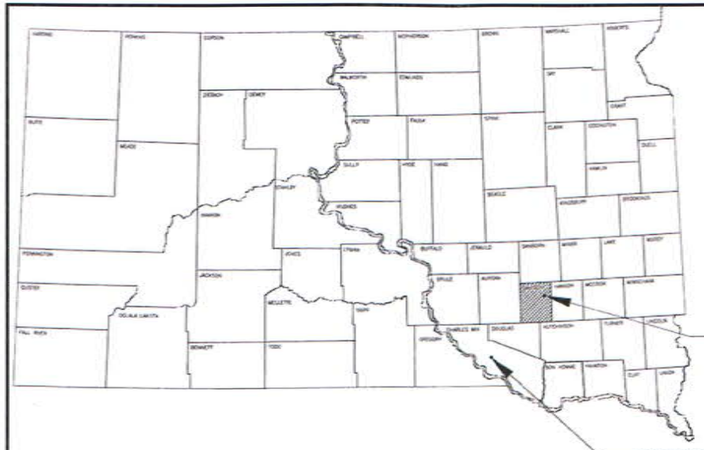
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	1	29

PROJECT P 0ENH (218)
PEDESTRIAN BRIDGE
CITY OF MITCHELL,
DAVISON COUNTY, SD
CHARLES MIX COUNTY, SD

STR. NO. 18-136-069
PCN 03L4



PROJECT LOCATION:
CITY OF MITCHELL,
DAVISON COUNTY, SD

BRIDGE REMOVAL LOCATION:
CHARLES MIX COUNTY, SD

INDEX OF SHEETS

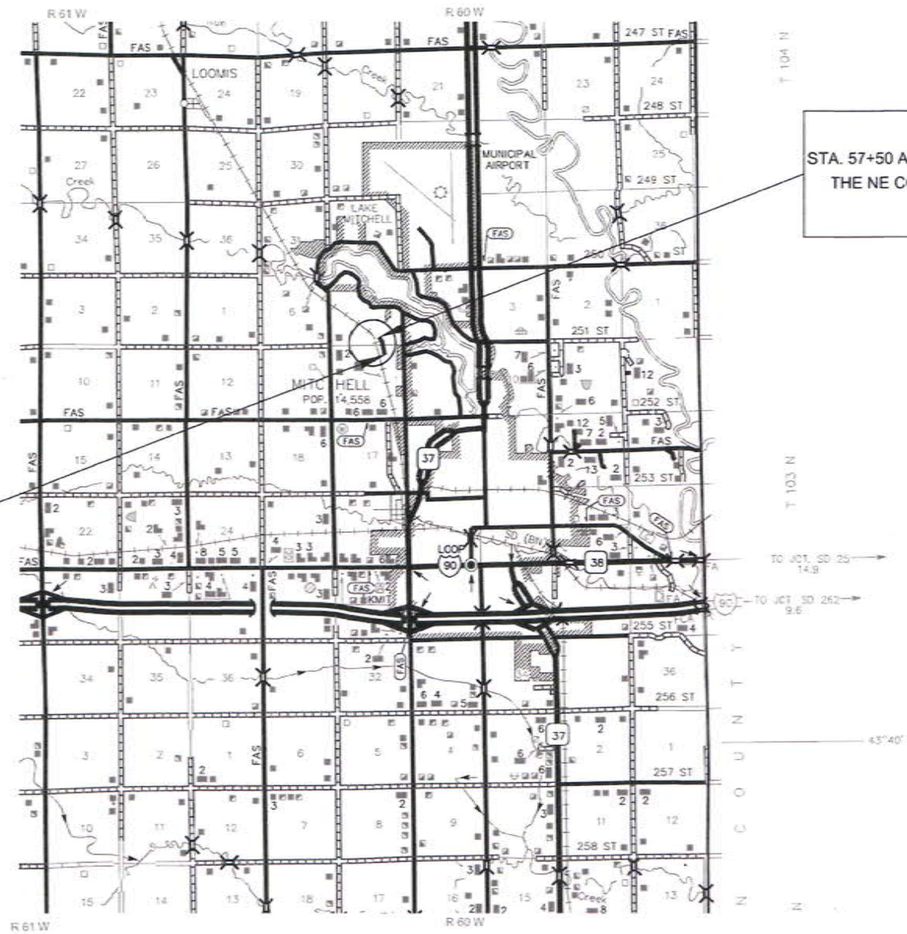
SCALES

PLAN		1 INCH = 100 FT.
PROFILE	HORIZONTAL	1 INCH = 100 FEET
	VERTICAL	1 INCH = 10 FEET
CROSS SECTIONS	HORIZONTAL	1 INCH = 20 FEET
	VERTICAL	1 INCH = 10 FEET

N

STORM WATER PERMIT

Major Stream: Unnamed Creek
Major Receiving Body of Water: Tributary to Lake Mitchell
Latitude: 43.746307° Longitude: -98.056607°
Area Disturbed: 1.1 Acres
Project Area: 1.1 Acres



BEGIN P OENH(218)
STA. 57+50 APPROX. 680' NORTH AND 2644' WEST OF THE NE CORNER OF SECTION 8 TOWNSHIP 103 NORTH - RANGE 60 WEST

END P OENH(218)
STA. 71+00 APPROX. 529' SOUTH AND 2105' WEST OF THE NE CORNER OF SEC. 5 TOWNSHIP 103 NORTH - RANGE 60 WEST

LEGEND

- STATE AND NATIONAL LINE
- COUNTY LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- PROPERTY LINE
- SURVEY LINE
- ROW LINE
- CUT SLOPE
- FILL SLOPE

GROSS LENGTH	1350	FEET	0.26	MILES
LENGTH OF EXCEPTIONS	0	FEET	0	MILES
NET LENGTH	1350	FEET	0.26	MILES
LENGTH OF GRADING	1300	FEET	0.25	MILES

ENGINEER'S CERTIFICATE

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of South Dakota.

Dated this 8th of June, 2015.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA

DONALD J. HAMMOND
REG. NO. 8026

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

Brosz Engineering, Inc. Project No. S12-F919

ESTIMATE OF GRADING QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1690	Remove Sediment	1	CuYd
110E1693	Remove Erosion Control Wattle	141	Ft
110E5451	Salvage Riprap	60.0	Ton
120E0010	Unclassified Excavation	2637	CuYd
230E0010	Placing Topsoil	463	CuYd
250E0020	Incidental Work, Grading	1	LS
700E2010	Place Riprap	60	Ton
730E0204	Type C Permanent Seed Mixture	18	Lb
732E0100	Mulching	3.0	Ton
734E0104	Type 4 Erosion Control Blanket	446	SqYd
734E0154	12" Diameter Erosion Control Wattle	564	Ft
734E0165	Remove and Reset Erosion Control Wattle	141	Ft
734E0325	Surface Roughening	0.6	Acre
734E0510	Shaping for Erosion Control Blanket	335	Ft
831E0110	Type B Drainage Fabric	102	SqYd

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E7000	Select Granular Backfill	139.4	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E4002	Salvage and Relocate Bridge	Lump Sum	LS
410E4010	Install Salvaged Bridge	Lump Sum	LS
420E0100	Structure Excavation, Bridge	50	CuYd
460E0050	Class A45 Concrete, Bridge	77.4	CuYd
460E0150	Concrete Approach Slab for Bridge	21	SqYd
470E0054	Timber Bicycle Railing	164	Ft
480E0100	Reinforcing Steel	14868	Lb
510E3365	HP 10x42 Steel Bearing Pile, Furnish & Drive	1120.0	Ft
541E1207	3"x12" Treated Timber Decking	2456	BdFt
831E0110	Type B Drainage Fabric	47	SqYd

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 15 MGal. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical section shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

There is riprap in place on the project. A portion of this riprap shall be salvaged where it interferes with grading operations. This riprap to be salvaged is shown on the plan and profile sheet. All costs associated with removal, salvage, & stockpiling shall be paid for as plans quantity under bid item "Salvage Riprap". All costs associated with placing riprap shall be paid for as plans quantity under bid item "Place Riprap".

After grading is complete the salvaged riprap shall be reset as directed by the engineer. All costs associated with reset of riprap shall be paid for as plans quantity.

SHRINKAGE FACTOR: Embankment +35%

BIKE PATH SURFACING

The bike path surfacing shall be constructed from Recycled Asphalt Pavement Material. This material shall be provided and installed by the City of Mitchell. To facilitate the surfacing being placed prior to the topsoil, the Contractor shall provide the City with a construction schedule prior to beginning the project.

UTILITIES

The Contractor shall be aware that the existing utilities, if any, shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT D: WATER QUALITY STANDARDS
COMMITMENT D1: SURFACE WATER QUALITY

The Unnamed Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project. Special construction measures shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The Unnamed Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

COMMITMENT D2: SURFACE WATER DISCHARGE (Cont.)

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environmental and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:
http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may be disposed of within the City ROW.
The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

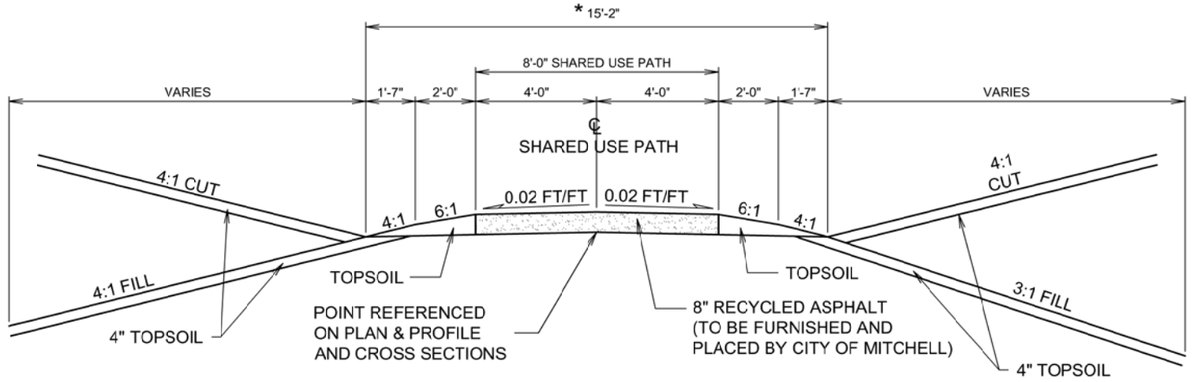
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	4	29

FOR BIDDING PURPOSES ONLY

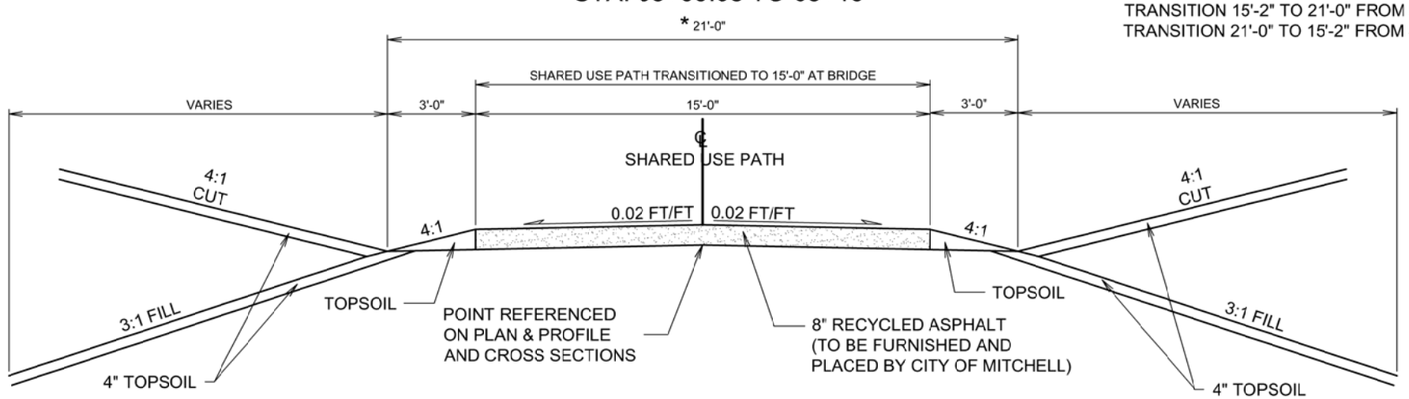
TYPICAL SECTION

SHARED USE PATH

STA. 56+00 TO 62+09
STA. 63+41 TO 73+00



STA. 62+34 TO 62+49.41
STA. 63+00.58 TO 63+16



* NOTE:
TRANSITION 15'-2" TO 21'-0" FROM STA. 62+09 TO 62+34
TRANSITION 21'-0" TO 15'-2" FROM STA. 36+16 TO 36+41

HORIZONTAL ALIGNMENT DATA TABLE

TYPE	STATION	LENGTH	BEARING/DEGREE CURVE/DELTA	NORTHING	EASTING
POB	56+00.00			111945.519	91214.697
		TL=206.79'	S 36°57'29" E		
PC	58+06.79			111780.278	91339.025
PI	63+32.99	R=3175.80'	Dc=01°48'15" Delta=18°48'57" R	111359.801	91655.394
PT	68+49.72			110859.755	91819.241
		TL=9.87'	S 18°08'31" E		
PC	68+59.60			110850.374	91822.314
PI	68+65.10	R=14.00'	Dc=49°15'20" Delta=42°55'18" R	110845.144	91824.028
PT	68+70.08			110840.147	91821.721
		TL=32.63'	S 24°46'47" W		
PC	69+02.71			110810.526	91808.048
PI	69+07.92	R=14.00'	Dc=49°15'20" Delta=40°52'05" L	110805.790	91805.861
PT	69+12.69			110800.779	91807.307
		TL=211.58'	S 16°05'19" E		
PC	71+24.28			110597.483	91865.941
PI	71+29.49	R=14.00'	Dc=49°15'20" Delta=40°52'05" R	110592.471	91867.387
PT	71+34.26			110587.735	91865.200
		TL=32.36'	S 24°46'47" W		
PC	71+66.63			110558.352	91851.636
PI	71+71.83	R=14.00'	Dc=49°15'20" 40°48'39" L	110553.623	91849.453
PT	71+76.60			110548.618	91850.892
		TL=123.40'	S 16°01'52" E		
POE	73+00.00			110430.014	91884.970

Coordinates shown are based on City of Mitchell UTM.
Topographic Survey was provided by City of Mitchell Engineering Departmant.

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The estimated amount of topsoil to be placed is as follows:

Station	to	Station		Topsoil (CuYd)
57+50		71+00	LT	245
57+50		71+00	RT	218
			Total:	463

SURFACE ROUGHENING

Surface roughening shall be done after topsoil placement and before permanent seeding, and mulching applications. Refer to Standard Plate 734.25 for details.

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½" .

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½".

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
	Total:	18

COVER CROP SEEDING

Oats or spring wheat seed shall be used April through July and winter wheat seed shall be used August through November.

Cover crop seeding may be used on this project as a temporary erosion control measure. The quantity of cover crop seeding was estimated at 25% of the disturbed earthen areas. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

All costs associated with cover crop seeding shall be included in the lump sum price for "Incidental Work, Grading".

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

An additional 1 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction for temporary stabilization.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

An additional quantity of 48 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the Bike Path.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

REMOVE EROSION CONTROL WATTLE

Erosion control wattles shall be removed when vegetation is established. Some or all of the erosion control wattles may be left on the project until vegetation is established.

REMOVE AND RESET EROSION CONTROL WATTLE

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for “Remove and Reset Erosion Control Wattle”.

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 12 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

The erosion control blanket provided shall be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

http://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp

The Contractor shall install erosion control blanket according to the manufacturer’s installation instructions.

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for “Shaping for Erosion Control Blanket”.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES*

❖ SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area (4.2 1.b.)**
- **Total Area To Be Disturbed (4.2 1.b.)**
- **Existing Vegetative Cover (%)**
- **Soil Properties:** USDA-NRCS Soil Series Classification BhD (Betts Ethan Loams 6 to 21 percent slopes) **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Lake Mitchell **(4.2 1.e.)**

❖ ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Complete final surfacing.**
- **Reseed areas disturbed by removal activities**.

