

February 25, 2025

**ADDENDUM NO. 1**

**RE: Item #1, March 5, 2025 Letting - IM 0909(92)387, PCN 06G8, Minnehaha County - Interchange Reconstruction, Structure (258' Steel Girder Bridge), PCC Surfacing, Sidewalk**

**TO WHOM IT MAY CONCERN:**

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

**SPECIAL PROVISIONS:** NO CHANGE

**SDEBS BID PROPOSAL:** *The electronic bid proposal for this contract has been revised to include the changes associated with this addendum. Bidders must log in to the SDEBS to retrieve and incorporate these changes into their bid.*

**Bid Items were added:**

Bid Item 831E1010 "Geogrid Reinforcement"

**Quantities for Bid Items were changed:**

Bid Item 260E1010 "Base Course" changed from 6,767.3 to 8,361.3 Ton

**Bid Items were removed:**

Bid Item 260E2010 "Gravel Cushion"

**PLANS:** Please destroy sheets A2, B5, E2, E4-E8, E34, E35, F6 & L3 and replace with the enclosed sheets, dated 2/18/25, 2/19/25, 2/20/25, 2/24/25 & 2/25/25.

**Sheets A2, E2 & E4:**

**Bid Items were added:**

Bid Item 260E1010 "Base Course"

Bid Item 831E1010 "Geogrid Reinforcement"

**Bid Items were removed:**

Bid Item 260E2010 "Gravel Cushion"

**Sheet B5:** TABLE OF UNSTABLE MATERIAL EXCAVATION was revised.

**Sheet E5-E8:** Note placement was adjusted and GRANULAR BRIDGE END BACKFILL, BASE COURSE, AND GEOGRID REINFORCEMENT note was added.

**Sheets E34 & E35:** DETAILS OF BRIDGE END BACKFILL sheets were revised.

**Sheet F6:** Dowel Bar size in the TABLE OF NONREINFORCED PCC PAVEMENT was revised.

**Sheet L3:** ROADWAY LIGHTING note was added.

Sincerely,

Sam Weisgram  
Engineering Supervisor

SW/cj

CC: Travis Dressen, Mitchell Region Engineer  
Harry Johnston, Sioux Falls Area Engineer

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	A2	A6

Rev 02/25/2025 BDW

## PCN 06G8 Section C – Traffic Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0010	Flagging	200.0	Hour
634E0110	Traffic Control Signs	3,030.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	24	Each
634E0330	Temporary Raised Pavement Markers	29,410	Ft
634E0380	Tubular Marker	775	Each
634E0390	Replace Tubular Marker	100	Each
634E0420	Type C Advance Warning Arrow Board	6	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	124	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	9,500	Ft
634E0640	Temporary Pavement Marking	44,470	Ft
634E0700	Traffic Control Movable Concrete Barrier	124	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	66	Each
634E0750	Temporary Concrete Barrier End Protection	4	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	1	Each

## PCN 06G8 Section E – Structure Structure No. 50-090-165

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,758.0	SqYd
120E7000	Select Granular Backfill	27.4	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
260E1010	Base Course	1,594.0	Ton
410E0026	Structural Steel, Install	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	117.8	Ft
420E0100	Structure Excavation, Bridge	225	CuYd
430E0200	Bridge End Embankment	965	CuYd
430E0300	Granular Bridge End Backfill	89.8	CuYd
460E0030	Class A45 Concrete, Bridge Deck	502.3	CuYd
460E0050	Class A45 Concrete, Bridge	248.6	CuYd
460E0150	Concrete Approach Slab for Bridge	199.7	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	70.7	SqYd
460E0380	Install Dowel in Concrete	760	Each
460E0500	Deck Drain, Girder Bridge	30	Each
470E0120	Steel Pedestrian Railing on Sidewalk	547.5	Ft
470E0220	Steel Pedestrian Railing on Concrete Barrier	507.0	Ft
480E0100	Reinforcing Steel	56,988	Lb
480E0200	Epoxy Coated Reinforcing Steel	3,190	Lb
480E0300	Stainless Reinforcing Steel	120,670	Lb
480E0509	No. 9 Rebar Splice	4	Each
480E0511	No. 11 Rebar Splice	28	Each
480E0514	No. 14 Rebar Splice	84	Each
510E0100	Extract Pile	5	Each
510E0300	Preboring Pile	240	Ft
510E3401	HP 12x53 Steel Test Pile, Furnish and Drive	275	Ft
510E3405	HP 12x53 Steel Bearing Pile, Furnish and Drive	6,700	Ft
621E0300	Chain Link Fence for Bridge Sidewalk	548	Ft
651E0160	6" Reinforced Concrete Sidewalk	610	SqFt
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	511.0	SqYd
831E1010	Geogrid Reinforcement	1,636	SqYd
831E1030	Perforated Geocell	783	SqFt

## PCN 06G8 Section F – Surfacing

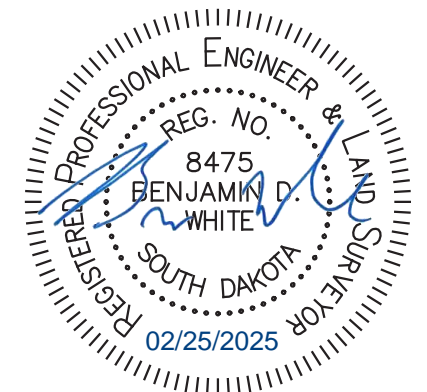
BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
120E6200	Water for Granular Material	222.8	MGal
260E1010	Base Course	6,767.3	Ton
260E2030	Gravel Cushion, Salvaged	11,084.8	Ton
260E3010	Gravel Surfacing	684.1	Ton
320E1200	Asphalt Concrete Composite	2,891.8	Ton
380E0070	9" Nonreinforced PCC Pavement	27,846.0	SqYd
380E6000	Dowel Bar	12,999	Each
380E6110	Insert Steel Bar in PCC Pavement	60	Each
410E2600	Membrane Sealant Expansion Joint	86.6	Ft
600E0300	Type III Field Laboratory	1	Each

## PCN 06G8 Section L – Signal and Lighting

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	40	Each
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	16	Each
635E3700	Roadway Luminaire, LED with Photoelectric Cell	72	Each
635E5020	2" Diameter Footing	464.0	Ft
635E5301	Type 1 Electrical Junction Box	3	Each
635E5302	Type 2 Electrical Junction Box	1	Each
635E5303	Type 3 Electrical Junction Box	10	Each
635E5400	Electrical Service Cabinet	2	Each
635E8120	2" Rigid Conduit, Schedule 40	12,135	Ft
635E8130	3" Rigid Conduit, Schedule 40	30	Ft
635E8220	2" Rigid Conduit, Schedule 80	790	Ft
635E8310	1" Innerduct, Schedule 40	12,210	Ft
635E9011	1/C #1 AWG Copper Wire	11,330	Ft
635E9014	1/C #4 AWG Copper Wire	12,030	Ft
635E9018	1/C #8 AWG Copper Wire	27,340	Ft
635E9020	1/C #10 AWG Copper Wire	12,610	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	4,840	Ft

## PCN 06G8 Section D – Erosion and Sediment Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1690	Remove Sediment	9.4	CuYd
110E1693	Remove Erosion Control Wattle	255	Ft
110E1695	Remove Sediment Filter Bag	732	Ft
110E1700	Remove Silt Fence	3,242	Ft
230E0010	Placing Topsoil	28,941	CuYd
730E0100	Cover Crop Seeding	52.1	Bu
730E0212	Type G Permanent Seed Mixture	457	Lb
731E0200	Fertilizing	17.80	Ton
732E0100	Mulching	36.2	Ton
732E0500	Fiber Reinforced Matrix	18.3	Ton
734E0103	Type 3 Erosion Control Blanket	5,996	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,020	Ft
734E0165	Remove and Reset Erosion Control Wattle	255	Ft
734E0180	Sediment Filter Bag	732	Ft
734E0185	Remove and Reset Sediment Filter Bag	183	Ft
734E0325	Surface Roughening	14.0	Acre
734E0510	Shaping for Erosion Control Blanket	2,360	Ft
734E0602	Low Flow Silt Fence	11,855	Ft
734E0604	High Flow Silt Fence	1,112	Ft
734E0610	Mucking Silt Fence	900	CuYd
734E0620	Repair Silt Fence	3,242	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	26	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	13	Ft
900E1320	Construction Entrance	2	Each
900E5147	Articulated Concrete Mattress	347.0	SqYd





**TABLE OF UNCLASSIFIED EXCAVATION**

	(CuYd)
Excavation	27,429
Undercut	15,421
Salvage and Stockpile Granular Material	5,886
Topsoil	9,441
<b>Total</b>	<b>58,177</b>

**PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY**

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity will be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed and/or salvaged.

