Otter Tail County
500 West Fir Avenue
Fergus Falls, MN 56537

**********PROPOSAL**********

FOR HIGHWAY CONSTRUCTION
AND MAINTENANCE PROJECTS WITH
BIDS RECEIVED UNTIL 1:00 O'CLOCK P.M. ON DECEMBER 18, 2024

PROPOSAL OF _____
(NAME OF FIRM)

_____
(ADDRESS)

_____
(AREA CODE) TELEPHONE NUMBER

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:

STATE PROJECT NO. **056-592-001**

LOCATION: Aurdal River Road and Sophus Anderson Road

TYPE OF WORK: Grading, Aggregate Base, Full Depth Reclamation, Bituminous Paving, Guardrail, and Riprap Stabilization

LENGTH: 3.705 Miles

STARTING DATE: March 18, 2025

COMPLETION DATE: August 28, 2026

NOTICE TO BIDDERS: Submit bids in accordance with MnDOT 1206 through 1210 except as stated otherwise in the Special Provisions.

I certify that this Proposal was prepared by me or under my direct supervision, and that I am a licensed professional engineer under the laws of the State of Minnesota.

_____
Benjamin L. Vonada

License Number 60531 Date: 11/12/2024

****

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 TELEPHONE NO. (651) 296-1796

2025 Road Improvements
Sophus Anderson Road and Aurdal River Road
Minnesota Department of Transportation
Aurdal Township, Otter Tail County, Minnesota
SAP 056-592-001

SPECIFICATION INDEX

2025 Road Improvements
Sophus Anderson Road and Aurdal River Road
Minnesota Department of Transportation
Aurdal Township, Otter Tail County, Minnesota

Apex Project #24.609.0110

SCHEDULE OF PRICES

Contractor: _____

Item No.	Spec. Number	Item Description	Estimated Quantity	Unit	Unit Bid Price	Total Amount
BASE BID - SECTION A (SOPHUS ANDERSON ROAD AND AURDAL RIVER ROAD)						
1	2021.501	MOBILIZATION	1.00	LUMP SUM		
2	2104.502	REMOVE SIGN	1.00	EACH		
3	2104.502	REMOVE ENERGY ABSORBING TERMINAL	2.00	EACH		
4	2104.502	SALVAGE SIGN	2.00	EACH		
5	2104.507	REMOVE AGGREGATE	1,839.00	CU YD		
6	2106.507	EXCAVATION - COMMON (P)	2,220.00	CU YD		
7	2106.507	SELECT GRANULAR EMBANKMENT (CV) (P)	512.00	CU YD		
8	2106.507	COMMON EMBANKMENT (CV)	247.00	CU YD		
9	2108.504	GEOTEXTILE FABRIC TYPE 7 (P)	3,547.00	SQ YD		
10	2112.603	SUBGRADE PREPARATION	931.00	LIN FT		
11	2118.507	AGGREGATE SURFACING (CV) CLASS 1	295.00	CU YD		
12	2118.507	AGGREGATE SURFACING (CV) CLASS 5	404.00	CU YD		
13	2123.610	MACHINE TIME	4.00	HOUR		
14	2211.507	AGGREGATE BASE (CV) CLASS 5 (P)	1,032.00	CU YD		
15	2215.504	FULL DEPTH RECLAMATION (P)	28,272.00	SQ YD		
16	2232.504	MILL BITUMINOUS SURFACE	327.00	SQ YD		
17	2360.509	TYPE SP 9.5 WEARING CRS MIX(2;C)	3,272.00	TON		
18	2360.509	TYPE SP 12.5 WEARING CRS MIX (2;C)	3,158.00	TON		
19	2554.502	END TREATMENT-TANGENT TERMINAL	4.00	EACH		
20	2554.503	TRAFFIC BARRIER DESIGN TYPE 31	810.00	LIN FT		
21	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
22	2564.602	INSTALL SIGN	2.00	EACH		
23	2564.518	SIGN PANELS TYPE C	31.00	SQ FT		
24	2573.503	SILT FENCE; TYPE MS	70.00	LIN FT		
25	2573.503	SEDIMENT CONTROL LOG TYPE STRAW	1,740.00	LIN FT		
26	2574.507	COMMON TOPSOIL BORROW (P)	164.00	CU YD		
27	2575.501	TURF ESTABLISHMENT	1.00	LUMP SUM		
28	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	271.00	SQ YD		
29	2582.503	4" SOLID LINE PAINT	21,882.00	LIN FT		
30	2582.503	4" BROKEN LINE PAINT	634.00	LIN FT		
31	2582.503	4" DOUBLE SOLID LINE PAINT	6,335.00	LIN FT		

Item No.	Spec. Number	Item Description	Estimated Quantity	Unit	Unit Bid Price	Total Amount
					SUBTOTAL BASE BID - SECTION A:	
BASE BID - SECTION B (RIVERBANK STABILIZATION)						
32	2021.501	MOBILIZATION	1.00	LUMP SUM		
33	2123.610	MACHINE TIME	10.00	HOUR		
34	2511.507	RANDOM RIPRAP CLASS II	105.00	CU YD		
35	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
36	2575.501	TURF ESTABLISHMENT	1.00	LUMP SUM		
					SUBTOTAL BASE BID - SECTION B:	
BASE BID - SECTION C (CENTERBURY LANE)						
37	2021.501	MOBILIZATION	1.00	LUMP SUM		
38	2118.507	AGGREGATE SURFACING (CV) CLASS 1	7.00	CU YD		
39	2215.504	FULL DEPTH RECLAMATION (P)	851.00	SQ YD		
40	2232.504	MILL BITUMINOUS SURFACE	9.00	SQ YD		
41	2360.509	TYPE SP 9.5 WEARING CRS MIX(2;C)	103.00	TON		
42	2360.509	TYPE SP 12.5 WEARING CRS MIX (2;C)	103.00	TON		
43	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
44	2574.507	COMMON TOPSOIL BORROW (P)	40.00	CU YD		
45	2575.501	TURF ESTABLISHMENT	1.00	LUMP SUM		
					SUBTOTAL BASE BID - SECTION C:	
					TOTAL BASE BID (SECTION A + SECTION B + SECTION C):	
ALTERNATE NO. 1 (INTERSECTION PAVING)						
46	2021.501	MOBILIZATION	1.00	LUMP SUM		
47	2360.509	TYPE SP 9.5 WEARING CRS MIX(2;C)	185.00	TON		
48	2360.509	TYPE SP 12.5 WEARING CRS MIX (2;C)	185.00	TON		
49	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
					SUBTOTAL ALTERNATE NO. 1:	
ALTERNATE NO. 2 (AGGREGATE SURFACING STABILIZATION)						
50	2021.501	MOBILIZATION	1.00	LUMP SUM		
51	2215.504	STABILIZED FULL DEPTH RECLAMATION (P)	34,665.00	SQ YD		
52	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
					SUBTOTAL ALTERNATE NO. 2:	
ALTERNATE NO. 3 (CLEARING & GRUBBING)						
53	2021.501	MOBILIZATION	1.00	LUMP SUM		
54	2101.501	CLEARING & GRUBBING	1.00	LUMP SUM		
55	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
					SUBTOTAL ALTERNATE NO. 3:	
ALTERNATE NO. 4 (SIGNING)						

Item No.	Spec. Number	Item Description	Estimated Quantity	Unit	Unit Bid Price	Total Amount
56	2021.501	MOBILIZATION	1.00	LUMP SUM		
57	2104.502	REMOVE SIGN	70.00	EACH		
58	2564.518	SIGN PANELS TYPE C	228.27	SQ FT		
59	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
					SUBTOTAL ALTERNATE NO. 4:	
ALTERNATE NO. 5 (MAILBOXES)						
60	2021.501	MOBILIZATION	1.00	LUMP SUM		
61	2104.502	REMOVE MAIL BOX SUPPORT	25.00	EACH		
62	2540.602	MAIL BOX SUPPORT	25.00	EACH		
63	2563.601	TRAFFIC CONTROL	1.00	LUMP SUM		
					SUBTOTAL ALTERNATE NO. 5:	
					TOTAL (BASE BID + ALTERNATE NO. 1 + ALTERNATE NO. 2 + ALTERNATE NO. 3 + ALTERNATE NO. 4 + ALTERNATE NO. 5):	

NON-COLLUSION AFFIDAVIT

The following Non-Collusion Affidavit shall be executed by the bidder:

State Project No. _____

Federal Project No. _____

State of Minnesota _____)

) ss

County of _____)

I, _____, do state under penalty of
(name of person signing this affidavit)

perjury under 28 U.S.C. 1746 of the laws of the United States:

(1) that I am the authorized representative of _____

_____
(name of person, partnership or corporation submitting this proposal)

and that I have the authority to make this affidavit for and on behalf of said bidder;

(2) that, in connection with this proposal, the said bidder has not either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding;

(3) that, to the best of my knowledge and belief, the contents of this proposal have not been communicated by the bidder or by any of his/her employees or agents to any person who is not an employee or agent of the bidder or of the surety on any bond furnished with the proposal and will not be communicated to any person who is not an employee or agent of the bidder or of said surety prior to the official opening of the proposal, and

(4) that I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____
(bidder or his authorized representative)

Form 21126D (FF Rev. 1-09)
State Project No. SAP 056-592-001

GRAND TOTAL $_____

The undersigned hereby acknowledges that all requirements included in the proposal, addenda, amendments, plans, standard specifications, and supplemental specifications are a part of this bid and contract.

Signed:_____

PROPOSAL GUARANTY required by 1208 of the Specifications: "A (certified check) (bond), prepared as required by 1208 of the Specifications and payable to the **Otter Tail County** Treasurer, in an amount equal to at least 5% of the total amount of the bid is submitted herewith as a proposal guaranty.

NON-COLLUSION AFFIDAVIT: A Non-Collusion Affidavit is found in this proposal which must be signed by each bidder.

RECEIPT OF ADDENDA as required by 1210 of the Specifications:

The undersigned hereby acknowledges receipt of and has considered:

Addendum No. ____ Dated _____ Addendum No. ____ Dated _____

Addendum No. ____ Dated _____ Addendum No. ____ Dated _____

Signed:_____

EXECUTION OF PROPOSAL as required by 1206 of the Specifications:

This proposal dated the ____ day of _____, 20

Signed: _____, P.O. Address _____ as an individual.

Signed: _____, P.O. Address _____ as an individual.

doing business under the name and style of

Signed: _____, for _____ a partnership.

NAME BUSINESS ADDRESS

_____

Signed: _____, for _____ a corporation,

incorporated under the laws of the State of Minnesota

Name of President _____ Business Address_____

Name of Vice-President _____ Business Address_____

Name of Secretary _____ Business Address_____

Name of Treasurer _____ Business Address_____

(NOTE: Signatures shall comply with 1206 of the Specifications.)

ATTACHMENT A
PRIME CONTRACTOR RESPONSE

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

STATE PROJECT NUMBER: SAP 056-592-001

This form includes changes by statutory references from the Laws of Minnesota 2015, chapter 64, sections 1-9. This form must be submitted with the response to this solicitation. A response received without this form, will be rejected.

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** … any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project…	
Minn. Stat. § 16C.285, Subd. 3. **RESPONSIBLE CONTRACTOR, MINIMUM CRITERIA**. "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:	
(1)	The Contractor: (i) is in compliance with workers' compensation and unemployment insurance requirements; (ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees; (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.03, 181.101, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity: (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of $25,000 or more within the three-year period, provided that a failure to pay is “repeated” only if it involves two or more separate and distinct occurrences of underpayment during the three-year period; (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final; (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees; (iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27; (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor; and
(7)	All subcontractors and motor carriers that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION**.

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Subd. 5a. **Motor carrier verification.** A prime contractor or subcontractor shall obtain annually from all motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each motor carrier. A prime contractor or subcontractor shall require each such motor carrier to provide it with immediate written notification in the event that the motor carrier no longer meets one or more of the minimum criteria in subdivision 3 after submitting its annual verification. A motor carrier shall be ineligible to perform work on a project covered by this section if it does not meet all the minimum criteria in subdivision 3. Upon request, a prime contractor or subcontractor shall submit to the contracting authority the signed verifications of compliance from all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**
A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document. A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted. A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

CERTIFICATION	
By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: **1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and** **2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and** **3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT

STATE PROJECT NUMBER: SAP 056-592-001

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

FIRST TIER SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

*Attach additional sheets as needed for submission of all first-tier subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: **All first-tier subcontractors listed on attachment A-1 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

STATE PROJECT NUMBER: SAP 056-592-001

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. … If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. …

ADDITIONAL SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

*Attach additional sheets as needed for submission of all additional subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: **All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

To Otter Tail County Board of Commissioners:

According to the advertisement of Otter Tail County 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 Auditor of Otter Tail County:

(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 MnDOT 1903 and 1402, 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 MnDOT 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 MnDOT 1904.

(I)(We) further propose to execute the form of Contract within 7 days after receiving written notice of award, as provided in MnDOT 1306.

(I)(We) further propose to furnish a Payment Bond and a Performance Bond each equal to the Contract Amount as required by MN Statute § 574.26, as security for the construction and completion of the improvement according to the Plans, Specifications and Special Provisions as provided in MnDOT 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 Otter Tail County.

(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 Otter Tail County 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

STATE FUNDED ONLY CONSTRUCTION CONTRACTS
SPECIAL PROVISIONS DIVISION A - LABOR

I. INTRODUCTION

A. **Policy Statement.** 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.[1]

B. **State Regulations Govern.** This Contract is subject to the Minnesota Prevailing Wage Act[2], Minnesota Fair Labor Standards Act[3], Minnesota Rules[4], Minnesota Department of Labor and Industry (MnDLI) Wage Decision(s), and the MnDLI Truck Rental Rate Schedule.

C. **Purpose.** These provisions: (1) outline your obligations under state and federal laws, rules and regulations; (2) explain the requirements necessary to demonstrate compliance; and (3) explain the processes that the Department will undertake to ensure compliance.

D. **Questions or Resources.** Please visit the Minnesota Department of Transportation (MnDOT) Labor Compliance Unit (LCU) website at: www.dot.state.mn.us/const/labor.

II. DEFINITIONS

Many of the terms used in these provisions are defined in MnDOT's Standard Specifications for Construction,[5] unless defined below.

A. **Apprentice.** A Worker at least 16 years of age who is employed to learn an apprenticeable trade or occupation in a registered apprenticeship program.[6]

B. **Bona Fide.** Made or carried out in good faith; authentic.[7]

C. **Certified Payroll Report (CPR).** A report comprised of two components; (1) a payroll report, and (2) a statement of compliance report.[8]

D. **Contractor.** An individual or business entity that is engaged in construction or construction service-related activities including trucking activities either directly or indirectly through a Contract, or by Subcontract with the Prime Contractor, or by a further Subcontract with any other person or business entity performing Work.[9]

E. **Employer.** An individual, partnership, association, corporation, business trust, or other business entity that hires a Worker.[10]

F. **Fringe Benefit.** An employment benefit given in addition to a Worker's wages or salary.[11]

G. **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 which provides construction services to a public works project.[12]

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[1] Minn. Stat. 177.41
[2] Minn. Stat. 177.41 to 177.44
[3] Minn. Stat. 177.21 to 177.35
[4] Minn. R. 5200.1000 to 5200.1120
[5] MnDOT Standard Specifications for Construction, Section 1103
[6] Minn. Stat. 178.011, Subdivision 2
[7] The American Heritage College Dictionary, Third Edition, 2000
[8] Minn. R. 5200.1106, Subpart 10
[9] Minn. R. 5200.1106, Subpart 2(D)
[10] Minn. Stat. 177.42, Subdivision 7
[11] The American Heritage College Dictionary, Third Edition, 2000
[12] Minn. R. 5200.1106, Subpart 7(A)

H. **Journeyworker.** A person who has attained a level of skill, abilities, and competencies recognized within and industry as having mastered the skills and competencies required for the trade or occupation.[13]

I. **Prime Contractor.** An individual or business entity that enters into a Contract with the Department.[14]

J. **Subcontract.** A Contract that assigns some obligations of a prior Contract to another party.[15]

K. **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.[16]

L. **Total Prevailing Wage Rate.** The sum of the prevailing hourly "basic" and "fringe" rate that is established in a Wage Decision.

M. **Trucking Broker (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.[17]

N. **Trucking Firm/Multiple Truck Owner (MTO).** Any legal business entity that owns more than one vehicle and hires the vehicles out for services to Trucking Brokers or Contractors on public works projects.[18]

O. **Truck Rental Rate Schedule.** A document prepared by the MnDLI through a Contractor survey process that identifies the required hourly Total Prevailing Wage Rate and operating cost for various types of trucks that perform hauling activities (Work) under a Contract that is funded in whole or in part with state funds.[19]

P. **Wage Decision.** A document prepared by the MnDLI through a Contractor survey process that identifies the required hourly basic rate of pay and hourly Fringe Benefits for various labor classifications that perform Work under a Contract that is funded in whole or in part with state funds.[20]

Q. **Work (Work).** All construction activities associated with a public works project, including any required hauling activities on-the-site-of or to-or-from a public works project and conducted pursuant to a Contract, regardless of whether the construction activity or Work is performed by the Prime Contractor, subcontractor, Trucking Broker, Trucking Firm (MTO), ITO, independent contractor, or employee or agent of any of the foregoing entities.[21]

R. **Worker (Laborer or Mechanic).** A Worker in a construction industry labor class identified in or pursuant to Minnesota Rules 5200.1100, Master Job Classifications.[22]

III. APPLICATION & UNDERSTANDING

A. **Provisions & Prevailing Wage Rates Apply.** These provisions, along with the prevailing Wage Decision(s) that are incorporated into the Contract, apply to all Contractors contracting to do all or part of the Work.[23]

[13] Minn. Stat. 178.011, Subdivision 9
[14] Minn. R. 5200.1106, Subpart 2(C)
[15] The American Heritage College Dictionary, Third Edition, 2000
[16] Minn. R. 5200.1106, Subpart 5(C)
[17] Minn. R. 5200.1106, Subpart 7(C)
[18] Minn. R. 5200.1106, Subpart 7(B)
[19] Minn. R. 5200.1105
[20] Minn. R. 5200.1020 to 5200.1060
[21] Minn. R. 5200.1106, Subpart 2(A)
[22] Minn. R. 5200.1106, Subpart 5(A)
[23] Minn. Stat. 177.44, Subdivision 1

B. **Truck Rental Rates Apply.** The Truck Rental Rate Schedule incorporated into the Contract applies to all hired trucking entities that perform covered hauling activities related to the project.[24]

C. **Prevailing Wage Terms Must Be Included in All Contracts.** The Prime Contractor is required to ensure that all subcontractors performing Work receive the Contract Wage Decision(s), Truck Rental Rate Schedule, and a copy of these provisions with their written Subcontracts, agreements and/or purchase orders.[25]

D. **Responsible for Understanding All Requirements.** Each Contractor is responsible for understanding all laws, rules, regulations, plans, and specifications that are incorporated physically, or by reference, into the Contract.[26]

E. **E-Verify.** For services valued in excess of $50,000, the Contractor certifies that as of the date of services performed on behalf of State, the Contractor will have implemented or be in the process of implementing the federal E-Verify program for all newly hired employees in the United States who will perform work under the contract. The Prime Contractor is responsible to collect all subcontractor certifications and may do so utilizing the E-Verify Subcontractor Certification Form available at http://www.mmd.admin.state.mn.us/doc/EverifySubCertForm.doc. All subcontractor certifications must be kept on file with the Prime Contractor and made available to the State upon request.

IV. VENDOR REGISTRATION

Vendor Registration Required. A Contractor that performs Work, supplies material, or product must be registered with MnDOT. The Contractor must complete and submit a vendor form[27] to the MnDOT LCU[28], along with all applicable documentation that is required. This registration process is separate and distinct from other state agency requirements.

V. LABOR CLASSIFICATIONS

A. **Labor Classification Assignment.** A Worker must be paid at least the Total Prevailing Wage Rate in the same or most similar trade or occupation.[29] To determine the appropriate labor classification for a Worker, a Contractor must refer to the Wage Decision(s) incorporated into the Contract, the labor classification descriptions for laborers and special crafts established in Minnesota Rules or the United States Department of Labor's Dictionary of Occupational Titles.[30]

B. **Labor Classification Clarification & Disputes.** A Contractor needing assistance in determining a labor classification must submit a Classification Clarification Request[31] to the MnDOT LCU for a written decision. If the Contractor chooses to contest the classification assignment, it must provide written notice to the MnDOT LCU. The MnDOT LCU will forward the matter to the MnDLI for a final ruling.

C. **Performing Work in Multiple Labor Classifications.** For Workers performing Work in multiple labor classifications, the Contractor must compensate at a minimum the Total Prevailing Wage Rate, and report the hours worked, in each applicable labor classification.[32]

VI. WAGE DECISION(S) & WAGE RATE(S)

A. **Applicability of a Highway and Heavy Wage Decision.** A highway and heavy Wage Decision applies to a Worker that is engaged in a construction activity or performing Work to construct or maintain a highway or other public works project, such as a road, street, airport runway, bridge,

[24] Minn. Stat. 177.44, Subdivision 3
[25] MnDOT Standard Specifications for Construction, Section 1801
[26] MnDOT Standard Specifications for Construction, Section 1701
[27] www.dot.state.mn.us/const/labor/documents/forms/contractorform2016.pdf or www.dot.state.mn.us/const/labor/documents/forms/truckvendorform2016.pdf
[28] lcusupport.dot@state.mn.us
[29] Minn. Stat. 177.44, Subdivision 1
[30] Minn. R. 5200.1101 and 1102 and US DOL Dictionary of Occupational Titles
[31] http://www.dot.state.mn.us/const/labor/documents/forms/classification-clarification-request.pdf
[32] Minn. Stat. 177.44, Subdivision 1

power plant, dam or utility[33] that is external to a sheltered enclosure (structure). This includes, but is not limited to, the following Work: site clearing; grading; excavating backfilling; paving; curbs; gutters; sidewalks; culverts; bridges; lighting systems; traffic management systems; installing of utilities out from an exterior meter; fuel islands; communication towers; or other activities similar to highway and/or heavy Work.

B. **Applicability of a Commercial Wage Decision.** A commercial Wage Decision applies to a Worker that is engaged in a construction activity or performing Work to construct a sheltered enclosure (structure) with walk-in access for the purpose of housing persons, machinery, equipment or supplies.[34] This includes, but is not limited to, the following Work: constructing foundations, aprons, stoops; framing walls; installing windows, doors, tiling, plumbing, electrical, HVAC systems; roofing; installing utilities into the building from an exterior meter.

C. **Pay According to Wage Decision(s).**

1. **Contract with One Wage Decision.** If the Contract contains one Wage Decision, the Contractor must examine the Wage Decision and compensate the Worker at a minimum the Total Prevailing Wage Rate for the appropriate labor classification(s).

2. **Contract with Multiple Highway/Heavy Wage Decisions.** If the Contract contains multiple Highway/Heavy Wage Decisions, the Contractor must examine each Wage Decision and compensate the Worker, at a minimum, the Total Prevailing Wage Rate that is the greatest[35] for the appropriate labor classification(s).

3. **Contract with Highway/Heavy and Commercial Wage Decision(s).** If the Contract contains a Highway/Heavy and Commercial Wage Decision(s), the Contractor must first determine which Wage Decision is applicable to the Worker. The Contractor must then compensate the Worker, at a minimum, the Total Prevailing Wage Rate for the appropriate labor classification(s).

D. **Must Pay Total Prevailing Wage Rate.** A Contractor must compensate each Worker, at a minimum, the Total Prevailing Wage Rate(s) for all hours worked on the project for the appropriate labor classification(s).[36]

E. **Missing Wage Rate.** If a Wage Decision fails to include a wage rate for a labor classification(s) that will be utilized on a project, the Contractor must obtain a wage rate prior to furnishing an estimate, quote or bid.[37]

1. **Wage Rate Request.** A Contractor must complete a Request for Rate Assignment form[38] and submit it to the MnDOT LCU[39] for processing.

2. **No Contract Price Adjustment for Missing Wage Rate.** If MnDLI determines that a higher wage rate applies, the Department will not reimburse the Contractor.

F. **Salaried Worker.** A salaried Worker is not exempt from these Provisions. A Contractor must convert the Worker's salary to an average hourly rate of pay by dividing the Worker's salary by the total number of hours Worked (government and non-government) during the pay period.[40] A salaried Worker must be included on a CPR.

G. **Reduction in Standard (Private) Contractual Regular Rate of Pay Prohibited.** A Contractor must not reduce a Worker's standard, contractual regular rate of pay when the prevailing wage rate(s) certified by the MnDLI is less.[41]

[33] Minn. R. 5200.1010, Subdivision 3
[34] United States Department of Labor All Agency Memorandum #130
[35] Minn. Stat. 177.44, Subdivision 4
[36] Minn. Stat. 177.44, Subdivision 1
[37] Minn. R. 5200.1030, Subpart 2a(C)
[38] http://www.dot.state.mn.us/const/labor/documents/forms/request-for-rate-assignment.doc
[39] lcusupport.dot@state.mn.us
[40] Refer to Appendix A
[41] Minn. Stat. 181.03, Subdivision 1(2)

H. **Prohibited Payment Practices.** A Contractor is prohibited from taking (accepting) a rebate for the purpose of reducing or otherwise decreasing the value of the compensation paid.

I. **Prohibited Deductions.** No deductions, direct or indirect, may be made for the items listed below which when subtracted from wages would reduce the wages below Minnesota's minimum wage rate as established in section 177.24[42]

1. **Uniforms.** Purchased or rented uniforms or specifically designed clothing that is required by the Employer, by the nature of employment, or by statute, or as a condition of employment, which is not generally appropriate for use except in that employment.

2. **Equipment.** Purchased or rented equipment used in employment, except tools of a trade, a motor vehicle, or any other equipment which may be used outside the employment. The cost of the Worker's use of equipment used outside of employment, such as tools, a motor vehicle, cell phone, may be deducted only if an agreement between the Employer and employee existed prior to the deduction.

3. **Supplies.** Consumable supplies required in the course of employment.

4. **Travel Expenses.** Travel expenses in the course of employment except those incurred in traveling to and from the employee's residence and place of employment.

VII. HOURS OF WORK

A. **Work Performed Under the Contract.** A Worker performing Work is subject to prevailing wage for all hours associated with the Contract[43], unless the Worker is exempt under state law.[44]

B. **Wait Time Subject to Prevailing Wage.** A Worker who is required to remain on the project and is waiting to Work because of the fault of the Contractor is considered "engaged to wait" and subject to prevailing wage for the time spent, unless the Worker is completely relieved of duty and free to leave the project for a defined period of time.

VIII. FRINGE BENEFITS

A. **Funded Fringe Benefit Plan Criteria.** In order for a funded Fringe Benefit (e.g., health/medical insurance, disability insurance, life insurance, pension, etc.) to be considered and creditable towards the Total Prevailing Wage Rate it must be:[45]

1. a contribution irrevocably made by a Contractor on behalf of an Worker to a financially responsible trustee, third person, fund, plan, or program;

2. carried out under a financially responsible plan or program;

3. legally enforceable;

4. communicated in writing to the Worker; and

5. made available to the Worker once he/she has met all eligibility requirements.

B. **Unfunded Fringe Benefit Plan Criteria.** In order for a unfunded Fringe Benefit (e.g., vacation, holiday, sick leave, etc.) to be considered and creditable towards the Total Prevailing Wage Rate it must be:[46]

1. reasonably anticipated to provide a benefit;

2. a commitment that can be legally enforced;

[42] Minn. Stat. 177.24, Subdivision 4(1-4)
[43] Minn. Stat. 177.44, Subdivision 1
[44] Minn. Stat. 177.44, Subdivision 2 or Minn. R. 5200.1106, Subpart 4
[45] Minn. Stat. 177.42, Subdivision 6
[46] Minn. Stat. 177.42, Subdivision 6

3. carried out under a financially responsible plan or program;

4. communicated in writing to the Worker; and

5. made available to the Worker once he/she has met all eligibility requirements.

C. **Fringe Benefit Contributions for Hours Worked.** A Contractor that provides Fringe Benefits to a Worker must make contributions, not less than quarterly[47], for all hours worked,[48] including overtime hours, unless it's a defined benefit or contribution plan that provides for immediate participation and immediate or essentially immediate vesting **(see subpart D2 of this section)**.

D. **Hourly Fringe Benefit Credit.** An hourly Fringe Benefit credit toward the Total Prevailing Wage Rate must be determined separately for each Worker based on one or more of the following methods:

1. **Monthly, Quarterly or Annual Computation Methods.** A Contractor must compute its monthly, quarterly or annual cost of a particular Fringe Benefit and divide that amount by the estimated total number of hours worked (government and non-government) during the time frame used.[49] Typical plans that require monthly, quarterly or annual computations include but are not limited to: health/medical insurance, disability insurance, life insurance, vacation, holiday, sick leave and defined benefit or contribution pension plans that do not provide for immediate participation and immediate or essentially immediate vesting.

2. **Fringe Benefit Credit not Requiring Monthly, Quarterly or Annual Computation Methods.** A defined benefit or contribution pension plan that allows for a higher hourly rate of contribution for government work (prevailing wage) than non-government (non-prevailing wage) will be fully credited only if the plan provides for immediate participation and immediate or essentially immediate vesting.

E. **Wages In Lieu of Fringe Benefits.** A Contractor that does not provide full Fringe Benefits must compensate a Worker the difference between the Total Prevailing Wage Rate and the rate actually paid for the appropriate labor classification(s). The compensation paid is considered wages and subject to tax liabilities.

1. **Overtime**. The cash equivalent (wages paid) made in lieu of Fringe Benefits is excluded from the overtime calculation requirement, unless the cash equivalent (wages paid) is part of the Worker's standard straight time wage.

F. **Administrative Costs Not Creditable.** Administrative expenses incurred by a Contractor in connection with the administration of a Bona Fide Fringe Benefit plan are not creditable towards the Total Prevailing Wage Rate.

G. **Federal, State & Local Fringe Benefit Credit Prohibited.** No credit is allowed for benefits required by federal, state or local law, such as: worker's compensation, unemployment compensation, and social security contributions.[50]

IX. OVERTIME

A. **Overtime after 8 Hours per Day or 40 Hours per Week.** A Contractor must 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 1.5 times the hourly basic rate of pay.[51] The prevailing hours of labor is defined as not more than 8 hours per day and more than 40 hours per week.[52]

[47] 29 CRF, Part 5.5(a)(1)(i)
[48] Government and non-government Work
[49] Refer to Appendix B
[50] Minn. Stat. 177.42, Subdivision 6
[51] Minn. Stat. 177.44, Subdivision 1 and Refer to Appendix D
[52] Minn. Stat. 177.42, Subdivision 4

B. **Wages in Lieu of Fringe Benefits Overtime.** Wages paid in Lieu of Fringe Benefits must be paid for all hours worked under the contract.

C. **Multiple Labor Classifications and Overtime.** A Worker employed in multiple labor classifications throughout a workweek must be compensated at the applicable labor classification overtime rate in effect during the hours worked in excess of 8 hours per day or 40 hours per week.

D. **Federal Fair Labor Standards Act (FLSA) and Overtime.** A Contractor subject to the FLSA may be subject to additional overtime compensation requirements.

X. PAYROLLS AND STATEMENTS

A. **Reporting.** Each Contractor that is performing Work must submit a CPR(s) to the Department.

1. **Payroll Report (Paper).** Each Contractor performing Work must submit a paper (written) payroll report to the Department. The payroll report is available on the MnDOT LCU website.[53]

2. **Statement of Compliance (Paper).** Each Contractor's paper (written) payroll report must include a paper (written) "Statement of Compliance Form". The "Statement of Compliance Form" must: (1) state whether or not Fringe Benefits are provided to a Worker; (2) provide a description of each benefit, the hourly contribution made on behalf of each Worker, along with fund/plan information; and (3) a signature attesting that the payroll and Fringe Benefit information provided is truthful and accurate.[54]

3. **Electronic Reporting.** If the Contract is subject to electronic reporting, each Contractor performing Work must submit a CPR(s) using the AASHTOWare, Civil Rights Labor (CRL) system. Refer to the **Special Provisions Division S – "Electronic Submission of Payrolls and Statements"** which is incorporated into and found elsewhere in the Contract for detailed requirements.

B. **Biweekly Payroll Reporting and Payment of Wages.** A CPR(s) must be submitted no later than 14 calendar days after the end of each Contractor's pay period[55] to the Department. A Contractor must pay its employees at least once every 14 calendar days.[56]

C. **Payroll Report Data.** Each payroll report must include all Workers that performed Work and provide at a minimum the following information:[57]

1. Contractor's name, address, and telephone number.

2. State project number.

3. Contract number (if applicable).

4. Project number.

5. Payroll report number.

6. Project location.

7. Workweek end date.

8. Each Worker's name, home address, and social security number.[58]

9. Labor classification(s) title(s) and optional three-digit code for each Worker.

[53] www.dot.state.mn.us/const/labor/certifiedpayroll.html
[54] Minn. R. 5200.1106, Subpart 10
[55] Minn. Stat. 177.43, Subdivision 3
[56] Minn. Stat. 177.30 (a)(4)
[57] Minn. Stat. 177.30 (a)(1-4) and Minn. R. 5200.1106, Subpart 10
[58] Minn. R. 5200.1106, Subpart 10A & Minn. Stat. 13.355, Subdivision 1

10. Hours worked daily and weekly in each labor classification, including overtime hours, for each Worker.

11. Wage rate paid to each Worker for straight time and overtime.

12. Authorized legal deductions for each Worker.

13. Project gross amount, weekly gross amount, and net wages paid to each Worker.

D. **Prime Contractor to Ensure Compliance.** The Prime Contractor must review the CPR(s) submitted by each lower tier Contractor and sign the "Statement of Compliance Form".[59] The Prime Contractor must ensure that each lower tier Contractor's CPR(s) include all Workers that performed Work and accurately reflect labor classifications, hours worked, regular and overtime rates of pay, gross earnings for the project and Fringe Benefits.[60]

E. **Retention of CPR(s).** The Prime Contractor must keep its written CPR(s), including those of all lower tier Contractors, for three (3) years after the final payment is issued.[61]

F. **Retention of Employment-Related Records.** Each Contractor must keep employee records, including, but not limited to: Fringe Benefit statements, time cards, payroll ledgers, check registers and canceled checks[62] for at least three (3) years after the final payment is issued.[63] Other laws may have longer retention requirements.