❖ EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☒ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☒ Mulching (Grass Hay or Straw)
  - ☐ Hydraulic Mulch (Wood Fiber Mulch)
  - ☐ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☒ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☒ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
  - ☐ Other:

- **Structural Temporary Erosion and Sediment Controls**
  - ☐ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☐ Turf Reinforcement Mat
  - ☐ Rip Rap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☐ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☐ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☐ Concrete Washout Area
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ Other:

- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**

    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**

    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ Maintenance and Inspection (4.2 3. and 4.2 4.)

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^1/_3$ of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ Non-Storm Water Discharges (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

❖ Materials Inventory (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☐ Petroleum Based Products
- ☐ Cleaning Solvents
- ☐ Wood
- ☒ Cure
- ☒ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

❖ **Spill Prevention (4.2 2.c.(2))**

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the contractor.
  - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➢ **Product Specific Practices (6.8)**

- Petroleum Products
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Fertilizers
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- Paints
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- Concrete Trucks
  Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➢ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

➢ A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:

- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

❖ CERTIFICATIONS

➢ Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ South Dakota Department of Transportation

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Tom Hollenbeck

Authorized Signature (See the General Permit, Section 6.7.1.C.)

➢ Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature

❖ CONTACT INFORMATION

➢ Contractor Information:

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ Erosion Control Supervisor

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ SDDOT Project Engineer

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ SD DENR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ SD DENR Contact for Hazardous Materials.

- (605) 773-3153

➢ National Response Center Hotline

- (800) 424-8802.

EROSION AND SEDIMENT CONTROL PLAN

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	10	29

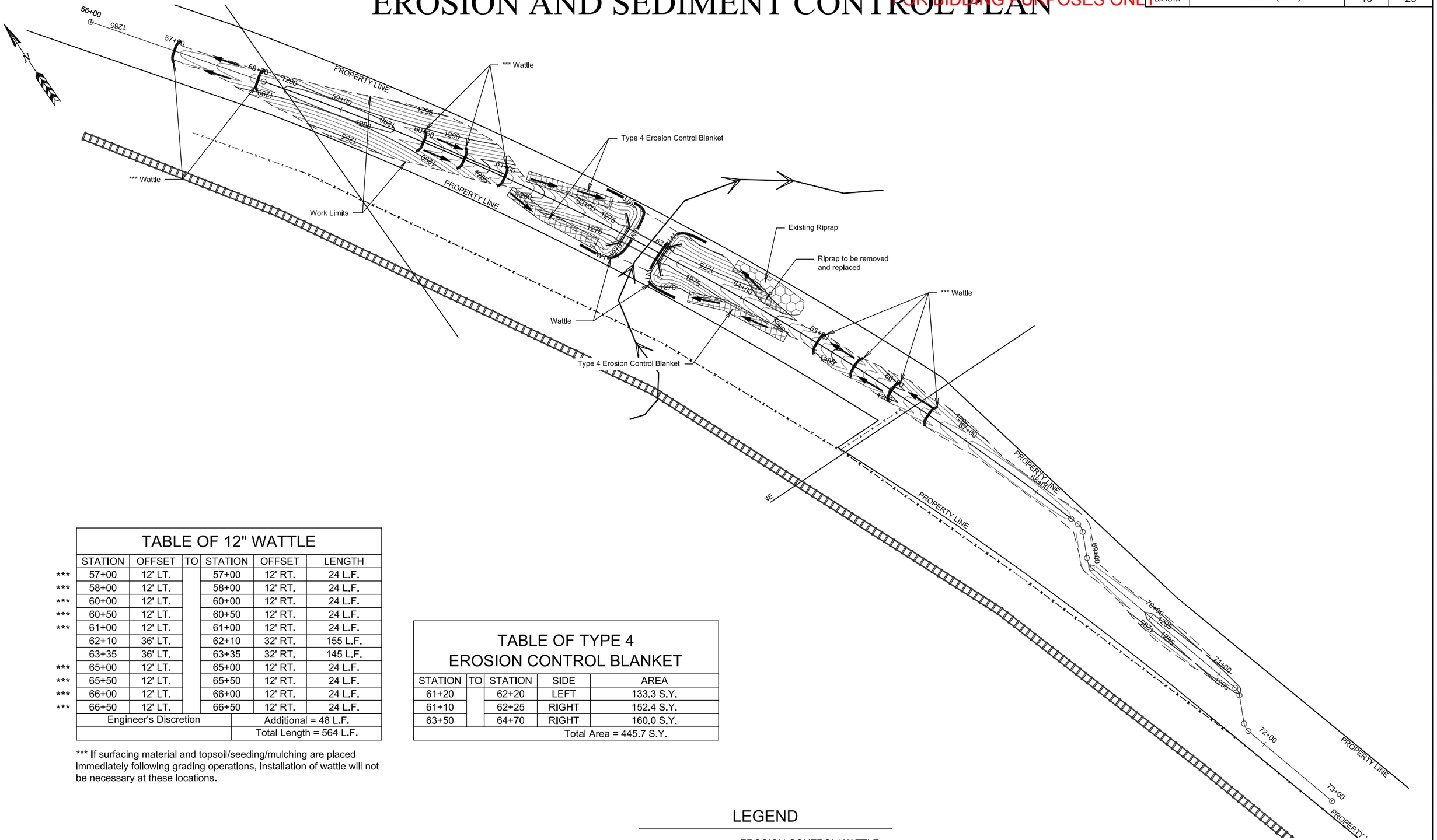


TABLE OF 12" WATTLE

	STATION	OFFSET	TO	STATION	OFFSET	LENGTH
***	57+00	12' LT.		57+00	12' RT.	24 L.F.
***	58+00	12' LT.		58+00	12' RT.	24 L.F.
***	60+00	12' LT.		60+00	12' RT.	24 L.F.
***	60+50	12' LT.		60+50	12' RT.	24 L.F.
***	61+00	12' LT.		61+00	12' RT.	24 L.F.
	62+10	36' LT.		62+10	32' RT.	155 L.F.
	63+35	36' LT.		63+35	32' RT.	145 L.F.
***	65+00	12' LT.		65+00	12' RT.	24 L.F.
***	65+50	12' LT.		65+50	12' RT.	24 L.F.
***	66+00	12' LT.		66+00	12' RT.	24 L.F.
***	66+50	12' LT.		66+50	12' RT.	24 L.F.
Engineer's Discretion					Additional = 48 L.F.	
					Total Length = 564 L.F.	

*** If surfacing material and topsoil/seeding/mulching are placed immediately following grading operations, installation of wattle will not be necessary at these locations.

TABLE OF TYPE 4 EROSION CONTROL BLANKET

STATION	TO	STATION	SIDE	AREA
61+20		62+20	LEFT	133.3 S.Y.
61+10		62+25	RIGHT	152.4 S.Y.
63+50		64+70	RIGHT	160.0 S.Y.
Total Area = 445.7 S.Y.				

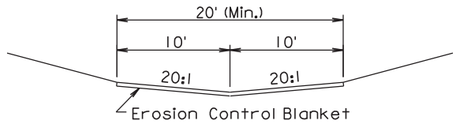
LEGEND

WT — EROSION CONTROL WATTLE

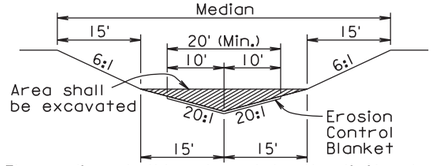
FLOW DIRECTION

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

FOR BIDDING PURPOSES ONLY

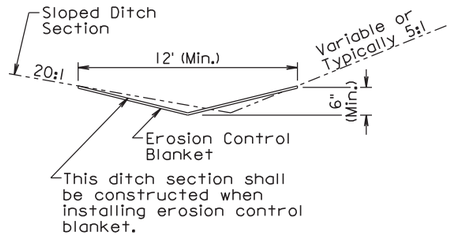


STANDARD DITCH SECTION

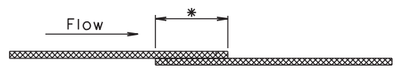


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



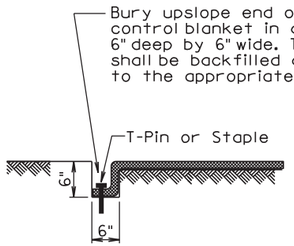
SLOPED DITCH SECTION



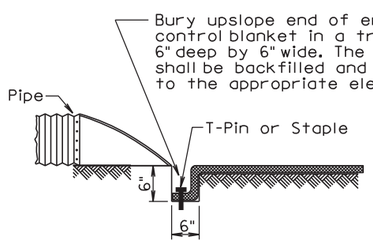
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

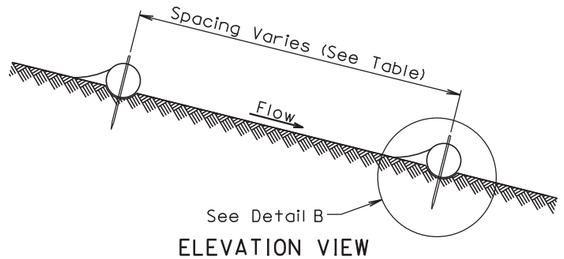
The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

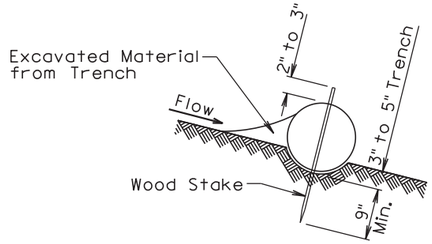
December 23, 2004

Published Date: 2nd Qtr. 2015	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

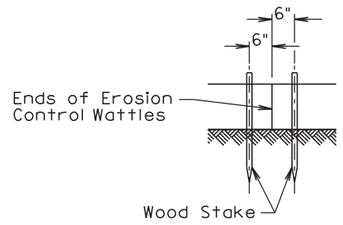


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

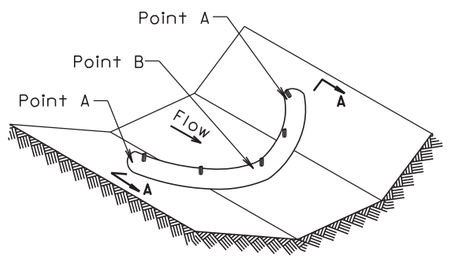
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



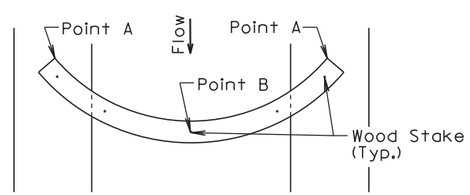
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

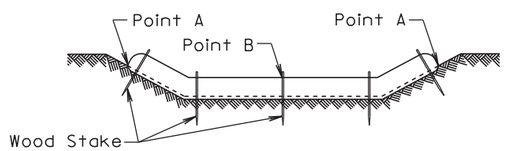


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

December 23, 2004

Published Date: 2nd Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

FOR BIDDING PURPOSES ONLY

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than ½". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

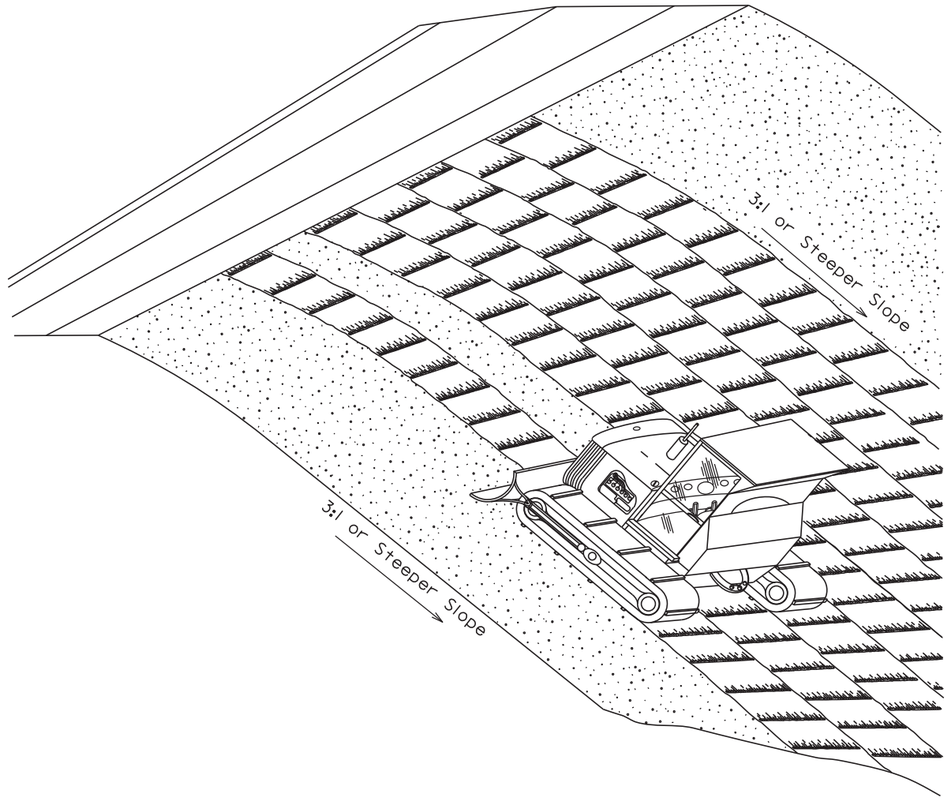
Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

Published Date: 2nd Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2



GENERAL NOTES:

Where practical, surface roughening shall be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening shall be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening shall be approved by the Engineer.

Measurement for surface roughening shall be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials shall be incidental to the contract unit price per acre for "Surface Roughening".

June 26, 2009

Published Date: 2nd Qtr. 2015	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	13	29

FOR BIDDING PURPOSES ONLY

62+49.41 to 63+00.58 Install 49'-4" Pony Truss Retrofitted Bridge with concrete abutments.

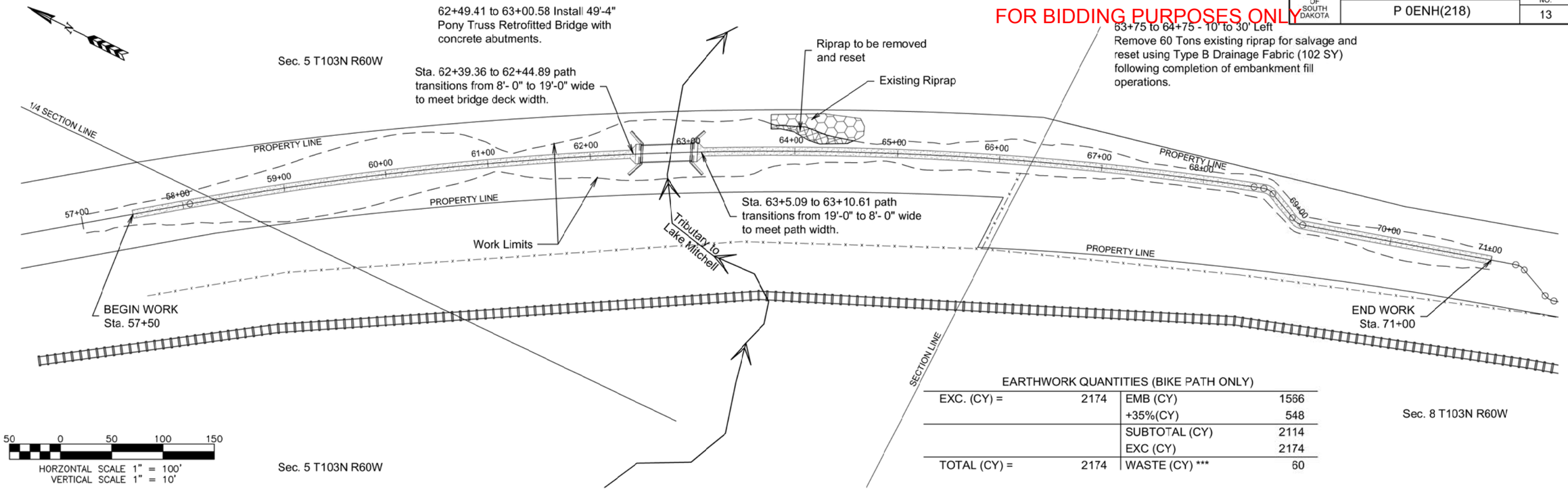
Sec. 5 T103N R60W

Sta. 62+39.36 to 62+44.89 path transitions from 8'- 0" to 19'-0" wide to meet bridge deck width.