The volume of in place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

The Excavation quantities from individual balances and the table above have been reduced by the volume of in place asphalt pavement that will be removed.

**OPTION BORROW PIT**

Option Borrow Pit #1

Access:

Access to the option borrow pit is on the south side of the pit on 261<sup>st</sup> Avenue. Payment for any additional access points to the option borrow pit will be incidental to the contract unit bid price for Option Borrow.

Sediment Control:

Included in the estimate of quantities is 2500' of Low Flow Silt Fence for Sediment Control along the north and east edges of the borrow pit.

Topsoil:

A minimum of 8 inches of topsoil will be removed and stockpiled from the borrow pit and any area of the borrow pit that will be disturbed by hauling. At the completion of the borrow operations, the topsoil will be evenly spread to a depth of 8" on the pit.

Cover Crop Seeding:

At the completion of borrow activities, the exposed topsoil will be seeded to Spring or Winter Wheat Cover Crop. Included in the Estimate of Quantities is 18 BU of Cover Crop Seeding.

**TABLE OF OPTION BORROW EXCAVATION**

	(CuYd)
Option Borrow Excavation	162,108
Topsoil in Option Borrow Pits	18,700
<b>Total:</b>	<b>180,808</b>

**HAUL**

Included in the Table of Excavation Quantities by Balances are Dead Haul, Option Borrow Haul, and Out-of-Balance Haul. They are not pay items and are for informational purposes only. Haul was not estimated for moving Contractor Furnished Borrow Excavation.

Dead Haul: Estimated quantity (CuYdSta) for moving borrow excavation material or option borrow excavation material from the borrow or option borrow site to the centerline mainline station listed in the Table of Borrow Pits.

Option Borrow Haul: Estimated quantity (CuYdSta) for moving option borrow excavation material from the centerline mainline station listed in the Table of Borrow Pits to the locations where it is needed throughout the earthwork balance.

Out-of-Balance Haul: Estimated quantity (CuYdSta) for moving material from an earthwork balance to another earthwork balance.

For Purpose of Extra Haul Computations:

Average Option Borrow Haul = (Option Borrow Haul + Dead Haul)/Total Option Borrow Excavation = 5,190,600/155,000 = 33.5 Sta.

**UNDERCUTTING**

In all cut sections the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4-foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) will then be replaced and compacted to the density specified for the section being constructed.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	B5	B96

Rev 02/20/2025 BDW

Intersecting roads/streets will be undercut to the same depth as the Mainline roadway out to the limits of asphalt concrete or PCC pavement placement on the intersecting road unless specified otherwise. Quantities are included in the "Table of Undercutting".

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

**TABLE OF UNDERCUTTING QUANTITIES URBAN**

Station to	Station	Description	Quantity (CuYd)
<i>Western Ave</i>			
2+00	16+00		4,073
22+50	29+10		1,793
<i>Ramp A</i>			
0+19	0+50		4
10+00	13+35		681
<i>Ramp B</i>			
0+19	13+91		4,208
<i>Ramp C</i>			
13+88	27+28		3,066
<i>Ramp D</i>			
19+08	30+00		1,596
<b>Total:</b>			<b>15,421</b>

**UNSTABLE MATERIAL EXCAVATION**

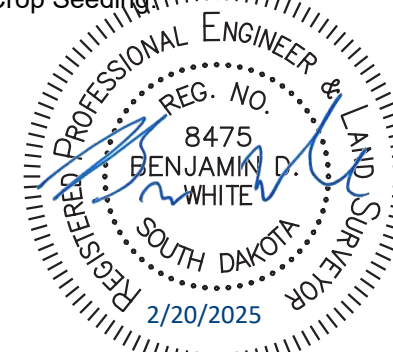
The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

**TABLE OF UNSTABLE MATERIAL EXCAVATION**

Station to	Station	L/R	Depth (Ft)	Quantity (CuYd)
<i>Western</i>				
9+75	12+00	L	2	578
18+50	21+00	L/R	2	1,972
<i>Ramp A</i>				
1+50	9+50	R	2	2,462
<i>Ramp D</i>				
19+00	25+00	L	2	1,210
<b>Total:</b>				<b>6,222</b>



Revised August 12, 2024 AG  
 Revised February 18, 2025 BB

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM-B 0291(134)44	E2	E45

## SECTION E – ESTIMATE OF STRUCTURE QUANTITIES

Str. No. 50-090-165

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,758.0	SqYd
120E7000	Select Granular Backfill	27.4	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
260E1010	Base Course	1,594.0	Ton
410E0026	Structural Steel, Install	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	117.8	Ft
420E0100	Structure Excavation, Bridge	225	CuYd
430E0200	Bridge End Embankment	965	CuYd
430E0300	Granular Bridge End Backfill	89.8	CuYd
460E0030	Class A45 Concrete, Bridge Deck	502.3	CuYd
460E0050	Class A45 Concrete, Bridge	248.6	CuYd
460E0150	Concrete Approach Slab for Bridge	199.7	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	70.7	SqYd
460E0380	Install Dowel in Concrete	760	Each
460E0500	Deck Drain, Girder Bridge	30	Each
470E0120	Steel Pedestrian Railing on Sidewalk	547.5	Ft
470E0220	Steel Pedestrian Railing on Concrete Barrier	507.0	Ft
480E0100	Reinforcing Steel	56,988	Lb
480E0200	Epoxy Coated Reinforcing Steel	3,190	Lb
480E0300	Stainless Reinforcing Steel	120,670	Lb
480E0509	No. 9 Rebar Splice	4	Each
480E0511	No. 11 Rebar Splice	28	Each
480E0514	No. 14 Rebar Splice	84	Each
510E0100	Extract Pile	5	Each
510E0300	Preboring Pile	240	Ft
510E3401	HP 12x53 Steel Test Pile, Furnish and Drive	275	Ft
510E3405	HP 12x53 Steel Bearing Pile, Furnish and Drive	6,700	Ft
621E0300	Chain Link Fence for Bridge Sidewalk	548	Ft
651E0160	6" Reinforced Concrete Sidewalk	610	SqFt
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	511.0	SqYd
831E1010	Geogrid Reinforcement	1,636	SqYd
831E1030	Perforated Geocell	783	SqFt

## ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Concrete Penetrating Sealer	1758.0	SqYd	See Special Provision
Select Granular Backfill	27.4	Ton	
Incidental Work, Structure	Lump Sum	LS	
Base Course	1594	Ton	
Structural Steel, Install	Lump Sum	LS	See Special Provision
Membrane Sealant Expansion Joint	117.8	Ft	
Structure Excavation, Bridge	225	CuYd	
Bridge End Embankment	965	CuYd	
Granular Bridge End Backfill	89.8	CuYd	
Class A45 Concrete, Bridge Deck	502.3	CuYd	
Class A45 Concrete, Bridge	248.6	CuYd	
Concrete Approach Slab for Bridge	199.7	SqYd	
Concrete Approach Sleeper Slab for Bridge	70.7	SqYd	
Install Dowel in Concrete	760	Each	
Deck Drain, Girder Bridge	30	Each	
Steel Pedestrian Railing on Sidewalk	547.5	Ft	
Steel Pedestrian Railing on Concrete Barrier	507.0	Ft	
Reinforcing Steel	56,988	Lb	
Epoxy Coated Reinforcing Steel	3,190	Lb	
Stainless Reinforcing Steel	120,670	Lb	See Special Provision
No. 9 Rebar Splice	4	Each	
No. 11 Rebar Splice	28	Each	
No. 14 Rebar Splice	84	Each	
Extract Pile	5	Each	
Preboring Pile	240	Ft	
HP 12x53 Steel Test Pile, Furnish and Drive	275	Ft	
HP 12x53 Steel Bearing Pile, Furnish and Drive	6,700	Ft	
Chain Link Fence for Bridge Sidewalk	548	Ft	
6" Reinforced Concrete Sidewalk	610	SqFt	
Bridge Berm Slope Protection, Quarried Aggregate	511.0	SqYd	
Perforated Geocell	783	SqFt	
Geogrid Reinforcement	1636	SqYd	

### BRIDGE SPECIFICATIONS

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 9<sup>th</sup> Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

- All welding and welding inspections will be in conformance with the latest edition of AASHTO/AWS D1.5/D1.5M Bridge Welding Code unless noted otherwise in the plans.