G. **Detailed Earning Statement.** At the end of each pay period, each Contractor must provide every Worker, in writing or by electronic means, an accurate, detailed earnings statement.[64]

H. **Reports and Records Request.** Upon a request from the Department, the Prime Contractor must promptly furnish copies of CPR(s) for its Workers and those of all lower tier Contractors, along with employment-related records, documents, and agreements that the Department considers necessary to determine compliance.[65]

XI. APPRENTICES, TRAINEES AND HELPERS

A. **Apprentice.** An Apprentice will be permitted to Work at less than the prevailing basic hourly rate only if the Apprentice is:

1. Registered with the U.S. Department of Labor (DOL), Bureau of Apprenticeship and Training or MnDLI Division of Voluntary Apprenticeship.[66]

2. Performing Work of the trade, as described in the apprenticeship agreement.

3. Compensated according to the rate specified in the program for the level of progress.[67]

4. Supervised by a Journeyworker from the same company, in accordance with the program ratio requirements.[68]

B. **Ratio Requirement.** If an approved apprenticeship program fails to define a ratio allowance, the first Apprentice must be supervised by a Journeyworker within the same trade or occupation. Any subsequent Apprentice must be supervised by an additional three Journeyworkers.[69]

[59] MnDOT Standard Specifications for Construction, Section 1701
[60] MnDOT Standard Specifications for Construction, Section 1801
[61] Minn. Stat. 177.30 (a)(5)
[62] Minn. R. 5200.1106, Subpart 10
[63] Minn. Stat. 177.30 (a)(5)
[64] Minn. Stat. 181.032
[65] Minn. Stat. 177.44, Subdivision 7; Minn. Stat. 177.33(a)(5)
[66] Minn. R. 5200.1070, Subpart 1
[67] Minn. R. 5200.1070, Subpart 1 and Refer to Appendix C
[68] Minn. Stat. 178.036, Subdivision 5
[69] Minn. Stat. 178.036, Subdivision 5

C. **Failure to Comply with Apprenticeship Requirements.** If a Contractor fails to demonstrate compliance with the terms established in this section, the Contractor must compensate the Apprentice not less than the applicable Total Prevailing Wage Rate for the actual classification of labor performed.[70]

D. **Trainee and Helper.** A trainee or helper is not exempt from prevailing wage under state law. The Contractor must assign the trainee or helper a labor classification that is the "same or most similar"[71] and compensate the trainee or helper for the actual Work performed regardless of the trainee's or helper's skill level.

XII. INDEPENDENT CONTRACTORS, OWNERS, SUPERVISORS, AND FOREMAN

A. **Independent Contractor.** An independent contractor (IC) that is not an Independent Truck Owner/Operator (ITO), who is performing Work must be properly classified and compensated.[72] The IC must submit a CPR(s) to the Department. If the IC does not receive an hourly wage, but instead a weekly, biweekly, monthly or quarterly distribution for performance, the IC must calculate its hourly rate of pay by dividing the weekly, biweekly, monthly, or quarterly company distribution by all hours worked during that time frame and report the information on a CPR. If necessary, the Department may request documentation from the IC to determine how the hourly wage rate was calculated.[73]

B. **Owners, Supervisors and Foreman.** An owner, supervisor, or foreman performing Work is subject to prevailing wage and must be properly classified, compensated and reported.[74]

XIII. TRUCKING

A. **Covered Hauling Activities.** A Contractor must ensure that all Workers, including hired Trucking Brokers, MTOs and ITOs are paid the applicable Total Prevailing Wage Rate or truck rental rate for the following Work:

1. 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.[75]

2. The delivery of materials from a non-commercial establishment to the project and the return haul to the starting location either empty or loaded.[76]

3. 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.[77]

4. 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.[78]

5. The delivery of materials or products by trucks hired by a Contractor, subcontractor, or agent thereof, from a commercial establishment.[79]

6. The delivery of sand, gravel, or rock, by or for a commercial establishment, which is deposited "substantially in place," either directly or through spreaders from the transporting vehicles is work under the contract. In addition, the return haul to the off-site facility empty or loaded is also considered work under the contract.[80]

[70] Minn. R. 5200.1070, Subpart 3
[71] Minn. Stat. 177.44, Subdivision 1
[72] Minn. Stat. 177.44, Subdivision 1
[73] Minn. Stat. 177.30(a)(5); Minn. Stat. 181.723
[74] Minn. Stat. 177.44, Subdivision 1
[75] Minn. R. 5200.1106, Subpart 3B(1)
[76] Minn. R. 5200.1106, Subpart 3B(2)
[77] Minn. R. 5200.1106, Subpart 3B(3)
[78] Minn. R. 5200.1106, Subpart 3B(4)
[79] Minn. R. 5200.1106, Subpart 3B(5)
[80] Minn. R. 5200.1106, Subpart 3B(6)

B. **Hauling Activities Not Subject to Prevailing Wage or Truck Rental Rates.** A Contractor may exclude a Worker, including hired Trucking Brokers, MTOs and ITOs from prevailing wage or truck rental rates for the Work described in (1-2) of this section. However, this Work may be considered hours worked and subject to standard compensation pursuant to the Minnesota Fair Labor Standards Act.

1. The delivery of processed or manufactured goods to a public works project by the employees of a commercial establishment including truck owner-operators hired by and paid by the commercial establishment, unless it is the delivery of mineral aggregate that is incorporated into the work under the contract by depositing the material substantially in place.[81]

2. The delivery of oil offsite, as an example, to a Prime Contractor's permanent (commercial) asphalt mixing facility that is not to, from, or on the project Work site.[82]

C. **Repair, Maintenance & Waiting to Load Time.** An ITO and MTO must be paid the truck rental rate for time spent repairing or maintaining the truck owner-operator's equipment, and for waiting to load or unload if the repair, maintenance, or wait time is the fault of the Trucking Broker, Contractor, its agent or employees.[83]

D. **Month End Trucking Report.** A Contractor that acquires the services of an ITO or MTO must submit a "MnDOT – MTO and/or ITO Month-End Trucking Report", and a "MnDOT – Month-End Trucking Statement of Compliance Form" to the Department for each month hauling activities are performed under the Contract.[84] The forms are available on the MnDOT LCU website.[85]

E. **Broker Fee.** A truck broker contracting to provide trucking services directly to a prime contractor or subcontractor is allowed to assess a broker fee.

XIV. OFF-SITE FACILITIES

A. **Off-Site Facility Activities Subject to Prevailing Wage.** A Contractor must ensure that all Workers performing Work at a covered off-site facility are paid the applicable Total Prevailing Wage Rate for the following Work:

1. The processing or manufacturing of material at a Prime Contractor's off-site facility that is not a separately held commercial establishment.[86]

2. The processing or manufacturing of material at an off-site facility that is not considered a commercial establishment.[87]

B. **Off-Site Facility Activities Not Subject to Prevailing Wage.** A Contractor may exclude a Worker from prevailing wage for the following work:

1. The processing or manufacturing of material or products by or for a commercial establishment.[88]

2. The work performed by Workers employed by the owner or lessee of a gravel or borrow pit that is a commercial establishment, even if the screening, washing or crushing machines are portable.[89]

XV. SUBCONTRACTING PART OF THE CONTRACT

[81] Minn. R. 5200.1106, Subpart 4(C)
[82] J.D. Donovan, Inc. vs. Minnesota Department of Transportation, 878 N.W.2d 1 (2016)
[83] Minn. R. 5200.1106, Subpart 8(A)(1)
[84] Minn. R. 5200.1106, Subpart 10
[85] http://www.dot.state.mn.us/const/labor/forms.html
[86] ALJ Findings of Fact, Conclusions of Law, and Recommendation, Conclusions (7), Case #12-3000-11993-2
[87] Minn. R. 5200.1106, Subpart 3(A)
[88] Minn. R. 5200.1106, Subpart 4(A)
[89] Minn. R. 5200.1106, Subpart 4(B)

The Prime Contractor must include the Contract Special Provisions, Wage Decision(s) and Truck Rental Rate Schedule in all Subcontracts, agreements and purchase orders with lower tier Contractors.[90] This requirement also applies to all lower tier subcontractors.

XVI. SITE OF WORK REQUIREMENTS

A. **Poster Board.** The Prime Contractor must construct and display a poster board containing all required posters. The poster board must be accurate, legible, and accessible to all project Workers from the first day of Work until the project is one hundred percent (100%) complete.[91] A poster board at an off-site location, or inside a construction trailer, does not meet this requirement.

B. **How to Obtain a Poster Board.** The Prime Contractor may obtain the required posters and the necessary contact information that is required to be inserted on each poster by visiting the MnDOT LCU website.[92]

C. **Employee Interviews.** The Contractor must permit representatives from the Department or other governmental entities[93] to interview Workers at any time during working hours on the project.[94]

XVII. CHILD LABOR

A. **No Worker under the Age of 18.** No Worker under the age of 18 is allowed to perform Work on a Project Site, except pursuant to Section XVII B below.[95]

B. **Parental Supervision.** A Worker under the age of 18 may perform Work on a Project Site if all of the following criteria are met:

1. The Contractor (Employer) is not subject to FLSA.
2. The Worker is employed in a corporation owned solely by one or both parents.
3. The Worker is supervised by the parent(s).
4. The Worker is not working in a hazardous occupation.[96]

C. **Removal of Minor from Project.** The Engineer or inspector may remove a Worker that appears to be under the age of 18 from the Project Site until the Contractor or Worker can demonstrate proof of age and compliance with all applicable federal and state regulations.[97]

XVIII. NON-COMPLIANCE AND ENFORCEMENT

A. **Case-by-Case Enforcement.** The Department has the authority to enforce the prevailing wage law on a case-by-case.[98]

B. **Prime Contractor Responsible for Unpaid Wages.** The Prime Contractor will be held liable for any unpaid wages to its Workers or those of any lower tier Contractor.[99]

C. **Enforcement Options.** If evidence shows that a Contractor has violated prevailing wage requirements, or these Special Provisions, the Department may, after written notice, implement one or more of the following:

[90] MnDOT Standard Specifications for Construction, Section 1801
[91] Minn. Stat. 177.44, Subdivision 5
[92] www.dot.state.mn.us/const/labor/posterboards
[93] MnDLI, U.S. DOL, , U.S. Department of Transportation, Federal Highways Administration
[94] MnDOT Standard Specifications for Construction, Section 1511
[95] Minn. R. 5200.0910, Subpart F; 29 CFR Part 570.2(a)(ii)
[96] Minn. R. 5200.0930, Subpart 4
[97] Minn. Stat. 181A.06, Subdivision 4; MnDOT Standard Specifications for Construction, Section 1701
[98] *See* International Union of Operating Engineers, Local 49 v. MnDOT, No. C6-97-1582, 1998 WL 74281, at *2 (Minn. App. Feb. 24, 1998)
[99] MnDOT Standard Specifications for Construction, Section 1801

1. **Withholding Payment.** The Department may withhold from the Prime Contractor payments relating to prevailing wage underpayments.[100]

2. **Non-Responsible Contractor.** The Department may reject a bid from a Prime Contractor that has received two (2) or more Determination Letters within a three (3) year period from the Department finding an underpayment by the Contractor to its own employees.[101]

3. **Default.** The Department may take the prosecution of the Work out of the hands of the Prime Contractor, place the Contractor in default, and terminate the Contract for failure to comply.[102]

4. **Suspension or Debarment.** The Department may refer violations and matters of non-compliance by a Contractor to the Minnesota Department of Administration for suspension or debarment proceedings.[103]

5. **County Attorney.** The Department may refer suspected criminal violations by Contractor to the appropriate local county attorney for prosecution.[104]

6. **Financial Penalties.** 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.[105] A Contractor may be fined up to $1,000 for each failure to maintain records.[106]

7. **False Claims Act Violation.** All required payroll and certification reports are legal documents; knowing falsification of the documents by a Contractor may result in civil action and/or criminal prosecution[107] and may be grounds for debarment proceedings.[108]

8. **Compliance Order.** The Department may request that MnDLI issue a compliance order to a Contractor for violations of the state prevailing wage law. If the Contractor is found to have committed a violation, liquidated damages and other costs may be assessed against the Employer.[109]

9. **Private Right of Action.** The Department may direct an employee to pursue a civil action in district court against its Employer for failure to comply with the proper payment of wages.[110] If the Employer is found to have committed a violation, liquidated damages and other costs may be assessed against the Employer.[111]

10. **Fringe Benefits; Misdemeanor.** A Contractor that is obligated to deposit Fringe Benefit contributions on behalf of a Worker into a financially responsible trustee, third person, fund, plan, or program and fails to make timely contributions is guilty of a gross misdemeanor or other violations under federal law.[112]

[100] MnDOT Standard Specifications for Construction, Section 1906
[101] Minn. Stat. 16C.285
[102] MnDOT Standard Specifications for Construction, Section 1808
[103] Minn. R. 1230.1150, Subpart 2(A)(4)
[104] Minn. Stat. 177.44, Subdivision 7
[105] Minn. Stat. 177.44, Subdivision 6
[106] Minn. Stat. 177.30(b)
[107] Minn. Stat. 15C.02; , Minn. Stat. 161.315; Minn. Stat. 177.32; Minn. Stat. 177.43, Subdivision 5, Minn. Stat. 609.63
[108] Minn. Stat. 161.315 and Minn. Stat. 609.63
[109] Minn. Stat. 177.43, Subdivision 6a
[110] Minn. Stat. 177.27, Subdivision 8
[111] Minn. Stat. 177.27, Subdivision 10
[112] Minn. Stat. 181.74, Subdivision 1

THE FOLLOWING APPENDICES ARE FOR EXPLANATORY PURPOSES ONLY. FOR SPECIFIC QUESTIONS, PLEASE CONTACT LCU.[113]

APPENDIX A SALARIED WORKER WAGE COMPUTATION

Salaried Workers. In order to convert the Worker's salary into an hourly rate of pay, divide the employee's weekly, bi-weekly or monthly earnings by the total number of hours Worked (government and non-government), including overtime hours for the time period used.[114]

$800.00 (weekly salary) / 40 (total weekly hours) = $20.00

$1,600.00 (bi-weekly salary) / 80 (total bi-weekly hours) = $20.00

$3,200.00 (monthly salary) / 160 (total monthly hours) = $20.00

APPENDIX B FRINGE BENEFIT CREDIT

Fringe Benefit Credit Calculation. The Employer contributes monthly ($600.00) for medical insurance on behalf of a Worker. In order to calculate the projected hourly credit that the Employer can take, the Employer should: (1) add the monthly contributions for each Worker, (2) multiply by twelve (12) months, and (3) divide the total cost of the benefit by the total hours worked (government and non-government)[115] (see annual example below). Quarterly and monthly examples are also provided.

Annual: **($600.00) x (12 months) = $7,200.00**
($7,200.00) / (2080 hours) = $3.46 per hour credit

Quarterly: **($600.00) x (3 months) = $1,800.00**
($1,800.00) / (520 hours) = $3.46 per hour credit

Monthly: **($600.00) x (1 month) = $600.00**
($600.00) / (173 hours) = $3.47 per hour credit

End of Year Self-Audit. At the end of the calendar year, the Contractor must conduct an audit to determine if the hourly fringe benefit credit taken for each Worker was accurate. The Contractor must calculate the total annual fringe benefits paid on behalf of each Worker and divide that amount by the total number of hours worked (government and non-government) by that Worker. If the hourly fringe benefit credit was less than what was reported on a CPR, the contractor must compensate the Worker the hourly difference, multiplied by the total hours worked under the Contract.

APPENDIX C APPRENTICE RATE OF PAY

State Requirements. The Apprentice must be compensated according his/her level of progress, which is expressed as a percentage of the Journeyworker wage that is established in the program.

Journeyworker Wage Established in Program = $25.00

Apprentice Level of Progress = 60%

($25.00) * (.60) = $15.00

[113] lcusupport.dot@state.mn.us or (651) 366-4238
[114] United States Department of Labor Field Operation Handbook, Section 15f08
[115] United States Department of Labor Field Operation Handbook, Section 15f12

Overtime Hourly Rate of Pay. Here is the formula to calculate the required minimum overtime.[116]

OT = (PW * .5) + (HW) + (RF) + (F)

Definition of OT Acronyms

OT: overtime.
PW: the basic hourly prevailing wage rate established in a federal and/or state prevailing Wage Decision.
HW: hourly wage rate paid to a Worker.
RF: remaining fringe, which means the difference between the Contract hourly Fringe Benefit rate and the actual hourly Fringe Benefit rate paid by the Contractor to a third party on behalf of a Worker.
F: Fringe Benefit contributions that are bona-fide and contributed by an Employer to a third party on behalf of a Worker.

The Total Prevailing Wage Rate for a Worker is $30.00, which is comprised of an hourly basic rate of $20.00 and an hourly fringe rate of $10.00. The table below includes various hourly basic and Fringe Benefit payments that a Contractor could potentially make to a Worker.

OT CALCULATION FORMULA AND EXAMPLES
OT = (PW * .5) + (HW) + (RF) + (F)

Hourly Wage Paid	Fringe Benefits Paid	Payment To Employee (PW * .5) + (HW) + (RF)	Fringe Payment + (F)	Total Payment = OT
$ 20.00	$ 10.00	($ 20.00 * .5) + ($ 20.00) + ($ 0.00) = $ 30.00	+ $ 10.00	= $ 40.00
$ 18.00	$ 12.00	($ 20.00 * .5) + ($ 18.00) + ($ 0.00) = $ 28.00	+ $ 12.00	= $ 40.00
$ 22.00	$ 8.00	($ 20.00 * .5) + ($ 22.00) + ($ 0.00) = $ 32.00	+ $ 8.00	= $ 40.00
$ 30.00	$ 0.00	($ 20.00 * .5) + ($ 30.00) + ($ 0.00) = $ 40.00	+ $ 0.00	= $ 40.00
$ 24.00	$ 4.00	($ 20.00 * .5) + ($ 24.00) + ($ 2.00) = $ 36.00	+ $ 4.00	= $ 40.00

Regarding the last example the Contractor would be required to pay an additional $2.00 to the Worker, which is wages in lieu of fringe for a straight time hourly rate of $26.00 not $24.00.

A Contractor subject to the Fair Labor Standards Act (FLSA) may be subject to additional overtime compensation requirements.

[116] United States Department of Labor Field Operation Handbook, Section 15k

NOTICE TO BIDDERS

Minnesota Statutes require prompt payment to subcontractors:

Minn. Stat. § 471.425 PROMPT PAYMENT OF LOCAL GOVERNMENT BILLS.

Subdivision 1. **Definitions.** For the purposes of this section, the following terms have the meanings here given them.

. . . (d) "Municipality" means any home rule charter or statutory city, county, town, school district, political subdivision or agency of local government. "Municipality" means the Metropolitan Council or any board or agency created under chapter 473.

. . . Subd. 4a. **Prompt payment to subcontractors**. Each contract of a municipality must require the prime contractor to pay any subcontractor within ten days of the prime contractor's receipt of payment from the municipality for undisputed services provided by the subcontractor. The contract must require the prime contractor to pay interest of 1-1/2 percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the prime contractor shall pay the actual penalty due to the subcontractor. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

Minn. Stat. § 15.72 PROGRESS PAYMENTS ON PUBLIC CONTRACTS; RETAINAGE.

. . . Subd. 2. **Retainage.** . . . (c) A contractor on a public contract for a public improvement must pay all remaining retainage to its subcontractors no later than ten days after receiving payment of retainage from the public contracting agency, unless there is a dispute about the work under a subcontract. If there is a dispute about the work under a subcontract, the contractor must pay out retainage to any subcontractor whose work is not involved in the dispute, and must provide a written statement detailing the amount and reason for the withholding to the affected subcontractor.

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

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)					
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 DLI.PREVWAGE@STATE.MN.US			
106	BLASTER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
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 DLI.PREVWAGE@STATE.MN.US			
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.				
SPECIAL EQUIPMENT (201 - 204)					
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
HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR					
GROUP 2		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)				
GROUP 3		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)				
GROUP 4		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 TIRED 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)				
GROUP 5		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)				
GROUP 6		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				
TRUCK DRIVERS					
GROUP 1		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)				
GROUP 2		2024-11-18	35.66	18.07	53.73
604	FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK				
GROUP 3		2024-11-18	31.93	25.00	56.93
605	BITUMINOUS DISTRIBUTOR DRIVER				
606	BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607	THREE AXLE UNITS				
GROUP 4		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.				
SPECIAL CRAFTS					
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 DLI.PREVWAGE@STATE.MN.US			
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	PILEDRIVER (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 DLI.PREVWAGE@STATE.MN.US			
724	TILE SETTERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
727	WIRING SYSTEM TECHNICIAN	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
728	WIRING SYSTEMS INSTALLER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
729	ASBESTOS ABATEMENT WORKER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
730	SIGN ERECTOR	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			

DEPARTMENT OF LABOR AND INDUSTRY

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

The current operating costs and truck rental rates may be reviewed by accessing DLI's website at https://dli.mn.gov/business/employment-practices/prevailing-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

SECTION 1 – GENERAL

1.01 SPECIFICATION INCLUDES

A. Project Coordination
B. Preconstruction Conference
C. Construction Progress Meetings

1.02 CONSTRUCTION COORDINATOR

A. The Contractor shall provide a Construction Coordinator for the Project. In this capacity, the duties and responsibilities in scheduling and performance of the Work shall be as follows:
   1. Allocate and coordinate the use of a site for field offices/construction trailers, site access, traffic, and parking.
   2. Install and coordinate the use of temporary utilities and construction facilities.
   3. Coordinate field engineering and layout of the Work.
   4. Coordinate the Work of Subcontractors.
B. The Construction Coordinator shall be present and intimately involved throughout the entire duration of the Work. This role may not be transferred to subcontractors or others. Any absence of the Construction coordinator must be approved in advance by the Engineer and an approved substitute shall be designated. The Owner, Engineer, and adjacent businesses shall be notified of a change in the construction coordinator at least 72 hours in advance.
C. Coordinate scheduling to ensure efficient and orderly sequencing of the installation of interdependent portions of the Work.
D. Coordinate with private utility companies or others who may be required to perform work within the project site.
E. Inspect, verify, and coordinate routine clean-up of the site.
F. Coordinate the temporary pedestrian access plan, provide notifications, and coordinate with adjacent businesses concerning pedestrian access and any access interruptions or impacts.

1.03 PRECONSTRUCTION CONFERENCE

A. After the issuance of the Notice of Award and execution of the Agreement, Engineer will schedule a Preconstruction Conference.
B. Attendance will be mandatory for the following:
   1. Engineer Representatives
   2. Owner Representatives
   3. Contractor Representatives
   4. Major Subcontractor Representatives
C. Engineer will prepare an Agenda that will include, at a minimum, the following:
   1. Submission of executed Bonds and Insurance Certificates.
   2. Distribution of Contract Documents

3. Submission of a list of Subcontractors, Product Lists, Schedule of Values, and Preliminary Progress Schedule.
4. Designation of personnel representing the parties in the Controls.
5. Procedures for field decisions, submittals, substitutions, applications for payments, requests for information, requests for proposals, Change Orders, O&M Manuals, project closeout procedures, and other contractual items.
6. Detailed review of the Contractor's construction phasing, schedule, and prosecution.

1.04 CONSTRUCTION PROGRESS MEETINGS

A. Construction progress meetings will be held weekly throughout the progress of the Work. The meetings will be open to the public.
B. Engineer will arrange the meeting, prepare an agenda, preside over the meeting, record minutes and distribute those minutes to all affected by decisions made at the meeting.
C. Contractor shall ensure that the Job superintendent, major subcontractors, and major suppliers are in attendance, as appropriate for agenda items. The Contractor shall be responsible for answering questions from the Engineer or public and must present a progress report and identify any access or service impacts to the adjacent properties
D. The Agenda will include, at a minimum, the following items:
    1. Review of Work progress.
    2. Field Observations, issues, and decisions.
    3. Discussion of issues which may impede progress.
    4. Status of submittals.
    5. Upcoming Work.
    6. Project coordination.
    7. Discussion on quality of Work.
    8. Access/service interruptions
    9. Pedestrian access.
    10. Other items related to the Work.

SECTION 2 – PRODUCTS (NOT USED)

SECTION 3 – EXECUTION (NOT USED)

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. This Section specifies the general methods and requirements of submissions applicable to shop drawings, product data, samples, construction photographs, and construction or submittal schedules.
B. Additional detailed submittal requirements may be specified in specific technical sections.
C. Submittals shall be clear and legible and of sufficient size for the presentation of data.
D. The engineer reserves the right to request submittals for all material or equipment to be supplied on the project.
E. Contractor shall submit all Product Options and Substitutions requests in accordance with Section 01630.

1.02 SUBMISSION REQUIREMENTS

A. Make submittals promptly so as not to delay the Work or the Work of any other contractor.
B. All submittals shall be delivered to the Engineer from the Prime Contractor.
C. Each submittal will be returned within 14 calendar days following receipt of the submittal by the Engineer.
D. Shop Drawings shall be submitted electronically in pdf format and numbered in accordance with the following:
    1. Submittals shall be saved/titled in "XX.YY – Submittal Name" format
    2. XX is the submittal number. Each submittal shall be numbered sequentially. First submittal XX shall be 01.
    3. YY is the revision number. The very first submittal shall be 01.01. If submittal 01.01 is rejected, when it is resubmitted, it shall be titled 01.02, and so on.
E. Submittals shall contain:
    1. The date of submission and the dates of any previous submissions.
    2. The Project title
    3. Apex project number and State project numbers.
    4. The names of:
        a. Contractor
        b. Supplier
        c. Manufacturer
    5. Identification of the product.
    6. Product and field dimensions as applicable.
    7. Applicable standards, such as ASTM or Federal Standards numbers.
    8. Identification of revisions on resubmittals.
    9. A blank space suitably sized for Contractor and Engineer stamps.
    10. Where calculations are required appropriate certification by qualified individual.
F. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor and will be considered "Not Approved" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
G. Repetitive Review

1. Shop drawings and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at times convenient to the Engineer and at the Contractor's expense, based on the Engineer's then prevailing rates. The Contractor shall reimburse the Owner for all such fees invoiced to the Owner by the Engineer. Submittals are required until approved.
2. Any need for more than one resubmission, or any other delay in obtaining Engineer's review of submittals, will not entitle Contractor to extension of the Contract Time.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:
   1. Field measurements
   2. Field construction criteria
   3. Catalog numbers and similar data
   4. Conformance to the contract documents
   5. Identify any variations from the Contract Documents that may hinder the performance of the completed Work.

B. Each shop drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor:

   "I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."

   Shop Drawings that are not stamped will not be reviewed.

C. Notify the Engineer in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.

D. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

E. Project work, materials, fabrication, and installation shall conform to approved shop drawings, applicable samples, and product data.

F. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

G. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least thirty (30) calendar days prior to release for manufacture.

H. Following the Engineer’s review and approval, the Contractor shall distribute to subcontractors, suppliers, manufacturers, and all other necessary parties.

I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.04 ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

A. The review of shop drawings, data and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:
   1. as permitting any departure from the Contract requirements;
   2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
   3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.

B. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.

C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or Contract Time, the Engineer may return the reviewed drawings without noting an exception.

D. Submittals will be returned to the Contractor under one of the following codes:

   APPROVED AS SUBMITTED: assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.

   APPROVED AS NOTED: assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.

   NOT APPROVED: is assigned when the submittal incomplete and/or does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

   APPROVAL PENDING CONFIRMATION: is assigned when there are no notations or comments on the submittal; however, there may be areas lacking clarity and further clarification is required. When "Confirm" is noted on the review form, written clarification from the Contractor is required prior to final approval. Confirmation/final clarification of "Confirm" items can typically be verified through email correspondence. In this case, the email correspondence will become part of the approved submittal.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. The Contractor shall submit an electronic copy of the initial progress schedule to the Engineer within fifteen (15) days of the date of the Owner-Contractor Agreement.
B. Contractor shall revise and resubmit the progress schedule based on Engineers review and comments.
C. Contractor shall submit revised progress schedules prior to each progress meeting and/or with each Application for Payment, whichever occurs more frequently.
D. Progress schedules shall consist of a computer-generated chart with separate lines for each major item of Work.
E. Progress schedules shall show the complete sequence of construction and shall identify the Work of separate stages and logically grouped activities. Schedules shall show early and late start dates, early and late finish dates, float dates, and duration for each item of Work.

1.06 PRODUCT SAMPLES

A. When requested by the Engineer, the Contractor shall submit samples which demonstrate the functional and aesthetic qualities of the Product.
B. Samples shall demonstrate the full range of the manufacturer's standard and custom colors, finishes, textures, and patterns so the Engineer may make a selection.
C. Each sample shall be accompanied with complete Project information.
D. Contractor shall submit the number of samples requested by the Engineer or identified in individual specification Sections.
E. Product samples may be retained by the Engineer.
F. Samples that may be incorporated into the Work are identified in individual Sections.

1.07 MANUFACTURER'S CERTIFICATES, INSTRUCTIONS AND WARRANTIES

A. When specified in individual Sections, Contractor shall submit manufacturer's instructions for delivery, storage, assembly, installation, start-up, adjusting, balancing, and finishing in quantities specified in Product Data. Contractor shall identify any conflicts between the manufacturer's instructions and the Contract Documents.
B. When specified in individual Sections, Contractor shall submit manufacturer's certificates for review. Certificates shall indicate that the product meets or exceeds the specified requirements.
C. Certifications shall include appropriate supporting data and may be from recent or previous test results, but must be acceptable to the Engineer.
D. Contract shall submit required warranty information with the submittals.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

PART 1 – GENERAL

1.01 SPECIFICATION INCLUDES

A. Temporary Utilities, including electricity, telephone, water, and sanitary facilities.

B. Temporary Controls, including barriers, enclosure, fencing, security, protection of the Work, and water and dust control.

C. Temporary Construction Facilities, including access roads, parking, site cleaning, project signage, and temporary buildings.

1.02 TEMPORARY ELECTRICITY

A. Contractor shall provide for and pay for any temporary power service from the Utility source.

1.03 TEMPORARY WATER SERVICE

A. Contractor shall provide, maintain, and pay for suitable quality water service required for construction.

B. The Owner will allow the use of the municipal water system, at no cost to the Contractor, for purposes related to the Work. All water used from the Owner's distribution system shall be metered (provided by Owner).

C. Contractor shall provide temporary water service (and service to fire suppression systems) to businesses and other establishments in accordance with Section 02600.

1.04 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide, maintain, and pay for temporary sanitary facilities and enclosures.

1.05 BARRIERS

A. Contractor shall provide barriers to provide for the following:

1. Prevention of unauthorized access to the construction site.
2. Allow for Owner's use of the site.
3. Protection of existing facilities.
4. Protection of adjacent properties.

B. Provide barricades and temporary controls required by the governing authority for public rights-of-way.

C. Provide protection for plant life designated to remain. Replace any plant life damaged by construction activities.

D. Provide protection for vehicular traffic, stored materials, site, and structures.

1.06 FENCING

A. Contractor shall install site fencing (at storage/staging area) at their option with the approval of Engineer.

1.07 WATER CONTROL

A. Contractor shall provide, operate, and maintain pumping equipment to maintain all excavations free from water.
B. Contractor shall grade the site to drain and protect the site from puddling or running water.
C. Contractor shall provide water barriers as required to protect the site from soil erosion.
D. Contractor shall comply with all National Pollution Discharge Elimination System (NPDES) Permit requirements.

1.08 PROTECTION OF INSTALLED WORK

A. Contractor shall provide for the protection of completed Work and installed products. Work of products damages shall be repairs or replaced at the Contractor's expense.

1.09 SITE SECURITY

A. Contractor shall provide security at the site to prevent unauthorized access, vandalism, and theft of items of the Work or Owner's property.

1.10 ACCESS ROADS

A. Contractor shall construct and maintain any temporary roads to serve the construction site. Maintain acceptable access for all residences and businesses at all times. Temporary roads shall be extended, relocated, and removed as necessary to accommodate the Work.
B. Contractor shall provide detours, including signage and signaling, as needed for uninterrupted traffic flow.
C. Contractor shall provide wash areas to remove dirt, mud, and other debris from vehicle prior to entering roadways. Provide site entrance pads as required by the Drawings.
D. Contractor shall provide and maintain access to all manholes and fire hydrants.

1.11 CLEANING OF WORK

A. Maintain the site in a clean, neat, and orderly condition. All waste and debris shall be removed periodically and disposed of off-site no less often than weekly.