Riprap to be removed and reset

Existing Riprap

63+75 to 64+75 - 10' to 30' Left
Remove 60 Tons existing riprap for salvage and reset using Type B Drainage Fabric (102 SY) following completion of embankment fill operations.

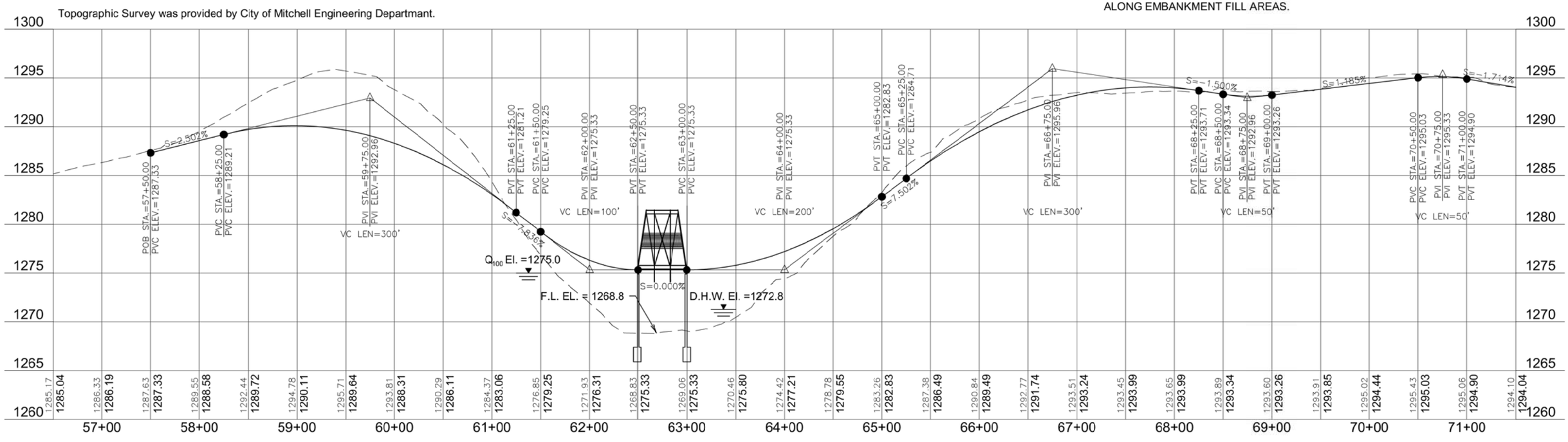


EARTHWORK QUANTITIES (BIKE PATH ONLY)

EXC. (CY) =	2174	EMB (CY)	1566
		+35%(CY)	548
		SUBTOTAL (CY)	2114
		EXC (CY)	2174
TOTAL (CY) =	2174	WASTE (CY) ***	60

*** WASTE TO BE PLACED ALONG EMBANKMENT FILL AREAS.

Topographic Survey was provided by City of Mitchell Engineering Department.



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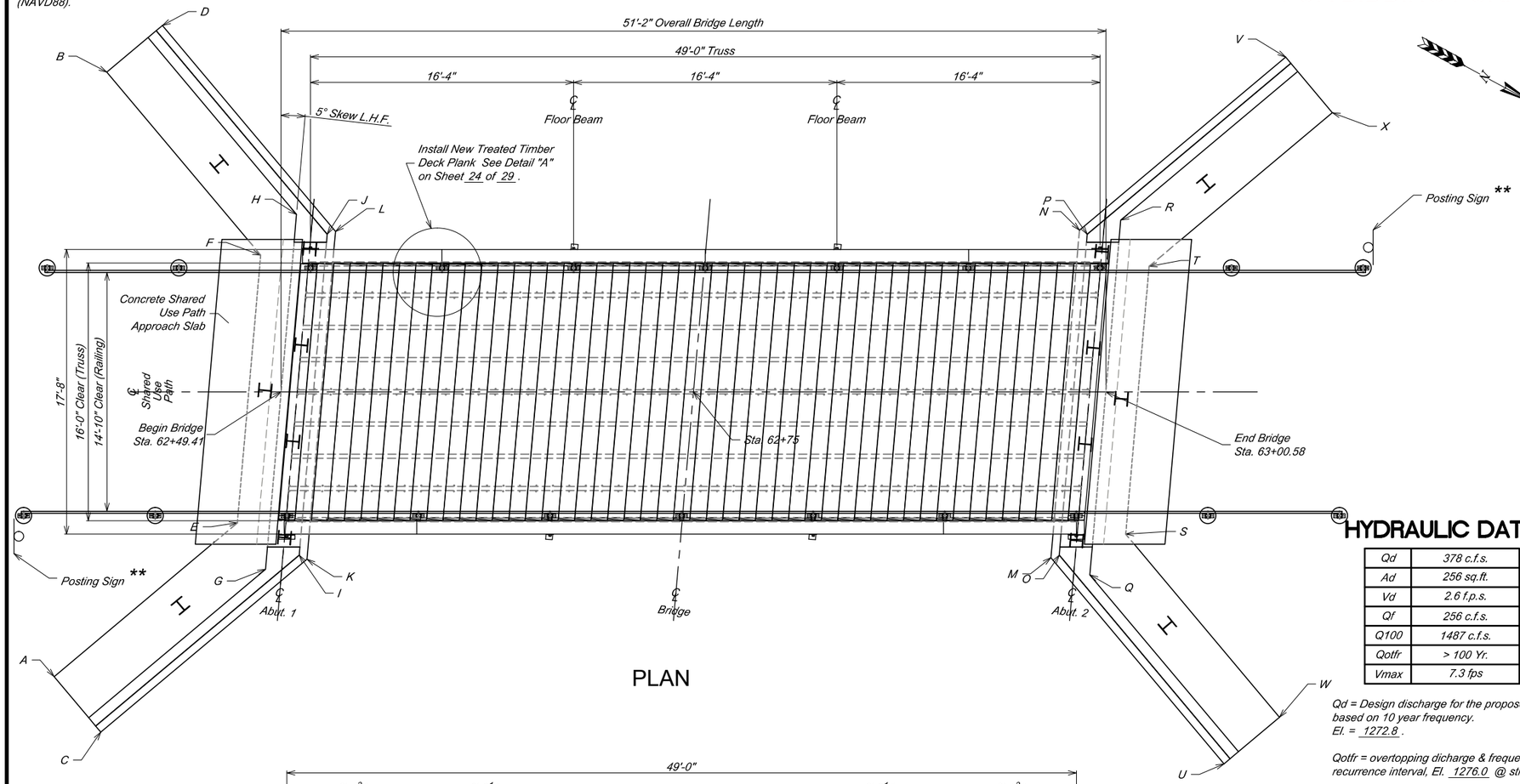
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

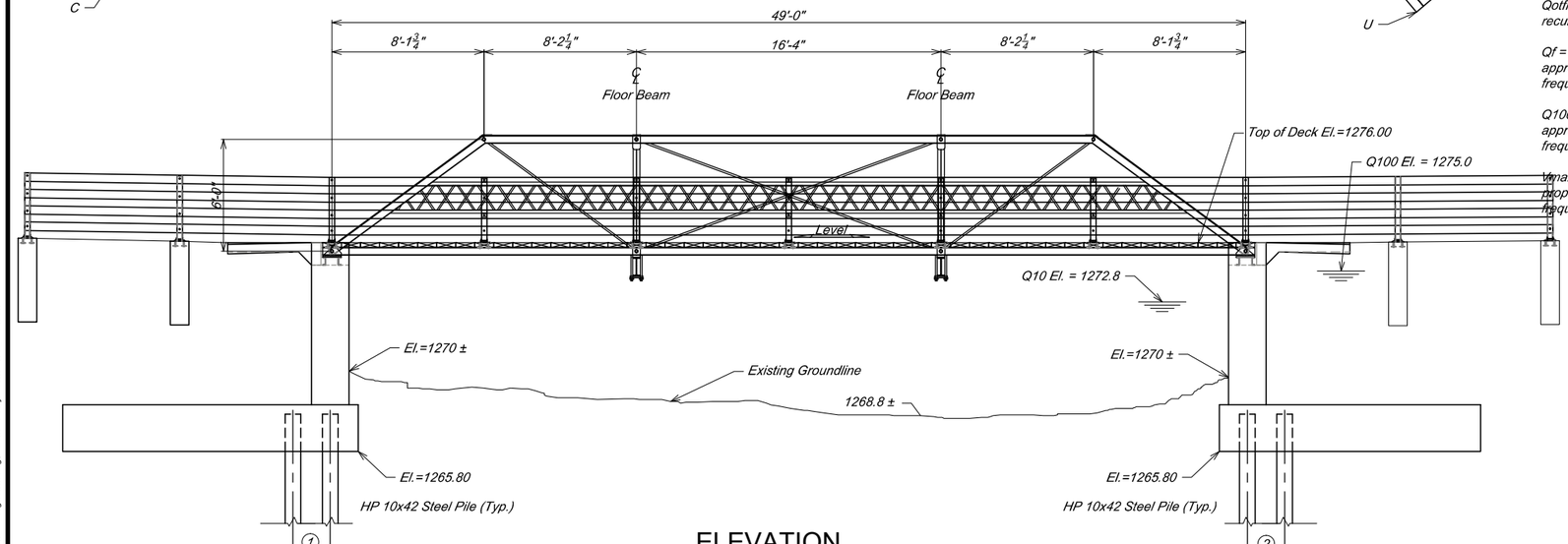
The Elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	14	29



PLAN



ELEVATION

HYDRAULIC DATA

Qd	378 c.f.s.
Ad	256 sq.ft.
Vd	2.6 f.p.s.
Qf	256 c.f.s.
Q100	1487 c.f.s.
Qotfr	> 100 Yr.
Vmax	7.3 fps

Qd = Design discharge for the proposed bridge based on 10 year frequency. El. = 1272.8 .

Qotfr = overtopping dicharge & frequency 100 yr. recurrence interval, El. 1276.0 @ structure.

Qf = designated peak discharge for the basin approaching proposed project based on 10 year frequency.

Q100 = computed discharge for the basin approaching proposed project based on 100 yr. frequency. El. 1275.0 .

Vmax = maximum computed outlet velocity for the proposed bridge, based on a 100 year frequency.

INDEX OF BRIDGE SHEETS -

** *Contractor Shall Install Load Posting Signs at each end of bridge that read "Weight Limit 5 Tons" off each end of the bridge.*

Sign shall be Type R12-1, Size shall be 24"x30", and Location shall be as Specified in the Most Recent Edition of the Manual on Uniform Traffic Control Devices (MUTCD) and shall be Approved by the Engineer.

Signs shall be incidental and Paid for in the Bid Item "Incidental Work, Structure"

STATION/OFFSET TABLE

POINT	STATION	OFFSET
A	62+35.33	17.68' R
B	62+38.60	19.85' L
C	62+38.22	21.13' R
D	62+42.05	22.75' L
E	62+46.69	8.14' R
F	62+48.14	8.49' L
G	62+50.37	11.01' R
H	62+50.37	11.01' L
I	62+50.54	10.19' R
J	62+52.27	9.79' L
K	62+51.01	10.39' R
L	62+52.74	9.95' L
M	62+97.19	10.13' R
N	62+98.97	10.21' L
O	62+97.71	9.96' R
P	62+89.45	9.96' L
Q	62+99.60	11.19' R
R	63+01.53	10.84' L
S	63+01.83	8.66' R
T	63+03.28	7.97' L
U	63+07.93	22.82' R
V	63+11.75	20.96' L
W	63+11.37	20.03' R
X	63+14.65	17.51' L

GENERAL DRAWING

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — 1 OF 13

PLANS BY:	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109	DH	EC/DH	DH/DC	BRIDGE ENGINEER

Brosz Engineering, Inc. Proj. No. S12-F919

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E7000	Select Granular Backfill	139.4	Ton
250E0030	Incidental Work, Structure	Lump Sum	Lump Sum
410E4002	Salvage and Relocate Bridge	Lump Sum	Lump Sum
410E4010	Install Salvaged Bridge	Lump Sum	Lump Sum
420E0100	Structure Excavation, Bridge	50	CuYd
460E0050	Class A45 Concrete, Bridge	77.4	CuYd
460E0150	Concrete Approach Slab for Bridge	21	SqYd
470E0054	Timber Bicycle Railing	164	Ft
480E0100	Reinforcing Steel	14868	Lb
510E3365	HP 10x42 Steel Bearing Pile, Furnish & Drive	1120	Ft
541E1207	3"x12" Timber Deck Plank	2456.1	BdFt
831E0110	Type B Drainage Fabric	47	SqYd

SPECIFICATION:

Design Specifications: AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges, 2nd Edition with 2015 Interims.

Construction Specifications: Specifications for Roads and Bridges, 2004 Edition and required provisions, supplemental specifications and special provisions as included in the proposal.

BRIDGE DESIGN LOADING

The truss, deck, and abutments are designed to carry H5 Truck or Equivalent Pedestrian Load.

DESIGN MATERIAL STRENGTHS

Concrete	f'c = 4,500 psi
Reinforcing Steel	fy = 60,000 psi
Piling (ASTM A572 Grade 50)	fy = 50,000 psi

DESIGN MIX OF CONCRETE

All structural concrete shall be Class A45 unless otherwise indicated.

All structural concrete shall be as specified in Section 460 of the Specifications. No variance from the specifications will be allowed except as noted in these plan notes. Any concrete not meeting the requirements of this section shall be removed and disposed of off the site at the contractor's expense.

Type II cement conforming to Section 750 is required.

Coarse aggregate to be used in concrete shall consist of either crushed quartzite or other crushed ledge rock. If crushed ledge rock other than quartzite is to be used, it shall be from a source approved by the Engineer.

CAST IN PLACE ABUTMENTS

All abutment concrete shall have attained design strength prior to backfilling.

All mild reinforcing steel shall conform to ASTM A615, Grade 60.

All exposed concrete corners and edges shall be chamfered 3/4" unless noted otherwise.

Use 2" clear cover on all reinforcing steel except as shown.

Contractor shall imprint on the structure the date of the original truss bridge construction and below that the date for the new construction as specified and detailed on sheet 13 of 13 and using the year plate details/dimensions illustrated on Standard Plate No. 460.02.

Request for construction joints or resteel 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 resteel.

PILING

HP 10x42 Piling were designed using a factored bearing resistance of 77 tons per pile. All piling shall develop a field verified nominal bearing resistance of 192 tons per pile.

Piles shall not be driven out of position by more than two inches in any direction. A pile-driving template shall be used to insure this accuracy.

Shop & field welding and welding inspection shall be done in accordance with ANSI/AASHTO/AWS D 1.5-2002 Bridge Welding Code.

SDDOT's Pile Driving Equation for LRFD

LRFD Platform:

To determine the nominal bearing capacity of driven piles the SDDOT uses the below for timber, concrete, steel H-piling and shell type piles.

For gravity (drop) hammers the following form is used.

$$Q\ (drive) = \frac{10.5WH}{S + 0.35} \times \frac{W}{W + M}$$

For Double Action Steam or Air Hammers and Closed Cylinder Top Diesel Hammers:

$$Q\ (drive) = \frac{10.5E}{S + 0.1} \times \frac{W}{W + M}$$

For Single Action Steam or Air Hammers and Open Cylinder Top Diesel Hammers:

$$Q\ (drive) = \frac{10.5WH}{S + 0.1} \times \frac{W}{W + M}$$

Where:

Q = the nominal pile bearing resistance in **tons**
W = the weight of a gravity hammer, or the ram of an energy hammer in **tons**.
H = the height of free fall of the hammer or ram in **feet**.
M = the weight in **tons** of the driven mass and shall include the weight of the pile, the weight of the driving cap and the weight of the anvil, if used.
E = the energy per blow in **foot-tons**.
S = the average penetration in **inches** of the pile per blow for the last five blows for gravity hammers and last 10 blows for energy hammers.

A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The pile hammers listed below were evaluated and found to produce acceptable driving stresses. Pile hammers not listed will require evaluation and approval prior to use from the Geotechnical Engineering Activity.