### BRIDGE DESIGN LOADING

- AASHTO HL-93.
- Dead Load includes 22 psf for future wearing surface on the roadway.

### DESIGN MATERIAL STRENGTHS

Class A45 Concrete	$f'_c = 4,500$ psi
Reinforcing Steel (ASTM A615, Gr. 60)	$f_y = 60,000$ psi
Stainless Steel (ASTM A955, Gr. 60)	$f_y = 60,000$ psi
Piling (ASTM A572 Grade 50)	$f_y = 50,000$ psi

### GENERAL CONSTRUCTION

- All lap splices shown are contact lap splices unless noted otherwise.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise on plans.
- The Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
- Barrier Curbs, and End blocks will be built perpendicular to the roadway grade line.
- Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
- Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.10. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Bridge Construction Engineer for approval. Allow 30 days for review of proposals.
- The elevation of the bridge deck is 14 inches above subgrade elevation.

### INCIDENTAL WORK, STRUCTURE

- In place centerline Sta. 15+99.00 to centerline Sta. 18+53.00 is a 254.0-foot, 4 span continuous composite girder viaduct a 30'-0" clear roadway. The superstructure consists of a reinforced concrete slab with continuous concrete barrier continuous across the bridge. The deck has been overlaid with 0.25-inches of epoxy overlay. The substructure consists of 2 column reinforced concrete bents supported on timber piling and concrete sill abutments supported on timber piling.
- Break down and remove the existing bridge, and approach/sleeper slabs if applicable, to 1-foot below finished groundline, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge not salvaged for future highway related use will be removed and disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.
- The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it is the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. If desired by the Contractor, a copy of the original construction plans may be obtained through the Office of Bridge Design.
- It is anticipated that at least 5 treated timber piles will interfere with piling for this new structure. Any existing pile that interferes with piling for the new structure will be extracted. Payment for the extracting piling will be contract unit price per each for Extract Pile and will be full compensation for extracting piling including materials, labor, and equipment necessary or incidental to the satisfactory completion of this work.

### NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure contains lead. The Contractor should plan operations accordingly and inform employees of the hazards of lead exposure.

### ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 258' - 0" STEEL GIRDER BRIDGE

STR. NO. 50-090-165  
 DECEMBER 2023



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	E5	E45

**PERFORATED GEOCELL**

- Perforated Geocell will be from the following company or equivalent.  
  
Agtec  
1-818-724-7657  
<http://www.agtec.com>
- Perforated Geocell will be 6 inches tall and will be installed according to the manufacturer's recommendation.
- Perforated Geocell will be filled with Select Granular Backfill in accordance with Section 850 of the Specifications.
- Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.
- Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

**DESIGN MIX OF CONCRETE**

- All structural concrete will be Class A45 Concrete unless otherwise indicated.
- Type II cement conforming to Section 750 of the Construction Specifications is required in all concrete on the structure except in the abutments. Abutment concrete will use a Type III cement or an approved modified A45 mix. The modified mix will meet the requirements for A45 concrete specified in Section 460 of the Construction Specification with the following modifications: a high range water reducer is required at the manufacturer's recommended dosage, the maximum concrete slump is 6 inches, the maximum water/cementitious material ratio will be at least 0.02 less than the A45 mix used in the rest of the substructure, and the minimum concrete temperature at time of placement will be 65 degrees Fahrenheit. If used, type III cement will contain a maximum 8% Tricalcium Aluminate (C<sub>3</sub>A) and a maximum 0.6% Alkalis (Na<sub>2</sub>O + 0.658K<sub>2</sub>O).
- Grout design mix will be as specified in Section 460.2 K of the Construction Specifications. A compressive strength of 2000 psi will be attained by the grout prior to erection of any beams. Chamfer edges of grout pads 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

**ABUTMENTS**

- Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.
- The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.

- One test pile will be driven at each abutment and will become part of the pile group.
- The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
- Piles will not be driven out of position by more than three inches in the direction parallel to the girder centerline. A pile-driving template will be used to ensure this accuracy.
- Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05.

**CONNECTION OF GIRDER TO PILE**

- Cut off piling at the elevations shown in the plans and weld bearing plates to the piling. Adjust as necessary to make bearing plates level, and to permit proper position of the girders. If piles are driven out of position to the extent that bearing plates will not fit, the Contractor will submit the method of correction to the Engineer for approval. Piles will not be pulled into position.
- All girder erection will be complete with the splices fully bolted and diaphragms in place, before welding girders to bearing plates. (Diaphragms need not be secured with more than temporary bolting, prior to the pile to girder connections.)
- An alternate connection, capable of transmitting a direct load of 8000 lbs. to the pile and developing 30,000 lbs. horizontal force, may be submitted to the Office of Bridge Design for prior approval.
- This connection will not be made when the temperature is greater than 70° F or less than 30° F.
- Payment for installing the bearing plates will be incidental to the contract lump sum price for Structural Steel, Install.

**POURING OF ABUTMENT CONCRETE**

- Abutment concrete will be placed, as directed by the Engineer, at a time when a relatively stable temperature can be expected. A relatively stable temperature is defined as an air temperature deviation of not more than 30° F within 12 hours of completing the abutment pour from the air temperature at the time when the abutment concrete is placed.
- The forms will be secured to the girders in such a manner that they will be free to move longitudinally with the expansion or contraction of the girder.
- The girders will be braced near the abutments in such a manner that their lateral movement or rotation will be prevented during the placing of concrete. The Contractor will include details for this bracing with the falsework plans.

**BENT**

- The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.
- One test pile will be driven at each bent and will become part of the pile group.
- The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.

**PILE DRIVING**

- A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The following pile hammers were evaluated and found to produce acceptable driving stresses:  
  

Pileco D25-32	Delmag D25-32	Delmag D30-32
APE D30-32	APE D30-42	APE D30-52
SPI D30		
- Pile hammers not listed will require evaluation and approval prior to use from the Geotechnical Engineering Activity. Requests for evaluation of hammers not listed will be submitted a minimum of 5 business days prior to installation of piles.

**FIELD BOLTED GIRDER SPLICES**

- Bolts in flange splices will be placed with the heads down.
- Bolts in web splices of exterior girders will be placed with the heads on the exterior face of girders.
- All bolts will be fully tightened prior to removing temporary supports.

**WELDING AND WELD INSPECTION**

Main members referred to in Section 6.7 Nondestructive Testing of the Bridge Welding Code are identified as follows: girder webs, girder flanges, and bearing stiffeners. Ultrasonic testing of groove welds will be used in lieu of radiography. See girder layout for locations of tension and stress reversal areas of the girder flanges.

**NOTES (CONTINUED)**  
FOR  
**258' - 0" STEEL GIRDER BRIDGE**

STR. NO. 50-090-165

DECEMBER 2023

DESIGNED BY AG MINN06G8	CK. DES. BY BB 06G8TA03	DRAFTED BY BT <i>Steve A. Johnson</i>	BRIDGE ENGINEER
-------------------------------	-------------------------------	---	-----------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	E6	E45

**SUPERSTRUCTURE**

1. Shear connectors will be field welded to the girders in accordance with the Shear Connector Field Installation Special Provision.
2. The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge. If the deck finish machine cannot match the exact skew of the bridge, the difference will need be approved by the Engineer.
3. The concrete bridge deck will be placed and finished at a minimum rate of 44 feet of deck per hour measured along centerline roadway. If concrete cannot be placed and finished at this rate, the Engineer will order a header installed and operations stopped. If a header is required sometime during the pour operation, its location will be at or as near as possible to the three-quarter point of the span. Notify the Bridge Construction Engineer if deck pour operations are stopped. Operations may resume only when the Engineer is satisfied that a rate of 44 feet per hour can be maintained and the concrete has attained a minimum compressive strength of 2000 psi.
4. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.
5. The Contractor is required to submit a detailed plan showing the proposed girder erection. The girder erection plan will be designed and stamped by a Professional Engineer registered with the State of South Dakota. The plan must be submitted 30 days prior to the start of work for approval by the Office of Bridge Design. The plan will include. But not limited to, complete sequencing details, splice bolt up procedures, girder pick point locations, temporary shoring details, and temporary bracing details.
6. All single girder segments will be adequately braced or held in position until the adjacent girder segment is placed and all diaphragms between the segments are fully installed and bolts fully tightened. Single girder segments will not be allowed to remain in place beyond the end of a work shift without connection to an adjacent girder segment with all diaphragms between the segments fully connected. At no time will a single girder segment be allowed over traffic.
7. See Special Provision for Concrete Penetrating Sealer.
8. Any concrete mortar that gets on all surfaces of all the superstructure components will be washed off or removed before it is dry.

