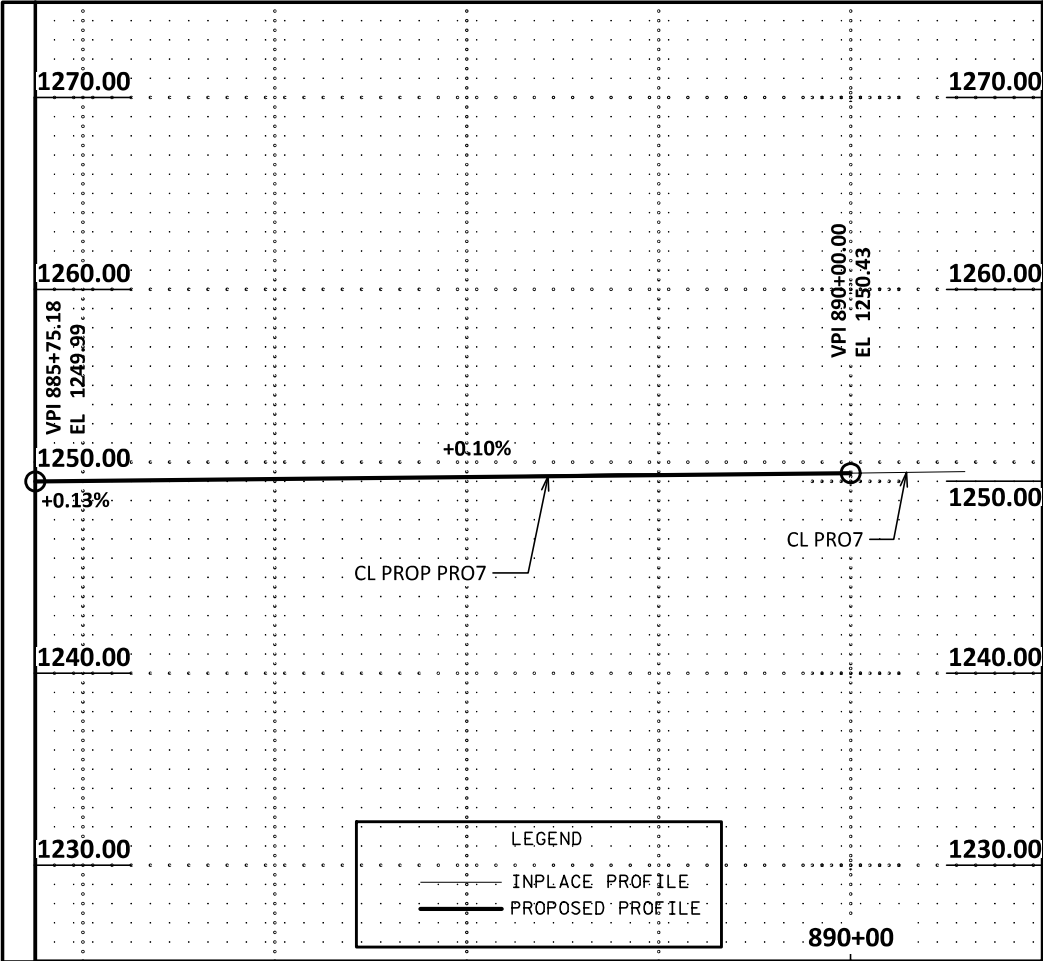
 <b>DEPARTMENT OF TRANSPORTATION</b>	 <b>LICENSED PROFESSIONAL ENGINEER</b>	<b>ANDREW KROG</b> LIC. NO. 54689 DATE: 6-NOV-2024	I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	<b>PROFILES</b>	STATE PROJ. NO. 5680-147	SHEET NO. 121
					(T.H. 94)	TOTAL SHEETS 153

DISTRICT # 405680147\_190pro-plan  
PLOT NAME: 405680147\_190pro-plan  
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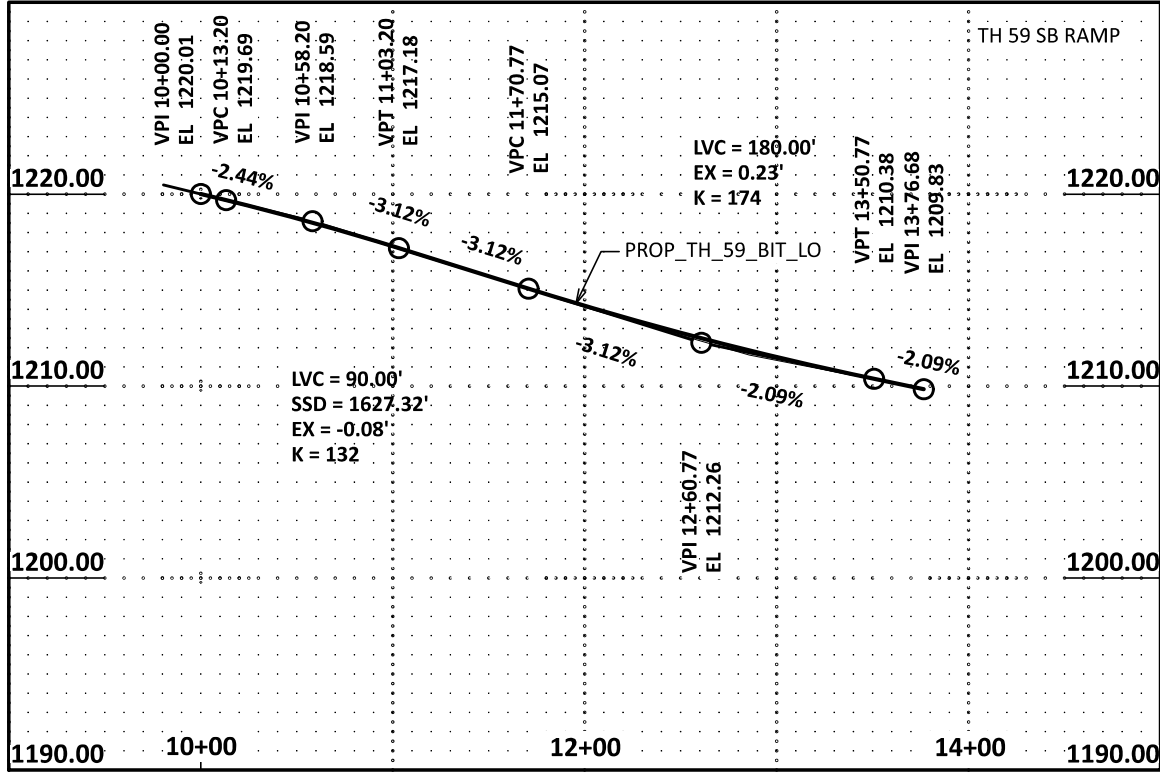
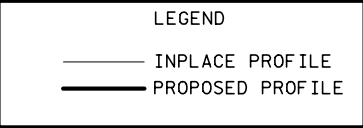
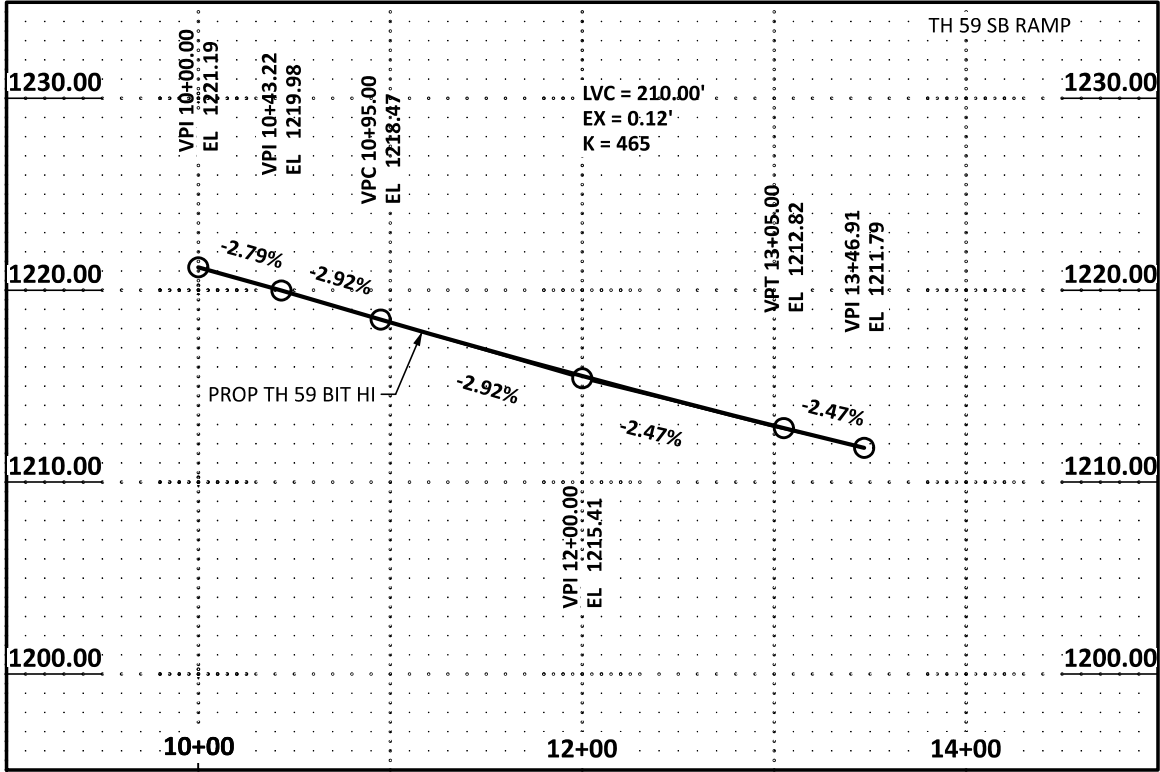
DISTRICT #  
PLOT NAME:  
PATH & FILENAME:

6-NOV-2024  
PLOTTED/REVISED:









*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

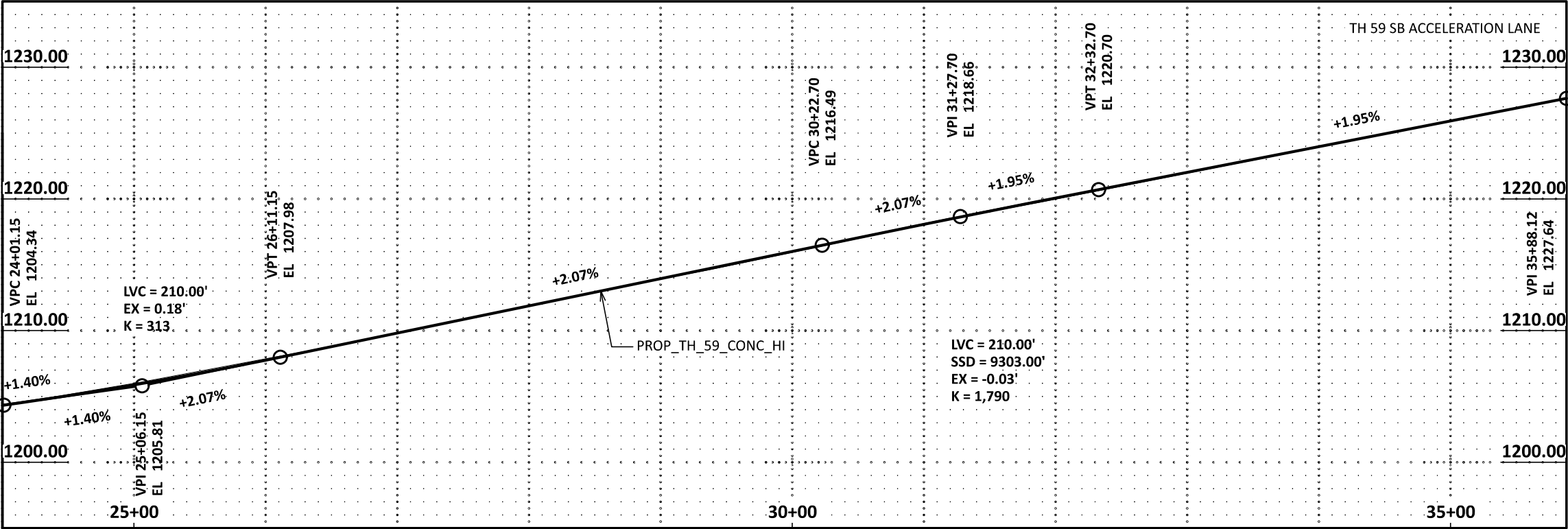
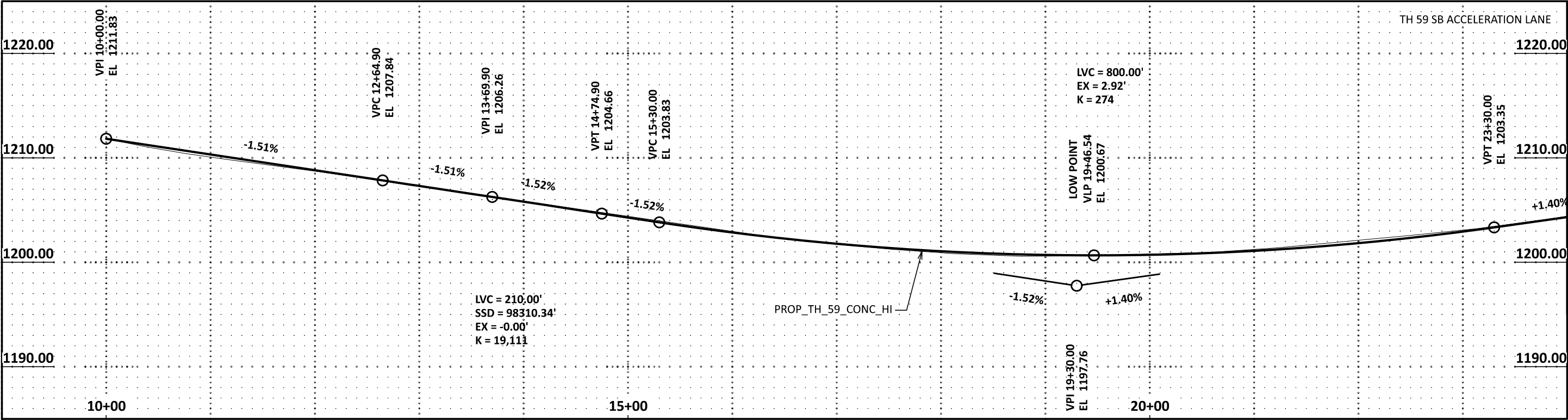
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PROFILES

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 124  
TOTAL SHEETS 153

DISTRICT #: 4D5680147\_190pro-plan  
PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:  
6-NOV-2024  
PLOTTED/REVISED:



LEGEND

— INPLACE PROFILE

— PROPOSED PROFILE

DISTRICT #: 4D5680147\_190pro-plan  
PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:



*Andrew Krog*  
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ANDREW KROG  
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DATE: 6-NOV-2024

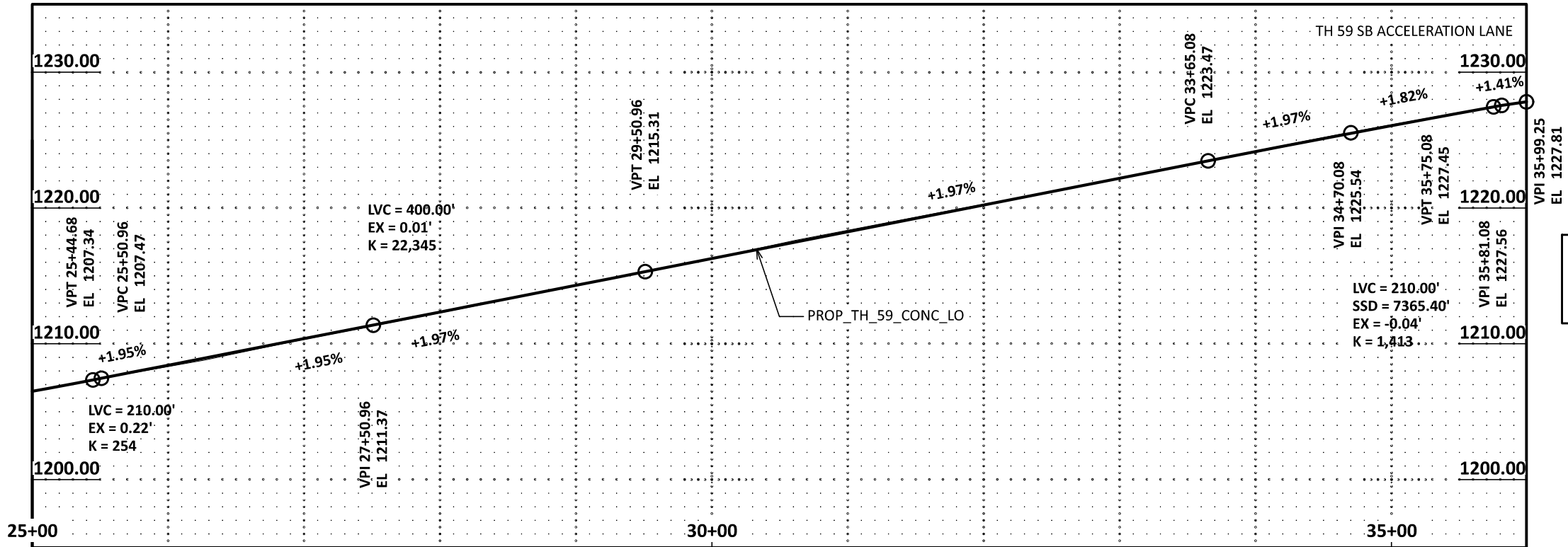
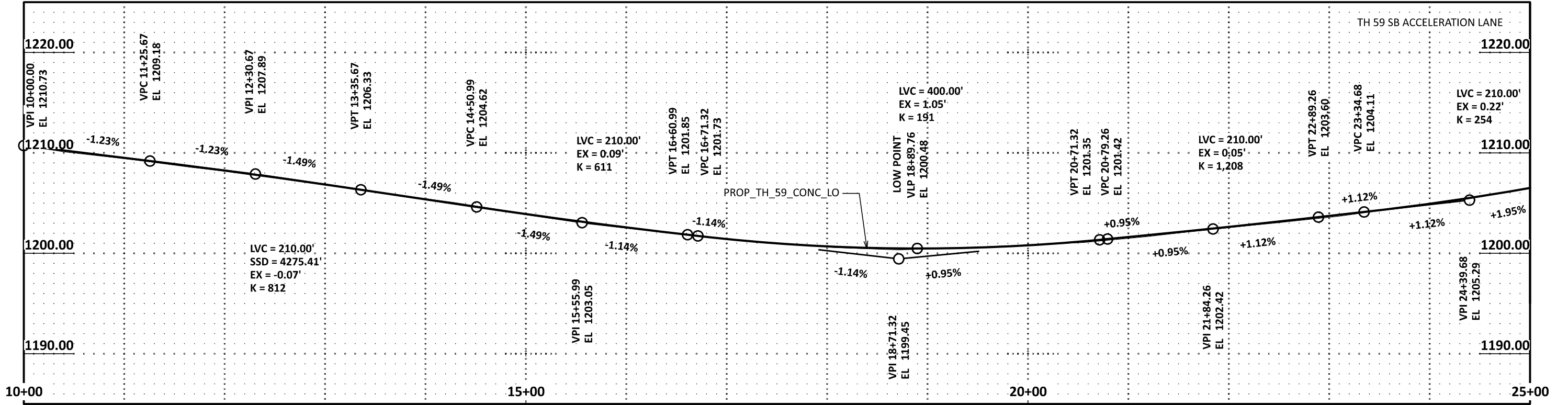
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PROFILES

STATE PROJ. NO. 5680-147	SHEET NO. 125
(T.H. 94)	TOTAL SHEETS 153



DISTRICT #: 4D5680147\_190pro-plan  
PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:  
6-NOV-2024  
PLOTTED/REVISED:



LEGEND

INPLACE PROFILE

PROPOSED PROFILE

DISTRICT #: 4D5680147\_190pro-plan  
PLOT NAME: 4D5680147\_190pro-plan  
PATH & FILENAME:



*Andrew Krog*  
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DATE: 6-NOV-2024

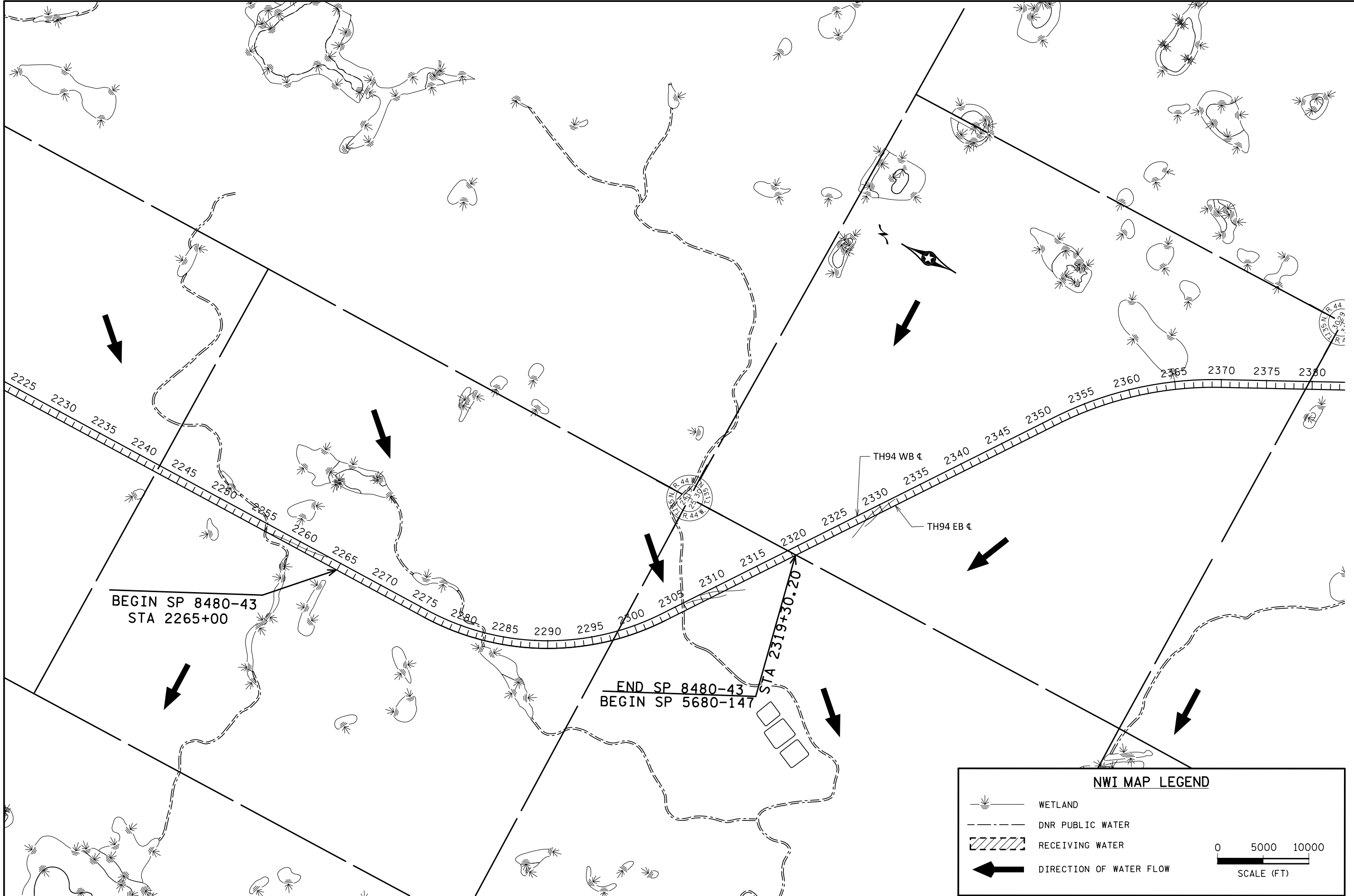
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PROFILES

STATE PROJ. NO.	5680-147	SHEET NO.	126
	(T.H. 94)	TOTAL SHEETS	153

DISTRICT #: DISTRICT #  
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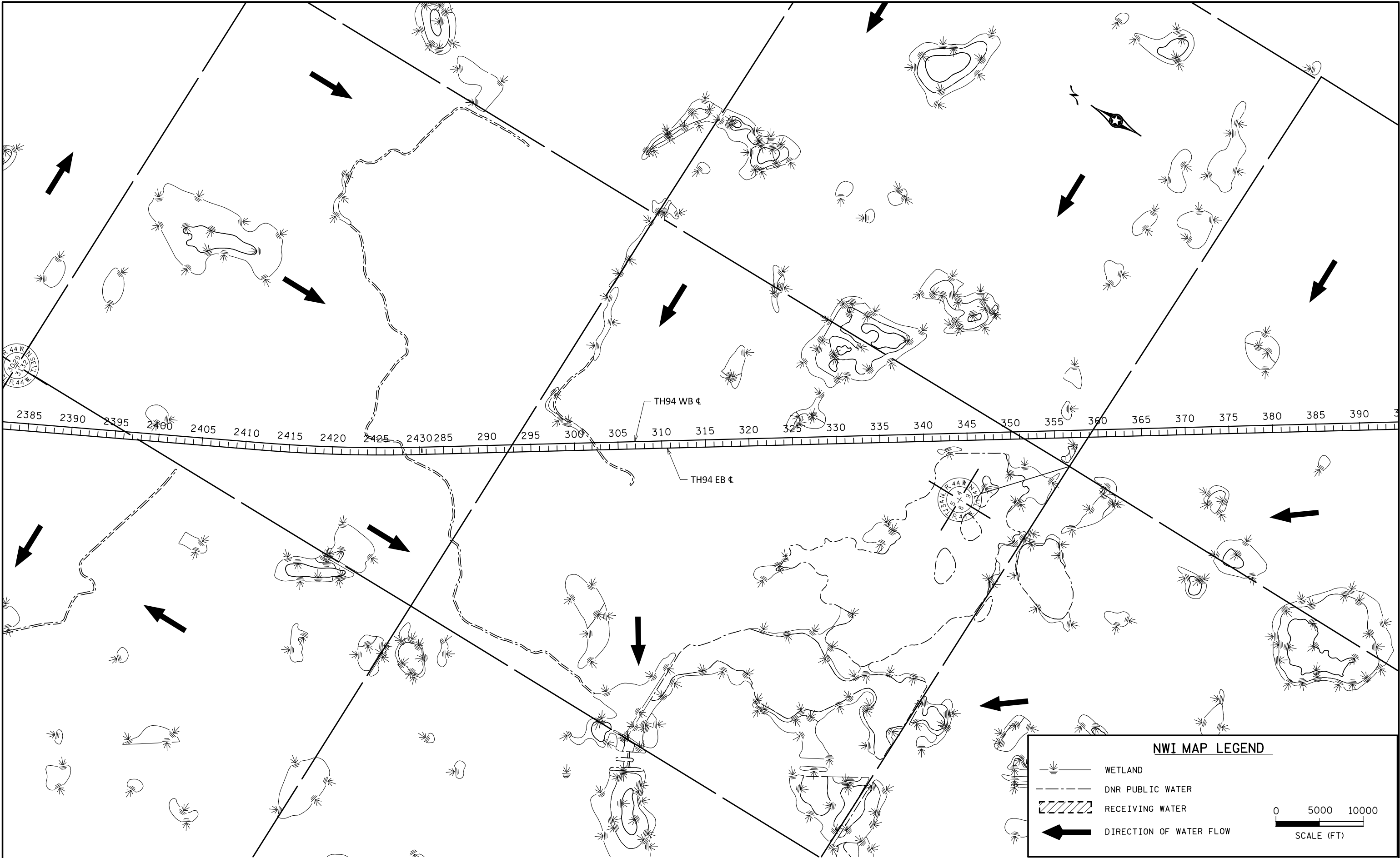
3-OCT-2024  
PLOTTED/REVISED:



3-OCT-2024

3-OCT-2024

DISTRICT #  
PLOT NAME: 4d5680147\_wrn  
PATH & FILENAME:



NWI MAP LEGEND

- WETLAND
- DNR PUBLIC WATER
- RECEIVING WATER
- DIRECTION OF WATER FLOW

0 5000 10000  
SCALE (FT)



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

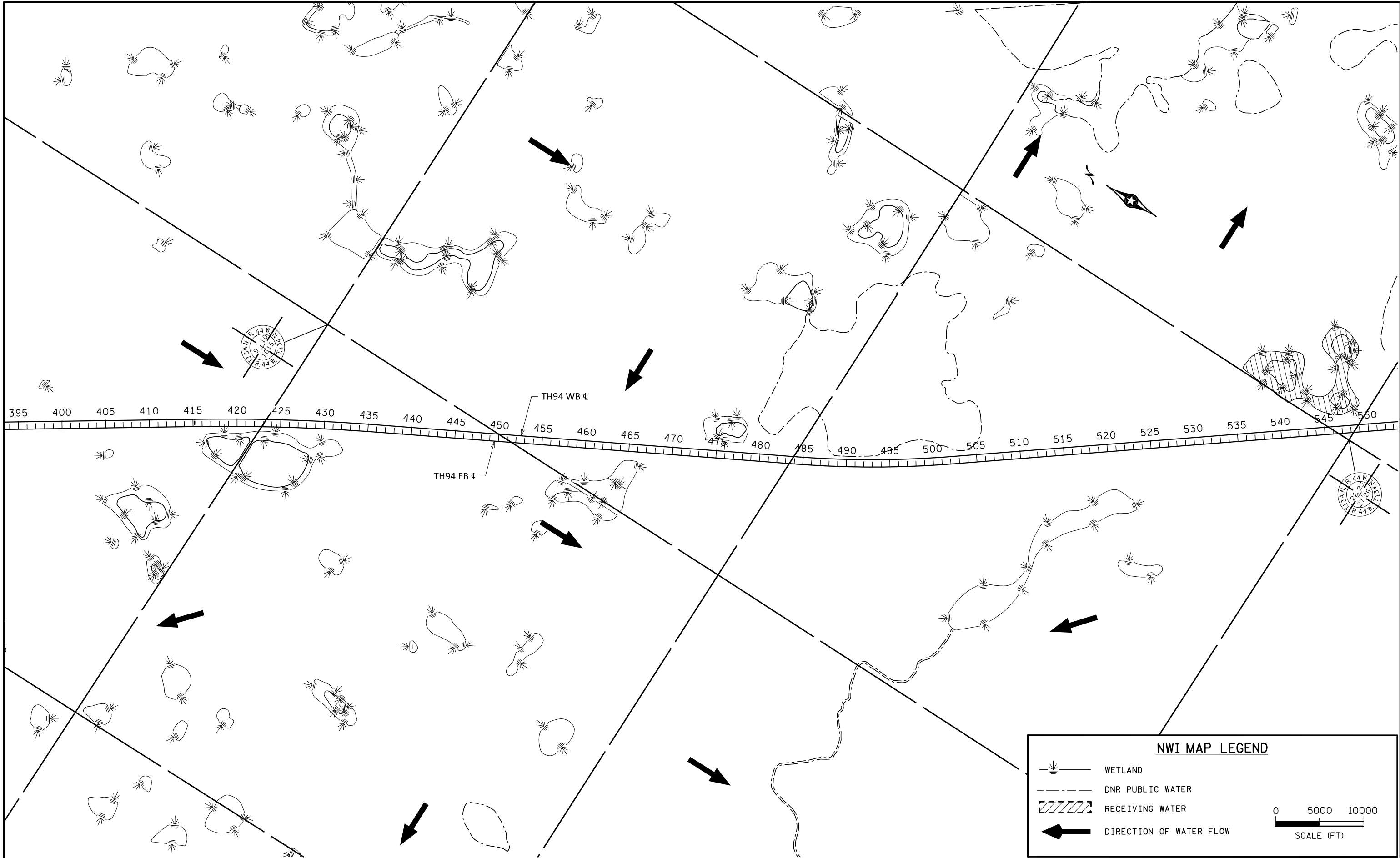
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NWI MAPS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 128  
TOTAL SHEETS 153

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_wrn  
PATH & FILENAME:  
PLOTTED/REVISED: 6-NOV-2024



### NWI MAP LEGEND

- WETLAND
- DNR PUBLIC WATER
- RECEIVING WATER
- DIRECTION OF WATER FLOW

0500010000

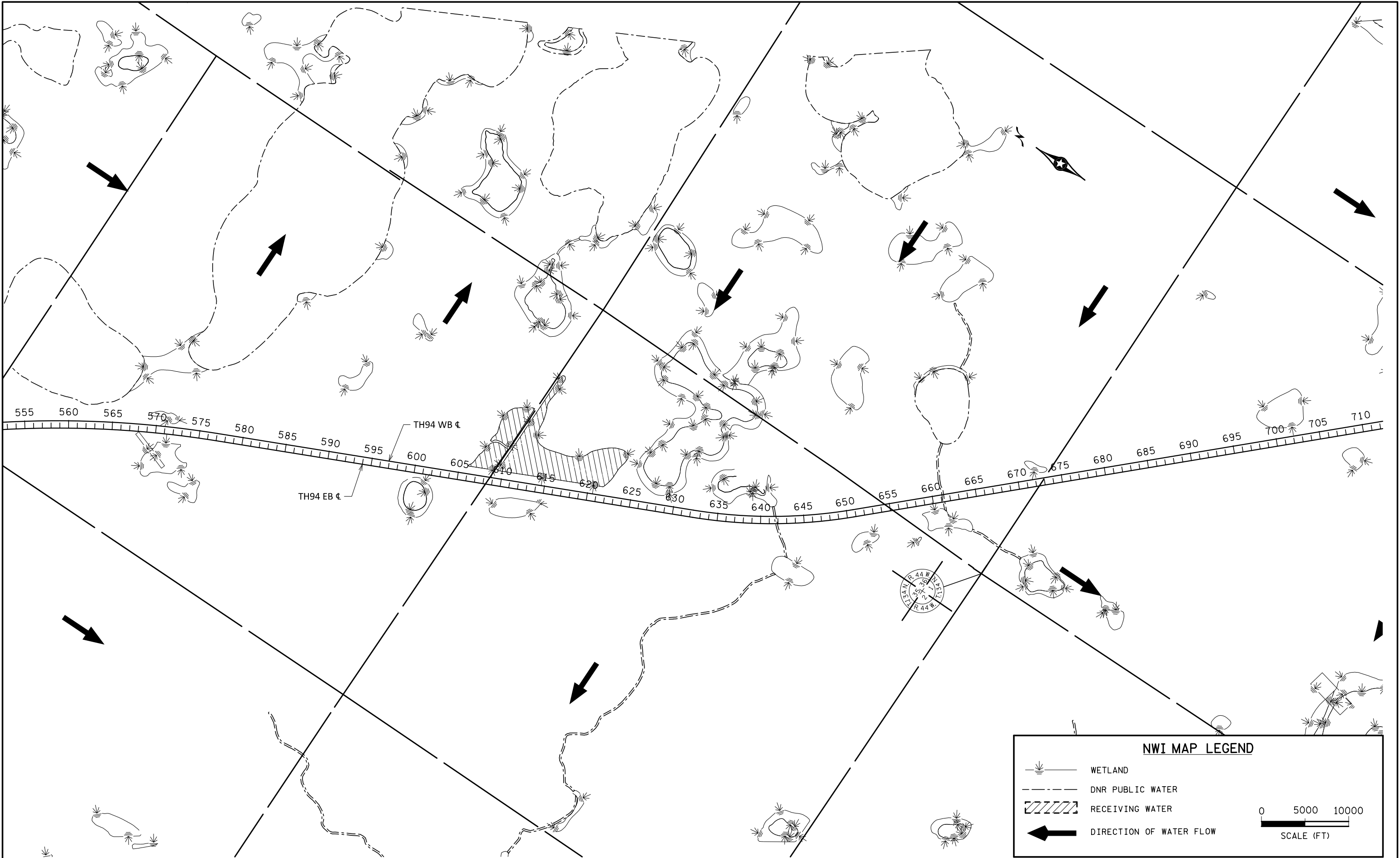
SCALE (FT)



3-OCT-2024

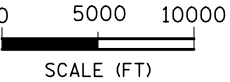
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DISTRICT #  
PLOT NAME: 4d5680147\_wrn  
PATH & FILENAME:



NWI MAP LEGEND

- WETLAND
- DNR PUBLIC WATER
- RECEIVING WATER
- DIRECTION OF WATER FLOW



*Andrew Krog*  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

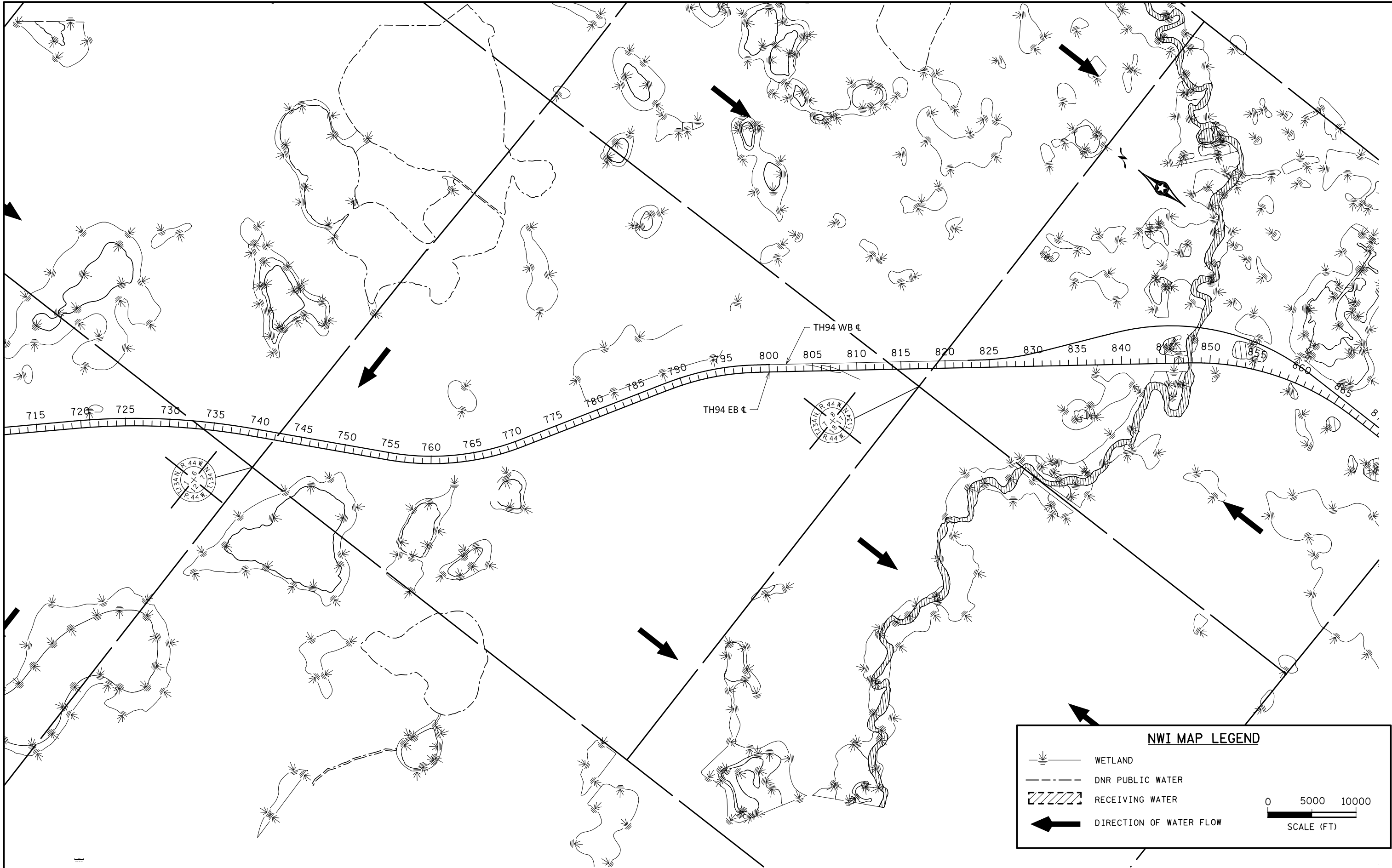
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NWI MAPS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 130  
TOTAL SHEETS 153

DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_wrn  
PATH & FILENAME:  
PLOTTED/REVISED: 6-NOV-2024



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ANDREW KROG  
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NWI MAPS

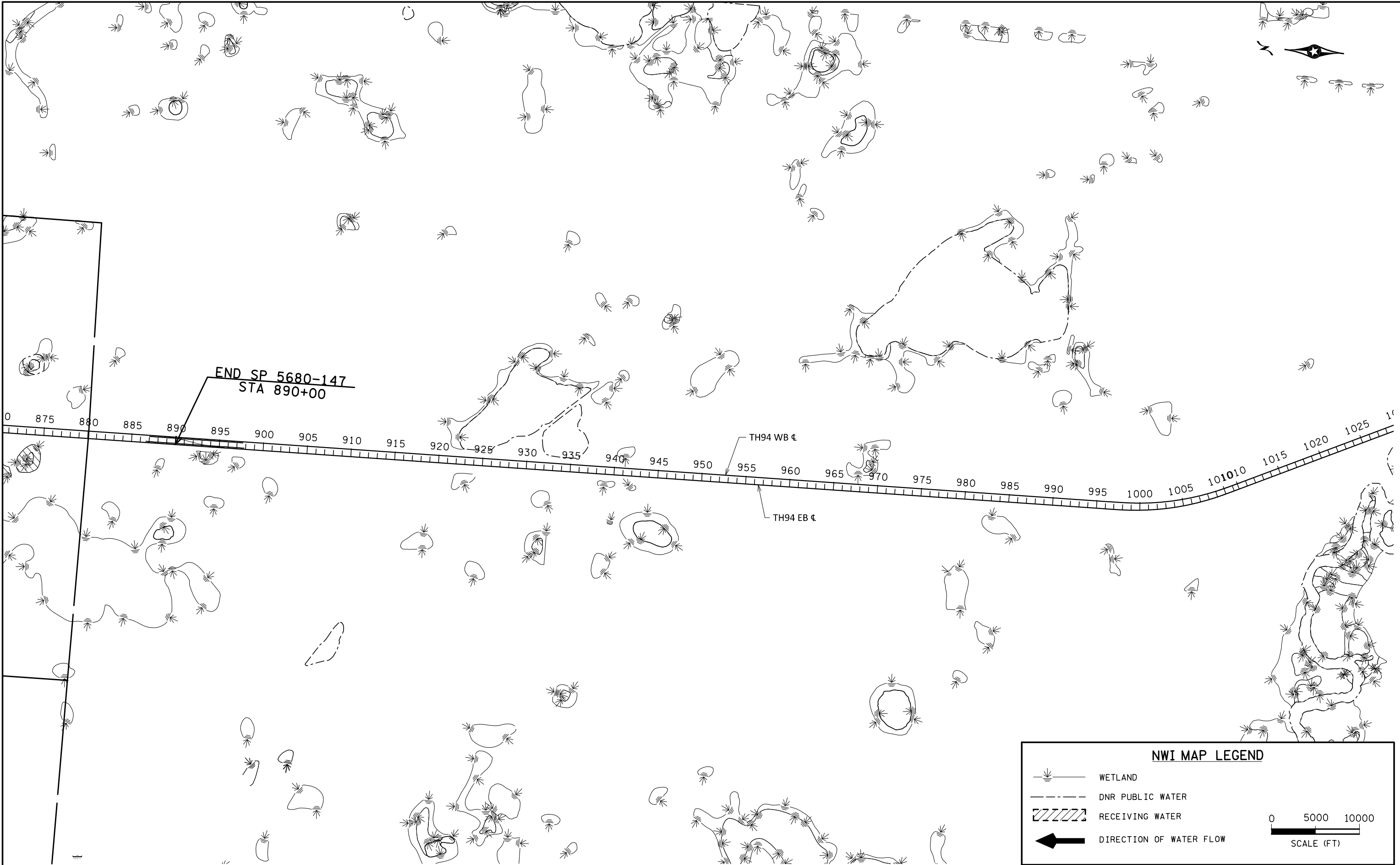
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(T.H. 94)

SHEET NO. 131  
TOTAL SHEETS 153

3-OCT-2024

3-OCT-2024

DISTRICT #  
PLOT NAME: 4d5680147\_wrn  
PATH & FILENAME:



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ANDREW KROG  
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DATE: 3-OCT-2024

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NWI MAPS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 132  
TOTAL SHEETS 153

DISTRICT #:  
PLOT NAME:  
PATH & FILENAME:

DISTRICT #  
4D5680147\_320swp-plan

6-NOV-2024  
PLOTTED/REVISED:

SP 5680-147 I-94 COMMITMENT	LOCATION	CONTRACT ITEM	REGULATOR / PARTNER	REFERENCE DOCUMENT	MnDOT TECHNICAL CONTACT	RESPONSIBLE PARTY	NOTES	VERIFICATION	VERIFICATION DATE
PUBLIC WATERS									
WHEN USING CURED IN PLACE PLASTIC LINERS, DO NOT ALLOW HOT WATER PRECIPITATE OR CHEMICAL CONTAINING PRECIPITATE TO DISCHARGE INTO RECEIVING WATERS.	PROJECT WIDE	SPECIAL PROVISIONS LINING SEWER PIPE OR SPECIAL PROVISIONS - LINING CULVERT PIPES SPECIAL	DNR	ENM RESPONSE	DNR TRANSPORTATION HYDROLOGIST	CONSTRUCTION			
WORK AND STAGING OF EQUIPMENT IS NOT ALLOWED IN AREAS MARKED “AREA OF ENVIRONMENTAL SENSITIVITY” OR “AES”, AND WORK IS NOT ALLOWED ADJACENT TO THESE AREAS WITHOUT SUBMITTING A SITE MANAGEMENT PLAN”	PUBLIC WATERS	CONSTRUCTION PLANS; SWPPP NARRATIVE; SPECIFICATION 1717, 2573.3	DNR	ENM RESPONSE	DNR TRANSPORTATION HYDROLOGIST	CONSTRUCTION			
CONSTRUCTION STORMWATER									
THIS PROJECT ADDS 4.07 ACRES OF NEW IMPERVIOUS SURFACE. PRERMANENT STORMWATER TREATMENT IS REQUIERED AND WILL CONSIST OF INFILTRATION DITCHES.	PROJECT WIDE	SWPPP NARRITIVE	MPCA	CSW PERMIT	EROSION AND STORMWATER MANAGMENT UNIT	CONSTRUCTION			
STATE OR FEDERAL PROTECTED SPECIES									
DUE TO THE POSSIBLE PRESENCE OF PROTECTED BAT SPECIES, CONTRACTOR AND CONSTRUCTION STAFF MUST BE AWARE OF BAT PROTECTION REQUIREMENTS AND NOTIFICATION PROCEDURES FOR BAT SIGHTINGS.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
DIRECT TEMPORARY LIGHTING AWAY FROM WOODED AREAS DURING ACTIVE BAT SEASON. SEE SPECIAL PROVISION FOR DATES.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
NO TREE CLEARING ALLOWED.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
PRIOR TO CONSTRUCTION, PREVENT NESTING BY MIGRATORY BIRDS ON BRIDGE FOLLOWING ACTIVITIES, TIMELINES AND FREQUENCIES OUTLINED IN SPECIAL PROVISIONS.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
PRIOR TO CONSTRUCTION, CONTRACTOR MUST INSPECT BRIDGE FOR EVIDENCE OF BATS - GUANO AND OR LIVE INDIVIDUALS.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
PROJECT MUST ESTABLISH NATIVE VEGETATION IN AREAS NOT PROPOSED FOR TURF GRASS.	PROJECT WIDE	SPECIAL PROVISION: PROTECTION OF FISH AND WILDLIFE RESOURCES	USFWS	SECTION 7 CONSULTATION LETTER	RYAN FOLEY MNDOT OES	CONSTRUCTION			
REGULATED MATERIALS									
DISPOSE OF TREATED WOOD ACCORDING TO REGULATIONS	GUARDRAILS/NOISE WALLS THROUGHOUT PROJECT	SPECIAL PROVISION 2104 REMOVE AND DISPOSE OF TREATED WOOD; REMOVAL PLANS	MPCA	ENM RESPONSE	SUMMER ALLEN-MURLEY 612-248-4302	CONSTRUCTION			



STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

SP 5680-147 IS LOCATED on TH 94 EB FROM 1.0 MILES WEST OF CSAH 11 TO 1.35 MILES SOUTH OF CSAH 88 IN WILKIN AND OTTER TAIL COUNTY. THE PLANNED SCOPE OF THE PROJECT INCLUDES: GRADING, BITUMINOUS MILL AND SURFACING, CONCRETE SURFACING, UNBONDED CONCRETE OVERLAY, RWIS AND BRIDGE NO. 56805

SPECIAL AND IMPAIRED WATERS

THESE SPECIAL AND IMPAIRED WATERS ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE. DUE TO THE PROXIMITY OF THESE SPECIAL AND IMPAIRED WATERS, THE BMPS DESCRIBED IN THE NPDES PERMIT WILL APPLY TO ALL AREAS OF THE SITE.