Delmag D16-32
Delmag D30-32
Delmag D19-42
Delmag D19-32
Delmag D12-42

APPROACH SLABS

The concrete in the reinforced concrete approach slabs adjacent to the bridge shall be paid for at the contract unit price per square yard for "Concrete Approach Slab for Bridge". This payment will be full compensation for all excavation, furnishing, hauling and placing all materials including concrete, reinforcing steel; for disposal of all excavated and surplus materials; and for all labor, tools, equipment and incidentals necessary to complete this item of work.

SALVAGED TRUSS

In place is an existing 49'-4" single span 3-panel Pratt style pony truss found in Charles Mix County shall be removed for reset on this project.

All costs for preparing, removal, & transporting of existing bridge for reset will be paid for under Lump Sum bid item "Salvage & Relocate Bridge".

All costs for erecting the salvaged bridge at new location will be paid for under Lump Sum Bid Item "Install Salvaged Bridge".

The forgoing is a general description of the incidental work involved, and shall not be construed to be complete in all details.

ESTIMATE OF STRUCTURE QUANTIES AND NOTES FOR
CITY OF MITCHELL BIKE PATH HISTORICALTRUSS INSTALLATION
Str. No. 18-136-069

December 2012 2 13

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
PLK	BWW	DJH	Kevin N Goodin BRIDGE ENGINEER

SALVAGED TRUSS (CONT.)

All details and dimension of the existing bridge, contained in these plans, are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary dimension affecting the satisfactory completion of the work required for this project. The existing bridge, No. 12-317-190, is located on 287th Street in Charles Mix County between sections 8-17, T97N, R66W, approximately 1.5 miles south and 1 mile east of Geddes.

The estimated weight of the salvaged truss material is 14,000 pounds.

The Contractor shall remove and salvage the bridge delineator signs and timber deck plank for the Charles Mix County Highway Department. They shall be placed neatly in the ditch near the bridge.

The Contractor shall disconnect the truss from the existing concrete abutments. Pinned abutment bearings are bolted to a channel & plate bearing cap assembly. There are no apparent fasteners of bearing caps to the concrete abutment sill, however, the contractor shall ensure that some tie-down mechanism does not exist prior to lifting the truss.

The Contractor shall stabilize the existing truss for transportation. There are 4 missing bolts/rivets in each of the top chord truss splices. They shall be replaced with ½" diameter x 2" A307 bolts. The remaining bolts and rivets shall be checked prior to transportation to ensure that they are tight, in place, and functional. Lateral braces shall be placed across the truss top chords to protect against damage during shipping.

The truss shall be lifted from the ends only.

The contractor shall submit a plan for bracing and transporting truss to the engineer.

The Contractor shall repair any damage done during loading, transporting and resetting truss members, at his own expense.

Contractor shall inspect the truss for any missing, loose, or damaged members or connections. Contractor shall repair or replace any missing or damaged members or hardware.

All costs for repairing or replacing any missing or damaged members or hardware shall be included in the lump sum price for "Incidental Work, Structure".

Contractor shall ensure upon reset that all main structural members have equal tension.

Existing timber deck planking shall be removed and replaced with new. The new decking shall be secured by C-Clips as detailed in these plans.

PERMANENT SIGNING

Contractor shall install Load Posting Signs off each end of the bridge. The sign shall read "Weight Limit 5 Tons".

Sign Type shall be R12-1, Size shall be 24"x30", and Location shall be determined as Specified in the Most Recent Edition of the Manual on Uniform Traffic Control Devices (MUTCD) and shall be approved by the Engineer.

Sign sheeting shall be Type IV as per ASTM D4956. Installation will be to the satisfaction of the Engineer.

All costs for installation of the posting signs, including hardware, shall be included in the lump sum price for "Incidental Work, Structure".

BOLTED CONNECTIONS

Bolts shall be A325 where the stringers are bolted to the floor beams. Bolts connecting the timber decking to the stringers shall be A307.

For informational purposes it is estimated that there are 294 bolts required for deck connections.

STRUCTURAL STEEL

Any new structural steel items shall be A36 steel. New structural steel shall be galvanized according to ASTM A123.

All costs associated with Structural Steel shall be incidental to lump sum bid item "Install Salvaged Bridge".

BOLT TESTING

The certified mill test reports for all bolts used on the project shall include the test results for all of the testing specified in section 972.2.D of the 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.

TIMBER BICYCLE RAILING

Bicycle railing shall be Treated Timber on Structural Steel Posts as detailed in these plans. New structural steel tubing rail posts on the bridge shall be bolted to the angle iron and attached to the existing angle iron lattice rail as detailed in these plans. New Structural Steel Posts on the approach shall be mounted on concrete anchors as detailed in these plans. The concrete for the anchors shall be M6.

Timber Railing members shall be 2"x6" treated timber attached to the 3 ½" x 3 ½" x ¼" structural steel tube posts.

All rail posts shall be built vertically.

All structural steel parts for railing shall conform to ASTM A500, Grade B. Material less than ¼" thick may be ASTM A1011, Grade 36. Rail post base plates shall conform to ASTM A709, Grade 36.

All anchor bolts, button head bolts, and nuts for railing shall conform to ASTM A307. Washers shall conform to ASTM F436 and all components shall be galvanized in accordance with ASTM A153 or ASTM F2329, as applicable. The bolts shall be hex head "structural" type with heavy hex nuts and round washers.

All anchor bolts shall be tightened to a torque of 120 ft.-lbs. (approximated without the use of a calibrated torque wrench).

All steel rail posts shall be painted in accordance with Section 411 of the Specifications and the color shall be an approved brown (Federal Standard 595B Color 30045).

Welding & Weld Inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code-Steel.

The costs of structural steel, welding, weld inspection, painting and galvanizing shall be incidental to the contract unit price per foot for "Timber Bicycle Railing".

Timber shall be treated with Ammoniacal copper zinc arsenate, pentachlorophenol, copper naphthenate, or chromated copper arsenate. The preservative treatment shall be in accordance with AWPA Standards as referenced in AASHTO M133. It is preferable to utilize a coating with a brown color or one that weathers brown.

The steel angles connecting the rail posts to the existing lattice rail shall be A36 steel and shall be galvanized according to ASTM A123.

Timber Bicycle Railing shall be paid for per foot under "Timber Bicycle Railing" and all hardware shall be incidental to the "Timber Bicycle Railing" Item.

TIMBER DECKING

New timber decking shall be attached to the steel stringers with "C" Clips & bolts as detailed in these plans. Timber decking will be "Rough Sawn".

Timber shall be treated with Ammoniacal copper zinc arsenate, pentachlorophenol, copper naphthenate, or chromated copper arsenate. The preservative treatment shall be in accordance with AWPA Standards as referenced in AASHTO M133.

Payment for Timber Decking shall be at the contract unit price per Board Feet (BdFt) for "3"x12" Timber Deck Plank", and shall be full compensation for furnishing, and installing the Timber Decking, including all necessary hardware.

One board foot (BdFt) = 12"x12"x1" (nominal dimensions). One lineal foot of 3"x12" Timber Deck Plank = 3 BdFt

NOTES
FOR
CITY OF MITCHELL BIKE PATH
Str. No. 18-136-069

December 2012

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
PLK	BWW	DJH	BRIDGE ENGINEER

WEEP HOLES

Structural fill soils and abutment backfill materials should be provided with a means of positive drainage through the use of a foundation weep holes as detailed in these plans. Type B Drainage fabric shall be placed between fill soil and select granular backfill material. The Type B fabric shall cover weep holes adequately prior to backfilling the select granular material to prevent spillage into weep holes.

2" Diameter Weep Holes shall be cast into each back wall, to allow for proper drainage, at the locations shown in these plans. PVC pipe may be used to form weep holes. If unbroken, and weep holes are unobstructed, the PVC pipe may be left in place after construction.

All costs associated with furnishing and installing Weep Holes shall be incidental to the contract unit price per cubic yard of "Class A45 Concrete, Bridge".

INSTALL ANCHOR RODS IN CONCRETE

Holes drilled in the existing concrete shall be true and normal or as shown in the plans. Care shall be taken not to damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the plans may have been placed out of position. Therefore, prior to the start of drilling any holes in the concrete, an effort shall be made by the Contractor to mark on the concrete surface where practical any locations of in-place reinforcing steel. The Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the engineer to miss the existing reinforcing steel.

The epoxy resin mixture shall be of a type for bonding steel to hardened concrete and shall conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881,Type IV, Grade 3.)

The diameter of the drilled holes shall not be less than 1/8 inch nor more than 3/8 inch greater than the diameter of the rods or as per the Manufacturer's recommendations. The drilled holes shall be blown out with compressed air using a devise that will reach the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

Mix epoxy resin as recommended by the Manufacturer and apply by and injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes 1/3 to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the anchor rod. Rotate the anchor rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping method will not be allowed.

No loads shall be applied to the epoxy grouted rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer. Anchor Rods shall be fully threaded 1" diameter rods 40" long conforming to ASTM F1554 Gr. 105 and shall be galvanized according to ASTM A153.

On one abutment a 1 1/8" diameter hole shall be drilled or cut through the top plate of the existing bearing cap to accommodate the new anchor bolts. The nuts shall be fastened ½ turn after making contact with the bearing assembly plate. On the opposite abutment a 1 1/8" wide by 2" long slotted hole shall be cut or drilled into the bearing cap plate. The nut on this cap shall not be completely tightened to allow for longitudinal expansion/contraction of the bridge. There shall be a gap left of ¼" between the anchor nut and the truss or bearing assembly. The anchor bolts shall be centered in the slot to allow for movement in each longitudinal direction.

All costs associated with furnishing and installing Anchor Rods shall be incidental to the contract unit price per cubic yard of "Class A45 Concrete, Bridge".

NOTES
FOR
CITY OF MITCHELL BIKE PATH
Str. No. 18-136-069

December 2012

4 13

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
PLK	BWW	DJH	Kevin N Boeder BRIDGE ENGINEER

Hole Number	Y3
Station	62+36
Depth	5.3 ft
Soil Color	Black
Classification	Silt-Sand
Strength (Q_u)	736 psf
Dry Density	103.3 pcf
Wet Density	126.2 pcf
Moisture	22.1 %
Pass No. 10	94.9 %
Pass No. 40	79.7 %
Pass No. 200	34.0 %
Sand Content	60.9 %
Silt Content	21.8 %
Clay Content	12.1 %

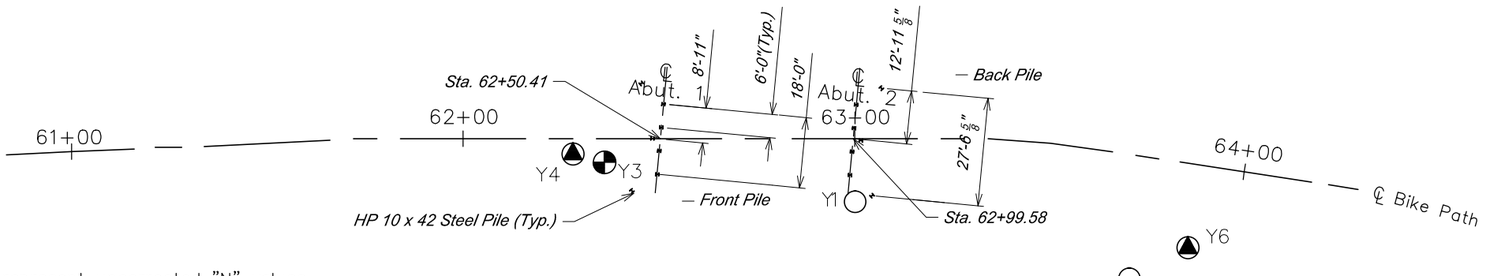
Hole Number	Y3
Station	62+36
Depth	8.7 ft
Soil Color	Mottled-Brown
Classification	Silt-Clay
Strength (Q_u)	6789 psf
Dry Density	98.4 pcf
Wet Density	122.1 pcf
Moisture	24.0 %
Pass No. 10	97.6 %
Pass No. 40	91.3 %
Pass No. 200	70.1 %
Sand Content	27.5 %
Silt Content	36.1 %
Clay Content	34.0 %

Hole Number	Y3
Station	62+36
Depth	15.3 ft
Soil Color	Gray
Classification	Sand-Clay
Strength (Q_u)	5118 psf
Dry Density	100.3 pcf
Wet Density	123.8 pcf
Moisture	23.5 %
Pass No. 10	96.4 %
Pass No. 40	89.4 %
Pass No. 200	68.4 %
Sand Content	28.1 %
Silt Content	36.7 %
Clay Content	31.6 %

Hole Number	Y3
Station	62+36
Depth	25.3 ft
Soil Color	Gray
Classification	Clay-Silt
Strength (Q_u)	4661 psf
Dry Density	106.0 pcf
Wet Density	128.6 pcf
Moisture	21.3 %
Pass No. 10	92.4 %
Pass No. 40	84.4 %
Pass No. 200	62.4 %
Sand Content	29.9 %
Silt Content	37.7 %
Clay Content	24.8 %

Hole Number	Y6
Station	62+36
Depth	65.7 ft
Soil Color	Gray
Classification	Silt-Sand
Strength (Q_u)	11,494 psf
Dry Density	122.9 pcf
Wet Density	138.9 pcf
Moisture	13.1 %
Pass No. 10	80.3 %
Pass No. 40	46.7 %
Pass No. 200	32.2 %
Sand Content	48.1 %
Silt Content	17.1 %
Clay Content	15.1 %

Penetration tests are conducted by dropping a 140 pound hammer 30 inches to obtain 2 inch nominal diameter samples and to measure the resistance to penetration of the soil.

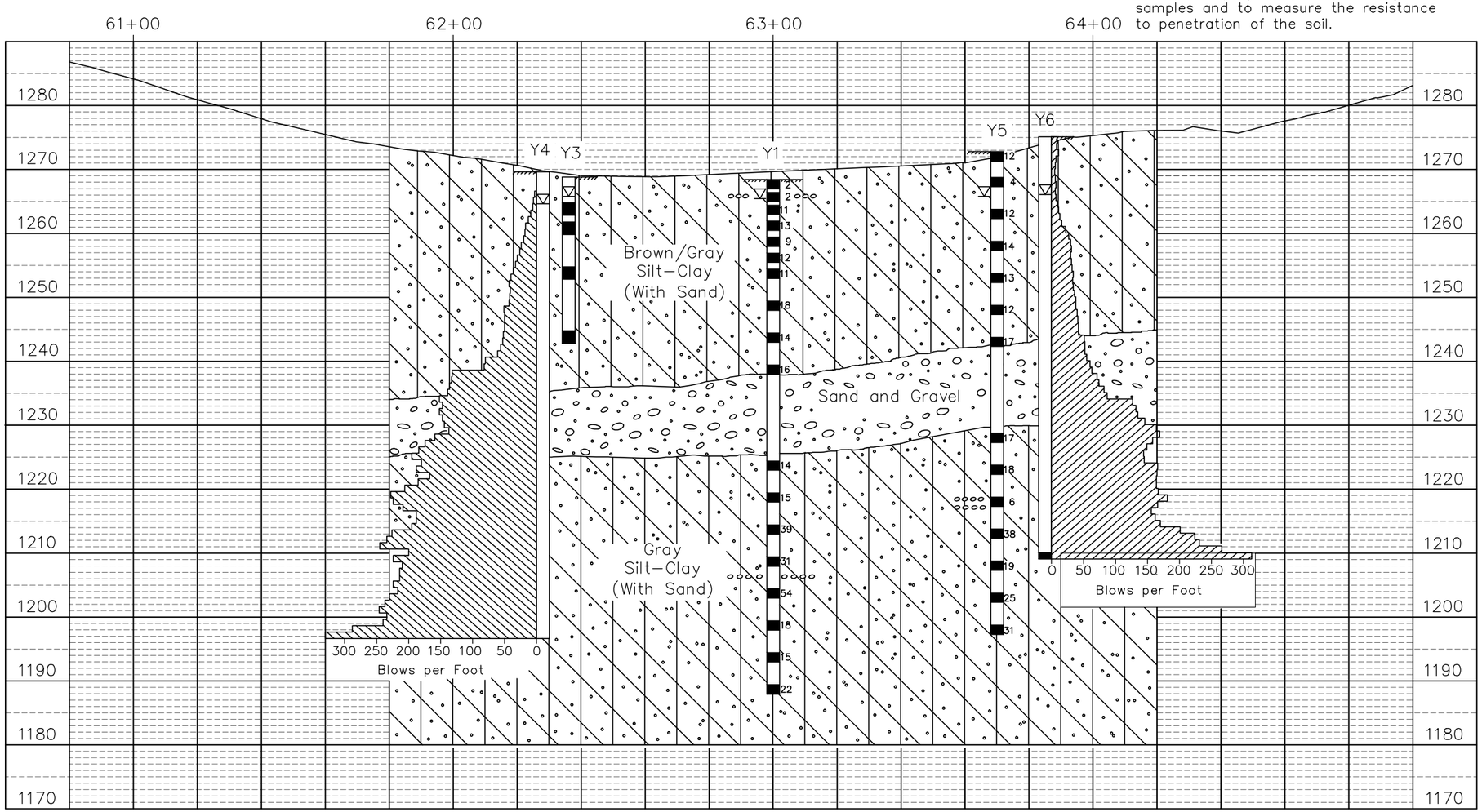


PILING LAYOUT

* Values represent uncorrected "N" values from Penetration Test.