**BEARINGS**

Payment for installing the bearings, including the pre-formed fabric pads under the bearing plates and painting, will be incidental to the contract lump sum price for Structural Steel, Install.

**CLASS B COMMERCIAL TEXTURE FINISH**

1. A Class B commercial texture finish will be applied to the following areas:
  - a) **Barrier:** All exposed surfaces (back\*, top\*\* and front\*\*).
  - b) **Abutments:** all exposed surfaces to an elevation 1-foot below finished ground line.
  - c) **\*Slab:** edge of slab
  - d) **\*Bent:** All exposed surfaces.

\* Color will be AMS – STD - 595 33690      Tan  
\*\* Color will be AMS – STD - 595 37875      Pearl White
2. The Class B commercial texture finish will be applied in accordance with Section 460.3 L.1.c and Section 460.3 M.1 of the Construction Specifications.

**FALL PROTECTION**

1. The Contractor will install a Fall Protection System conforming to OSHA Regulations. When working on the girders prior to decking installation, a Horizontal Lifeline – or other OSHA approved system will be installed. The Contractor will have one Personal Fall Arrest System (PFAS) available for use by a Department Inspector. The PFAS will be compatible with the installed Fall Protection System.
2. Modifications to any bridge components used to accommodate the Fall Protection System will be shown on the Falsework Plans and the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System will be incidental to the other contract items.

**APPROACH SLABS**

1. Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the top pf the sleeper slab riser.
2. The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.
3. The use of an approved finishing machine will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the machine will be kept parallel to the screed.
4. Concrete Approach Sleeper Slab for Bridge, whether cast-in-place or precast, will be paid for at the contract unit price per square yard. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete and reinforcing steel; for disposal of all surplus materials; and for labor, tools, equipment, and any incidentals necessary to complete this item of work.

5. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials and for labor, tools, equipment and any incidentals necessary to complete this item of work.

**SHEAR STUD CONNECTOR**

1. Prior to the welding of the studs to the girders, the top surface of the girders that are to have studs welded on will be clean of all dirt, rust, and any other foreign matter.
2. The shear connector will be installed in accordance with the Special Provision for Shear Connector Field Installation (Incidental).

**FALSEWORK**

Traffic control considerations require some construction activities to be performed over I-90 traffic. To protect traffic, a roadway canopy containment system will be required. Include details for the roadway canopy with the falsework plans. All costs for furnishing, installing, and removing the roadway canopy will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge Deck.

**BOLT TESTING**

The certified mill test reports for all bolts used on the project will include the test results for all the testing specified in section 972.2 D of the Construction Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

**SHOP PLANS**

Shop plans will be required as specified by the Construction Specifications.

**NOTES (CONTINUED)**

**FOR  
258' - 0" STEEL GIRDER BRIDGE**

STR. NO. 50-090-165

DECEMBER 2023

DESIGNED BY AG MINN06G8	CK. DES. BY BB 06G8TA04	DRAFTED BY BT <i>Steve A. Johnson</i> BRIDGE ENGINEER
-------------------------------	-------------------------------	--



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	E7	E45

**DECK DRAINS**

- Deck Drains will be 4-inch diameter x 5'-9", 6-inch diameter x 4'-4", and 8-inch collector Fiberglass Pipe conforming to the requirements of ASTM - D2996. Deck Drains will also include Neenah R-3935 or an approved equivalent frame and grate.
- The Fiberglass Pipe Sleeve can be made from a 4-inch diameter Fiberglass Pipe Fitting. It will be attached to the 4-inch diameter Fiberglass Pipe, as shown in the plans, per the manufacturer's recommendation.
- All fiberglass pipe and pipe fittings will be handled and installed according to the guidelines and procedures recommended by the manufacturer. Pipe, pipe fittings, and adhesive must be from the same manufacturer.
- Use fiberglass wear pads to protect against contact with supports or U-bolts.
- The 1/2-inch diameter U-bolts, nuts and washers will conform to ASTM A307 and will be galvanized in accordance with ASTM F2329 then painted in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595 Color 30045).
- Steel for the bent plates and washers will conform to ASTM A36 and will be painted in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595 Color 30045).
- Washers will be plate washers or a continuous bar at least 5/16-inch thick with standard holes and completely cover the slot after installation.
- The 1/2-inch diameter bolts and nuts will confirm to ASTM F3125, Gr. A325 and will be galvanized in accordance with ASTM F2329. The nut and bolts will be painted brown (AMS STD 595 Color 30045).
- The deck drains to girder connection as shown in the plans allows the deck drain location to be adjusted slightly to clear transverse slab reinforcement.
- All fiberglass pipes and pipe fittings will use pigmented resin throughout the wall. The color will be an approved brown (AMS STD 595 Color 30045).
- Payment for deck drains will be at the contract unit price per each for Deck Drain, Girder Bridge, and will be full compensation for furnishing, fabricating, and installing the deck drains and all attaching hardware in accordance with the plans and Construction Specifications.

**QUARRIED AGGREGATE SLOPE PROTECTION**

- This work will consist of covering the bridge berm slopes with quarried aggregate slope protection for control and prevention of berm erosion.
- The aggregate used in the quarried aggregate slope protection will be composed of durable fragments of quarried ledge rock or rhyolite or an approved alternative. The material will be well graded with 90 to 100% passing a 6-inch sieve and 0 to 10% passing a 2-inch sieve.

- The surface upon which the slope protection is to be placed will be smooth, uniform, and free from foreign material. The top surface of the slope protection will conform to the dimensions, elevations, and slopes shown in the plans.
- The quarried aggregate will be shaped and compacted to provide a stable, smooth, and uniform surface.
- Payment for quarried aggregate slope protection will be at the contract unit price per square yard for Bridge Berm Slope Protection, Quarried Aggregate and will include furnishing all materials, labor, and equipment necessary or incidental to the satisfactory completion of this work. Payment will be for plans quantity.

**AS - BUILT ELEVATION SURVEY**

The Contractor will be responsible for producing an as-built elevation survey soon after construction is completed but before the bridge is opened to traffic. The Contractor will be responsible for recording the as-built elevation shown in the plans. The completed table will be given to the Engineer and copies forwarded to the Office of Bridge Design and the Senior Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation, and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The benchmark shown in the plans has not been tied to the NAVD88. The Contractor will be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All cost associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor, and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

**SIDEWALK EXPANSION DEVICES**

- Material for the structural plates and bars will conform to ASTM A36. The end welded deformed bar anchors will conform to ASTM A496.
- All steel components will be galvanized after shop welding in accordance with ASTM A123.
- The plain ferrule inserts in the expansion device will be 3/4-inch diameter commercially available regular steel inserts to be positioned by welding onto the plate of the expansion device as shown in the plans.
- The bolts used to attach the sliding plates to the expansion device will conform to ASTM F593 and will be 3/4-inch diameter Group 2, Type 316 stainless steel socket countersunk head flat screws furnished with a thread type to be compatible to the thread type supplied with the plain ferrule inserts of the expansion device. All bolts are to be coated with liquid thread locking material that is intended to allow for future removal.

- All costs involved in furnishing and installing the expansion devices at the sidewalks will be included in the contract unit price per square foot for 6" Reinforced Concrete Sidewalk. For informational purposes only, the estimated weight of structural steel in the expansion devices is 352 lbs.