WATERBODY	IMPAIRMENT(S)	SPECIAL WATER	IMPAIRED WATER	TROUT	TMDL	INVASIVE
PELICAN RIVER	ESCHERICHIA COLI (B)		X		X	X

(A) CONSTRUCTION RELATED IMPAIRMENT, (B) NON-CONSTRUCTION RELATED IMPAIRMENT

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS

IN ADDITION TO THE LIST OF SPECIAL AND IMPAIRED WATERS THE CONTRACTOR SHALL BE AWARE THAT THERE ARE WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY. SEE THE NWI MAPPING ON SHEETS 125-130.

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE CLAY LOAM AND SANDY CLAY LOAM.

LONG TERM MAINTENANCE AND OPERATION

MNDOT DISTRICT 4 MAINTENANCE STAFF ARE RESPONSIBLE FOR THE LONG TERM MAINTENANCE AND OPERATION OF THE PERMANENT STORMWATER SYSTEM.

PROJECT PERSONNEL AND TRAINING

THIS SWPPP WAS PREPARED BY PERSONNEL THAT ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPP’S. COPIES OF THE CERTIFICATIONS ARE ON FILE WITH MNDOT AND ARE AVAILABLE UPON REQUEST.

PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. PROVIDE PROOF OF CERTIFICATION AT THE PRE CONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT INSTALLS THE PRODUCTS LISTED IN SPECIFICATION SECTION 2573. PROVIDE PROOF OF CERTIFICATION AT THE PRE CONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

CHAIN OF RESPONSIBILITY

MNDOT AND THE CONTRACTOR ARE COPERMITTEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

PROJECT CONTACTS

THE PROJECT ENGINEER AND CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION HAS BEEN FILED. MNDOT DISTRICT 4 STAFF ARE ALSO AVAILABLE FOR TECHNICAL ASSISTANCE.

ORGANIZATION	CONTACT NAME	PHONE
MNDOT DISTRICT 4 HYDRAULICS ENGINEER	AMANDA ELLINGSON	(218) 846-3509
MNDOT DISTRICT 4 ENVIRONMENTAL COORDINATOR	GABRIEL DRETSCH	(218) 846-7953
MNDOT DISTRICT 4 CONST. RESIDENT ENGINEER	DANIEL KUHN	(320) 760-1410
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	MATT KING	(218) 846-8103

MPCA DUTY OFFICER 24 HOUR EMERGENCY NOTIFICATION:  
651-649-5451 OR 800-422-0798

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (REFER TO PLAN TITLE SHEET FOR VERSION), OR ON FILE WITH MNDOT. THE NOTES AND TABLE BELOW ARE INTENDED TO BE A QUICK REFERENCE FOR THE CONTRACTOR AND PROJECT ENGINEER TO USE IN THE FIELD. THERE MAY BE ADDITIONAL REQUIRED SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	LOCATION
EROSION CONTROL MEASURES	SHEETS NO. 90 - 117
DIRECTION OF FLOW	SHEETS NO. 127 - 132
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 33, 51 - 57
FINAL STABILIZATION	SHEETS NO. 90 - 117
DRAINAGE TABULATIONS	SHEETS NO. 10
EROSION CONTROL TABULATIONS	SHEETS NO. 10 - 13
TURF ESTABLISHMENT TABULATIONS	SHEETS NO. 10 - 13
SITE MAP	SHEETS NO. 1
WATER RESOURCES NOTES	SHEETS NO. 138

STORMWATER CALCULATIONS AND ADDITIONAL HYDRAULIC DESIGN INFORMATION IS STORED IN THE PROJECT'S HYDRAULICS FOLDER IN PROJECTWISE. WATER RESOURCES WILL MAKE THIS INFORMATION AVAILABLE UPON REQUEST.

SITE INSPECTION AND MAINTENANCE

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION. INSPECT INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

- A. DATE AND TIME OF INSPECTIONS
- B. NAME OF PERSONS CONDUCTING INSPECTIONS
- C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS
- D. CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
- E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS
- F. DOCUMENTS AND CHANGES MADE TO THE SWPPP

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:

- A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
- B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
- C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
- D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS. CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
- E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
- F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA. PHOTOGRAPHS, REPRESENTATIVE OF THE PROJECT AREA, DEMONSTRATING AT LEAST 70% OF THE EXPECTED GROWTH, ARE REQUIRED WHEN SUBMITTING THE NOT.

ENVIRONMENTAL REVIEW

THERE ARE STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS LOCATED IN A WELL HEAD PROTECTION AREA.

THIS PROJECT IS LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).

LAND FEATURE CHANGES

TOTAL DISTURBED AREA	52.06 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA	60.41 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA	64.49 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	4.07 ACRES

SHEET 1 OF 3



  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

STORM WATER POLLUTION PREVENTION PLANS

STATE PROJ. NO. 5680-147

SHEET NO. 136

(T.H. 94)

TOTAL SHEETS 153

6-NOV-2024

PLOTTED/REVISED:

DISTRICT # 4D5680147\_320swp-plan  
PLOT NAME: 4D5680147\_320swp-plan  
PATH & FILENAME:

6-NOV-2024  
PLOTTED/REVISED:  
DISTRICT #: 4D5680147\_320swp-plan  
PLOT NAME:  
PATH & FILENAME:

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

STABILIZATION TIME FRAMES

AREA	TIME FRAME	NOTES
LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER OR PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	14 DAYS/7 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
EXPOSED SOILS AND STOCKPILES	14 DAYS/7 DAYS	1
WITHIN 200 FEET OF A PUBLIC WATER	24 HOURS	7

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.
2. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).
3. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.
4. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
5. TOPSOIL BERMS MUST BE STABILIZED IN ORDER TO BE CONSIDERED PERIMETER CONTROL BMPS. USE RAPID STABILIZATION METHOD 2, 3, OR 4 AS APPROVED BY THE ENGINEER. THE SEED MIX USED IN THE RAPID STABILIZATION SHALL BE AS FOLLOWS:  
A. SEED WITH SEED TWO-YEAR COVER CROP
6. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES AND BLANKETS.
7. SEE WATER RESOURCES NOTES FOR A LIST OF PUBLIC WATER EXCLUSION DATES. TWENTY FOUR HOUR STABILIZATION REQUIREMENT ONLY APPLIES DURING THE EXCLUSION DATES.

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. AMEND THE SWPPP AND DOCUMENT ANY AND ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS IN A TIMELY MANNER. STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.
2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR MNDOT TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTAL'S. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
3. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND PLACE EROSION CONTROL BMPS BEFORE PUTTING THEM INTO ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICABLE.
4. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.
5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.
6. ROUTE STORMWATER AROUND UN STABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.
7. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
8. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND TO CAPTURE SEDIMENT ON SITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE.
9. ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UP GRADIENT OF ANY BUFFER ZONES BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. MAINTAIN SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
10. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW- VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100 FOOT INTERVALS.
11. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES. PLACE BMP A MINIMUM 5 FEET FROM THE TOE OF SLOPE WHERE FEASIBLE. DO NOT PLACE STOCKPILES IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES.
12. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. PLACE THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.
13. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.

14. PROTECT STORM SEWER INLETS AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. PROVIDE INLET PROTECTION DEVICES WITH EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS. SILT FENCE PLACED IN THE GRATE IS ONLY ALLOWED FOR SHORT INTERVALS DURING MILLING OR PAVING OPERATIONS. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. KEEP ALL STORM SEWER INLET PROTECTION DEVICES IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. REPLACE INLET PROTECTION DEVICE WITH A SUITABLE ALTERNATIVE IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE, OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES. THERE WILL BE NO COST TO MNDOT FOR REPLACEMENT OF INLET PROTECTION DEVICES.
15. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS OR TEMPORARY SEDIMENT TRAPS TO THE DESIGN CAPACITY AFTER ALL UP GRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.
16. PROVIDE SCOUR PROTECTION AT ANY OUTFALL OF DEWATERING ACTIVITIES.
17. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.
18. REMOVE SEDIMENT FROM STORMWATER SYSTEM AT THE END OF PROJECT.
19. PRESERVE A MINIMUM OF 50 FOOT NATURAL BUFFER OR (IF BUFFER IS INFEASIBLE) PROVIDE REDUNDANT SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF LAND DISTURBANCE AND STORMWATER FLOWS TO THE SURFACE WATER.

POLLUTION PREVENTION

1. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.
2. STORE ALL BUILDING MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS, PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS UNDER COVER AND WITH SECONDARY CONTAINMENT.
3. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY.
4. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
5. POSITION ALL PORTABLE TOILETS SO THAT THEY ARE SECURE AND CANNOT BE TIPPED OR KNOCKED OVER. PROPERLY DISPOSE OF ALL SANITARY WASTE.
6. FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FROM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES. PROVIDE A SPILL KIT AT EACH LOCATION THAT VEHICLES AND EQUIPMENT ARE FUELED OR MAINTAINED AT.
7. LIMIT VEHICLE AND EQUIPMENT WASHING TO A DEFINED AREA OF THE SITE. CONTAIN RUNOFF FROM THE WASHING AREA TO A TEMPORARY SEDIMENT BASIN OR OTHER EFFECTIVE CONTROL. PROPERLY DISPOSE OF ALL WASTE GENERATED BY VEHICLE AND EQUIPMENT WASHING. ENGINE DEGREASING IS NOT ALLOWED ON THE SITE.
8. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA.
9. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER.
10. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
11. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING MNDOT RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT SAW CUT SLURRY AND PLANING WASTE FROM LEAVING MNDOT RIGHT OF WAY AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING DITCHES AND CULVERTS.



  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

STORM WATER POLLUTION PREVENTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 137  
TOTAL SHEETS 153

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

WATER RESOURCES NOTES

THESE NOTES ALONG WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE ARE INTENDED TO GIVE INFORMATION ON CRITICAL DRAINAGE FEATURES, NATURAL RESOURCES AND CONTRACTOR OPERATIONS THAT MAY IMPACT DRAINAGE AND NATURAL RESOURCES.

1. THE SIZE AND ELEVATION OF CULVERTS, STORM SEWER PIPES, CATCH BASINS, PONDS, INFILTRATION/FILTRATION BASINS, PERMEABLE DITCH BLOCKS AND OVERFLOW DEVICES HAVE BEEN SPECIFICALLY DESIGNED TO CONFORM TO MNDOT DESIGN STANDARDS, MINNESOTA POLLUTION CONTROL AGENCY (MPCA) AND WATERSHED DISTRICT PERMIT REQUIREMENTS. THE DESIGN COMPUTATIONS ARE ON FILE WITH MNDOT DISTRICT 4. CHANGING THESE ITEMS OR THE DIRECTION OF FLOW FROM WHAT IS SHOWN ON THE PLANS MAY CAUSE PROBLEMS OFF THE PROJECT AND COULD MEAN THE PROJECT IS OUT OF COMPLIANCE WITH APPROVED DRAINAGE PERMITS. ANY CHANGES TO THE SIZE, ELEVATION OR DIRECTION OF FLOW OF THE DRAINAGE SYSTEM MUST BE APPROVED BY THE DISTRICT 4 HYDRAULICS ENGINEER.
2. SUBSOIL ALL DISTURBED GREEN SPACES EXCEPT AS LISTED IN 2574.
3. PERFORM POST INSTALLATION MANDREL TESTING OF ALL PLASTIC PIPE.
4. ANY SUBSURFACE DRAINAGE TILES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR REROUTED, AND CONNECTED TO THE EXISTING TILE OR DRAINAGE SYSTEM TO ENSURE THAT EXISTING UPLAND DRAINAGE IS PERPETUATED. THIS SHOULD BE DONE TO THE APPROVAL AND SATISFACTION OF THE ENGINEER.
5. THE FOLLOWING WATER RELATED PERMITS APPLY TO THIS PROJECT:

AGENCY	TYPE OF PERMIT
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NPDES CONSTRUCTION PERMIT

REVIEW ALL PERMITS FOR ANY SPECIAL CONDITIONS THAT WILL EFFECT CONSTRUCTION OF THE PROJECT.

TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR ROADWAY CONSTRUCTION AND UTILITY WORK. THEREFORE IT IS POSSIBLE THAT A PERMIT FOR THE TEMPORARY APPROPRIATION OF WATERS OF THE STATE, NON-IRRIGATION FROM MNDNR WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THIS PERMIT PRIOR TO COMMENCING DEWATERING ACTIVITIES. ALL TEMPORARY DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK.

DEWATERING DISCHARGE MUST BE VISUALLY INSPECTED AND PHOTOGRAPHED AT THE BEGINNING AND AT LEAST ONCE EVERY 24 HOURS OF OPERATION TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED.

6. THE FOLLOWING TYPES OF WATERS HAVE WORK IN WATER EXCLUSIONS. NO WORK IN THE WATER IS ALLOWED DURING THE EXCLUSION DATES. SEE DNR PERMIT FOR WHICH WATERBODIES THIS APPLIES TO.

WATERBODY	EXCLUSION DATES
LAKES	APRIL 1 - JUNE 30
NON-TROUT STREAMS	APRIL 1 - JUNE 30
TROUT STREAMS	SEPTEMBER 15 - MAY 15
TROUT STREAMS IN LAKE SUPERIOR WATERSHED	SEPTEMBER 15 - JUNE 30

PERMANENT DITCH CHECKS (INFILTRATION DITCHES)

1. STORM WATER RUNOFF FROM THE ADDITIONAL IMPERVIOUS SURFACE WILL BE TREATED VIA INFILTRATION.
2. PERMANENT DITCH CHECKS WILL GENERALLY BE CONSTRUCTED IN EXISTING DITCH BOTTOMS WHERE THE SOILS MEET THE REQUIREMENTS FOR INFILTRATION. SOIL BORES WERE PERFORMED IN THE EXISTING EAST BOUND DITCH BOTTOM THROUGHOUT THE PROJECT TO DETERMINE SOIL TYPES. SOIL BORES CONFIRMED THAT FOR EACH INFILTRATION AREA THE EXISTING SOILS WERE SUITABLE FOR INFILTRATION EXCEPT INFILTRATION AREA 2. IN INFILTRATION AREA 2, THE TOP 3' OF THE EXISTING SOILS (SILTY CLAY SOILS) WILL BE REMOVED AND AMENDED WITH FILTER TOPSOIL BORROW.
3. INFILTRATION BASINS MUST PROVIDE A WATER QUALITY VOLUME OF 1" OF RUNOFF FROM THE NET INCREASE OF IMPERVIOUS SURFACES CREATED BY THE PROJECT.

- REQUIRED STORAGE: 14,774 CF

- PROVIDED STORAGE: 15,161 CF

- INFILTRATION AREA 1 (STA 2419+81 - 2428+00): 6,016 CF

- INFILTRATION AREA 2 (STA 328+83 - 340+37): 7,790 CF

- INFILTRATION AREA 3 (STA 379+92 - 383+23): 1,355 CF
4. INFILTRATION BASINS SHALL INFILTRATE COMPLETELY WITHIN 48 HOURS.

- BASED ON SOIL BORES, IT WAS DETERMINED THAT ON AVERAGE THE PONDS WILL INFILTRATE AT A RATE OF 0.8IN/HR.

- INFILTRATION AREA 1: DRAINS IN 29.10 HOURS

- INFILTRATION AREA 2: DRAINS IN 19.60 HOURS

- INFILTRATION AREA 3: DRAINS IN 24.30 HOURS

INFILTRATION CONSTRUCTION NOTES

1. DO NOT STOCKPILE MATERIALS OR PARK EQUIPMENT OF VEHICLES IN A PROPOSED OR CONSTRUCTED INFILTRATION AREA. STAKE OFF OR OTHERWISE MARK OFF INFILTRATION AREAS TO PREVENT HEAVY CONSTRUCTION VEHICLES AND EQUIPMENT FROM DRIVING THROUGH.
2. DO NOT FULLY EXCAVATE INFILTRATION BASINS UNTIL UP GRADIENT LAND DISTURBANCE ACTIVITY HAS BEEN COMPLETED AND THE DRAINAGE AREA HAS BEEN STABILIZED. PROVIDE RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROL BMPS, INCLUDING MAINTENANCE OF THEM, IF THE INFILTRATION AREA MUST BE COMPLETELY EXCAVATED PRIOR TO COMPLETION OF GROUND DISTURBING ACTIVITIES.
3. INSTALL SEDIMENT CONTROL BMPS AT THE TOE OF THE ADJACENT SLOPE IMMEDIATELY AFTER PLACEMENT OF AMENDED TOPSOIL.
4. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR THE CONSTRUCTION OF INFILTRATION AREAS.
5. STABILIZE SIDE SLOPES PRIOR TO PLACING ANY AMENDED TOPSOIL IN THE BOTTOM OF THE INFILTRATION AREA.
6. DO NOT DRAIN TURBID OR SEDIMENT LADEN WATER TO THE INFILTRATION AREA.
7. USE ONLY LOW IMPACT TRACKED VEHICLES WITHIN INFILTRATION AREAS.
8. THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED AREAS OR ADJACENT SIDE SLOPES. RESTORE DISTURBED INFILTRATION AREAS AND ADJACENT SIDE SLOPES TO PRE DISTURBANCE CONDITIONS WITHIN 24 HOURS. ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO INFILTRATION AREAS MUST BE REPAIRED WITHIN 24 HOURS. SUBSOIL THE INFILTRATION AREA TO REMOVE ANY COMPACTION CAUSED BY VEHICLE TRAFFIC.
9. EXCAVATE ANY SEDIMENT THAT WASHES INTO INFILTRATION AREAS. REMOVE AND REPLACE ANY AMENDED TOPSOIL THAT HAS SEDIMENT DEPOSITS VISIBLE AT THE SURFACE.
10. REPORT ANY SIGNS OF HIGH WATER OR COMPACTION OF THE IN PLACE SOILS TO THE ENGINEER.

DESIGN OF CONSTRUCTION SWPPP CERTIFIED

*Ben Greisen*  
BEN GREISEN

SHEET 3 OF 3



*Andrew Krog*  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 3-OCT-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

STORM WATER POLLUTION PREVENTION PLANS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 138  
TOTAL SHEETS 153

3-OCT-2024  
PLOTTED/REVISED:

DISTRICT #  
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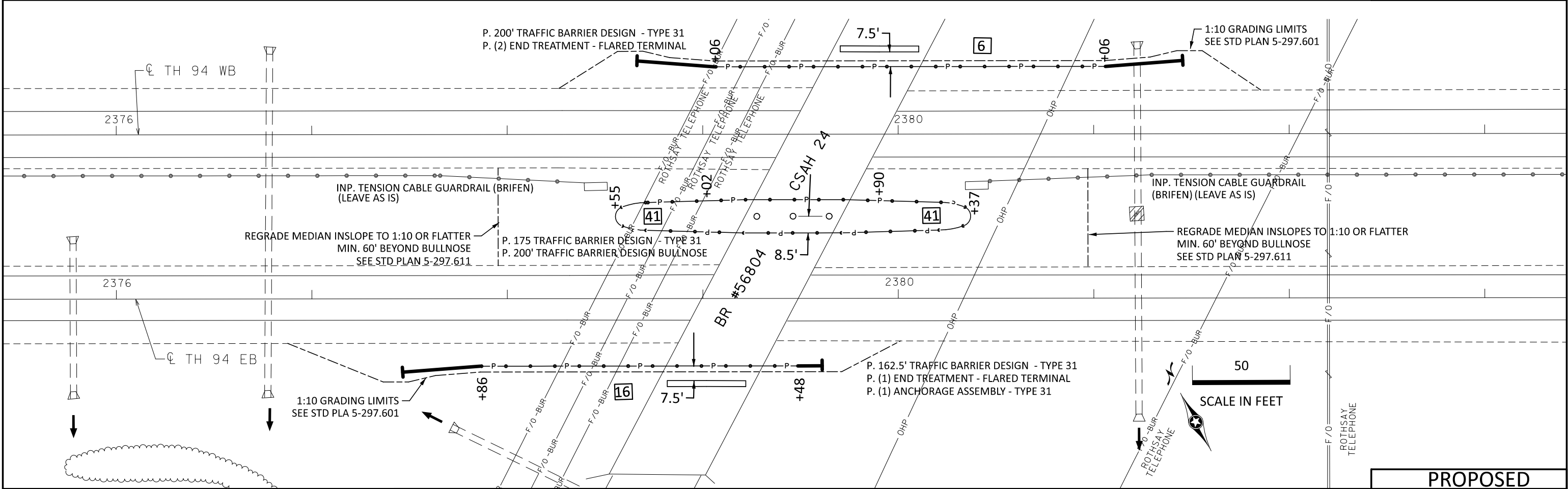
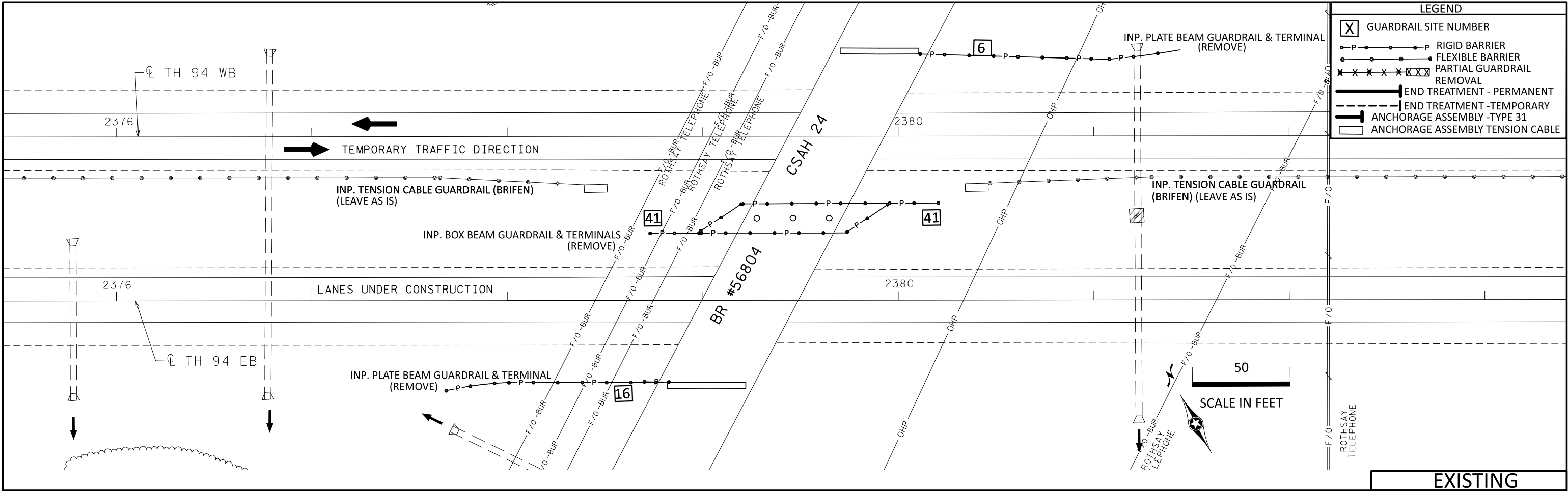




6-NOV-2024

6-NOV-2024

DISTRICT # 405680147\_4056bp-plan  
PLOT NAME: 405680147\_4056bp-plan  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TRAFFIC BARRIER PLAN

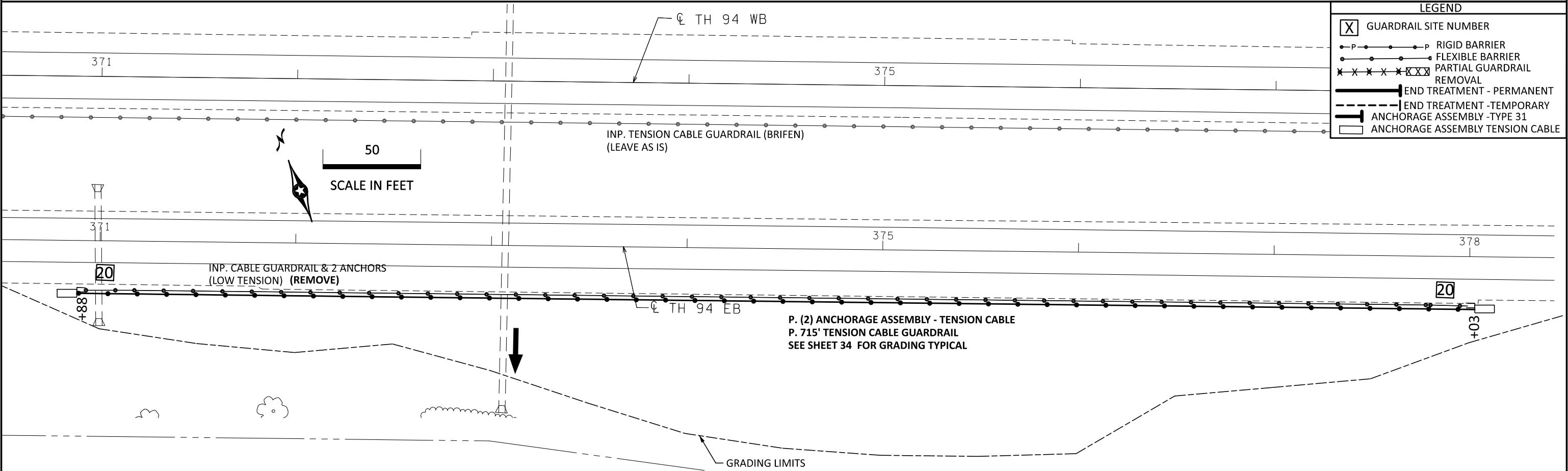
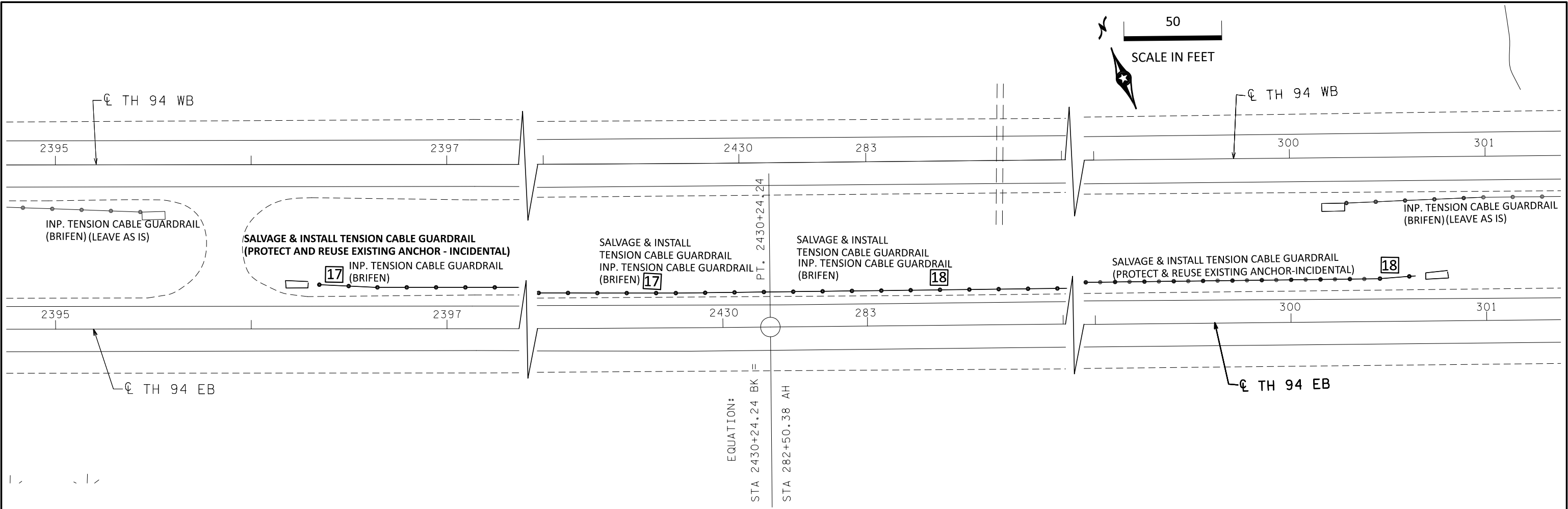
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 140  
TOTAL SHEETS 153

6-NOV-2024

PLOTTED/REVISED:

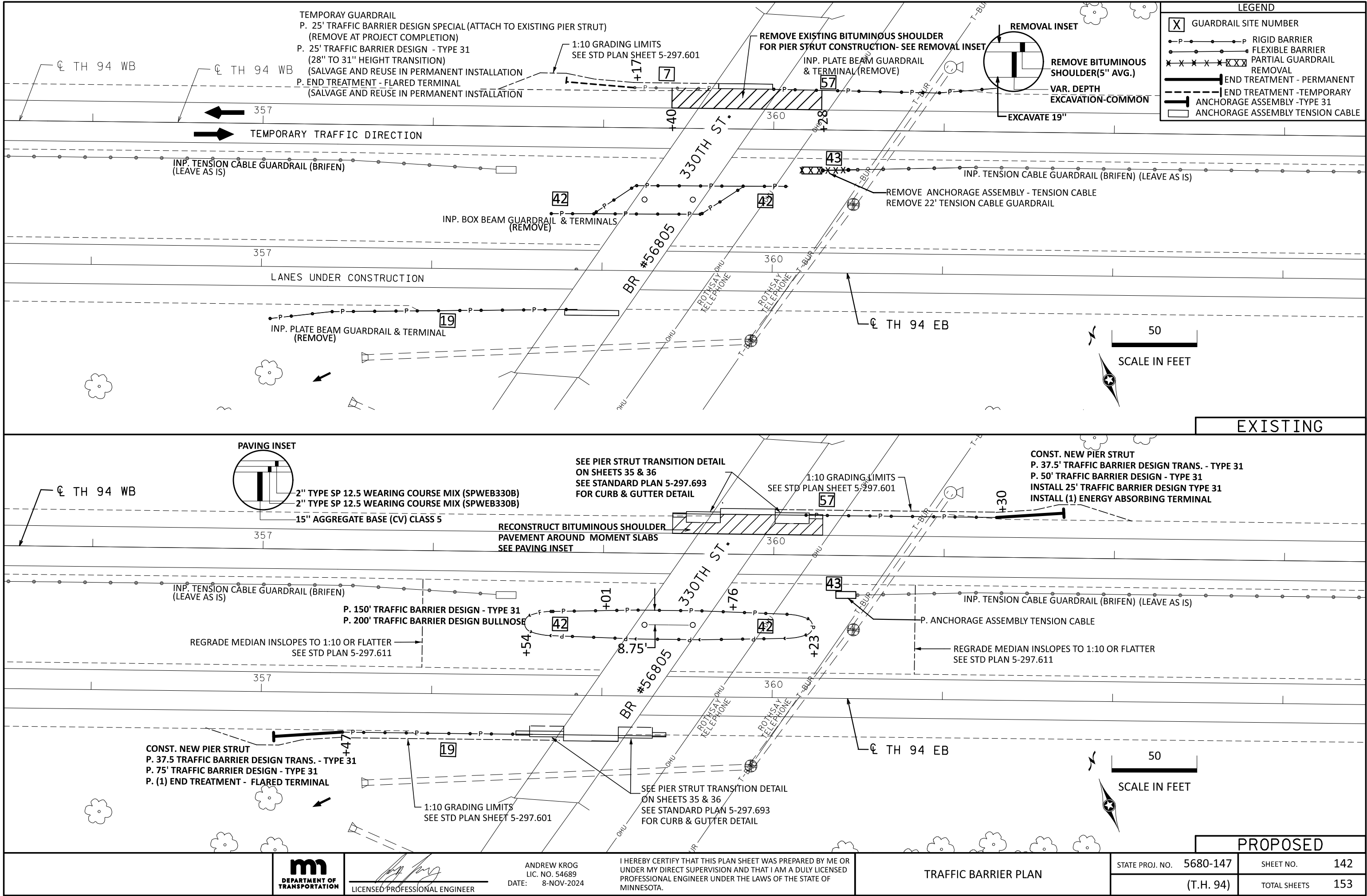
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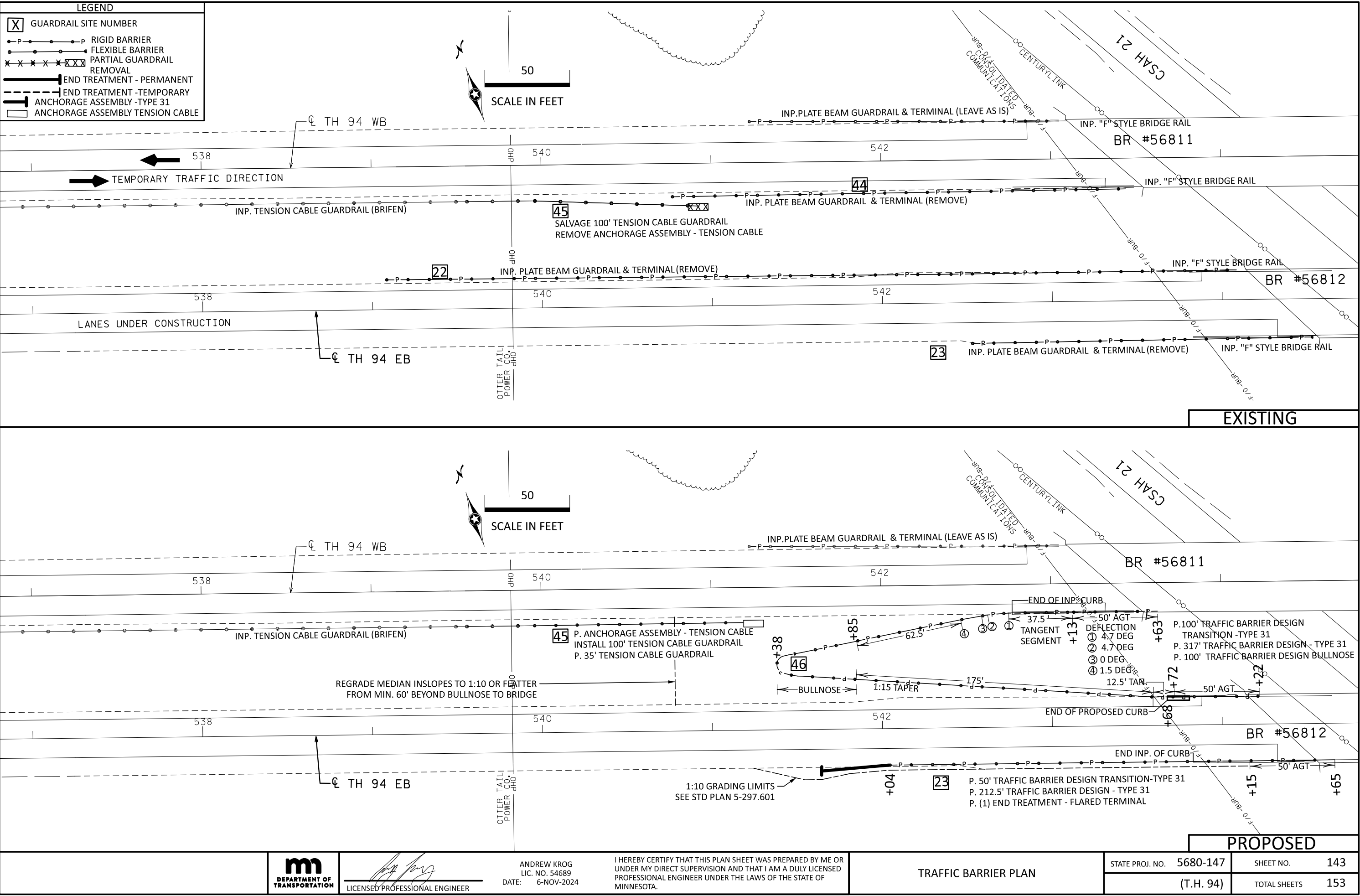
LEGEND	
[X]	GUARDRAIL SITE NUMBER
[P] [P]	RIGID BARRIER
[•] [•]	FLEXIBLE BARRIER
[X X X X X X X X]	PARTIAL GUARDRAIL REMOVAL
[—] [—]	END TREATMENT - PERMANENT
[---] [---]	END TREATMENT - TEMPORARY
[—] [—]	ANCHORAGE ASSEMBLY - TYPE 31
[ ]	ANCHORAGE ASSEMBLY TENSION CABLE

8-NOV-2024  
PLOTTED/REVISED:

DISTRICT # 405680147\_4056bp-plan  
PLOT NAME:  
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6-NOV-2024  
PLOTTED/REVISED:  
DISTRICT #: 4d5680147\_405tbp-plan  
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PATH & FILENAME:

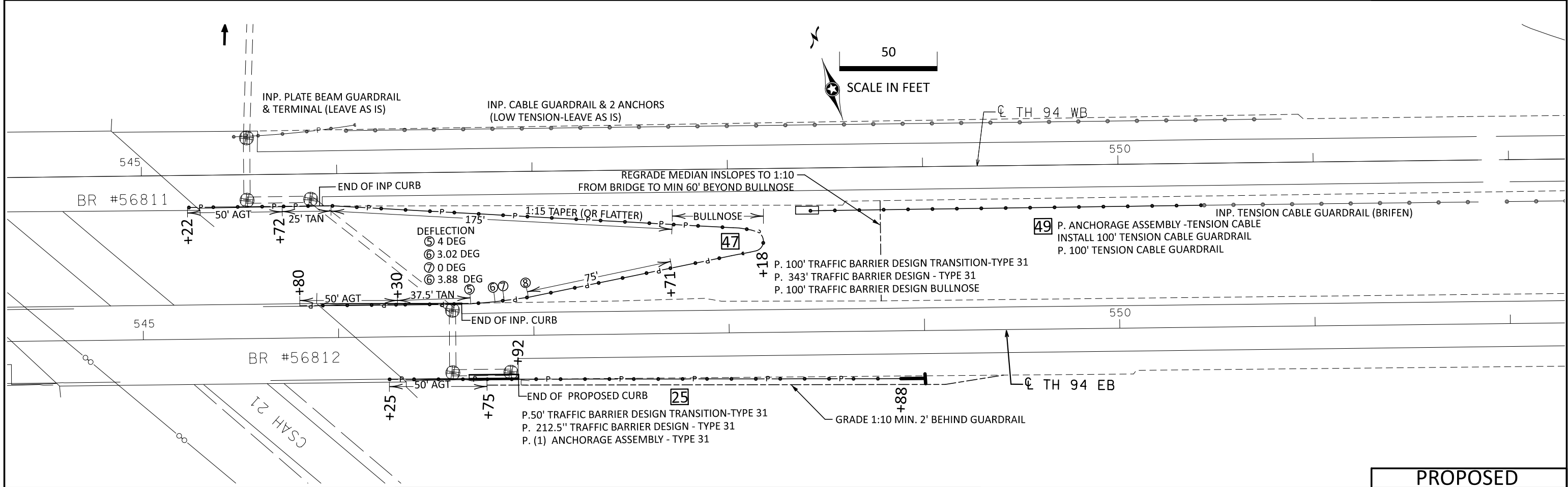
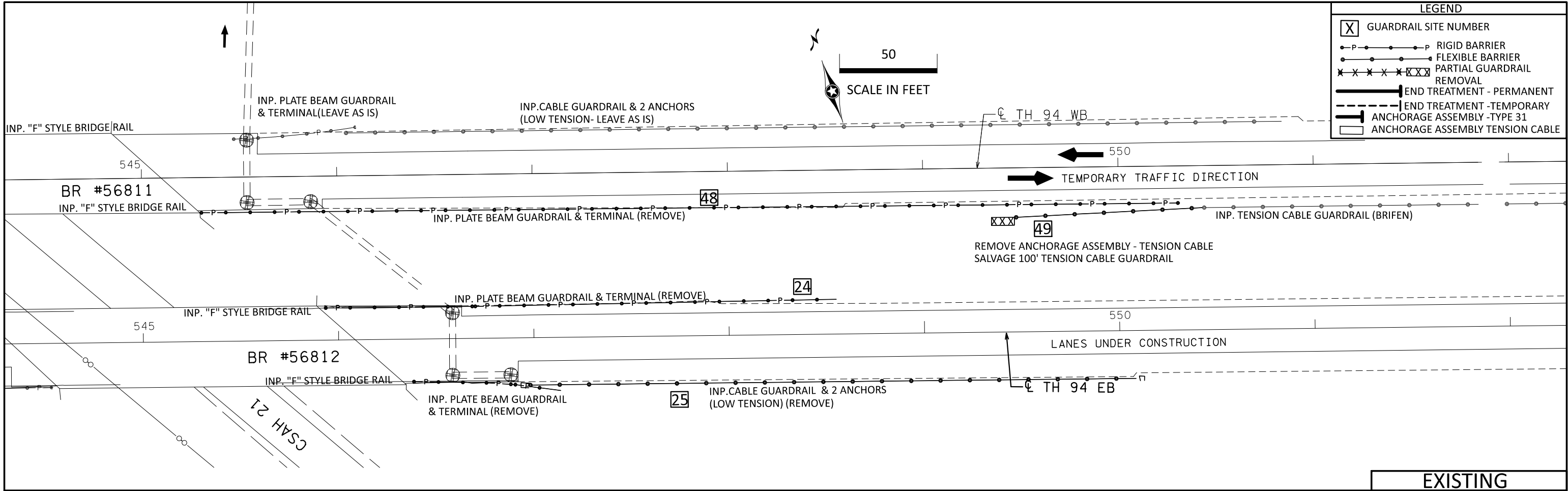




6-NOV-2024

6-NOV-2024

DISTRICT # 405680147\_405680147  
PLOT NAME: 405680147\_405680147  
PATH & FILENAME:



LICENSED PROFESSIONAL ENGINEER

ANDREW KROG  
LIC. NO. 54689  
DATE: 6-NOV-2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TRAFFIC BARRIER PLAN

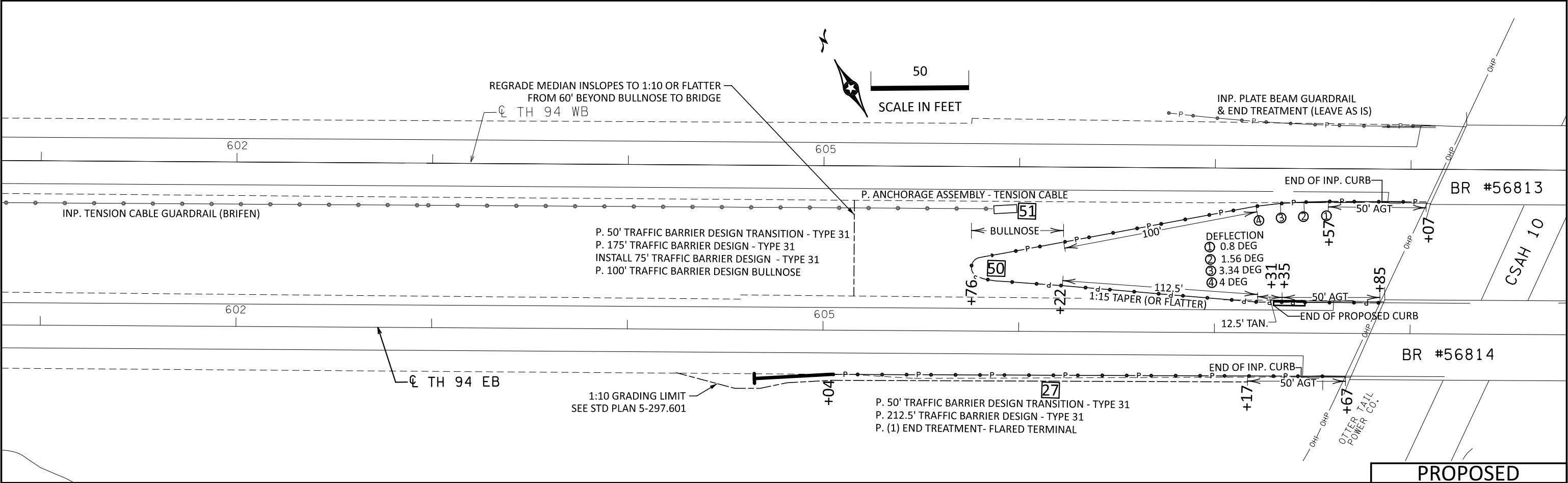
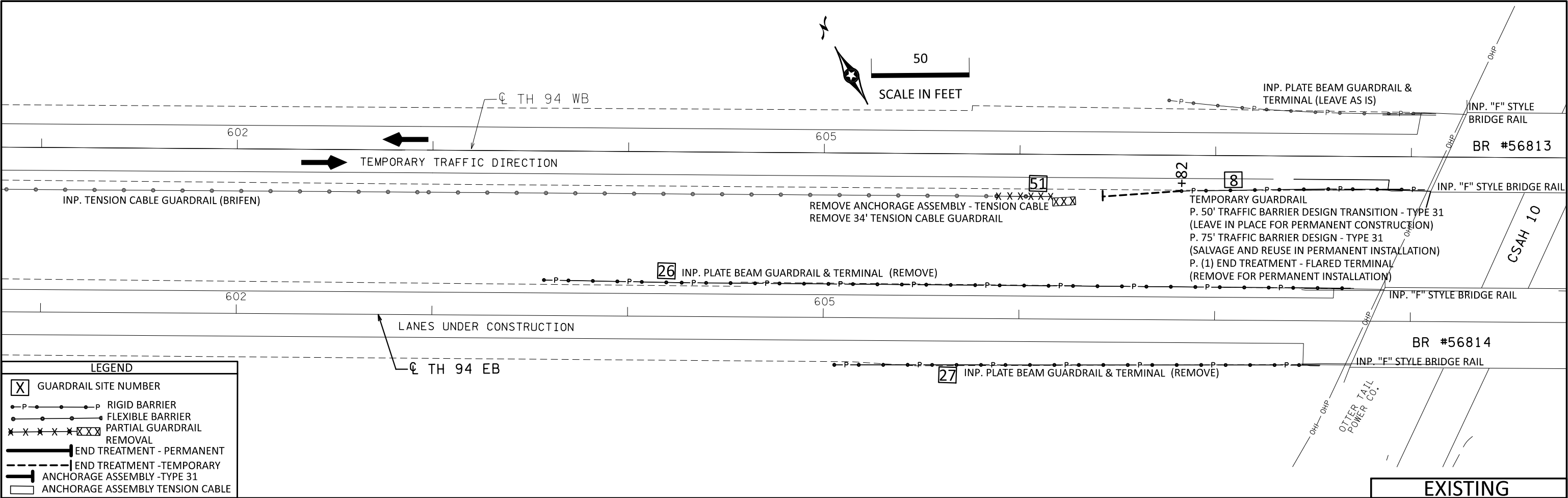
STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. 144  
TOTAL SHEETS 153

6-NOV-2024

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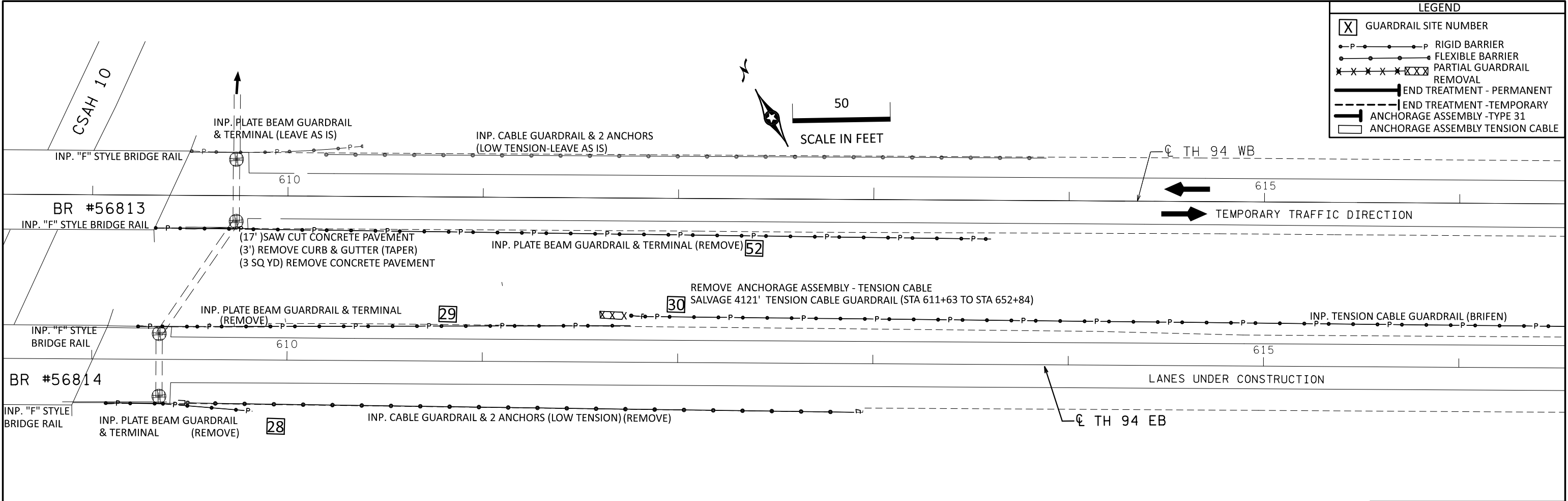
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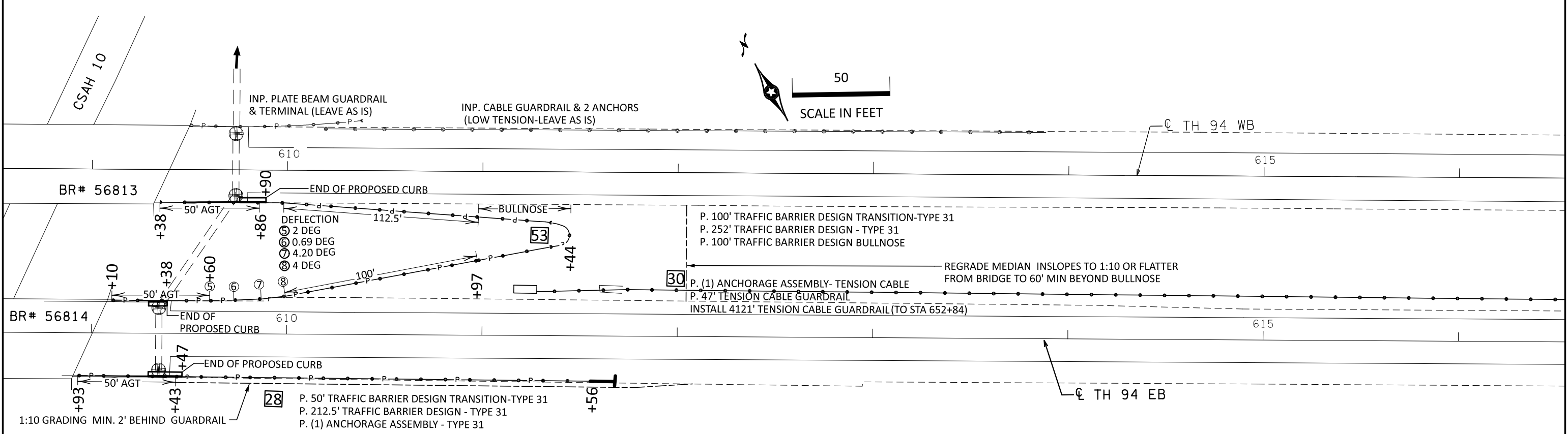
6-NOV-2024

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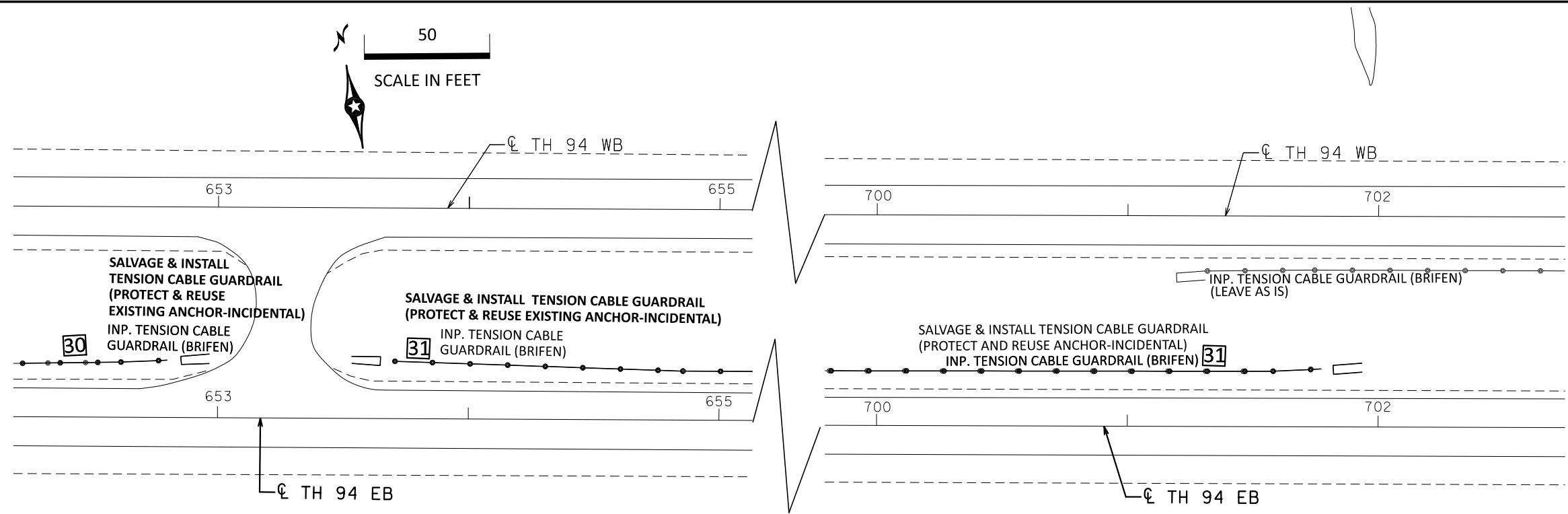
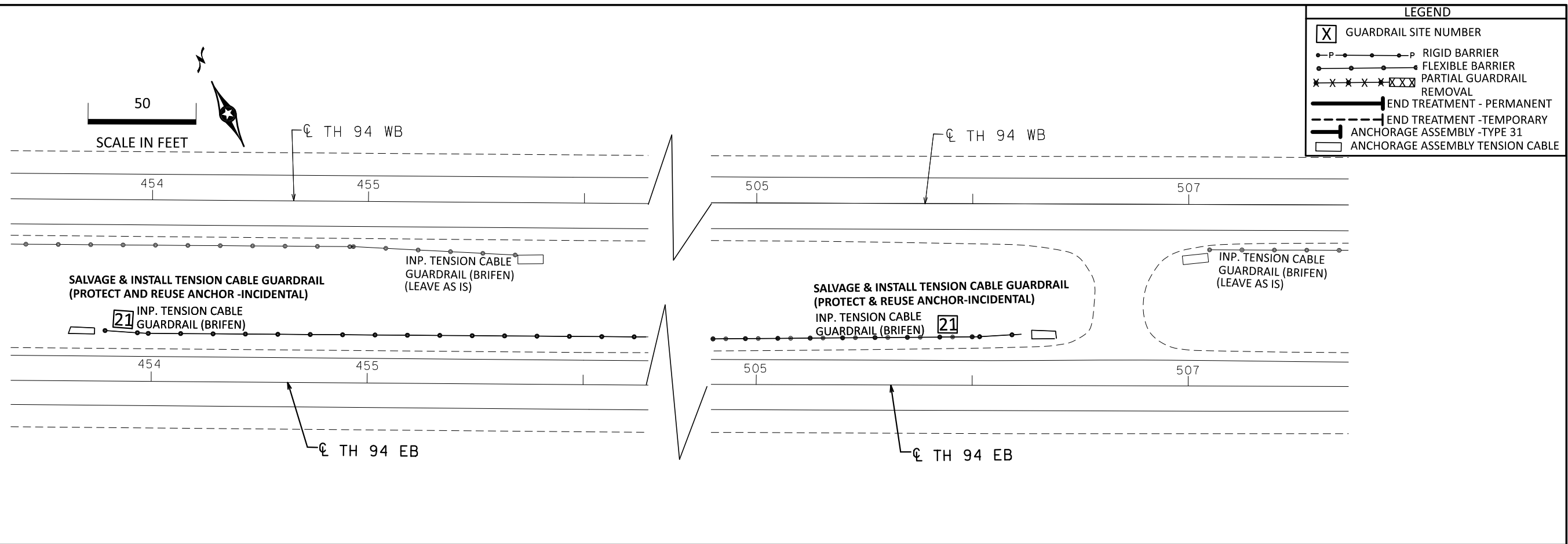


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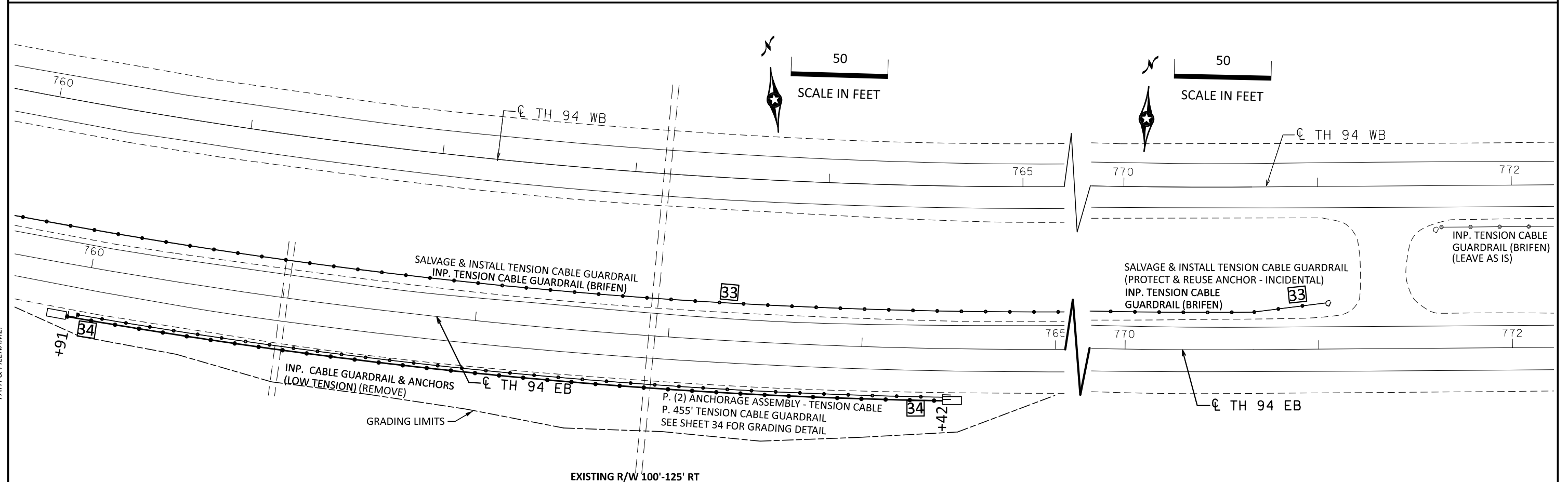
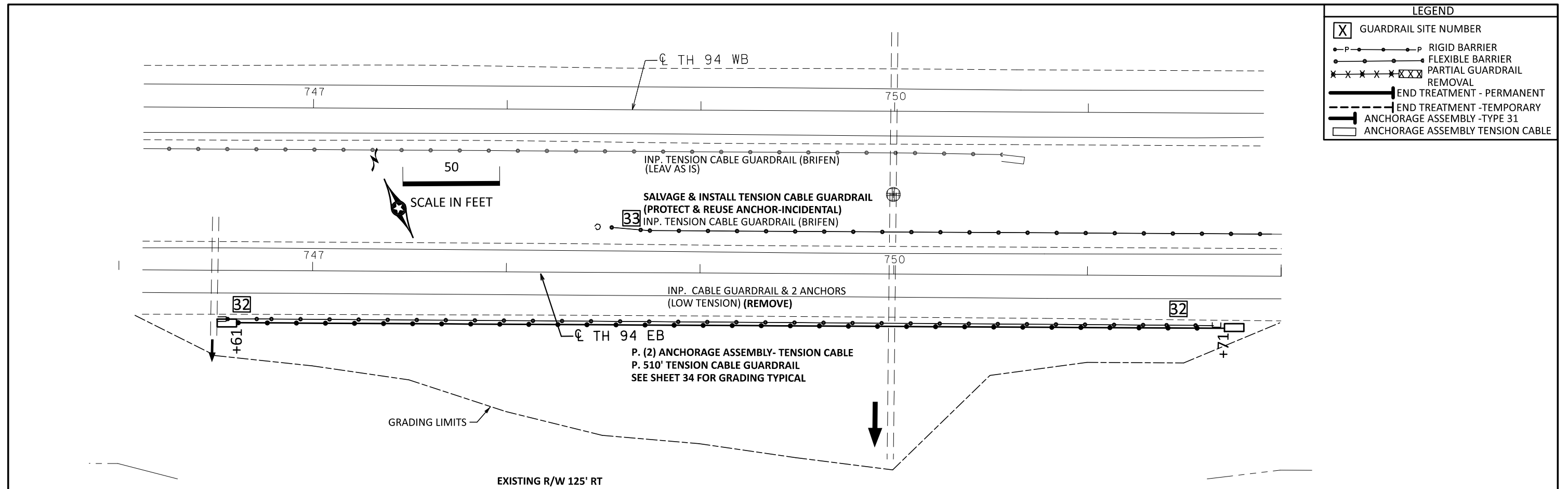


PROPOSED

DISTRICT #: 405680147\_405tbp-plan  
PLOT NAME: 405680147\_405tbp-plan  
PATH & FILENAME:  
3-OCT-2024  
PLOTTED/REVISED:



PLOT NAME: 4d5680147\_405tbp-plan  
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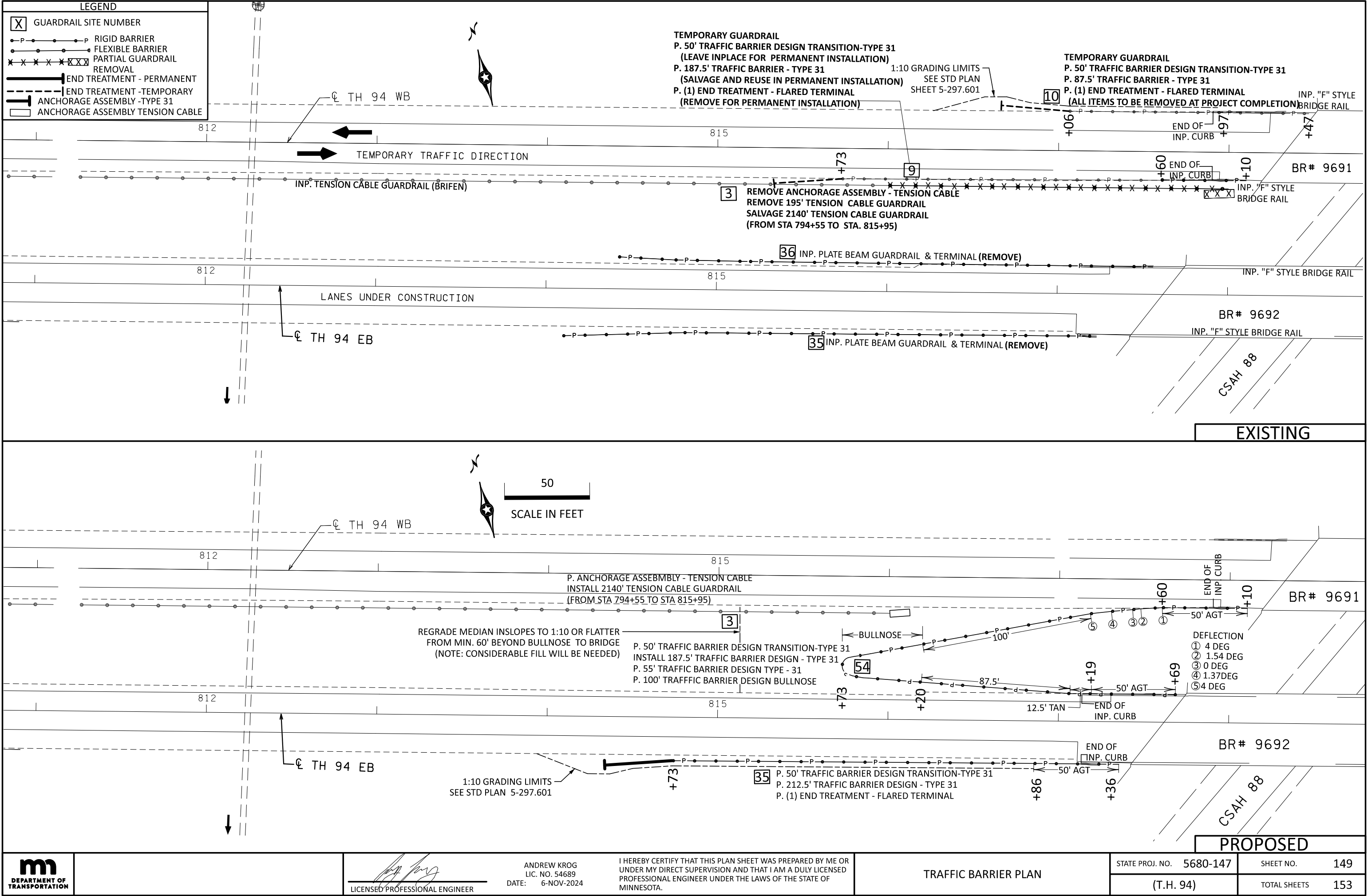




6-NOV-2024

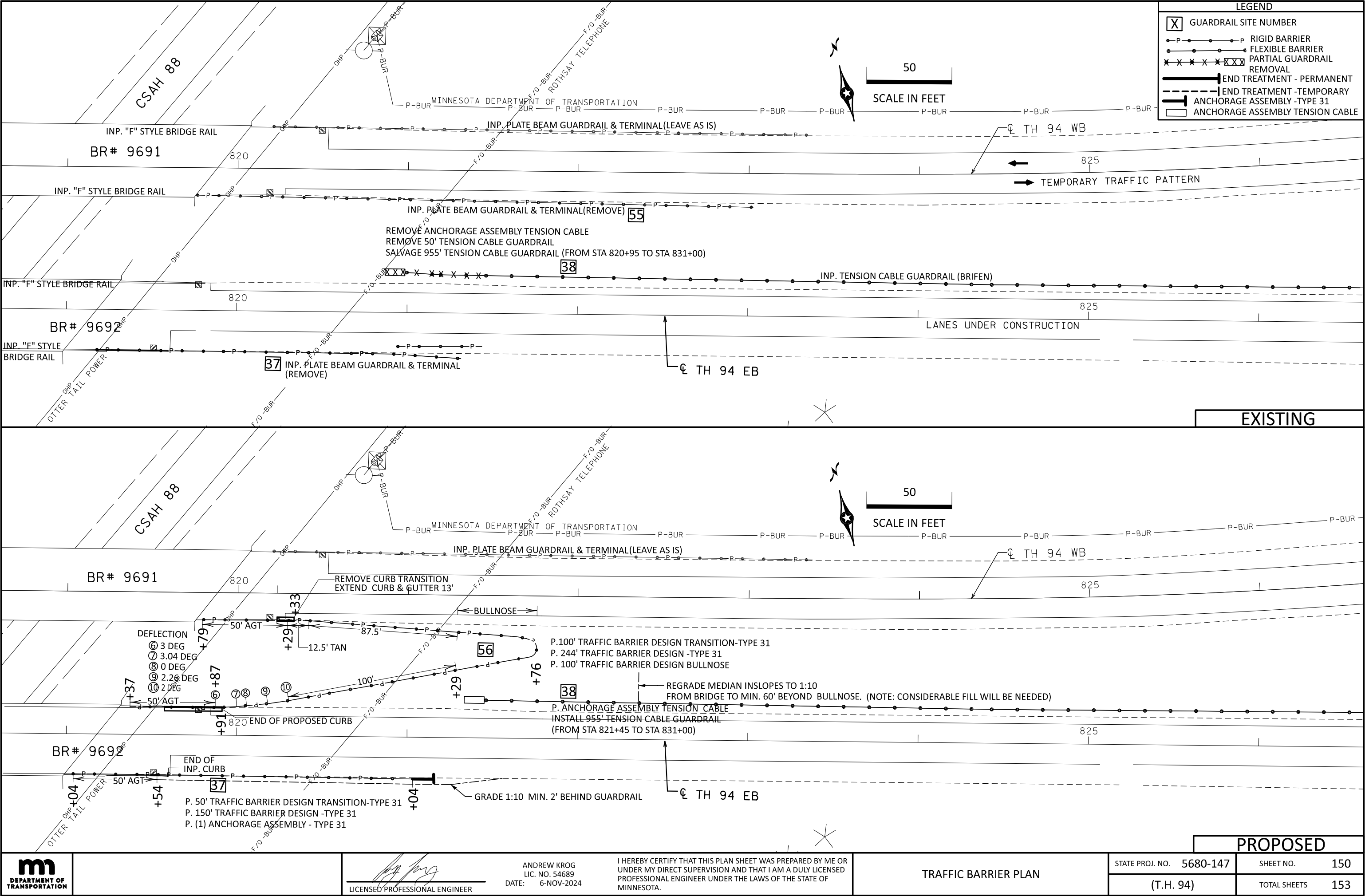
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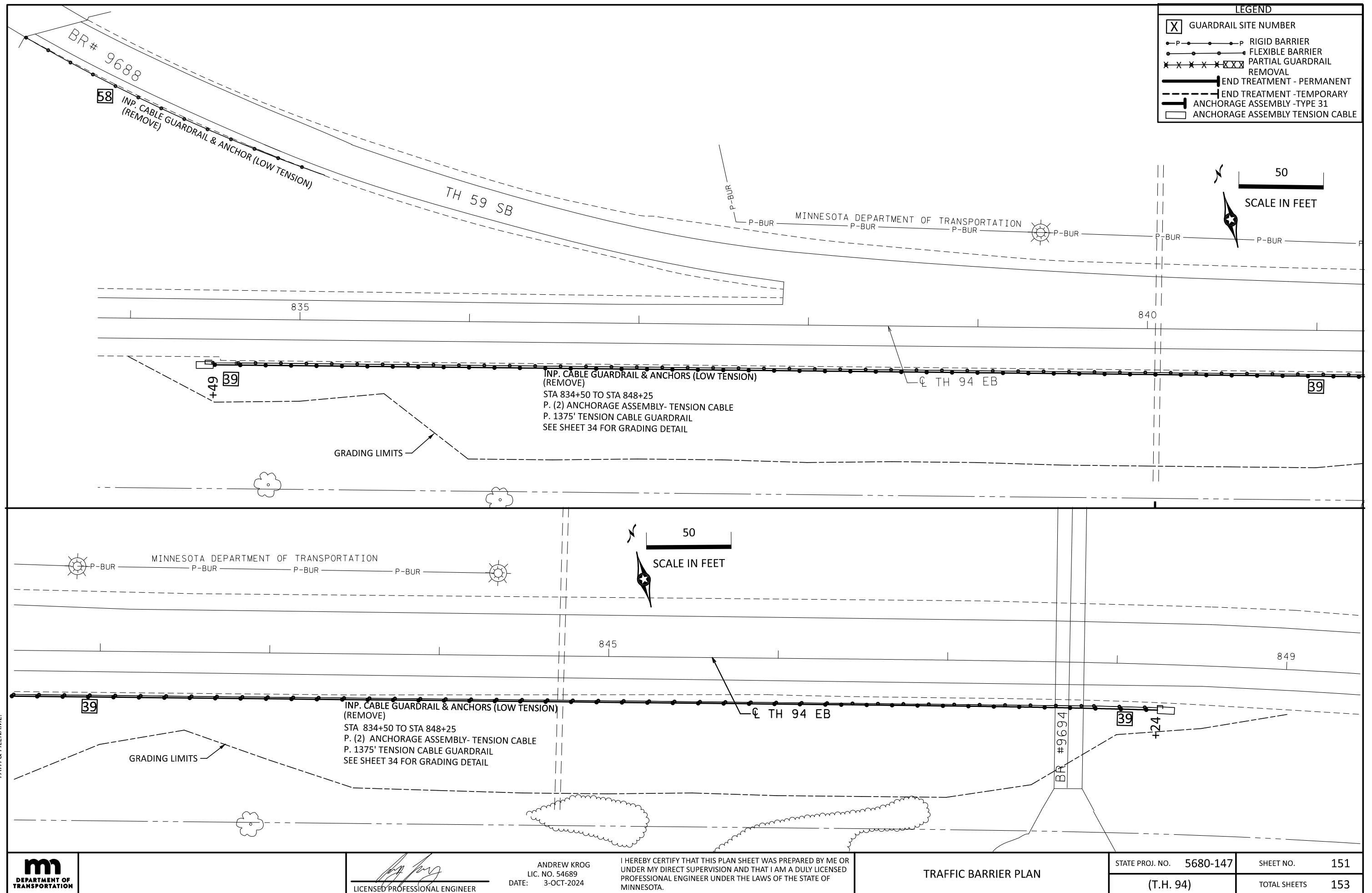


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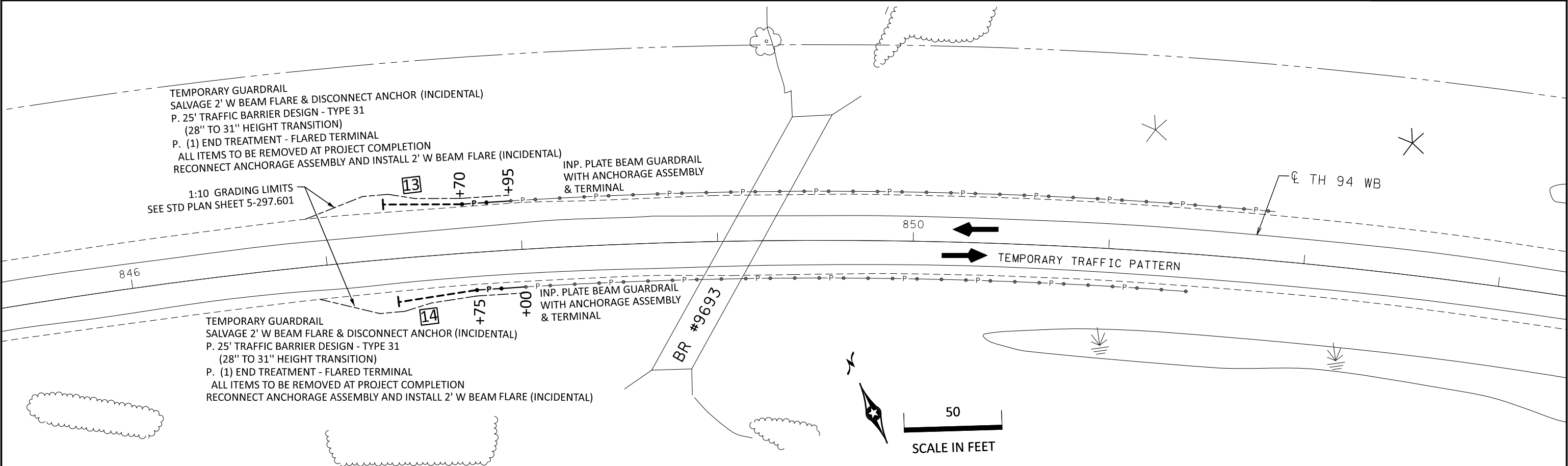
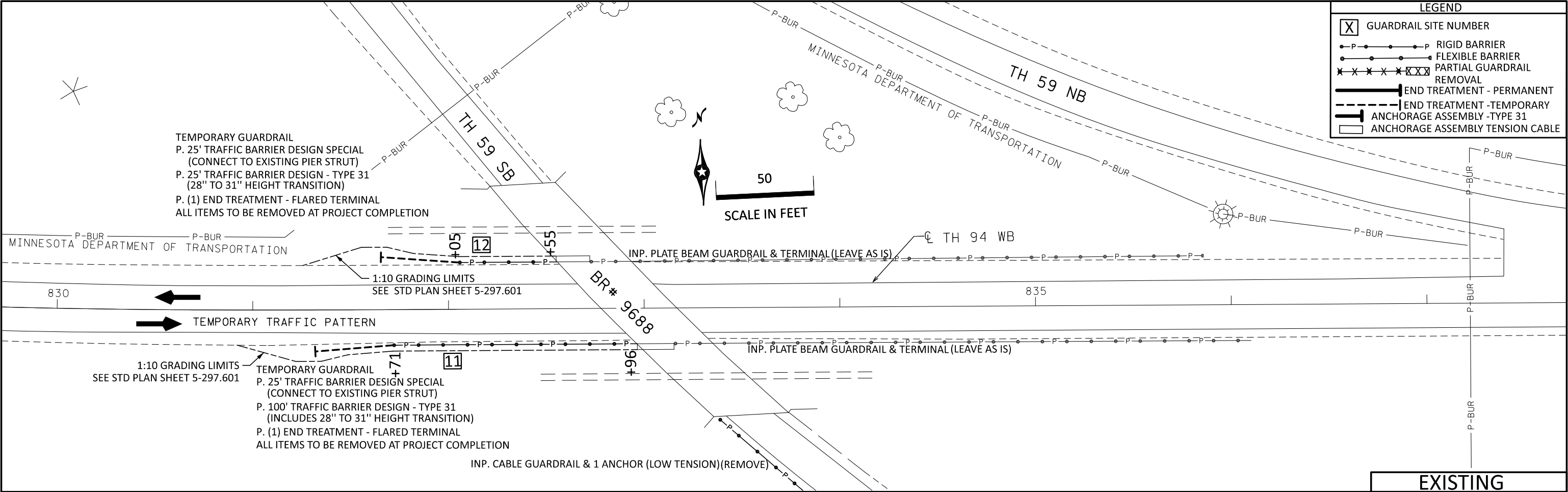




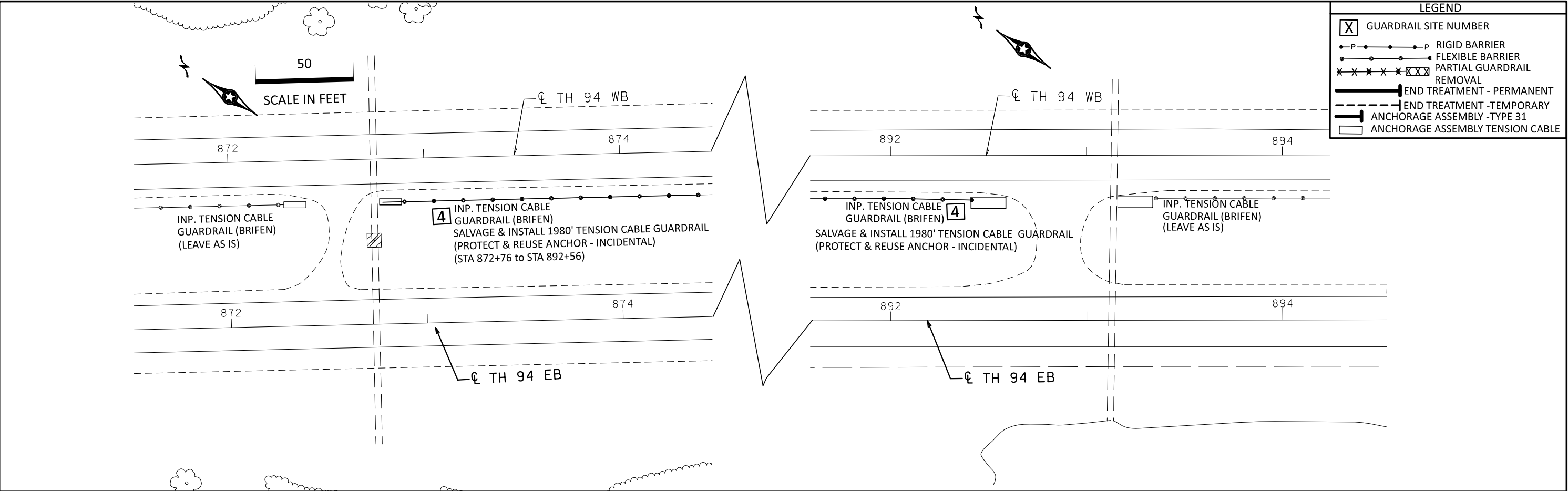
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PATH & FILENAME:



DISTRICT #: DISTRICT #  
PLOT NAME: 4d5680147\_405tbp-plan  
PATH & FILENAME:  
PLOTTED/REVISED: 3-OCT-2024



# Pavement Sensor & Temperature Probe INSTALLATION INSTRUCTIONS

PAVEMENT SENSORS AND TEMPERATURE PROBES INSTALLED AS DETAILED IN THE ATTACHED DRAWINGS WILL BE COVERED BY THE VAISALA WARRANTY.