Blows Per Foot 48 Sample Zone

Drive test are conducted by dropping a 490 pound hammer 30 inches to drive a 2 7/8 ‡inch drill stem with attached retractable plug sampler for taking samples and to measure the resistance to penetration of the soil.



Glaciated Terrain contains all sizes of natural mineral sediment ranging from clay to boulders. Streams originating in or flowing through glaciated topography contain sediment loads derived from glaciated sources. Stream and river crossings contain sediment naturally sorted and randomly concentrated. Alluvial sediment located at this project location may have concentrated coarser gravel such as pebbles, cobbles and boulders. The borings shown only represent material that was found at the exact location of the small diameter drill hole. Coarse granular material may be present in areas not penetrated by the depicted borings.

The Geotechnical Engineering Activity has on file all of the boring logs for this project. These logs and additional results of laboratory test, if any, are available for review at the Central Office in Pierre.

LEGEND

Auger Test · Drive Test · Water · Caved · Penetration Test · Sample Zone

All auger holes are drilled with a 4 ½ inch diameter continuous flight auger. Push core samples are obtained by hydraulically ramming a 2.0 foot long lined split spoon sampler into the soil to obtain 2.0 inch nominal diameter soil samples.

GROUND WATER ELEVATIONS

as of July 2012

Y1	1265.4
Y3	1265.8
Y4	1264.6
Y5	1265.8
Y6	1266.1

MEASURED SKIN FRICTION

	Elev	psf
Y4	1196.6	667
Y6	1209.1	560

SITE PLAN & SUBSURFACE PROFILE

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (5) OF (13)

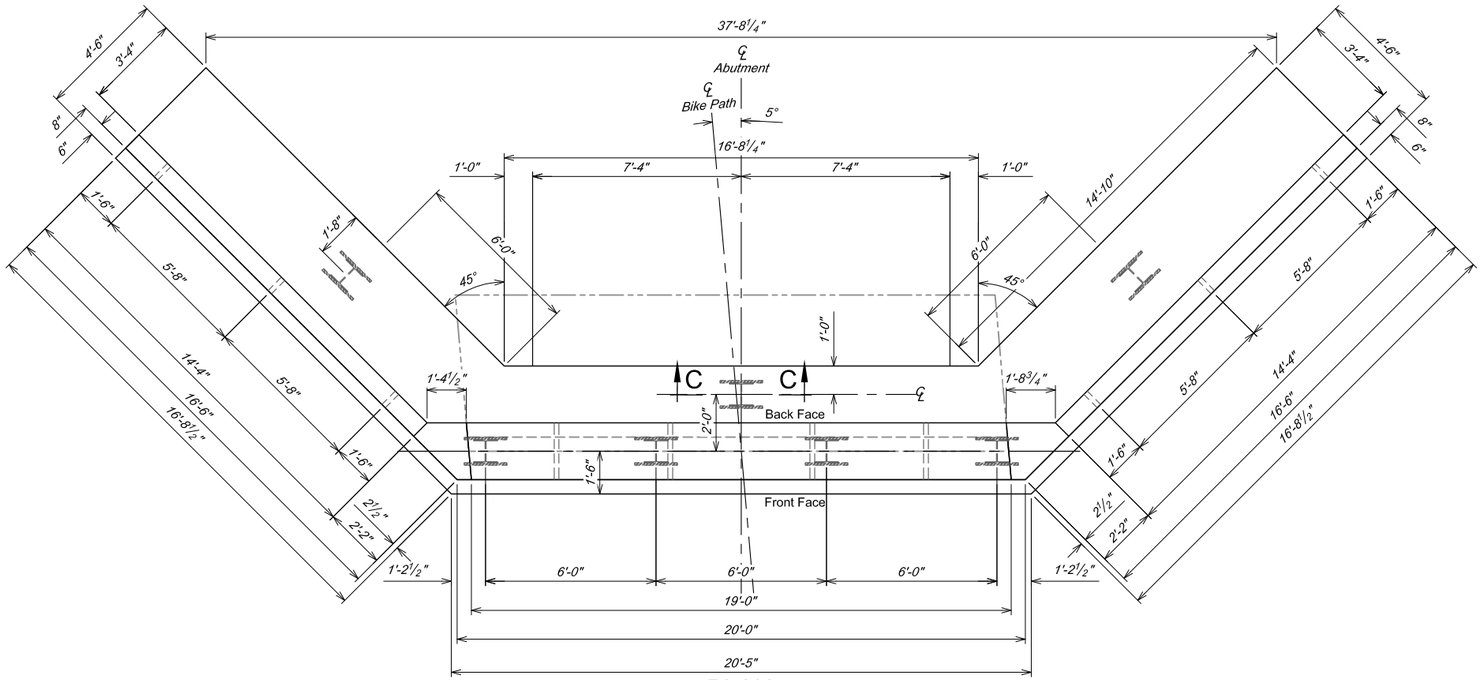
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	18	29

PLANS BY: Brosz Engineering, Inc., 3500 S. Phillips Ave., Ste. 201, Sioux Falls, SD 57109

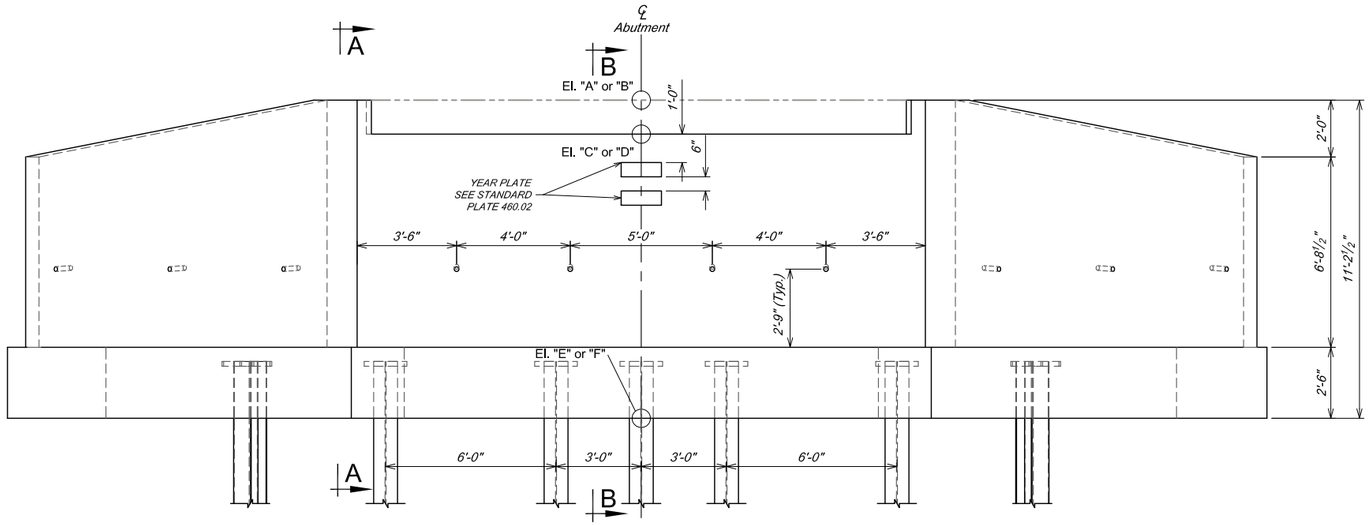
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
DC/DH	EC/DH	DH/DC	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	19	29



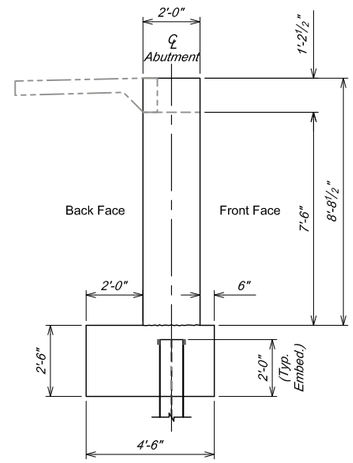
PLAN



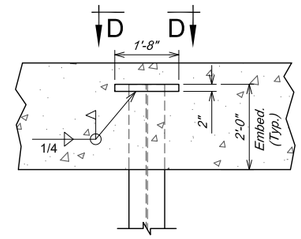
ELEVATION

TABLE OF ELEVATIONS						
Abutment	El. "A"	El. "B"	El. "C"	El. "D"	El. "E"	El. "F"
No.1	1276.00		1274.79		1264.80	
No.2		1276.00		1274.79		1264.80

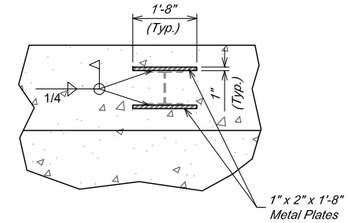
Elevation "A" and "B" are Sill Elevation (Typ.).
Elevations "C" and "D" are top of Approach Slab at Centerline of Abutment.
Elevation "E" and "F" are at bottom of Footer



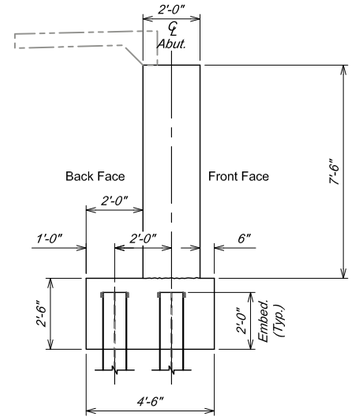
SECTION (A-A)



SECTION (C-C)



SECTION (D-D)



SECTION (B-B)

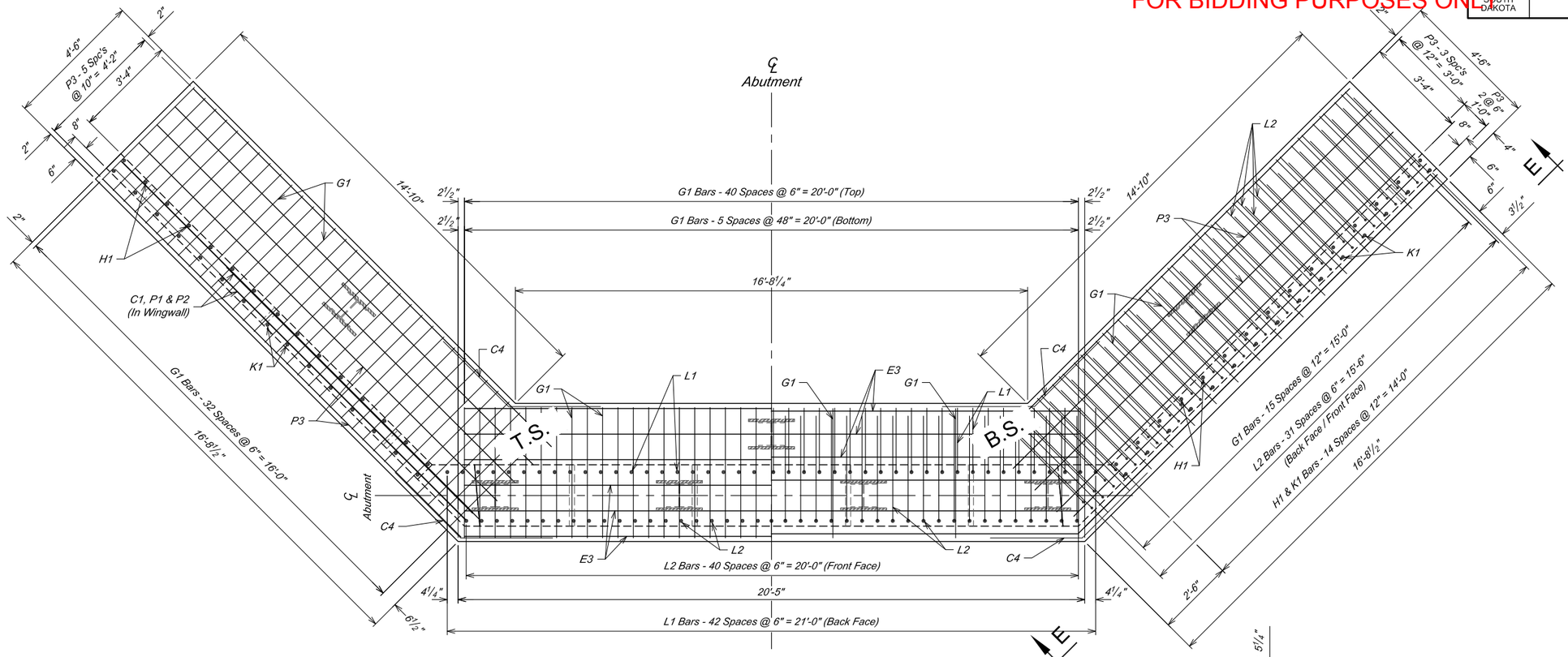
ABUTMENT DETAILS
FOR
51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW
OVER DRAINAGE — SEC. 5/8 — T103N R60W
57+50.00 TO 71+00.00 — PCN 03L4
STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE
AUG. 2014 — CITY OF MITCHELL
PROJECT NO. P 0ENH(218) — 6 OF 13

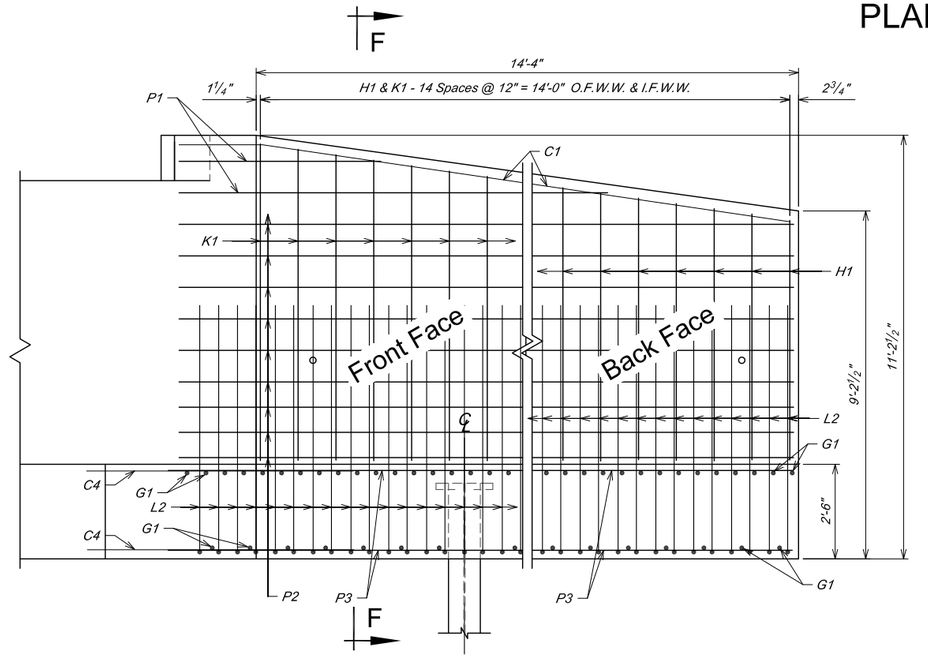
PLANS BY:	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109	DC/KR	EC/DH	DH/DC	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	20	29

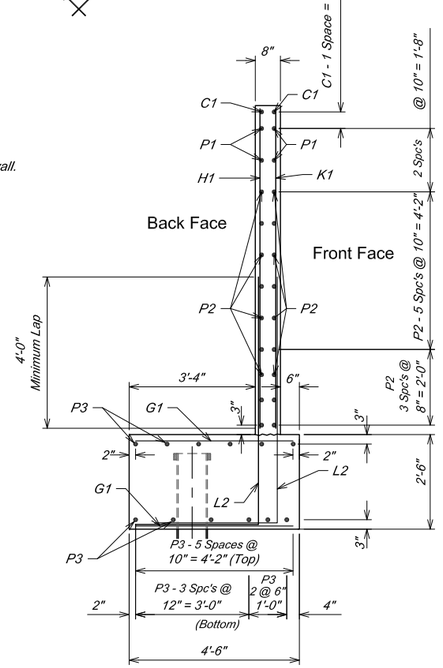


PLAN (FOOTING)



VIEW E-E

Note: Move/Adjust rebar to avoid HP in footing and weep holes in wall. Do not cut bars.