**CHAIN LINK FENCE**

- The chain link fence fabric and supports will conform to Section 930 of the Construction Specifications as modified by the following notes.
- The chain link fence fabric, wire ties, and miscellaneous hardware will be galvanized and conform to AASHTO M181. The fence fabric will be Type IV 9-gauge wire woven in a 2-inch diamond mesh. Knuckled selvage will be used on the top and bottom of the fence fabric.
- A brown (AMS STD 595 Color 30045) thermally extruded polyvinyl coating will be applied to the fence fabric, wire ties, and all miscellaneous hardware.
- The item Chain Link Fence for Bridge Sidewalk will be paid for at the contract unit price per linear foot. This payment will be full compensation for furnishing all material, labor, tools, and equipment necessary or incidental to the construction of the chain link fence including chain link fence fabric, posts, rails, wire ties, miscellaneous hardware, painting, and welding all to satisfactorily complete the work.

**SIDEWALK APPROACH SLABS**

- The reinforced concrete sidewalks adjacent to the bridge will be paid for at the contract unit price per square foot for 6" Reinforced Concrete Sidewalk. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete, epoxy coated reinforcing steel, asphalt paint or 6 mil polyethylene sheeting, hot poured elastic joint sealer; for disposal of all excavated, and surplus materials; and for all labor, tools, equipment, and incidentals necessary to complete this item of work.
- The top of the sidewalk will transition from the end of the bridge to the top of approach slab curb at the sidewalk expansion device.
- All costs involved in furnishing and placing the sidewalk sleeper slabs will be included in the contract unit price per square foot for 6" Reinforced Concrete Sidewalk.

**NOTES (CONTINUED)**

**FOR  
258' - 0" STEEL GIRDER BRIDGE**

STR. NO. 50-090-165

DECEMBER 2023

DESIGNED BY AG MINN06G8	CK. DES. BY BB 06G8TA05	DRAFTED BY BT <i>Steve A. Johnson</i>	BRIDGE ENGINEER
-------------------------------	-------------------------------	---	-----------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	E8	E45

**STEEL RAILING – SIDEWALK**

- All rail and chain link fence posts will be built vertical.
- All structural steel parts for railing will conform to ASTM A500, Grade B. Material less than 1/4-inch thick may be ASTM A1011, Grade 36. Rail post base plates will conform to ASTM A36.
- Anchor bolts and nuts for railing will conform to ASTM A307. Washers will conform to ASTM F436 and all components will be galvanized in accordance with ASTM F2329. The bolts will be hex head "Structural" type with heavy hex nuts and round washers.
- Anchor bolts will be tightened to a torque of 120 ft-lbs (approximated without the use of a calibrated torque wrench).
- Non-shrink grout used to fill the recess beneath the rail post base plates will be a commercially available non-shrink grout containing no metallic particles and capable of attaining a 28-day compressive strength of 3000 psi. The non-shrink grout will be mixed according to the manufacturer's recommendations. The cost of furnishing and placing the non-shrink grout will be incidental to the contract unit price per foot for Steel Pedestrian Railing on Sidewalk.
- All steel railing will be galvanized in accordance with ASTM F2329, then will be painted in accordance with Section 411 of the Construction Specifications and the color will be an approved brown (AMS STD 595 Color 30045). The galvanized steel railing will be cleaned in accordance with ASTM D6386 before painting.
- Welding and Weld Inspection will be done in accordance with the current edition of AWS D1.5 Bridge Welding Code.
- The costs of structural steel, welding, weld inspection, painting, and galvanization will be incidental to the contract unit price per foot for Steel Pedestrian Railing on Sidewalk and Steel Pedestrian Railing on Concrete Barrier.

**GIRDER PREPURCHASE**

- The steel girders, diaphragms, bearings, shear studs, and associated hardware have been prepurchased by the Department of Transportation through a separate contract. All prepurchased materials for phase 1 are scheduled to be fabricated and available for delivery on or before June 20, 2025. All prepurchased materials for phase 2 are scheduled to be fabricated and available for delivery on or before October 10, 2025. The Contractor will be responsible for notifying both the Engineer and the Department's Structural Steel Fabricator (Egger Steel Company, Ph. 605-357-2209) of the date when the Contractor is ready to take delivery of the prepurchased materials. Upon this notice, the Department's Structural Steel Fabricator will have 7 calendar days to deliver the materials to the project site. The Contractor will be responsible for unloading the materials delivered.

- If the pre-purchased materials need to be stored on the project site prior to erection, the Contractor will be responsible for storing the materials satisfactory to the Engineer in a safe location and in a manner that maintains the integrity and condition of the materials delivered. Any damage to the prepurchased items after delivery will be the Contractor's responsibility and will be replaced or repaired to the satisfaction of the Engineer.
- If the Contractor is not ready to take delivery of the prepurchased materials on the project site by November 26<sup>th</sup>, 2025 the Contractor will need to coordinate with the fabricator to make extended storage arrangements or supply an alternate site to store the prepurchased materials. The Contractor will be responsible for unloading the materials delivered to the alternate site and will also be responsible for all work associated with transporting the materials to the project site at a later date. Any damage to the prepurchased items after delivery to the alternate site will be the Contractor's responsibility and will be replaced or repaired to the satisfaction of the Engineer.
- The cost of the materials for tax purposes is \$1,203,300.00. The Contractor is responsible for paying State use tax, applicable City use tax and excise tax on these materials.
- All costs associated with the aforementioned work will be incidental to the Lump Sum price bid for the Structural steel, Install contract item.

**GRANULAR BRIDGE END BACKFILL, BASE COURSE, AND GEOGRID REINFORCEMENT**

- The Geogrid Reinforcement will be a biaxial grid of single layer construction. Vibratory welded, integrally formed or woven and coated geogrids will be acceptable. Grids with laser welded grid junctions will not be allowed. The Geogrid Reinforcement will be certified by the supplier to meet the following specification prior to installation:

Property	Test	MARV
Wide Width Strip		
Tensile Strength	ASTM D 6637	850lb/ft MD and XD
Ultimate		

- Geogrid Reinforcement will be paid for at the contract unit price per square yard for Geogrid Reinforcement. Payment quantities will be based on area covered plus 15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the Geogrid Reinforcement only. Granular backfill materials will be paid for under a different bid item.
- Granular Bridge End Backfill will conform to Section 882 of the Specifications.
- Granular Bridge End Backfill will be paid for at the contract unit price per cubic yard in accordance with 430.5 of the Specifications. Payment will be full compensation for furnishing and placing this material.
- Base Course material will conform to the specification for Aggregate Base Course in Section 882 of the Specifications.

- The Geogrid Reinforcement will be placed on a level surface and overlapped a minimum of 2 feet.
- The Geogrid Reinforcement will be placed as taut as possible with minimal wrinkles. Placement will be done so that subsequent granular cover material does not shove, wrinkle, or distort the in-place Geogrid Reinforcement. The overlaps will be shingled in a manner that assures granular material will not be forced under the geogrid during backfilling operations. The Geogrid Reinforcement may be held in place with small piles of granular material or staples.
- Base course will be dumped at least 20 feet behind the leading edge of the backfill and pushed into place with a loader or dozer from the covered areas to the uncovered areas. Traffic will not be allowed on the uncovered geogrid.
- Granular Bridge End Backfill, Base Course, and adjacent soil embankment will be built simultaneously in horizontal layers. Base course will be placed in 6-inch maximum lifts and compacted to 97 percent of maximum standard proctor dry density using a smooth face vibratory roller or vibratory plate compactor. Each layer of granular material will be thoroughly watered prior to and during compaction.
- Density tests within the berm limits will consist of tests conducted both in the soil embankment and the granular bridge end backfill according to the modified zone requirements below:

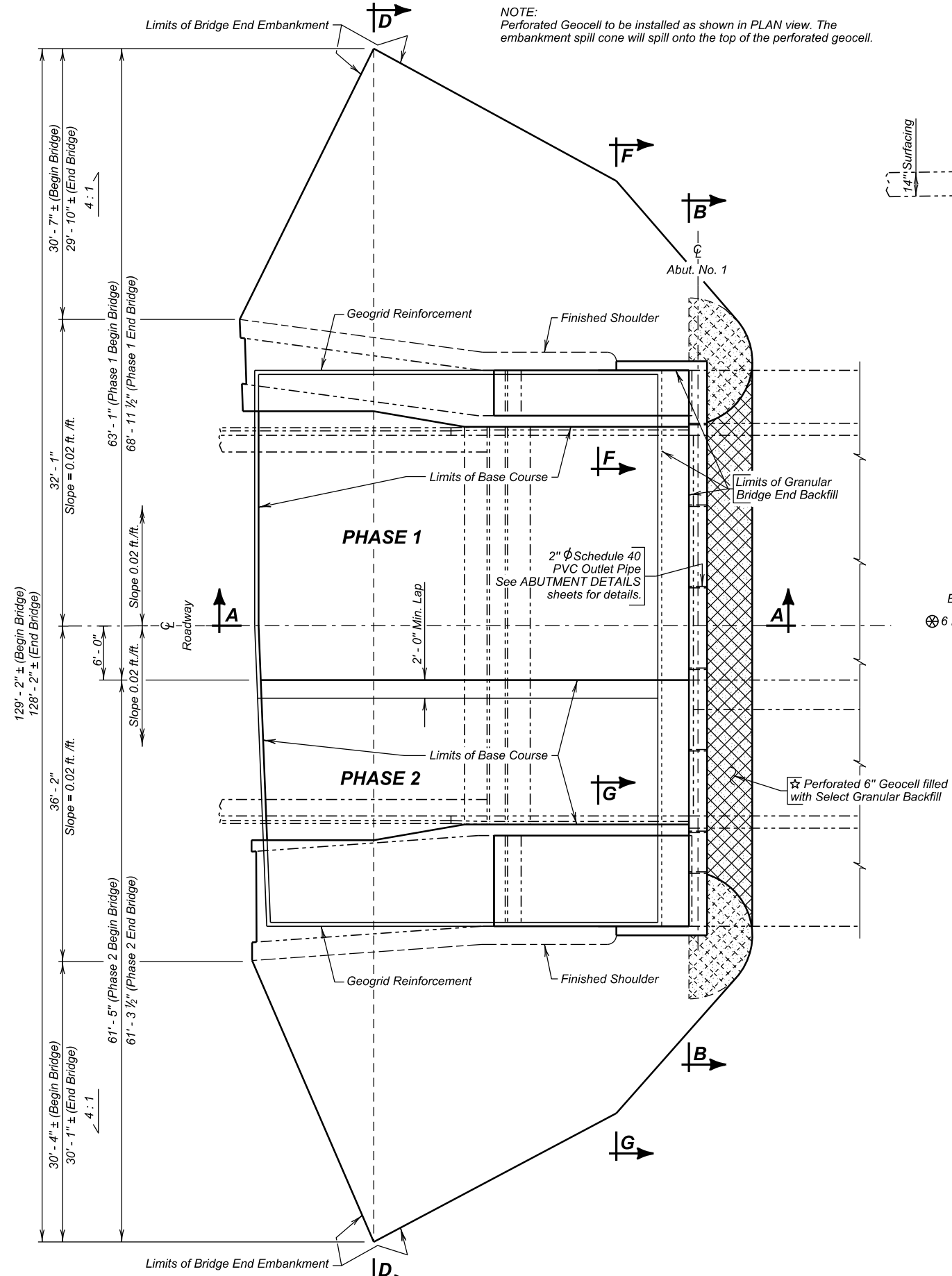
Zone	Depth (ft.)	Min. required tests
1	0-1	1
2	1-3	1
3	3-5	1
4	5 to Bottom	1 per 3 vertical feet

- The zone requirement will be enforced for all phases of staged construction. For example, if the berm on the west side of centerline is constructed separately from the east side, testing by zone will be required on both sides of centerline.

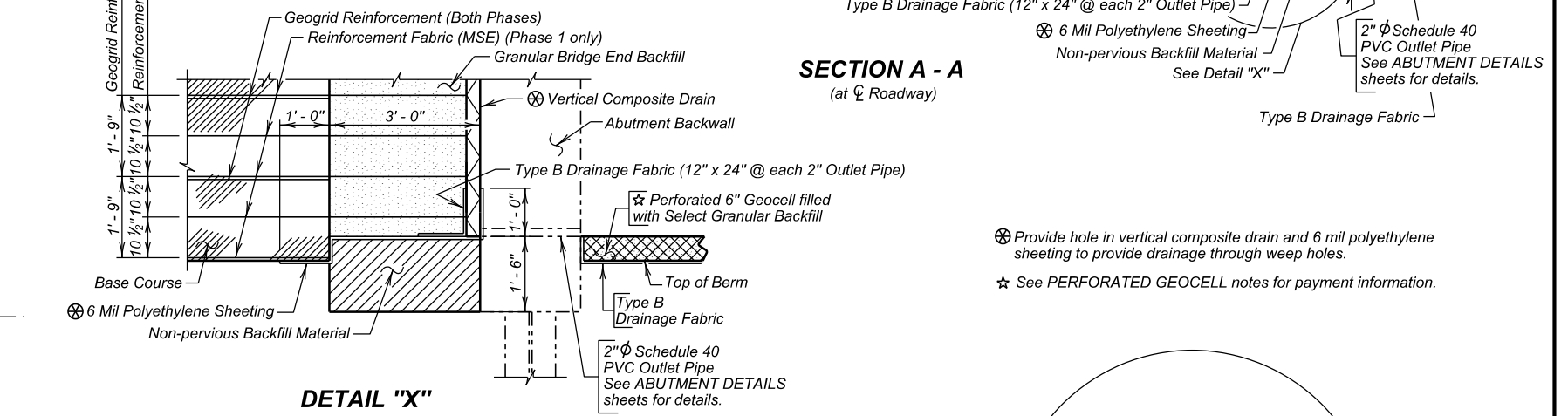
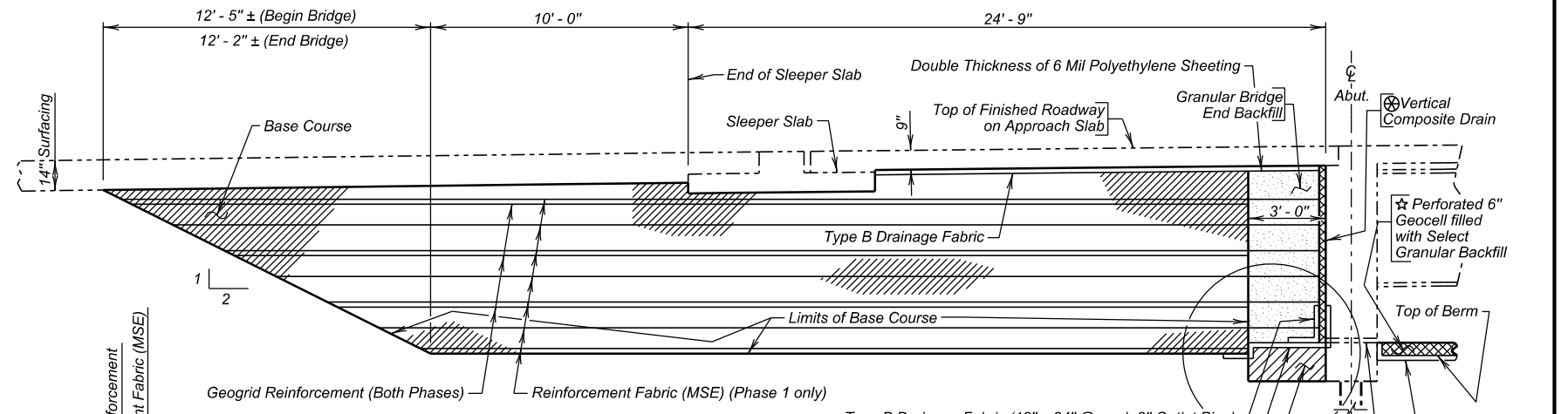
**NOTES (CONTINUED)  
 FOR  
 258' - 0" STEEL GIRDER BRIDGE**

STR. NO. 50-090-165  
 DECEMBER 2023

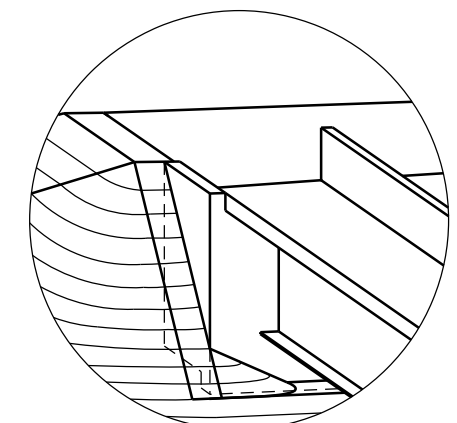
DESIGNED BY AG MINN06G8	CK. DES. BY BB 06G8TA06	DRAFTED BY BT <i>Steve A. Johnson</i>	BRIDGE ENGINEER
-------------------------------	-------------------------------	---	-----------------



NOTE:  
Perforated Geocell to be installed as shown in PLAN view. The embankment spill cone will spill onto the top of the perforated geocell.