1.12 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. Contractor shall remove all temporary utilities, equipment, facilities, and materials prior to substantial completion. Areas used for temporary facilities shall be cleaned and any damage repaired.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

CONSTRUCTION AND MATERIALS SPECIFICATIONS

AURDAL TOWNSHIP STREAMBANK STABILIZATION

SECTION 28 T. 133 N. R. 42

W. OTTER TAIL COUNTY

West Otter Tail Soil and Water CONSERVATION DISTRICT

Aurdal Township
Construction & Material Specifications

CONSTRUCTION SPECIFICATIONS

MATERIAL SPECIFICATIONS

I hereby certify that this plan, specification, or report 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.

Wes Drake Date: 4-23-24

Wes Drake, P.E.
License No 47675

Minnesota Construction Specification 61—Rock Riprap

1. Scope

The work shall consist of the construction of rock riprap revetments and blankets, including filter or bedding where specified.

2. Material Specifications

Rock riprap shall conform to the requirements of Material Specification MN-523, Rock for Riprap, or if so specified, shall be obtained from designated sources. It shall be free from dirt, clay, sand, rock fines, and other material not meeting the required gradation limits.

At least 30 days before rock is delivered from other than designated sources, the contractor shall designate in writing the source from which rock material will be obtained and provide information satisfactory to the engineer that the material meets contract requirements. The contractor shall provide the engineer free access to the source for the purpose of obtaining samples for testing. The size and grading of the rock shall be as specified in section 7 or on the drawings.

Rock from approved sources shall be excavated, selected, and processed to meet the specified quality and grading requirements at the time the rock is installed.

Filter or bedding aggregates when required shall conform to Material Specification 521, Aggregates for Drainfill and Filters, unless otherwise specified. Geotextiles shall conform to Material Specification 592, Geotextile.

3. Subgrade preparation

The subgrade surface on which the rock riprap, filter, bedding, or geotextile is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When fill to subgrade lines is required, it shall consist of approved material and shall conform to the requirements of the specified class of earthfill.

Rock riprap, filter, bedding, or geotextile shall not be placed until the foundation preparation is completed and the subgrade surface has been inspected and approved.

4. Equipment-placed rock riprap

The rock riprap shall be placed by equipment on the surface and to the depth specified. It shall be installed to the full course thickness in one operation and in such a manner as to avoid serious displacement of the underlying material. The rock for riprap shall be delivered and placed in a manner that ensures the riprap in place is reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks. Some hand placing may be required to provide a neat and uniform surface.

Rock riprap shall be placed in a manner to prevent damage to structures. Hand placing is required as necessary to prevent damage to any new and existing structures.

5. Hand placed rock riprap

The rock riprap shall be placed by hand on the surface and to the depth specified. It shall be securely bedded with the larger rocks firmly in contact one to another without bridging. Spaces between the larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on its vertical edge except where it is laid like paving stone and the thickness of the rock equals the specified depth of the riprap course.

6. Filter or bedding

When the contract specifies filter, bedding, or geotextile beneath the rock riprap, the designated material shall be placed on the prepared subgrade surface as specified. Compaction of filter or bedding aggregate is not required, but the surface of such material shall be finished reasonably smooth and free of mounds, dips, or windrows.

7. Construction details

The rock riprap shall be MNDOT Class shown on the drawings and quantity table. The riprap shall also be installed as shown on the drawings.

The rock riprap shall be equipment placed. Sufficient riprap shall be placed by hand to insure a neat uniform surface.

8. Measurement and Payment

The Engineer will measure rock riprap by the Cubic Yard (Cu Yd). The Contract Unit Price for 2511.507 Random Riprap Class II is compensation in full for Equipment, Materials, and Labor required to complete the Work.

Material Specification 523—Rock for Riprap

1. Scope

This specification covers the quality of rock to be used in the construction of rock riprap.

2. Quality

Individual rock fragments shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. Except as otherwise specified, the rock fragments shall be angular to subrounded. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment. ASTM D 4992 provides guidance on selecting rock from a source.

Except as otherwise provided, the rock shall be tested and shall have the following properties:

Rock type 1

- ***Bulk specific gravity (saturated surface-dry basis)—***Not less than 2.5 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption—***Not more than 2 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness—***The weight loss in 5 cycles shall not be more than 10 percent when sodium sulfate is used or more than 15 percent when magnesium sulfate is used.

Rock type 2

- ***Bulk specific gravity (saturated surface-dry basis)—***Not less that 2.5 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption—***Not more than 2 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness—***The weight loss in 5 cycles shall be not more than 20 percent when sodium sulfate is used or more than 25 percent when magnesium sulfate is used.

Rock type 3

- ***Bulk specific gravity (saturated surface-dry basis)—***Not less than 2.3 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption—***Not more than 4 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness—***The weight loss in 5 cycles shall be not more than 20 percent when sodium sulfate is used or more than 25 percent when magnesium sulfate is used.

3. Methods of soundness testing

Rock cube soundness—The sodium or magnesium sulfate soundness test for all rock types (1, 2, or 3) shall be performed on a test sample of 5,000 ± 300 grams of rock fragments, reasonably uniform in size and cubical in shape, and weighing, after sampling, about 100 grams each. They shall be obtained from rock samples that are representative of the total rock mass, as noted in ASTM D 4992, and that have been sawed into slabs as described in ASTM D 5121. The samples shall further be reduced in size by sawing the slabs into cubical blocks. The thickness of the slabs and the size of the sawed fragments shall be determined by the size of the available test apparatus and as necessary to provide, after sawing, the approximate 100-gram samples. The cubes shall undergo five cycles of soundness testing in accordance with ASTM C 88.

Internal defects may cause some of the cubes to break during the sawing process or during the initial soaking period. Do not test any of the cubes that break during this preparatory process. Such breakage, including an approximation of the percentage of cubes that break, shall be noted in the test report.

After the sample has been dried following completion of the final test cycle and washed to remove the sodium sulfate or magnesium sulfate, the loss of weight shall be determined by subtracting from the

original weight of the sample the final weight of all fragments that have not broken into three or more fragments.

The test report shall show the percentage loss of the weight and the results of the qualitative examination.

Rock slab soundness—When specified, the rock shall also be tested in accordance with ASTM D 5240. Deterioration of more than 25 percent of the number of blocks shall be cause for rejection of rock from this source. Rock shall also meet the requirements for average percent weight loss stated below.

- For projects located north of the Number 20 Freeze-Thaw Severity Index Isoline (fig. 523–1). Unless otherwise specified, the average percent weight loss for Rock Type 1 shall not exceed 20 percent when sodium sulfate is used or 25 percent when magnesium sulfate is used. For Rock Types 2 and 3, the average percent weight loss shall not exceed 25 percent for sodium sulfate soundness or 30 percent for magnesium sulfate soundness.
- For projects located south of the Number 20 Freeze-Thaw Severity Index Isoline, unless otherwise specified, the average percent weight loss for Rock Type 1 shall not exceed 30 percent when sodium sulfate is used or 38 percent when magnesium sulfate is used. For Rock Types 2 and 3, the average percent weight loss shall not exceed 38 percent for sodium sulfate soundness or 45 percent for magnesium sulfate soundness.

4. Field durability inspection

Rock that fails to meet the material requirements stated above (if specified), may be accepted only if similar rock from the same source has been demonstrated to be sound after 5 years or more of service under conditions of weather, wetting and drying, and erosive forces similar to those anticipated for the rock to be installed under this specification.

A rock source may be rejected if the rock from that source deteriorates in 3 to 5 years under similar use and exposure conditions expected for the rock to be installed under this specification, even though it meets the testing requirements stated above.

Deterioration is defined as the loss of more than one-quarter of the original rock volume, or severe cracking that would cause a block to split. Measurements of deterioration are taken from linear or surface area particle counts to determine the percentage of deteriorated blocks. Deterioration of more than 25 percent of the pieces shall be cause for rejection of rock from the source.

5. Grading

The rock shall conform to the specified grading limits after it has been placed within the matrix of the rock riprap. Grading tests shall be performed, as necessary, according to ASTM D 5519, Method A, B, or C, as applicable.

Figure 523–1 Number 20 freeze-thaw severity index isoline (map approximates the map in ASTM D 5312)

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DIVISION S INDEX

DIVISION S

S-1 CONTRACT DOCUMENTS

The provisions of the 2020 edition of the MnDOT Standard Specifications for Construction shall apply except as amended by Division S herein, and Division 00 through Division 16 of the project Specifications. In the event of contradictions between Divisions 00 through 16 of the Specifications, and the 2020 edition of the MnDOT Standard Specifications for Construction, precedence shall be given to the Divisions 00 through 16 of the Specifications.

S-2 CONTACT INFORMATION

SP2020-1

Direct questions about this Project, including pre-bid questions, to Ben Vonada at 218-844-2590 and ben.vonada@ApexEngGroup.com.

S-3 WORKFORCE CERTIFICATE

The local agency cannot execute a contract for goods or services in excess of $250,000 with a business that has 40 or more full-time employees in this state or a state where the business has its primary place of business on a single day during the prior 12 months, unless the business has a workforce certificate from the commissioner of human rights or has certified in writing that it is exempt. Bidders may find more information on the Workforce Certificate Requirement at Minnesota Statutes Section 363A.36 or at this website:

https://mn.gov/mdhr/certificates/workforce-certificate/

S-4 EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS

NEW WRITE-UP 08/08/22

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

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

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.

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.

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 workforce data submission:

1. The Contractor and its Subcontractors must complete and submit workforce data weekly via the OCR Salesforce Portal (Salesforce). Failure to do so may result in the imposition of sanctions, including withholding of progress payments. Salesforce can be found here: https://mnit.force.com/license/CommunitiesLoginPage?AgencyVar=DOT_WITI.

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.

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-5 PROTECTION OF FISH AND WILDLIFE RESOURCES

REVISED 06/28/24

S-5.1 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. Contact the Project Engineer.

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

Winter tree clearing required – tree clearing allowed November 15 to March 31, inclusive.

Contractor must ensure tree removal is limited to that specified in the Plans. The Contractor must provide all Subcontractors preforming Work with the clearing limits and how they are marked in the field (e.g., install bright colored stakes, flagging, or fencing) prior to any tree clearing to ensure that all clearing stays within identified clearing limits.

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.

S-6 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 submitting a Proposal for this Project must verify that it meets the minimum criteria specified in that statute by submitting the "Responsible Contractor Verification and Certification of Compliance" form. A company owner or officer must sign the "Responsible Contractor Verification and Certification of Compliance" form under oath verifying compliance with each of the minimum criteria. THE COMPLETED FORMS MUST BE SUBMITTED WITH THE BID PROPOSAL.

A bidder must obtain a 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 an annual verification from each motor carrier it has a direct contractual relationship with. 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-7 (1102) ABBREVIATIONS AND MEASUREMENT UNITS

RESTORED AND REVISED 06/30/23
SP2020-13.1

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 – MODIFIED
SP2020-14

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

S-8.4 Add the following to MnDOT 1103:

Department
The terms Department or Owner are used interchangeably and the definition includes the Otter Tail County and Aurdal Township.

S-9 (1203) ACCESS TO PROPOSAL PACKAGE

The provisions of MnDOT 1203 are deleted and replaced with the following:

The Department will provide Bidders with access to the Proposal Package online through BidVAULT (https://bidvault.mn.uccs.com/). The Department may require a fee for Bidders to purchase and download copies of the Proposal Package.

S-10 (1206) PREPARATION AND DELIVERY OF PROPOSAL

The provisions of Mn/DOT 1206 are supplemented and/or modified with the following:

Mn/DOT 1206.1 is hereby deleted from the Mn/DOT Standard Specifications and replaced with the following:

1206.1 PREPARATION AND DELIVERY

ELECTRONIC METHOD:
The Contractor shall provide bids electronically by going to the Otter Tail County Highway Department website: https://mn-co-otter-tail.app.rtvision.com/oneoffice/bidding. The Contractor will then be required to follow the bidding instructions listed at this website. Otter Tail County is not responsible for any errors or omissions in the submittal of electronic bids.

Bidder shall submit the Proposal and the Proposal Guaranty online.

The Bidder shall electronically sign and submit the following with the Proposal:

(1) The complete "Schedule of Prices".
(2) Form 21126D, "Proposal Signature Page" attached to the back of the Proposal with signatures and all Agenda acknowledged,
(3) Non-collusion affidavit;
(4) Form CM 32-34, "EEO Clause;" FOR SP PROJECTS
(5) Form OTC MN Statutes Section 363 Compliance, "EEO Clause;" and
(6) Any other forms included in the Proposal Package.

Proposals must be complete, digitally signed and submitted by the date and time for opening Proposals. Late submission in not allowed.

YOU MUST SUBMIT A COMPLETE PROPOSAL.

Mn/DOT 1206.2 is hereby deleted from the Mn/DOT Standard Specifications and replaced with the following:

1206.2 ALLOWABLE SUBSTITUTIONS

No substitutions are allowed. Any bids submitted differing from 1206.1 above shall be considered an invalid bid and will not be opened

S-11 (1212) OPENING OF PROPOSALS

The provisions of Mn/DOT 1212 are modified by adding the following:

Proposal results can be viewed by going to the Otter Tail County Highway Department website: https://mn-co-otter-tail.app.rtvision.com/oneoffice/bidding

S-12 (1301) CONSIDERATION OF PROPOSALS

S-12.1 Delete the second sentence in the first paragraph and replace with the following:

The Bid documents contain multiple sections and alternates, which may be considered by the Department for award into the Contract. The following provides a brief description of the Sections and Alternates:

A Base Bid: The Bid Package includes a Base Bid which includes all work illustrated in the contract documents, that is not included in any of the alternates.

B Sections: The Bid Package includes Sections (Section A, Section B, and Section C) of the Base Bid which include all work labeled as being part of that Section, that is not included in any other Sections or Alternates. All sections of the Base Bid will be awarded if any portion of the project is awarded.

C Alternates: If Alternates are awarded, Alternates listed will be added to the Base Bid, in sequential order as listed in the drawings, until such point when the award of the next sequentially ordered alternate, minus Section C of the Base bid, will result in an amount in excess of $1,449,583 (Base Bid Section A + Base Bid Section B + Alternate No. 1 + Alternate No. 2 + Alternate No. 3… < $1,449,583.00). No Alternates will be awarded unless the Base Bid is awarded.

S-13 (1302) AWARD OF CONTRACT

S-13.1 Delete the first sentence in the first paragraph and replace with the following:

Within 90 Calendar Days after opening Proposals, the Department will Award the Contract to the lowest responsible Bidder provided that the lowest responsible Bidder complies with the Proposal Requirements.

S-14 (1507) UTILITY PROPERTY AND SERVICE

REVISED 01/27/23
SP2020-27

S-14.1 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-15 (1508) CONSTRUCTION STAKES, LINES, AND GRADES

REVISED 06/30/22 – MODIFIED
SP2020-28

S-15.1 Delete and replace MnDOT 1508 with the following:

The Engineer will set construction stakes to establish lines, slopes, elevations, and continuous Profile Grade for grading, base, and pavement construction to establish the field control for the Project. The Engineer will also set construction stakes to establish location, line, and grade controls for drainage facilities, traffic control and protection devices, and other accessory Structures and appurtenances. The Engineer will not set blue tops for subgrade or aggregate base in areas that contain curb and gutter. The Contractor shall provide and set blue tops in these areas.

The Contractor shall submit a priority list for staking to the Engineer at the weekly meeting and inform the Engineer a minimum of 36 hours before any deviation from that list or the need for any additional staking.

The Contractor shall preserve all stakes and marks. If the Contractor carelessly or willfully destroys or disturbs any of the field control stakes or marks, the Engineer will deduct the Department's cost for replacing the damaged stakes or marks from the payment for the Work

A Bridge Staking:

The Engineer will provide offset points for the working lines and the Contractor shall re-establish all working points needed during construction from these offset points.

The Contractor shall lay out Bridge footing corners and wing wall corners. The Engineer will lay out Bridge footing corners and wing wall corners only if x,y coordinates are provided in the Plans.

The Engineer will furnish two benchmarks in the vicinity of this Substructure. The Contractor shall establish required grade points from the benchmark.

The Contractor shall provide Bridge Seat Elevations.

The Engineer will provide beam stool heights as deemed necessary for the performance of the Work.

From the field control, the Contractor shall establish other necessary controls, detail dimensions, and measurements required for proper layout and performance of the Work. The Contractor is fully responsible for all measurements made from the stakes and marks established by the Engineer.

B Grading, drainage and Structures:

The Contractor is fully responsible for all measurements made from any offset construction stake or measurements made from any stakes and marks established by the Engineer.

The cost of replacing stakes and marks will be based on the actual number of hours of field and office Work in accordance with the following wage and Equipment rates:

Classification	Hourly Rates
Registered Engineer or Land Surveyor	$150 per hour
3-person crew & equipment	$250 per hour
2-person crew & equipment	$195 per hour
1-person crew & equipment	$110 per hour

The Department is responsible for the accuracy of lines, slopes, grades, and other engineering Work performed by the Department's personnel as specified in this section. The Contractor shall not knowingly take

advantage of Errors or Omissions and shall report any discovered Errors or Omissions to the Engineer immediately upon discovery.

S-16 (1513) RESTRICTIONS ON MOVEMENT AND STORAGE OF HEAVY LOADS AND EQUIPMENT

The Contractor shall haul Materials and move and store Equipment in accordance with the *Minnesota Highway Traffic Regulation Act,* MN Statutes, Chapter 169 and applicable provisions of Minnesota Rules when using public Roads or completed Structures, base courses, and pavements within the Project that are open to traffic and becoming a part of the permanent improvement.

The Contractor shall comply with legal load restrictions and with special restrictions required by the Contract when hauling or storing Materials and moving or storing Equipment on Structures, completed Subgrades, base courses, and pavements within the Project, under construction or completed but not yet open to traffic.

The Contractor shall complete and place a cab card in each vehicle used for hauling bituminous mixture, Aggregate, batch concrete, or grading Material (including borrow and excess), before starting Work. This cab card shall identify the truck or tractor and trailer by Minnesota or prorated license number and shall contain the tare, maximum allowable legal gross mass, supporting information, and the signature of the owner. The Contractor shall make the card available to the Engineer upon request. The Contract Unit Prices include Contractor-related costs in providing, verifying, and spot checking the cab card information, including weighing empty, and loaded trucks on certified commercial Scales.

The Contractor shall not operate Equipment mounted on crawler tracks or steel-tired wheels on or across new concrete or bituminous surfaces.

When construction operations require crossing an existing pavement, Bridges, or completed portions of the Pavement Structure with otherwise prohibited Equipment or loads, the Contractor shall submit methods of load distribution or bridging in writing and obtain the Engineer's written approval. This approval does not relieve the Contractor of responsibility for any damages to the Work.

The Contractor will not be relieved of liability for damages resulting from the operation and movement of construction Equipment because of the issuance of a special permit, or by adherence to any other restrictions imposed.

The Contractor may temporarily operate, store, or park construction Materials and Equipment on a Bridge deck during Bridge construction. Storage of Materials and Equipment shall be limited as follows:

Acceptable loads to be determined by the local bridge consultant prior to advertising the project, see below. Item (1), local bridge consultant to evaluate Minnesota legal loads on bridge. Item (2) the combination of a milling machine and hauling vehicle assumes the milling machine is moving directly behind the hauling vehicle, no other moving or stationary traffic on the bridge.

The contractor may operate equipment on the bridge, with the following limitations.

(1) No single vehicle or Equipment exceeding legal load limits.
(2) No combination exceeding a single unit 48,000 lb or semi-truck 80,000 lb with a crawler track vehicle (milling machine) 80,000 lb, with no other materials, or other Equipment on the bridge.
(3) No stockpiles
(4) No individual stockpiles of Materials (including pallets of products, reinforcing bar bundles, and Aggregate piles)

If any proposed construction loading exceeds the above defined limits, the Contractor shall submit the proposed loads and structural analysis of the deck, beams and substructure components certified by a Minnesota Professional Engineer to the Project Engineer for review within a minimum of 7 calendar days before loads can be applied to the bridge.

S-17 (1701) LAWS TO BE OBSERVED

S-17.1 The provisions of MnDOT 1701 are supplemented and/or modified with the following:

1701.6 EQUAL PAY

The local agency cannot execute a contract for goods or services or an agreement for goods or services in excess of $1,000,000 with a business that has 40 or more full-time employees in this state or a state where the business has its primary place of business on a single day during the prior 12 months, unless the business has an equal pay certificate or it has certified in writing that it is exempt. Bidders may find more information on the Equal Pay Certificate Requirement at Minnesota Statutes Section 363A.44 or at this website:

https://mn.gov/mdhr/certificates/equalpay/

S-17.2 The provisions of MnDOT 1701 are supplemented and/or modified with the following:

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).

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).

S-18 (1706) EMPLOYEE HEALTH AND WELFARE

RESTORED 06/30/23
SP2020-42

S-18.1 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-19 (1707) PUBLIC CONVENIENCE AND SAFETY

RESTORED 06/30/23
SP2020-43

S-19.1 Add the following to MnDOT 1707:

A 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-20 (1717) AIR, LAND, AND WATER POLLUTION

NEW 06/28/24

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-21 (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME

Contractor must complete all Work to meet the requirements of 1516.2 (Project Acceptance) under this Contract before August 28, 2026.

In addition to the other Contract Time requirements, the Contractor must complete all work for Base Bid Section A, Base Bid Section C, Alternate No. 1, Alternate No. 2, Alternate No. 4 and Alternate No. 5 (not including turf establishment and Guardrail installation) before October 10, 2025, or within 45 calendar days (whichever occurs first) from the date work begins on any of these Sections or Alternates. All work (including turf establishment and guardrail installation) for these Sections and Alternates shall be completed before June 5, 2026. Additionally, Guardrail installation shall be completed within 10 calendar days of completion of the work for Base Bid Section B.

In addition to the other Contract Time requirements, the Contractor must complete all work for Base Bid Section B (not including turf establishment) before July 17, 2026, or within 14 calendar days (whichever occurs first) from the date work begins on Base Bid Section B. All work (including turf establishment) for these Base Bid Section B shall be completed before August 28, 2026.

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.

S-22 (1807) FAILURE TO COMPLETE THE WORK ON TIME

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.

The Department will assess the Contractor a monetary deduction in an amount equal to $750 for each Calendar Day that any of the work specified in Section S-1806.__ (DETERMINATION AND EXTENSION OF CONTRACT TIME) of these Special Provisions remains incomplete after the expiration of the working period provided therefore.

The Department will assess the Contractor a monetary deduction in an amount equal to $150 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.

S-23 (1901) MEASUREMENT OF QUANTITIES

RESTORED 06/30/23
SP2020-58.1

S-23.1 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-23.2 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-23.3 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-24 (2101) CLEARING AND GRUBBING (TREE CLEARING)

SP2020-79

S-24.1 Add the following to MnDOT 2101.3:

E The Contractor will complete clearing operations for this Project between November 1, 2024 and March 31, 2025, or November 1, 2025 and March 31, 2026.

S-25 (2104) REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

REVISED 06/30/22 – MODIFIED

S-25.1 2104.1 shall be deleted and replaced with the following:

This Work consists of removing and disposing of all removal items, and other obstructions on the Right-of-way, except as specified in 2442, "Removal of Existing Bridges," and 2103, "Building Removal." This Work also consists of salvaging Material and backfilling trenches, holes, and depressions.

S-25.2 Add the following to 2104.3B:

Items designated for salvage may be reincorporated to the project as designated in the Drawings. Such items shall be re-installed in a manner that is consistent with any related details, plans, or specifications for the construction of similar new items or the original construction and conditions.

The Contractor shall salvage and stockpile all existing topsoil material prior to any construction activity that would disturb the existing topsoil material, such as grading, trenching, excavation, or other such activity. Contractor shall take reasonable care and measures to not contaminate the topsoil material during stripping or stockpiling operations. All stockpiled topsoil material shall be reincorporating/reutilized in the Work during final site stabilization and turf restoration, unless the Engineer determines the material to be unsuitable and orders the use of topsoil borrow. Topsoil borrow will not be authorized until all suitable salvaged topsoil has been utilized. Salvaging, stockpiling, and re-placement of salvaged topsoil material is considered incidental work to grading, excavation, and trenching activities and will not be paid for directly.

S-25.3 Add the following to MnDOT 2104.3C.3:

The in event buried concrete or similar debris is encountered during construction, the Engineer may direct the contractor to remove and dispose of the material. This shall include only debris that is not in its original form or attached to structures. Material which is removed, with authorization from the Engineer, will be measured by the lose volume. Payment will be made under Item 2104.507 (Remove Concrete Rubble) at the contract bid price per cubic yard (LV), which will be full compensation for excavation and embankment, removal, disposal fees, loading and hauling of the material, and all costs relative thereto. The provisions of MnDOT 1402.3 do not apply for this work.

This work will include the removal of below grade concrete structures that are connected to a larger structure, such a as a foundation or footing. In the event that such a structure is encountered during construction, the Engineer may direct the contractor to remove and dispose of all or a portion of the structure. This shall include only debris that is not in its original form or attached to structures. Generally, this will require the need to saw the structure or otherwise remove the material from a larger structure. The contractor must remove the structure in a manner that does not create any damage to the adjacent structure or jeopardize the structural integrity of the adjacent structure.

Structures which are removed, with authorization from the Engineer, will be measured by the loose volume. Payment will be made under Item 2104.507 (Remove Masonry & Concrete Structures) at the contract bid price per cubic yard (LV), which will be full compensation for excavation and embankment, sawing, removal, disposal fees, loading and hauling of the material, and all costs relative thereto. The provisions of MnDOT 1402.3 do not apply for this work.

Removal of integral concrete curb will be measured and paid in accordance with provisions for the removal of the adjacent concrete pavement. Removal of concrete curb (without gutter) will be measured by paid in accordance with the provisions for removal of concrete curb and gutter.

S-25.4 Replace 2104.3D.1 with the following:

The Contractor shall be responsible for development of their own disposal plan for proper disposal of all removals. The disposal plan must comply with applicable environmental regulations. It is the Contractor's responsibility for any reporting or permitting necessary for compliance with all local, state, and federal requirements.

S-25.5 Replace 2104.3D.2 with the following:

Do not dispose of Material or debris within the Right-of-way or project limits. Do not burn or bury treated or untreated wood, including but not limited to dimensional lumber, Brush, trees, and roots.

S-25.6 Replace the first paragraph of MnDOT 2104.4A with the following:

The Engineer will measure pavements, Sidewalks, surfacing, and by area without regard to the thickness of the surface being removed.

Removal of concrete retaining wall or salvaging of modular block retaining wall will be measured by the area of the vertical wall face, including any below grade wall or foundation, without distinction of thickness.

S-25.7 Delete the second paragraph from MnDOT 2104.4B and replace with the following:

No measurement of any sawing will be made.

S-25.8 Replace the second paragraph of 2104.5 with the following:

Sawing for any removals will be included in removal pay item. Multiple saw cuts may be necessary if initial cut edge becomes damaged. No payment will be made for any saw cutting.

S-25.9 Add the following to MnDOT 2104.5:

Measurement and payment for the removal and disposal of materials will be made only for those Items of removal work specifically included for payment as such in the Schedule of Prices.

Measurement for the installation of salvage materials will be the same as the measurement for the removal. Payment for the installation of salvaged items will be made under the item "Install [Specified Item]"at the contract bid price, unless otherwise provided for elsewhere in the contract documents.

Hauling and delivery salvaged material as depicted on the plans shall be incidental.

S-26 (2104) REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES (REMOVE AND DISPOSE OF TREATED WOOD)

REVISED 06/30/22

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 the Department.

If the inplace 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.

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-27 (2104) TEMPORARY RELOCATION OF UNDERGROUND SPRINKLER SYSTEMS (USS)

S-27.1 This work shall consist of temporary relocation, salvaging, and reinstallation of USS which may be located within the public right-of-way.

S-27.2 The following shall be added to 2104.3

The contractor shall take all necessary steps to locate and protect all existing USS which may be located in the project limits (including public right-of-way). If encountered the contractor shall temporarily remove or relocate portions of the system, including spray heads, lines, valves, and fittings. This shall be completed in a fashion that maintains normal operation of remaining portions of the USS. The Contractor shall install all necessary plugs or other fittings and complete any other system modifications to maintain operation throughout the duration of the project.

Prior to any relocation or modification the Contractor shall first notify and obtain permission form the Owner of the system. Notify the Engineer if the Owner does not authorize the work. All work done on the USS must be completed by a qualified individual(s) or subcontractor who have minimum of three (3) years of experience in the installation and operation of USS.

Upon completion of the project work the USS shall be reinstalled to its original configuration and operation. The Contractor is solely responsible for the protection of any portion of the system which is relocated or removed. Any existing USS materials or equipment damaged as a result of Contractor actions shall be replaced, with new equipment of like brand style and size, at no additional expense to the Owner.

S-27.3 The following shall be added to 2104.4

USS heads which are removed or relocated will be measured by each unit, which includes any fittings and swing pipe necessary for connection to the main USS distribution lines.

USS main distribution lines which are relocated or removed will be measured by the lineal foot of pipe. Measurement shall not include any branch or swing pipe used for connection of heads to the main distribution lines.

The Owner will provide payment to the Contractor for temporary relocation (or removal) and reinstallation of USS. Payment shall be considered full compensation for removal, and/or temporary relocation, final reinstallation of the salvaged system, all labor, equipment, and materials to complete the work as specified. In the absence of a Contract bid price, the Owner will pay the following predetermined unit prices:

(1) Salvage and Reinstall USS Head .....$100.00 per each
(2) Salvage and Reinstall USS Line (PE or PVC) .....$5.00 per linear foot

S-28 (2104) REMOVE MAIL BOX SUPPORT

REVISED 01/27/23 - MODIFIED
SP2020-179

S-28.1 DESCRIPTION
This Work consists of removing existing mail box supports, and salvaging existing mail and paper boxes.

S-28.2 CONSTRUCTION REQUIREMENTS
Coordinate with postal patron and the local postal authority prior to removal of existing mail box supports.

Removal of mail box supports shall cause no interruption of mail delivery if at all possible. In no case shall the postal patron be without a mail box for more than 24 hours.

Contact the postal patron to determine if mail box, distribution box and/or sign shall be salvaged and reinstalled or if the postal patron will be providing new mail box, distribution box and/or sign.

Salvage and protect mail box, distribution box and/or sign. If the salvaged mailbox is determined to be unusable by the engineer, a new mailbox meeting the requirements of the USPS shall be provided by the contractor which shall include address numbers at least 1 inch high in contrasting colors positioned on the side of the box visible to the carrier's approach.

Salvage inplace support and dispose of in accordance with MnDOT 2104.3D.3 if property owner does not wish to keep.

S-28.3 METHOD OF MEASUREMENT
The Engineer will measure the number of mail box supports removed.

S-28.4 BASIS OF PAYMENT
The Contract Unit Price for Remove Mail Box Support shall be compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Remove Mail Box Support on the basis of the following schedule:

Item No.	Item	Unit
2104.502	Remove Mail Box Support	each

S-29 (2106) EXCAVATION AND EMBANKMENT – COMPACTED VOLUME METHOD

REVISED 10/14/22 – MODIFIED
SP2020-96.1

S-29.1 Delete table 2106.3-4 "Required Compaction" and replace with the following:

Material Type	Location	Required Compaction*

Materials meeting the requirements of 3149.2B, "Granular and Select Granular Materials"	All depths and locations	100 percent specified density, Quality Compaction, penetration index, and LWD
Materials not meeting the requirements of 3149.2B, "Granular and Select Granular Materials"	>3 feet below Grading Grade of Road Core	95 percent specified density, and LWD when the engineer performs a correlation test between 95 percent specified density and an LWD.
Materials not meeting the requirements of 3149.2B, "Granular and Select Granular Materials"	≤ 3 feet below Grading Grade of Road Core	100 percent specified density, Quality Compaction, and LWD
All Materials	≤ 3 feet below Grading Grade of Road Core within an excavation trench and backfill of Structures, 2451, "Structure Excavations and Backfills"	95 percent specified density, Quality Compaction and LWD
All Materials	Trails and Sidewalks outside of the Road Core	Quality Compaction

*See 2106.3G.1, "Specified Density", 2106.3G.2, "Quality Compaction", 2106.3G.3, "Penetration Index", and 2106.3G.4, "Light Weight Deflectometer (LWD) Method" for compaction requirements.

S-29.2 Delete the second paragraph of MnDOT 2106.5 and replace with the following:

The Department will pay for stripping and stockpiling of topsoil within and adjacent to the road corridor(s) as depicted on the cross section drawings as Excavation-Common. Stripping and stockpiling of topsoil outside of the areas depicted on the cross section drawings shall be incidental.

S-29.3 Delete the third paragraph of MnDOT 2106.5 and replace with the following:

The Department will pay for restoration of salvaged topsoil, including placing, grading, and preparation for turf, adjacent to the road corridors as depicted on the cross section drawings as Common Embankment. Restoration of topsoil outside of the area depicted on the cross section drawings shall be incidental.

S-29.4 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-29.5 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-29.6 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

Muck Location	Compensation
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

Muck Location	Compensation
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-30 (2108) GEOSYNTHETIC CONSTRUCTION MATERIALS

RESTORED 06/30/23
SP2020-106

S-30.1 Delete and replace note (5) in MnDOT 2108.1 with the following:

(5) Provide confinement of granular materials.

S-30.2 Add the following to MnDOT 2108.1:

(6) Provide a geotextile interlayer to concrete pavement.