INSTALLATION SHOULD BE PERFORMED ON A WARM, DRY DAY WITH AIR TEMPERATURE ABOVE 20 DEGREES F. FABICK JOINT SEALANT IS USED TO INSTALL THE PAVEMENT SENSOR HEAD, AND INSTALLATION ON COLDER DAYS MAY RESULT IN THE SEALANT NOT CURING OR SETTING.

THE FOLLOWING WARNINGS AND PRECAUTIONS APPLY TO THE EPOXY ENCAPSULATING COMPOUND IN INJECTOR CARTRIDGES AND THE SETTING COMPOUND (Steel Putty).

MANUFACTURER'S WARNING:

HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION. USE SUITABLE EYE PROTECTION. AVOID BREATHING VAPOR. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

IN CASE OF CONTACT:

IMMEDIATELY FLUSH EYES AND SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FOR EYES, SEE A PHYSICIAN. WASH CLOTHING BEFORE RE-USE.

STORAGE:

IT IS RECOMMENDED THE FABICK BE STORED BETWEEN 60 AND 80 DEGREES F. ALLOWING MATERIAL TO FREEZE WILL VOID EPOXY MATERIAL WARRANTY. MAXIMUM SHELF LIFE IS 6 MONTHS.

MANUFACTURER AND/OR SELLER ARE NOT RESPONSIBLE FOR THE RESULTS OBTAINED WHEN THE PRODUCT IS USED UNDER CONDITIONS BEYOND OUR CONTROL.

REFER TO MATERIAL SAFETY DATA SHEETS SUPPLIED WITH SENSOR INSTALL KIT FOR COMPLETE DETAILS.

B	Converted Vaisala Format - Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	LIK	11/01/02	11/01/02
0	Initial Release	D/C	6/25/01	6/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE		FILE NAME: 01 Sensor Installation Instructions		SHEET 1 OF 13
THIS DRAWING AND THE INFORMATION IT DISCLOSES IS THE EXCLUSIVE PROPERTY OF VAISALA. ANY REPRODUCTION OR USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT THE EXPRESS CONSENT OF VAISALA IS PROHIBITED.		PART/ITEM Sensor Installation Instructions		
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		SCALE: None		DWG NO. DOC220141
		VAISALA		

DISTRICT #: 21-AUG-2024  
PLOT NAME: 4D5680147\_520RWIS-PLAN  
PATH & FILENAME:

DISTRICT #: 4D5680147\_520RWIS-PLAN  
PLOT NAME: 4D5680147\_520RWIS-PLAN  
PATH & FILENAME:

RWIS PLAN

STATE PROJ. NO. 5680-147  
(T.H. 94)

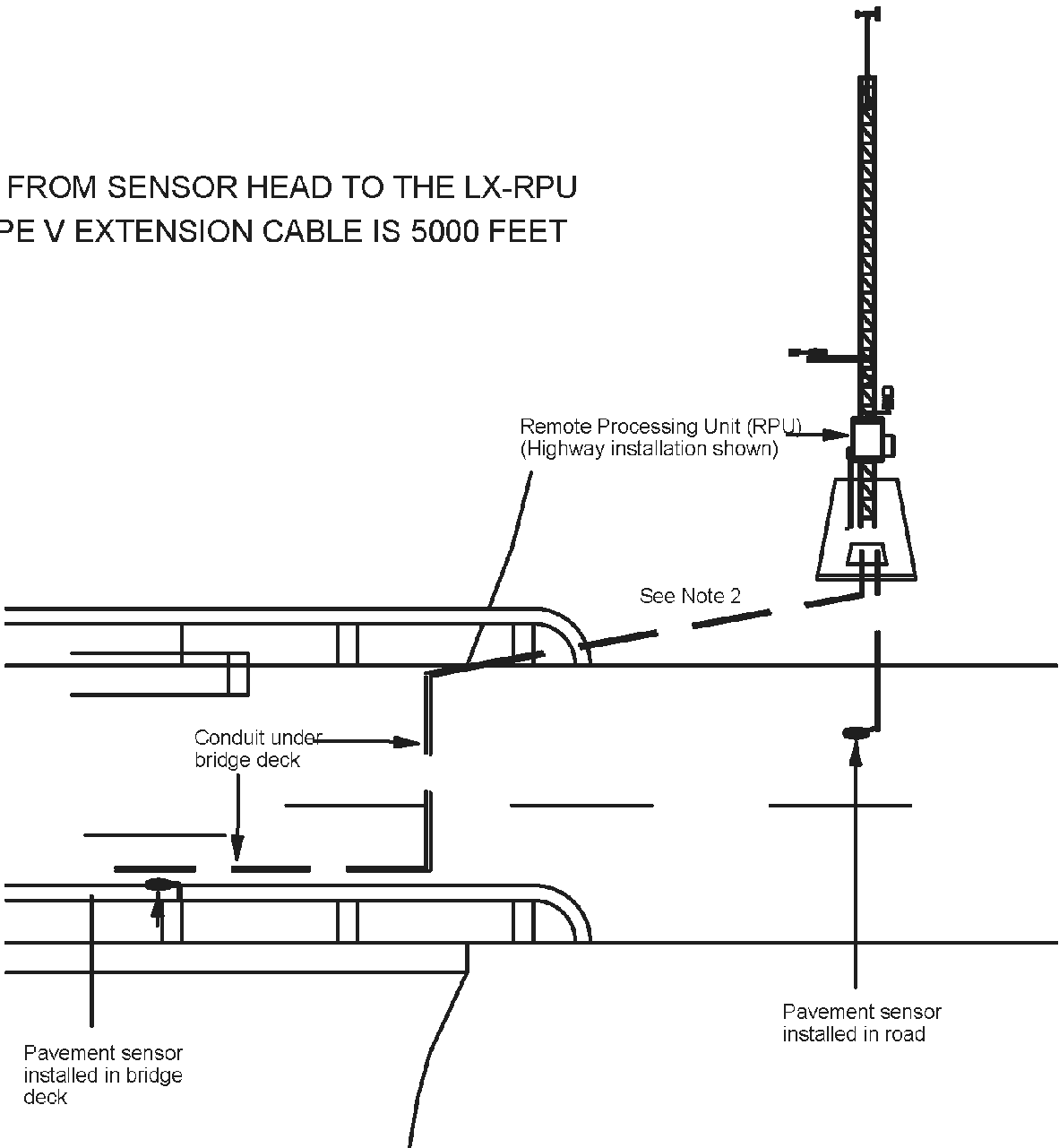
SHEET NO. RS1  
TOTAL SHEETS RS13

DISTRICT #: 21-AUG-2024

PLOTTED/REVISED:

DISTRICT #  
PLOT NAME: 4D5680147\_520RWIS-PLAN  
PATH & FILENAME:

MAXIMUM CABLE LENGTH FROM SENSOR HEAD TO THE LX-RPU  
UTILIZING A SPLICE KIT AND TYPE V EXTENSION CABLE IS 5000 FEET



Notes:

1. Pavement sensors and sub-surface temperature probes are supplied standard with 300 feet of Type IIA Sensor cable attached.
2. THE MAXIMUM CABLE DISTANCE BETWEEN PAVEMENT AND SUB-SURFACE TEMPERATURE SENSORS AND THE RPU IS 5000 FEET.

B	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2011	11/02/2011
1	Active Sensor Installation Drawings	JHK	11/31/02	11/31/02
1	Initial Release	DMC	3/25/01	3/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE: THIS DRAWING AND THE INFORMATION IT CONTAINS IS THE EXCLUSIVE PROPERTY OF VAISALA. ANY REPRODUCTION OR USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT THE EXPRESS CONSENT OF VAISALA IS PROHIBITED.		FILE NAME: 02 Overview Drawing	PART / TEM	SHEET 2 OF 13
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		VAISALA		SCALE: None DWG NO. DOC220141

RWIS PLAN

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. RS2  
TOTAL SHEETS RS13

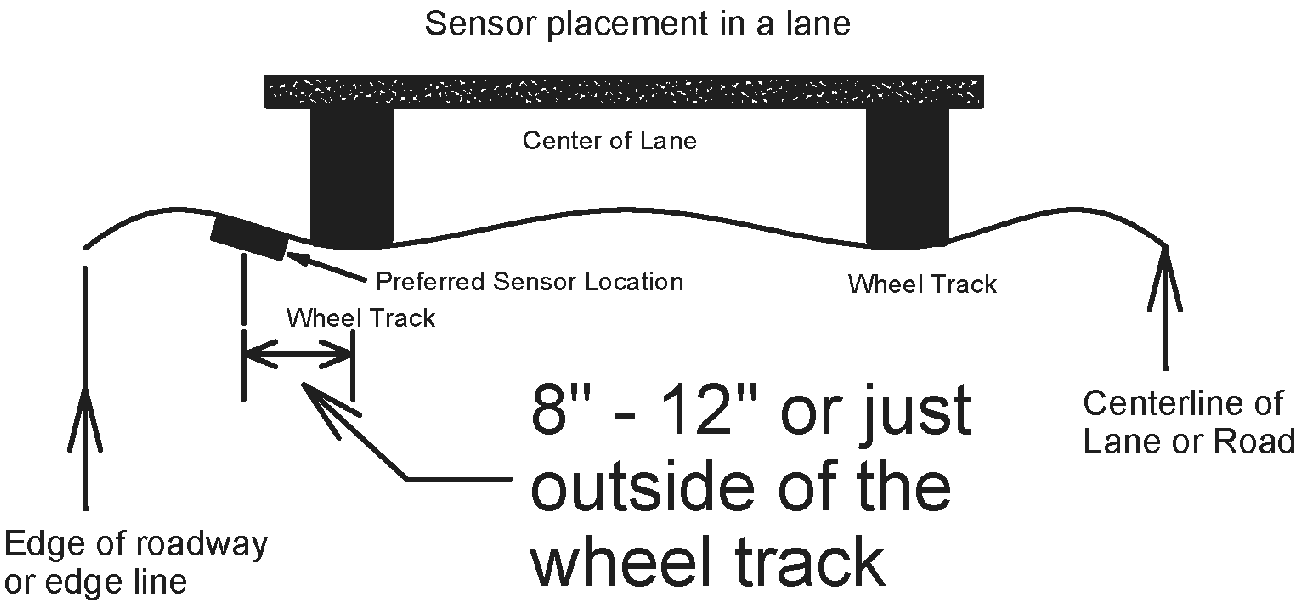
# SHRP's Recommended Location of Pavement Sensors \*

Note:  
\* Obtained from the Strategic Highway Research Program, SHRP-H-351, Road Weather Information Systems, Volume 2: Implementation Guide. Refer to this Volume for more information.

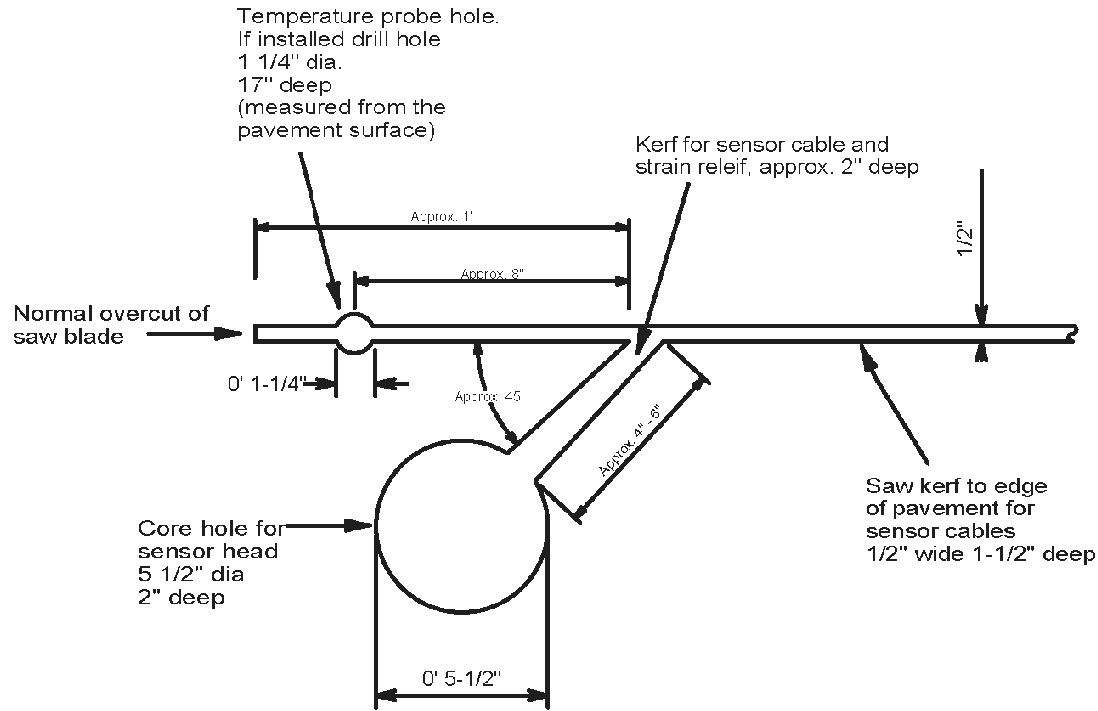
Primary Use of Sensors	Urban (Commuter Route)		Rural (Non-commuter Route)	
	Multi-lane Road	Two-lane Road	Multi-lane Road	Two-lane Road
Prediction	Just outside of outside wheel track of outbound passing lane	Just outside of outside wheel track of outbound lane	Just outside of a wheel track of a passing lane	Just outside of a wheel track of either lane
Detection	Just inside of outside wheel track of inbound through lane	Just inside of outside wheel track of inbound lane	Just outside of a wheel track of a through lane	Just outside of a wheel track of either lane
Monitoring	Use prediction placement whenever possible			

- Note:
- Conditions may exist requiring alternative pavement sensor placement from those shown.
  - For bridge deck installations, pavement sensor location may need to be adjusted from that shown due to the under structure of the bridge.

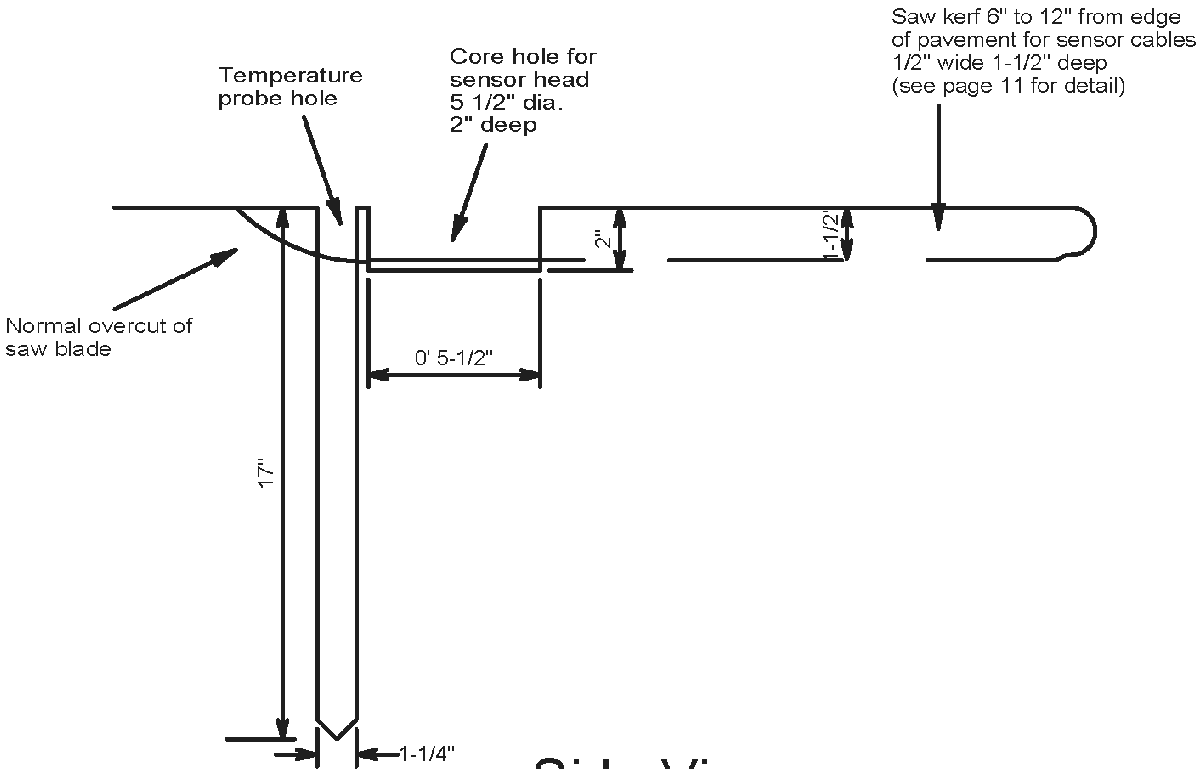
## Sensor Placement in a Lane



B	Converted Vaisala Format, Removed Active Sensor Pages	T8	11/02/2013	11/02/2010
C	Active Sensor Installation Drawings	LINK	11/01/02	11/11/02
D	Initial Release	DMC	3/25/01	3/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE		FILE NAME: C2 Roadway Highway Sensor Placement	PART / ITEM	SHEET
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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:			SCALE: None	OF 13
			LWG NO.	DOC220141



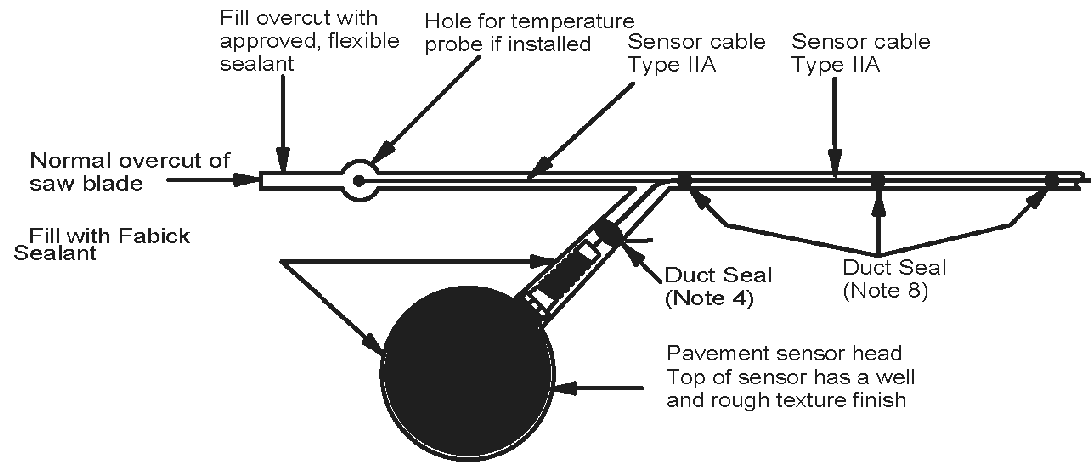
Top View



Side View

- Notes:
1. Cut saw kerf using a single 1/2" wide blade.
  2. Clean and dry core hole and saw kerf with compressed air prior to performing any sensor installation.
  3. Core hole for pavement sensor 5 1/2" diameter, absolute maximum core hole diameter is 5 3/4".

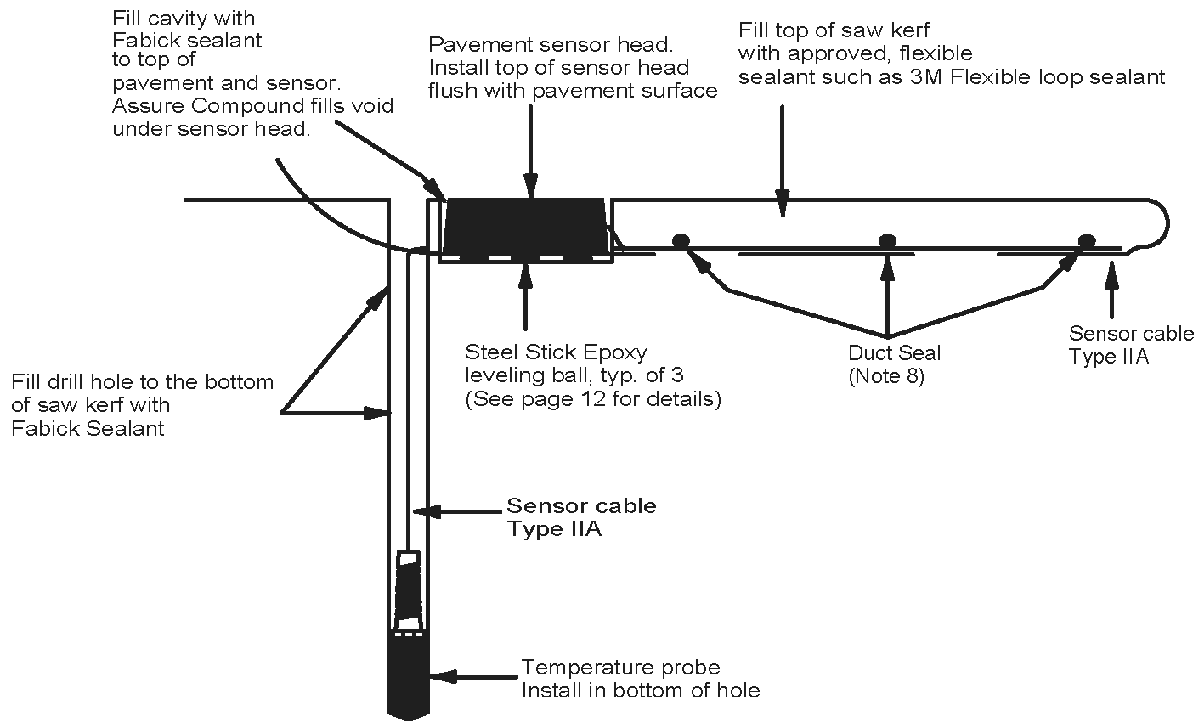
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2	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
3	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
4	Initial Release	JMC	6/25/11	6/25/11
5	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
6	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
7	Initial Release	JMC	6/25/11	6/25/11
8	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
9	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
10	Initial Release	JMC	6/25/11	6/25/11
11	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
12	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
13	Initial Release	JMC	6/25/11	6/25/11
14	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
15	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
16	Initial Release	JMC	6/25/11	6/25/11
17	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
18	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
19	Initial Release	JMC	6/25/11	6/25/11
20	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
21	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
22	Initial Release	JMC	6/25/11	6/25/11
23	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
24	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
25	Initial Release	JMC	6/25/11	6/25/11
26	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
27	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
28	Initial Release	JMC	6/25/11	6/25/11
29	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
30	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
31	Initial Release	JMC	6/25/11	6/25/11
32	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
33	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
34	Initial Release	JMC	6/25/11	6/25/11
35	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
36	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
37	Initial Release	JMC	6/25/11	6/25/11
38	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
39	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
40	Initial Release	JMC	6/25/11	6/25/11
41	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
42	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
43	Initial Release	JMC	6/25/11	6/25/11
44	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
45	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
46	Initial Release	JMC	6/25/11	6/25/11
47	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
48	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
49	Initial Release	JMC	6/25/11	6/25/11
50	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
51	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
52	Initial Release	JMC	6/25/11	6/25/11
53	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
54	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
55	Initial Release	JMC	6/25/11	6/25/11
56	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
57	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
58	Initial Release	JMC	6/25/11	6/25/11
59	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
60	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
61	Initial Release	JMC	6/25/11	6/25/11
62	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
63	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
64	Initial Release	JMC	6/25/11	6/25/11
65	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
66	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
67	Initial Release	JMC	6/25/11	6/25/11
68	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
69	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
70	Initial Release	JMC	6/25/11	6/25/11
71	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
72	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
73	Initial Release	JMC	6/25/11	6/25/11
74	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
75	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
76	Initial Release	JMC	6/25/11	6/25/11
77	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
78	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
79	Initial Release	JMC	6/25/11	6/25/11
80	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
81	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
82	Initial Release	JMC	6/25/11	6/25/11
83	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
84	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
85	Initial Release	JMC	6/25/11	6/25/11
86	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
87	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
88	Initial Release	JMC	6/25/11	6/25/11
89	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
90	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
91	Initial Release	JMC	6/25/11	6/25/11
92	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
93	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
94	Initial Release	JMC	6/25/11	6/25/11
95	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
96	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
97	Initial Release	JMC	6/25/11	6/25/11
98	Added Sensor Installation Drawings	JMC	11/1/10	11/1/10
99	Converted Vaisala format, Removed Active Sensor Pages	JMC	11/1/10	11/1/10
100	Initial Release	JMC	6/25/11	6/25/11



Top View

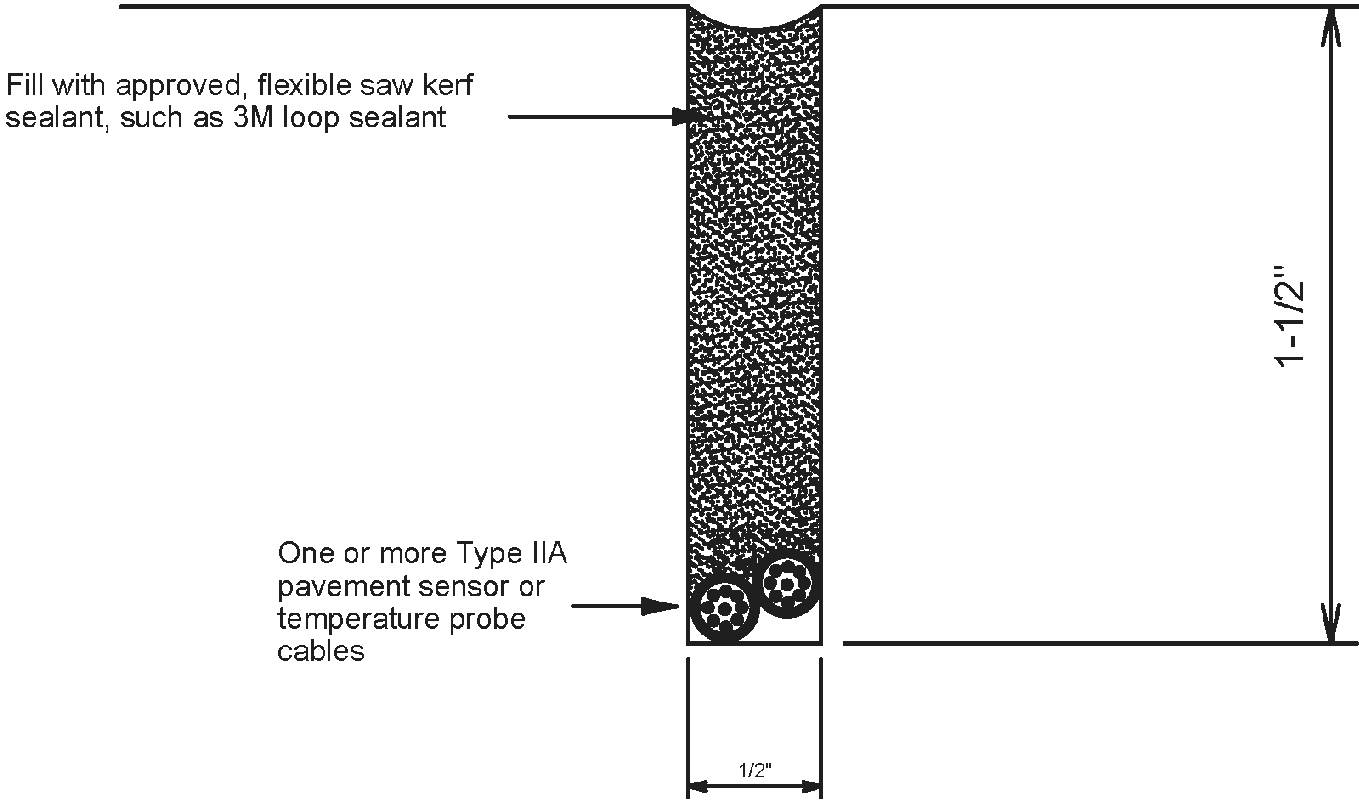
Notes: Sequence of Installation Procedures:

1. After coring and drilling per specifications as shown on page 4 of installation manual, clean and dry core hole and saw kerfs with dry compressed air prior to installation of sensor head, temperature probe or cables.
2. Prepare and install Steel Stick Epoxy (refer to page 12 for details).
3. Place sensor head in core and level to surface of pavement (refer to page 12 for details)
4. Place duct seal outside of surface sensor strain relief above and below Type IIA cable as a dam to keep encapsulating epoxy from running down saw kerf. (refer to page 16 for details)
5. Pour epoxy around sensor head (refer to page 16 for details)
6. Place a small amount duct seal in saw kerf on top of cable approximately every 2 feet to prevent cable from floating when kerf is filled with sealant. (refer to drawing above)
7. Fill kerf with 3M DSL 5000 Detector Loop Sealant,



Side View

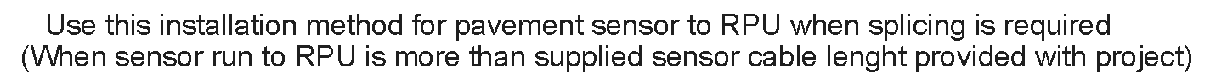
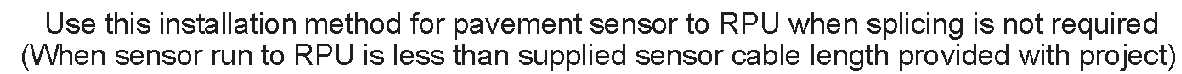
B	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	JJK	11/01/12	11/11/12
0	Initial Release	DMC	02/26/11	02/26/11
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE		FILE NAME: 05 Sensor and Probe Installation		SHEET
THIS DRAWING AND THE INFORMATION IT DISCLOSES IS THE EXCLUSIVE PROPERTY OF VAISALA. ANY REPRODUCTION OR USE OF THIS DRAWING IN WHOLE OR IN PART WITHOUT THE EXPRESS CONSENT OF VAISALA IS PROHIBITED.		PART / ITEM		5
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES WITH THE FOLLOWING TOLERANCES:		Roadway Pavement Sensor & Temperature Probe Installation Detail		OF 13
		SCALE: None		
		DWC NO. DOC220141		



Saw Kerf  
Cross Section View

B	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	JJK	11/01/02	11/11/02
0	Initial Release	DMC	6/25/01	6/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE:		FILE NAME:		PART / ITEM
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		<div>VAISALA</div>		6
Sensor Cable-Kerf Installation Detail				OF
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		SCALE: None		13
		DWG. NO. DOC220141		

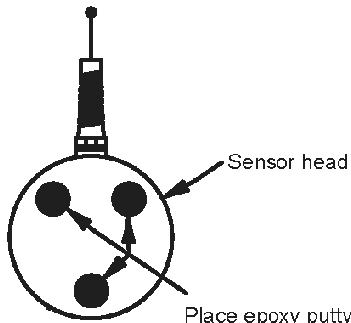




1. Junction Box and conduit shall be supplied by installation contractor.

1		Covered Table Fans, Rooms, with Serial Tags		5	11/1/2020	11/2/21
2		Active Semiconductor Encaps		JAN	11/1/2021	11/1/2021
3		Vial Release		IMP	10/2/21	10/2/21
REV	CHANGE			DRAWN BY		DATE
<b>REVISIONS</b>						
N TITLE		P L E N S E		PART #		SHEET
THIS DRAWING AND THE INFORMATION IT CONTAINS ARE THE PROPERTY OF VASILA AND ARE NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF VASILA. ANY REPRODUCTION OR USE WITHOUT THE EXPRESS CONSENT OF VASILA IS PROHIBITED.		THIS DRAWING IS PROHIBITED FROM BEING REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF VASILA.		Sensor Cable-Pavement Edge Installation Detail		7 of 13
FOR INFORMATION PURPOSES, THE INFORMATION CONTAINED HEREIN IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF VASILA.		<b>VASILA</b>		SCALE: None		Drawn by: DOC220141

Sensor Head Supports

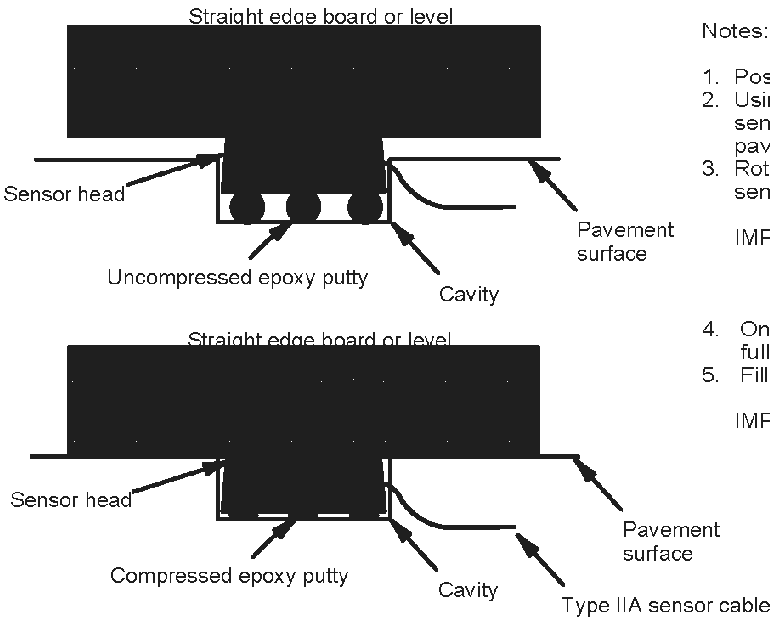


Place epoxy putty on BOTTOM of sensor head as shown

Notes:

- 1. Assure BOTTOM of sensor head and cavity are clean and dry
- 2. Locate Flexmaster Steel-Stick (epoxy putty) supplied with sensor head.
- WEAR RUBBER GLOVES WHEN HANDLING.
- 3. THE MIXED EPOXY PUTTY IS ONLY WORKABLE FOR 4 MINUTES.
- 4. Mix material by kneeding and pinching with hands about 2 minutes or until warm (indicating chemical curing has started).
- 5. Divide putty into 3 equal size balls.
- 6. Push epoxy putty balls on to the BOTTOM of sensor head as shown.
- 7. Proceed to install sensor head as detailed below.

Positioning the Sensor Head



Notes:

- 1. Position sensor head in center of cavity.
- 2. Using straight edge board or level, push down on top of sensor head making top of sensor FLUSH with surrounding pavement.
- 3. Rotate straight edge board or level, pushing down to assure sensor head is FLUSH with surrounding pavement.

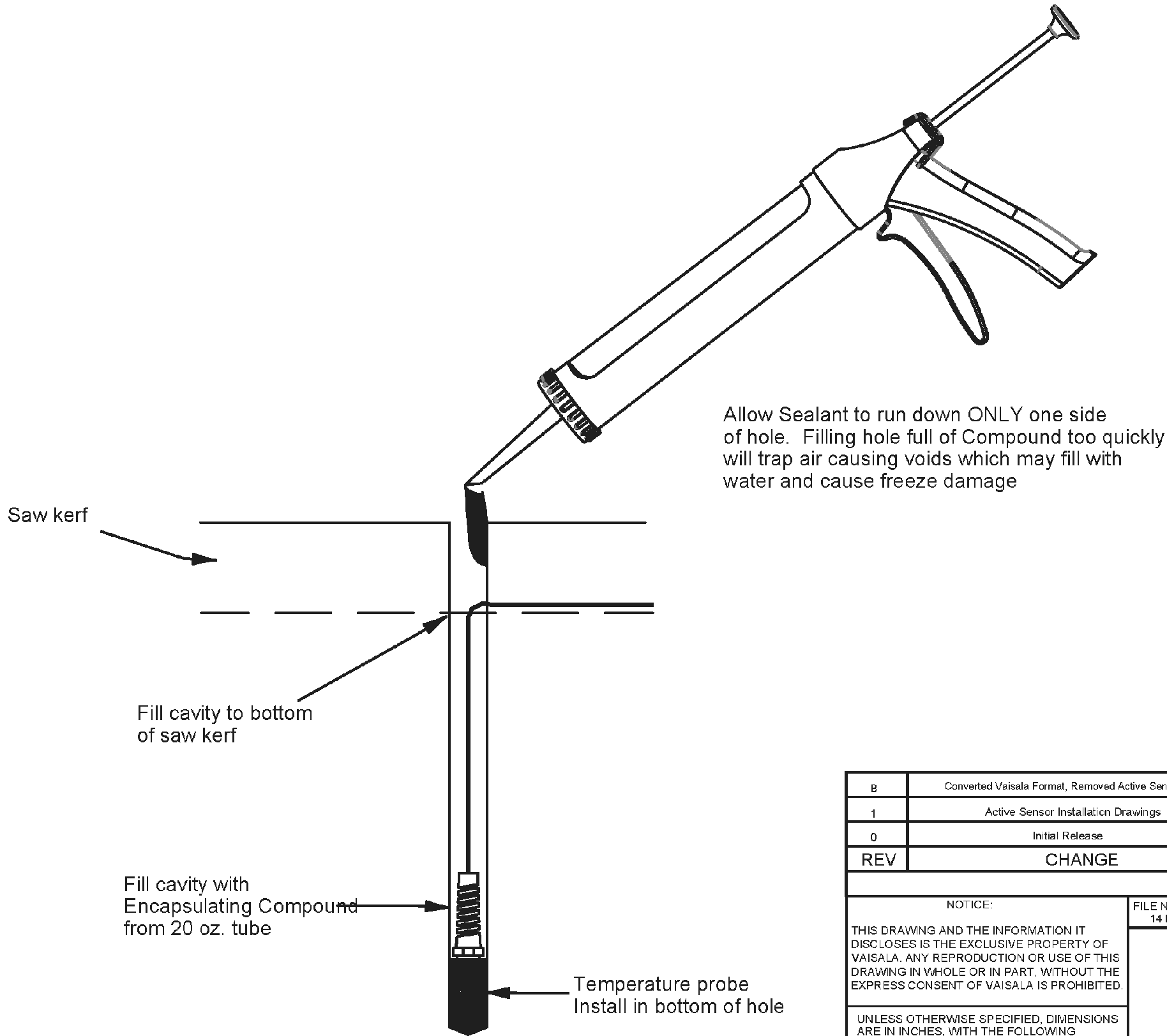
IMPORTANT NOTE: THE EPOXY PUTTY IS ONLY WORKABLE FOR 4 MINUTES. THE SENSOR MUST BE SET FLUSH WITHIN THIS TIME PERIOD.

- 4. Once sensor head is set allow 10 minutes for epoxy putty to fully cure, securing sensor head into cavity.
- 5. Fill cavity with Fabick sealant.

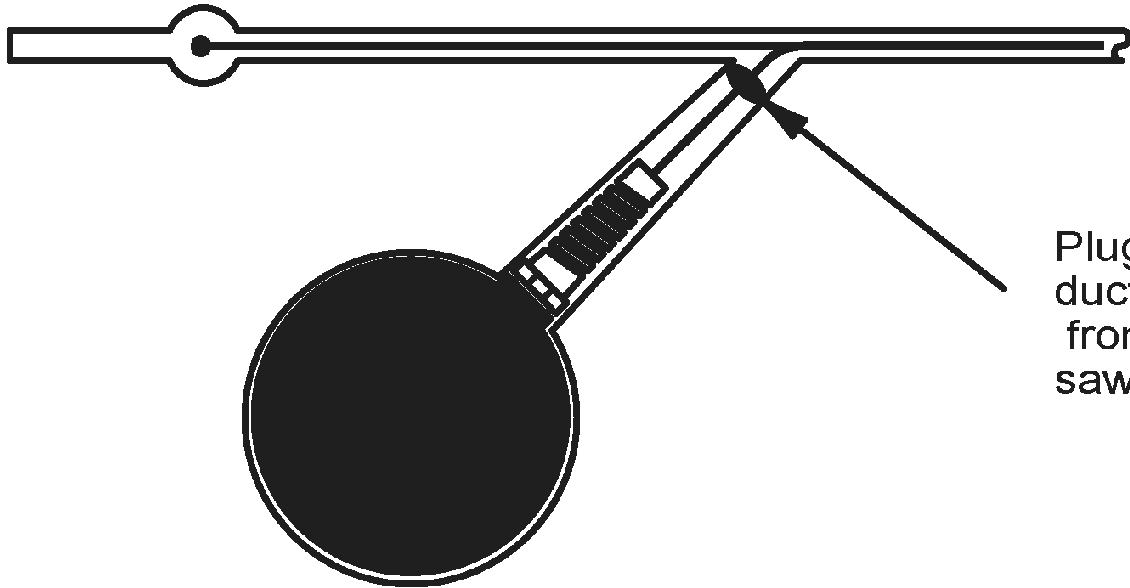
IMPORTANT NOTE: THE SENSOR HEAD MUST BE FLUSH WITH THE SURROUNDING PAVEMENT SURFACE. DO NOT PUSH SENSOR HEAD BELOW FLUSH OR LEAVE HIGHER THAN SURROUNDING PAVEMENT !

MANUFACTURER'S WARNING:  
COMPOUNDS ARE HARMFUL IF SWALLOWED.  
CAUSES EYE AND SKIN IRRITATION. USE  
SUITABLE EYE PROTECTION. AVOID BREATHING  
VAPOR. AVOID CONTACT WITH EYES, SKIN AND  
CLOTHING. WASH THOROUGHLY AFTER HANDLING.  
IN CASE OF CONTACT:  
IMMEDIATELY FLUSH EYES AND SKIN WITH PLENTY  
OF WATER FOR AT LEAST 15 MINUTES. FOR EYES,  
SEE A PHYSICIAN. WASH CLOTHING BEFORE  
RE-USE.