⊗ Provide hole in vertical composite drain and 6 mil polyethylene sheeting to provide drainage through weep holes.  
☆ See PERFORATED GEOCELL notes for payment information.



ESTIMATED QUANTITIES (For Two Abutments - Phase 1)		
ITEM	UNIT	QUANTITY
⊗ Bridge End Embankment	Cu. Yd.	438.3
⊗ Granular Bridge End Backfill	Cu. Yd.	50.3
⊗ Base Course	Ton	1007
⊗ Geogrid Reinforcement	Sq. Yd.	934

- 488 sq. ft. Vertical Composite Drain.
  - 1956 sq. ft. 6 mil Polyethylene Sheeting, not including laps.
  - 168 sq. yd. Type B Drainage Fabric.
- Items 1 thru 3 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.
- 774 sq. yd. Reinforcement Fabric (MSE).
- Item 4 is an approximate quantity contained in the Base Course and is for information only.

⊗ For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.  
⊗ Shrinkage Factor of 1.25 used.

ESTIMATED QUANTITIES (For Two Abutments - Phase 2)		
ITEM	UNIT	QUANTITY
⊗ Bridge End Embankment	Cu. Yd.	526.9
⊗ Granular Bridge End Backfill	Cu. Yd.	39.5
⊗ Base Course	Ton	587
⊗ Geogrid Reinforcement	Sq. Yd.	702

- 104 sq. ft. Vertical Composite Drain.
  - 1116 sq. ft. 6 mil Polyethylene Sheeting, not including laps.
  - 283 sq. yd. Type B Drainage Fabric.
- Items 1 thru 3 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.

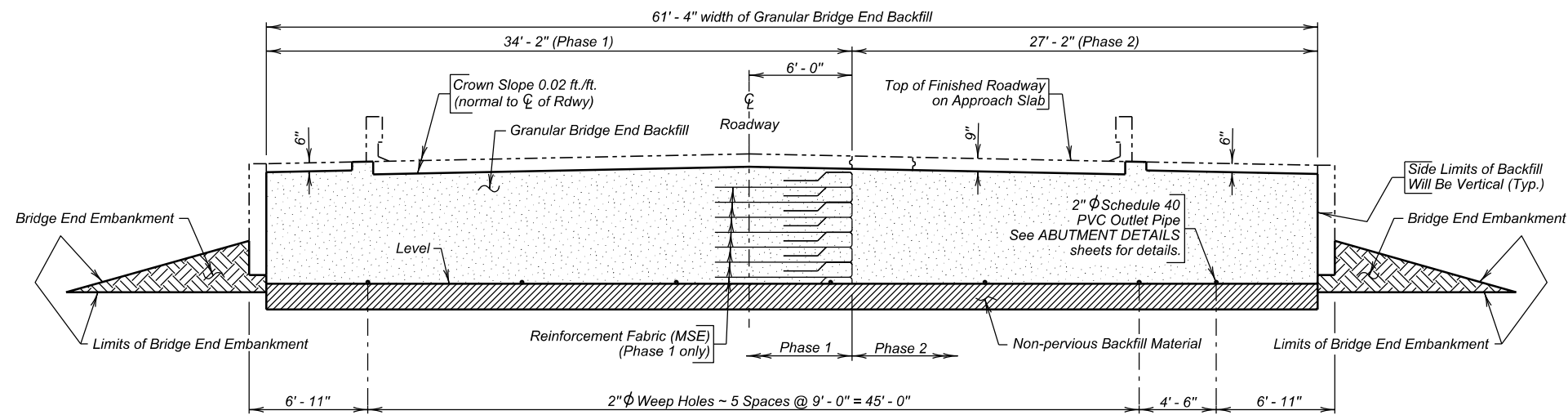
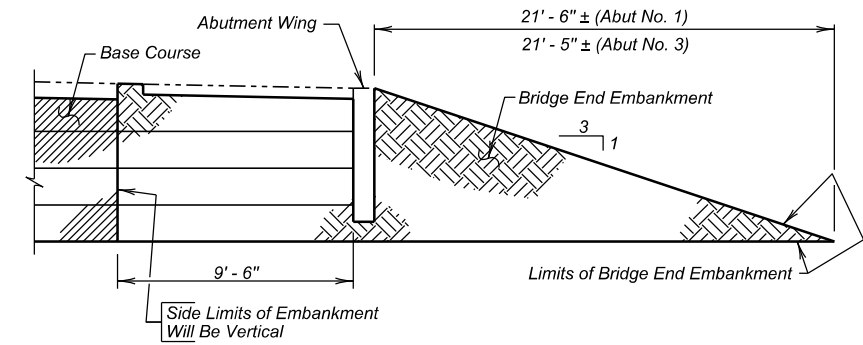
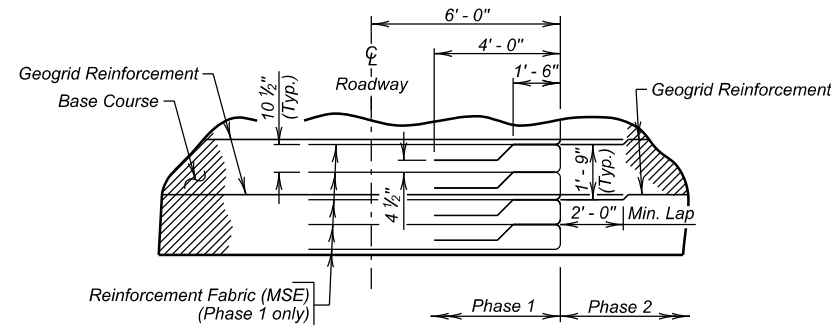
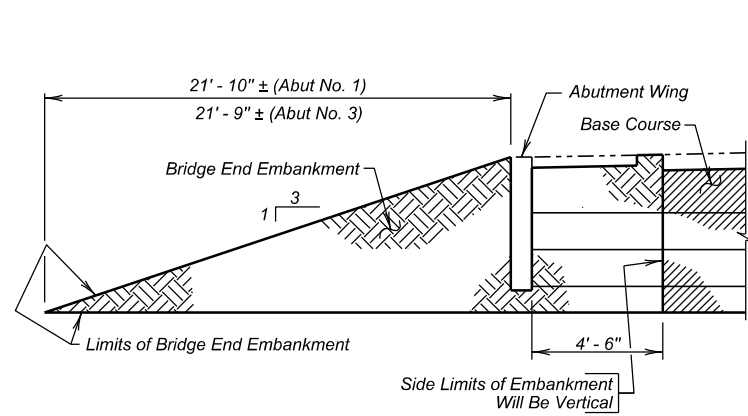
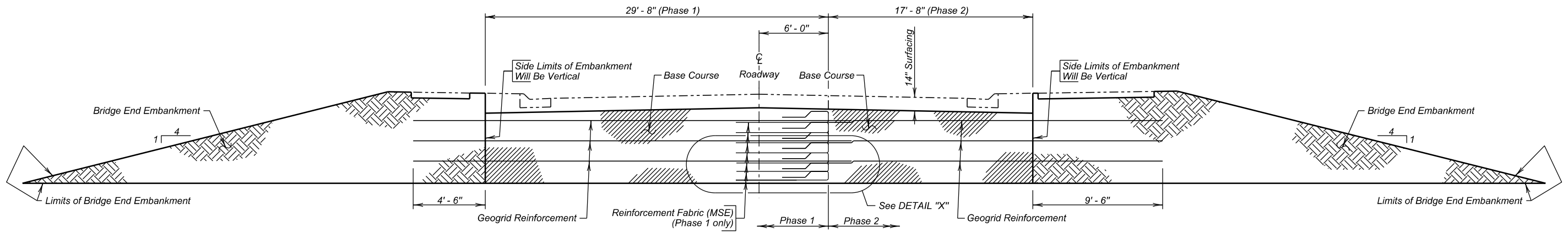
⊗ For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.  
⊗ Shrinkage Factor of 1.25 used.