SECTION (F-F)

LEGEND	
T.S.	Top of Slab
B.S.	Bottom of Slab

ABUTMENT DETAILS

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

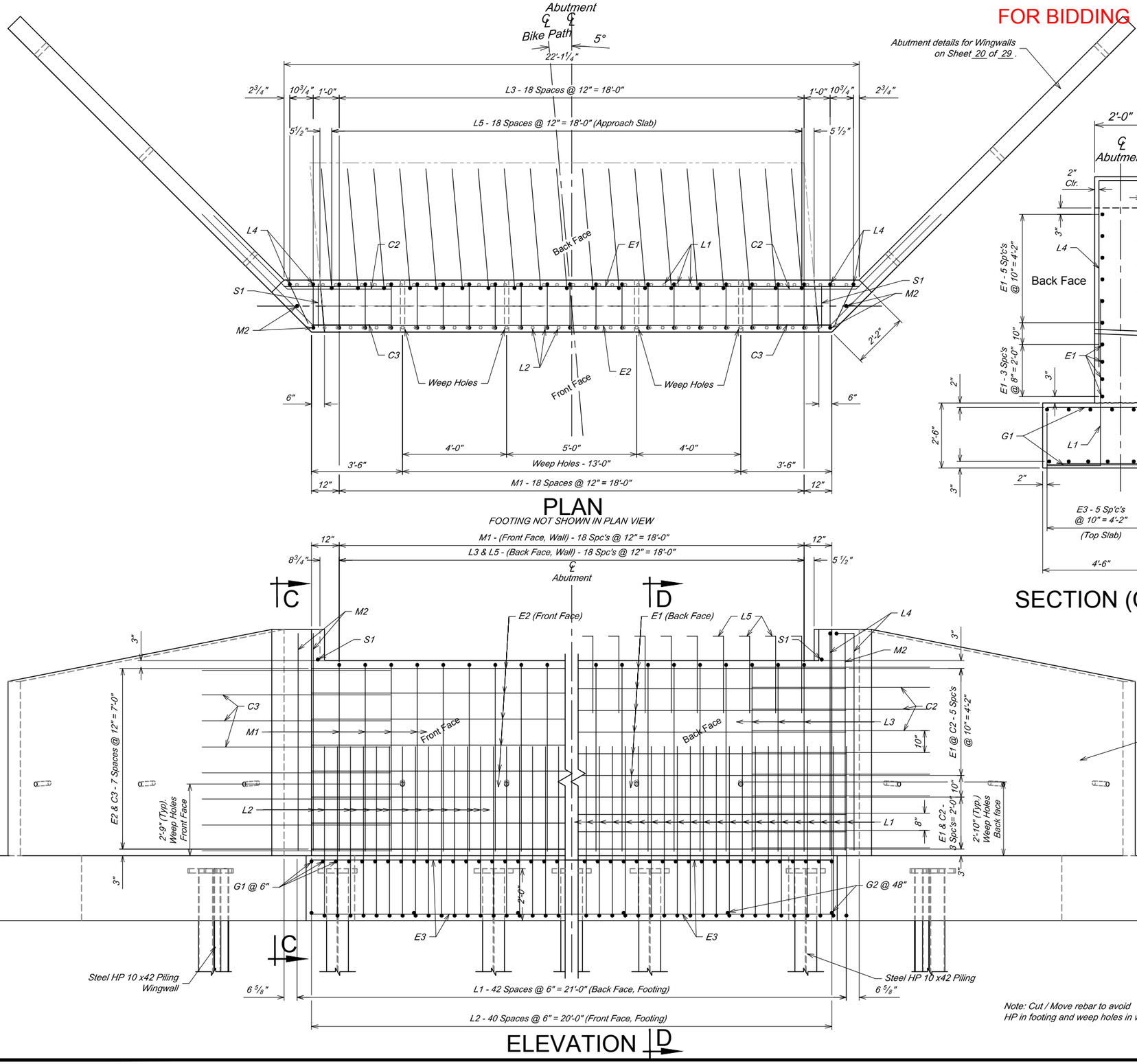
PROJECT NO. P 0ENH(218) — (7) OF (13)

PLANS BY:	Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109		
DESIGNED BY DC/KR	DRAWN BY EC/DH	CHECKED BY DH/DC	APPROVED BY BRIDGE ENGINEER

Brosz Engineering, Inc. Proj. No. S12-F919

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	21	29



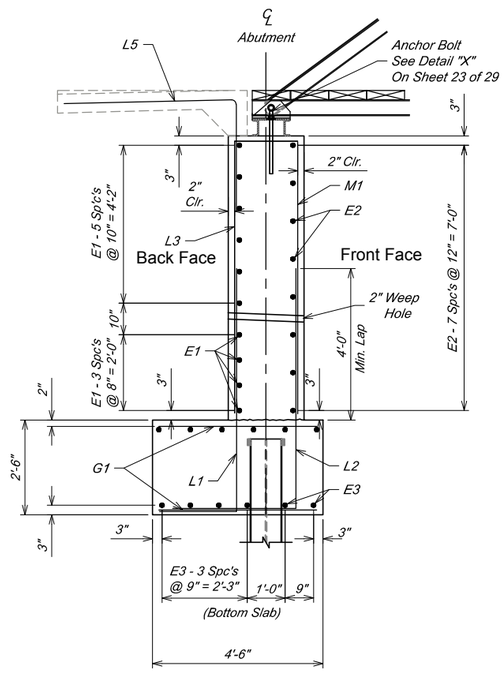
PLAN

FOOTING NOT SHOWN IN PLAN VIEW

ELEVATION

Abutment details for Wingwalls on Sheet 20 of 29 .

SECTION (C-C)



SECTION (D-D)

Abutment details for Wingwalls on Sheet 20 of 29 .

Note: Cut / Move rebar to avoid HP in footing and weep holes in wall.

ABUTMENT DETAILS

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

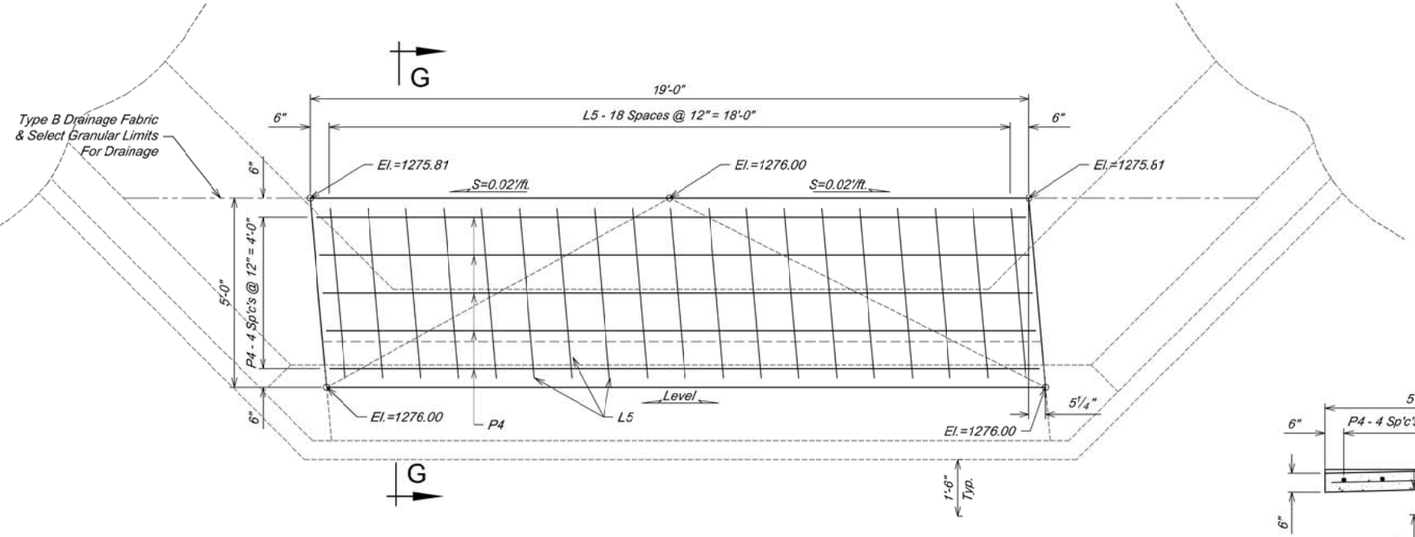
AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (8) OF (13)

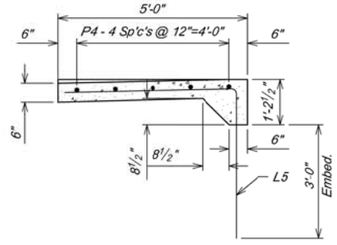
PLANS BY:	Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109		
DESIGNED BY DC/KR	DRAWN BY EC/DH	CHECKED BY DH/DC	APPROVED BY BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	22	29



PLAN (APPROACH SLAB)



SECTION (G-G)

REINFORCING SCHEDULE (For One Abutment)

MK.	NO.	SIZE	LENGTH	TYPE
C1	4	5	16'— 3 "	19B
C2	20	5	8'— 0 "	19B
C3	16	5	9'— 0 "	19B
C4	8	5	6'— 0 "	19B
E1	10	5	22'— 1 "	Str.
E2	8	5	20'— 0 "	Str.
E3	12	5	20'— 0 "	Str.
G1	145	6	4'— 3 "	Str.
⫽ H1	15	6	19'— 10"	Str.
⫽ K1	15	5	19'— 10"	Str.
L1	43	6	8'— 7 "	17A
L2	169	6	9'— 10"	17A
L3	19	6	8'— 10"	17A
L4	4	6	10'— 0 "	17A
M1	19	5	7'— 2 "	Str.
M2	4	5	8'— 4 "	Str.
⫽ P1	4	5	16'— 8 "	Str.
P2	36	5	16'— 3 "	Str.
P3	24	5	16'— 6 "	Str.
S1	2	5	1'— 8 "	Str.

⫽ See Cutting Diagram

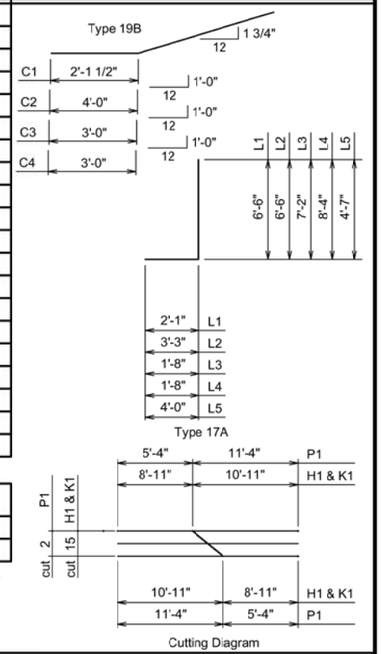
APPROACH SLAB

* L5	19	5	8'— 7 "	17A
P4	5	5	18'— 9 "	Str.

*Bend in field to facilitate proper backfilling under approach slab.

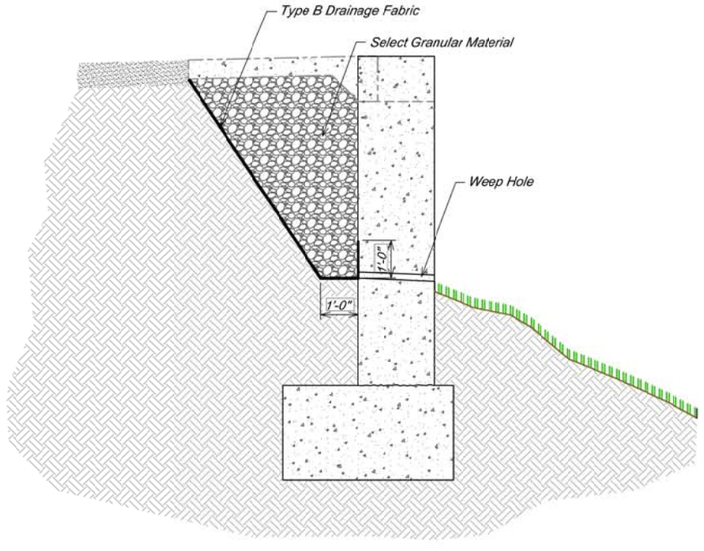
All dimensions are out to out of bars

BENDING DETAILS

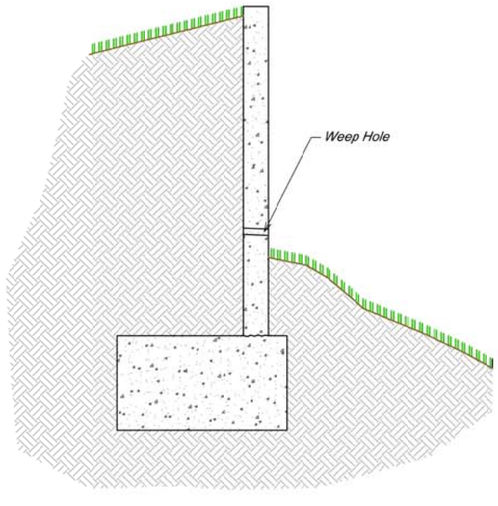


ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY ABUT. NO. 1	QUANTITY ABUT. NO. 2
Class A45 Concrete, Bridge	Cu Yd	38.7	38.7
Reinforcing Steel	Lb	7434	7434
Structure Excavation, Bridge	Cu Yd	24.8	24.8
HP 10X42 Bearing Pile, Furnish & Drive	Ft	7 @ 80'=560'	7 @ 80'=560'
Concrete Approach Slab for Bridge	Sq Yd	10.5	10.5
Select Granular	Ton	69.7	69.7
Type B Drainage Fabric	Sq Yd	23.7	23.7



BACKWALL DETAIL



WINGWALL DETAIL

ABUTMENT DETAILS FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

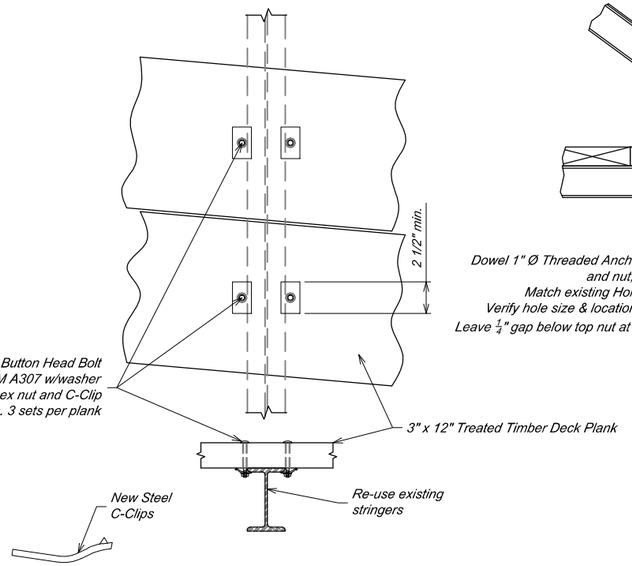
AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (9) OF (13)