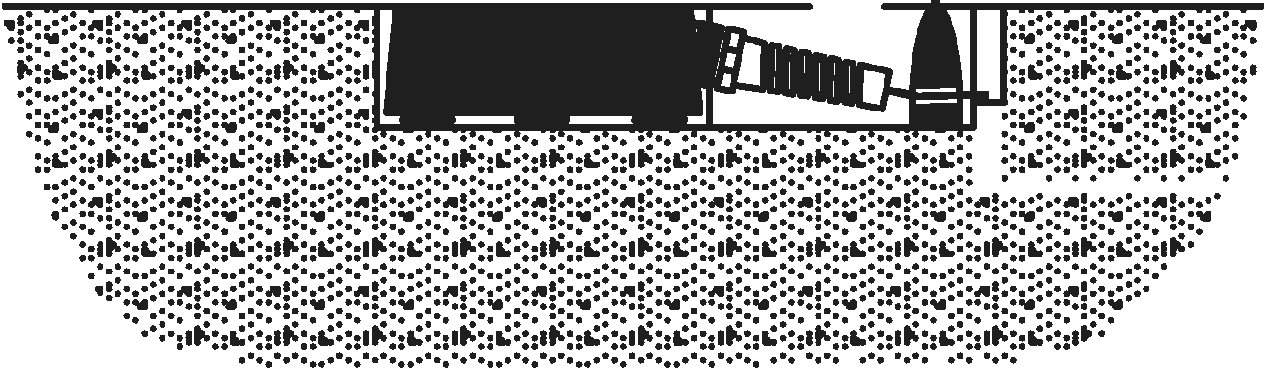
B	Corrected Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	JLK	11/01/02	11/11/02
2	Initial Release	DWC	6/25/01	6/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE:		FILE NAME	PART / ITEM	SHEET
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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		VAISALA	SCALE None	OF 13
			DWG. NO.	DOC220141



B	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	JJK	11/01/02	11/11/02
0	Initial Release	DMC	6/25/01	6/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE:		FILE NAME:	PART / ITEM	SHEET
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		VAISALA		OF 13
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:			SCALE: None	DWG. NO.
				DOC220141

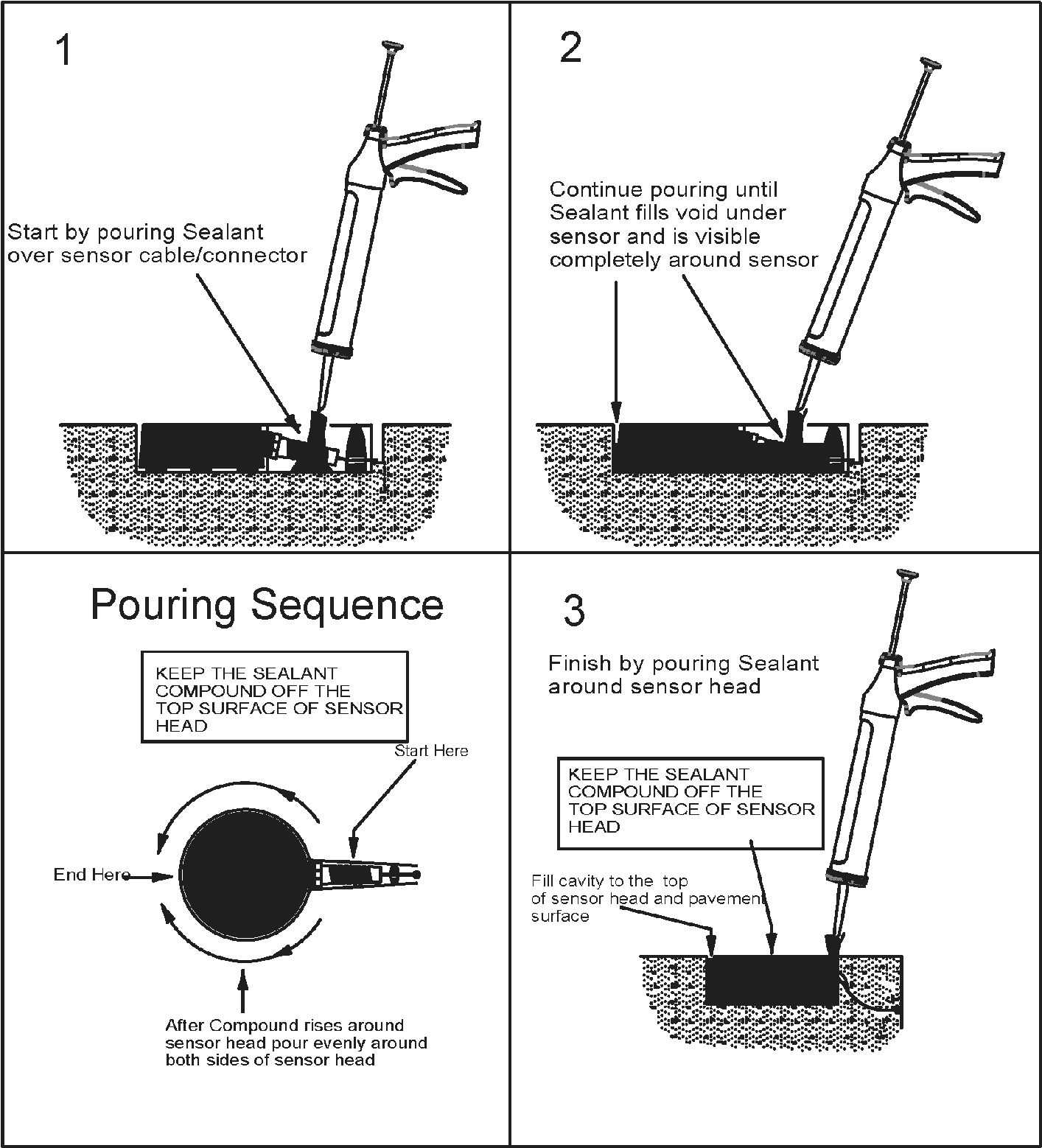


Plug cable/connector kerf with duct seal to prevent Sealant from running down saw kerf



# Roadway Installation

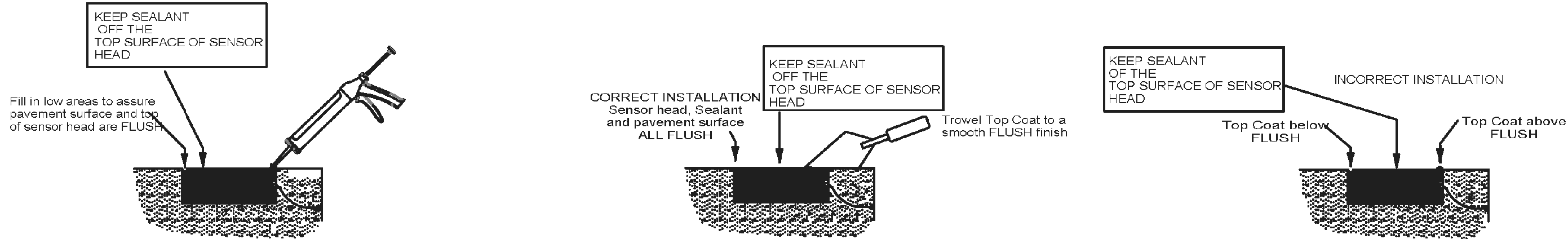
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
0	Initial Release	JMK	11/01/02	11/01/02
1	Active Sensor Installation Drawings	JMK	11/01/02	11/01/02
2	Converted Vaisala Format, Revised Active Sensor Pages	JMK	11/02/2010	11/02/2010
REVISIONS				
NOTICE:		FILE NAME:		
THIS DRAWING AND THE INFORMATION IT DISCLOSES IS THE EXCLUSIVE PROPERTY OF VAISALA. ANY REPRODUCTION OR USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT THE EXPRESS CONSENT OF VAISALA IS PROHIBITED.		15 Epoxy Pouring Preparation		
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		PART / ITEM		SHEET
		Fabick Sealant Pouring Preparation		10
		SCALE: None		OF 13
		DWE: N.O.		
		DOC220141		




Note:

Installation of sensor head in roadway is shown. Use same procedure for sensor head installed in bridge deck.

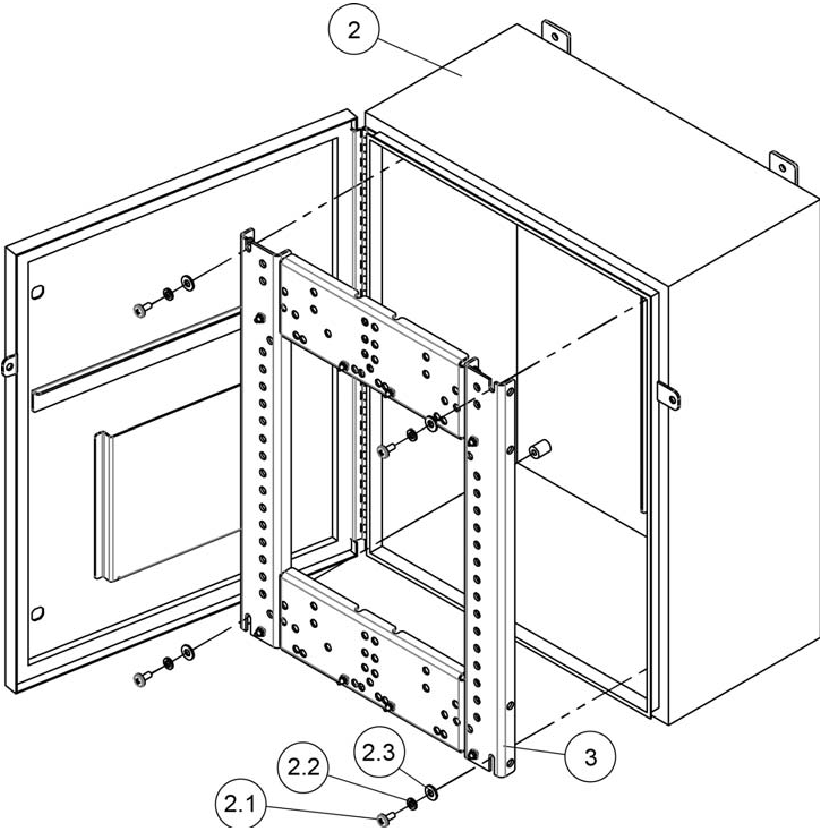
B	Complete Vaisala Format, Retrieved Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawing	JLK	11/01/02	11/01/02
0	Initial Release	DMC	8/25/01	6/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE		FILE NAME:		PART / ITEM
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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES WITH THE FOLLOWING TOLERANCES:		VAISALA		11
		SCALE: None DWG. NO.		13
				DOC220141



DO NOT ALLOW TRAFFIC ON SENSOR HEAD UNTIL TOP COAT IS FULLY CURED

0	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/30/2010
1	Active Sensor Installation Drawings	JLK	11/01/02	11/11/02
0	Initial Release	CMC	8/25/01	8/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE: THIS DRAWING AND THE INFORMATION IT DISCLOSES IS THE EXCLUSIVE PROPERTY OF VAISALA. ANY REPRODUCTION OR USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT THE EXPRESS CONSENT OF VAISALA IS PROHIBITED.		TITLE NAME: 17 Topcoat Application		PART / ITEM
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH TOLERANCES FOLLOWING TO FINISHES.				Fabick sealant Application
				SCALE: None
				SHEET 12 OF 13

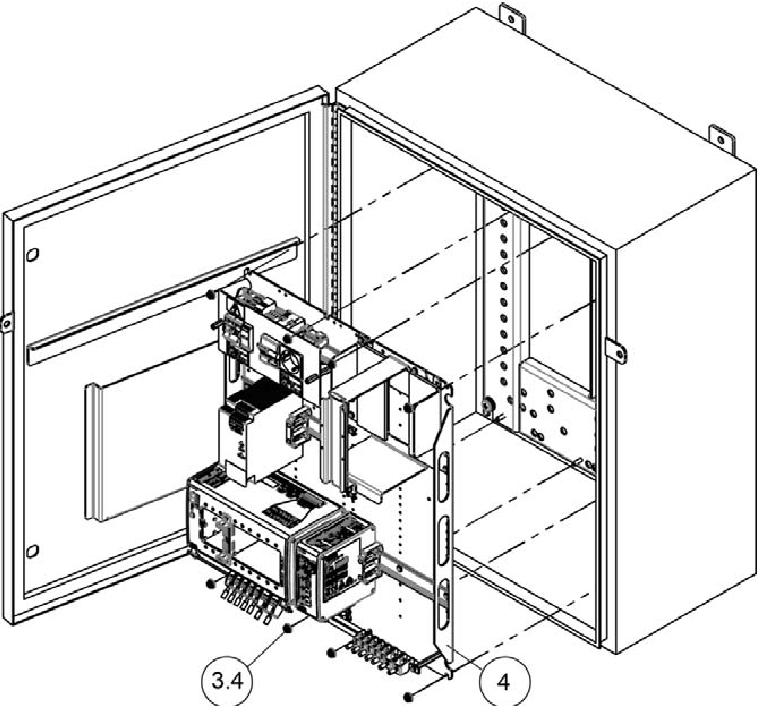
Assemble the backplate mounting frame and install it inside the enclosure. You can install the mounting frame either as shown or upside down, depending on where you want to position the backplate. See the next step for backplate installation.



Installing Backplate Mounting Frame into NEMA4 enclosure

- 2 = NEMA4 enclosure
- 2.1 = Crosshead screw 3/8-16NC (4 pcs)
- 2.2 = Spring lock washer (4 pcs)
- 2.3 = Flat washer (4 pcs)
- 3 = Backplate mounting frame (ASM211177) consisting of the following:
  - Vertical left mounting bar (DRW242578) (1 pc)
  - Vertical right mounting bar (DRW242671) (1 pc)
  - Horizontal mounting bar (DRW242677) (2 pc)
- 3.1 = Flat washer A6,4 DIN125 A4 (8 pcs) (not shown)
- 3.2 = Spring lock washer B6 DIN127 A4 (8 pcs) (not shown)
- 3.3 = Hex nut M6 Wulock Fe/Zn (8 pcs) (not shown)

Mount the RWS200 backplate onto the mounting frame.



Mounting Backplate onto Mounting Frame

- 3.4 = Hex lock nut M6 Wulock Fe/Zn (8 pcs)
- 4 = RWS200 standard backplate

Plug all conduit entrances in the enclosure with duct seal to prevent rodent entry.

8	Converted Vaisala Format, Removed Active Sensor Pages	TS	11/02/2010	11/02/2010
1	Active Sensor Installation Drawings	JJK	11/01/02	11/11/02
0	Initial Release	DMC	0/25/01	0/25/01
REV	CHANGE	DRAWN BY	DATE	ISSUE DATE
REVISIONS				
NOTICE:		FILE NAME:	PART / ITEM	SHEET
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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, WITH THE FOLLOWING TOLERANCES:		SCALE: None	DWG. NO.	13
			DOC220141	

DISTRICT #: 6  
PLOT NAME: t5680147\_tc.dgn  
PATH & FILENAME: Projects\DA\_ DLK\094\5680\147\Traffic\TrafficControl\WorkZone\t5680147\_tc.dgn  
18-NOV-2024  
PLOTTED/REVISED:

NOTES & GUIDELINES

GENERAL INFORMATION:

1. ALL DISTANCES ARE APPROXIMATE.
- SIGNING:
1. ALL TEMPORARY SIGNS ARE REQUIRED TO BE CRASHWORTHY PER THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE 2016 (MASH-2016). TEMPORARY SIGN STRUCTURES THAT ARE CRASHWORTHY UNDER THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP-350) MAY BE USED PROVIDED THE DEVICES WERE ACQUIRED BY THE CONTRACTOR PRIOR TO DECEMBER 31ST, 2019. THE MINNESOTA TYPE "C" AND "D" BRACED LEG U-CHANNEL (KNEE BRACE) SIGN SUPPORT IS NOT ALLOWED.
2. WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84" OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES BOTH Laterally AND LONGITUDINALLY.
3. WHEN A SIGN OR BARRICADE IS ORIENTED SUCH THAT VISIBILITY TO ROAD USERS INCLUDING BIKES AND PEDESTRIANS IS REDUCED ENOUGH TO CAUSE A HAZARD, DELINEATE THE SIGN/BARRICADE WITH APPROPRIATE DEVICES.
4. TEMPORARY SIGNS SHALL BE PLACED SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY APPROACHING ROAD USERS. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS.
5. TEMPORARY SIGNS SHALL BE PLACED AND ORIENTED APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO DIRECTION OF AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED.
6. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL" PAGES (6K-aJ) THRU (6K-dI) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
7. AFTER REMOVAL OF SIGN AND/OR SIGN BASE, BACK FILL, COMPACT, AND LEVEL SOIL TO MATCH SURROUNDING SOIL.

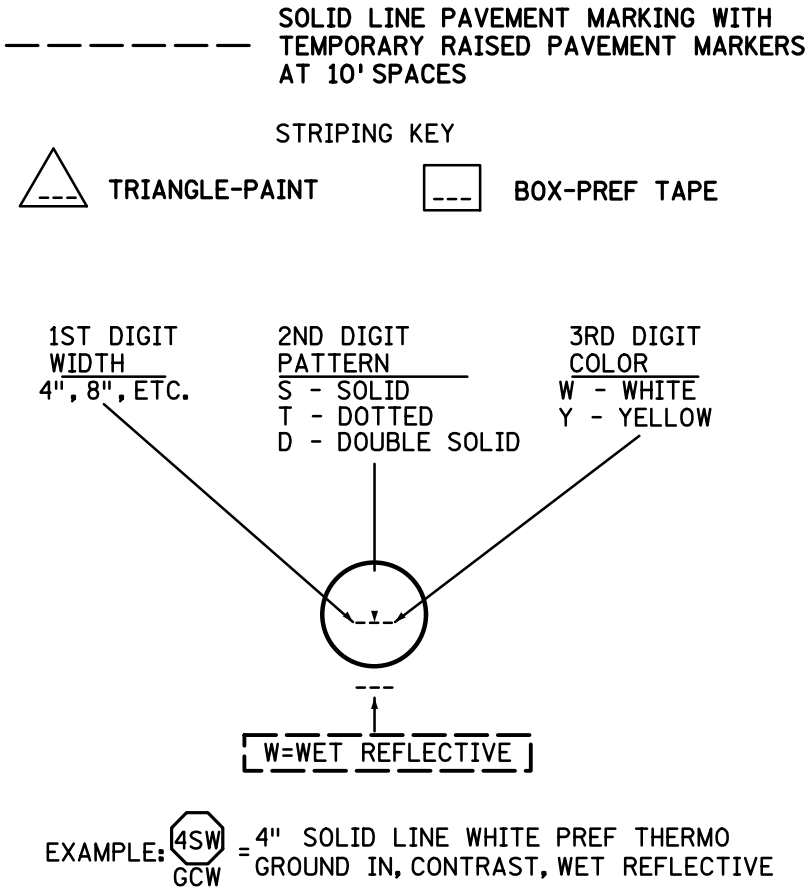
PAVEMENT MARKING:

1. MASK OR REMOVE ANY CONFLICTING PAVEMENT MARKINGS AS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER.
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE. ALL PAVEMENT MARKINGS IN TAPERS AND TRANSITIONS SHALL BE 6" IN WIDTH.
3. SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN WHICH ARE TO BE USED AS FOLLOWS:
- PLACE G20-X2 (P3) ADVANCE NOTICE SIGNS 14 DAYS PRIOR TO THE WORK STARTING DATE. ONCE WORK BEGINS, COVER THE START DATE LEGEND WITH SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER, DISPLAY THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON.
- IF CONSTRUCTION INFORMATION SIGNING IS NO LONGER VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS, MOVE SAID SIGNING TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER.

PAVEMENT MARKING SYMBOLS AND MATERIALS LEGEND











INDEX

TRAFFIC CONTROL SHEET NO. DESCRIPTIONS






TC1	TEMPORARY TRAFFIC CONTROL TITLE SHEET
TC2 - TC3	SIGNING TABULATION
TC4	TEMPORARY SQUARE TUBE GROUND MOUNTED SIGN PLACEMENT
TC5	TEMPORARY SIGN COVERING
TC6 - TC7	SPECIAL SIGN DETAILS
TC8 - TC9	DETOURS
TC10 - TC22	LONG TERM TYPICAL APPLICATION

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

-  AREA CLOSED TO TRAFFIC / WORK AREA
-  TRAFFIC CONTROL SIGN
-  TYPE III BARRICADE = 
-  DRUM-LIKE CHANNELIZER (TYPE B) = 
-  TUBULAR MARKER CHANNELIZER (TYPE A) = 

SYMBOL DESCRIPTION

-  FLASHING ARROW BOARD TYPE C = (4' X 8' UNLESS OTHERWISE NOTED). 
-  PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
-  TYPE A FLASHING WARNING LIGHT
-  TEMPORARY WET REFLECTIVE PAVEMENT MARKING

TRAFFIC CONTROL TABULATION

ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	SP 5680-147		WHITE	TC
			QUANTITY	QUANTITY		
TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1			
TRAFFIC CONTROL	LUMP SUM	1	1			
RAISED PAVEMENT MARKER TEMPORARY	EACH	7440	6675	765		
TUBULAR MARKER	EACH	760	685	75		
REPLACE TUBULAR MARKER	EACH	80	70	10		
PORTABLE CHANGEABLE MESSAGE SIGN	EACH	3	2	1		
REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT	1000	800	200		
4" REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	2080	1080	1000	2080	
6" REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	22400	12500	9900	11500	10900
8" REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	3000	2000	1000	3000	
ELECTRONIC WORKERS PRESENT SPEED LIMIT SYSTEM	EACH	2	1	1		
4" SOLID LINE PAINT (WR)	LIN FT	219810	199720	20090	72570	147240

UPDATED 11/02/2023



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: NOVEMBER 18, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
TITLE SHEET

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. TC1

TOTAL SHEETS TC22




















DISTRICT #: 6

PLOT NAME: t5680147\_tc.dgn

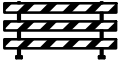



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PLOTTED/REVISED: 19-AUG-2024

"M" SERIES					
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
	M4-8a	BLACK ON ORANGE	24" x 12"	24" x 75"	1
	M4-8	BLACK ON ORANGE	24" x 12"		
	M4-5	WHITE ON BLUE	24" x 12"		
	M3-2	WHITE ON BLUE	24" x 12"		
	M4-8a	WHITE ON RED & BLUE	24" x 24"		
	M3-3	BLACK ON WHITE	24" x 12"		
	M1-4	BLACK ON WHITE	24" x 24"		
	M5-1	BLACK ON WHITE	21" x 15"		
	M6-1	BLACK ON WHITE	21" x 15"		
	M6-3	BLACK ON WHITE	21" x 15"		

"W" SERIES					
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
	M4-5	WHITE ON BLUE	24" x 12"	48" x 96"	1
	M3-2	WHITE ON BLUE	24" x 12"		
	M4-8a	WHITE ON RED & BLUE	24" x 24"		
	M3-3	BLACK ON WHITE	24" x 12"		
	M1-4	BLACK ON WHITE	24" x 24"		
	W20-1	BLACK ON ORANGE	48" x 48"		
	W20-3	BLACK ON ORANGE	48" x 48"		

- GENERAL NOTES:
1. SIGN STRUCTURE TABULATIONS INDICATE SQUARE TUBE GROUND MOUNTED SIGN STRUCTURES THAT ARE MASH-16 COMPLIANT.
2. USE PRODUCTS FROM THE BASES FOR SQUARE TUBE SIGN STRUCTURES APPROVED/QUALIFIED PRODUCTS LIST FOR THE INDICATED SQUARE TUBE RISER POST SIZE. PLACE PER MANUFACTURER'S SPECIFICATIONS.
3. ALUMINUM STRINGERS SHALL BE USED FOR SIGNS 36 INCHES AND WIDER. SEE MANUFACTURER'S SPECIFICATIONS FOR SQUARE TUBE MOUNTING DETAILS. STRINGERS ON SINGLE POST ASSEMBLIES ARE REQUIRED TO BE AT LEAST 9 INCHES IN FROM THE EDGE OF THE SIGN.
4. UNLESS OTHERWISE INDICATED, USE 2-1/2 INCH RISER POSTS FOR GROUND MOUNTED SIGN STRUCTURES.

BARRICADE MOUNTED SIGNS			
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)
	TYPE III BARRICADE	WHITE ON ORANGE	96" WIDTH
	M4-10	BLACK ON ORANGE	48" x 18"
	R11-2M	BLACK ON WHITE	48" x 30"
	TYPE A	ORANGE	



*Trudy A. Kordosky*  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
DETOUR SIGNING TABULATION

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. TC2

TOTAL SHEETS TC22

"W" SERIES					
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
	W1-4	BLACK ON ORANGE	48" x 48"	48" x 78"	1
	W13-1P	BLACK ON ORANGE	30" x 30"		
	W3-2	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W3-5	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W4-1R	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W4-2	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W4-3	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W6-1	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W6-2	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W6-3	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W13-2	BLACK ON ORANGE	36" x 48"	36" x 48"	1
	W14-3	BLACK ON YELLOW	64" x 48"	64" x 48"	1
	W20-1	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W20-5	BLACK ON ORANGE	48" x 48"	48" x 48"	1
	W21-5a	BLACK ON ORANGE	48" x 48"	48" x 72"	1
	W16-2P	BLACK ON ORANGE	36" x 24"		

"G" SERIES						
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST	POST SPACING INCHES
<div><div>EXIT XX</div><div></div></div>	P1	BLACK ON ORANGE	72" x 54"	72" x 54"	2	42
<div><div>EXIT XX</div><div>1 MILE</div></div>	P2	BLACK ON ORANGE	72" x 48"	72" x 48"	2	42
<div><div><div>ROAD WORK</div><div>NEXT 15 MILES BEGINS XXXX 25</div></div></div>	P3	BLACK ON ORANGE	174" x 114"	174" x 114"	2	90
<div><div>EXPECT DELAYS</div></div>	P3	BLACK ON ORANGE	174" x 30"			
<div><div>END ROAD WORK</div></div>	G20-2	BLACK ON ORANGE	48" x 24"	48" x 24"	1	
<div><div>XX</div></div>	G20-X7P	BLACK ON ORANGE	48" x 12"	48" x 90"	1	
<div><div>EXIT</div><div></div></div>	G20-X7	BLACK ON ORANGE	48" x 48"			
<div><div>30 MPH</div></div>	W13-1P	BLACK ON ORANGE	30" x 30"			

"R" SERIES						
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST	POST SPACING INCHES
<div><div></div></div>	R1-2	WHITE ON RED	60" x 60"	60" x 60"	1	
<div><div>WORK ZONE</div></div>	G20-5AP	BLACK ON ORANGE	36" x 24"	48" x 120"	2	30
<div><div><div>SPEED LIMIT 60</div><div>SPEED LIMIT 70</div></div></div>	R2-1	BLACK ON WHITE	48" x 60"			
<div><div>300 FEET</div></div>	R2-6BP	BLACK ON WHITE	48" x 36"			
<div><div>END WORK ZONE SPEED LIMIT</div></div>	R2-12	BLACK ON WHITE	36" x 54"	36" x 54"	1	
<div><div>NO TURNS</div></div>	R3-3	BLACK ON WHITE	48" x 48"	48" x 48"	1	
<div><div>DO NOT PASS</div></div>	R4-1	BLACK ON WHITE	48" x 60"	48" x 60"	1	
<div><div></div></div>	R4-7	BLACK ON WHITE	48" x 60"	48" x 60"	1	
<div><div>DO NOT ENTER</div></div>	R5-1	RED ON WHITE	48" x 48"	48" x 48"	1	

BARRICADE MOUNTED SIGNS			
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)
	TYPE III BARRICADE	WHITE ON ORANGE	96" WIDTH
	W1-6	BLACK ON ORANGE	48" x 24"
	R11-2M	BLACK ON WHITE	48" x 30"
	R11-2M	BLACK ON WHITE	48" x 30"
	TYPE A	ORANGE	

DRUM MOUNTED SIGNS			
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)
	W21-X3P	BLACK ON ORANGE	24" x 24"

"OM" SERIES				
SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	NUMBER OF POST
	OM3	BLACK ON YELLOW	12" x 36"	1

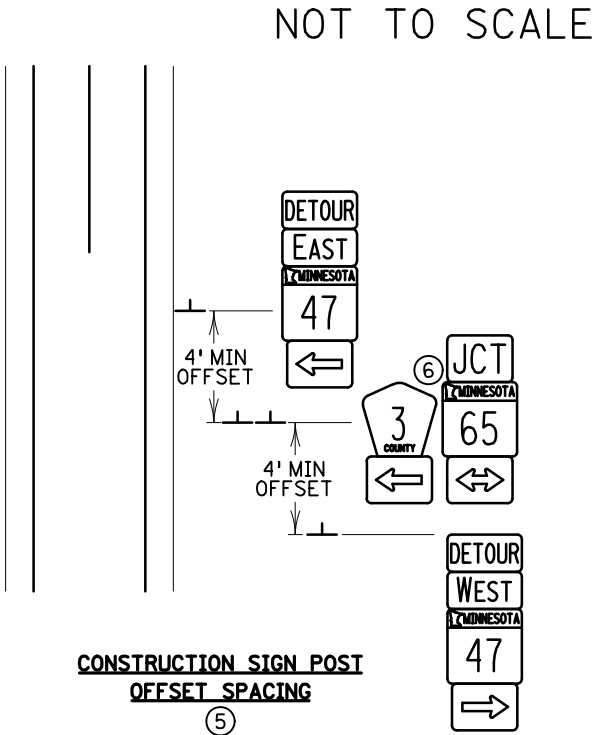
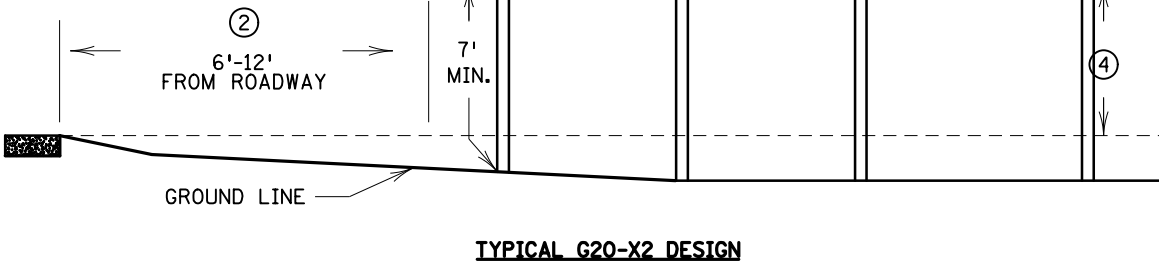
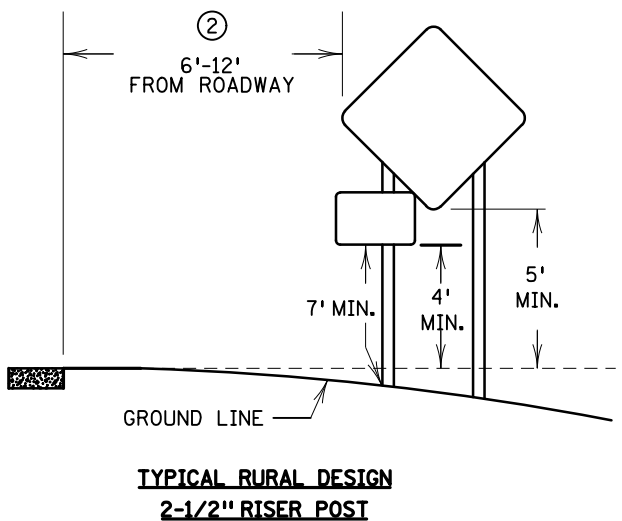
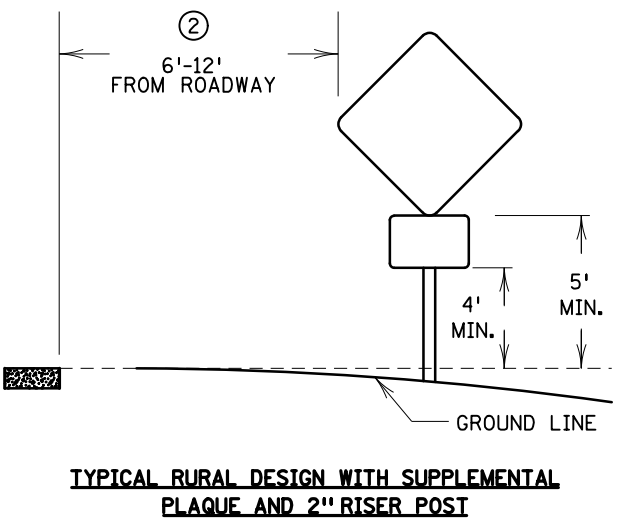
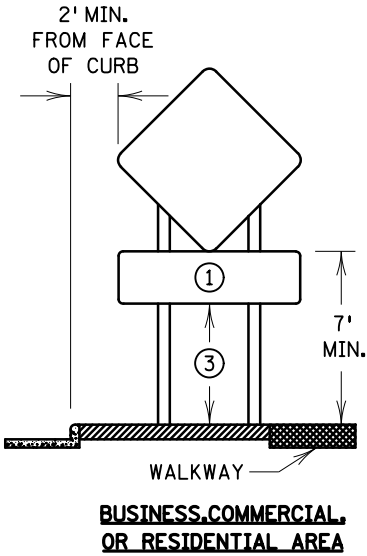
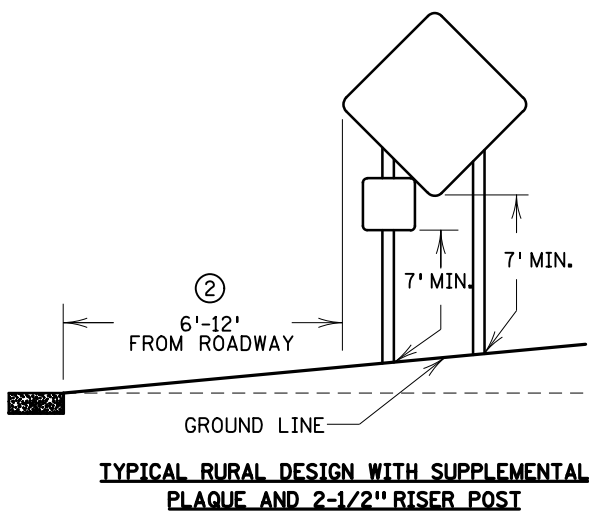
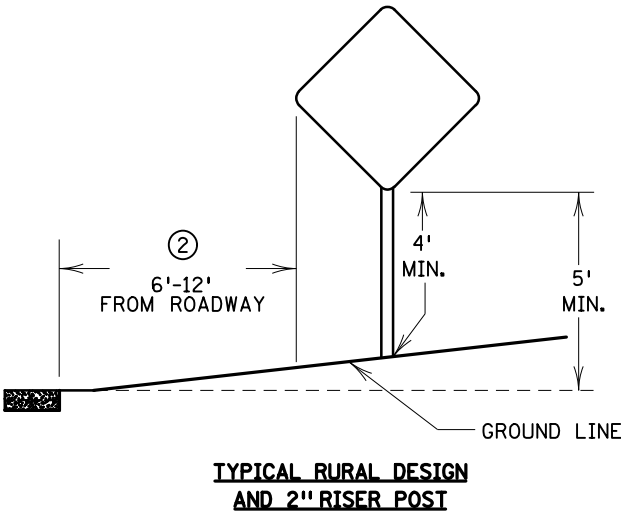
- SPECIFIC NOTES:
- Ⓐ MAY USE 2" SQUARE TUBE POST WITH FIN BASE WHEN PLACED ALONG ON STRUCTURE.
  - Ⓑ SEE SPECIAL SIGN DETAILS SHEET FOR SIGN PANEL DESIGNS.
  - Ⓒ MOUNT POST 1/3 OF THE WAY IN FROM THE LEFT SIDE OF SIGN.

- GENERAL NOTES:
- SIGN STRUCTURE TABULATIONS INDICATE SQUARE TUBE GROUND MOUNTED SIGN STRUCTURES THAT ARE MASH-16 COMPLIANT.
  - USE PRODUCTS FROM THE BASES FOR SQUARE TUBE SIGN STRUCTURES APPROVED/QUALIFIED PRODUCTS LIST FOR THE INDICATED SQUARE TUBE RISER POST SIZE. PLACE PER MANUFACTURER'S SPECIFICATIONS.
  - ALUMINUM STRINGERS SHALL BE USED FOR SIGNS 36 INCHES AND WIDER. SEE MANUFACTURER'S SPECIFICATIONS FOR SQUARE TUBE MOUNTING DETAILS. STRINGERS ON SINGLE POST ASSEMBLIES ARE REQUIRED TO BE AT LEAST 9 INCHES IN FROM THE EDGE OF THE SIGN.
  - UNLESS OTHERWISE INDICATED USE 2-1/2 INCH RISER POSTS FOR GROUND MOUNTED SIGN STRUCTURES.

DISTRICT #: 6  
PLOT NAME: t5680147 tc.dgn  
PATH & FILENAME: Projects\04\5680\147\Traffic\TrafficControl\WorkZone\5680147 tc.dgn  
PLOTTED/REVISED: 19-AUG-2024

- GENERAL NOTES:
- GROUND MOUNTED SQUARE TUBE SIGN STRUCTURES PLACED WITHIN 50' OF THE RADIUS END OF AN INTERSECTION SHALL BE PLACED ON ONE 2" OR 2-1/2" POST.
  - FOR 2" SQUARE TUBE RISER POST IN SOIL, USE FIN BASE PLACED PER MANUFACTURER'S SPECIFICATIONS. USE A 2" X 2" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST. PLACE 3/8" STAINLESS STEEL BOLT THROUGH THE 5TH HOLE DOWN FROM THE TOP OF THE BASE. RISER POST SHALL REST ON THE BOLT.
  - FOR 2-1/2" SQUARE TUBE RISER POST IN SOIL, USE SLIP BASE PLACED PER MANUFACTURER'S SPECIFICATIONS USING A 10 GAUGE, 2-1/2" X 2-1/2" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST WITH A 10 GAUGE 2-3/16" X 2-3/16" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE INTERNAL INSERT.

- SPECIFIC NOTES:
- IF ANY PART OF A SIGN OR SIGN ASSEMBLY EXTENDS MORE THAN 4" INTO THE PEDESTRIAN FACILITY, THE MINIMUM HEIGHT TO BOTTOM OF THE SIGN OR SIGN ASSEMBLY SHALL BE 7'.
  - 6' - 12' FROM EDGE OF ROADWAY, MUST BE A MINIMUM OF 6' FROM EDGE OF PAVED SHOULDER (WHEN PRESENT).
  - IF GROUND MOUNTED TEMPORARY SIGN OR SIGN ASSEMBLY IS PLACED ON 2-1/2" SQUARE TUBE RISER POST(S), THE MINIMUM CLEARANCE FROM THE GROUND LINE TO THE BOTTOM OF THE LOWEST SIGN ON THE ASSEMBLY SHALL BE 7', OR AS SHOWN IN DETAIL, WHICHEVER IS GREATER.
  - 5' MINIMUM IN RURAL, 7' MINIMUM IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREAS.
  - WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84" OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES BOTH Laterally AND LONGITUDINALLY. EXAMPLE SHOWS DETOUR SIGNAGE, BUT THIS REQUIREMENT APPLIES TO ALL SIGNAGE.
  - INPLACE AND/OR OTHER CONSTRUCTION SIGNING.



PUBLISHED BY OTE 03/15/2021

MODIFIED BY

TEMPORARY SQUARE TUBE GROUND MOUNTED SIGN PLACEMENT



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

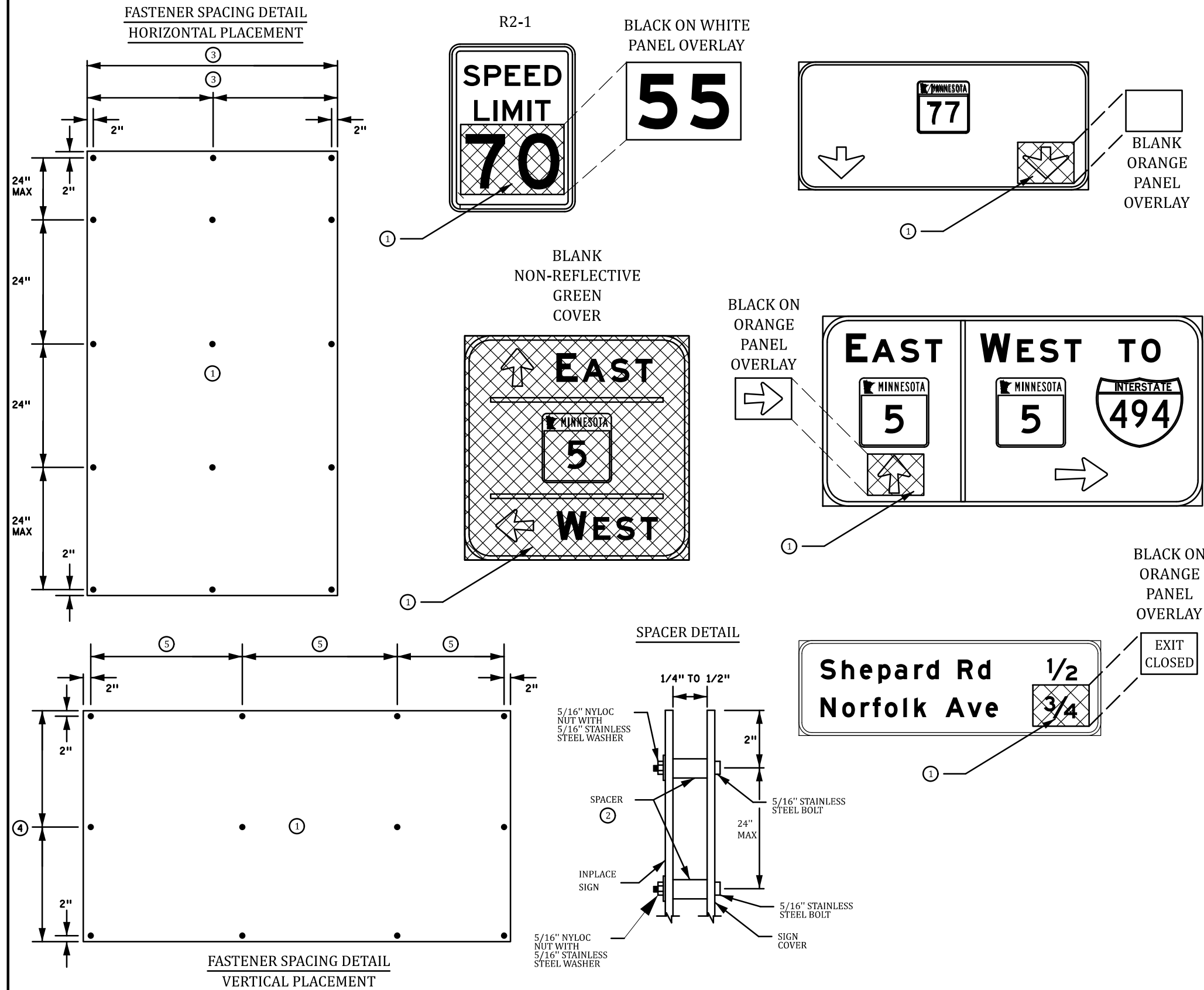
TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY SQUARE TUBE GROUND MOUNTED SIGN PLACEMENT

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. TC4  
TOTAL SHEETS TC22



- GENERAL NOTES:

1. SIGN COVERS ARE USED TO COVER THE ENTIRE PANEL OF A INPLACE SIGN. THE COVER SHALL BE BLANK, GREEN IN COLOR, AND MADE OF A RIGID NON-REFLECTIVE MATERIAL (SHEET ALUMINUM, PLYWOOD, CORRUGATED PLASTIC). OTHER MATERIALS MAY BE USED AS APPROVED BY THE ENGINEER.
2. SIGN PANEL OVERLAYS ARE USED TO MODIFY THE MESSAGE OF AN INPLACE SIGN PANEL. THE PANEL OVERLAY SHALL BE MADE OF SHEET ALUMINUM WITH THE APPROPRIATE SHEETING MATERIAL AS SPECIFIED ON THE MNDOT SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS APL. THE MESSAGE SHALL FOLLOW THE REQUIREMENTS OF THE "MNDOT STANDARD SIGNS AND MARKINGS MANUAL" OR THE "FHWA STANDARD HIGHWAY SIGN MANUAL" (AND SUPPLEMENTS). THE SIGN PANEL OVERLAY SHALL BE RECTANGULAR IN SHAPE AND FULLY COVER THE MESSAGE ELEMENT(S) BEING MODIFIED.