S-30.3 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-30.4 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-30.5 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:

Item No.	Item	Unit
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-31 (2123) MACHINE TIME

Modification

This work shall consist of exploratory operations to verify subsurface conditions including but not limited to, the depth of and exact locations of existing facilities, or for extra work items that are beyond the scope of the bid items or in addition to, as approved by the Engineer, or for specific work as called out on the drawings.

Machine Time shall be defined as a complete contractor crew regardless of the work, number of workers, number or type of equipment and number of equipment operators completing the work. Machine Time will require the use of equipment meeting the standards specified in MnDOT 2123.

Measurement will be made by the Hour of actual time spent performing the task directed by the Engineer, not including any down time. Payment will be made under Machine Time Contract bid price per Hour, which shall be payment for labor and equipment required for the directed work. All Machine Time payment must be authorized by the Engineer in advance of the related work.

S-32 (2130) APPLICATION OF WATER

Modification

The provisions of MnDOT 2130 are modified as follows:

S-32.1 The following shall be added after the first paragraph of MnDOT 2130.3:

The contractor shall be responsible for applying water as necessary to control dust on the project. The contractor shall have means, in accordance with MnDOT 2130.3, to apply water at all times. The Contractor shall apply water within two (2) hours of any request from the Engineer. Failure to do so will result in $100 per hour penalty assessed to the Contractor until the water is applied.

S-32.2 Replace the second sentence of 2130.4 with the following:

In the absence of a bid item, the Engineer will not make any measurement for application of water.

S-32.3 MnDOT 2130.5 supplemented with the following:

In the absence of a bid item, water applied by order or approval of the Engineer for dust control will be considered incidental work and no direct compensation will be paid.

S-33 (2211) AGGREGATE BASE

MODIFICATION

S-33.1 Delete the third paragraph of 2211.3D.2 and replace with the following:

Test for Compaction within the Road Core using Quality Compaction per 2211.3D.2.b, "Quality Compaction", and one of the following methods:

(1) Specified density per 2211.3D.2.a, "Specified Density Method"

(2) Penetration index per 2211.3D.2.c, "Penetration Index Method"

(3) LWD method per 2211.3D.2.d, "Light Weight Deflectometer (LWD) Method"

Test for Compaction on Sidewalks or Trails outside of the Road Core using Quality Compaction per 2211.3D.2.b, "Quality Compaction".

S-33.2 The following shall be added to MnDOT 2211.5:

The Engineer may allow the Contractor to accept a monetary price adjustment instead of correcting the failing material in accordance with the following:

The Department will assess a monetary price adjustment for each failing aggregate quality, crushing, gradation, and bitumen content results.

The maximum monetary price adjustment is 50%.

The Department will apply the monetary price adjustment against the entire quantity represented by the failing test(s).

For base or subbase gradations that fail because they are too coarse, the Engineer may elect to accept the material without a monetary price adjustment, if the material meets the engineering intent of the specification.

Table 2211.5-1
Aggregate Gradation Monetary Price Adjustment Schedule
Based on Average of Two or More Samples

Percent Passing Outside Specified Limits for Sieves				Monetary Price Adjustment %
2 in, 1½ in, 1 in, ¾ in, ⅜ in, & No. 4	No. 10	No. 40	No. 200	

5	3	2	1.1	2
—	—	—	1.2	3
—	—	—	1.3	4
6	—	—	1.4	5
—	—	—	1.5 - 1.6	6
—	4	3	1.7 - 1.8	7
7	—	—	1.9 - 2.0	9
—	—	—	2.1 - 2.2	11
—	—	—	2.3 - 2.4	13
8	5	4	2.5	15
>8	>5	>4	>2.5	Corrective action required

Table 2211.5-2
Bitumen Content Monetary Price Adjustment Schedule

Bitumen Content (Composite Mixture) %	Monetary Price Adjustment %
3.7	1
3.8	2
3.9	3
4.0	4
4.1	6
4.2	8
4.3	10
4.4	12
4.5	15
> 4.5	Corrective action required

S-34 (2215) STABILIZED RECLAMATION USING BASE ONE®

S-34.1 DESCRIPTION

Construct a stabilized full depth reclamation (SDFR) layer by pulverizing, mixing and injecting the in-place aggregate surfacing with BASE ONE®, spreading, watering, shaping, compacting, and maintaining to the specified profile and cross section.

S-34.2 Definitions

Liquid Stabilized Material: Liquid Stabilized Material is pulverized material that has a liquid stabilizing agent added to it. It may include additional stabilizing materials such as add rock.

S-34.3 MATERIALS

A Gradation

Meet the following graduation requirements:

Unstabilized Portion: 3” Sieve Size = 100% passing
2” Sieve Size = 90 – 100% passing

B Liquid Stabilizing Agent

BASE ONE®, a liquid based stabilization product produced by Team Laboratory Chemical Corporation, Detroit Lakes that is diluted with water.

C Additional Aggregates

Provide additional aggregate, as required in the Contract.

D Water

Provide mixing water that meets 3906, “Water for Concrete and Mortar” at a rate meeting the optimum moisture content as determined by the required QC moisture test.

E Design Requirements

Inject BASE ONE® at a rate of 0.005 gallons per square yard per inch of stabilized reclamation depth. Dilute BASE ONE® with water to bring the reclaimed material to the required moisture content for compaction. Pulverize to the plan depth as listed in the Contract.

S-34.4 CONSTRUCTION REQUIREMENTS

A General

All forms and the Grading and Base Manual are available on the Grading and Base Website. Unless otherwise designated all test procedures are in the Grading and Base Manual. Repair structures damaged by Contractor operations or negligence. Correct and re-test all failing areas. Any failure to meet a requirement creates a Hold Point, whereby no additional material may be placed until Corrective action and passing retest(s) have occurred, or are accepted by the Engineer. All additional material placed before corrective action and passing retest(s) occur constitutes Unauthorized Work per 1512.2. Remove all vegetation and topsoil adjacent to the surface prior to the start of pulverization. Provide water in order to obtain maximum density.

Stabilize when:

(a) The atmospheric temperature is above 32 degrees F and rising.
(b) It is not foggy or rainy
(c) Freezing temperatures are not predicted within 48 hours after injection of BASE ONE®. Atmospheric temperature and predicted weather requirements are determined by the Engineer.

B Contractor Quality Control (QC) Testing

1. Submit test results to the Engineer within one business day of sampling.
2. Submit to the Engineer the following items:
   a. A preliminary Grading and Base Report (G&B-001) (required before work commences),
   b. A final Grading and Base Report (G&B-001) (required within two weeks of completion of project), and
   c. A weekly summary report of tests completed and retests of failing materials (G&B-003) (required the first working day of the following week).
3. Correct and retest all failing areas, which fail either Quality Control or Quality Assurance Testing.

Perform the following requirements for QC testing, in lieu of the requirements in the Schedule of Materials Control and submit all required forms:

a. Depth Check during reclamation pass with injection of BASE ONE® at a rate of one test per 1,000 feet of reclaimer width. Use Form G&B-401.
b. Yield Check of BASE ONE® – One per transport. Yield check must be within 1% of design. Use Form G&B-403.
c. Compaction – Control Strip – Minimum one per project
d. Compaction Testing – Nuclear Density Gauge – 1/500 feet of lane width. Use Form G&B-405.
e. Proctor test of material to be stabilized – at a rate of at least one per project.
f. Moisture test of the material to be stabilized at a rate of one per lane mile.

C Agency Quality Assurance (QA)

Perform the following requirements for QA testing, in lieu of the requirements in the Schedule of Materials Control. Perform the following Contractor QA tests and submit all required forms:

a. Gradation: Test at Engineer's Discretion. Form G&B-101.
b. Depth Check during initial pulverization and at time of placement of BASE ONE® – 1/Day. Form G&B-401.

c. Compaction – Control Strip – Observe Contractor.
d. Compaction Testing – Nuclear Density Gauge – Observe Contractor.

D Equipment

Reclaiming Machine
Use a self-propelled reclaiming machine with the ability to:

1. Uniformly pulverize the aggregate to the specified depth and gradation requirements.
2. Thoroughly mix the reclaimed material while injecting the liquid stabilizing additive and automatically metering it with a variation of not more than +/- 0.2 percent by weight of the BASE ONE®.
3. Automatically control cross-slope and control cutting depth to within +/- ½ inch of the depth shown in the plans.
4. Maintain the designed content of overlapped mixtures by adjusting the application of liquid stabilizing mixture for the width of pulverized layer. Automatically maintain the designed application rate regardless of machine speed, depth of cut, and number of operating nozzles. Provide means for automatically cleaning nozzles and continual observation and measurement by the operator.
5. The injection system shall accurately and uniformly add the specified percent of water/BASE ONE® mixture to the reclaimed material.

Rollers

Pneumatic Tired Roller
Compact with pneumatic tired roller that meets the requirements of 2360.3.B.2.e(2) and having a minimum weight of 25 tons.

Pad Foot Vibratory Roller
Compact with a pad foot roller weighing at least 12.5 ton.

Steel-Wheeled Roller
Compact with steel-wheeled vibratory rollers equipped with a water spray system meeting the requirements of 2360.3.B.2.e(1).

Motor Grader
Use a self-propelled motor grader with a minimum 12 foot wide blade.

E Pulverization

Pulverize (grind) and uniformly blend the in-place aggregate material base to the depth specified in the plans and to the gradation requirements in 2215.2.A. If required by the Contract, uniformly spread additional material across the roadway surface to be reclaimed before incorporating it into the reclaim mixture. Correct reclaim sections that do not comply with the gradation requirements by re-pulverizing.

F Mixing/Injecting

Remove excess Unstabilized Material prior to mixing/injecting. Produce the BASE ONE® stabilized layer by mixing and injecting the liquid stabilizing additive and water into the aggregate material. Inject BASE ONE® at the rate as listed above and dilute with water to bring the material to the required moisture content for compaction. Use a minimum 6-inch overlap between passes of the reclaimer. Demonstrate that the liquid stabilizing additive is uniformly blended. If the first mixing is not uniform, remix the stabilized layer until uniformity is achieved. Obtain the Engineer's approval to apply the liquid stabilizing additive greater or less +/- 0.2 percent by weight compared to the manufacturer's recommendations. Incorporate BASE ONE® into the material through the reclaimer by the injection process.

Compaction of the Stabilized Material

Complete the initial compaction directly behind the reclaimer with a pad foot vibratory roller. Compaction of the stabilized material shall be by the Quality Compaction Method.

Control Strip

Use a control strip to establish a rolling pattern for the stabilization phase. The control strip should represent a homogenous roadway section and have the following characteristics:

- Minimum area of 400 square yards
- Remain in-place and become a part of the completed work.

Use the following to establish a rolling pattern after initial breakdown is complete:

1. Randomly select three test points in the control strip and use a nuclear density device (ASTM D2950) to determine a wet density at each point after each finish (steel) roller pass.

2. Ensure that that the nuclear gauge rests on a flat surface. The density at each point is defined as the average of two readings offset 180 degrees.

3. Continue compacting until additional roller coverage does not produce appreciable increase in density. Provide documentation of the growth curve and maximum target density to the Engineer. Use this for QA/QC process.

4. Roll the remainder of that course in accordance with the pattern developed in the control strip for that roller.

Use this rolling pattern until a new control strip is performed.

Establish a new rolling pattern by performing a new control strip when there are changes in the mixture that cause the original control strip to no longer be representative; changes may include:

- In-place materials variation, including sections with varying thickness, construction history, etc.
- Changes in RAP gradation
- 97% of Target Density is not achieved on two consecutive QC or QA readings.

G Shaping and Compacting of the Stabilized Material

Remove any remaining pad foot marks and spread the material. Commence final grading and compaction while the stabilized material is still workable; use a motor grader and pneumatic tired roller. Adjust the reclaimer, roller, and motor grader production rates to match the capacity of other equipment used in the train. Place and compact the material to within ±0.05 feet of the profile and so that the cross section has no variations greater than ½ inch within 10 feet. Complete final grading and compaction completed by the end of each day's production.

H Workmanship, Quality, Repair and Maintenance

Maintain the compaction, quality, integrity, the profile and cross-section as specified and properties of the SFDR layer during the curing period until the placement of the next layer.

Traffic will be allowed to travel on the surface upon completion of compaction.

Repair ruts, potholes, washboarding and other distortions.

S-34.5 METHOD OF MEASUREMENT

The Engineer will measure the Stabilized Full Depth Reclamation (SFDR) by the square yard. No measurement or payment will be made for additional aggregates.

S-34.6 BASIS OF PAYMENT

The contract unit price for the stabilized full depth reclamation by the square yard includes the cost of BASE ONE®, production; pulverization; injection; placement; shaping; blading; placement of additional rock; compaction; water for compaction, mixing, and dust control; repairing ruts, potholes, washboarding, and other distortions; cleaning the surface to remove loose aggregate; occasional variations in the bituminous pavement thickness; removing vegetation and topsoil adjacent to the surface; and adding the BASE ONE® chemical to the water to construct the stabilized material.

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

Item No.	Item	Unit
2215.504	Stabilized Full Depth Reclamation	Square Yard

S-35 (2357) BITUMINOUS TACK COAT

REVISED 01/27/23
SP2020-130.1

S-35.1 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

	Minimum Residual Asphalt Content		
Emulsion	**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-35.2 Delete and replace Table 2357.3-1 in MnDOT 2357.3D with the following:

Table 2357.3-1
Tack Coat Application Rates

	Application Rates – gallon/square yard			
Material Type	**CSS-1 or CSS-1h**	**CSS-1 or CSS-1h**	**CQS-1h**	**MC‖**
Surface Type	**Undiluted Emulsion**	**Diluted* Emulsion (7:3), D30**	**Diluted* Emulsion (8.5:1.5), D15**	**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

	Application Rates – gallon/square yard			
Material Type	**CSS-1 or CSS-1h**	**CSS-1 or CSS-1h**	**CQS-1h**	**MC**
Surface Type	**Undiluted Emulsion**	**Diluted* Emulsion (7:3), D30**	**Diluted* Emulsion (8.5:1.5), D15**	**Cutback**
† Older than 1 year				

S-35.3 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-36 (2360) PLANT MIXED ASPHALT PAVEMENT (SMOOTHNESS AND SAMPLING)

REVISED 10/14/22
SP2020-132

S-36.1 Add the following to MnDOT 2360.3:

Evaluate pavement Smoothness requirements using equation HMA-B as specified in MnDOT 2399.

S-36.2 Delete and replace the sentence in II.A and II.B in the Schedule for Materials Control with the following:

All Aggregates will be split according to G&B Manual 5-692.141, "Quartering Method of Sample Size Reduction". All asphalt mixtures will be split using AASHTO Standard Practice for Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size (R-47) using the Mechanical Splitter Method, Type A (Quartermaster or equivalent).

S-37 (2360) PLANT MIXED ASPHALT PAVEMENT (REMOVE LONGITUDINAL JOINT DENSITY REQUIREMENTS)

REVISED 06/30/23
SP2020-133

S-37.1 Add the following to MnDOT 2360.1B:

Mix Designation Numbers for the bituminous mixtures on this Project are as INDICATED ON THE Typical Sections in the Drawings.

S-37.2 Delete and replace the first paragraph of MnDOT 2360.3D.1 with the following:

Compact the pavement to at least the minimum required Maximum Density values in accordance with Table 2360.3-1.

S-37.3 Delete and replace Table 2360.3-2of MnDOT 2360.3D.1 with BLANK.

S-37.4 Delete and replace MnDOT 2360.3D.1.j with the following:

D.1.j Companion Core Testing

The Department will select at least one of the two companion cores per lot to test for verification.

S-37.5 Delete and replace MnDOT 2360.3D.1.n with BLANK.

S-37.6 Delete and replace MnDOT 2360.3D.1.p with BLANK.

S-37.7 Delete and replace Table 2360.5-6 of MnDOT 2360.5B.13 with BLANK.

S-37.8 Delete and replace Table 2360.5-7 of MnDOT 2360.5B.13 with BLANK.

S-38 (2360) PLANT MIXED ASPHALT PAVEMENT (LOCAL GOVERNMENT UNIT)

REVISED 11/08/21 – MODIFIED
SP2020-133

S-38.1 Add the following to MnDOT2360.1B

Mix Designation Numbers for the bituminous mixtures on this Project are indicated on the Drawings (typically with the proposed typical sections).

S-38.2 The following is added the first paragraph of MnDOT 2360.3B.2.a:

Paver must be equipped with a screed (with or without extensions) capable of constructing a minimum 12-foot wide strip of pavement in a single pass.

S-38.3 Replace MnDOT 2360.3D.1.a with the following:

No distinction between the driving lane and shoulders will be made for any bituminous surfaced roadway. Maximum density and compaction requirements, including pay factors, shall apply to the full width of the bituminous surface.

S-38.4 Replace MnDOT 2360.3D.1.b with the following:

No distinction between the driving lane and shoulders will be made for any bituminous surfaced roadway. Maximum density and compaction requirements, including pay factors, shall apply to the full width of the bituminous surface.

S-38.5 MnDOT 2360.3D.1.p (including subsections) is hereby deleted.

S-38.6 The first sentence of MnDOT 2360.3E.1 shall be replaced with the following:

After compaction, the thickness of each lift shall be within a tolerance of ¼ inch of the thickness shown on the Plans.

S-38.7 The first sentence of the second paragraph of MnDOT 2360.3E.1 shall be replaced with the following:

S-38.8 Measure cores taken for density in accordance with (2360) Plant Mixed Asphalt Pavement (Thickness Payment Schedule) of these Special Provision. **Revise MnDOT Table 2360.5-4 Incentive and Disincentive Schedule for Maximum Mat Density** such that the Mat Density Pay Factor A for all traffic levels is 1.00 for densities greater than 93.0.

S-39 (2399) PAVEMENT SURFACE SMOOTHNESS

REVISED 12/29/23 - MODIFIED
SP2020-136.1

S-39.1 Delete and replace Table 2399.3-1 of MnDOT 2399.3B with the following:

Table 2399.3-1
Areas Excluded from Smoothness Evaluation

Pavement	Excluded Areas
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-39.2 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

Pavement	Excluded Areas
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-39.3 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-B.

S-39.4 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

Equation	Smoothness inches/mile	Incentive/Disincentive $/0.1 mile
HMA-A	< 50.0	0.00
	50.0 – 75.0	800.00 − 16.000 × Smoothness
	> 75.0	Corrective Work to ≤ 50.0 inches per mile
HMA-B	< 55.0	0.00
	55.0 – 80.0	594.00 − 10.800 × Smoothness
	> 80.0	Corrective Work to ≤ 55.0 inches per mile
HMA-C	< 65.0	0.00
	65.0 – 95.0	390.00 − 6.000 x Smoothness
	> 95.0	Corrective Work to ≤ 95.0 inches per mile

S-40 (2462) PRECAST CONCRETE

RESTORED 06/30/23
SP2020-146

S-40.1 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-41 (2511) RIPRAP

REVISED 09/29/23
SP2020-169

S-41.1 Delete and replace MnDOT 2511.2C with the following

C 3A Grout.....2511

S-41.2 Delete and replace MnDOT 2511.3F with the following:

F. Quality Control (QC)

Refer to the requirements in the Schedule of Materials Control for Project specific requirements.

F.1 Gradation and Certification Requirements

For riprap meeting 3601.2A, “Random Riprap,” test one gradation per year for each product using either:

(1) FHWA Hydraulic Toolbox, Test method 5-692.212 in the Grading and Base Manual. Record and submit results using form G&B-108a, "Riprap Gradation D85 and FHWA Hydraulic Toolbox," found on the MnDOT Grading and Base website
(2) WipFrag or an alternative image analysis software, approved by the Engineer. Record and submit results using and submit form G&B-108a, "Riprap Gradation D85 and FHWA Hydraulic Toolbox," found on the MnDOT Grading and Base website
(3) Wolman Count Method. Test method 5-692.211 in the Grading and Base Manual. Record and submit results using form G&B-108b, "Riprap Gradation Wolman Method," found on the MnDOT Grading and Base website

For riprap meeting 3601.2B, "Hand placed Riprap," provide certification that the stone meets Contract-required thickness of riprap, following guidance in 2511.3C.2, "Hand-Placed Riprap", and individual stones have a weight of at least 50 pounds.

F.2 Carbonate Quarried Riprap

For riprap meeting 3601.2A, "Random Riprap," or 3601.2B, "Hand-placed Riprap," the supplier is required to have an approved QC Plan, prior to delivery of stone, when either of the following apply:

(1) Quantities are greater than 100 cubic yards
(2) Riprap is used for Bridge protection, as shown in the Plan

The Carbonate riprap QC Plan requirements are found on the MnDOT Geology Web page. Contact the MnDOT Geology Unit a minimum of 60-Calendar Days prior to supplying riprap.

Provide certification, for each product, using form G&B-104b, "Riprap Quality Control Plan," and attach required test(s).

F.3 Riprap meeting 3601.2C, "Gabions and Revet Mattresses," 3601.2D, "Granular Filter under Class I Random Riprap," and 3601.2E, "Granular Filter Under Riprap, Gabion, and Revet Mattress".

Provide certification using form G&B-104, "Certification of Aggregates and Granular Materials," found on the MnDOT Grading and Base website.

S-41.3 Delete and replace MnDOT 2511.3G.1 with the following:

G.1 Riprap meeting 3601.2A, "Random Riprap," or 3601.2B, "Hand-placed Riprap".

For gradation compliance of riprap meeting 3601.2A, "Random Riprap," the Engineer will visually inspect the riprap and perform the D85 test, test method 5-692.210, listed in the Grading and Base Manual and complete form G&B-108a, "Riprap Gradation D85 and FHWA Hydraulic Toolbox," found on the MnDOT Grading and Base website.

If the material fails to meet requirements based on the visual check or the D85 results, the Engineer will test the gradation using one of the following methods:

(1) FHWA Hydraulic Toolbox, 5-692.212 test method, listed in the Grading and Base Manual and form G&B-108a, "Riprap Gradation D85 and FHWA Hydraulic Toolbox"
(2) WipFrag or a similar image analysis software, as approved by the Engineer, and form G&B-108a, "Riprap Gradation D85 and FHWA Hydraulic Toolbox"
(3) The Wolman Count, 5-692.211 test method, listed in the Grading and Base Manual and form G&B-108b, "Riprap Gradation Wolman Method"

For riprap meeting 3601.2B, "Hand-placed Riprap," the Engineer will visually inspect the riprap to ensure it meets the requirements of 2511.3C.2, "Hand-Placed Riprap."

S-42 (2540) MAIL BOX SUPPORT

REVISED 01/27/23 - MODIFIED
SP2020-179

S-42.1 DESCRIPTION

This Work consists of furnishing and installing new mail box supports and installing existing mail and paper boxes accordance with MnDOT Standard Plate 9350.

S-42.2 MATERIALS

Structural Steel Pipe ..... MnDOT 3362

Fasteners ..... MnDOT 3391

Galvanized Hardware ..... MnDOT 3392

Flanged Channel Sign Posts ..... MnDOT 3401

S-42.3 CONSTRUCTION REQUIREMENTS

Coordinate with postal patron and the local postal authority to establish and install permanent mail box supports.

Installation of mail box supports shall cause no interruption of mail delivery if at all possible. In no case shall the postal patron be without a mail box for more than 24 hours.

Contact the postal patron to determine if mail box, distribution box and/or sign shall be salvaged and reinstalled or if the postal patron will be providing new mail box, distribution box and/or sign.

Salvage and protect mail box, distribution box and/or sign. If the salvaged mailbox is determined to be unusable by the engineer, a new mailbox meeting the requirements of the USPS shall be provided by the contractor which shall include address numbers at least 1 inch high in contrasting colors positioned on the side of the box visible to the carrier's approach.

Fill depression resulting from the removal process.

Install new mail box support in accordance with MnDOT Standard Plate 9350.

Install salvaged or owner provided, mail box, distribution box and/or sign on new mail box support

S-42.4 METHOD OF MEASUREMENT

The Engineer will measure the number of mail box supports furnished and installed.

S-42.5 BASIS OF PAYMENT

The Contract Unit Price for Mail Box Support shall be compensation in full for Equipment, Materials and labor required to complete the Work.

The Department will pay for Mail Box Support on the basis of the following schedule:

Item No.	Item	Unit
2540.602	Mail Box Support	each

S-43 (2562) ADDITIONAL TRAFFIC CONTROL DEVICES AND EXTENDED USE OF TRAFFIC CONTROL DEVICES

REVISED 11/08/21
SP2020-193

S-43.1 DESCRIPTION

This Work consists of providing additional traffic control devices in accordance with Section (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-43.2 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-43.3 CONSTRUCTION REQUIREMENTS

Furnish the additional traffic control devices as ordered by the Engineer.

S-43.4 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-43.5 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

Item Number	Item	Unit	Pre-determined Price
2562.602	Impact Attenuator*	Each	$66.00
2562.603	Pedestrian Channelizer*	Linear Foot	$0.32
2562.603	Portable Precast Concrete Barrier Design 8337*	Linear Foot	$0.08
2562.610	Flagger‖	Hour	
2562.610	Police Officer†	Hour	
2562.613	Sidewalk Barricade	Unit Day	$1.43
2562.613	Type III Barricade	Unit Day	$2.59
2562.613	Flasher Type A (Low Intensity)	Unit Day	$0.50
2562.613	Tubular Marker	Unit Day	$0.43
2562.613	Type A Cone Channelizer	Unit Day	$0.31
2562.613	Type A Weighted Channelizer	Unit Day	$0.69
2562.613	Opposing Traffic Lane Divider	Unit Day	$3.38
2562.613	Reflectorized Drum	Unit Day	$0.86
2562.613	Flashing Arrow Board	Unit Day	$33.73
2562.613	Portable Changeable Message Sign‡	Unit Day	$75.00
2562.613	Vehicle Speed Feedback Sign	Unit Day	$37.85
2562.613	48”X48” Sign	Unit Day	$1.54
2562.613	48”X48” Sign with Supports	Unit Day	$2.37
2562.613	Portable Sign Support	Unit Day	$0.80
2562.618	Standard Sign*	Square Foot	$0.24
2562.618	Construction Sign Special (Additional)	Square Foot	$37.27
2562.613	Construction Sign Special (Extended Duration)*#	Square Foot	$0.35
2562.613	Audible Message Device	Unit Day	$1.11
2562.613	Temporary Pedestrian Ramp	Unit Day	$7.25
2562.613	Portable Rumble Strips (set of 3)	Unit Day	$50.00

* 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 Section (2563) TRAFFIC CONTROL, when Contract Time is extended.

S-44 (2563) TRAFFIC CONTROL

REVISED 04/14/23 - MODIFIED
SP2020-195

S-44.1 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-44.2 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 Vehicle Conspicuity Tape

The Approved Products List for "Conspicuity Vehicle Sheeting (Type VII)" is found at: http://www.dot.state.mn.us/products/signing/sheeting.html

C 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

D Drum Sheeting

On Projects requiring drums per MnDOT Standard Plate No. 8000 Temporary Channelizers – Type B, provide all drums with six-inch fluorescent orange and white sheeting material with no gap between sheeting layers.

E Crashworthy Signs, Traffic Control Devices, and Ballast

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

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-44.3 CONSTRUCTION REQUIREMENTS

A Traffic Control Plan, Maintenance, and Inspection

A.1 Submit a proposed traffic control Plan to the Engineer for acceptance if traffic control is not present in the Plan, or if the Contractor modifies the traffic control Plan. 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/tempsigncover.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 6 extra Type III barricades and 50 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 Section (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.

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

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 Provide flaggers as directed by the Engineer if hauling operations create hazards for the traveling public.

J Milling, Sealcoating, and Paving Operations

J.1 Traffic will be allowed on the milled surface.

J.2 When traffic is allowed to drive on the milled and newly paved surfaces, install interim striping and provide appropriate warning signs such as "GROOVED PAVEMENT" and "BUMP" with "Advisory Speed" plaques as shown on Layouts 35 and 66 of the Field Manual.

J.3 Taper and/or chamfer any drop-off where traffic will cross from or to the inplace surface, or from or to the milled surface, so as to provide for the safe passage of traffic.

J.4 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.

J.5 Do not mill any notches for surfacing tapers until immediately prior to paving. The Engineer may allow notches if temporary bituminous is installed and maintained to provide for the safe passage of traffic until the surfacing is completed. Constructing and milling tapers and/or chamfers is incidental.

J.6 Maintain traffic with a minimum of delay during milling and paving operations at Intersections controlled by signals or by all-way stop signs.

J.7 Intersecting Streets, other than Intersections controlled by signals or all-way stop signs, may be closed during milling and paving operations in the Intersection if there are adequate alternate routes for the intersecting Street traffic. Do not close adjacent intersecting Streets to traffic concurrently. Notify the local Road authorities of its schedule to close intersecting Streets 48 hours in advance of the closure.

K Maintenance and Staging of Traffic Control

K.1 Pedestrian traffic must be maintained and guided through the Project at all times.

S-44.4 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-44.5 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

Percent of Original Contract Completed	Pay this Percentage of Traffic Control
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:

Item No.	Item	Unit
2563.601	Traffic Control	Lump Sum

S-45 (2563) FLAGGER

REVISED 11/08/21 - MODIFIED
SP2020-209

S-45.1 DESCRIPTION

Provide qualified flaggers in accordance with (2563) Traffic Control and the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD).

S-45.2 MATERIALS

Flaggers must be properly uniformed and have a STOP/SLOW sign with a five-foot minimum staff. Multiple Flaggers must be able to see each other or be equipped with two-way radios.

S-45.3 CONSTRUCTION REQUIREMENTS

Qualified flaggers will safely provide for traffic control in such numbers and for such Work operations as determined by the Engineer. Furnish Flaggers in sufficient quantity to control each approach to the Work area including intersecting crossroads that are open to traffic. Flaggers will not override a fully operating signal system. See the Minnesota Flagging Handbook for additional requirements and procedures.

S-45.4 METHOD OF MEASUREMENT

No measurement will be made for flaggers. The cost for flaggers shall be included in the Lump Sum Traffic Control Contract unit price.

S-45.5 BASIS OF PAYMENT

No direct payment will be made for flaggers. The cost for flaggers shall be included in the Lump Sum Traffic Control Contract unit price.

S-46 (2574) SOIL PREPARATION

RESTORED 06/30/2023 - MODIFIED
SP2020-217

S-46.1 Delete the first paragraph of MnDOT 2574.3C and replace with the following:

Place and shape topsoil, including salvage material, to the depths as shown on the plans, loosen by tilling, rake smooth, and removal all rocks and debris exceeding 1 inch in length or diameter from the surface.

S-46.2 Replace MnDOT 2574.5, including MnDOT 2574.5A and 257.5B, “Basis of Payment”:

Payment for all costs of soil preparation, as prescribed in the Drawings, shall be included in the Lump Sum payment for Turf Establishment, unless payment is specifically provided for in other Contract Bid items

S-47 (2575) ESTABLISHING VEGETATION AND CONTROLLING EROSION

RESTORED AND REVISED 06/30/23 - MODIFIED
SP2020-218

S-47.1 Delete the first paragraph of MnDOT 2575.3.B.2 “Seeding Turf Mixtures” and replace with the following:

Mechanically sow, with an agricultural drill, seed mixture numbers from 21-111 to 25-151 adjusted bulk application rate of each mixture. Drills or other mechanical seeders shall be used to the extent possible in narrow boulevard areas and lawns. Only use hand operated mechanical spreaders on areas too small for or inaccessible by the specified equipment. Hydraulic application will only be allowed in large undeveloped areas or as approved by the Engineer.

S-47.2 Add the following to MnDOT 2575.3B.4 "Hydro-Seeding":

Hydraulic application will only be allowed in large undeveloped areas or as approved by the Engineer.

S-47.3 Add the following to MnDOT 2575.3E.2:

On Projects with a DNR Public Waters Permit that have Hydraulic Mulch Matrix, Stabilized Fiber Matrix, Bonded Fiber Matrix, or Reinforced Fiber Matrix provide a Manufacturers Letter of Certification certifying that the Hydraulic Matrix product does not contain any plastic fiber material. Submit letter and provide time for review and acceptance prior to product installation.

S-47.4 Add the following to MnDOT 2575.3M:

On Projects with a DNR Public Waters Permit that have Rapid Stabilization Method 2 or Rapid Stabilization Method 3 Provide a Manufacturers Letter of Certification certifying that the Hydraulic Matrix product does not contain any plastic fiber material. Submit letter and provide time for review and acceptance prior to product installation.

S-47.5 Delete the first sentence of MnDOT 2575.3K.5 "Mowing and Weed Spraying" and replace with the following:

Perform the work required to eliminate the growth of all noxious weeds, either on the areas seeded or sodded under this contract, until such time that the turf has been accepted by the Engineer.

S-47.6 Add the following to MnDOT 2575.3K.5 "Mowing and Weed Spraying

All areas seeded or sodded under this Contract shall be mowed by the Contractor on a regular basis until such time that the turf has been accepted by the Engineer.

S-47.7 Add the following to MnDOT 2575.3K "Maintenance":

K.6 Watering

All seeded and sodded areas under the contract shall be routinely and thoroughly watered by the Contractor until such time that the turf has been accepted by the Engineer. Watering shall be accomplished by the installation of a temporary irrigation system connected to hydrants or by a mobile equipment capable of saturating the soil. Contractor must make multiple passes with mobile equipment such that water saturates the soil and does not just wet the soil surface. The Owner will not charge the contractor for used from the municipal water distribution system for purposes of watering turf.