**DETAILS OF BRIDGE END BACKFILL (A)**  
FOR  
**258' - 0" STEEL GIRDER BRIDGE**  
OVER I-90 0° SKEW  
STA. 15 + 96.01 TO 18 + 54.01 SEC. 28/27-T102N-R51W  
STR. NO. 50-090-165 IM 0909(92)387  
HL-93

MINNEHAHA COUNTY  
S. D. DEPT. OF TRANSPORTATION  
DECEMBER 2023



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	E35	E45



**DETAILS OF BRIDGE END BACKFILL (B)**  
FOR  
**258' - 0" STEEL GIRDER BRIDGE**

OVER I-90  
STA. 15 + 96.01 TO 18 + 54.01  
STR. NO. 50-090-165

0° SKEW  
SEC. 28/27-T102N-R51W  
IM 0909(92)387  
HL-93

MINNEHAHA COUNTY  
S. D. DEPT. OF TRANSPORTATION  
DECEMBER 2023

DESIGNED BY BB MINN06G8	CK. DES. BY AG 06G8TA33	DRAFTED BY BT	Steve A. Johnson BRIDGE ENGINEER
-------------------------------	-------------------------------	------------------	-------------------------------------

**TABLE OF NONREINFORCED PCC PAVEMENT**

REVISED 24 February, 2025 - BAH

Location			Description	9" Nonreinforced PCCP sq. yds.	1 - 1/4" Dowel Bars each
Station		Station			
<b>Western Ave</b>					
2+00.00	to	4+69.09		1,038.5	583
4+69.09	to	5+84.09		484.0	292
5+84.09	to	15+26.01		3,767.7	2,496
15+26.01	to	15+74.01		210.1	110
18+76.01	to	19+22.01		201.9	110
19+22.01	to	28+84.42		3,849.7	2,557
<b>Ramps</b>					
0+18.77	to	1+13.00	Ramp A	817.7	182
1+13.00	to	4+23.79	Ramp A	1,174.1	552
4+23.79	to	5+74.06	Ramp A	489.9	195
5+74.06	to	13+35.43	Ramp A	2109.1	810
0+18.90	to	1+15.50	Ramp B	638.3	146
1+15.50	to	13+90.56	Ramp B	3,535.3	1,365
13+87.88	to	23+71.88	Ramp C	2,727.7	1,050
23+71.88	to	25+22.15	Ramp C	495.1	212
25+22.15	to	27+27.85	Ramp C	390.0	168
26+26.34	to	27+28.86	Ramp C	823.8	169
19+07.72	to	31+73.16	Ramp D	3,509.1	1,350
31+73.16	to	32+74.04	Ramp D	726.9	142
<b>Intersecting Streets</b>					
Sta. 5+27 Rt.				318.7	180
<b>Drives</b>					
Sta. 26+73 Lt.				538.4	330
TOTALS:				27,846.0	12,999

**TABLE OF CROSSOVERS AND TEMPORARY SURFACING FOR TRAFFIC CONTROL**

Location - Description	Water for Granular	Base Course	Asphalt Concrete Composite 1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
	MGal	Ton	Ton
<b>Temporary Surfacing for Traffic Control</b>			
Mainline Sta. 1+27.41 to Sta. 11+94.05	11.5	957.2	255.6 / 255.6
Mainline Sta. 19+60.51 to Sta. 21+44.23	0.3	22.0	5.9 / 5.9
Mainline Sta. 22+57.57 to Sta. 29+57.47	7.3	604.2	161.3 / 161.3
<b>Temporary Ramps</b>			
Ramp G	18.2	1,516.3	214.1 / 214.1 / 214.1
Ramp H	17.2	1,437.5	204.4 / 204.4 / 204.4
<b>Median Crossovers</b>			
I90 Sta. 535+00 (WB Lanes)	7.9	658.4	123.5 / 103.8
I90 Sta. 566+00 (WB Lanes)	12.0	997.3	191.9 / 162.9
Totals:			
	74.4	6,192.9	2,683.2

**TABLE OF ADDITIONAL QUANTITIES**

Location - Description	Water for Granular Material (MGal)	Gravel Cushion, Salvaged (Ton)	Gravel Surfacing (Ton)	Base Course (Ton)	Asphalt Concrete Composite (Ton)
<b>463<sup>rd</sup> Ave / Western Ave</b>					
Sta. 2+00 to Sta. 4+69.09 - Transition Area	4.9	412.0			
Sta. 4+69.09 to Sta. 5+84.09 - Transition Area	2.4	199.8			
Sta. 15+26.01 to Sta. 15+74.01 - Transition Area	0.8	70.6			
Sta. 18+76.01 to Sta. 19+22.01 - Transition Area	0.8	66.3			
<b>Frontage Road</b>					
Sta. 0+21.57 to Sta. 8+96.07	8.2		684.1		
<b>Ramp A</b>					
Sta. 0+18.77 to Sta. 1+13 - Transition Area	3.2	270.3			
Sta. 1+13 to Sta. 4+23.79 - Transition Area	5.5	459.1			
ML Sta. 4+23.79 to Sta. 5+74.06 - Transition Area	2.4	202.0			
<b>Ramp B</b>					
Sta. 0+18.90 to Sta. 1+15.50 - Transition Area	2.6	213.0			
<b>Ramp C</b>					
Sta. 23+71.88 to Sta. 25+22.15 - Transition Area	2.4	202.0			
Sta. 25+22.15 to Sta. 26+26.34 - Transition Area	1.8	153.9			
Sta. 26+26.34 to Sta. 27+27.85 - Transition Area	3.3	272.4			
<b>Ramp D</b>					
Sta. 31+73.16 to Sta. 32+74.05 - Transition Area	3.0	251.6			
<b>Guardrail Surfacing</b>					
Begin Bridge Lt.	0.8	29.3		41.0	12.4
Begin Bridge Rt.	0.7	24.0		33.6	10.2
End Bridge Lt.	0.8	28.2		39.5	11.9
End Bridge Rt.	0.8	28.2		39.4	11.9
<b>5' Asphalt Concrete Tie-In</b>					
Mainline Sta. 1+95 to sta. 2+00	0.1			10.0	4.6
<b>Drives</b>					
Sta. 1+55 Rt.	0.3			23.7	16.8
<b>Intersecting Streets</b>					
Sta. 5+26 Rt	1.5	115.6		11.2	5.8
Sta. 5+26 Lt	0.6			53.0	22.2
<b>Business Entrances</b>					
Sta. 26+73 Lt	3.3	254.4		23.0	12.8
Totals:					
	45.8	3,252.7		274.4	108.6

## **EXISTING JUNCTION BOXES EJF181 AND EJF182**

Existing junction boxes for fiber optic cable EJF181 and EJF182 were installed with project Minn05T2. 2 runs of 1" Innerduct with a #10 pull wire will be ran with this project completing the connection between EJF181 and EJF182. All cost associated with connecting the 1" Innerduct to the existing junction boxes will be incidental to the contract unit price "1" Innerduct, Sch40".

## **ROADWAY LIGHTING**

The roadway lighting items will be installed as discussed in the plans and the City of Sioux Falls Standard Specifications for Roadway Lighting – Section 635B. The following notes are provided for the Contractor's clarification.

- The Standard Specifications can be viewed online at: <http://www.siouxfalls.org/public-works/engineering/construction-mgmt/resources/specs-policies-manuals>.
- The Contractor will refer to Section A of 635B.3 of the Construction Requirements in the Standard Specifications for the coordination and application process to follow for the electrical services.
- The Contractor will complete both the Roadway Lighting and Traffic Signal Checklists for installation of all items shown on the plans. The checklists can be found at the following website: <http://www.siouxfalls.org/public-works/engineering/construction-mgmt/resources/forms-permits>.
- The proposed luminaire poles will have breakaway transformer bases and will be installed on concrete footings.
- The Contractor will furnish and install all street light wire and will pull all wires through the conduits, junction boxes, and luminaire poles.
- The Contractor will make all line-to-line connections and will furnish and install all items listed under Section 635B.G (Connectors) in the Standard Specifications for fuses, fuse-holder kits, in-line fuse holders, splice kits, stub connection kits and multi-cable connectors to be furnished and installed within the junction boxes, light pole bases and meter locations. This will supersede the requirements stated in the Standard Specifications.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	L3	L40

Revised 2/19/2025 - RR