SIGN PANEL OVERLAY WITH A MESSAGE SHALL BE BLACK ON FLUORESCENT ORANGE ON ALL SIGNS EXCEPT FOR REGULATORY SIGNS WHICH SHALL BE THE PROPER COLOR ON A WHITE BACKGROUND.

BLANK SIGN PANEL OVERLAYS SHALL BE FLUORESCENT ORANGE ON ALL SIGNS.

DO NOT COVER OR MODIFY THE "STOP" (R1-1), "YIELD" (R1-2), OR THE (W14-3) NO PASSING ZONE SIGNS, THESE SIGNS SHALL BE REMOVED IF THEY NO LONGER APPLY OR CONFLICT WITH WORK ZONE SIGNING.
3. MINIMIZE DAMAGE TO THE INPLACE SIGN PANEL. DO NOT APPLY TAPE TO THE INPLACE SIGN SHEETING.
4. SPACERS (SUCH AS PLASTIC OR RUBBER) SHALL BE A MATERIAL THAT WILL NOT HARM THE INPLACE SIGN SHEETING FACE.
5. ATTACH SIGN COVER PANEL OR PANEL OVERLAY USING HARDWARE SHOWN IN THE SPACER DETAIL.
6. IF SHEET METAL SCREWS ARE USED TO PLACE CORRUGATED PLASTIC AS A SIGN COVER PANEL, PLACE FENDER WASHERS BETWEEN THE SCREW HEADS AND THE CORRUGATED PLASTIC.
7. REMOVE ALL COVERING MATERIAL, MOUNTING HARDWARE, AND FASTENERS WHEN SIGN COVER PANEL OR PANEL OVERLAY IS REMOVED.
8. NO HANDLE OR ANY OTHER LIFTING DEVICE SHALL BE LEFT ATTACHED TO ANY SIGN COVER PANEL AFTER PLACEMENT.

- SPECIFIC NOTES:

- ① THE SIGN COVER OR PANEL OVERLAY SHALL FULLY COVER THE MESSAGE BEING COVERED OR MODIFIED.
- ② PLACE SIGN COVER AND PANEL OVERLAYS WITH SPACERS THAT PROVIDE A SPACING OF 1/4 IN TO 1/2 IN BETWEEN THE COVER MATERIAL AND THE INPLACE SIGN. THE SPACERS SHALL HAVE AN OUTSIDE DIAMETER BETWEEN 3/8 IN TO 7/8 IN. EACH FASTENER REQUIRES A SPACER.
- ③ IF THE SIGN COVER OR PANEL OVERLAY IS GREATER THAN 48 IN WIDE, THE FASTENER SPACING SHALL BE NO GREATER THAN 24 IN. IF THE SIGN COVER OR PANEL OVERLAY IS LESS THAN 24 IN WIDE, DO NOT PLACE A CENTER FASTENER (UNLESS REQUIRED BY SPECIFIC NOTE ⑥).
- ④ VERTICAL SPACING FOR FASTENERS IS 50% OF THE SIGN COVER OR PANEL OVERLAY. IF THE SIGN COVER OR PANEL OVERLAY IS LESS THAN 24 IN HIGH, DO NOT PLACE A CENTER FASTENER (UNLESS REQUIRED PER SPECIFIC NOTE ⑥).
- ⑤ HORIZONTAL SPACING FOR FASTENERS SHALL NOT BE LESS THAN 15 IN OR MORE THAN 24 IN.

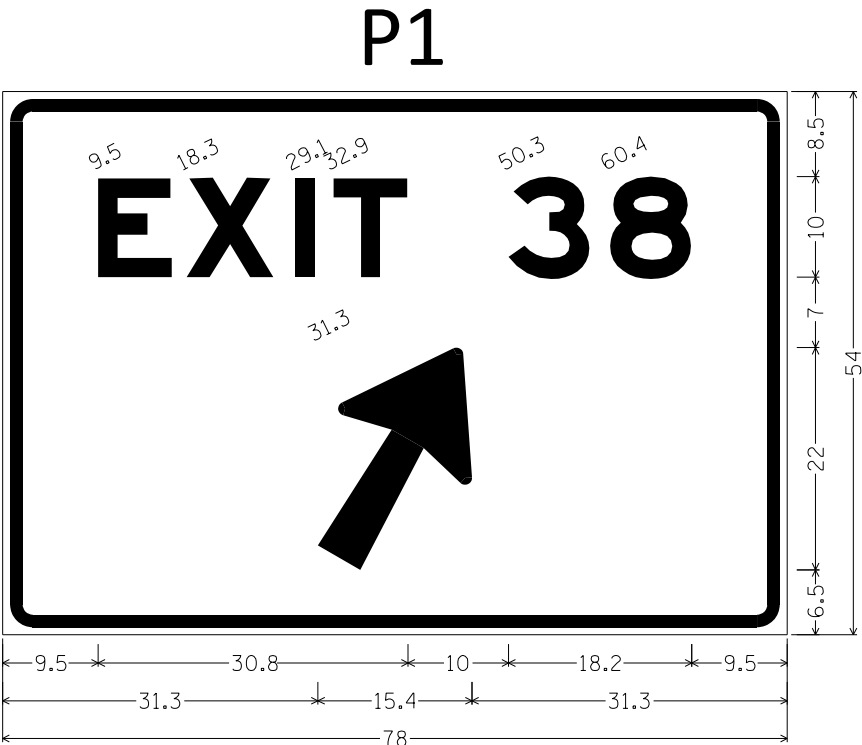
- ASSEMBLY NOTES:

1. DRILL 11/32 IN HOLES ON THE SIGN COVER OR PANEL OVERLAY IN ACCORDANCE WITH HIDE FASTENER SPACING DETAILS.
2. ATTACH PLASTIC SPACERS TO SIGN COVER OR PANEL OVERLAY WITH DOUBLE FACED TAPE. CENTERED BEHIND EACH DRILLED HOLE.
3. POSITION THE COVER OR OVERLAY MATERIAL OVER THE SIGN OR MESSAGE TO BE MODIFIED.
4. DRILL ALL THE OUTSIDE HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH THE COVER OR OVERLAY MATERIAL WITH APPROPRIATE FASTENERS.
5. DRILL ALL THE INNER HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH WITH APPROPRIATE FASTENERS.

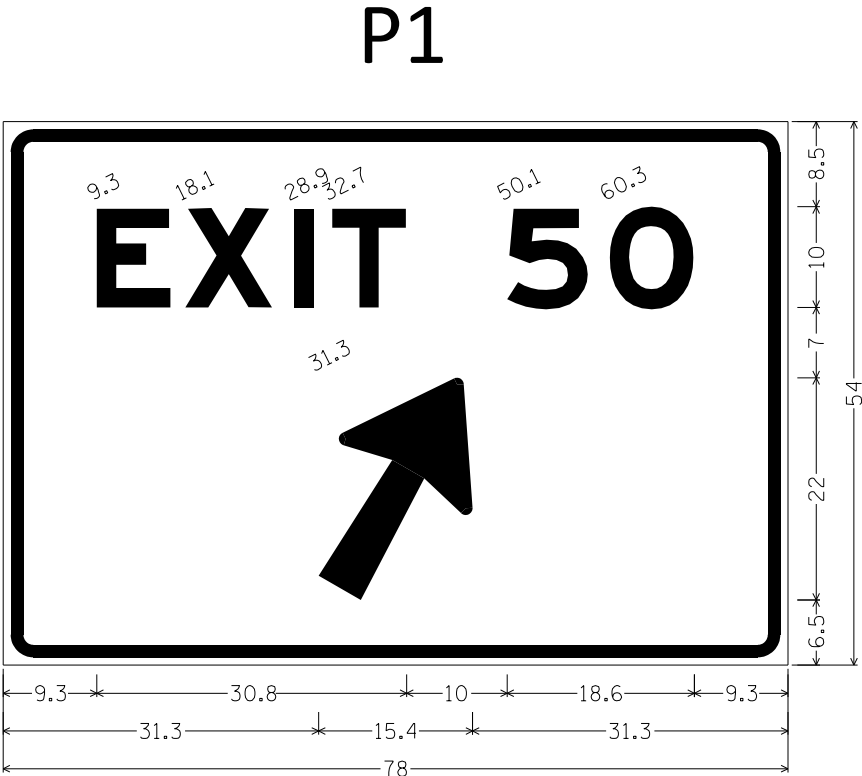
PUBLISHED BY OTE 08/17/2023

MODIFIED BY

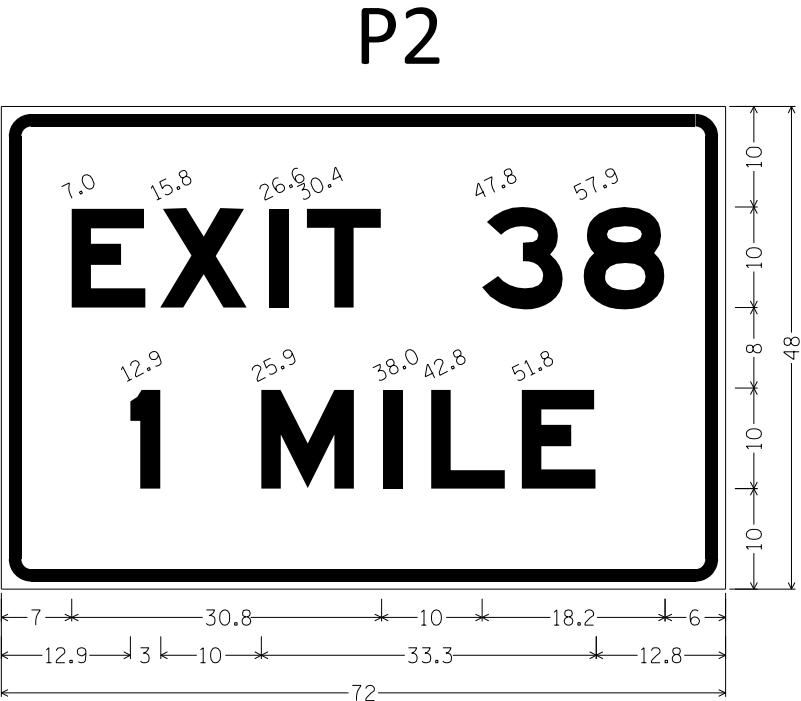
## TEMPORARY SIGN COVERING AND MODIFICATION DETAIL



EXIT 97 60 DEG ARROW;  
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;  
"EXIT 38", E Mod 2K; Arrow 15 - 24.0" 60°;



EXIT 97 60 DEG ARROW;  
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;  
"EXIT 50", E Mod 2K; Arrow 15 - 24.0" 60°;



EXIT 97 1 MILE;  
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;  
"EXIT 38", E Mod 2K; "1 MILE", E Mod 2K;

- NOTES:
- 1. ALL DIMENSIONS ARE IN INCHES.
  - 2. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR ARROW, FRACTION AND ROUTE MARKER DETAILS.
  - 3. DO NOT TRIM CORNERS OF THE SIGN PANEL EXTENDING BEYOND THE BORDER.

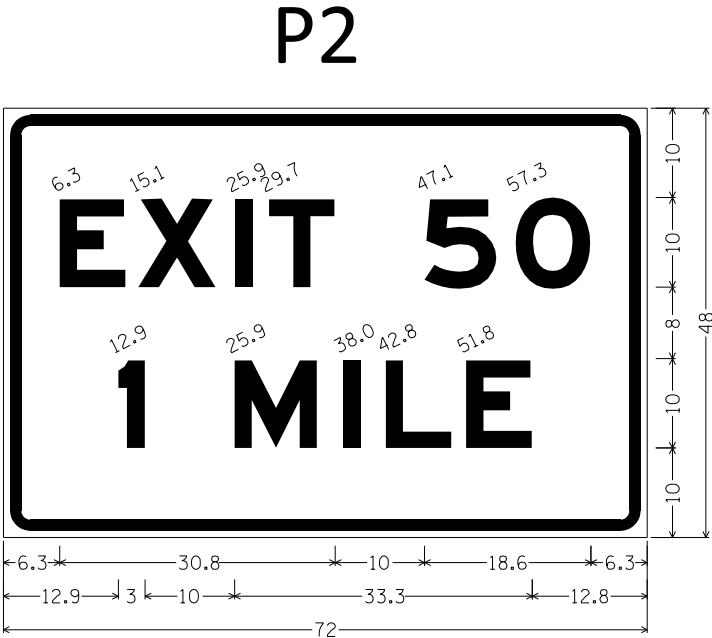


DISTRICT #: 6

PLOT NAME: t5680147\_tc.dgn

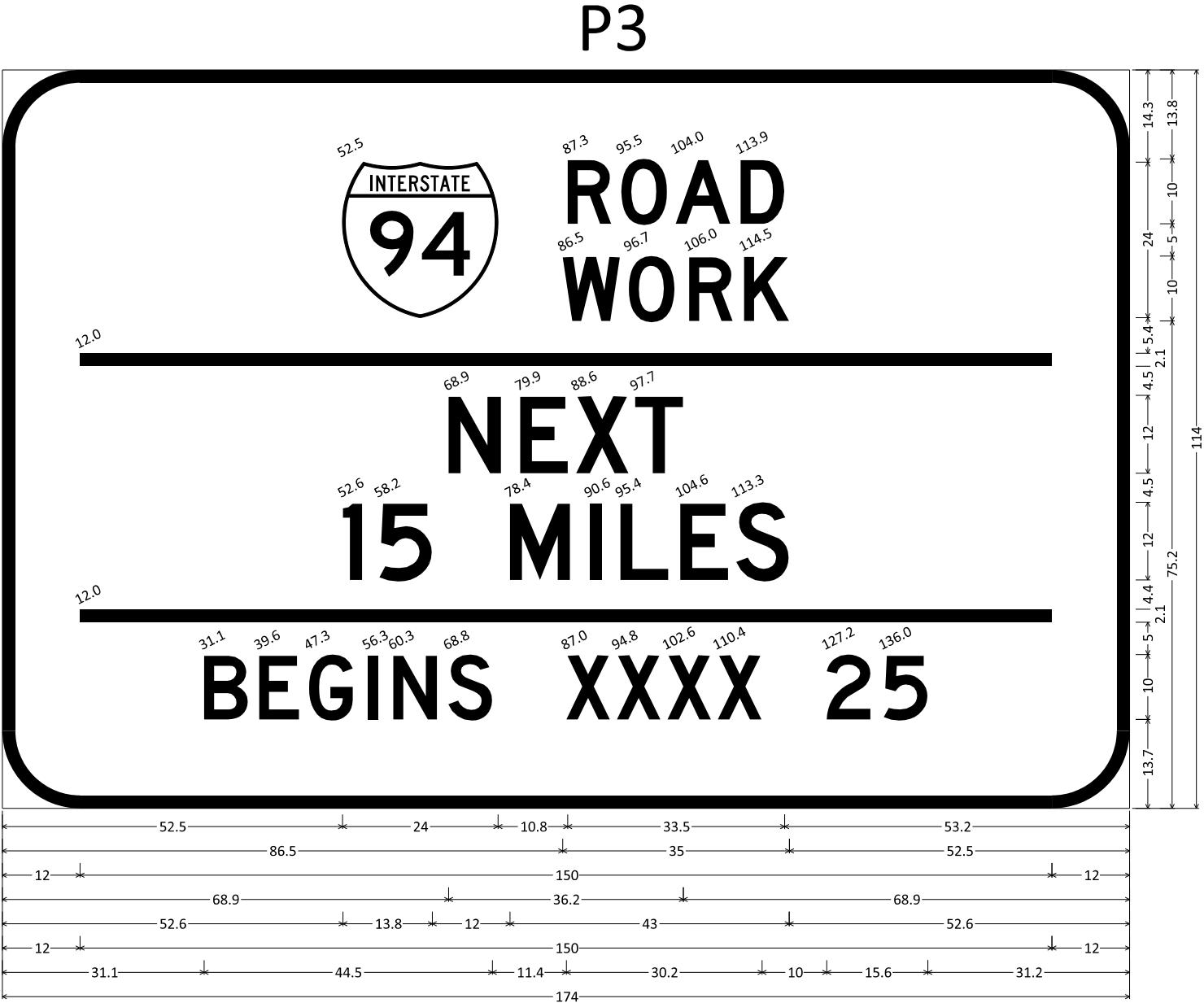
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PLOTTED/REVISED: 1-NOV-2024

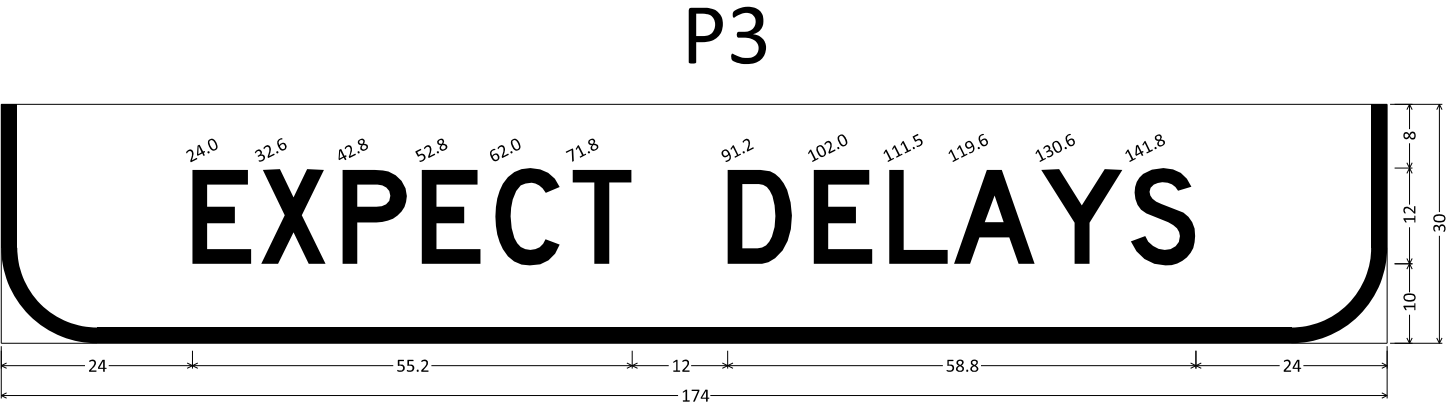


EXIT 97 1 MILE;  
3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;  
"EXIT 50", E Mod 2K; "1 MILE", E Mod 2K;

- NOTES:
- 1. ALL DIMENSIONS ARE IN INCHES.
  - 2. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR ARROW, FRACTION AND ROUTE MARKER DETAILS.
  - 3. DO NOT TRIM CORNERS OF THE SIGN PANEL EXTENDING BEYOND THE BORDER.



G20-X2(A).sgn;  
12.0" Radius, 2.0" Border, Black on Orange;  
Interstate 94 M1-1; "ROAD", D 2K; "WORK", D 2K; "NEXT", D 2K; "15 MILES", D 2K; "BEGINS", D 2K; "XXXX 25", D 2K;



EXPECT DELAYS;  
12.0" Radius, 2.0" Border, Black on Orange;  
"EXPECT DELAYS", D 2K;



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

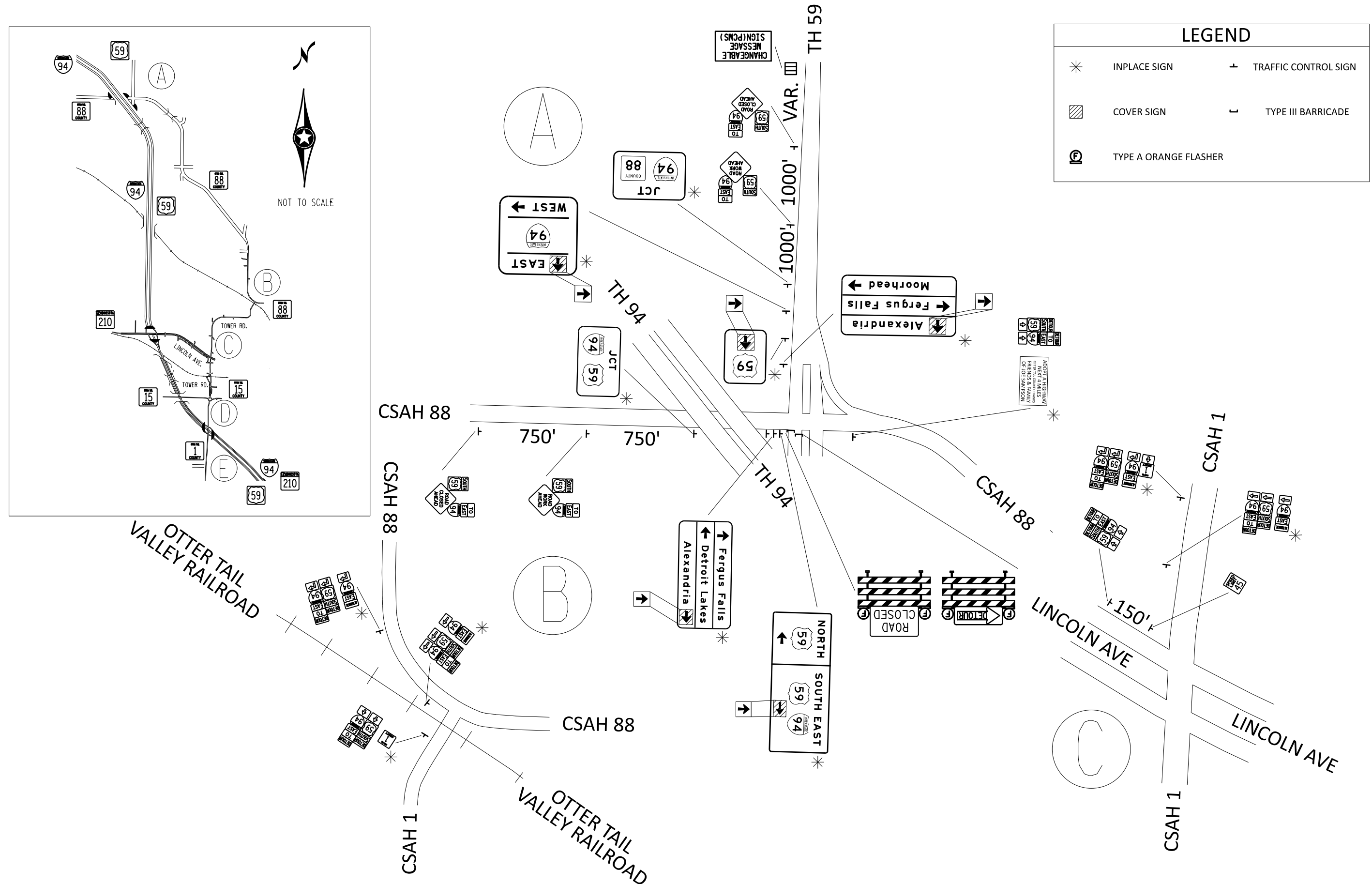
TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: NOVEMBER 1, 2024

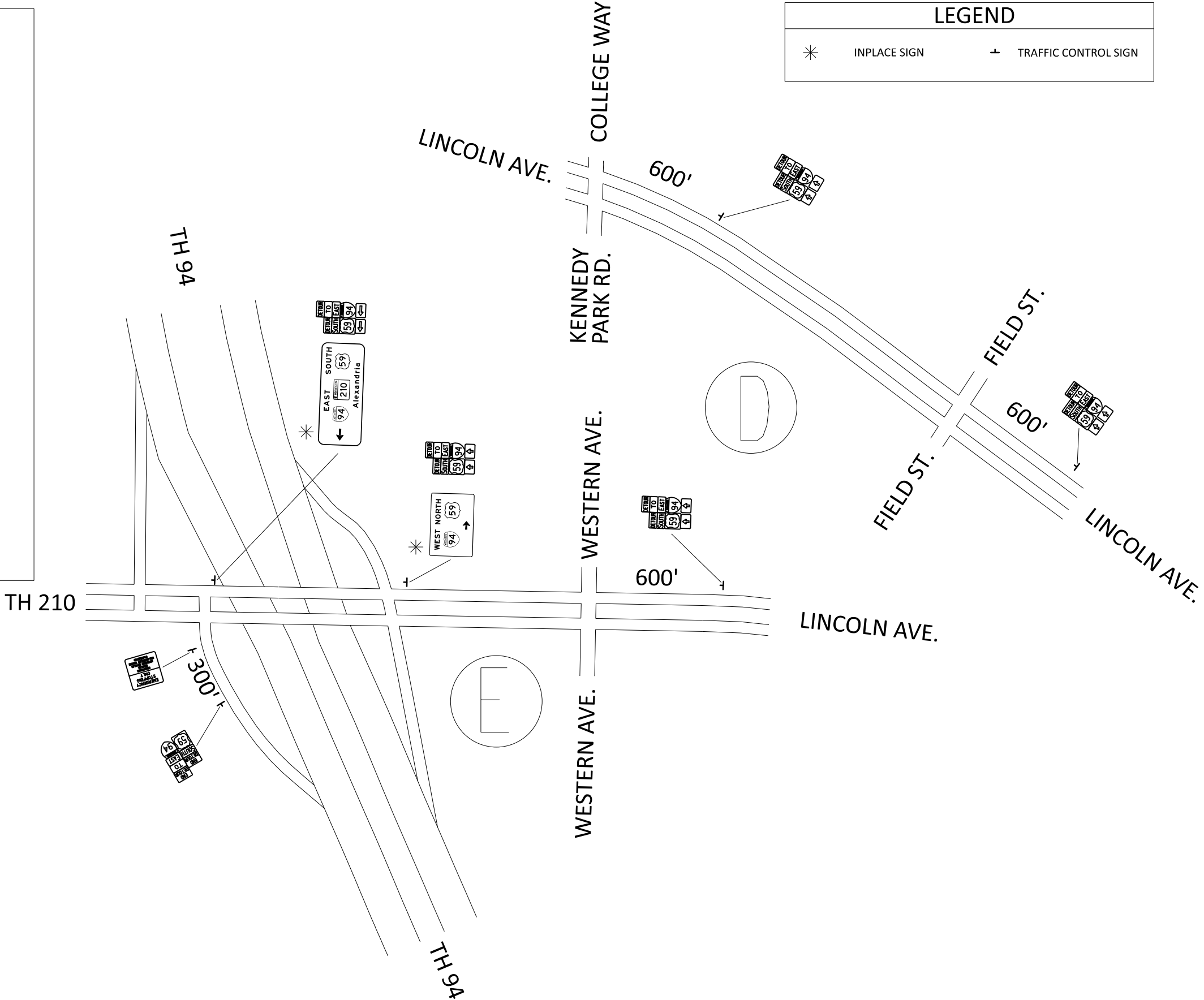
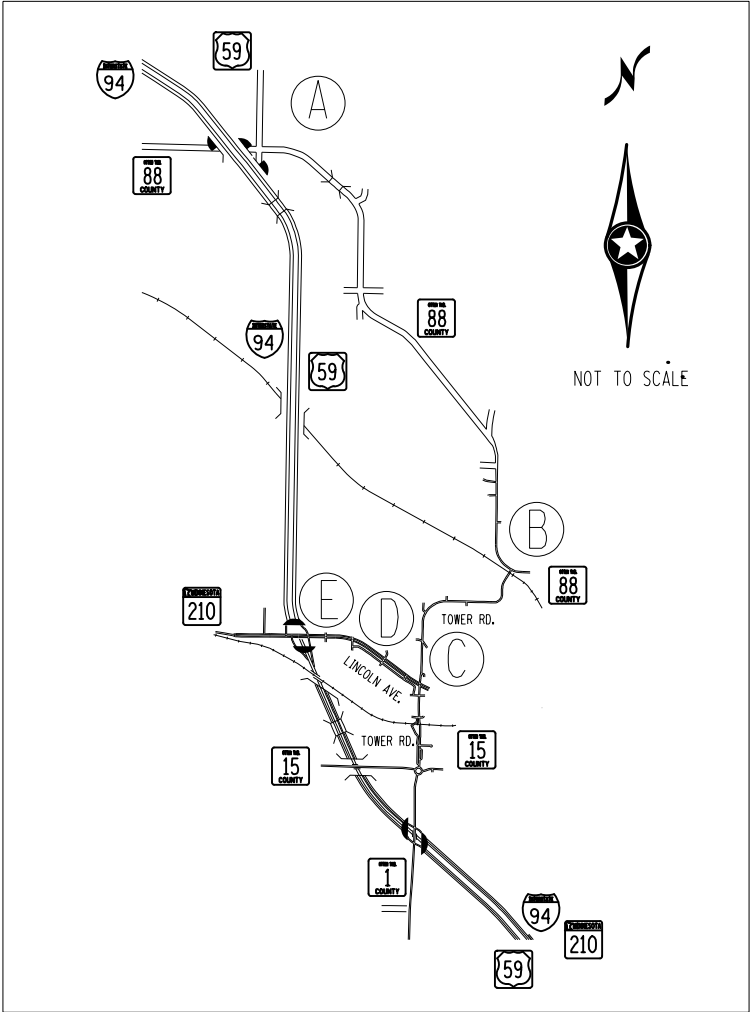
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TEMPORARY TRAFFIC CONTROL  
SPECIAL SIGN DETAILS

STATE PROJ. NO. 5680-147  
(T.H. 94)

SHEET NO. TC7  
TOTAL SHEETS TC22





LEGEND	
	INPLACE SIGN
	TRAFFIC CONTROL SIGN



*Trudy A. Kordosky*  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
DETOURS

STATE PROJ. NO. 5680-147

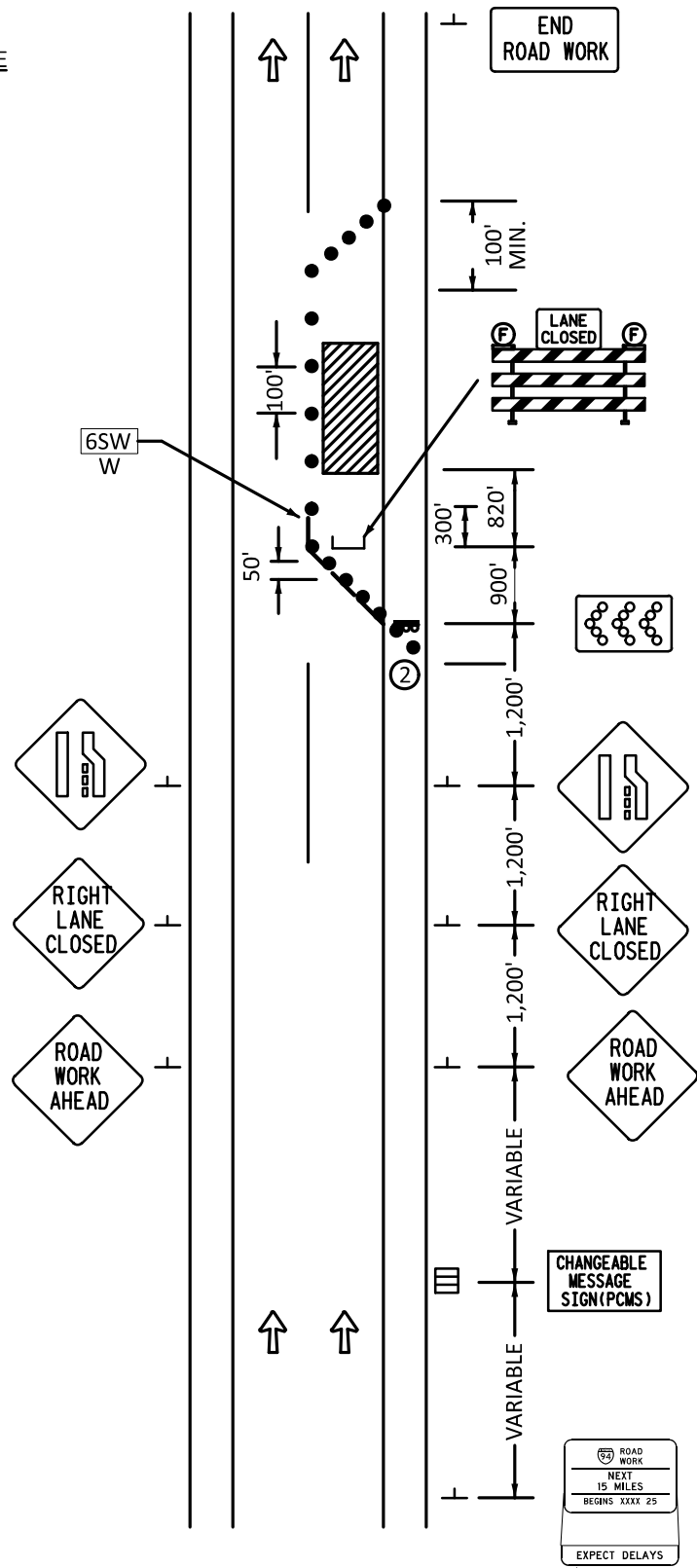
(T.H. 94)

SHEET NO. TC9

TOTAL SHEETS TC22



NOT TO SCALE



RIGHT LANE CLOSURE  
MULTI-LANE DIVIDED ROAD

GENERAL NOTES:

- FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
- SEE FIELD MANUAL LAYOUT #7 FOR PROPER SHOULDER DELINEATION FOR TRAILER MOUNTED TRAFFIC CONTROL DEVICES.
- ALL TEMPORARY PAVEMENT MARKINGS SHALL BE A WET REFLECTIVE MATERIAL.

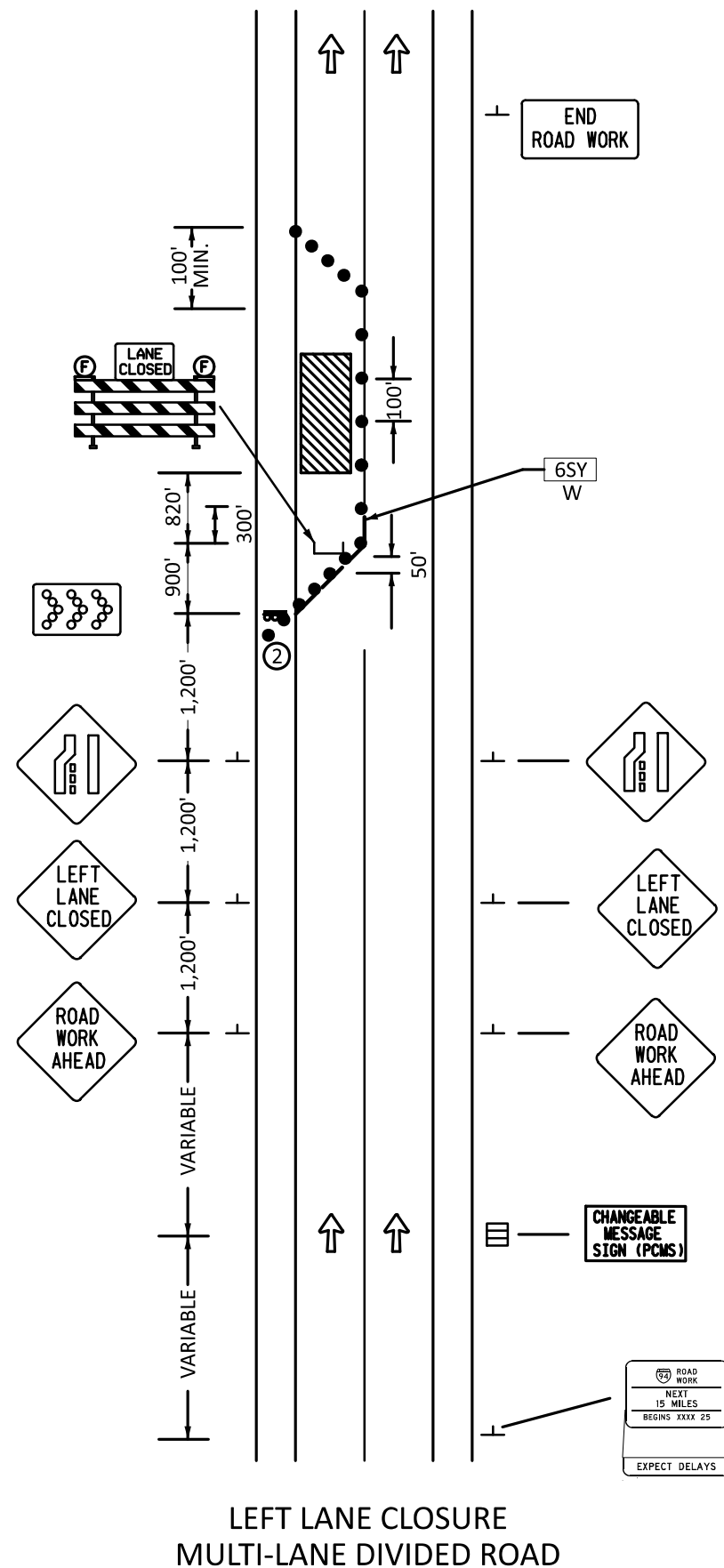
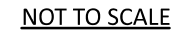
- = DRUMS
- +

 = SIGN
- ]

 = TYPE III BARRICADE
- = WORK AREA
- —

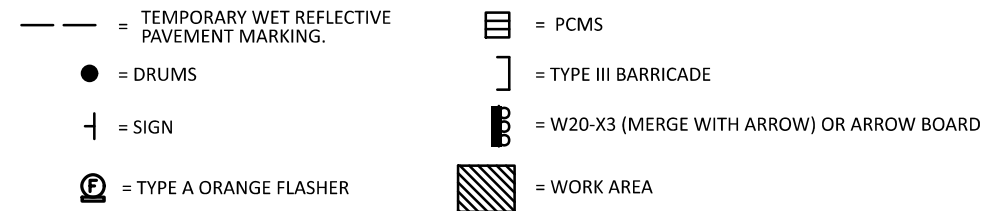
 = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.
- = W20-X3 (MERGE WITH ARROW) OR ARROW BOARD
- = TYPE A ORANGE FLASHER

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 30

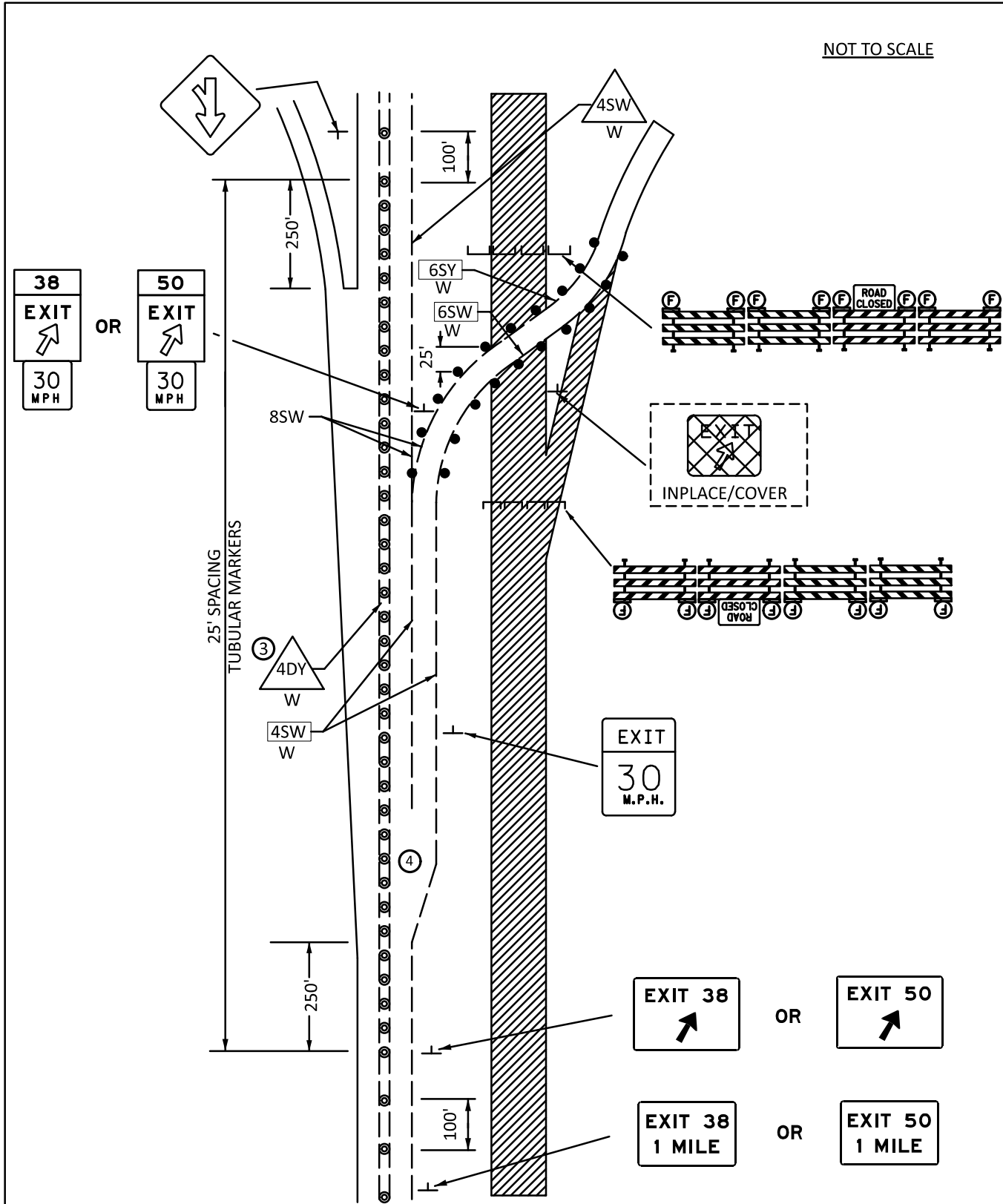


GENERAL NOTES:

1. FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
2. SEE FIELD MANUAL LAYOUT #7 FOR PROPER SHOULDER DELINEATION FOR TRAILER MOUNTED TRAFFIC CONTROL DEVICES.
3. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE A WET REFLECTIVE MATERIAL.



UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 31

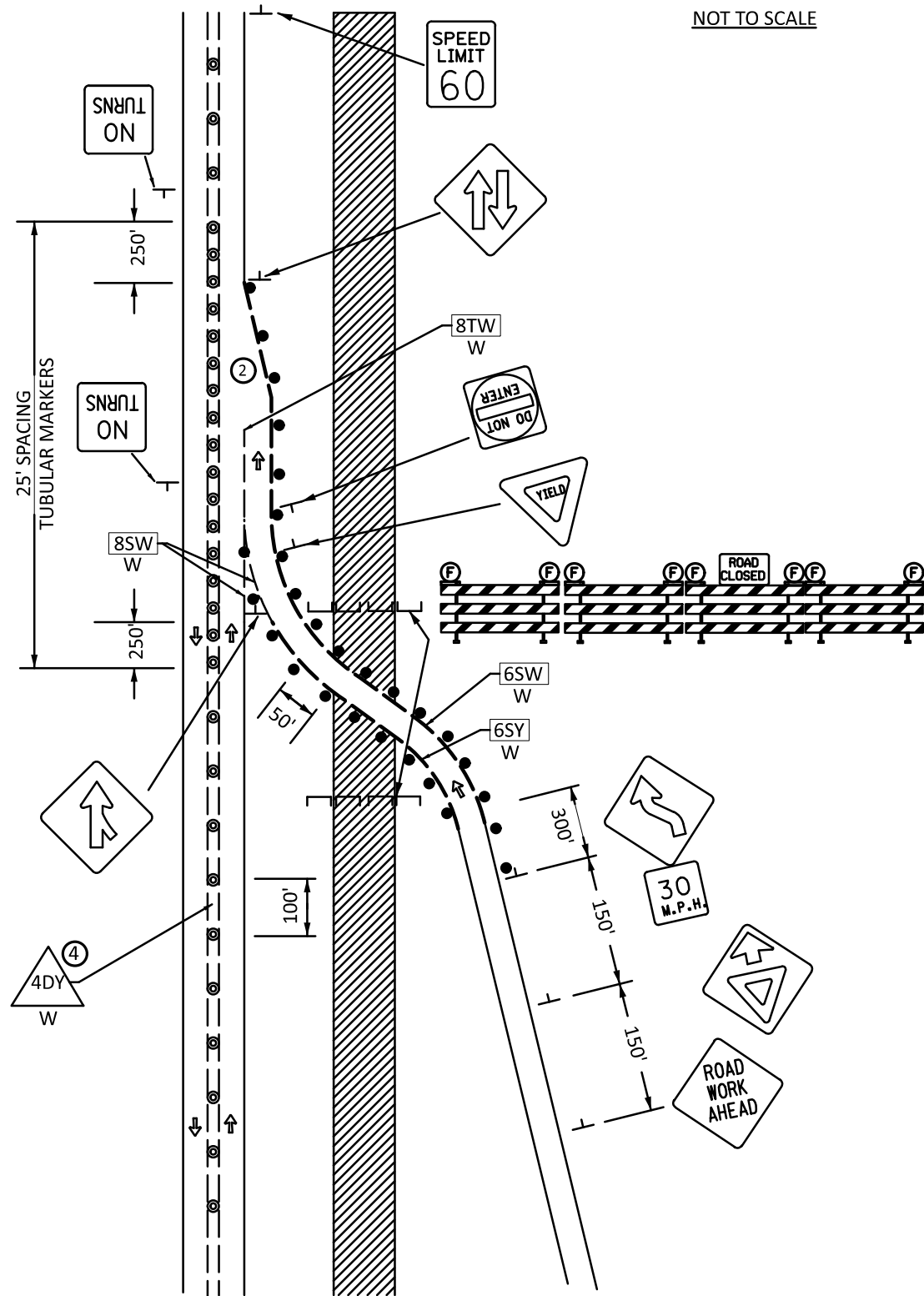


TWO-LANE, TWO-WAY OPERATIONS  
AT EXIT RAMP ACROSS CLOSED ROADWAY

GENERAL NOTES:

- FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN, SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
- ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.
- MAY SUBSTITUTE 4" DOUBLE SOLID YELLOW WITH TEMPORARY RAISED PAVEMENT MARKERS (2 DOUBLE SIDED TRPM'S SIDE BY SIDE 4" APART, AT 10' INTERVALS).
- MASK OR REMOVE CONFLICTING PAVEMENT MARKINGS.

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 36



NOT TO SCALE

GENERAL NOTES:

- FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
- MASK OR REMOVE CONFLICTING MARKINGS.
- ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.
- MAY SUBSTITUTE 4" DOUBLE SOLID YELLOW WITH TEMPORARY RAISED PAVEMENT MARKERS (2 DOUBLE SIDED TRPM'S SIDE BY SIDE 4" APART, AT 10' INTERVALS).

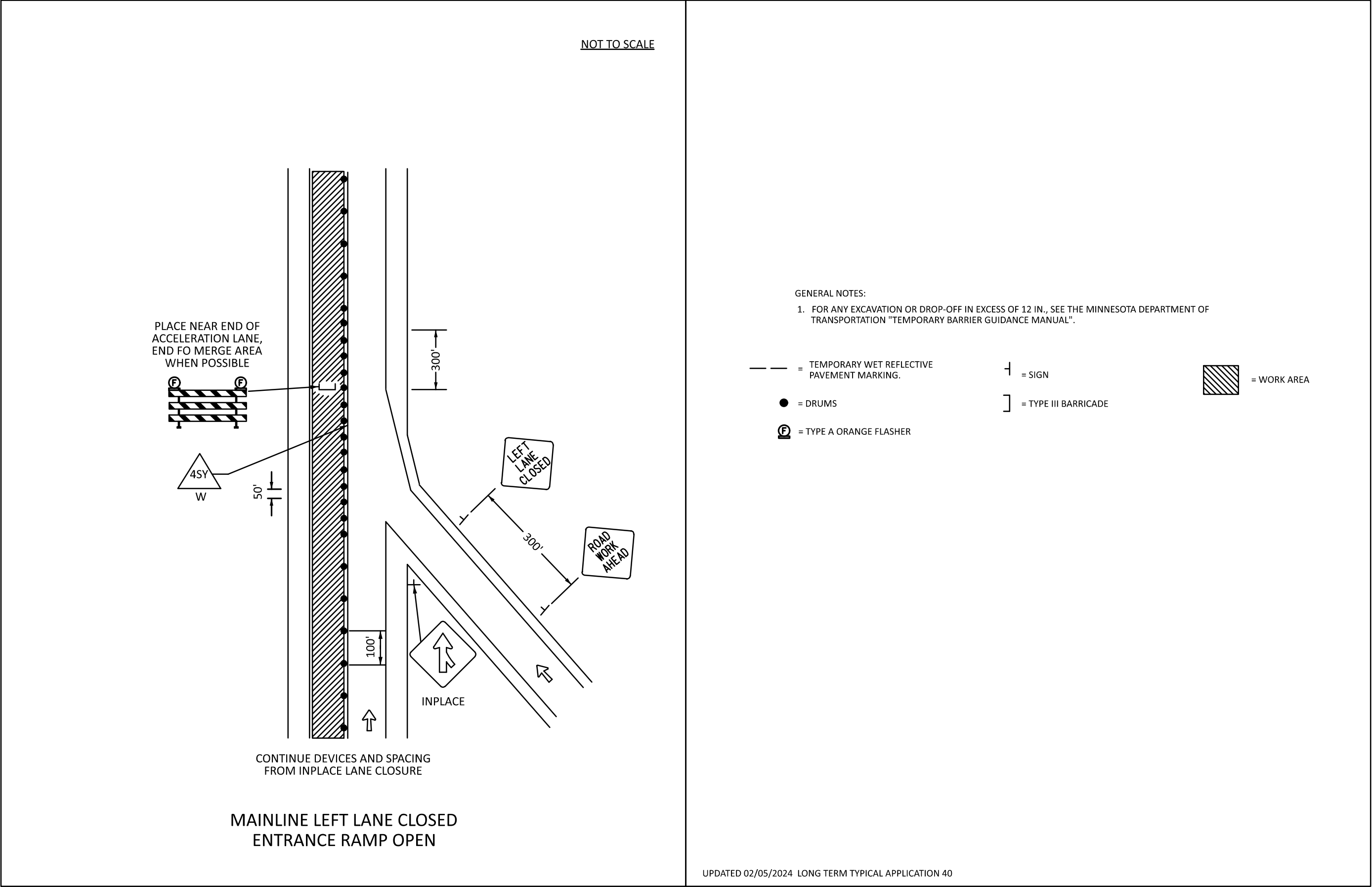
— = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.  
● = DRUMS  
⊙ = TUBULAR MARKER  
F = TYPE A ORANGE FLASHER

— = SIGN  
] = TYPE III BARRICADE

▨ = WORK AREA

TWO-LANE, TWO-WAY OPERATIONS AT  
ENTRANCE RAMP ACROSS CLOSED ROADWAY

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 37



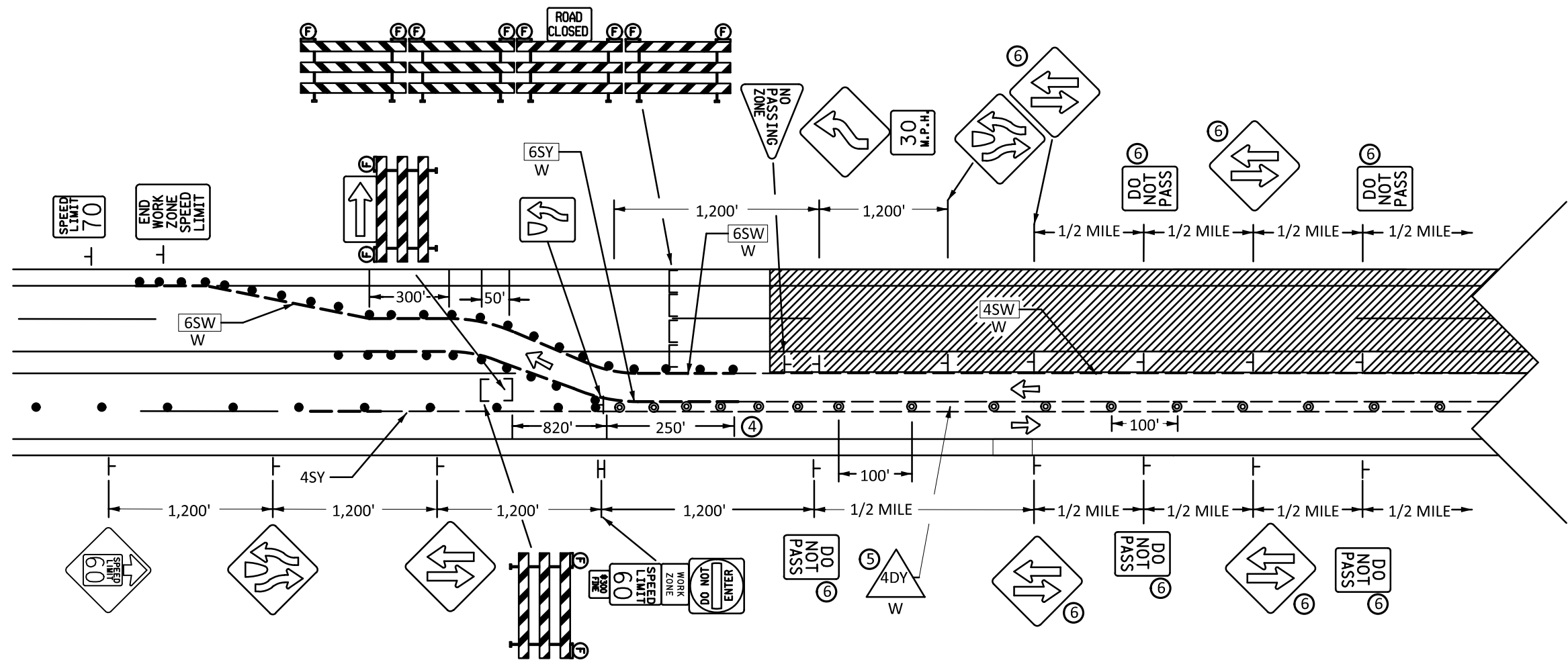
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PLOTTED/REVISED: 19-AUG-2024

NOT TO SCALE

GENERAL NOTES:

1. FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.
3. MASK OR REMOVE ALL CONFLICTING PAVEMENT MARKINGS. DETERMINE QUANTITY OF MARKINGS TO BE MASKED OR REMOVED FOR PAY ITEM QUANTITIES.
4. INSTALL TUBULAR MARKERS AT 25 FOOT SPACING FOR THE FIRST 250 FOOT DISTANCE FROM EACH CROSSOVER GORE.
5. MAY SUBSTITUTE 4" DOUBLE SOLID YELLOW WITH TEMPORARY RAISED PAVEMENT MARKERS (2 DOUBLE SIDED TRPM'S SIDE BY SIDE 4" APART, AT 10' INTERVALS).
6. ALTERNATE "TWO WAY TRAFFIC" AND "DO NOT PASS" ASSEMBLIES AT 1 MILE INTERVALS.

- = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.
- = DRUM
- ⊙ = TUBULAR MARKER
- ⊥ = SIGN
- H = BACK TO BACK MOUNTED SIGNS
- ] = TYPE III BARRICADE
- ▨ = WORK AREA
- F = TYPE A ORANGE FLASHER



TWO-LANE, TWO-WAY OPERATION  
ON ONE SIDE OF MULTI LANE DIVIDED ROAD  
SHEET 1 OF 3 (TH 59 SB RAMP CLOSED)

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 41a (1 of 4)



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
LONG TERM TYPICAL APPLICATIONS

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. TC15

TOTAL SHEETS TC22

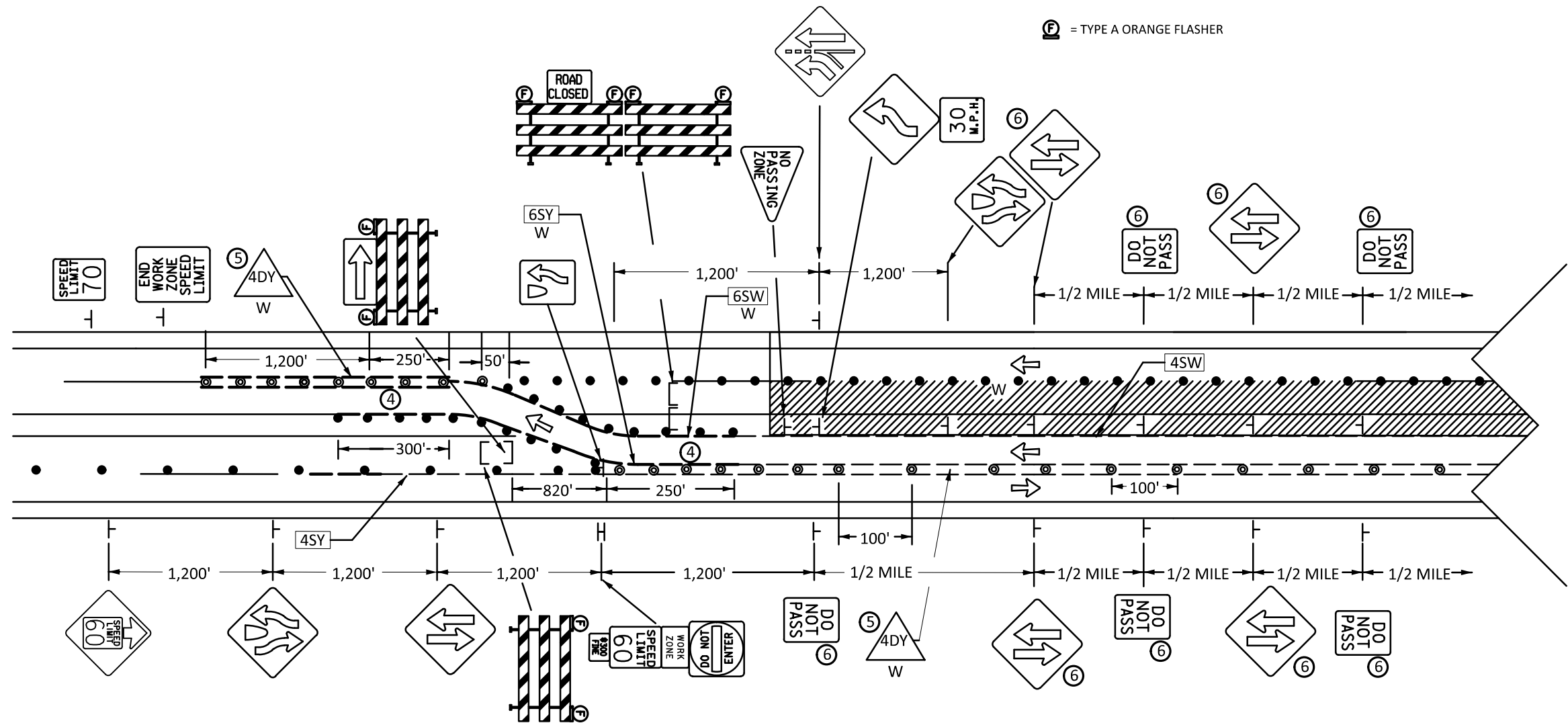
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19-AUG-2024  
PLOTTED/REVISED:

NOT TO SCALE

GENERAL NOTES:

1. FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.
3. MASK OR REMOVE ALL CONFLICTING PAVEMENT MARKINGS. DETERMINE QUANTITY OF MARKINGS TO BE MASKED OR REMOVED FOR PAY ITEM QUANTITIES.
- ④ INSTALL TUBULAR MARKERS AT 25 FOOT SPACING FOR THE FIRST 250 FOOT DISTANCE FROM EACH CROSSOVER GORE.
- ⑤ MAY SUBSTITUTE 4" DOUBLE SOLID YELLOW WITH TEMPORARY RAISED PAVEMENT MARKERS (2 DOUBLE SIDED TRPM'S SIDE BY SIDE 4" APART, AT 10' INTERVALS).
- ⑥ ALTERNATE "TWO WAY TRAFFIC" AND "DO NOT PASS" ASSEMBLIES AT 1 MILE INTERVALS.

- = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.
- = DRUM
- ⊙ = TUBULAR MARKER
- ⊥ = SIGN
- H = BACK TO BACK MOUNTED SIGNS
- ] = TYPE III BARRICADE
- ▨ = WORK AREA
- F = TYPE A ORANGE FLASHER



TWO-LANE, TWO-WAY OPERATION  
ON ONE SIDE OF MULTI LANE DIVIDED ROAD  
SHEET 2 OF 3 (TH 59 SB RAMP OPEN)

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 41a (1 of 4)



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
LONG TERM TYPICAL APPLICATIONS

STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. TC16

TOTAL SHEETS TC22



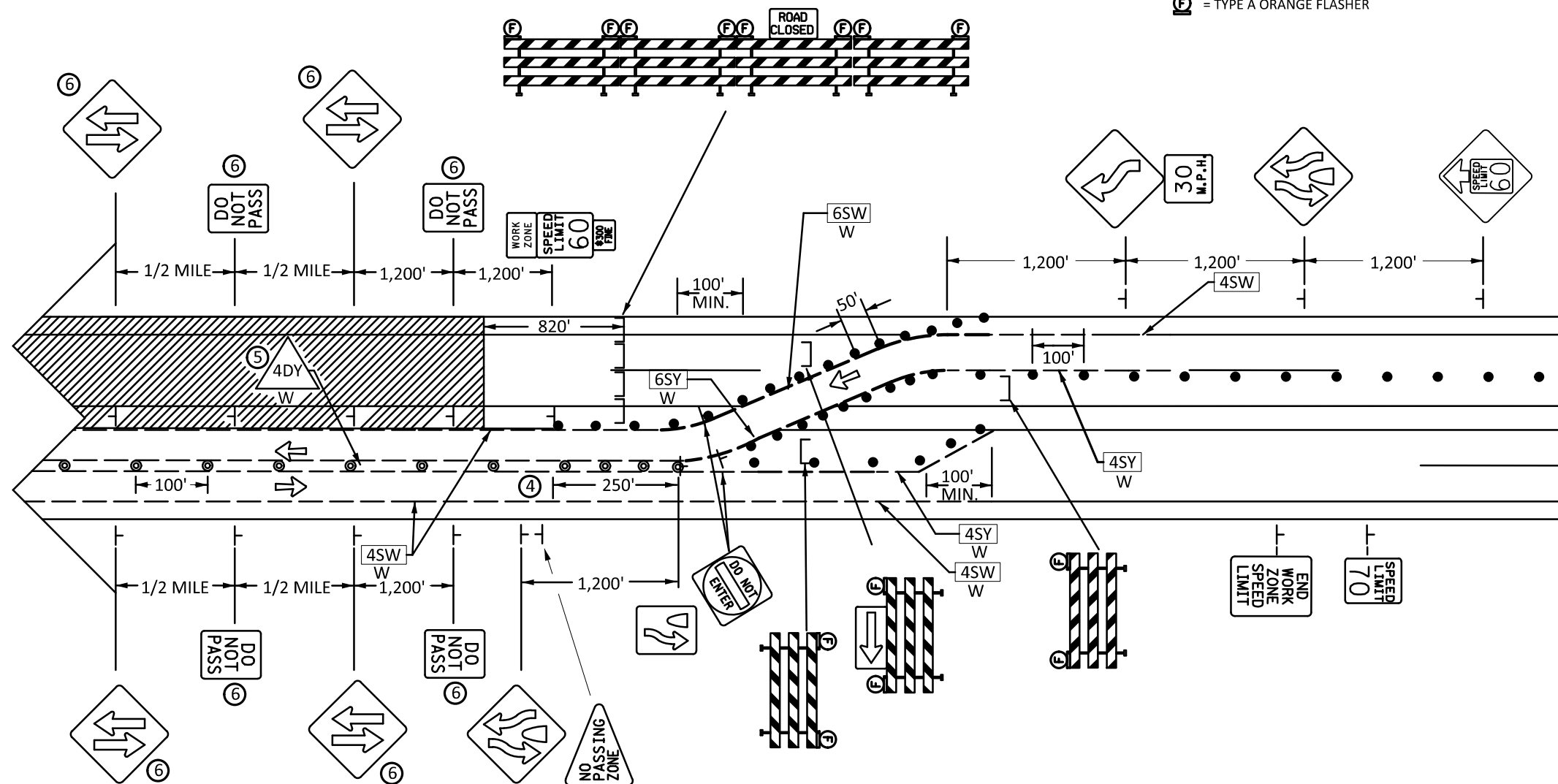
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14-NOV-2024  
PLOTTED/REVISED:

NOT TO SCALE

GENERAL NOTES:

1. FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.
3. MASK OR REMOVE ALL CONFLICTING PAVEMENT MARKINGS. DETERMINE QUANTITY OF MARKINGS TO BE MASKED OR REMOVED FOR PAY ITEM QUANTITIES.
4. INSTALL TUBULAR MARKERS AT 25 FOOT SPACING FOR THE FIRST 250 FOOT DISTANCE FROM EACH CROSSOVER GORE.
5. MAY SUBSTITUTE 4" DOUBLE SOLID YELLOW WITH TEMPORARY RAISED PAVEMENT MARKERS (2 DOUBLE SIDED TRPM'S SIDE BY SIDE 4" APART, AT 10' INTERVALS).
6. ALTERNATE "TWO WAY TRAFFIC" AND "DO NOT PASS" ASSEMBLIES AT 1 MILE INTERVALS.

- = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.
- = DRUM
- ⊙ = TUBULAR MARKER
- ⊥ = SIGN
- H = BACK TO BACK MOUNTED SIGNS
- ] = TYPE III BARRICADE
- ▨ = WORK AREA
- F = TYPE A ORANGE FLASHER



TWO-LANE, TWO-WAY OPERATION  
ON ONE SIDE OF MULTI LANE DIVIDED ROAD  
SHEET 3 OF 3

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 41c (3 of 4)



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: NOVEMBER 14, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
LONG TERM TYPICAL APPLICATIONS

STATE PROJ. NO. 5680-147

SHEET NO. TC17

(T.H. 94)

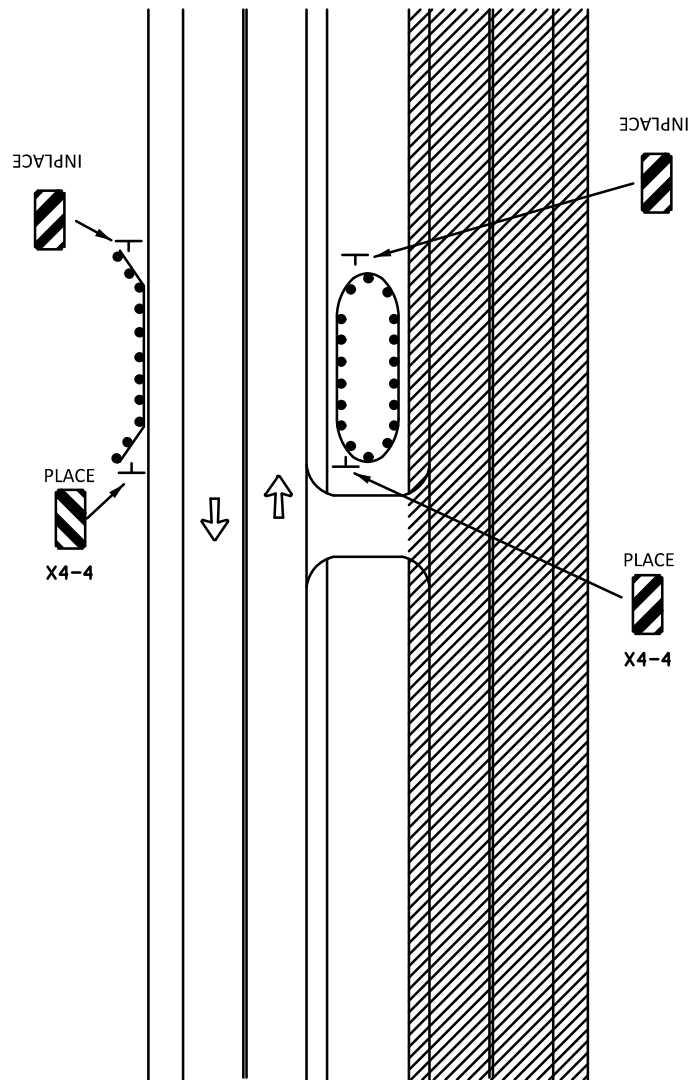
TOTAL SHEETS TC22



DISTRICT #: 6  
PLOT NAME: t5680147\_tc.dgn  
PATH & FILENAME: Projects\094\5680\147\Traffic\TrafficControl\WorkZone\5680147\_tc.dgn  
PLOTTED/REVISED: 19-AUG-2024

NOT TO SCALE

⊥ = SIGN  
▨ = WORK AREA



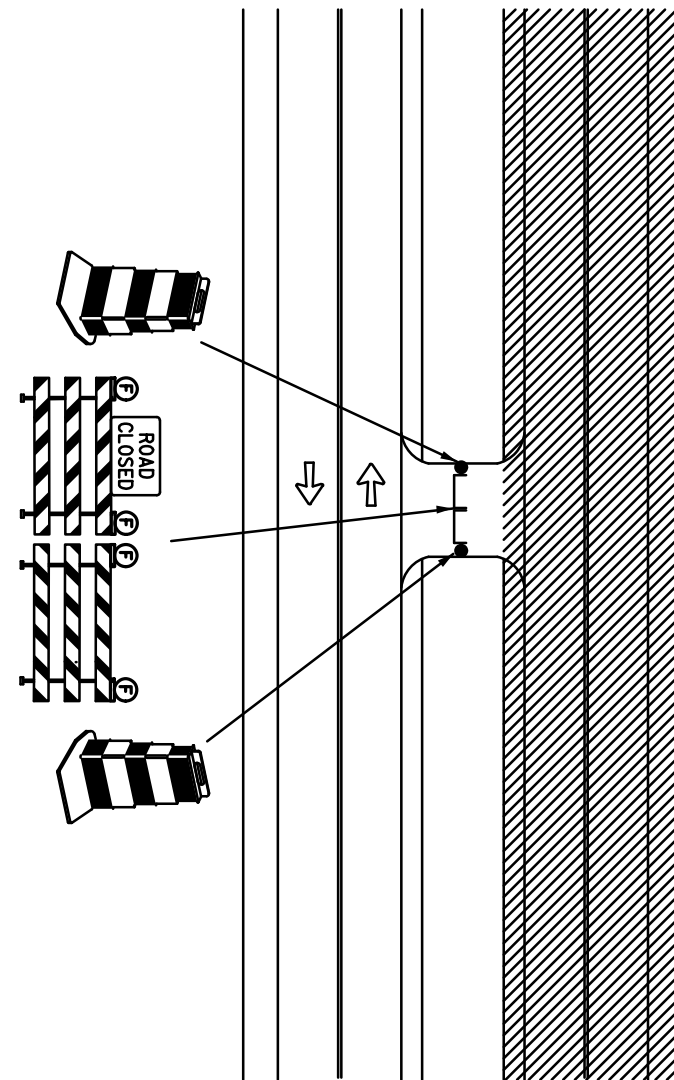
INSTALL OBJECT MARKERS AT OBSTACLES IN THE  
OPPOSITE DIRECTION OF NORMAL USAGE

### OBJECT MARKER PLACEMENT TWO-LANE, TWO-WAY OPERATION

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 44

NOT TO SCALE

⊥ = SIGN  
] = TYPE III BARRICADE  
▨ = WORK AREA  
Ⓢ = TYPE A ORANGE FLASHER



### EMERGENCY CROSSOVER CLOSURE

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 44



*Trudy A. Kordosky*  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

I HEREBY CERTIFY THAT THIS PLAN SHEET WAS PREPARED BY ME OR  
UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF  
MINNESOTA.

TEMPORARY TRAFFIC CONTROL  
LONG TERM TYPICAL APPLICATIONS

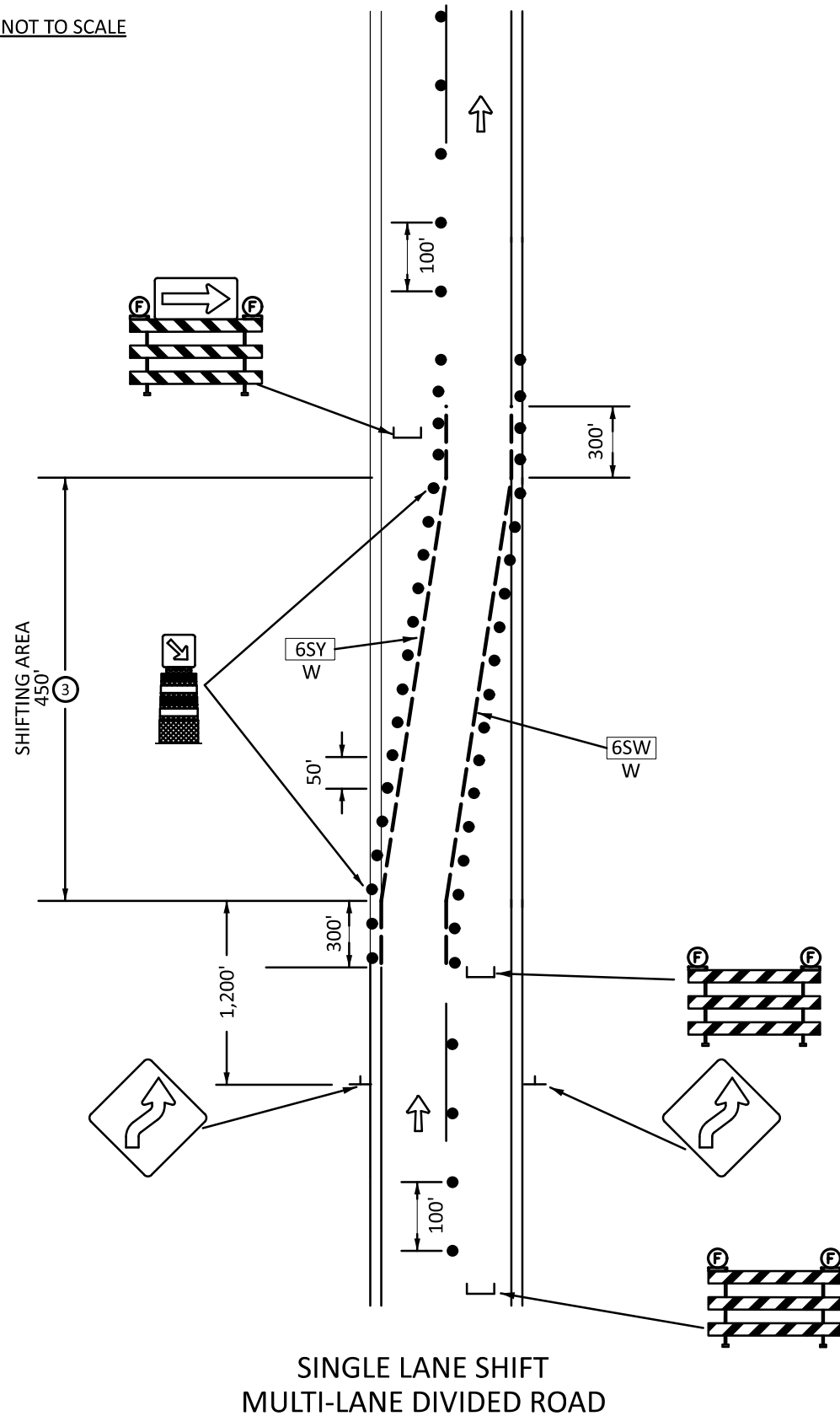
STATE PROJ. NO. 5680-147

SHEET NO. TC18

(T.H. 94)

TOTAL SHEETS TC22

NOT TO SCALE



SINGLE LANE SHIFT  
MULTI-LANE DIVIDED ROAD

GENERAL NOTES:

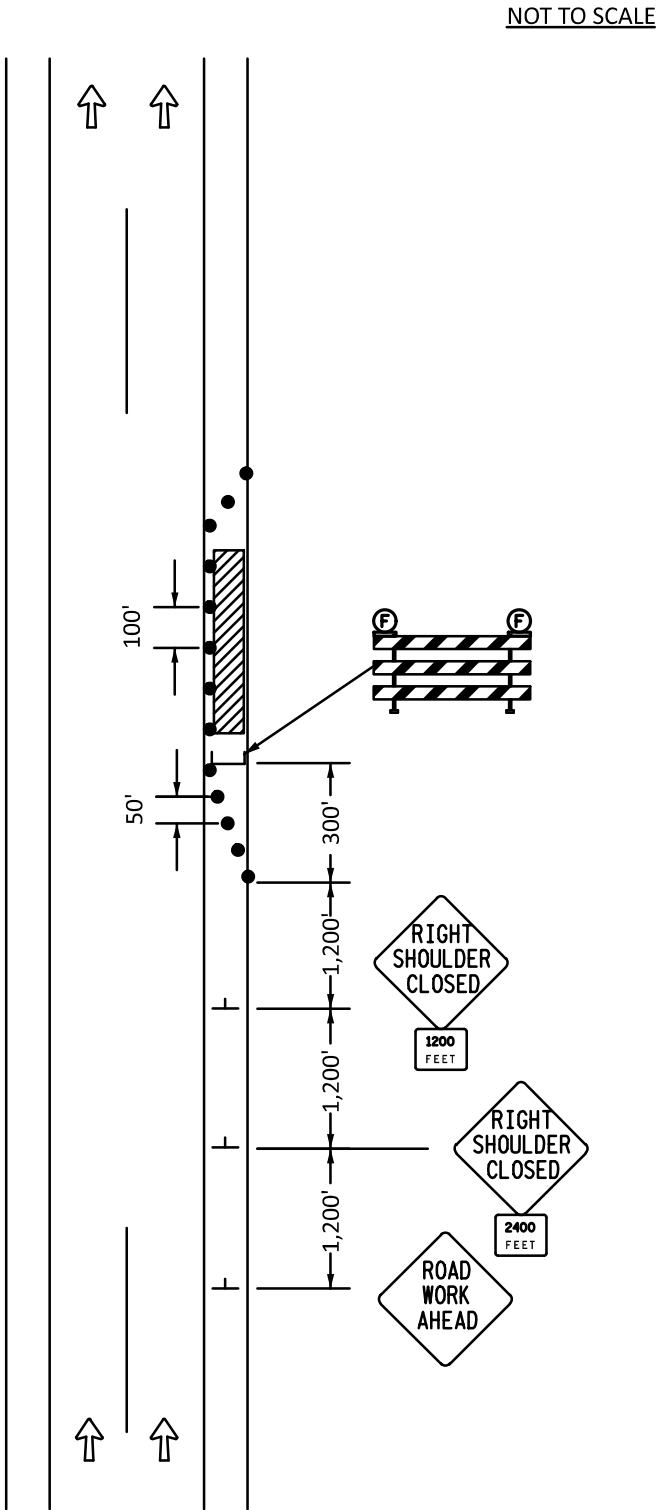
- FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
- ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE MATERIAL.

③ MASK OR REMOVE CONFLICTING PAVEMENT MARKINGS.

- = TEMPORARY WET REFLECTIVE PAVEMENT MARKING.
- = DRUM
- ⊥ = SIGN
- ] = TYPE III BARRICADE
- ⓕ = TYPE A ORANGE FLASHER

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 50

FREEWAY/EXPRESSWAY SHOULDER/PARKING LANE CLOSURE



- GENERAL NOTES:
- FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
  - MIRROR THIS LAYOUT FOR A LEFT SHOULDER CLOSURE ON A ONE WAY ROAD WITH THE APPROPRIATE SIGNING.
  - FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".
- Legend:
- [ ] = TYPE III BARRICADE
  - + = SIGN
  - F = TYPE A ORANGE FLASHER
  - = DRUM
  - [Hatched] = WORK AREA

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 52

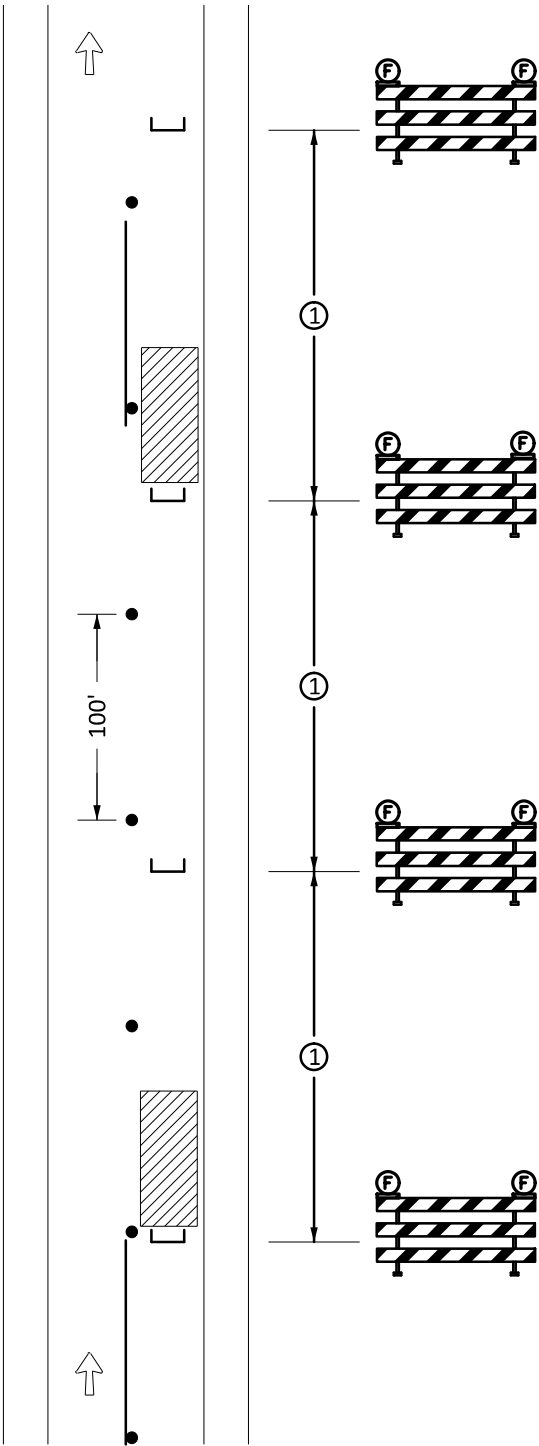
DISTRICT #: 6

PLOT NAME: t5680147\_tc.dgn

PATH & FILENAME: Projects\04\_D\094\5680\147\Traffic\TrafficControl\WorkZone\5680147\_tc.dgn

PLOTTED/REVISED: 19-AUG-2024





NOT TO SCALE



LANE CLOSURE EXTENSION  
MULTI-LANE DIVIDED ROAD  
LONG TERM

GENERAL NOTES:

1. INSTALL A TYPE III BARRICADE AT THE BEGINNING OF EACH WORK SPACE AND AT INTERVALS FROM 500 FEET MINIMUM TO 1000 FEET MAXIMUM WITHIN THE CLOSED LANE.
2. FOR ANY EXCAVATION OR DROP-OFF IN EXCESS OF 12 IN., SEE THE MINNESOTA DEPARTMENT OF TRANSPORTATION "TEMPORARY BARRIER GUIDANCE MANUAL".