S-47.8 Delete the provisions of MnDOT 2575.3.L "Turf Establishment" and replace with the following:

L Turf Establishment

Turf establishment by a lump sum is for establishing permanent vegetation an small areas typically less than 5 acres, but occasionally larger areas, per the Contract requirements. This work shall include soil preparation (including soil bed preparation, subsoiling, topsoil preparation), fertilizer, seed (or sod if specified), mulch, and all required maintenance of the turf until accepted by the Engineer.

Unless otherwise shown on the plans, establish vegetative cover by seeding in accordance with the following: Prepare the areas of restoration by soil bed preparation, subsoiling, and topsoil preparation in accordance with MnDOT 2574; Fertilize the areas with type 3, slow release fertilizer in accordance with 3881.2.B3 at a rate derived from a

topsoil fertility test; seed with mixture 25 131 as specified in 3876; place Hydraulic Mulch on slopes less than 1:3 and Bonded Fiber Matrix or Category 25N Rolled Erosion Prevention blanket on slopes 1:3 or steeper; and provide maintenance (including watering, weed control, and mowing) in accordance with MnDOT 2575.3.K5 and 2575.3K6 for the specified maintenance period or until turf is accepted by Engineer in accordance with MnDOT 2575.3.N.1.

S-47.9 Delete the provisions of MnDOT 2575.3N.1 "Acceptance of Seeding" and replace with the following:

N.1 Seeding

The Engineer will assess the condition of the turf for acceptance 30 days after planting during the seeding dates specified in MnDOT 2575.2A.2. Growing periods outside of the specified seeding dates will not count towards the 30-day assessment. Areas that show a healthy, uniform, weed-free, with a minimum 70% ground cover of grass vegetation will be accepted by the Engineer. Acceptance will be at the sole discretion of the Engineer. In lieu of replacement, the Engineer may extend the maintenance period if believed that additional maintenance such as fertilizing, watering, or other Contractor actions can bring the turf to an acceptable condition. All replaced areas of turf shall be subject to the same maintenance and acceptance provisions of specified herein.

S-47.10 Add the following to the provisions of MnDOT 2575.5 "Basis of Payment":

S-47.11 Delete the provisions of MnDOT 2575.5(I), "Turf Establishment" and replace with the following:

J Turf Establishment

The contract unit price includes all labor, equipment, and material to complete the work as specified. The cost of restoring disturbed areas includes soil bed preparation, subsoiling, seeding, fertilizing, mulching, maintenance, and establishment of acceptable vegetative cover. Fifty percent (50%) of the lump sum payment will be made upon completion of initial turf establishment activities. The remaining 50% will be paid upon completion of turf maintenance (weed control, mowing, and watering) and acceptance of turf by the Engineer.

S-47.12 Delete the provisions of MnDOT 2575.5(J), "Mowing and Weed Control" and replace with the following:

K Mowing, Weed Control, and Watering

Payment for all costs of mowing, weed control, and watering shall be included in the lump sum payment for Turf Establishment, unless payment is specifically provided for in other Contract Bid items.

S-48 (2575) ESTABLISHING VEGETATION AND CONTROLLING EROSION (HYDRAULIC MATRIX)

SP2020-219

S-48.1 Add the following to MnDOT 2575.3E.2:

On Projects with a DNR Public Waters Permit that have Hydraulic Mulch Matrix, Stabilized Fiber Matrix, Bonded Fiber Matrix, or Reinforced Fiber Matrix provide a Manufacturers Letter of Certification certifying that the Hydraulic Matrix product does not contain any plastic fiber material. Submit letter and provide time for review and acceptance prior to product installation.

S-48.2 Add the following to MnDOT 2575.3M:

On Projects with a DNR Public Waters Permit that have Rapid Stabilization Method 2 or Rapid Stabilization Method 3 Provide a Manufacturers Letter of Certification certifying that the Hydraulic Matrix product does not contain any plastic fiber material. Submit letter and provide time for review and acceptance prior to product installation.

S-49 (2582) PAVEMENT MARKINGS

REVISED 09/29/23 - MODIFIED
SP2020-224

S-49.1 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. No additional payment for Late Season Pavement markings will be made unless specifically addressed in the Schedule of Prices.

S-49.2 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-49.3 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

	White	Yellow
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

	White	Yellow
All Materials	200 millicandela/square meter/lux	200 millicandela/square meter/lux

S-50 (2582) PAVEMENT MARKINGS (SPOTTING METHOD AND WR)

REVISED 06/30/23
SP2020-224.1

S-50.1 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-51 (3138) AGGREGATE FOR SURFACE AND BASE COURSES

RESTORED 06/30/23
SP2020-227

S-51.1 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-51.2 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-52 (3491) PRESERVATIVES AND PRESERVATIVE TREATMENT OF WOOD PRODUCTS

RESTORED 06/30/23
SP2020-231

S-52.1 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-53 (3601) RIPRAP MATERIAL

RESTORED 06/30/23
SP2020-232

S-53.1 Add the following to MnDOT 3601.2:

F. Geotextile Filter Material

Provide geotextile filter material, meeting the requirements of 3733 and the following:

(1) Type 3 for use under Class I and Class II random riprap
(2) Type 4 for use under Class III and Class IV random riprap and hand-placed riprap on slopes no steeper than 3:1, horizontal to vertical
(3) Type 7 for use under Class III and Class IV random riprap on slopes steeper than 3:1, horizontal to vertical, and under Class V random riprap

S-53.2 Add the following to MnDOT 3601.3:

An approved Quality Control Program is required for riprap derived from Carbonate quarries if used for Bridge protection or quantities greater than 100 cubic yards. The Quality Control program is administered by the MnDOT Geology Unit.

S-54 (3733) GEOSYNTHETIC MATERIALS

RESTORED AND REVISED 06/30/23
SP2020-233

S-54.1 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						
		Fabric	Knit sock ‖	3	4	5	6	7 †
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^{-1}	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 Stiches 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: ≥ 3.3×10^{-4} feet/second	*ASTM D5493* MnDOT Modified‡ or *ASTM D4491*#
In-plane water permeability (transmissivity) under load (pressure)	At 2.9 psi: ≥ 1.6×10^{-3} feet/second At 29 psi: ≥ 6.6×10^{-4} 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^{-1}	0.5		0.90		1.0	
Flow Rate	ASTM D4491	$gal/min/ft^2$	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^{-1}	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

Properties	Test Method	Unit	Minimum Average Roll Value MD and CD
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^2	30 MARV

S-54.2 Renumber Table 3733.2-4, “Geogrid Properties” of MnDOT 3733.2C to Table 3733.2-5, “Geogrid Properties”.

S-55 (3877) TOPSOIL MATERIAL

MODIFICATION

S-55.1 Modify MnDOT Table 3877-1 “Common Topsoil Borrow Requirements" such that the largest materials size dimension not to exceed 1.0 inches. All topsoil borrow shall be mechanically screened prior to deliver to the project site.

S-55.2 Add the following to MnDOT 3877.2.A:

Topsoil borrow shall not, in the opinion of the engineer, have a strong noxious/foul odor such as manure or other highly organic sources originating from feedlots, farm waste or other such sources.

S-56 (3885) ROLLED EROSION PREVENTION PRODUCTS

RESTORED AND REVISED 06/30/23

SP2020-234

S-56.1 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

Criteria	Category 10	Category 20	Category 30
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
* 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.*			

Table 3885.2-2
Temporary, Wood Fiber Based Products

Criteria	Category 15	Category 25	Category 35	Category 45
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

* 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.*

Table 3885.2-5
Permanent, Synthetic-based, Soil or Organic Fiber Media Filled Products

Criteria	Category 70	Category 72	Category 74	Category 76
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
*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. ‖ 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. † *ASTM D6566 Mass Per Unit Area of Turf Reinforcement Mats* ‡ *ASTM D4355 Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc-Type Apparatus* # *ASTM D6460 Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.* 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. ## Minimum anchor embedment length may be reduced for anchors that are an alternative to straight pins or to account for site specific soil conditions. § *ASTM D6818 Ultimate Tensile Properties of Rolled Erosion Control Products* 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.				

S-57 (3886) SILT FENCE

RESTORED 06/30/23

SP2020-235

S-57.1 Delete and replace Table 3886.2-1 of MnDOT 3886.2A with the following:

Table 3886.2-1
Silt Fence Requirements

Silt Fence Type	Minimum Width, inches	Grab Tensile (machine direction), pounds *	Apparent Opening Size ‖	Puncture Strength †	UV Stability, 500 hour, percent ‡	MAX Permittivity #	Maximum Flow Rates, GPM/square foot
MS, HI woven geotextile §	36	130	No. 30 Sieve	—	70	1.0 s^{-1}	130
PA woven geotextile	36	100	No. 30 Sieve	—	70	0.1 s^{-1}	5
SD woven or nonwoven geotextile **	36	100	—	—	70	—	—
TB polyester or polyvinyl Fabric	60	200	—	90 pounds	70	0	0

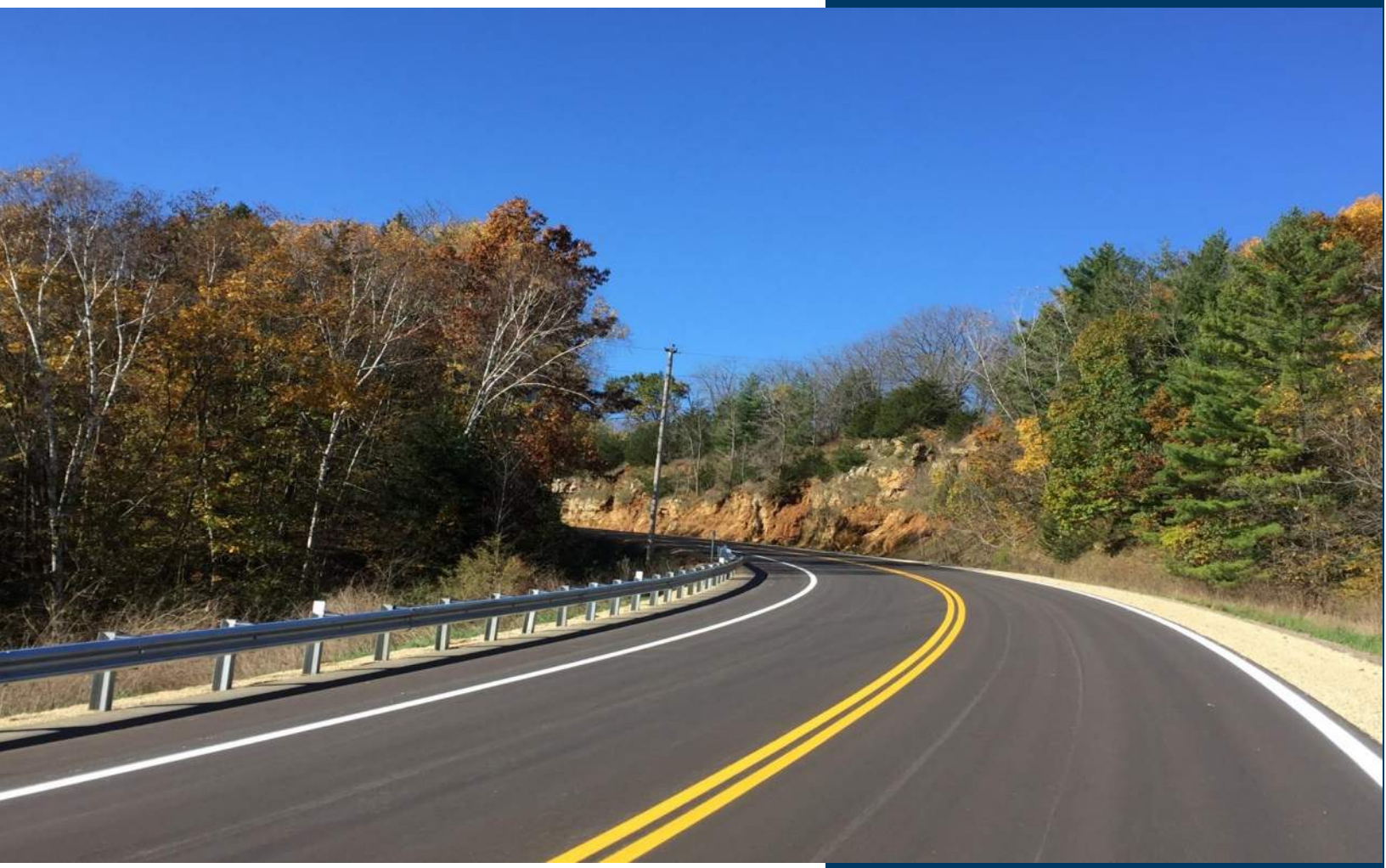
Values in the table are Minimum Average Roll Values (MARV).
* *ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.*
‖ *ASTM D4751, Standard Test Methods for Determining Apparent Opening Size of a Geotextile*, Maximum average roll value.
† *ASTM D4833, Standard Test 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.*

Silt Fence Type	Minimum Width, inches	Grab Tensile (machine direction), pounds *	Apparent Opening Size ‖	Puncture Strength †	UV Stability, 500 hour, percent ‡	MAX Permittivity #	Maximum Flow Rates, GPM/square foot
§ 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.							

No.	Item/Description	Length
1.	2022 SALT Schedule of Materials Control	38 Pages
2.	Geotechnical Evaluation Report	51 Pages

2024

SALT Schedule of Materials Control



Contents

Introduction

This Schedule of Materials Control (SMC) outlines the **MINIMUM** testing requirements for State Aid Funded and/or Federal Aid Projects **OFF** the National Highway and Trunk Highway System. Optional to this SMC is the MnDOT Materials Control Schedule. Usage of either schedule must be defined in the project proposal.

The SMC – LGA serves as a guide for material testing with allowable acceptance "as directed by the Engineer" detailed in Specification 1501.1(1) – Authority of the Engineer. These testing rates are a minimum and additional test may be taken at the Engineer's discretion. A minimal testing rate does not always ensure a quality product; field observations and attention to detail is crucial. Materials not listed on an approved products list may be sampled and tested as directed by the Engineer. Materials listed on a Qualified Products list may be accepted or tested at the discretion of the Engineer.

Federal Aid projects require Independent Assurance Inspection. Contact the MnDOT District IA Inspector when the job starts to provide the proper servicing of your project.

*****Agencies using MnDOT Metro Inspection Services will be sampled at the current MnDOT Schedule of Materials Control rates and will be billed accordingly.**

*****Contact the MnDOT District IA Inspector to provide servicing for your federal aid project.**

Definitions

Schedule of Materials Control

Schedule of Materials Control (SMC) are inserted into project proposals to direct how materials are to be sampled and tested. The SMC is updated yearly. Each SMC is project specific. Therefore, one needs to refer to their specific proposal.

Approved/ Qualified Products List

Products are "approved" when they have been found to routinely meet all applicable standards and specifications. The product is placed on the list based upon established successful manufacturer's quality control and warranties, but the listing may expire or require periodic renewal to verify the product has not changed over time. The approval process for the individual product should specify any expiration requirement. Testing may still be on at the Engineers discretion.

Certified Sources

Certified Sources must comply with each individual product's defined "certification procedure". Acceptance of products from certified sources follows the same sampling and testing as "approved/ qualified" products.

Quality control (QC): The activities performed by the **Contractor/Producer** that have to do with making sure the quality of a product or process meets the relevant contract requirements. All testing shall be performed by a certified tester.

Quality assurance (QA): The activities performed by the **Department/Agency** that have to do with making sure the quality of a product or process meets the relevant contract requirements. All testing shall be performed by a certified tester.

Verification Testing: Sampling and testing performed as called out herein to validate the quality of the product(s). **Part of QA.**

Material Acceptance Summary Instructions

STATE AID FOR LOCAL TRANSPORTATION
MATERIAL ACCEPTANCE SUMMARY

Rev. February 2019

SP/SAP(s)

Bid Item/ Spec No.	Item Description	Approved/ Qualified Product List (date checked)	Certificate of Compliance (date rec'd)	Accepted by Engineer* (date)
2105.604	Geotextile Fabric	5/26/18	5/26/18	6/6/18
2105.604	Soil Stabilized Geogrid	5/30/18	5/30/18	6/6/18
2357.506	Bituminous Material for Tack Coat	6/6/18	6/6/18	6/6/18
2573.503	Silt Fence, Type MS	5/14/18	5/14/18	6/6/18
2582.503	Epoxy Pavement Marking	7/30/18	7/30/18	7/31/18
3592	Drop-on Glass Beads	7/30/18	7/30/18	7/31/18
2574.508	Fertilizer Type 3	---	8/6/18	8/6/18
2575.508	Seed Mixture 22-111	8/6/18	8/6/18	8/6/18

Example Project

Date checked the Approved/Qualified product list. Print and file copy of approved list on acceptance date.

Date the certification was received. See specification 1603.3

Date accepted by the engineer.

* This item is hereby accepted by the Engineer as materially compliant for use on this project per the terms of specification 1501.1, subset (1).

Approved by Project Engineer: _____ Date: _____

Print Name: _____

Material Acceptance Summary

STATE AID FOR LOCAL TRANSPORTATION
MATERIAL ACCEPTANCE SUMMARY

Rev. February 2019

SP/SAP(s)

Bid Item/ Spec No.	Item Description	Approved/ Qualified Product List (date checked)	Certificate of Compliance (date rec'd)	Accepted by Engineer* (date)

* This item is hereby accepted by the Engineer as materially compliant for use on this project per the terms of specification 1501.1, subset (1).

Approved by Project Engineer: _____ Date: _____
Print Name: _____ Phone: _____

For an electronic Word version of this form, please visit the State Aid Construction webpage at: https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=19623193

Bituminous Quality Management

The Contractor shall provide and maintain a quality control program as detailed in Specification 2360.2.G. The Engineer shall review the quality control program for compliance. This shall be provided at the precon.

	Type of Test	Spec Section (1)	Contractor / Producer – QC Testing Rates	Agency – QA Testing Rates
Start-Up Testing Rates for the 1st 2000 tons (2)	Bulk Specific Gravity	2360.2.G.7.b	1 test per 500 tons 55 lb. sample 3 full cylinder molds **(7)**	**(3) (10)** 1 Verification Mixture Sample test per day, all Verification samples are from a split (QC/QA) sample.
	Maximum Specific Gravity	2360.2.G.7.c		
	Air Voids (calculated)	2360.2.G.7.d		
	Asphalt Content	2360.2.G.7.a		
	Adj. Asphalt Film Thickness (AFT)	2360.2.E.7.e		
	Gradation	2360.2.G.7.f		
	Fines to Effective Asphalt Ratio (calculated)	2360.2.G.7.a/f		
	Coarse Aggregate Angularity (CAA)	2360.2.G.7.g	1 test per 1000 tons **(4) (5) (6) (7)**	
	Fine Aggregate Angularity (FAA)	2360.2.G.7.h		
	Added AC/Total AC Ratio (calculated)	2360.2.G.7.a		
Production Testing Rates	Bulk Specific Gravity	2360.2.G.7.b	1 test per 1000 tons 55 lb. sample 3 full cylinder molds **(7)**	**(3) (10)** Verification Mixture Sample test per day/ mix type, submit companion to the QC – CAA & FAA test results.
	Maximum Specific Gravity	2360.2.G.7.c		
	Air Voids (calculated)	2360.2.G.7.d		
	Asphalt Content	2360.2.G.7.a		
	Adj. Asphalt Film Thickness (AFT)	2360.2.E.7.e		
	Gradation (minimum of 1 per day)	2360.2.G.7.f		
	Added AC/Total AC Ratio (calculated)	2360.2.G.7.a		
	Coarse Aggregate Angularity (CAA)	2360.2.G.7.g	**(4) (5) (7)**	
	Fine Aggregate Angularity (FAA)	2360.2.G.7.h	**(4) (6) (7)**	
	TSR	2360.2.G.7.i	When directed by the Engineer	
	Aggregate Specific Gravity	2360.2.G.7.j		
	Mixture Moisture Content	2360.2.G.7.k	As directed by the Engineer	
	Asphalt Binder (QA ONLY)	2360	**(8)** 1 qt. steel container for asphalt binder	
	Asphalt Emulsion (QA ONLY)	2357	**(9)** ½ gal plastic container for asphalt emulsion. (Tack)	
	Compaction / Density Requirements	2360.3.D	Review special provisions	
	Small Quantity Requirements	< 500 tons per project may be accepted by the Engineer without testing.		

NOTES: Testing rates are minimum rates; additional testing is encouraged to ensure a quality product.

(1) Review Special Provisions & 2360.2G Mixture Quality Management.

(2) The testing rates apply only to mixtures that have not been tested on previous projects in the current year.

(3) The Agency shall witness a minimum of 1 (one) complete QC mixture sampling, splitting and test per day. The Agency shall take possession of all split QA samples immediately. The Agency shall randomly submit one QA split sample to the District Lab for Verification testing and inform with contractor the following day of test number. Additional verification samples can be taken at any time or location. 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.

(4) The Contractor will retain the extracted gradation samples in containers with field identification numbers for a period of 10 calendar days. The Engineer will identify which extracted gradation sample is the Verification Companion Sample and whether it is to be tested for coarse and fine aggregate angularity.

(5) **At start-up or new Mix Design**: 2 tests/ day for a minimum of 2 days, then 1/day if CAA is met. If CAA > 8% of requirement, 1 sample/ day but test 1/ week. No testing required for Class A and B Aggregates.

(6) **At start-up or new Mix Design**: 2 tests per day for a minimum of 2 days, then 1/day if FAA is met. If FAA > 5% of requirement, 1 sample/ day but test 1/week.

(7) 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.

(8) **During Asphalt Mixture Production (Field Verification):** Shall be from a certified supplier. Obtain asphalt binder samples from a sampling valve located between the pump and the drum. Contractor personnel shall 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. Sample shall be sent in for verification testing.

(9) **During Mixture Production (Field Verification):** Shall be from a certified supplier. The Contractor shall sample first shipment, then submit 1 per 50,000 gallons. Sample emulsified asphalt in clean ½ gallon plastic container with wide screw top and send to MnDOT Chemical Lab within 7 days of sampling. Sample all emulsified asphalt from the distributor. Sample shall be sent in for verification testing. No Samples required unless directed by the Engineer.

(10) Conduct random belt samples and test for aggregate quality as directed by the Engineer.

Bituminous Specialty Items

Type of Test	Spec	Contractor/Producer – QC Testing Rates	Agency- QA Testing Rates
Gradation PASSRC & PASB	2363 3139.3	1 per 1,000 Ton with a minimum 1 per day.	1 per day. 35 lbs.
Micro-Surfacing	2354 3139.5	Stockpile: 1/1,500 Tons (min 1/day) Machine Hopper: 1/500 Ton (min 1/day)	Machine Hopper: 1/day, 30 lbs.
Seal Coat, Underseal & Otta Seal	2356 3137.2B	Stockpile: 1/1,500 Tons (min 1/day) Chip Spreader Hopper: 1/day	1/day from Hopper. 30 lbs.
% Crushing – CAA PASSRC & PASB	2363 3139.3	1 per 1,000 Ton with a minimum 1 per day.	1 per day from gradation test. 35 lbs.
Moisture / Aggregate Micro-Surfacing	2354 3139.5	Machine Hopper: 1/500 Tons (min 3/day)	1/day 2lbs
Sand Equivalence Micro-Surfacing	2354	1/day	Test at Engineer discretion, 25 lbs.
Flakiness Index Bituminous Seal Coat & Bituminous Underseal	2356	Sample taken from first load on first day, submit to Agency: 30 lbs.	Agency will test at their discretion, see Lab Manual 1223
Bituminous Mixture UTBWC	2353 3151.2G	1/500 Tons, min 1/day. %AC, Gradation, Max SpG, Adj.AFT	1/day, 20 lbs. 1 cylinder from truck box.
PASSRC & PASB	3151 2363	Asphalt spot check: min 1/day	-
Stone Matrix Asphalt – SMA Lab Manual 1203, 1204, 1205, 1211, 1214, 1806, 1807, 1808, 1813, 1853, 1854, 1855, AI SP-2 AASHTO T305	2365	**Tests**, %AC,gradation, Gmm, Gmb, Voids, VMA, CAA, Draindown, VCA, fines/effective asphalt. Rate, (1/1000 tons, min.1/day) Agg SpG, mix moisture, TSR to be tested as directed by Engineer. Submit companion 1 per day to agency: 3 full 6" by 12" cylinders	Tests: %AC, Gradation, Gmm, Gmb, Voids, VMA, CAA, VCA, fines/effective asphalt. Agency is not required to do drain down. Copy MDR to Project Engineer and Grading & Base Engineer.
Asphalt Binder Tests		Asphalt Emulsion List	Asphalt Binder List
UTBWC	2353 3151	**Asphalt Binder:** Sample first load, then 1/250,000 gallons. Sample size of 1 quart metal container. **Emulsified Asphalt:** Sample first load, then 1/50,000 gallons. Sample size of ½ gallon wide screw top plastic container.	
Micro-Surfacing	2354		
Seal Coat, Underseal & Otta Seal	2356		
Tack Coat	2357		
PASSRC & PASB	3151		
Asphalt Binder Rate Micro-Surfacing	2354	Verify Application Rate 3/day	Verify Application Rate 1/day
Fog Seal	2355	Verify Application Rate 1/day	Verify Application Rate 1/day
Seal Coat, Underseal & Otta Seal	2356		
Bit Tack Coat	2357		

Specification 2215 – Cold Inplace Recycling (CIR), Stabilized Full Depth Reclamation (SFDR) and Cold Central Plant Recycling Bituminous (CCPR)

Test Type	Contractor/Producer QC Testing Rates	Agency QA Testing Rates	Grading & Base Manual/Form
Gradation SFDR (Simple) Pre-ground un-stabilized material	1 per mile – report sieves 2" & 3"	Run gradation at the discretion of the Engineer	.215 / 101 report sieve 2" & 3"
Gradation (Entire) (Material to be stabilized)	One per day, give split sample to the Engineer	Run gradation at the discretion of the Engineer	.215 / 101 report sieve 2", 1.5", 1.25", 1", ¾", 3/8",#4, #10, #30.
Gradation (Simple) (Material to be stabilized)	1 per mile for SFDR & CIR. 1 per 2,000 ton for CCPR.	Run gradation at the discretion of the Engineer	.215 & .293 / 101 report sieve 2" & 1.5" for SFDR, 1.5" and 1.25" for CIR
CIR & SFDR Depth Check – Unstabilized and Stabilized	None	1 per day	.284 / 401
SFDR & CCPR Moisture – before injecting with bituminous.	1 per mile of anticipated daily production and after rain. 1 per mile for SFDR after mechanical drying.	Run moisture at the discretion of the Engineer	.245 Speedy tester not allowed.
Penetration Index (DCP) – SFDR only Unstabilized.	2 per mile	1 per mile	.255 / 205
Calibrate: mineral stabilizing agent application rate.	Once using design rate per vane feeder.	Observe contractor calibration	.286 or .287
Moisture: before injecting liquid bituminous material	1 per mile of daily anticipated SFDR & one after rain or mechanical drying out (disking, etc.).	none	.281 / 105
Yield: Mineral Stabilizing Agent and/or Liquid Bituminous Material	1 per transport load each type	1 per day each type	.286 & .287 / 402 & 403
Compaction: Nuclear density for SFDR stabilized and CIR	10 per lane mile, (**see note below**).	Observe the Contractor.	.282
Control Strip: SFDR Stabilized and CIR	Minimum of once per project	Observe the Contractor.	
Bituminous Material Samples		. 1 per 50,000 gallons; sample first load	1 quart each sample
Mineral Stabilizing Agent Samples	None	1 sample	none
Foaming asphalt checks expansion ratio & half life	1 per load	Observe the Contractor.	.285
Moisture (stabilized) – before placement of next layer during curing.	2 per day until moisture stabilizes & placement of HMA.	None	Grading & Base Manual

Note: The Engineer may require a Contractor to perform additional nuclear density tests in areas that the Engineer believes are failing density requirements.

Grading and Base Construction Items (1 of 4)

	Material Type	Spec.	Contractor / Producer QC Testing Rates	Minimum Required Agency QA Testing Rates	Verification Testing Sample
Gradation Testing (2) (3)	Aggregate Surfacing	3138	1 / 1,000 CY (CV) stockpile gradation only required for material on hand.	> 250 yd^3 (CV) or 500 Tons and < 2000 yd^3 (CV) or 4000 tons. Material is a minimum of one lot **(5)**. Test two random samples from each lot and average. > 2000 yd^3 (CV) or 4000 Tons. Divide into lots with lot size **(5)** no greater than 2000 yd^3 (CV) or 4000 Tons. Test two random samples from each lot and average.	1/source 30 lb.
	Aggregate Base	3138			
	Shoulder Base Aggregate	3138			
	Drainable Aggregate Base (OGAB & DSB)	3136			
	Granular and Select Granular Material (borrow/embankment)	3149.2B	1/10,000 CY (CV) only required for material on hand.	1/40,000 yd^3 (CV)	1/source 30 lb.
	Stabilizing Aggregate	3149.2C			
	Reclamation FDR	3135.2B	None	Test at Engineer's discretion. Inspect for oversize chunks (+3"), after the motor grader has overturned the material	None
	Granular Filter	3601.2B	1/source – before delivery on the project. Only required for materials on hand. Spec 1906.2	1/ source	1/source 30 lb.
	Backfill Materials	3149.2D			
	Granular Bedding	3149.2F			
	Aggregate Bedding	3149.2G			
	Coarse Filter Agg.	3149.2H			
	Filter Aggregate	3149.2J			
	Sand Cover	3149.2K			
Sand Cone, Nuclear Density or LWD / **Proctor**	Non-Granular Material Used to determine optimum moisture & maximum density.	2106 3149	None	1 per major soil, subgrade prep specified density requires 100% of proctor density.	1 sample 25 lb.
Sand Cone, Nuclear Density or LWD / **Specified Density ***	Non-Granular Material For non-granular material, i.e., material that does not meet 3149.2B.1		**AGENCY TESTING**: **Roadway Embankment**: One test per 4,000 yd3 (CV) or if test rolled, One test per 10,000 yd3 (CV) **Transverse culverts & abutments:** 1 test per every 2 feet of fill. **Structures and Longitudinal Trenches:** One test per 300 feet of each structure per 2 feet per fill. **Sidewalks and Trails**: 1 per 500 feet. **Subgrade Preparation:** One per 25 road stations.		

Grading and Base Construction Items (2 of 4)

Material Type		Spec.	Contractor / Producer QC Testing Rates	Minimum Required Agency QA Testing Rates	Verification Testing Sample
Penetration Index Method (DCP) or LWD *	Aggregate Base	3138 2211.3C	None	1 DCP tests per 500 yd^3 (CV) or 1 per 1000 Tons. If test rolled, 1 test / 1,500 yd3 (CV) or 3000 Tons.	None
	Shoulder Base Aggregate				
	Reclamation FDR	3135.2B 2215.2C		1 DCP test per 3,000 yd^2. If test rolled, 1 test / 10,000 yd^2	
	Walks & Trails	2521		1 per 500 feet of Sidewalk or Trail	
	Granular Materials Subgrade Preparation (for materials meeting 3149.2B1)	3149.2B	**AGENCY TESTING:** **Roadway Embankment:** One test per 2,000 yd3 (CV) or if test rolled, One test per 6,000 yd3 (CV) **Transverse culverts & abutments:** 1 test per every 2 feet of fill. **Structures and Longitudinal Trenches:** One test per 300 feet of each structure per 2 feet per fill. **Sidewalks and Trails**: 1 per 500 feet. **Subgrade Preparation:** One per 25 road stations.		
Moisture Content Test During All Compaction Methods (4)	Aggregate Base, Shoulder, Surfacing & Walks	3138	None	**For 2118, 2211,2221, and 2521:** 1 / 1,000 yd3 up to 10 Maximum **For 2451:** 1 per structure, for multiple adjacent structures, may test once, use judgement **For Quality Compaction:** Test as directed by Engineer.	None
	Drainable Aggregate Base (OGAB & DSB)				
	Reclamation FDR	3135.2B	None	1 / 20,000 yd^2	
	All Embankment Materials	2106 3149	None	1/10,000 yd3 up to 10 Maximum **For Quality Compaction:** Test as directed by Engineer.	
	Subgrade Preparation	2106 3149		1 per 25 road stations **For Quality Compaction:** Test as directed by Engineer.	
Percent Crushing	Particle Count **(1)**	1906.2	1 required for Material on hand	1/source unless directed by Engineer, (required for 3138.2B & C, 3149.2C & G1, 3136.2B).	1 / source
Quality	Aggregate Quality Tests	3138 3149 3601	1 required for material on hand, Spec 1906.2	1/ source unless directed by Engineer	1 / source 30lb
Depth Check	Reclamation FDR	3135.2B	1/Mile.	1 per day unless directed by Engineer	

Material Type		Spec.	Contractor / Producer QC Testing Rates	Minimum Required Agency QA Testing Rates	Verification Testing Sample
Test Rolling	Test Rolling (as directed in the special provisions)	2111	As directed by the Engineer the contractor will perform test rolling at the top of all • Subgrade • Base layers (2211) • Non-Stabilized FDR (2215) • Granular layers not meeting the requirements of 3149.2B2 (2106) • Minimum 12’ width and 300’ length. Agency to observe test rolling.		

Verification Testing Samples are companion split samples to the QA sample:

- Companion gradation, proctor, QA crushing, aggregate quality samples not required 1,000 tons or less.
- Include the laboratory companion with the first field sample.
- Include the field sample results with the laboratory sample.
- Laboratories with AMRL Accreditation are not required to submit laboratory companion samples.
- Carbonate aggregate materials require 50 lb. samples for the laboratory testing.