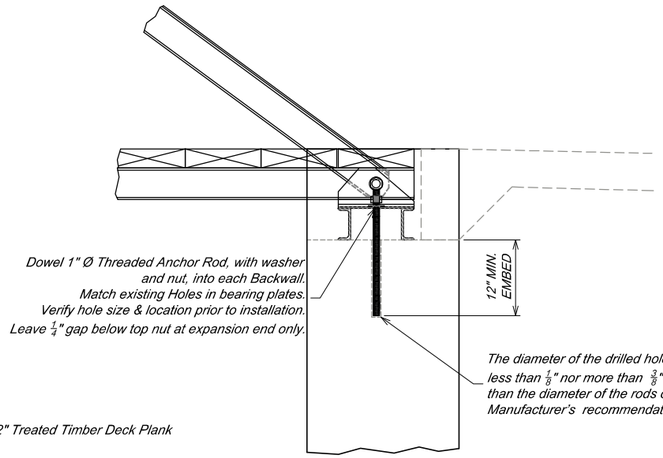
PLANS BY:	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109	DH	EC/DH	DH/DC	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

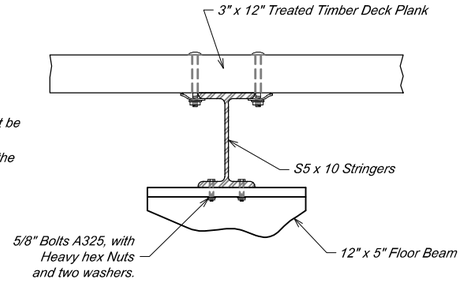
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	23	29



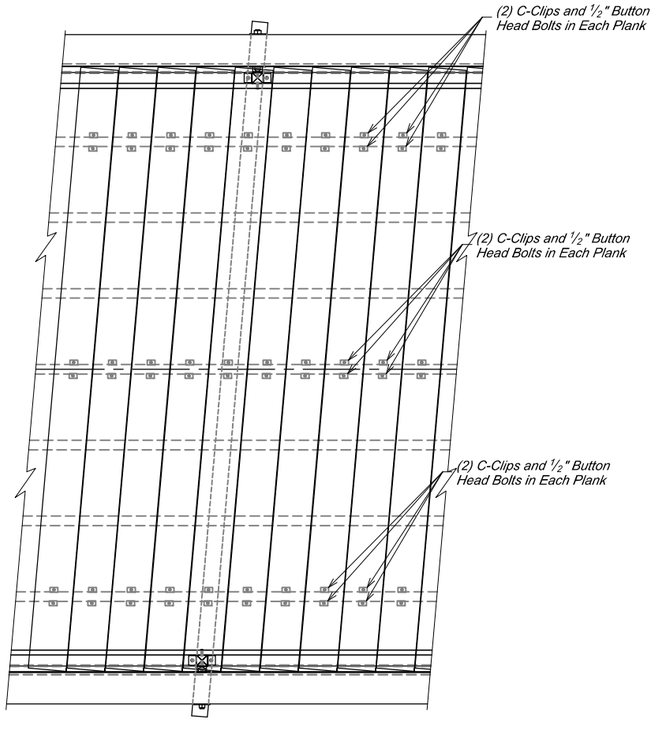
DETAIL "A"



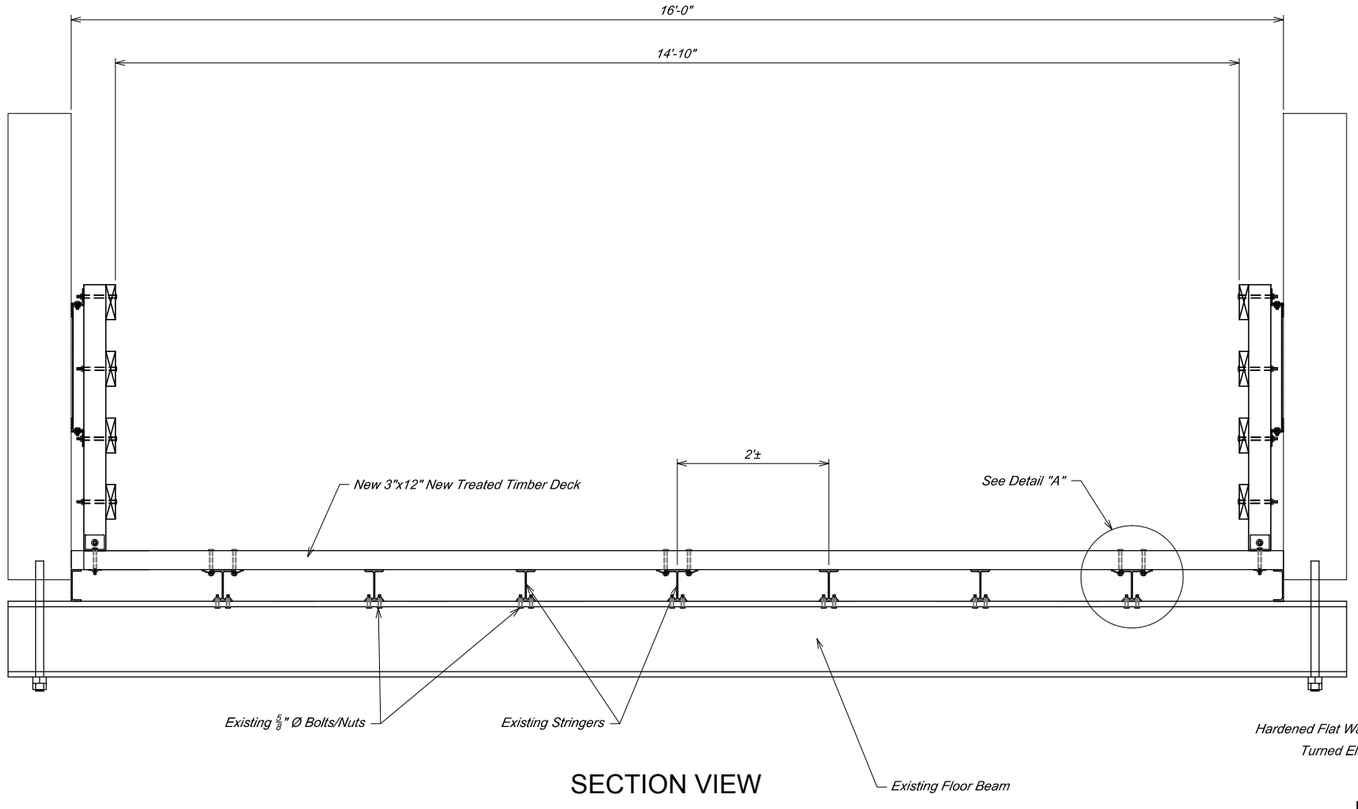
DETAIL "X"



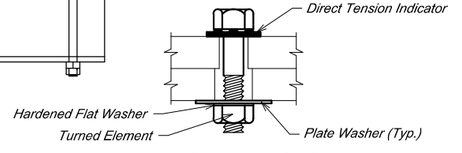
STRINGER CONNECTION DETAIL "B"



TRUSS DECKING (TYPICAL)



SECTION VIEW



DIRECT TENSION INDICATOR DETAIL

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
3"x12" Treated Timber Decking	BdFt	2456.1
Timber Bicycle Railing	Ft	164

DECKING LAYOUT AND DETAILS

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (10) OF (13)

PLANS BY:	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109	DH	EC/DH	DH/DC	BRIDGE ENGINEER

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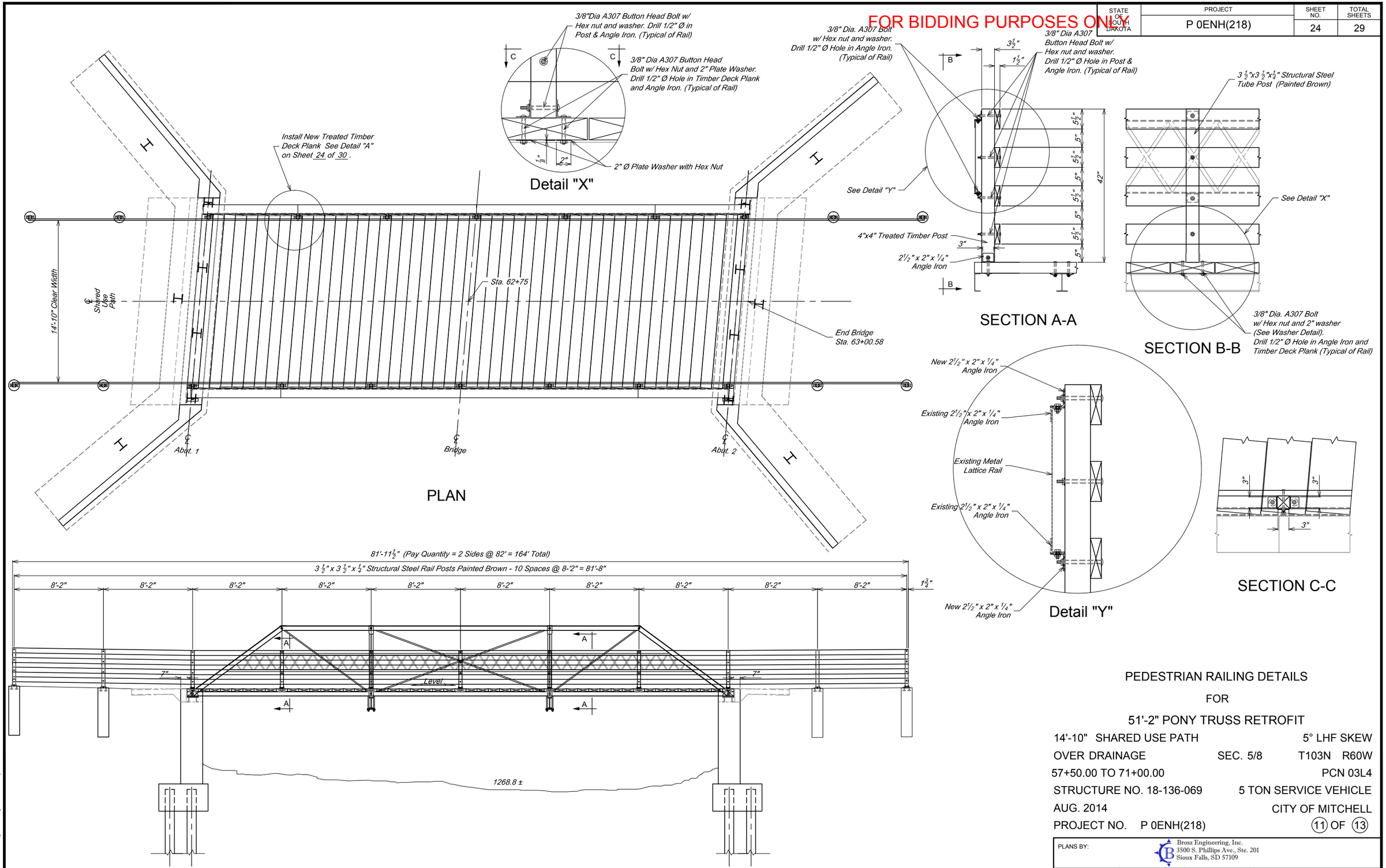
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	24	29



PEDESTRIAN RAILING DETAILS

FOR

51'-2" PONY TRUSS RETROFIT

14'-10" SHARED USE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

57+50.00 TO 71+00.00 — PCN 03L4

STRUCTURE NO. 18-136-069 — 5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (11) OF (13)

PLANS BY:	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109	DH	EC/DH	DH/DC	BRIDGE ENGINEER

Brosz Engineering, Inc. Proj. No. S12-F919

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	25	29

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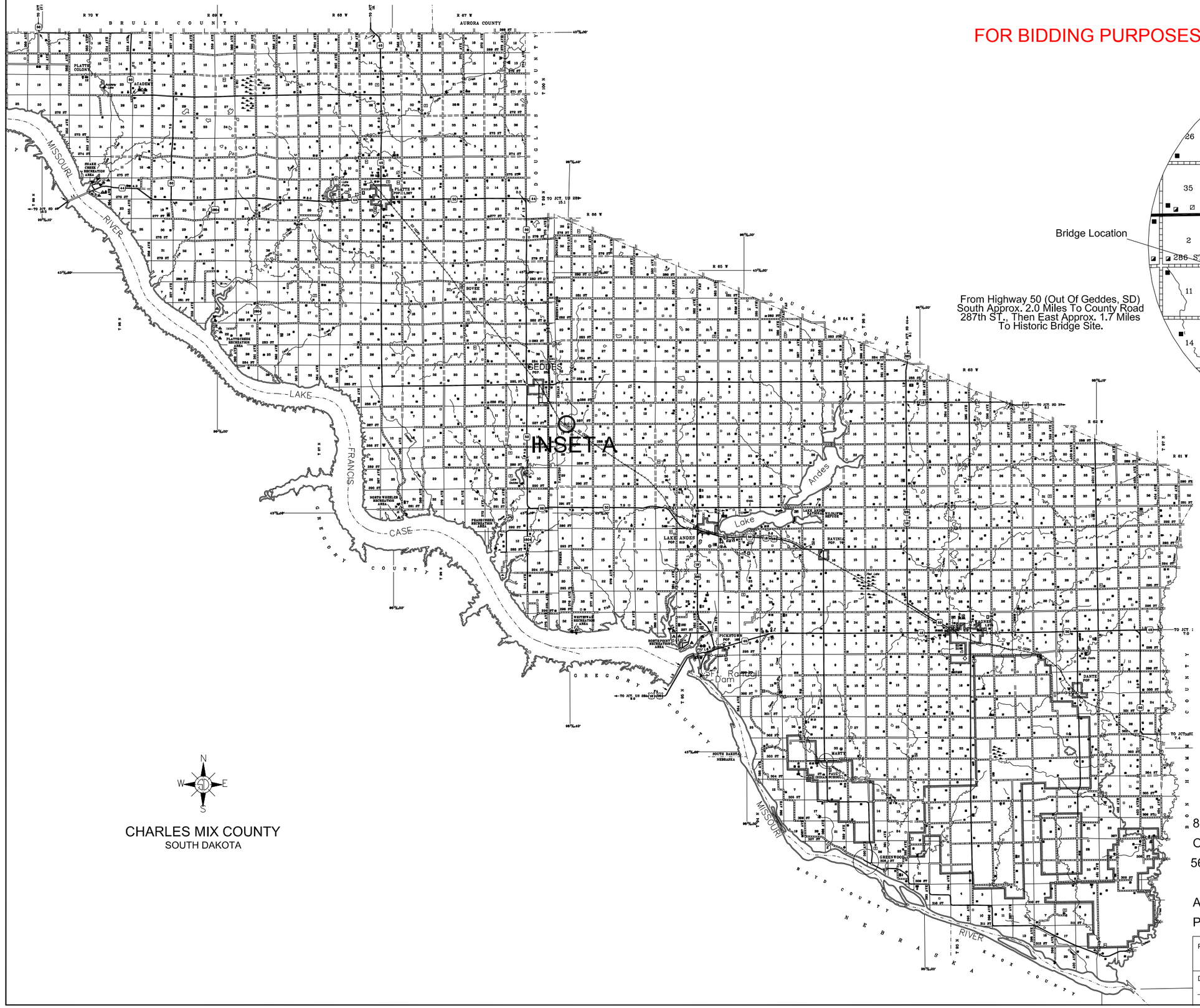
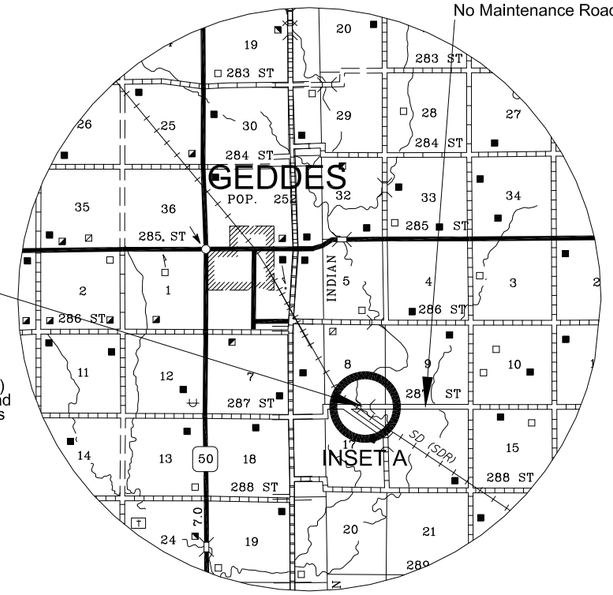




Bridge Location

From Highway 50 (Out Of Geddes, SD) South Approx. 2.0 Miles To County Road 287th ST., Then East Approx. 1.7 Miles To Historic Bridge Site.