-  = DRUM
-  = TYPE III BARRICADE
-  = WORK AREA
-  = TYPE A ORANGE FLASHER

UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 58



*Trudy A. Kordosky*  
\_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER

TRUDY KORDOSKY  
LIC. NO. 41268  
DATE: AUGUST 19, 2024

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TEMPORARY TRAFFIC CONTROL  
LONG TERM TYPICAL APPLICATIONS

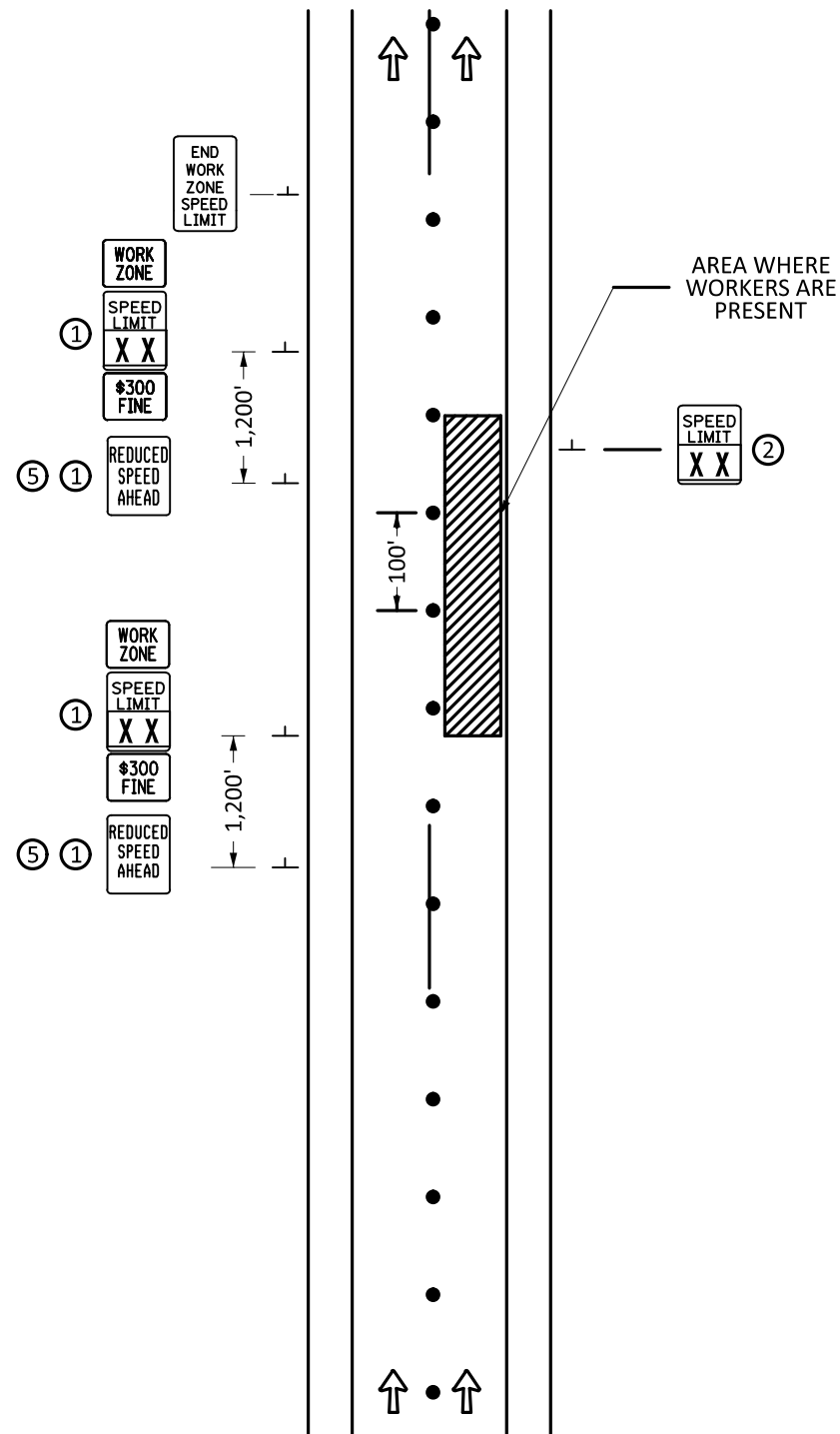
STATE PROJ. NO. 5680-147

(T.H. 94)

SHEET NO. TC21

TOTAL SHEETS TC22

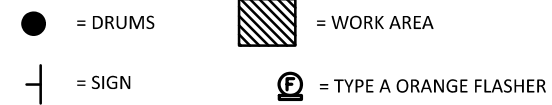
NOT TO SCALE



ELECTRONIC WORKERS PRESENT  
SPEED LIMIT

GENERAL NOTES:

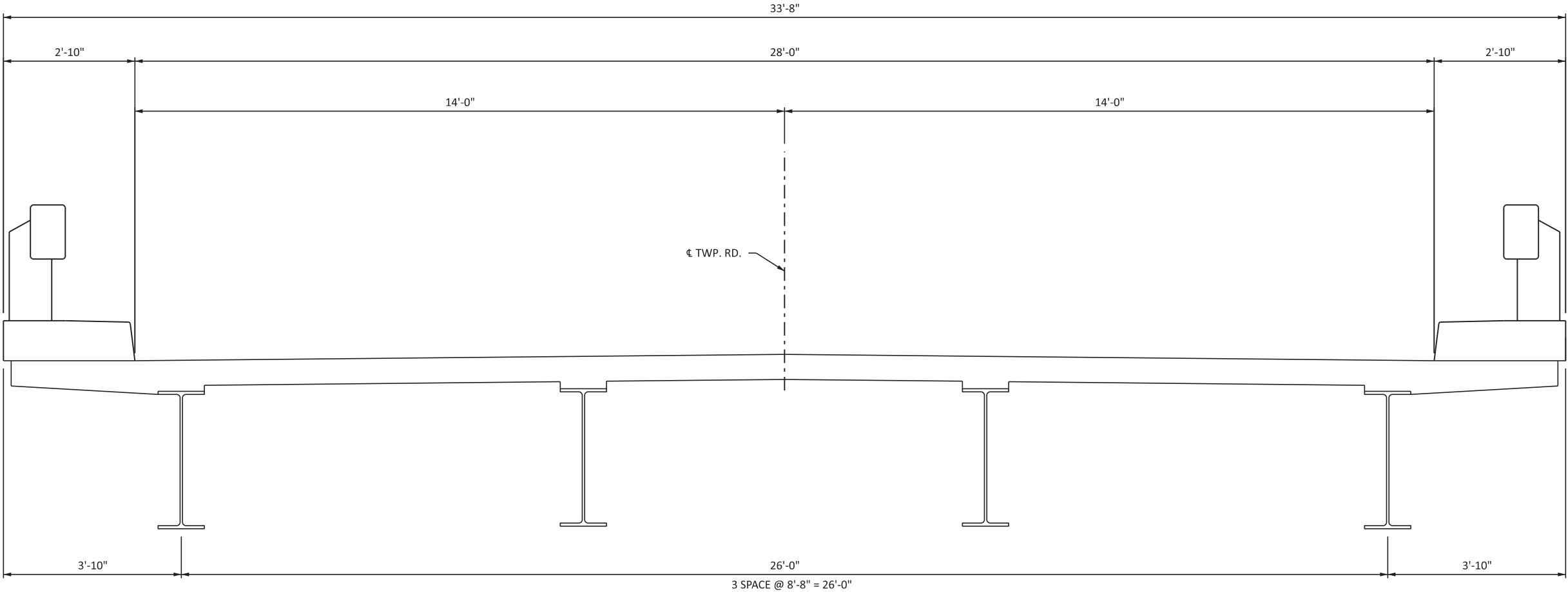
1. ELECTRONIC SIGN.
2. ALL INPLACE SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED WHEN THE WORKERS PRESENT SPEED LIMIT IS IMPLEMENTED.
3. ELECTRONIC WORKERS PRESENT SPEED LIMIT ASSEMBLIES SHALL BE PLACED THROUGH THE LENGTH OF THE ACTIVITY AREA NO GREATER THAN 1 MILE APART.
4. EACH ELECTRONIC WORKERS PRESENT SPEED LIMIT ASSEMBLY SHALL DISPLAY THE WPSL WHEN WORKERS ARE PRESENT DIRECTLY ADJACENT TO TRAVELED LANES IN THE SEGMENT BEYOND THE ASSEMBLY. WHEN WORKERS ARE NOT PRESENT, THE INPLACE SPEED LIMIT SHALL BE DISPLAYED.
5. AN ELECTRONIC REDUCED SPEED AHEAD SIGN (MAY BE ELECTRONIC OR FLIP BOARD) SHOULD BE USED WHEN THE WORKERS PRESENT SPEED LIMIT IS MORE THAN 10 MPH BELOW THE INPLACE SPEED LIMIT. THAN 10 MPH BELOW THE INPLACE SPEED LIMIT.



UPDATED 02/05/2024 LONG TERM TYPICAL APPLICATION 78



TIME : 1/24/2024 12:43:09 PM  
PLOTTED : 10/3/2024  
PATH & FILENAME: c:\project\wise\pw\_working\ad\_sprelsco\ad2584764\Br 56805\_rep.dgn



TRANSVERSE SECTION

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE			
ITEM NO.	ITEM	UNIT	QUANTITY
2104.502	REMOVE MISCELLANEOUS STRUCTURES	EACH	2
2401.507	STRUCTURAL CONCRETE (3B52)	CU. YD.	97 (P)
① 2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	6850 (P)
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2401.618	SPECIAL SURFACE FINISH (INPLACE)	SQ. FT.	1260
② 2433.502	ANCH TYPE REINF BARS (TYPE H)	EACH	128
2433.618	RECONSTRUCT CONCRETE SLOPE PAVING	SQ. FT.	750

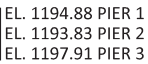
NOTES:

- ① DOES NOT INCLUDE P701 & P702 ANCHORAGES. ANCHORAGES INCLUDED IN ITEM "ANCH TYPE REINF BARS (TYPE H)".
- ② REINFORCEMENT BARS PLUS DRILLING AND INSTALLING IN ITEM "ANCH TYPE REINF BARS (TYPE H)".

PATH & FILENAME: c:\projectwise\pw\_working\ad\_sprelsco\ad2584764\Br56805\_rep.dgn



### PIER STRUT ELEVATION (REMOVAL)



### PIER STRUT ELEVATION (RECONSTRUCT)



### PIER STRUT PLAN (REMOVAL)



### PIER STRUT PLAN (RECONSTRUCT)

NOTES:

APPLY SPECIAL SURFACE FINISH TO IN PLACE PIER COLUMNS AND ALL VERTICAL FACES AND BOTTOM FACE OF THE PIER CAP. INCLUDED IN ITEM" SPECIAL SURFACE FINISH (INPLACE)".

 DENOTES REMOVAL OF INPLACE PIER 1 AND PIER 3 STRUT.

①

Digitally signed by Cory Stuber  
Date: 2024.10.03 15:25:26-05'00'

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UNSED PROFESSIONAL ENGINEER DATE  
R LIC. NO.: 47534

TITLE:	
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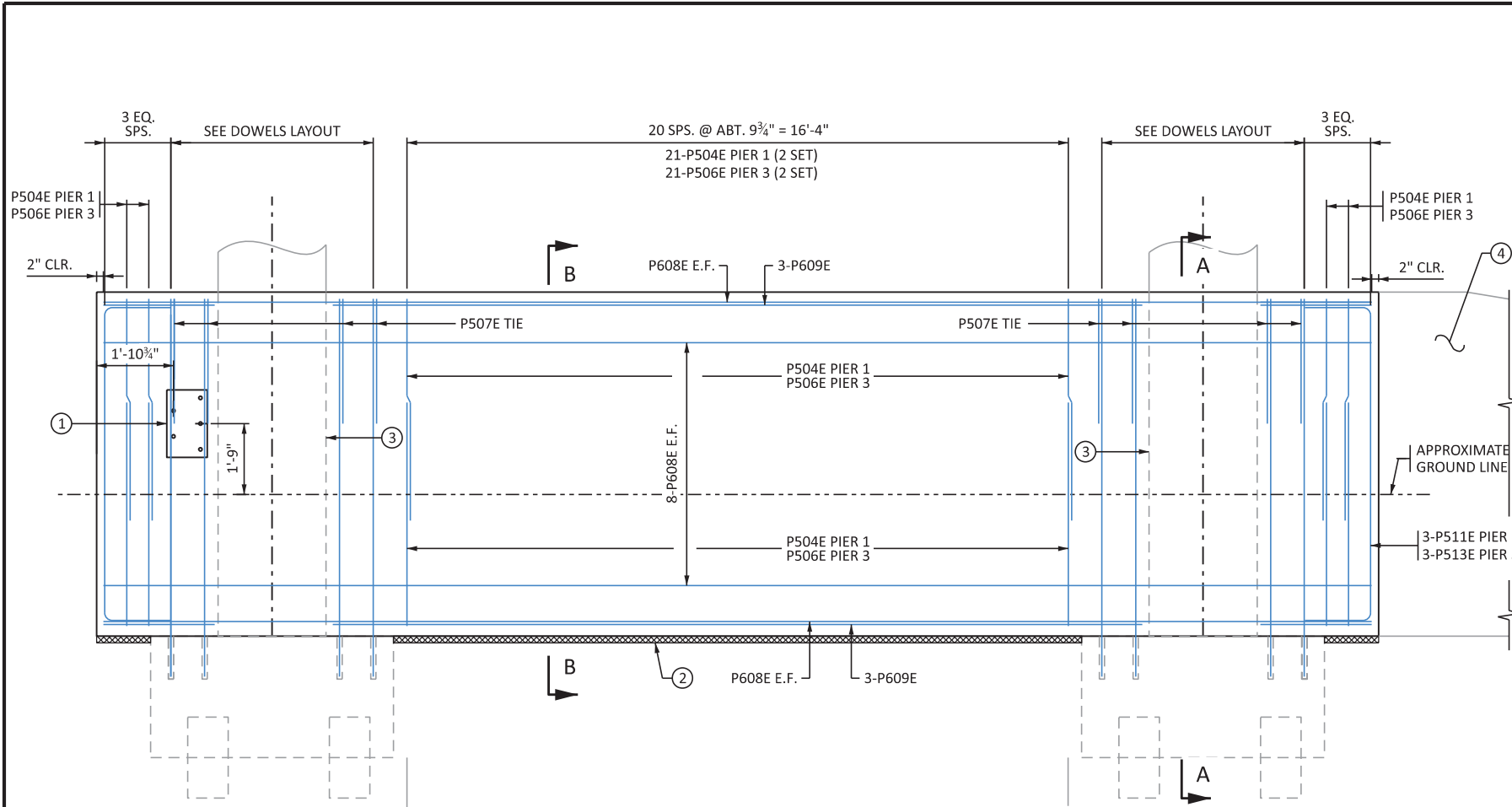
## PIER STRUT DETAILS

DES: CRS	DR: BTN	APPROVED: 10/4/2024	BRIDGE NO. 56805
CHK: JJH	CHK: CRS		
SHEET NO. 3 OF 7 SHEETS			

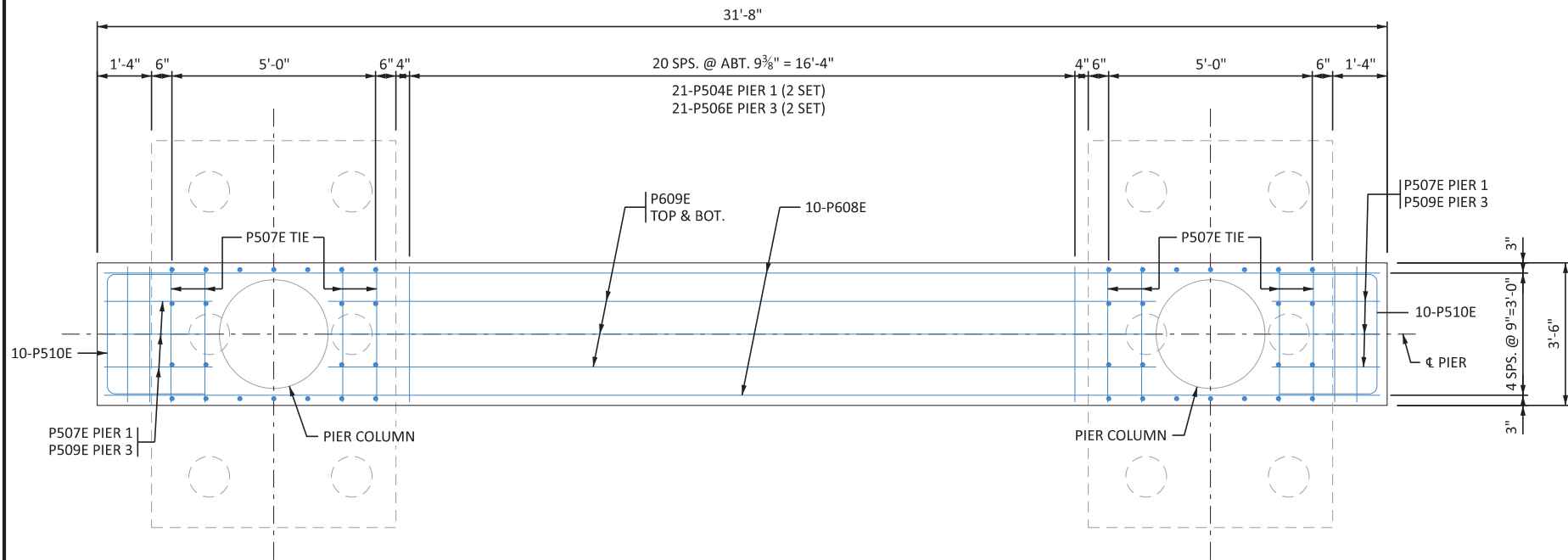
BRIDGE NO.  
56805



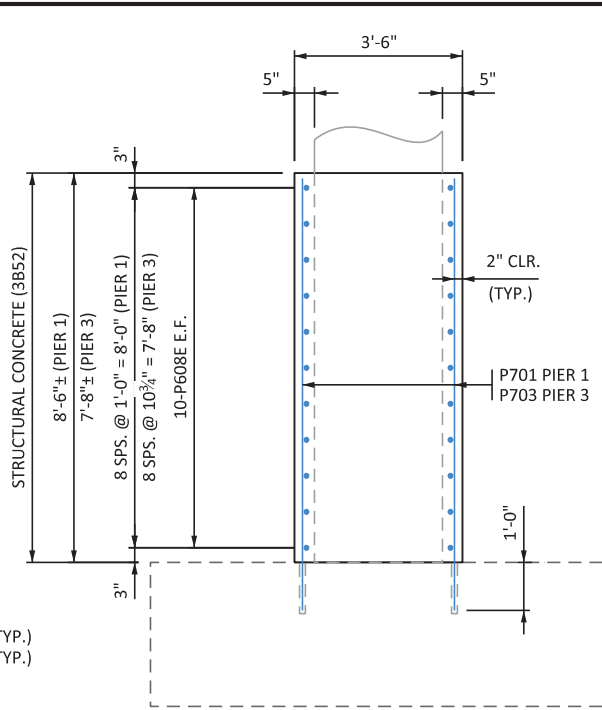
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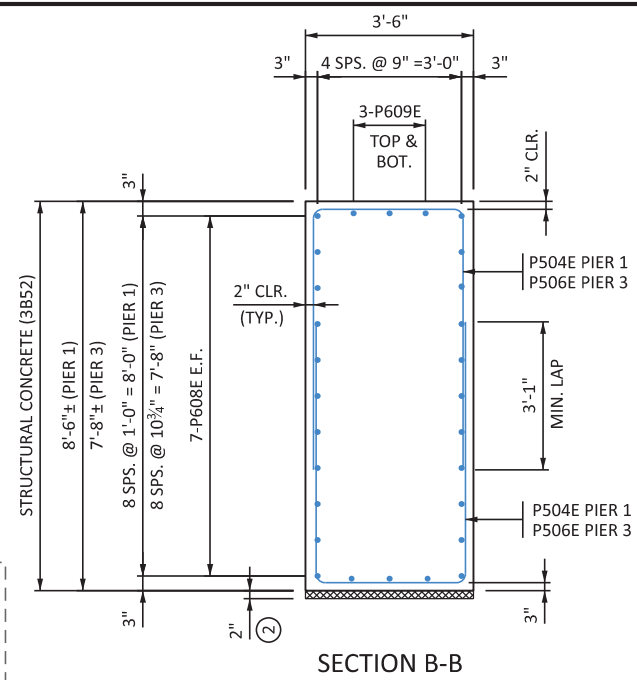
PIER STRUT PLAN ELEVATION  
PIER 1 AND PIER 3



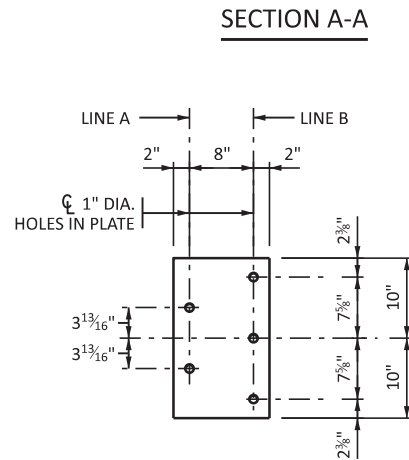
PIER STRUT PLAN VIEW  
PIER 1 AND PIER 3



SECTION A-A

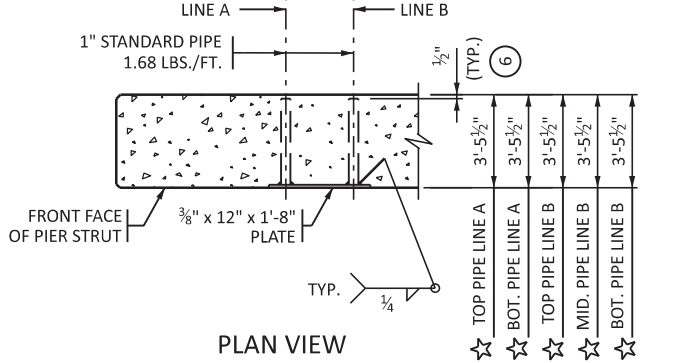


SECTION B-B



GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER SPEC. 3394  
ESTIMATED WEIGHT = 34 LBS.



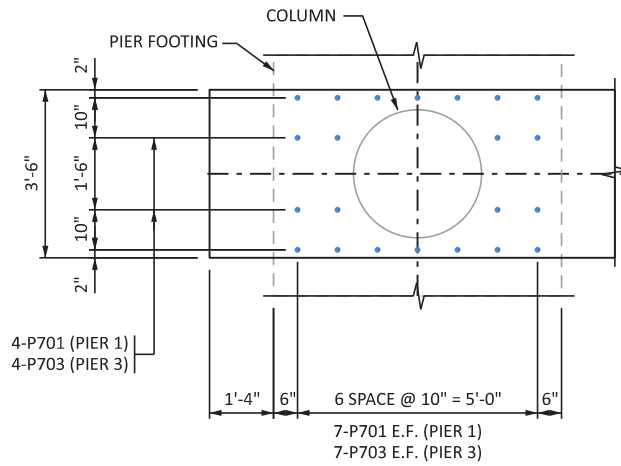
(REINFORCEMENT NOT SHOWN)  
TRIM GUARDRAIL BOLTS SUCH THAT  
NO MORE THAN 1 1/2" PROTRUDES  
FROM BACK FACE OF BARRIER.  
☆ DIMENSIONS INCLUDE 3/8" PLATE

NOTES:

GUARDRAIL CONNECTION TO BE STRUCTURAL  
STEEL IN ACCORDANCE WITH SPEC. 3306.

GUARDRAIL CONNECTION TO BE CONSIDERED  
INCIDENTAL TO PIER STRUT.

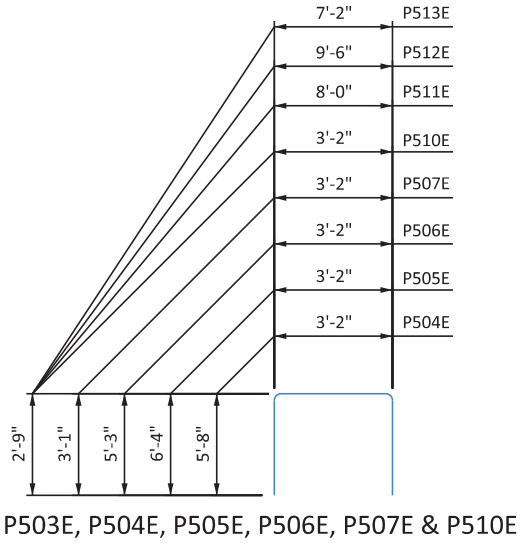
- GUARDRAIL CONNECTION AT THE SOUTH END OF  
PIER 1 AND NORTH END OF PIER 3 ONLY.
- 2" THICK POLYSTYRENE TYPE B INCLUDED IN PAYMENT  
FOR ITEM "STRUCTURAL CONCRETE (3B52)".  
POLYSTYRENE TO COVER FULL WIDTH OF THE PIER  
STRUT UNDERSIDE.
- CLEAN COLUMN SURFACE AND REMOVE SALT WITH  
POWER WASH PRIOR TO PLACING REINFORCEMENT.  
INCLUDED IN ITEM "STRUCTURAL CONCRETE (3B52).
- PIER STRUT TRANSITION AT THE NORTH END OF  
PIER 1 AND SOUTH END OF PIER 3 ONLY.  
SEE GRADING PLANS FOR DETAILS.
- SEE SHEET NO. 5 FOR ANCHORAGE DETAIL.
- REMOVE CONCRETE FROM PIPE ENDS AFTER  
SLIPFORMING OR FORM REMOVAL.



DOWEL LAYOUT

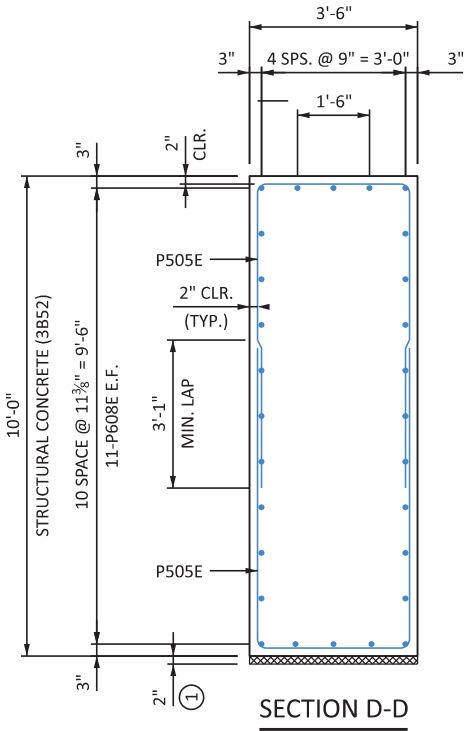
REV. NO.	DATE	REVISION DESCRIPTION	BY	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA	CERTIFIED BY: <i>Cory Stuber</i> Digitally signed by Cory Stuber Date: 2024.10.03 15:25:34-05'00' LICENSED PROFESSIONAL ENGINEER NAME: CORY STUBER DATE LIC. NO.: 47534	TITLE: PIER STRUT REINFORCEMENT (PIER 1 AND PIER 3)	DES: CRS CHK: JJH	DR: BTN/SS CHK: CRS	APPROVED: 10/4/2024	BRIDGE NO. 56805
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PATH & FILENAME: c:\projectwise\pw\_working\ad\_spre\sco\d2584764\Br56805\_rep.dgn

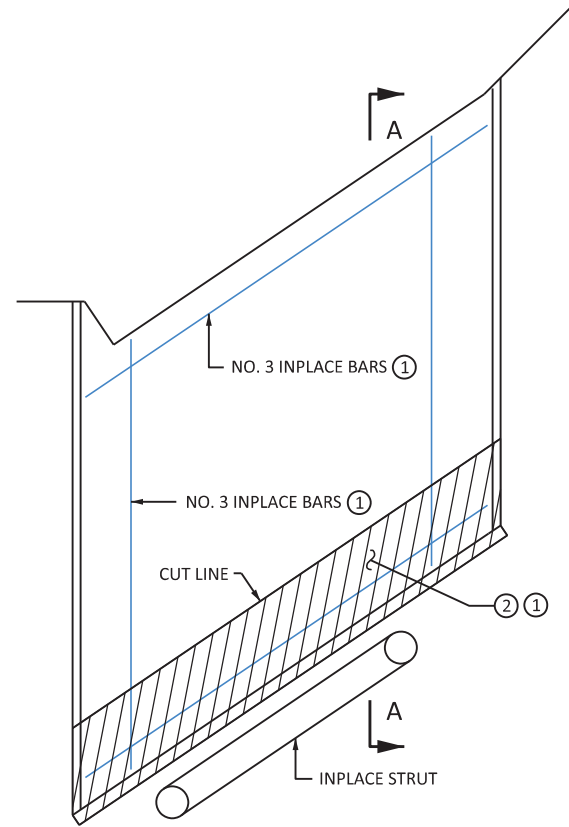


SUMMARY OF QUANTITIES FOR PIER 1, PIER 2 AND PIER 3 STRUT				
ITEM	PIER 1	PIER 2	PIER 3	UNIT
STRUCTURAL CONCRETE (3B52)	31	37	29	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	2300	2300	2250	POUND
ANCH TYPE REINF BARS (TYPE H)	44	40	44	EACH

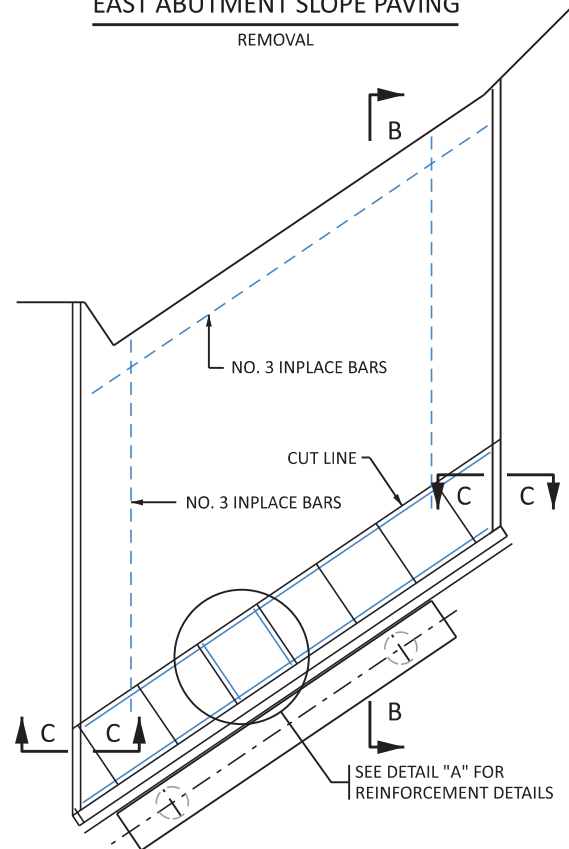
- ① 2" THICK POLYSTYRENE TYPE B INCLUDED IN PAYMENT FOR ITEM "STRUCTURAL CONCRETE (3B52)". POLYSTYRENE TO COVER FULL WIDTH OF THE PIER STRUT UNDERSIDE.
- ② CLEAN COLUMN SURFACE AND REMOVE SALT WITH POWER WASH PRIOR TO PLACING REINFORCEMENT. INCLUDED IN ITEM "STRUCTURAL CONCRETE (3B52)".
- ③ PROVIDE AN ADHESIVE WITH A MINIMUM CHARACTERISTIC BOND STRENGTH IN UNCRACKED CONCRETE OF 1.5 K.S.I. EMBED THE ANCHORAGE NO LESS THAN THAT DESCRIBED IN THE ANCHORAGE DETAIL REGARDLESS OF CHARACTERISTIC BOND STRENGTH. STOP DRILLING AND CONTACT ENGINEER IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING. PROOF LOAD ANCHORAGES TO 11.8 KIPS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.



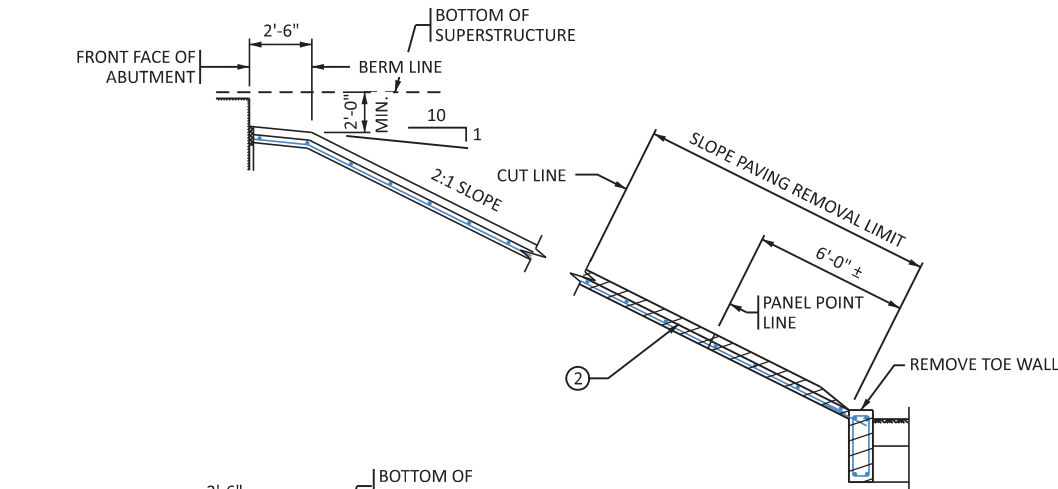
DES: CRS	DR: BTN/SS	APPROVED: 10/4/2024	BRIDGE NO. 56805
CHK: JJH	CHK: CRS		
SHEET NO. 5 OF 7 SHEETS			



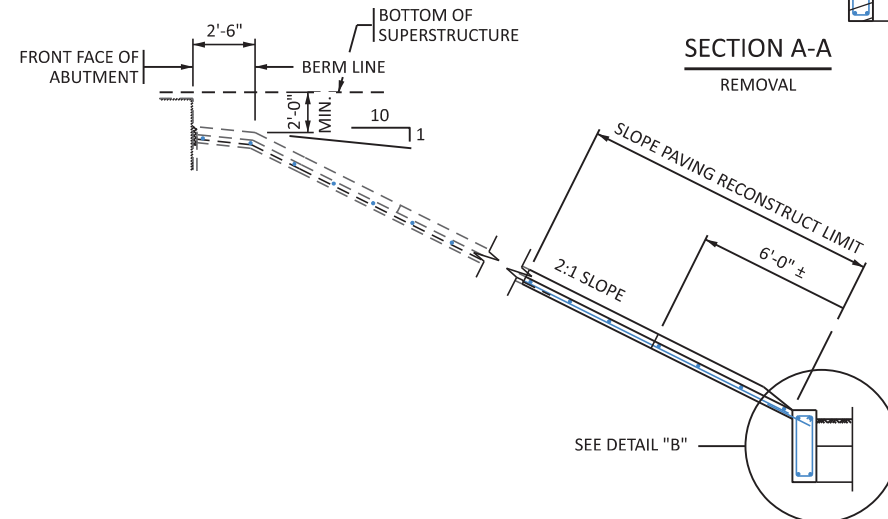
EAST ABUTMENT SLOPE PAVING  
REMOVAL



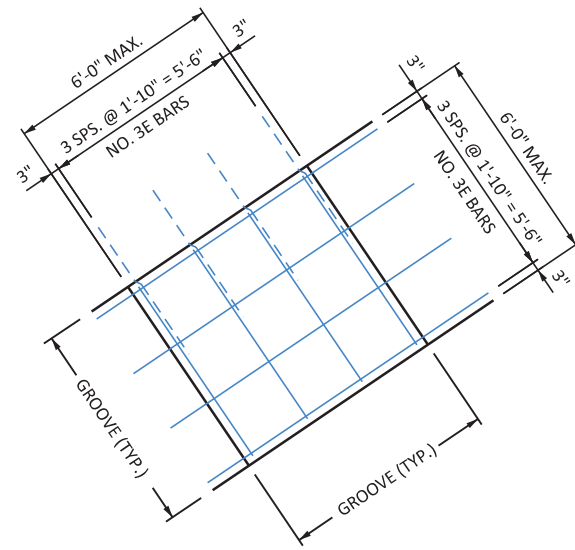
EAST ABUTMENT SLOPE PAVING  
RECONSTRUCT



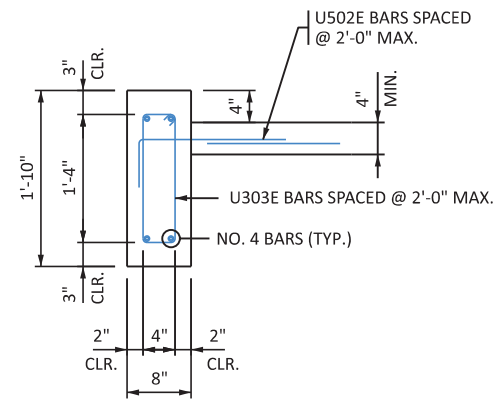
SECTION A-A  
REMOVAL



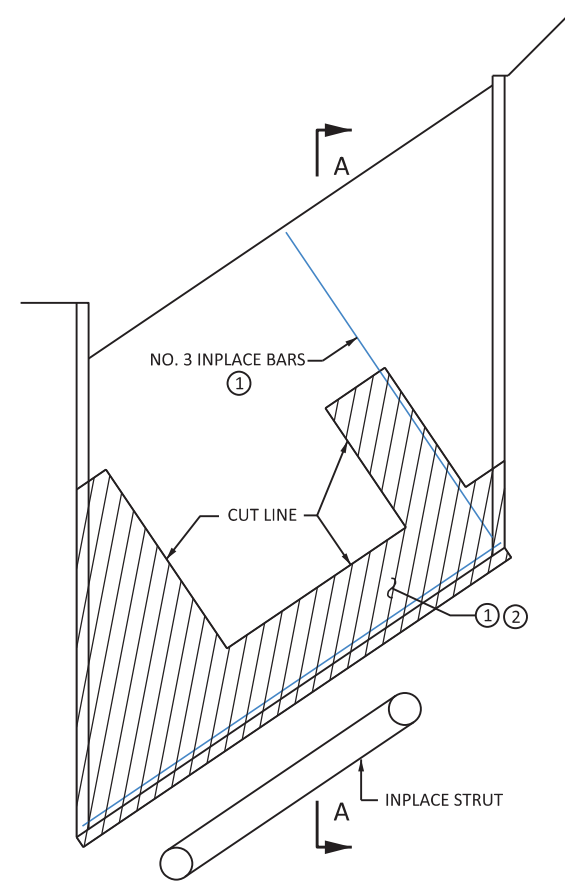
SECTION A-A  
RECONSTRUCT



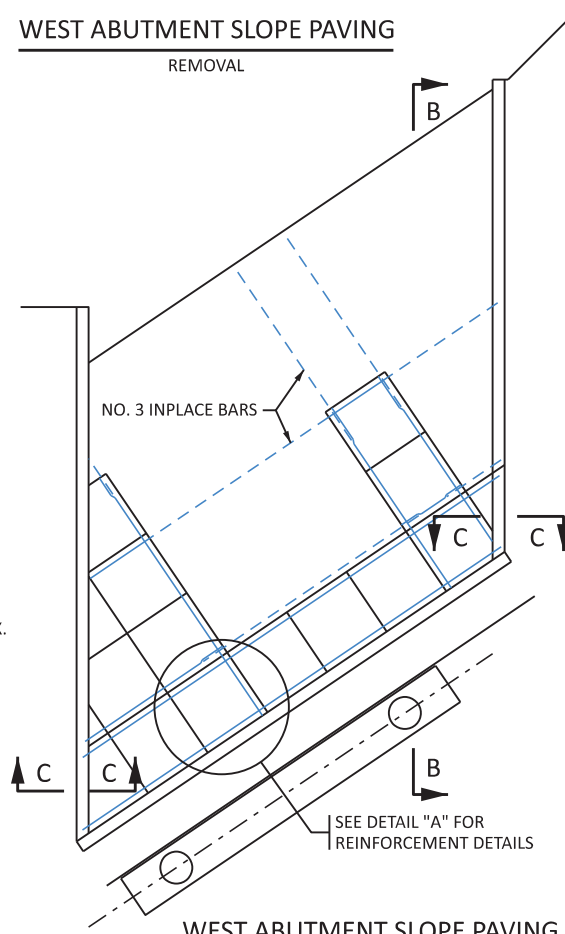
DETAIL "A"



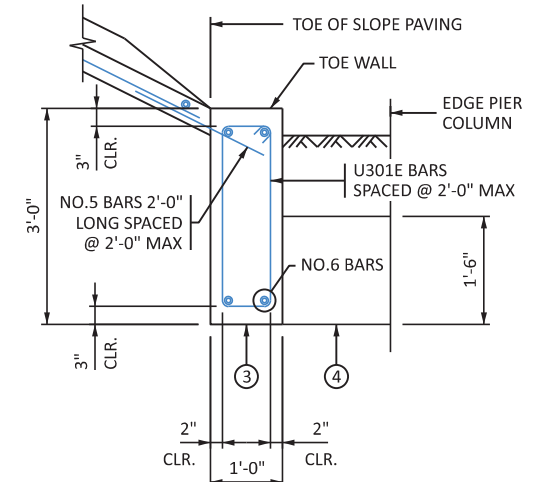
SECTION C-C  
SIDE WALL



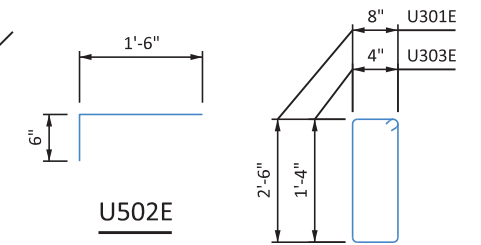
WEST ABUTMENT SLOPE PAVING  
REMOVAL



WEST ABUTMENT SLOPE PAVING  
RECONSTRUCT



DETAIL "B"



U301E & U303E

NOTES:

REMOVES DENOTES REMOVAL.

REMOVE AND RECONSTRUCT NEW CONCRETE SLOPE PAVING SET JOINT TO MATCH INPLACE SLOPE PAVING.

- RETAIN VERTICAL INPLACE REINFORCEMENT. CUT AS REQUIRED TO PROVIDE 2'-6" PROJECTION FROM INPLACE CONCRETE, CLEAN AND STRAIGHTEN.
- REMOVE SLOPE PAVING TO PANEL JOINTS AS SHOWN BY APPROXIMATE CUT LINE. REMOVAL INPLACE SIDE WALL ALONG EDGE OF SLOPE PAVING WHERE ADJACENT PANEL IS REMOVED.
- WHERE PIER FOOTING INTERFERES NOTCH TOE WALL AND BEND UP REINFORCEMENT AS REQUIRED.
- CONCRETE STRUT TO BE 1'-6" WIDE. USE ONLY WHERE TOE WALL IS LESS THAN 3'-0" FROM PIER COLUMN.

				I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA		CERTIFIED BY: Digitally signed by Cory Stuber Date: 2024.10.03 15:25:49-05'00' NAME: CORY STUBER LIC. NO.: 47534		TITLE:  CONCRETE SLOPE PAVING		DES: CRS CHK: JJH DR: BTN CHK: CRS APPROVED: 10/4/2024 SHEET NO. 6 OF 7 SHEETS		BRIDGE NO. 56805	
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<h2 style="margin: 0;"><u>WEARING COURSE</u></h2>	
<input type="checkbox"/> LOW SLUMP	
<input type="checkbox"/> OTHER _____	TYPE OR MANUFACTURER
<h2 style="margin: 0;"><u>EXPANSION JOINTS</u></h2>	
JOINT MANUFACTURER _____	
MANUFACTURER'S IDENTIFICATION _____	MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED _____
GLAND MANUFACTURER _____	NAME AND ADDRESS (CITY, STATE) _____
SIZE OF GLAND _____	
MANUFACTURER'S IDENTIFICATION _____	MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED _____
<h2 style="margin: 0;"><u>ELASTOMERIC BEARING PADS</u></h2>	
PAD MANUFACTURER _____	NAME AND ADDRESS (CITY, STATE) _____
<h2 style="margin: 0;"><u>SPECIAL SURFACE FINISH</u></h2>	
PRODUCT NAME: _____	COLOR & TEXTURE: _____
<h2 style="margin: 0;"><u>FINISHING ROADWAY FACES OF BARRIER OR PARAPET</u></h2>	
PRODUCT NAME: _____	COLOR & TEXTURE: _____
<h2 style="margin: 0;"><u>ANTI-GRAFFITI COATING</u></h2>	
MANUFACTURER _____	NAME AND ADDRESS (CITY, STATE) _____
PRODUCT NAME: _____	LOCATION: _____

<h2 style="margin: 0;"><u>PAINT SYSTEM</u></h2>		
MnDOT SPECIFICATION NUMBER	2478 OR 2479 OR OTHER	
MANUFACTURER	NAME AND ADDRESS (CITY, STATE)	
PRIME COAT	MnDOT MATERIAL SPECIFICATION NUMBER	
INTERMEDIATE COAT	MnDOT MATERIAL SPECIFICATION NUMBER	
FINISH COAT	MnDOT MATERIAL SPECIFICATION NUMBER	COLOR

<h2 style="margin: 0;"><u>PLAN QUALITY</u></h2>		
RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)		
DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION.		
BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS.		
SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD.		
(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.		
COMMENTS:		

NUMBER OF BRIDGE		
SUPPLEMENTAL AGREEMENTS:		COST: \$

LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.

[illegible]

**CHANGE OF VERTICAL CLEARANCE**  
 PLEASE GO TO THE FOLLOWING WEBSITE WHEN CHANGING THE VERTICAL CLEARANCE OF  
 EXISTING BRIDGE STRUCTURE:  
 (CONTACT THE BRIDGE INVENTORY MANAGEMENT UNIT AT 651-366-4557 IF YOU HAVE QUESTIONS)  
<http://www.dot.state.mn.us/bridge/pdf/clearanceform.pdf>

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

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INSPECTOR(S) SIGNATURE	DATE
CHECKED BY: PROJECT ENGINEER/SUPERVISOR SIGNATURE	DATE

WHEN BRIDGE IS OPEN TO TRAFFIC, COMPLETE THIS AS-BUILT BRIDGE DATA SHEET AND SUBMIT TO THE BRIDGE OFFICE VIA EMAIL AT: BridgeForms.dot@state.mn.us.

TITLE: AS-BUILT BRIDGE DATA		APPROVED: 10/4/2024	BRIDGE NO. 56805
	SHEET NO. 7 OF 7 SHEETS		