NOTES:

(1) Percent crushing test is not required when the material is crushed from a quarry or contains 25% or greater recycled materials.

(2) Submit a laboratory companion to the first Acceptance Gradation sample for a bituminous extraction, see 3138.2C. Full Depth Reclamation samples are not required.

(3) The Certification of Aggregates and Granular Materials procedure and documentation of testing locations is at the discretion of the Engineer.

(4) For quality compaction per spec 2106.3G.2, test at Engineer's discretion.

(5) Lot sizes may be adjusted by the Engineer. This may be good practice if parts of the project are taking place in separate areas or at separate times, such as many turn lane or excavation areas or separate project stages.

* Review the Special Provisions. The Grading and Base Manual allows the nuclear density gauge, see pages 60 and 65.

NOTES:

Conversions: 1 ton = 0.55 yd3 (CV), 1 ton = 0.7 yd3 (LV), 1 yd3 (CV) = 1.8 tons.

Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

Less than 500 tons (250 CY) may be accepted by the Engineer without testing.

Grading and Base Construction Items (4 of 4)

Guidelines for Required Crushing & Aggregate Quality Tests

	3149 Granular Materials	**3138** Aggregate for Surface and Base	**3136** Drainable Bases
Crushing	Yes, for Stabilizing Aggregate, Fine Aggregate Bedding and Medium Filter Aggregate. Test waived if material contains recycled at twice the minimum crushing requirement. Not required for quarried sources.	**Yes**, for Class 5, 5Q & 6. Test waived if material contains recycled at twice the minimum crushing requirement. Not required for quarried sources. Class 2 must contain 100% crushed quarry rock.	**Yes.** Not required for quarried sources.
Bitumen Content	**At the discretion of the Engineer**	**At the discretion of the Engineer**	Not applicable
LAR	Not applicable	**Yes**, if source is carbonate quarry and does not contain bitumen.	**Yes**
Insoluble Residue	**Yes**, if source is carbonate quarry and does not contain bitumen.	**Yes**, if source is carbonate quarry and does not contain bitumen.	**Yes**, if source is carbonate quarry.
Litho Exam & Shale Float Test	**Yes**, for Medium Filter Aggregate	**Yes**, for Class 3, 4, 5, 5Q & 6, when not from quarried rock, and does not contain bitumen.	**Yes**, when not from a quarried source.

Testing procedures in the Grading & Base Manual.

Forms and worksheets at the Grading & Base website.

Gradation worksheets at the SALT Construction website.

MAKE SURE TO FILL OUT THE REQUIRED PRELIMINARY AND FINAL GRADING AND BASE REPORTS AND SUBMIT TO PROJECT ENGINEER.

http://www.dot.state.mn.us/materials/gradingandbasedocs/Forms/form001_08_043019.xlsx

Certified Ready-Mix Concrete (1 of 3)

The Prime Contractor is responsible to assure that all ready-mix concrete used is produced by an annually Certified Ready-Mix plant as detailed in Specification 2461.3F.

<table>
<tr><th>Material Spec.</th><th></th><th>Test Type (Concrete Manual)</th><th colspan="5">Contractor / Producer QC Testing Rates</th><th>Form</th></tr>
<tr><td rowspan="20">bridge
2406.2
2411.2
2461.2
2461.3

general
2301**
2452.2
2461.2
2461.3
2506.2
2511.2
2514.2
2520.2
2521.2
2531.2
2533.2
2545.2
2554.2
2557.2
2564.2
2565.2</td><td rowspan="20">Concrete Plant Production Testing Rates *</td><td rowspan="3">Gradation
(5-694.145)
(5-694.148)
3126, 3131, 3137</td><td colspan="5">For all JMF's & Bridge Deck Mix Designs
Daily Concrete Quantity:
1 per fraction per source per day between 20 – 400 yd³. If over 400 yd3 per day, take a second gradation after the DAILY total exceeds 400 yd3.
<u>Bridge Deck Concrete</u> must have passing gradations prior to mixing.</td><td rowspan="20">Concrete Agg. Work sheet, Agg. Grad. Control Charts, R-M Plant QC workbook. R-M Plant QA Workbook

2410 Sample ID Card</td></tr>
<tr><td colspan="5">For all other mix designs,
Weekly Concrete Quantity:
1 per fraction per source per week between 20 – 400 yd³. If over 400 yd3 produced per week, take a second gradation after the WEEKLY total exceeds 400yd3.</td></tr>
<tr><td colspan="5">Department Plant Monitor Testing Rates: Verification only
Verification Sample: When weekly concrete quantity is ≥ 20 yd³:
1 per fraction per source per week, split and tested by both Agency and Contractor</td></tr>
<tr><td>Moisture Content
(5-694.142)</td><td>QC rates:</td><td>1 every 4 hours When Daily Concrete Quantity ≥ 20 yd³</td><td>QA rates:</td><td>None</td></tr>
<tr><td>Test Type</td><td colspan="4">Agency QA Testing Rates (1)</td></tr>
<tr><td>Aggregate Quality
(5-694.146)</td><td colspan="4" rowspan="2">Minimum of 1 per each fraction - use of MnDOT test results for the same 30-day time period is acceptable. <u>For all bridge deck concrete poured during the month</u>: Test monthly quality to 3137.2D2 for each coarse aggregate fraction. Designate 3137.2D2 on the sample card. Gradation results will be included with the monthly quality tests.</td></tr>
<tr><td>Coarse Aggregate
(% Passing 200)
(5-694.146)</td></tr>
<tr><td colspan="5">Minimum Aggregate Sample Size All Aggregate Gradation and Quality samples require companions, double sample size</td></tr>
<tr><td>Aggregate Size</td><td>Gradation</td><td>Quality</td><td>Moisture</td><td>% -200 Course.Agg.</td></tr>
<tr><td>3/4" Plus, #4</td><td>30 lb.</td><td>50 lb.</td><td>2000 g</td><td>5000 g</td></tr>
<tr><td>3/4" Minus, #67</td><td>10 lb.</td><td>30 lb.</td><td>2000 g</td><td>2500 g</td></tr>
<tr><td>#7, CA-70</td><td>6 lb.</td><td>20 lb.</td><td>2000 g</td><td>2500 g</td></tr>
<tr><td>CIA to meet #67</td><td>6 lb.</td><td>20 lb.</td><td>500 g</td><td>500 g</td></tr>
<tr><td>CIA to meet JMF, FIA, CS, FS</td><td>500 g</td><td>20 lb.</td><td>500 g</td><td>500 g</td></tr>
<tr><td>CA-80, #89</td><td>1.1 lb. (500 g)</td><td>20 lb.</td><td>500 g</td><td>500 g</td></tr>
<tr><td>Fine Aggregate</td><td>1.1 lb. (500 g)</td><td>20 lb.</td><td>500 g</td><td>-</td></tr>
</table>

Certified Ready-Mix Concrete (2 of 3)

Spec.		Test Type	Agency QA Testing Rates (1)	Form
bridge 2406.2 2411.2 2461.2 2461.3 general 2301** 2452.2 2461.2 2461.3 2506.2 2511.2 2514.2 2520.2 2521.2 2531.2 2533.2 2545.2 2554.2 2557.2 2564.2 2565.2	**Concrete Field-Testing Rates**	<u>Sampling Locations for Air, Slump (when required), Temperature and Cylinder Testing</u> First load each day per mix - Take sample after discharging approximately 1/4 yd3, stop further discharge until both slump and air content test are completed. The first load of concrete <u>must have passing air content and slump prior to placement.</u> Cast strength specimens from the same load as the air content and slump test. Test whenever adjustments are made to the mix. Take all tests at the point of placement. Subsequent tests - Sample from the middle portion of the load.		
		Air Content - Type 3 Concrete (5-694.541)	1 test per 100 yd3. Test first load each day per mix. Test when adjustments are made to the mix.	
		Slump (5-694.531)	Test first load each day per mix, then as necessary to verify passing slump. For Bridge Concrete: 1 test per 100 yd3. No testing required for slip form placement.	
		Air and Concrete Temperature (5-694.550)	Record temperature each time air content, slump or compressive strength specimen is performed/fabricated.	
		Compressive Strength (5-694.511) Standard cylinder size is 4 x 8, use 6 x 12 with aggregate greater than 1 1/4". Review 2461.3G.5 Test Methods and Specimens.	<u>General Concrete Grades F, G, M, P, and R:</u> 1 set of 3 cylinders per 300 yd3 per mix per day.	**2409** Concrete Cylinder ID Card
			<u>Bridge Concrete Grades B, S, and Y</u>: 1 set of 3 cylinders per 100 yd3, then 1 set of 3 cylinders per 300 yd3 per mix per day	
			Agency will break 1 set of 3 cylinders at 28 days. Agency will cast up to 3 control cylinders, any additional control cylinders are the responsibility of the Contractor.	
			Cellular Concrete: 1 set of 4 cylinders (28 days) per day, fill in 2 equal lifts, <u>*do not rod*</u>, lightly tap the sides, cover and move to area with no vibration. Do not disturb for 24 hours.	

NOTES:

(1) Review the requirements of 2461.3F Certified Ready-Mix Concrete, 2461.3G Concrete Placement and 5-694.010 Inspector's Checklist in the Concrete Manual.

***Small Quantity Requirements** are for less than 20 yd3 per day, Plant Monitoring is not required but **<u>Concrete Field Testing is required</u>**.

****Concrete Pavement:** Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Certified Ready-Mix Concrete (3 of 3)

The Prime Contractor is responsible to assure that all ready-mix concrete used is produced by an annually Certified Ready-Mix plant as detailed in Specification 2461.3F.

Guidelines

- 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.
- All samples shall be taken in a random manner using an appropriate number generator.
- The first load of concrete for any pour must have passing air content and slump results, prior to placing.
- 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 slip form placement. Continue to test for air content and slump, if suspect, when test results are inconsistent or marginal.
- 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.
- 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.

Best practices

- It is recommended that the Agency Plant Monitor be present during critical pours, such as superstructure or paving concrete (i.e., 3A21, S mixes, JMF mixes).
- It is recommended that the Agency 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.
- 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.
- The Agency is responsible for verification sampling. For safety and consistency in sampling and splitting of the sample, it is recommended that the agency and the producer/contractor obtain the verification sample in tandem. This will allow the producer/contractor to witness the sampling process and take possession of the verification companion.

Concrete Plant and Field Materials

All materials must come from certified or qualified sources. All certified sources must state so on the delivery invoices. The most current list of certified/approved sources can be found at MnDOT Material website. Materials listed on the Approved/Certified Products List are not required to be sampled but need to be listed on the Material Acceptance Summary detailed in the SALT SMC. Samples can be submitted as directed by the Engineer.

	Material	Spec. No.	Agency QA Field Sampling Rate	Form No.
Concrete Plant Batching Materials	Portland Cement	3101	Shall be a Certified Supplier - For certified ready-mix and concrete paving sample rates: 1 sample when the plant is certified. Take additional samples f the plant changes sources or as the contract requires. The producer obtains a 5 lb. sample and stores the sample in a sealed container provided by the Agency and includes the supplier's delivery invoice from which the sample is obtained.	24300 ID Card Cement Samples
	Slag	3102		
	Blended Cement	3103		
	Fly Ash	3115		24308 Fly Ash
	Admixtures (Acceleration, Retarding, Water-Reducing, Air-Entraining, etc.)	3113	For all concrete: 1 sample of Air Entrainment and Type A Water Reducer in a 1/2-pint plastic container provided by the Agency when the plant is certified. Take additional samples if the plant changes sources or as the contract requires. The Producer should agitate the admixture tank prior to obtaining samples form dispensing tubes and store the samples in sealed plastic containers provided by the Agency.	2410 Sample ID Card
	Water	3906	1 Non-Potable Water sample in a 1-gallon clean glass or plastic container from a questionable source. Clarified Water: 1 per month during Department production	
Concrete Field Materials	Preformed Joint Filler	3702	Visual Inspection	2410 Sample ID Card
	Preformed Elastomeric Type	3721	1 per lot. Only materials from a qualified source. Link to Approved Products List.	
	Silicone Joint Sealer	3722		
	Hot Poured Elastomeric Type	3723 3725		
	Burlap	3751	Visual Inspection	
	Colored Concrete Membrane Curing Compound	3752	Visual Inspection - Use only from qualified source.	
	Membrane Curing Compound	3753 3754 3755	Visual Inspection - Use only pre-approved curing compounds.	
	Plastic	3756	Visual Inspection - Must be white opaque and free from holes.	
	Refer to the "Metals" schedule for sampling requirements for concrete reinforcement.			

Concrete Pavement – Agency (1 of 2)

Test Type (concrete manual)	Spec.	Concrete Paving Batch Plant Agency QA Testing	Certified Ready-Mix Plant Agency QA Testing	Form
Gradation (1) (5-694.145) (5-694.148)	3126 3131 3137	Daily Concrete Quantity ≥ 500 **Agency QA Testing Rates: Verification only** **Verification Sample**: -, *1 per fraction per source per day, split and tested by both Agency and Contractor	Daily Concrete Quantity ≥ 100 yd3 **Agency QA Testing Rates: Verification only** **Verification Sample**: -, *1 per fraction per source per week, split and tested by both Agency and Contractor	JMF Concrete Aggregate Workbook
Aggregate Moisture - QC Verification **(2)** (5-694.142)	2301	If w/c incentives apply: 1 per 1000 yd3 or every 4 hours, whichever is greater. Take initial sample within the first 250 yd3.	If w/c incentives apply: 1 per 200 yd^3 or every 4 hours, whichever is greater. Take initial sample within the first 100 yd^3.	Concrete W/C Ratio Work sheet
Water Content, Microwave Oven Verification **(3)** (5-694.532)	2301	Take initial sample within the first 250 yd^3. At least one additional verification test should be taken if more than 1000 yd^3 is produced in a day.	Take initial sample within the first 100 yd^3. At least one additional verification test should be taken if more than 400 yd^3 is produced in a day.	
Coarse Aggregate, -200 sieve (5-694.146)	3131 3137	Test Verification sample on the first day of production and each time the Contractor mobilizes the plant, changes the aggregate sources, or the cleanliness of the coarse aggregate is in question, then 1 per week randomly thereafter. -200 test may be performed at the lab instead at the plant at the discretion of the Engineer.		JMF Concrete Aggregate Workbook
Coarse and Fine Aggregate Quality **(4)**	3126 3131 3137	During concrete production: 1 randomly selected test each fraction every 20,000 yd^3 of production. Split the Quality sample 4 ways: 1) Provide 2 quarters of the sample to the producer/contractor. 2) Submit the remaining sample to the lab for quality testing including testing the -200 sieve on the coarse aggregate.		2410 Sample ID Card
Alkali Silica Reactivity (ASR) Testing	2301	1 per paving project per sand source. Provide one 5 lb. sample of: cement, supplementary cementitious material (fly ash or slag), and sand. Write "Project Specific ASR Testing" on all 3 sample cards. **ASR Testing is not required if the entire project is less than 3,500 cubic yards.**		2410 24300 24308
Coarse Aggregate Quality Testing of Incentive / Disincentive	3137	**If coarse aggregate quality incentives apply:** Test the Class B aggregates for % absorption and Class C aggregates for % carbonate including any other test necessary to make those determinations. Sample the 2 largest fractions in accordance with the following table and 2301:		Coarse Agg Quality Incentive / Disincentive Work sheet 2410 Sample ID Card

Coarse Aggregate Quality Incentive/Disincentive Sampling Rates	
Plan Concrete Cubic Yards	Samples per fraction
3,500 - 7,500	3
7,501 - 10,000	5
10,001 - 25,000	10
25,001 - 50,000	15
50,001 +	20

*Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Concrete Pavement – Agency (2 of 2)

Test Type	Spec.	Concrete Field Testing - Agency QA Testing	Form
Air Content before consolidation	Review Concrete Manual Website	1 correlation air test per day	
Concrete Temperature		Record temperature each time air content, slump or strength test specimen is performed/fabricated by the Agency.	
Flexural Strength		Supply beam boxes or cylinder molds. Cure and test beams and cylinders MnDOT standard beam box size is 6" x 6" x 20" unless others are approved by the Concrete Engineer.	2162 Test Beam Data
Opening to Traffic Strength		Supply beam boxes or cylinder molds for field control testing. Cure and test beams and cylinders.	
Concrete Pavement Texture		Determine texture testing locations using random numbers. Observe Contractor Testing when possible.	Probing, Coring, Texture and MIT-Scan T2 Report
Thickness		**Determine probing and coring locations using random numbers. Initial pavement at core locations and re-initial the sides of specimens after coring to clearly verify their authenticity**. Field measure cores to the nearest 1/8". Transport to the MnDOT Office of Materials and Road Research for final thickness determination	
Surface Smoothness/ Dowel and Tie Bar Steel Location		Observe Contractor Testing when possible	

NOTES:

(1) All gradation samples shall be taken in the presence of the Agency, unless otherwise authorized by the Engineer. All samples shall be taken off the belt leading to the weigh hopper unless otherwise approved by the Engineer. **All gradations and quality tests require companion samples.** If Coarse Aggregate Quality Incentive / Disincentives apply: The Agency may also use the QA samples for incentive / disincentive testing. Notify the Contractor/Producer to double the QC/QA sample size. If well-graded aggregate incentives apply: Use the Contractor's gradation results for well-graded aggregate incentive calculations as verified by Agency testing. Use the Well-graded Concrete Agg. Worksheet.

(2) If w/c incentives apply: Use aggregate moisture results for determining the water content to calculate the w/c incentive/disincentive. Use the Concrete W/C Ratio Calculation Worksheet and do not leave sample unattended. Microwave oven verification testing to verify the w/c ratio is completed in conjunction with Agency aggregate moisture testing. Do not leave samples unattended.

(3) If w/c incentives apply: Microwave oven verification testing to verify the w/c ratio is completed in conjunction with Agency aggregate moisture testing. Do not leave samples unattended.

(4) Prior to concrete production: Obtain pre-production samples for quality testing at least 16 hours prior to concrete production. Samples may be taken from the stockpile and -200 test may be performed at the lab instead at the plant at the discretion of the Engineer. If the entire project is <3,500 yd3, pre-production sampling is not required.

Minimum Aggregate Sample Size *companion required, double sample				
Aggregate Size	**Gradation***	**Quality***	**Moisture**	**% -200 C.Agg**
3/4" Plus, #4	30 lb.	50 lb.	2000 g	5000 g
3/4" Minus, #67	10 lb.	30 lb.	2000 g	2500 g
#7, CA-70	6 lb.	20 lb.	2000 g	2500 g
CIA to meet #67	6 lb.	20 lb.	500 g	500 g
CIA to meet JMF	500 g	20 lb.	500 g	500 g
FIA, CS, FS	500 g	20 lb.	500 g	-
CA-80, #89	500 g	20 lb.	500 g	500 g
Fine Aggregate	500 g	20 lb.	500 g	-

Concrete Pavement – Producer/Contractor (1 of 2)

Test Type (concrete manual)	**Spec.**	**Concrete Paving Batch Plant Contractor/Producer QC Testing**	**Certified Ready-Mix Plant Contractor/Producer QC Testing**
Gradation **(1)** (5-694.145) (5-694.148)	3126 3131 3137	When > 250 yd^3 produced/ day: 1 per 2500 yd^3 per fraction per source. Take initial samples for aggregate gradation testing within the first 500 yd3. Test the verification companion sample on the day the sample was taken.	When 20-400yd^3 produced/ day: 1 per fraction per source. If over 400 yd3 per day, take a second gradation after the total exceeds 400 yd3. Test the verification companion sample on the day the sample was taken.
Coarse Aggregate -200 sieve (5-694.146)	3131 3137	Test the verification companion sample. Test these samples at the plant.	
Aggregate Moisture QC Verification **(2)** (5-694.142)	2301	If w/c incentives do not apply: 1 per 1000 yd^3, or 1 completed every 4 hours, whichever is the higher sampling rate.	If w/c incentives do not apply: 1 completed every 4 hours.
Water Content, Microwave Oven Verification	Review Concrete Manual 2301	If w/c incentives apply: Obtain the plastic concrete sample at the plant. See Concrete Manual (5-694.532)	
Unit Weight QC		Test one load of concrete per day at the plant. See Concrete Manual (5-694.542)	
Air Content QC (5-694.541)		Test the first load of concrete at the plant	
Coarse Aggregate Quality	3126 3131 3137	Test at Producer/Contractor Discretion	
Unit Weight		Test 1 load of concrete per day at the plant.	
Air Content for Type 3 Concrete (QC)		Test the first load of concrete at the plant.	
Coarse Aggregate Quality Testing for Incentive / Disincentive	3137	Test at the Contractor's discretion.	

* Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Concrete Pavement – Producer/Contractor (2 of 2)

NOTES:

(1) Performing testing on representative material at the end of the most recent day of production is allowed. If well-graded aggregate incentives apply: Use the Contractor's gradation results for well-graded aggregate incentive calculations as verified by Agency testing. 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%. Wash all fine aggregate Verification Companion samples.

(2) Complete the initial moisture content and adjust the batch water prior to the start of concrete production each day. If weather conditions allow, performing moisture testing on representative material at the end of production the prior evening is allowed. Enter results into the batching system in real time.

Test Type	Spec.	Concrete Field Testing - Contractor QC Testing
Air Content before consolidation for Type 3 concrete	Review Concrete Manual Website	1 per 300 yd^3 or 1 per hour, whichever is less. Test first load each day per mix.
Slump		Test slump if concrete is suspected to be outside of required slump range as directed by the Engineer.
Concrete Temperature		Record temperature each time air content, slump or strength test specimen is performed/fabricated by the Contractor.
Flexural Strength		For information only: 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
Opening to Traffic		For opening to traffic: Make field control beams within the last hour 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.
Concrete Pavement Texture		Perform texture testing at locations determined by the Engineer in accordance with the Contract
Thickness		Probe, scan and core at locations determined by the Engineer in accordance with the Contract
Surface Smoothness		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.
Dowel Bar and Tie Bar Steel Location		For Concrete projects greater than 3500 yd3. On the first day and each day of slip form pavement: (1) Verify the adequacy of the dowel bar anchoring by scanning seven random doweled contraction joints in each sublot. (2) Verify the presence and alignment of tie bar steel by scanning 75 lin. Ft. in each sublot. If the Engineer determines the first day's dowel bar anchoring and tie bar placement processes are acceptable, the Engineer may allow a reduction in scanned joints in each sublot as follows: (1) Verify the adequacy of the dowel bar anchoring by scanning four random doweled contraction joints per sublot. (2) Verify the presence and alignment of tie bar steel by scanning 25 lin. ft. out of every sublot.

Concrete Wearing Course for Bridges

Test Type (Concrete Manual)	**Spec.**	**Contractor/Producer QC Testing**	**Agency QA Testing**	**Form**
Gradation, Quality, Coarse Agg -200 QC/Verification (5-694.145) (5-694.146) (5-694.148)	3126 3137	**Prior to production**: The Contractor shall provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. Test Agency companion samples are Contractor's discretion. No quality tests are required.	Prior to production and each time aggregate is delivered to site: 1 gradation and quality per 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 Card
Air Content - Type 3 Concrete (Verification) (5-694.541)	2431	None	1 per 15 yd^3, Test at beginning of pour each day.	Weekly Report of Low Slump Concrete
Slump (Verification) (5-694.531)		None	1 per 15 yd^3 Test at beginning of pour each day. For concrete from a concrete mobil, allow mix to hydrate 5 minutes before slump test to assure all cement is saturated.	
Compressive Strength (5-694.511)		None	1 cylinder (28 day) per 30 yd^3, standard cylinder mold size is 4 x 8 inch.	2409 Cyl. ID Card
Cement	3101	None	Each time cement is delivered to site. Obtain a 5 lb. sample. Store sample in a sealed container and include the supplier's delivery invoice from which the sample is obtained.	2430 Sample ID Card
Admixtures	3113	None	Each time new lot/batch admixture is delivered to site: Obtain a ½ pint sample. Store the sample in a sealed plastic container.	2410 Sample ID Card

Test	**Minimum Sample Size** **All gradation and aggregate quality tests require companion samples, double sample size. Samples taken at location identified on Contact Report located at plant.**	
Gradation	6 lb. for # 7, 500 g for CA-80	500 g for Sand
Quality	30 lb. for Coarse Aggregate	20 lb. Fine Aggregate

Concrete Pavement Repair – CPR for 3U18

Test Type	Spec.	Contractor/Producer QC Testing	Agency QA Testing For volumetric batching only.	Forms
Gradation, Quality, Coarse Agg -200	3126 3137	**Prior to production**: The Contractor shall provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. No quality test results are required. Test companion samples at Contractor's discretion.	**Gradation:** Prior to concrete production and each time aggregate is delivered to the site. 1 per aggregate fraction prior to production and each time aggregate is delivered to the site. **Quality Testing & Coarse Agg -200:** 1 test per aggregate fraction per source. The Agency 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
Air Content - Type 3 Concrete (Verification)	Review Concrete Manual Website	None	1 per 15 yd^3or 1 per 4 hours whichever results in the highest sampling rate. Test at beginning of pour each day.	21412 Weekly Report of Low Slump Concrete
Slump (Verification)		None	1 per 15 yd^3, 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		None	1 set of 3 cylinders (28 day) per 30 yd^3. The Agency will cast up to three (3) field control cylinders, standard cylinder mold size is 4 x 8 inch.	2409 Cyl. ID Card
Type 1 Cement	3101	None	**For Volumetric batching only:** Each time cement is delivered to site. Obtain a 5 lb. sample. Store sample in a sealed container and include the supplier's delivery invoice from which the sample is obtained.	2430 Sample ID Card
Admixtures	3113	None	Each time new lot/batch admixture is delivered to site: Obtain a ½ pint sample. Store the sample in a sealed plastic container.	2430 Sample ID Card

Test	**Minimum Sample Size** **All gradation and aggregate quality tests require companion samples, double sample size. Samples taken at location identified on Contact Report located at plant.**	
Gradation	6 lb. for # 7, 500 g for CA-80	500 g for Sand
Quality	30 lb. for Coarse Aggregate	20 lb. Fine Aggregate

Dowel Bar Retrofit – (DBR)

Test Type	Spec.	Contractor/Producer QC Testing	Agency QA Testing	Form
Gradation Testing (Verification), Quality Testing including, Coarse Agg -200	3137	**Prior to production:** The Contractor shall provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. No quality test results are required. Test companion samples are Contractor's discretion.	**Gradation:** Prior to concrete production and each time aggregate is delivered to the site. 1 per aggregate fraction prior to production and each time aggregate is delivered to the site. **Quality Testing & Coarse Agg -200:** 1 test per aggregate fraction per source. The Agency 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

Test Type	Spec.	Agency QA Testing	Form
DBR Material Compressive Strength	Review Concrete Manual	**Contractor Testing: Any additional field control cylinders are the responsibility of the Contractor.** **Agency Testing:** 1 set of 3 cylinders (28 day) The Agency will cast up to three (3) field control cylinders, standard cylinder mold size is 4 x 8 inch.	2409 Cylinder ID Card

Test	Minimum Sample Size **All gradation and quality tests require companion samples, double sample size. Samples taken at location identified on Contact Report locates at plant.**	
Gradation	500 g for # 89 & Sand	
Quality	30 lb. Coarse Aggregate	20 lb. Fine Aggregate

Landscaping and Erosion Control Items

Kind of Material	Spec. #	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Manufactured Topsoil Borrow, Salvaged Topsoil (stockpiled)	3877.2	As directed by the Engineer
Plant Stock & Landscape Materials	3861 and 2571.2A1	Materials must be in accordance with the Inspection and Contract Administration Guidelines for MnDOT Landscape Projects of which determines the minimum and maximum criteria thresholds. Certificate of Compliance, Nursery stock certificate registered with MN Dept. of Agriculture. Out of state products subject to pest quarantines must accompanied by documentation certifying all products are free of regulated pests.
Erosion Control Blanket	3885	Visual Inspection and Check approved products or approved vendors list - As directed by the Engineer.
Erosion Control Netting	3885	
Silt Fence	3886	
Erosion Stabilization Mat	3885	
Flotation Silt Curtain	3887	Accepted, based on manufacturers certification of compliance. Check weight of fabric.
Filter Logs	3897	Visual Inspection
Flocculants	3898	Obtain copy of Certificate of Compliance and MSDS
Fertilizer	3881	Obtain copy of invoice of blended material stating analysis.
Agricultural Lime	3879	Contractor must supply amount of ENP (Equivalent Neutralizing Power) for each shipment.
Mulch - Type 3	3882	Certified Weed Free (Certified sources only) Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Mulch - Type 6 - Woodchips		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
Seeds	3876	(Certified Vendors Only) (Mixes 100-299) Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Native Seed		(Mixes 300-399) certified seed only. Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Sod	3878	Visual Inspection - Check approved products list - As directed by the Engineer. Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA) for salt tolerant sod.
Compost (from Certified Source)	3890	
Compost (from Non-Certified Source)		Visual Inspection - As directed by the Engineer.
Hydraulic Soil Stabilizer	3884	Check Approved/Qualified Products List - As directed by the Engineer.

Chemical Items

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Asphalt Plank	3204	Visual Inspection - As directed by the Engineer.
Calcium Chloride	3911	Review the percentage required as per specification. Check for listing on Qualified Products website.
Magnesium Chloride	3912	
Hot-Pour Crack Sealant (for Crack Sealing/Filling)	3719 3723 3725	Retain Certification of Compliance. Check for listing on Qualified Products website.
Pavement Joint Adhesive	Special Provisions	Retain Certification of Compliance
Waterproofing Materials		
Membrane Waterproofing System	3757	Visual Inspection - Check qualified products list.
Waterproofing Materials - Three Ply System		
Asphalt Primer	3165	Verify supplied material meets ASTM D 41
Waterproofing Asphalt	3166	Verify supplied material meets ASTM D 449
Fabric	3201	Verify supplied material meets ASTM D 41
Paints		
Waterborne Latex - Traffic Paint	3591	Visual Inspection - Check qualified products list - retain Certificate of Compliance.
Epoxy Traffic Paint	3590	
Traffic Marking Paint	Special Provisions	
Non-Traffic Striping Paints	3500 Series	Retain Certification of Compliance
Bridge Structural Steel Paint	3520	Visual Inspection - Check approved products list - retain Certificate of Compliance.
Exterior Masonry Paint	3584	
Noise Wall Stain	Special Provisions	
Drop-on Glass Beads	3592	Visual Inspection - Check qualified products list. Retain Certificate of Compliance.
Pavement Marking Tape	3354	Visual Inspection - Check qualified products list. Retain Certificate of Compliance.
	3355	
	Special Provisions	
Signs and Markers	3352	Visual Inspection - Check qualified products list.

Metals (1 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate) *
Guard Rail		
Fittings - Splicers, Bolts, Posts etc.	3381	Visual Inspection - Materials shall be approved before use. Call MnDOT inspector at 218-846-3613 to see if material has been approved.
Structural Plate Beam	3382	
Non-High Tension Guard Rail Cable	3381	
High Tension Guard Rail Cable	Special Provisions	
Steel Posts		
Steel Signposts	3401	Visual Inspection - As directed by the Engineer. Retain Certificate of Compliance in Project file.
Fence Posts, Brace Bars, Rails and others	3403	Visual Inspection - As directed by the Engineer. Retain Certificate of Compliance and certified mill analysis in project file.
	3406	
	3379	
Fence		
Barbed Wire	3376	Visual Inspection Retain Certification of Compliance, As directed by the Engineer.
Woven Wire		
Chain Link Fabric		
Components: cup, cap, nut, bolt, end clamp, tension band, truss rod tightener, hog ring, tie wire, tension stretcher bar, truss rod, clamp & tension wire		
Gates	3379	
Pipe		
Water Pipe and other Piping Materials	3364, 3365, 3366 & Special Provisions	Visual Inspection - As directed by the Engineer.
Reinforcing Steel - Inspected by MnDOT & will be charged back to the Local Agency.		
Uncoated Bars	3301	Retain Certificate of Compliance & Certified Mill Analysis
Epoxy Coated Bars	3301	For Epoxy-Coated bars, steel will be tagged "Inspected" when it has been sampled and tested by Mn/DOT prior to shipment, & it 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 samples (1 bar 3ft long for each size for each day's coating production), Certificate of Compliance, & Certified Mill Analysis for testing. Maintain original Cert. of Compliance & Certified Mill Analysis in project file.
Spirals	3305	
Stainless Steel Bars	Special Provisions	Visual Inspection Testing as directed by the Engineer (2 bars 3 ft. long per heat per bar size). Certified Mill Test Reports to be filed.