N
W E
S

CHARLES MIX COUNTY
SOUTH DAKOTA

HISTORICAL BRIDGE LOCATION MAP

FOR

49'-4" PONY TRUSS RETROFIT

8'-0" BIKE PATH — 5° LHF SKEW

OVER DRAINAGE — SEC. 5/8 — T103N R60W

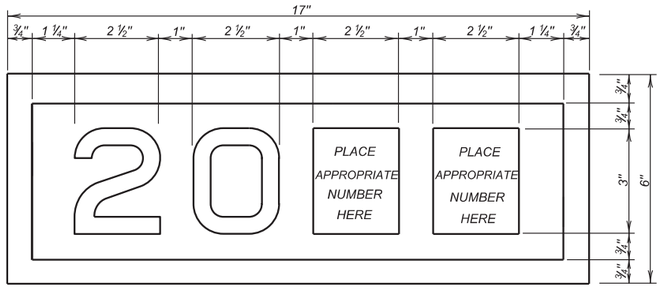
56+00.00 TO 73+00.00 — PCN 03L4

5 TON SERVICE VEHICLE

AUG. 2014 — CITY OF MITCHELL

PROJECT NO. P 0ENH(218) — (12) OF (13)

PLANS BY:	Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57109		
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
PLK	DJH/PLK	DJH	BRIDGE ENGINEER



YEAR PLATE DETAILS

GENERAL NOTES:

1. Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (½) inch in depth.

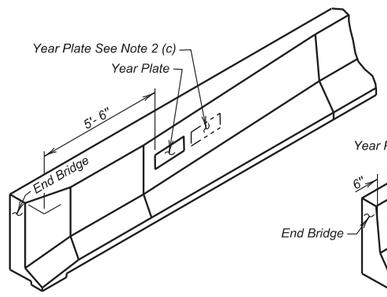
2. Year plates shall be located on structure (s) as follows:

   a. On cast-in-place box culverts the year plates shall be four and one - half (4 ½) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.

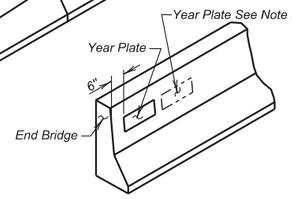
   b. On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'- 6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.

   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.

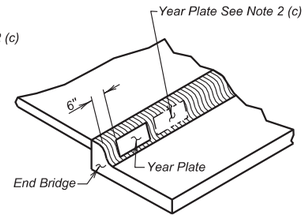
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to other contract items.



JERSEY BARRIER
(With Endblock)



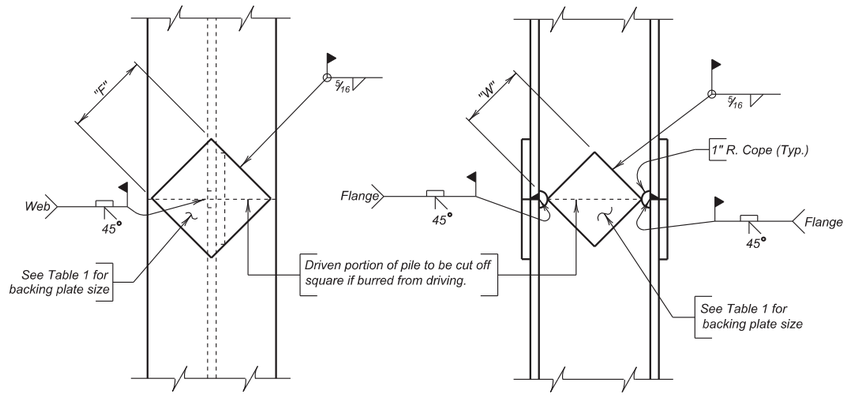
JERSEY BARRIER



TYPE B CURB

June 26, 2012

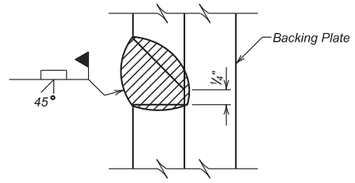
Published Date: 2nd Qtr. 2015	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



NOTE:

Prepare joint surfaces lower end of upper section on the ground and weld on backing plates; then place upper section on lower section and weld.

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the pile being spliced.
5. Web must be coped with 1 inch radius.
6. Submit Welding Procedure Specification (WPS) to Bridge Construction Engineer for approval prior to pile driving.

TABLE 1
(BACKING PLATES)

PILE	10"	12"	14"
"F" FLANGE	6 ½"	8"	10"
"W" WEB	4 ¾"	6 ¼"	7 ½"

December 23, 2012

Published Date: 2nd Qtr. 2015	SDDOT	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1

PLANS BY: Brosz Engineering, Inc.
3500 S. Phillips Avenue, Ste. 201, Sioux Falls, SD 57105
Ph. (605) 336-1676 Fax (605) 336-1853
Website: broszeng.com

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	27	29

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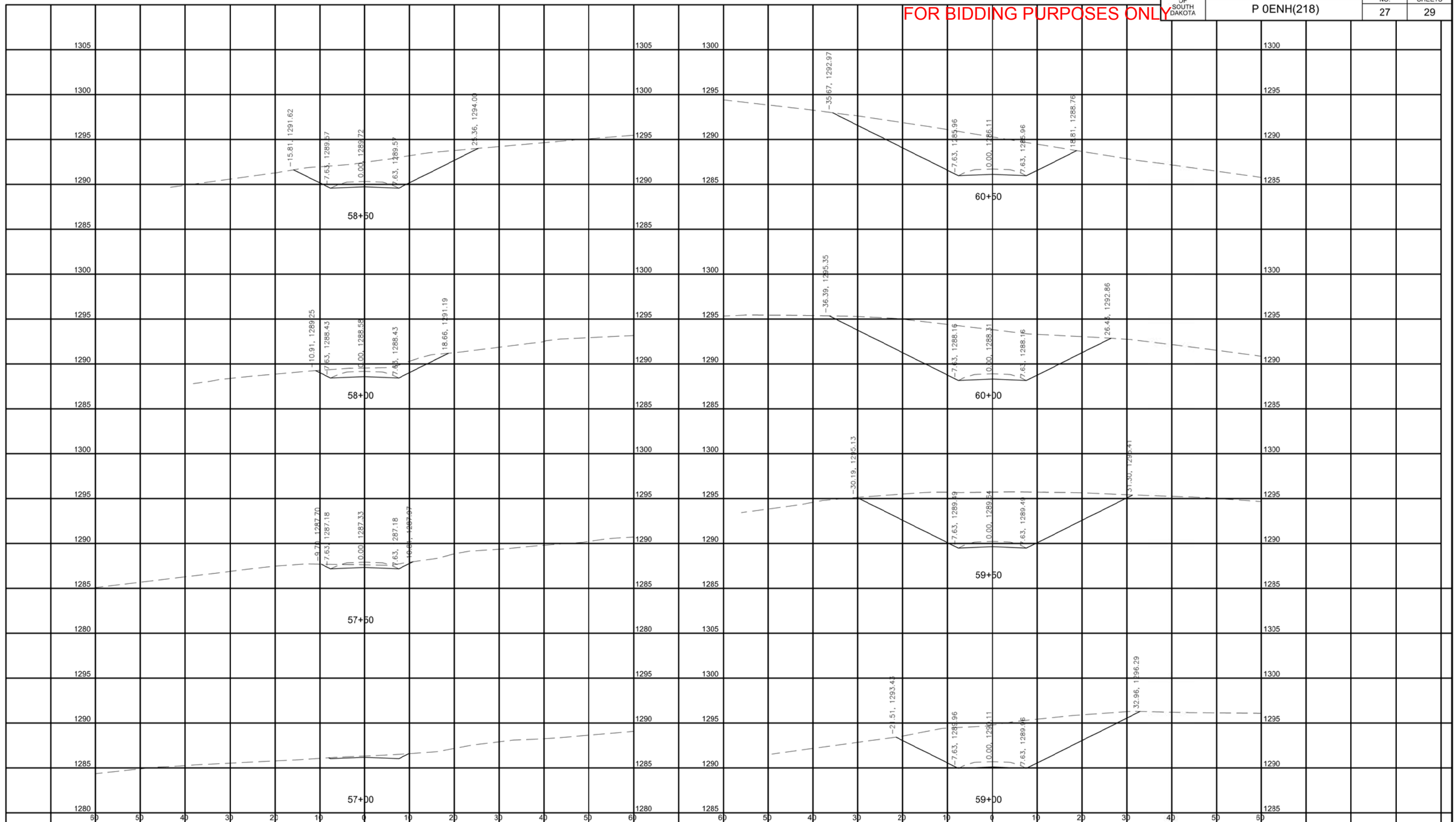

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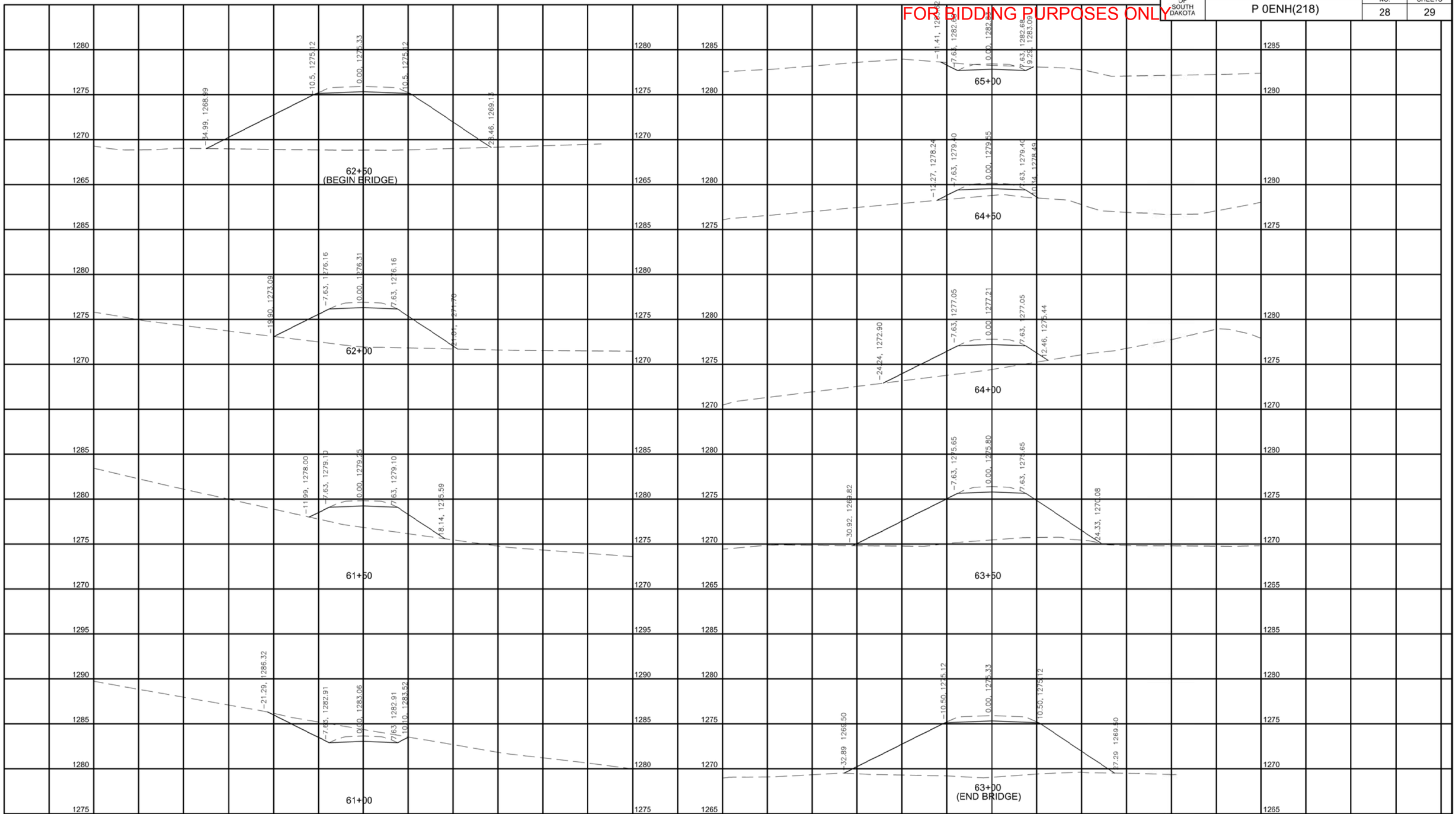
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	28	29

FOR BIDDING PURPOSES ONLY



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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0ENH(218)	29	29

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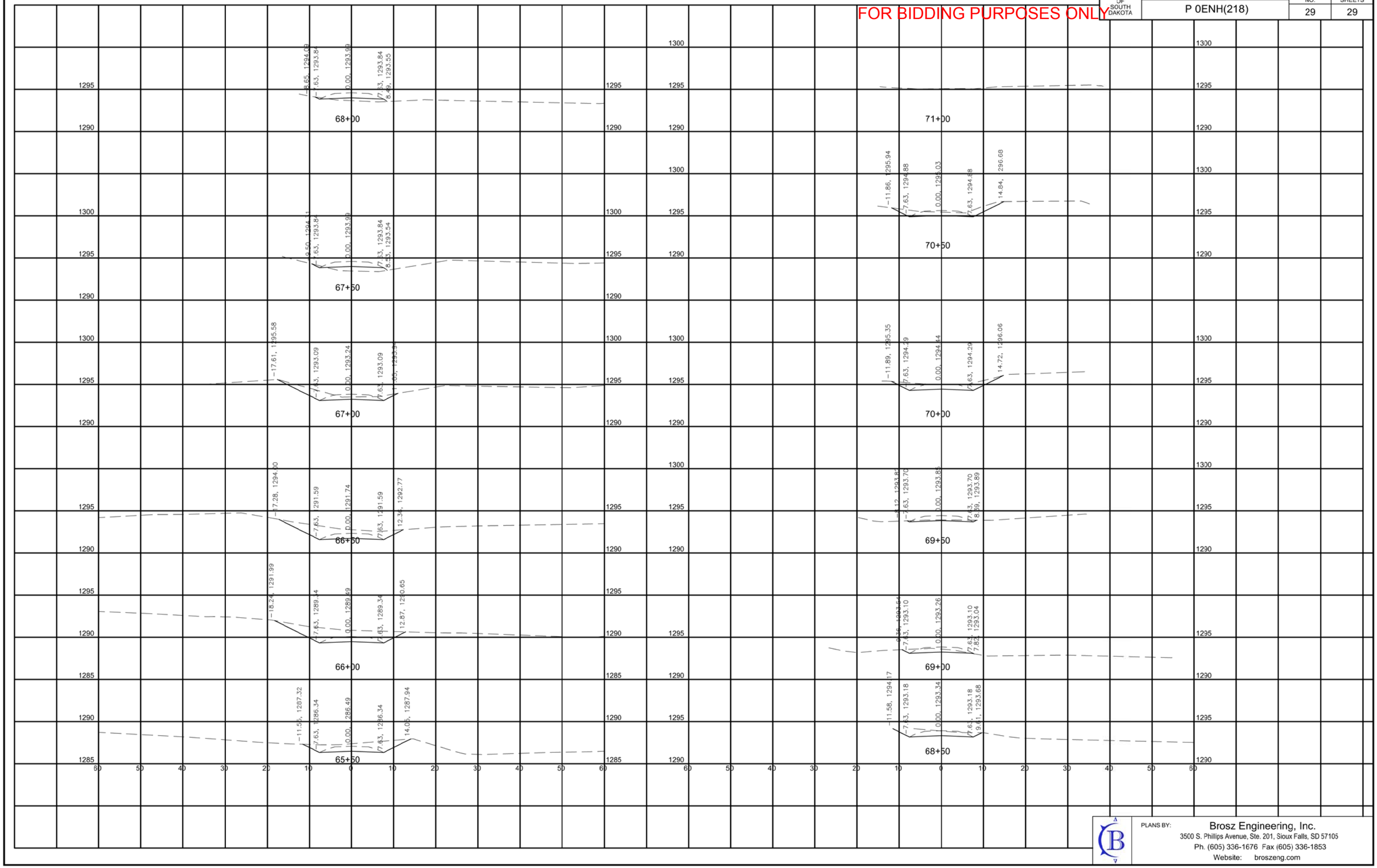

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