Metals (2 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate) *	
Reinforcing Steel - Inspected by MnDOT & will be charged back to the Local Agency.			
Steel Fabric	3303	2 sq. ft. if epoxy coated.	Visual Inspection - Retain Certificate of Compliance.
Dowel Bars	3302	One dowel bar and basket from each shipment.	
Prestress/Post Tension Strands	3348 Spec Prov	One sample of 2 strands by 6 ft. from each heat/production lot.	
Castings			
Drainage Castings	3321	Visual Inspection - Check approved / qualified list.	
	2471		
Electrical	2565		
Anchor Rods (Cast in Place) and Structural Fasteners	3385 3391	Visual Inspection - Check approved / qualified list. Testing as directed by the Engineer (see notes below)	
Notes: Manufacturer must have one yearly passing test from the Department for each anchor rod or bolt type. Prior to installation, obtain copy of MnDOT passing test report from supplier. Specs 3385.2 A, B, & C require anchor rod markings per ASTM F 1554 S3. The end of each anchor bolt intended to project from the concrete must be die stamped with the grade identification as follows: Grade 36 = AB36, Grade 55 = AB55, Grade 105 = AB105.			
Anchorages (Drilled In)	Special Provisions	Visual Inspection - Check qualified products list.	
Structural Steel	Inspected by MnDOT & will be charged back to the Local Agency.		
Steel Bridge - Beams, Girders, Diaphragms, etc.	2471	Structural Metals Inspection Tag and field inspection for damage/defects, check dimensions for contract compliance. Review approved products list as directed by the Engineer. Note: Structural metals products will be inspected at the plant and will be shipped with a Structural Metals Inspection Tag. An inspection confirmation report will be completed by Structural Metals Inspection staff and sent to the field personnel. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office website.	
Concrete Girders- Diaphragms and sole plates			
Expansion Joints			
Steel Bearings			
Railing-Structural tube and ornamental			
Drainage Systems			
Protection Angles			
Overhead Sign structures	2564 2471		
High Mast Lighting Structures	2545 2471		
Monotube Signal Structures	2565 2471		

*Check domestic steel requirement under 1601 Special Provision.

Geosynthetics, Pipe, Tile, Precast/ Prestressed Concrete

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Corrugated Metal Products		
Culvert Pipe Under Drains Erosion Control Structures	3225 thru 3229, 3351, 3399	Make certain pipe is Certified on Invoice, retain certificate of compliance and certified mill analysis in project file.
Structural Plate	3231	
Aluminum Structural Plate	3233	Retain the Certificate of Compliance and mill analysis in project file.
Pipe		
Clay Pipe	3251	Visual Inspection
Reinforced Concrete Pipe and Arches, Precast Cattle Pass Units, Sectional Manhole Units	3236	Field Inspection: Check for damage and defects. Check dimensions and class as required.
Non-Reinforced Concrete Pipe	3253	
Drain Tile (Clay or Concrete)	3276	Visual Inspection - Acceptance as directed by the Engineer.
Thermoplastic (TP) Pipe ABS and PVC	3245	Obtain Certificate of compliance. Check for approved marking printed on pipe. Field Inspect for damage or defects.
Corrugated Polyethylene Pipe	3278	Check for markings (AASHTO M 252) Certificate of Compliance. Field Inspect for damage or defects.
Corrugated Polyethylene Pipe - Dual Wall 12"-48"	3247	Visual Inspection - Check approved products list. Obtain Certificate of Compliance.
Precast/Prestressed Concrete Structures - Inspected by MnDOT & will be charged back to the Local Agency.		
Reinforced Precast Box Culvert	3238	Field Inspection: Check for damage and defects. Check dimensions as required. Check for the "MnDOT" stamp and signature on the certification document.
Precast/Prestressed Concrete Structure (beams, posts, etc.)	2405	
Manholes and Catch Basins	2506 3622	
Sewer Joint Sealing Compound	3724	Visual Inspection - Acceptance as directed by the Engineer.
Preformed Plastic Sealer for Pipe	3726 Type b	Visual Inspection - Acceptance as directed by the Engineer.
Bituminous Mastic Joint Sealer for Pipe	3728	
EPS Geofoam	Special Provisions	Visual Inspection - Acceptance as directed by the Engineer. Check for yellow aged material, uniformity and dimensions.
Geotextile Fabric and Geogrid Reinforcement	3733 and Special Provisions	Obtain Certificate of Compliance stating minimum average roll values (MARV). MARV must meet Project requirements. Fabric must be listed on Geotextile Small Quantity Acceptance List.
Geotextile Small Quantity Acceptance List		
Silt Fence	3886	Visual Inspection - Check approved products list.

Electrical and Signal Equipment Items (1 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Lighting Standards (Aluminum or Steel)	3811	Visual Inspection - Obtain Certificate of Compliance. The Fabricator will submit "Certificate of Compliance," on a per project basis, to the Project Engineer.
Hand Holes (Precast, PVC, and LLDPE)	2545 2550 2565	Visual Inspection - Check approved/qualified products list. Traffic signal and street lighting projects require hand holes to be listed on the MnDOT Signals Approved Products List (APL). For cast iron frame and cover: see Metals - Drainage and Electrical Castings
Foundation	2545	Slump as needed, 1 cylinder per 25 cu. yds. Rebar is required in concrete foundations as specified in the Contract documents for all traffic control signals and roadway lighting projects.
Steel Screw In Foundations	2545 2565	See Approved/Qualified Products List for Roadway Lighting and Signals.
Conduit and Fittings		
Metallic	3801 3802	Visual Inspection - Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). For traffic signal and street lighting projects, specific requirements are contained in the Special Provisions for each project.
Non-Metallic (Rigid and HDPE)	3803 Special Provisions	
Anchor Rods and Bolts (Cast in Place)	3385	Visual Inspection - Manufacturer must have one yearly passing test from the Department for each anchor rod or bolt type. Prior to installation, obtain copy of Mn/DOT passing test report from supplier. Specs 3385.2 A, B, & C require anchor rod markings per ASTM F 1554 S3. The end of each anchor bolt intended to project from the concrete must be die stamped with the grade identification as follows: Grade 36 = AB36, Grade 55 = AB55, Grade 105 = AB105.
Anchorages (Drilled In)	Special Provision	Visual Inspection - Check qualified products list.
Miscellaneous Hardware	2545 2565	Visual Inspection - Check approved products list. 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 signal and street light lighting projects, various miscellaneous hardware is required to be listed on the MnDOT Signals and Lighting Approved Products Lists (APL). The Contract documents indicate, which items must be on the Signals and/or Lighting APL.

Electrical and Signal Equipment Items (2 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Cable and Conductors		
Power Conductors	3815.2B1	Visual Inspection - 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.
Loop Detector Conductors (No Tubing)	3815.2B2 (a)	
Electrical Cables and Single Conductors with Jacket	3815.2B2(b) 3815.2B3	Visual Inspection - Usually inspected at the distributor. Documentation showing project number, reel number(s), & 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 Steve Grover at 651-366-5540 or Cindy Schellack at 651-366-5543 with questions. For traffic signal and street lighting projects, the Special Provisions for each project contain electrical cable and conductor specifications.
	3815.2B5	
	3815.2C1 thru .2C8	
	3815.2C14	
	Special Provisions	
Fiber Optic Cables	3815.2C13	Visual Inspection - Check approved products list for Traffic Management Systems.
Ground Rods	2545	Visual Inspection - Check approved products list. Shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Detail materials on Materials Acceptance Summary.
	2565	
Luminaires and Lamps	3810	Visual Inspection - Check approved products list. Traffic signal and street lighting projects require luminaries and lamps to be listed on the MnDOT Lighting Approved/Qualified Products List (APL). The conductors shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL) and type, where applicable.
Electrical Systems	2565	Electrical Systems are to be reported as a "System" using the LIGHTING, SIGNAL AND TRAFFIC RECORDER INSPECTION REPORT. To be certified by the Project Engineer.
Traffic Signal Systems	2565	Traffic Signal Systems are to be reported as a "System" using the LIGHTING, SIGNAL AND TRAFFIC RECORDER INSPECTION REPORT. To be certified by the Project Engineer.

Brick, Stone, and Masonry Units

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Brick		
Sewer (clay) and Building	3612 to 3615	Visual Inspection - Acceptance as directed by the Engineer.
Sewer (Concrete)	3616	Visual Inspection - Acceptance as directed by the Engineer. Air entrainment required. Obtain air content statement from supplier.
Concrete Masonry Units		
Sewer Construction	3621	Visual Inspection - Acceptance as directed by the Engineer. Air entrainment required. Obtain air content statement from supplier.
Modular Block Retaining Walls	Review Current Special Provisions	Visual Inspection - Note: All lots of blocks 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.
Reinforced Concrete Cribbing	3661	Visual Inspection - Acceptance as directed by the Engineer. Will be stamped when inspected prior to shipment.
Stone for Masonry or Rip-Rap	2511, 3601 and Special Provisions	Visual Inspection - Acceptance as directed by the Engineer.

Remarks: each source shall be approved by Project Engineer or supervisor for quality, prior to use. For questions on quality, contact District Materials or Geology Unit.

Miscellaneous Materials

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Timber, Lumber Piling & Posts	3412 to 3471 & 3491	Visual Inspection - Acceptance as directed by the Engineer. Untreated materials shall be inspected in the field. 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.
Miscellaneous pieces and Hardware (Galvanized)	3392 3394	Visual Inspection - Acceptance as directed by the Engineer.
Insulation Board	3760	
Elastomeric Bearing Pads - Plain or Laminated	3741 and Special Provisions	Check dimensions. Check repair of tested pad. Obtain copy of Certificate of Compliance. DO NOT USE ANY PADS THAT ARE NOT CERTIFIED.
Cotton Duck Bearing Pads		

Approved/Qualified Products & Resources

Approved/Qualified Products

- Asphalt Products
- Bridge Products
- Concrete Products
- Crack and Joint Material Products
- Drainage
- Erosion Control and Landscaping Products
- Geosynthetic
- Maintenance Shop Supplies
- Paint/Stain/Coating Systems (Non-Pavement)
- Pavement Markings
- Precast Concrete
- Roadside Barriers
- Roadway Lighting Products
- Signals Products
- Signing Products
- Snow and Ice Chemical Products
- Temporary Traffic Control Devices
- Traffic Management Systems/ITS
- Truncated Domes
- Vehicle Safety Lighting
- Walls (Retaining/Noise)

Additional Resources

- SALT Construction webpage
- Bituminous Engineering
    - Asphalt Binder Certified Supplier
    - Asphalt Emulsion Certified Supplier
- Concrete Engineering
    - MnDOT Concrete Manual
    - QC & QA RM Plant Workbooks
    - MnDOT Certified Ready-Mix Program
- Grading & Base Engineering
    - Testing procedures in the Grading & Base Manual
    - Forms and worksheets at the Grading & Base website
    - Gradation worksheets on the SALT Construction website

Contacts

MnDOT Construction and Materials State Aid Contacts

Districts 1, 2, 3, 4
Ross Hendrickson, State Aid Construction Specialist
ross.hendrickson@state.mn.us
218-766-3745

Districts 6, 7, 8
Rollin Larson, State Aid Construction Specialist
rollin.larson@state.mn.us
507-205-6403

Metro

Michael Pretel, State Aid Construction Engineer
michael.pretel@state.mn.us
651-755-3346

MnDOT Specialty Offices Contacts

Grading & Base

Terry Beaudry terry.beaudry@state.mn.us	Grading & Base Engineer	651-366-5456
John Bormann john.bormann@state.mn.us	Grading & Base Specialist	651-366-5596

*Bituminous**

John Garrity john.garriy@state.mn.us	Bituminous Engineer	651-366-5577
Greg Johnson Greg.johnson@state.mn.us	Asst. Bituminous Engineer	651-366-5464
Chelsea Bennett chelsea.bennett@state.mn.us	Asst. Bituminous Engineer	651-366-5482
Joel Ulring joel.ulring@state.mn.us	Pavement Preservation	651-366-5432
Mike Skurdalsvold	Bituminous Mix Design Specialist	612-499-2998
Ray Betts ray.betts@state.mn.us	Bituminous Trial Mix Lab Tech	651-366-5469
Rich Kane richard.kane@state.mn.us	Bituminous Plant & Lab Testing	612-437-3005

*See website for the contact list by topic

*Concrete**

Maria Masten maria.masten@state.mn.us	Concrete Engineer	651-334-4015
Jacob Gave jacob.gave@state.mn.us	Asst. Concrete Engineer	612-554-9289
Rob Golish robert.golish@sate.mn.us	Asst. Concrete Engineer	651-216-0516
Matt Herbst	Concrete Engineering Specialist	651-283-7127

Matt.herbst@state.mn.us		
Brad Swenson brad.swenson@state.mn.us	Concrete Engineering Specialist	218-232-1012
Gordy Bruhn gordon.bruhn@state.mn.us	Concrete Field Engineering Specialist	651-398-9597
Mike Daniels michael.daniels@state.mn.us	Concrete Engineering Specialist	320-293-9421

*See website for the contact list by topic

Contacts for other materials can be found on the Materials and Road Research Contacts webpage.

Contacts for Approved Products can be found at the Approved/Qualified Products Contact webpage.

Materials Lab. Contacts	Independent Assurance
District 1, Duluth Leila DeLuca Phone: 218-725-2738 D1.duluth.lab.dot@state.mn.us	Nadine Miller Phone: 218-725-2737 Cell: 218-348-6297 nadine.miller@state.mn.us
District 2, Bemidji Jason Kissel Phone: 218-755-6542 jason.kissel@state.mn.us Mike Murphy (Concrete & Aggregates) Phone: 218-755-6593 mike.murphy@state.mn.us Dustin Reese (Bituminous) Phone: 218-755-6593 dustin.reese@state.mn.us	Ray Wesley Cell: 218-766-6949 raymond.wesley@state.mn.us
District 3A, Baxter Tom Boser Phone: 218-828-5755 tom.boser@state.mn.us	Matt Miles Cell: 218-232-6748 matt.miles@state.mn.us
District 3B, Saint Cloud Nick Fisher Phone: 320-2236500 nicholas.fisher@state.mn.us Andy Kostreba Phone: 320-223-6554 andy.kostreba@state.mn.us	Travis Erickson Cell: 320-291-3582 travis.erickson@state.mn.us
District 4, Detroit Lakes Bruce Bryngelson Phone: 218-846-3614 bruce.bryngelson@state.mn.us Wayne Koons	Casey Clarke Cell: 218-849-7393

Phone: 218-846-3617 wayne.koons@state.mn.us	casey.clarke@state.mn.us
Metro District, Maplewood Lab Brent Sculley Phone 651-366-5409 brent.scolley@state.mn.us	**Waters Edge** Phone: 651-234-7356 West Zachary Lyrek-Hanks Phone: 651-775-1018 zachary.Lyrek-Hanks@state.mn.us Karl Sinclair Phone: 651-775-0998 karl.sinclair@state.mn.us East Kris Westerbur Phone: 651-755-1151 kristopher.westerbur@state.mn.us Kaleb Kollmann Phone: 651-478-0339 kaleb.kollmann@state.mn.us
District 6, Rochester Scott Swanson Phone: 507-286-7580 scott.a.swanson@state.mn.us Jeff Bale (Aggregates) Phone: 507-286-7586 jeff.bale@state.mn.us Joe Drees (Bituminous) Phone: 507-286-7582 joe.drees@state.mn.us Gary Vinge Phone: 507-286-7585 gary.vinge@sate.mn.us	Dennis Hayes Cell: 507-251-0138 dennis.hayes@state.mn.us
District 7, Mankato Lee McLaughlin Phone: 507-304-6189 lee.mclaughlin@state.mn.us	Mitch Jordahl Cell:507-380-9619 mitch.jordahl@state.mn.us
District 8, Willmar and Marshall Jon Vlaminck Phone: 320-214-6348 Cell: 320-894-7409 jon.vlaminck@state.mn.us **District 8B, Marshall** Matt Steinbronn Phone: 507-537-2068 matthew.steinbronn@state.mn.us	Paul Janke Cell: 320-212-5739 paul.janke@state.mn.us

Sample Sizes

	Lbs.	
Bituminous	35	Aggregate for Gradation QC/QA
	80	for each plus #4 Aggregate Type for Quality Testing
	35	for each minus #4 Aggregate Type for Quality Testing
	80	for each RAP material for Quality Testing
	10	RAS (shingles) for Processed Gradation and Quality Testing
	65	for Mix Properties (QC/QA) 3 full 6" by 12”-cylinder molds for QA
	90	for TSR (QC/QA) 4 full 6" by 12”-cylinder molds for QA
	90	for Aggregate Specific Gravity QC/QA
	-	1 quart of Asphalt Binder QA
	-	1/2 gallon for Asphalt Emulsion QA
Grading & Base	30	Aggregate for Gradation (Companion sample from 60 lb. split).
	25	Moisture Density Test – Proctor (Companion from 50 lb. split).
	30	Aggregate Quality/Percent Crushing Test - 1 per source
Ready-Mix Concrete	25	Gradation 3/4" plus
	10	Gradation 3/4" minus
	6	Gradation CA 70 & #7
	1	Gradation - Sand (500 g), CA 80, #89.
	4.4	Moisture Test Coarse Aggregate (2000 g)
	1.1	Moisture Test Fine Aggregate (500 g)
	50	Quality 3/4" plus - lab sample
	30	Quality 3/4" minus - lab sample
	30	Fine Aggregate - lab sample
	10	3/4" Plus for the -200 Coarse Aggregate Test (5000 grams)
	6	3/4" Minus for the -200 Coarse Aggregate Test (2500 grams)
	5	Cement, Blended Cement, Fly Ash
	-	1/2-pint plastic container for admixtures.

Geotechnical Evaluation Report

Aurdal Township Roadway Improvements
Sophus Anderson Road & Aurdal River Road
Fergus Falls, Minnesota

Prepared for

Apex Engineering Group

Professional Certification:
I hereby certify that this plan, specification, or report 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.

Steven P. Nagle, PE
Vice President, Principal Engineer
License Number: PE-24294
September 11, 2024

Project B2404897

Braun Intertec Corporation

BRAUN INTERTEC
The Science You Build On.

BRAUN INTERTEC
The Science You Build On.

Braun Intertec Corporation
526 10th Street NE, Suite 300
P.O. Box 485
West Fargo, ND 58078

Phone: 701.232.8701
Fax: 701.232.7817
Web: braunintertec.com

September 11, 2024 Project B2404897

Ben Vonada, PE
Apex Engineering Group
920 McKinley Avenue
Detroit Lakes, MN 56501

Re: Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Road & Aurdal River Road
Fergus Falls, Minnesota

Dear Mr. Vonada:

We are pleased to present this Geotechnical Evaluation Report for the roadway improvements along Sophus Anderson Road and Aurdal River Road in Aurdal Township, Minnesota.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Cody Mathiason at 701-306-8551 (cmathiason@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION

Amanda Back for
Cody Mathiason
Senior Manager, Staff Engineer

Steven P Nagle
Steven P. Nagle, PE
Vice President, Principal Engineer

AA/EOE

Table of Contents

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A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed design and improvements of Sophus Anderson Road and Aurdal River Road, located in Aurdal Township, MN. We understand both roadways have shown some increased distress areas over the years and Aurdal Township has selected these two roadways to complete some subgrade and pavement improvements. Therefore, the anticipated improvements on the roadways include a full depth reclamation (FDR) along Sophus Anderson Road and some minor subgrade corrections along Aurdal River Road. These roads are highlighted in red and yellow below in Figure 1.

We were provided the Average Daily Traffic (ADT) from Apex Engineering Group for Sophus Anderson Road and Aurdal River Road, and these are described below:

- Sophus Anderson Road – 562 ADT
- Aurdal River Road – 388 ADT

Based on the provided traffic data, we have estimated the equivalent 18-kip single-axle loads (ESALs) for the design of bituminous pavements for Sophus Anderson Road to be up to a 100,000 ESALs. A breakdown of the traffic volume was not available at the time of our report, so we have assumed up to 25 dump trucks per week, 25 delivery trucks per week and 10 school buses per week (breakdown was assumed for Aurdal River Road as well).

The figure below shows an illustration of the roadways planned to be improved.

Figure 1. Improvement Plan

Excerpt figure from the Township Road Improvements Project Location Map provided by Apex Engineering Group dated November 10, 2023.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

A.2. Site Conditions and History

Currently, Sophus Anderson Road is a bituminous surfaced road and Aurdal River Road is an apparent aggregate base surfaced road.

Based on the elevations obtained from utilizing our Trimble Catalyst Global Positioning System (GPS) receiver, Sophus Anderson Road ranged from 1248.3 to 1287.7 feet, and Aurdal River Road ranged from 1238.8 to 1269.6 feet.

A.3. Purpose

The purpose of our geotechnical evaluation will be to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the proposed roadways.

A.4. Background Information and Reference Documents

We reviewed the following information:

- Aerial images of the site obtained from Google Earth™, imagery dates of May 1992 to May 2023, specifically reviewed to evaluate pavement development history and locate surrounding landmarks.

- *Quaternary Geology – Otter Tail Area, West-Central Minnesota*, by Harris, K.L., Knaeble, A.R., and Berg, J.A., dated 1999, Minnesota Geological Survey, Map Scale 1:200,000, used to aid in our understanding of the site geology.

- Aurdal Township Road Improvements Exhibit showing the project location map and insets prepared by Apex Engineering Group and dated November 10, 2023.

- Communications with Ben Vonada, PE with Apex Engineering Group regarding project specifics and coordination of field work.

A.5. Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB196335 to Mr. Ben Vonda with Apex Engineering Group, dated May 7, 2024, and authorized on May 30, 2024. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.

- Staking and clearing the exploration locations of underground utilities. We selected and staked the new exploration locations along Sophus Anderson Road and Apex Engineering Group selected and staked the new exploration locations for Aurdal River Road. These exploration locations were performed in areas within low lying areas adjacent to bodies of water or apparent slough(s) and areas that have shown increased pavement distress. We acquired the surface elevations and coordinates with our Trimble Catalyst GPS receiver using the WGS 84 as the horizontal datum and NAVD88 as the vertical datum. The Soil Boring Location Sketches included in the Appendix shows the approximate locations of the borings along the roadways.

- Performing 10 standard penetration test (SPT) borings along Sophus Anderson Road and 9 SPT borings along Aurdal River Road, denoted as ST-01 to ST-19, to nominal depths of 5 feet below grade.

- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.

- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for pavement subgrade preparation and FDR, and the design of pavements.

B. Results

B.1. Geologic Overview

Based on the geologic information, the area consists of glacially deposited sediment (mostly glacial till and glacial outwash). The glacial deposits typically consist of unbedded, unsorted mixtures of clay, silt, sand, and occasional gravel, cobbles, and boulders.

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

B.2. Boring Results

Table 1 provides a summary of the soil boring results, in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Table 2.

Table 1. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement section	NA	NA	▪ Overall thickness ranged from 8 to 13 inches at Borings ST-01 to ST-10 (Sophus Anderson Road). ▪ Bituminous thicknesses ranged from 4 1/2 to 8 1/2 inches. ▪ Apparent aggregate base thicknesses ranged from 3 1/2 to 6 1/2 inches.
		3 to 7 Blows Per Foot (BPF)	▪ Apparent aggregate base ranged from 4 to 7 inches at ST-11 to ST-19.
Buried topsoil	CL	3 to 17 BPF	▪ Encountered in Borings ST-03 to ST-05, ST-07, ST-08, ST-14, ST-17, and ST-19 at various depths. ▪ Consisted of lean clay with varying amounts of sand and trace amounts of roots and gravel. ▪ Dark brown to black. ▪ Moisture condition generally moist.
Glacial Till	CL	4 to 15 BPF	▪ Consisted of lean clay with varying amounts of sand and trace amounts of gravel and mineralization. ▪ Brown, dark brown, and gray. ▪ Moisture condition generally moist.
Glacial Outwash	SC, SM, SP-SM	3 to 25 BPF	▪ Consisted of clayey sand, silty sand, and poorly graded sand with silt and varying amounts of gravel. ▪ Fine to coarse-grained. ▪ Brown to gray. ▪ Moisture condition generally moist.

*Abbreviations defined in the attached Descriptive Terminology sheets.

B.3. Groundwater

We did not observe groundwater while advancing our borings. Therefore, it appears that groundwater is below the depths explored. Project planning should anticipate seasonal and annual fluctuations of groundwater.

B.4. Laboratory Test Results

Table 2 presents the results of our laboratory tests.

Table 2. Laboratory Classification Test Results

Location (Boring No.)	Sample Depth (ft)	Classification	Moisture Content (w, %)	Percent Passing a #200 Sieve	Organic Content (%)	Liquid Limit	Plastic Index
ST-01	2-4	Clayey Sand (SC)	8	18	-	-	-
ST-01	4-6	Lean Clay with Sand (CL)	17	-	-	-	-
ST-02	2-4	Sandy Lean Clay (CL)	20	60	-	-	-
ST-02	4-6	Lean Clay with Sand (CL)	22	-	-	-	-
ST-03	2-4	Lean Clay with Sand (CL)	21	-	-	-	-
ST-03	4-6	Lean Clay with Sand (CL)	15	-	-	-	-
ST-04	2-4	Lean Clay with Sand (CL)	14	-	3	-	-
ST-04	4-6	Lean Clay with Sand (CL)	9	-	-	-	-
ST-05	2-4	Lean Clay with Sand (CL)	13	-	-	-	-
ST-05	4-6	Clayey Sand (SC)	9	21	-	-	-
ST-06	2-4	Sandy Lean Clay (CL)	15	-	-	25	10
ST-06	4-6	Sandy Lean Clay (CL)	15	-			
ST-07	2-4	Lean Clay with Sand (CL)	15	-	3	-	-
ST-07	4-6	Poorly Graded Sand with Silt (SP-SM)	5	5	-	-	-
ST-08	2-4	Lean Clay with Sand (CL)	28	-	4	-	-
ST-08	4-6	Sandy Lean Clay (CL)	17	-	-	-	-
ST-09	2-4	Lean Clay with Sand (CL)	14	-	-	29	14
ST-09	4-6	Lean Clay with Sand (CL)	15	-	-	-	-
ST-10	2-4	Lean Clay with Sand (CL)	14	-	-	32	20

Location (Boring No.)	Sample Depth (ft)	Classification	Moisture Content (w, %)	Percent Passing a #200 Sieve	Organic Content (%)	Liquid Limit	Plastic Index
ST-10	4-6	Lean Clay with Sand (CL)	16	-	-	-	-
ST-11	2-4	Lean Clay with Sand (CL)	16	-	-	32	15
ST-11	4-6	Lean Clay with Sand (CL)	17	-	-	-	-
ST-12	0-2	Clayey Sand (SC)	14	34	-	28	12
ST-12	4-6	Lean Clay with Sand (CL)	17	-	-	28	12
ST-13	2-4	Silty Sand (SM)	7	20	-	-	-
ST-14	2-4	Sandy Lean Clay (CL)	16	-	-	30	12
ST-14	4-6	Lean Clay with Sand (CL)	19	-	-	-	-
ST-15	2-4	Lean Clay with Sand (CL)	19	-	-	29	14
ST-15	4-6	Lean Clay with Sand (CL)	18	-	-	-	-
ST-16	2-4	Lean Clay with Sand (CL)	18	-	-	33	15
ST-16	4-6	Lean Clay with Sand (CL)	19	-	-	-	-
ST-17	2-4	Lean Clay with Sand (CL)	30	-	7	-	-
ST-17	4-6	Silty Sand (SM)	7	18	-	-	-
ST-18	2-4	Clayey Sand (SC)	7	15	-	-	-
ST-19	0-2	Lean Clay with Sand (CL)	8	-	3	-	-
ST-19	2-4	Poorly Graded Sand with Silt (SP-SM)	5	8	-	-	-

C. Recommendations

As previously noted, we understand repairs will likely consist of full-depth reclamation (FDR) along Sophus Anderson Road and minor subgrade corrections along Aurdal Road.

C.1. Full Depth Reclamation (FDR) – Sophus Anderson Road

Based on the RFP provided by you, for Sophus Anderson Road planned for FDR, it was noted that the pavement conditions included sections with deteriorated and distressed surfaces and poor ride quality.

Given the in-place pavement sections and underlying stripping observed in the cores, it is our opinion that FDR is an ideal approach for repair along Sophus Anderson Road and may provide about 20 years of service life. If desired, to prolong pavement life, stabilization of the reclaim material could be performed and may provide about 25 years of service life, assuming routine maintenance is performed. For the SFDR approach, we recommend material sampling and a laboratory mix design be performed.

The FDR process involves pulverizing and blending the existing bituminous pavement along with a portion of underlying aggregate base. In general, the reclaimed material can either be left in place or windrowed and stockpiled so that grading, excavation work, or stabilization of subgrade soils can proceed. The left-in-place or replaced reclaim is then compacted and overlaid with bituminous pavement.

From a design perspective, it is our opinion that FDR is a suitable repair method for Sophus Anderson Road however, we provide the following considerations:

- Reclamation should not extend into materials that are unsuitable for reclamation, such as silty and clayey subbase soils.

- Since the existing pavement section does not have existing curb sections following reclamation, reclaimed material should be graded as new aggregate base and excess material would not have to be removed as the bituminous overlay would not have curb line grades to match. Slightly increasing finished grades/cross slope (crown) of the roadway could be considered to accommodate more reclaim material and improve drainage.

- Although a geotextile fabric was not encountered below the apparent aggregate base, it should be noted that if present reclamation should not extend into this material.

- As previously noted, if desired, stabilization of the reclaim material could be performed to help prolong pavement life. With this approach, we recommend stabilization be performed to a depth of about 6 inches.

C.1.a. Pulverization and Compaction

We recommend following MnDOT Specification 2215 for FDR for the reclaiming process.

Based on the bituminous and apparent aggregate base thicknesses encountered with our pavement coring and soil borings, we recommend reclaiming process be developed based on those thicknesses provided on our logs attached in the Appendix. During FDR, a variation of existing pavement depth should be anticipated. As such, adjustments to the reclamation process may be required where the bituminous section depth changes along the roadway section.

Following reclamation, reclaimed material should be graded to allow for the required bituminous section. Any excess material should be removed.

C.1.b. Proofroll

Following compaction, we recommend exposed materials be proofrolled to check for the presence of localized soft or weak areas. The proofroll should be performed with a fully loaded, tandem axle dump truck at walking speed.

The proofroll should be observed by a geotechnical engineer or qualified observer. Any detected weak or soft areas should be corrected with a subcut and backfilled with excess reclaimed material or other suitable material such as MnDOT Class 5 aggregate base or Select Granular.

C.1.c. FDR Design Sections

Table 3 provides our recommended pavement sections for Sophus Anderson Road planned for FDR.

Table 3. Recommended Pavement Design Sections

Street	Projected 20-year BESALS	R-value*	Bituminous Thickness (in)	Aggregate Base/FDR Thickness (in)
Sophus Anderson Road	50,000	10	4	12

**Based on the soil borings performed within the roadway section.*

C.1.d. Materials and Testing

For reclamation, we recommend that reclaimed materials meet MnDOT Specification 3138. We recommend that the FDR materials be compacted using the Penetration Index Method per MnDOT Specification 2211.

We recommend requirements outlined in MnDOT Specification 2360. We recommend bituminous mix meeting MnDOT designation SPWEA240C. We recommend a minimum lift thickness of 1 1/2 inches for the recommended mix designations.

We recommend tack coat meeting MnDOT Specification 2357 as required between lifts as well as placed along vertical faces where paving will match adjacent pavement.

C.1.e. Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous. This is the amount of time before we anticipate the pavement will require major rehabilitation. This performance life assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.

Many conditions affect the overall performance of pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. With regard to bituminous pavements in particular, it is common to have thermal cracking develop within the first few years of placement, and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

C.2. Gravel Surfaced Roadway – Aurdal River Road

C.2.a. Subgrade Preparation

Based on the results of our subsurface exploration and evaluation, gravel surfaced pavement sections bearing on the encountered soils can support the proposed traffic loads, after performing subgrade preparation. Subgrade preparation for the site will include removing existing gravel surfaced pavement sections, organic soils and compacting/replacing any disturbed or observed soft or loose soils directly below the exposed pavement subgrades or by other options provided with this report.

To improve long-term pavement performance, the project team can consider a pavement design that incorporates non-frost-susceptible sand within the gravel surfaced roadway section. Incorporation of the sand will provide better pavement performance and reduced maintenance, as the sand subbase will improve subgrade strength and reduce frost heave. This option is typically the most economical when earthwork balance is short and imported fill will be required. The sand will also provide better drainage throughout the year.

C.2.b. Construction Disturbance

The contractor should note the on-site, clayey, or silty soils are moderately susceptible to disturbance, due to repeated construction traffic. Disturbance of these soils may cause areas that were previously prepared, or that were suitable for pavement support, to become unstable and require moisture conditioning and compaction. Subcutting and replacing the disturbed material with crushed, coarse gravel, free of fines is also an alternative. The contractor should use means and methods to limit disturbance of the soils.

C.2.c. Groundwater

Some of the site soils (clays) will collect water from precipitation or if water drains to the site. We recommend the contractor remove any water that is encountered or collects in work areas before performing further work.

C.2.d. Reuse of On-site Soils

The surface vegetation, root zones and soils with an organic content greater than 3 percent should not be used as backfill or fill within the upper 2 feet of the pavement areas. Those materials should be reused in landscaped areas or hauled off-site.

The remaining on-site soils, anticipated to be predominantly clayey sands, can be reused as backfill below the pavement areas provided, they meet the requirements provided below in Table 4. It should be anticipated that these soils, particularly in the upper few feet, may require moisture conditioning prior to compaction, which may be difficult depending upon the time of year that construction takes place.

Considering the overall size of the project and the actual sample size utilized to perform the percent passing the #200 sieve gradations, a limited amount of gradations for the site were performed on samples of the granular surfacing. Based on the results of our percent passing the #200 sieve, the samples tested did meet the requirements for Minnesota Department of Transportation (MnDOT) Spec 3138 for Class 5 (Aggregate Base). As these materials will be considered for reuse, additional gradations should be performed to verify the encountered granular material meets a provided specification after stripping and subgrade preparation begins.

C.2.e. Pavement Subgrade Preparation

We recommend the following steps for pavement subgrade preparation, understanding the site will have grade changes of 1 foot or less. Note that project planning may require additional subcuts to limit frost heave.

1. We recommend completely removing the existing gravel surfaced section, existing fill materials, buried topsoils or soils containing **organic contents exceeding 3 percent**, within 2 feet of the surface of the proposed finished pavement grade. In general, it would be our recommendation to perform a uniform 1 to 1-1/2-foot subcut beneath the existing gravel surfaced section to accomplish the necessary removals and provide a uniform subgrade to support the proposed section/traffic.

2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.

3. Slope subgrade soils to areas of sand or drain tile where accumulating water cannot be removed or daylighted to promote drainage.

4. Scarify, moisture condition and surface compact to at least 95 percent of Standard Proctor density.

5. Place pavement fill to grade and compact in accordance with Section C.2.g to the bottom of the pavement section.

6. Proofroll the pavement subgrade as described in Section C.2.f.

Section C.3 provides recommended pavement design sections. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

C.2.f. Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as recommended by the geotechnical representative. Typically yielding should be limited to less than 1-inch for pavement subgrades. Possible options for subgrade correction include moisture conditioning and recompaction, subcutting and replacement with clean crushed aggregate or chemical stabilization (mixing cement or lime into the subgrade soils). We recommend performing a second proofroll after the aggregate base material is in place.

C.2.g. Engineered Fill Materials and Compaction

Table 4 below contains our recommendations for fill materials.

Table 4. Fill Materials

Locations To Be Used	Fill Classification	Possible Soil Type Descriptions**	Gradation	Additional Requirements
Pavements	Pavement fill	GP, GM, SP, SW, SP-SM, SW-SM, SM, SC, CL	100% passing 3-inch sieve	< 3% OC PI < 15
Below landscaped surfaces, where subsidence is not a concern	Non-structural fill	All	100% passing 6-inch sieve	< 10% OC

** More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

We recommend spreading fill in loose lifts of approximately 6 to 8 inches thick. We recommend compacting fill in accordance with the criteria presented below in Table 5. The project documents should specify relative compaction of fill, based on the location of the fill below the bottom of the pavement section.

Table 5. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically, SP, SP-SM)	> 12% Passing #200 Sieve (typically, SM, CL)
Backfills located more than 3 vertical feet below finished grade	95	±3	±3
Aggregate base backfills and fill placed within 3 vertical feet of finished grade	100	±3	±3
Backfill located in landscape areas	90	±5	±4

The project documents should not allow the contractor to use frozen material as fill or to place fill on frozen material.

We recommend performing density tests in fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.2.h. Gravel Surfaced Pavements

Our scope of services for this project originally included laboratory tests on subgrade soils to determine R-value for pavement design. Based on the encountered soils, past project experience and the time sensitive nature of the report these tests were not performed. For design purposes we recommend that the pavement section be based on an R-value of 15 for the pavement section. Below are two options for gravel surfaced pavement sections.

- **Option 1 - Gravel Surfaced Pavement Section**
  - 6 inches of aggregate base (MnDOT Spec 3138 for Class 5), over
  - 12 inches of a recycled Aggregate Base Course consisting of a blend of on-site gravel surfacing materials and imported virgin Class 5, over
  - MnDOT Type 7 geotextile meeting Specification 3733

- **Option 2 - Gravel Surfaced Pavement Section - Including Sand Subbase**
  - 6 inches of aggregate base (MnDOT Spec 3138 for Class 5), over
  - 12 inches of a recycled Aggregate Base Course consisting of a blend of on-site gravel surfacing materials and imported virgin Class 5, over
  - 6 inches replaced by material meeting MnDOT's Specification for Select Granular Fill (Spec. No. 3149.2B2), over
  - MnDOT Type 7 geotextile meeting Specification 3733

D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with a truck-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples continuously in general accordance to ASTM D1586. The bituminous pavement along Sophus Anderson Road was repaired with a cold-mix bituminous patch immediately after coring.

D.2. Exploration Logs

D.2.a. Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials, and present the results of penetration resistance tests performed. The logs also present the results of laboratory tests performed on penetration test samples and groundwater measurements. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.2.b. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.3. Material Classification and Testing

D.3.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

D.3.b. Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. The remaining laboratory test results follow the exploration logs. We performed the tests in general accordance with ASTM procedures.

D.4. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes or allowed them to remain open for an extended period of observation, as noted on the boring logs.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed our evaluation, analyses and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work, or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

E.2. Continuity of Professional Responsibility

E.2.a. Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

E.2.b. Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

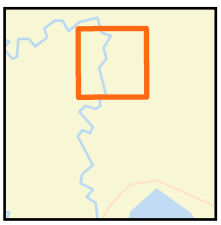
E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix



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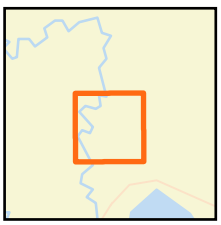

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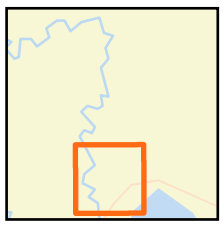

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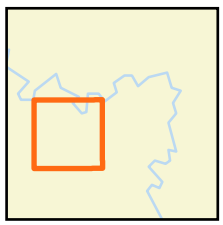

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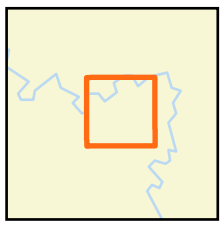

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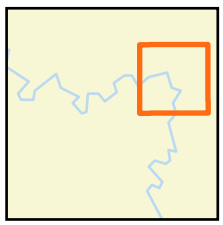

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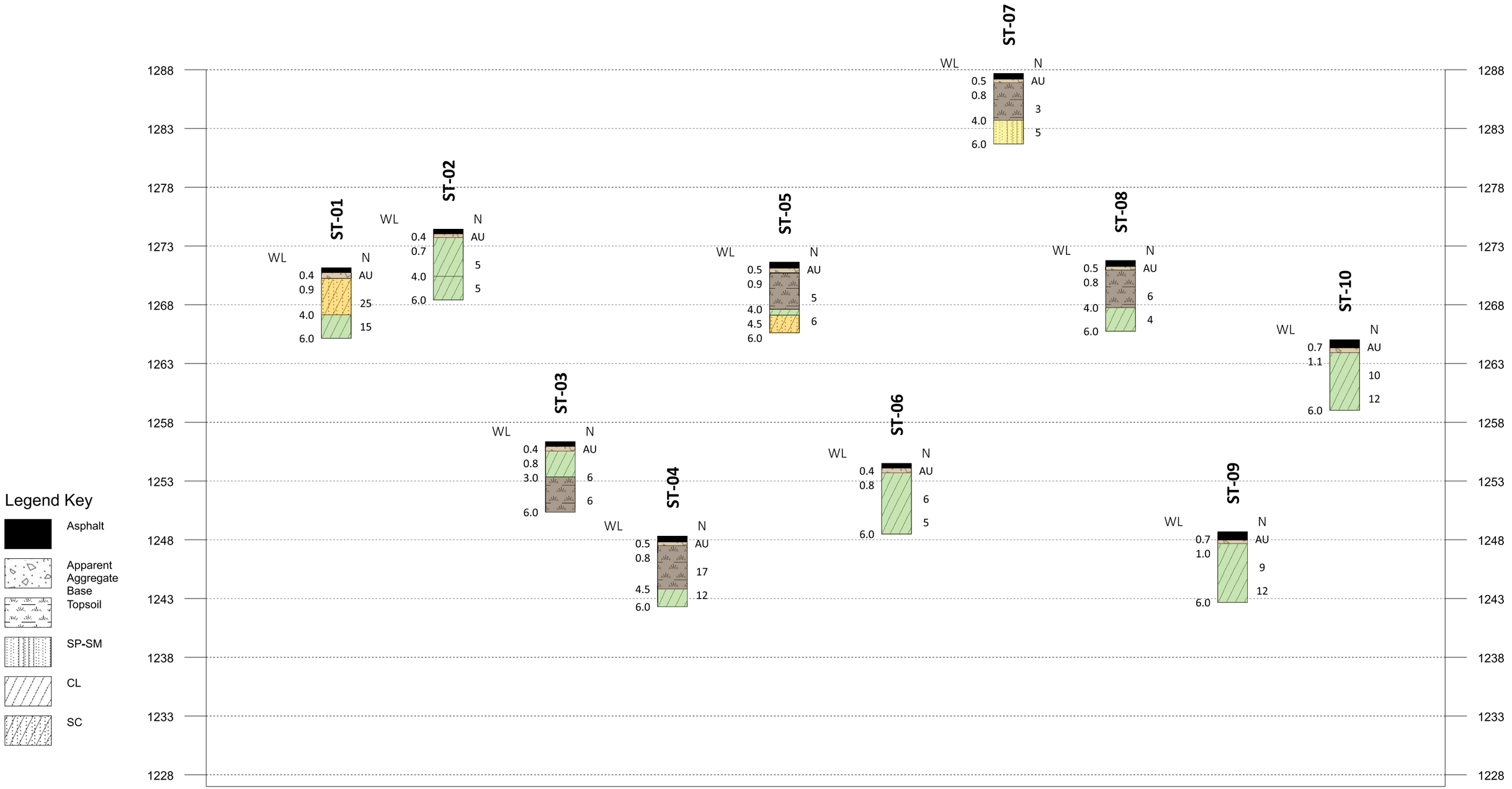

Sophus Anderson Road

Fence Diagram
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

Project ID:	B2404897
Vert. Scale:	1"= 8'
Hor. Scale:	NTS
Date:	08/28/2024

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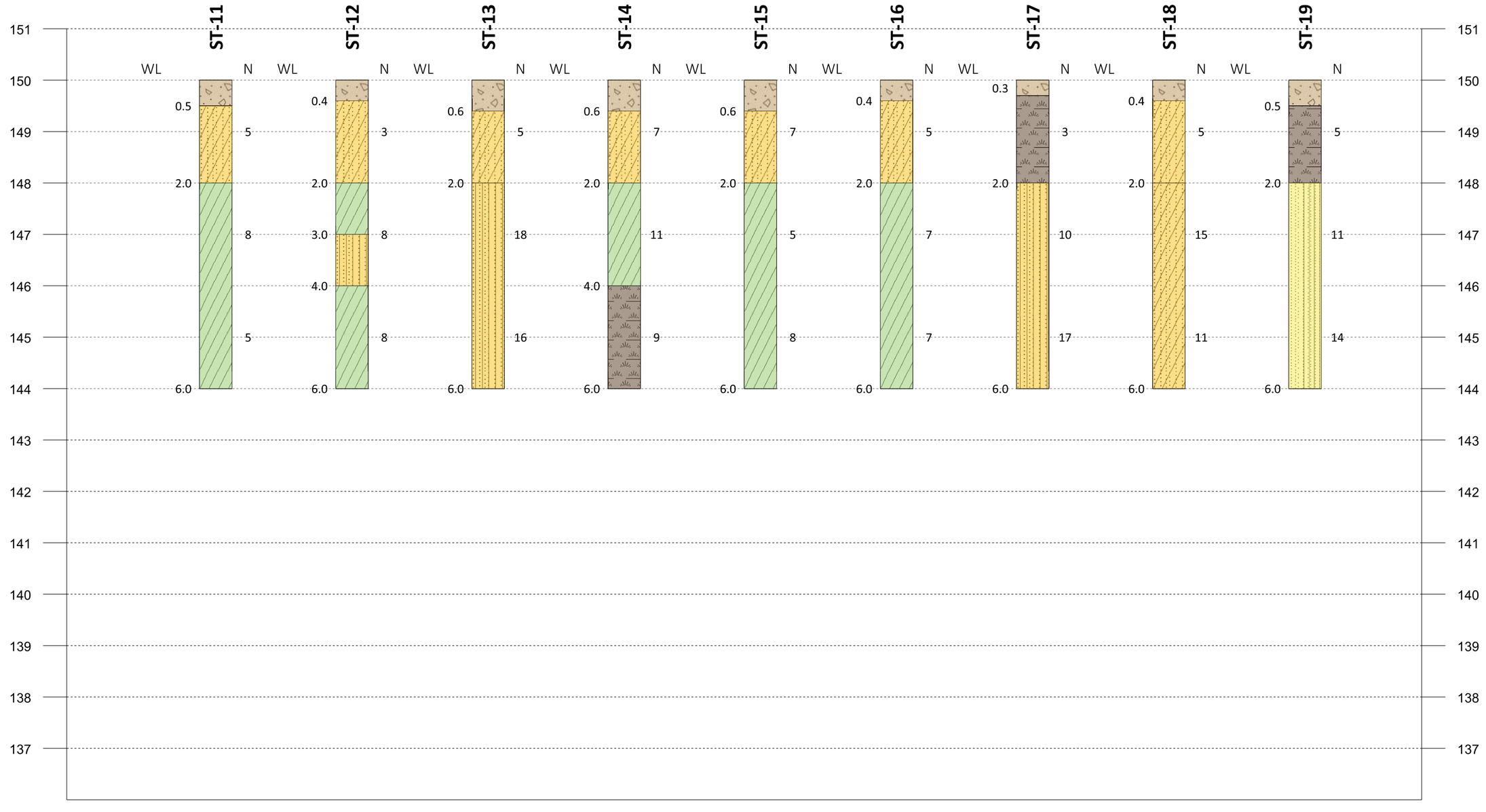

Legend Key

- Apparent Aggregate Base
- Topsoil
- SC
- CL
- SM
- SP-SM

Aurdal River Road

Fence Diagram
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

Project ID:	B2404897
Vert. Scale:	1"= 2'
Hor. Scale:	NTS
Date:	08/28/2024

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-01**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30233 LONGITUDE: -96.00685
START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1271.1 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy
DRILLER: D. Nash LOGGED BY: K. Dragos

Elev./ Depth ft	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~1270.7~~ ~~0.4~~	BITUMINOUS, 4 3/4 inches					
1270.2 0.9	APPARENT AGGREGATE BASE, POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, brown, moist		AU			
			10-14-11-8 (25) 10"		8	P200=18%
1267.1 4.0	CLAYEY SAND (SC), fine to medium-grained, trace Gravel, brown, moist, medium dense (GLACIAL OUTWASH)		8-8-7-8 (15) 16"			
1265.1 6.0	LEAN CLAY with SAND (CL), light brown, moist, stiff (GLACIAL TILL)	5		2	17	
	END OF BORING					Water not observed while drilling.
	Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.

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15
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-02**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30237 LONGITUDE: -96.00089
START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1274.4 ft
RIG: 7521
METHOD: 3 1/4" HSA
SURFACING: Bituminous
WEATHER: Cloudy
DRILLER: D. Nash
LOGGED BY: K. Dragos

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~1274.0~~		BITUMINOUS, 4 1/2 inches					
0.4		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1273.7				2-2-3-3			
0.7		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, medium (GLACIAL TILL)		(5) 10"		20	P200=60%
1270.4				2-2-3-4			
4.0		LEAN CLAY with SAND (CL), trace Gravel, with mineralization, brown, moist, medium, iron oxide staining (GLACIAL TILL)	5	(5) 16"		22	
1268.4							Water not observed while drilling.
6.0		END OF BORING					
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.
			10				
			15				
			20				
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			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-03**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30364 LONGITUDE: -95.99652
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1256.4 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~1256.0~~		BITUMINOUS, 4 1/2 inches					
0.4		APPARENT AGGREGATE BASE, POORLY		AU			
1255.6		GRADED SAND with CLAY (SP-SC), fine to		2-3-3-5			
0.8		coarse-grained, trace Gravel, brown, moist		(6)			
~~1253.4~~		LEAN CLAY with SAND (CL), trace Gravel,		10"	1	21	
3.0		brown, moist, medium (GLACIAL TILL)		5-3-3-4			
		LEAN CLAY with SAND (CL), trace roots,		(6)			
		black, moist, medium (BURIED TOPSOIL)	5	16"		15	
1250.4							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.
			10				
			15				
			20				
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-04**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30419 LONGITUDE: -95.99547
START DATE: 07/01/24 END DATE: 07/01/24
DRILLER: D. Nash LOGGED BY: K. Dragos
SURFACE ELEVATION: 1248.3 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1247.8		BITUMINOUS, 5 1/2 inches					
0.5		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1247.5				3-7-10-15			
0.8		LEAN CLAY with SAND (CL), trace Gravel, trace roots, black, moist, very stiff (BURIED TOPSOIL)		(17) 6"		14	OC=3%
1243.8				9-7-5-5			
4.5		LEAN CLAY with SAND (CL), trace Gravel, brown to black, moist, stiff (GLACIAL TILL)		(12) 8"	2	9	
1242.3							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-05**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30686 LONGITUDE: -95.99176
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1271.6 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1271.1		BITUMINOUS, 5 3/4 inches					
0.5		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1270.7 0.9		LEAN CLAY with SAND (CL), trace roots, dark brown to black, moist, medium (BURIED TOPSOIL)		3-3-2-3 (5) 10"		13	
1267.6 4.0		LEAN CLAY with SAND (CL), brown, moist, medium (GLACIAL TILL)	5	3-3-3-4 (6) 16"	1	9	P200=21% Water not observed while drilling.
1267.1 4.5		CLAYEY SAND (SC), fine to coarse-grained, brown, moist, loose (GLACIAL OUTWASH)					
1265.6 6.0		END OF BORING Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.
			10				
			15				
			20				
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-06**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30994 LONGITUDE: -95.98651
START DATE: 07/01/24 END DATE: 07/01/24
DRILLER: D. Nash LOGGED BY: K. Dragos
SURFACE ELEVATION: 1254.5 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~1254.1~~		BITUMINOUS, 4 3/4 inches					
0.4		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1253.7		SANDY LEAN CLAY (CL), trace Gravel, dark brown to black, moist, medium (GLACIAL TILL)		2-2-4-4 (6) 16"	1	15	LL=25, PL=15, PI=10
0.8				2-2-3-4 (5) 18"		15	
1248.5							Water not observed while drilling.
6.0		END OF BORING					
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.

BRAUN INTERTEC
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-07**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.31065 LONGITUDE: -95.98443
START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1287.7 ft
RIG: 7521
METHOD: 3 1/4" HSA
SURFACING: Bituminous
WEATHER: Cloudy
DRILLER: D. Nash
LOGGED BY: K. Dragos

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1287.2		BITUMINOUS, 6 inches					
0.5		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1286.9				2-1-2-3			
0.8		LEAN CLAY with SAND (CL), trace roots, black, moist, soft (BURIED TOPSOIL)		(3) 10"		15	OC=3%
1283.7				3-2-3-4			
4.0		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, brown, moist, loose (GLACIAL OUTWASH)		(5) 16"		5	P200=5%
1281.7							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-08**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.31160 LONGITUDE: -95.98146
START DATE: 07/01/24 END DATE: 07/01/24
SURFACE ELEVATION: 1271.8 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy
DRILLER: D. Nash LOGGED BY: K. Dragos

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1271.3		BITUMINOUS, 6 inches					
0.5		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist	AU				
1271.0				2-3-3-4			
0.8		LEAN CLAY with SAND (CL), trace roots, black, moist, medium (BURIED TOPSOIL)		(6) 14"		28	OC=4%
1267.8				2-2-2-2			
4.0		SANDY LEAN CLAY (CL), brownish gray, moist, soft (GLACIAL TILL)		(4) 16"	0.75	17	
1265.8							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.

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Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-09**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.31174 LONGITUDE: -95.97954
START DATE: 07/01/24 END DATE: 07/01/24
DRILLER: D. Nash LOGGED BY: K. Dragos
SURFACE ELEVATION: 1248.7 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1248.0		BITUMINOUS, 8 1/2 inches					
0.7		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist	AU				
1247.7 1.0		LEAN CLAY with SAND (CL), trace Gravel, brown to gray, moist, stiff, iron oxide staining (GLACIAL TILL)		2-4-5-7 (9) 16"	1.5	14	LL=29, PL=15, PI=14
			5	3-4-8-10 (12) 18"	1.75	15	
1242.7 6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.
			10				
			15				
			20				
			25				
			30				

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-10**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.31155 LONGITUDE: -95.97722
START DATE: 07/01/24 END DATE: 07/01/24
DRILLER: D. Nash LOGGED BY: K. Dragos
SURFACE ELEVATION: 1265.0 ft RIG: 7521 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1264.3		BITUMINOUS, 8 inches					
0.7		APPARENT AGGREGATE BASE, SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist		AU			
1263.9 1.1		LEAN CLAY with SAND (CL), trace Gravel, light brown, moist, stiff (GLACIAL TILL)		3-4-6-8 (10) 16"	2.25	14	LL=32, PL=12, PI=20
			5	3-5-7-7 (12) 18"	2	16	
1259.0 6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					Pavement restored with bituminous patch.
			10				
			15				
			20				
			25				
			30				

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Aurdal Township Roadway Improvements
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Fergus Falls, Minnesota

BORING: **ST-11**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.31152 LONGITUDE: -95.97615
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
149.5 / 0.5 / 148.0		APPARENT AGGREGATE BASE, SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, 5 1/2 inches		2-2-3-2 (5) 8"			
2.0		CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, dark brown, moist, loose (GLACIAL OUTWASH)		2-4-4-3 (8) 6"	1.25	16	LL=32, PL=17, PI=15
144.0		LEAN CLAY with SAND (CL), trace Gravel, brown to gray, moist, medium, iron oxide staining (GLACIAL TILL)	5	2-2-3-4 (5) 18"		17	
6.0		END OF BORING Boring then backfilled with auger cuttings					Water not observed while drilling.
			10				
			15				
			20				
			25				
			30				

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Project Number B2404897
Geotechnical Evaluation
Aurdal Township Roadway Improvements
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Fergus Falls, Minnesota

BORING: **ST-12**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30856 LONGITUDE: -95.97690
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~149.6~~ 0.4 ~~148.0~~		APPARENT AGGREGATE BASE, SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, 5 inches		1-1-2-3 (3) 8"			P200=34%
2.0 ~~147.0~~ 3.0		CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, brown to dark brown, moist, very loose (GLACIAL OUTWASH)		2-3-5-2 (8) 8"	1	14	
146.0 4.0 144.0		LEAN CLAY with SAND (CL), brown, moist, medium (GLACIAL TILL)	5	2-3-5-5 (8) 10"	1.25	17	LL=28, PL=16, PI=12
6.0		SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, medium dense (GLACIAL OUTWASH)					Water not observed while drilling.
		LEAN CLAY with SAND (CL), with mineralization, trace Gravel, brown, moist, medium, iron oxide staining (GLACIAL TILL)					
		END OF BORING	10				
		Boring then backfilled with auger cuttings					
			15				
			20				
			25				
			30				

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Fergus Falls, Minnesota

BORING: **ST-13**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30470 LONGITUDE: -95.97731
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
149.4		APPARENT AGGREGATE BASE, SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, 7 inches		2-3-2-3 (5) 6"			
0.6							
148.0		CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, light brown to brown, moist, loose (GLACIAL OUTWASH)		4-8-10-10 (18) 10"		7	P200=20%
2.0		SILTY SAND with GRAVEL (SM), fine to coarse-grained, light brown, moist, medium dense, iron oxide staining (GLACIAL OUTWASH)		3-7-9-9 (16) 18"			
144.0							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			5				
			10				
			15				
			20				
			25				
			30				

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Project Number B2404897
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Aurdal Township Roadway Improvements
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BORING: **ST-14**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.30131 LONGITUDE: -95.97664
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
149.4		APPARENT AGGREGATE BASE, SILTY SAND		3-4-3-2			
0.6		(SM), fine to coarse-grained, trace Gravel,		(7)			
148.0		brown, moist, 7 inches		7"			
2.0		CLAYEY SAND with GRAVEL (SC), fine to		2-4-7-8			
		coarse-grained, brown, moist, loose (GLACIAL		(11)	3	16	LL=30, PL=18, PI=12
146.0		OUTWASH)		10"			
4.0		SANDY LEAN CLAY (CL), trace Gravel, brown		3-5-4-5			
		to black, moist, stiff (GLACIAL TILL)	5	(9)		19	
144.0		LEAN CLAY with SAND (CL), trace Gravel,		16"			
6.0		gray to black, moist, stiff, iron oxide staining					Water not observed while drilling.
		(BURIED TOPSOIL)					
		END OF BORING					
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				
			25				
			30				

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Project Number B2404897
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Aurdal Township Roadway Improvements
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Fergus Falls, Minnesota

BORING: **ST-15**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.29762 LONGITUDE: -95.97725
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
149.4		APPARENT AGGREGATE BASE, SILTY SAND		2-3-4-3			
0.6		(SM), fine to coarse-grained, trace Gravel,		(7)			
148.0		brown, moist, 7 inches		8"			
2.0		CLAYEY SAND with GRAVEL (SC), fine to		1-2-3-3			
		coarse-grained, trace roots, brown to black,		(5)	0.75	19	LL=29, PL=15, PI=14
		moist, loose (GLACIAL OUTWASH)		10"			
		LEAN CLAY with SAND (CL), trace Gravel, light		2-4-4-3			
		brown to gray, moist, medium, iron oxide	5	(8)	1.25	18	
144.0		staining (GLACIAL TILL)		18"			
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				
			25				
			30				

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Project Number B2404897
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Fergus Falls, Minnesota

BORING: **ST-16**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.29435 LONGITUDE: -95.97725
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~149.6~~		APPARENT AGGREGATE BASE, SILTY SAND		2-2-3-3			
0.4		(SM), fine to coarse-grained, trace Gravel,		(5)			
148.0		brown, moist, 5 inches		6"			
2.0		CLAYEY SAND (SC), fine to coarse-grained,		1-3-4-4			
		trace Gravel, brown, moist, loose (GLACIAL		(7)	1.5	18	LL=33, PL=18, PI=15
		OUTWASH)		10"			
		LEAN CLAY with SAND (CL), trace Gravel,		1-3-4-4			
		brown to gray, moist, medium (GLACIAL TILL)		(7)	1.5	19	
144.0		*Iron oxide staining at 2 feet*	5	18"			
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				
			25				
			30				

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Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-17**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.29148 LONGITUDE: -95.97731
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~149.7~~ 0.3		APPARENT AGGREGATE BASE, SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, 4 inches		1-1-2-2 (3) 6"	0.75	30	OC=7%
148.0 2.0		LEAN CLAY with SAND (CL), trace Gravel, trace roots, black, moist, soft (BURIED TOPSOIL)		3-5-5-6 (10) 10"		7	P200=18%
		SILTY SAND with GRAVEL (SM), fine to coarse-grained, brown, moist, loose to medium dense (GLACIAL OUTWASH)		5-8-9-9 (17) 16"			
144.0 6.0		END OF BORING Boring then backfilled with auger cuttings					Water not observed while drilling.

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Geotechnical Evaluation
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, Minnesota

BORING: **ST-18**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.28805 LONGITUDE: -95.97739
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
~~149.6~~							
0.4		APPARENT AGGREGATE BASE, SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, 5 inches		2-2-3-4 (5) 7"			
148.0							
2.0		CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, trace roots, brown to black, moist, loose (GLACIAL OUTWASH)		5-7-8-9 (15) 10"		7	P200=15%
		CLAYEY SAND (SC), fine to coarse-grained, light brown to gray, moist, medium dense (GLACIAL OUTWASH)	5	4-5-6-6 (11) 10"			
144.0							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				
			25				
			30				

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Fergus Falls, Minnesota

BORING: **ST-19**
LOCATION: Estimated.
DATUM: WGS 84
LATITUDE: 46.28544 LONGITUDE: -95.97736
DRILLER: D. Nash LOGGED BY: K. Dragos START DATE: 07/02/24 END DATE: 07/02/24
SURFACE ELEVATION: 150.0 ft RIG: 7521 METHOD: 3 1/4" HSA SURFACING: Apparent Aggregate Base WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
149.5		APPARENT AGGREGATE BASE, SILTY SAND		3-3-2-2			
0.5		(SM), fine to coarse-grained, trace Gravel,		(5)		8	OC=3%
148.0		brown, moist, 6 inches		6"			
2.0		LEAN CLAY with SAND (CL), trace Gravel,		1-5-6-5			
		trace roots, brown to black, moist, loose		(11)		5	P200=8%
		(BURIED TOPSOIL)		10"			
		POORLY GRADED SAND with SILT (SP-SM),		4-6-8-5			
		fine to coarse-grained, trace Gravel, brown to	5	(14)			
144.0		light brown, moist, medium dense (GLACIAL		10"			
6.0		OUTWASH)					Water not observed while drilling.
		END OF BORING					
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				
			25				
			30				

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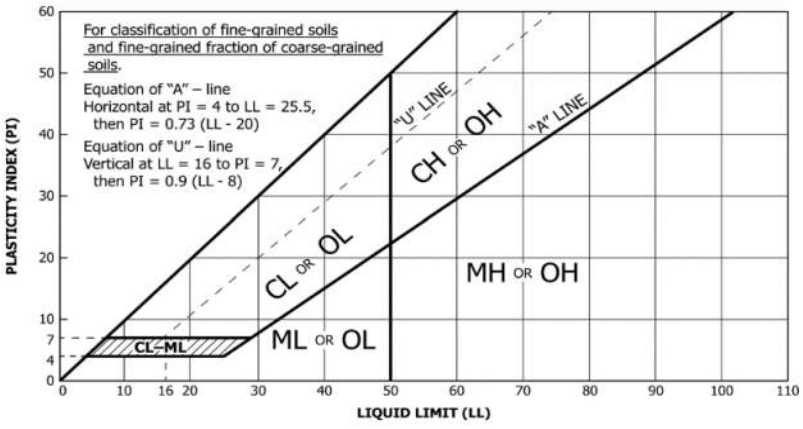
Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3$[D]	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3$[D]	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**q_p**	Pocket penetrometer strength, tsf
WD	Wet density, pcf	**q_U**	Unconfined compression test, tsf
P200	% Passing #200 sieve	**LL**	Liquid limit
MC	Moisture content, %	**PL**	Plastic limit
OC	Organic content, %	**PI**	Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

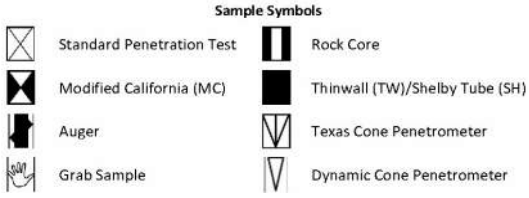
Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (▽), at the end of drilling (▼), or at some time after drilling (▽).

Sample Symbols



Sieve Analysis Of Aggregate

ASTM C136

Report Date: 08/05/2024

526 10th St NE, Suite 300
PO Box 485
West Fargo, ND 58078
Phone: 701-232-8701

Client:

Apex Engineering Group, Inc.
4733 Amber Valley Pkwy S
Fargo, ND 58104

Project:

B2404897
Aurdal Township Roadway Improvements
Sophus Anderson Rd & Aurdal River Rd
Fergus Falls, MN

Sample Information

Sample Number: 607244
Sampled By: Drill Crew
Location Details: ST-12; 0' - 2'
Received Date: 07/25/2024
Tested Date: 08/05/2024

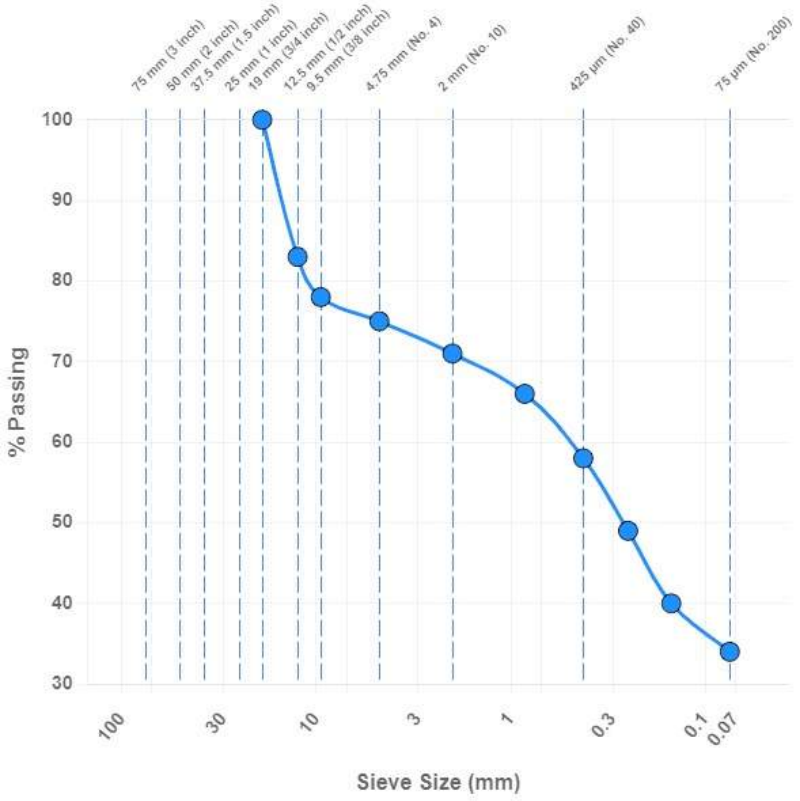
Sample From: Splitspoon
Sampling Method:
Sample Date: 07/02/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Jacquemart, Trevor

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	83	
9.5 mm (3/8 inch)	78	
4.75 mm (No. 4)	75	
2 mm (No. 10)	71	
850 µm (No. 20)	66	
425 µm (No. 40)	58	
250 µm (No. 60)	49	
150 µm (No. 100)	40	
75 µm (No. 200)	34	

#200 Wash Loss ASTM C117 (%) 29.3

Gravel (%): 25.0 **Sand (%):** 40.9 **Silt & Clay (%):** 34.1



D_{60} (mm): 0.53

General

Results: The test is for informational purposes.