

PLOT SCALE - 200,000000:1.000000

PLOTTED FROM - TRRC11610

**STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	385-492	1	11

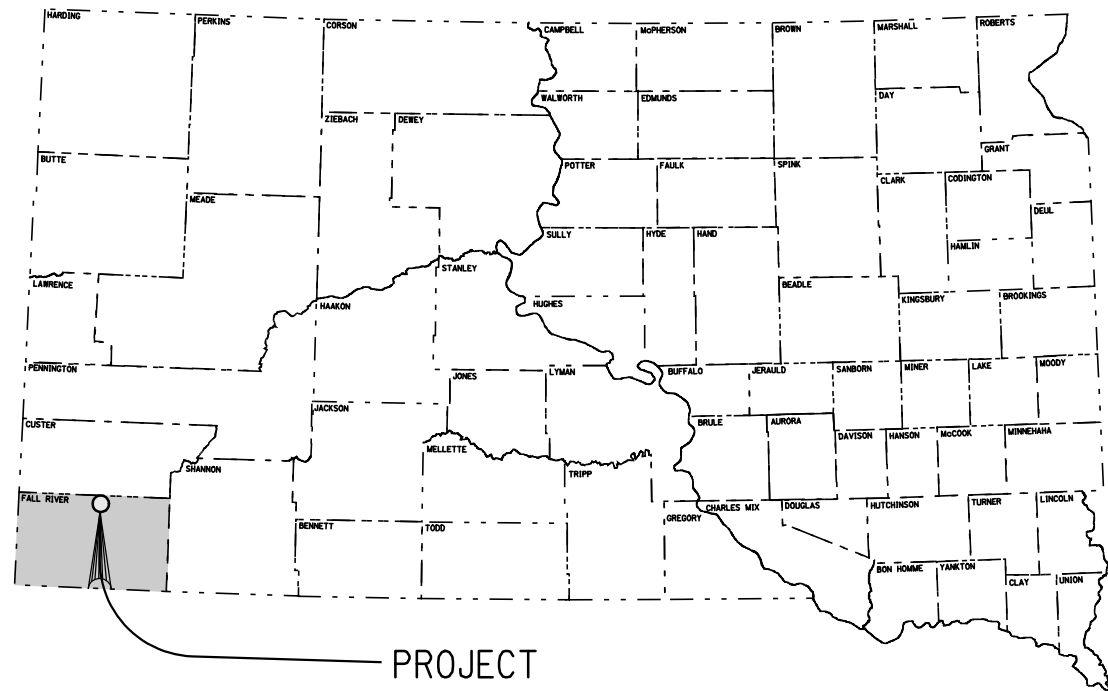
Plotting Date: 18-MAY-2011

**PROJECT 385-492
U.S. HIGHWAY 385
FALL RIVER COUNTY**

**BOX CULVERT RAILING
PCN I25s**

INDEX OF SHEETS

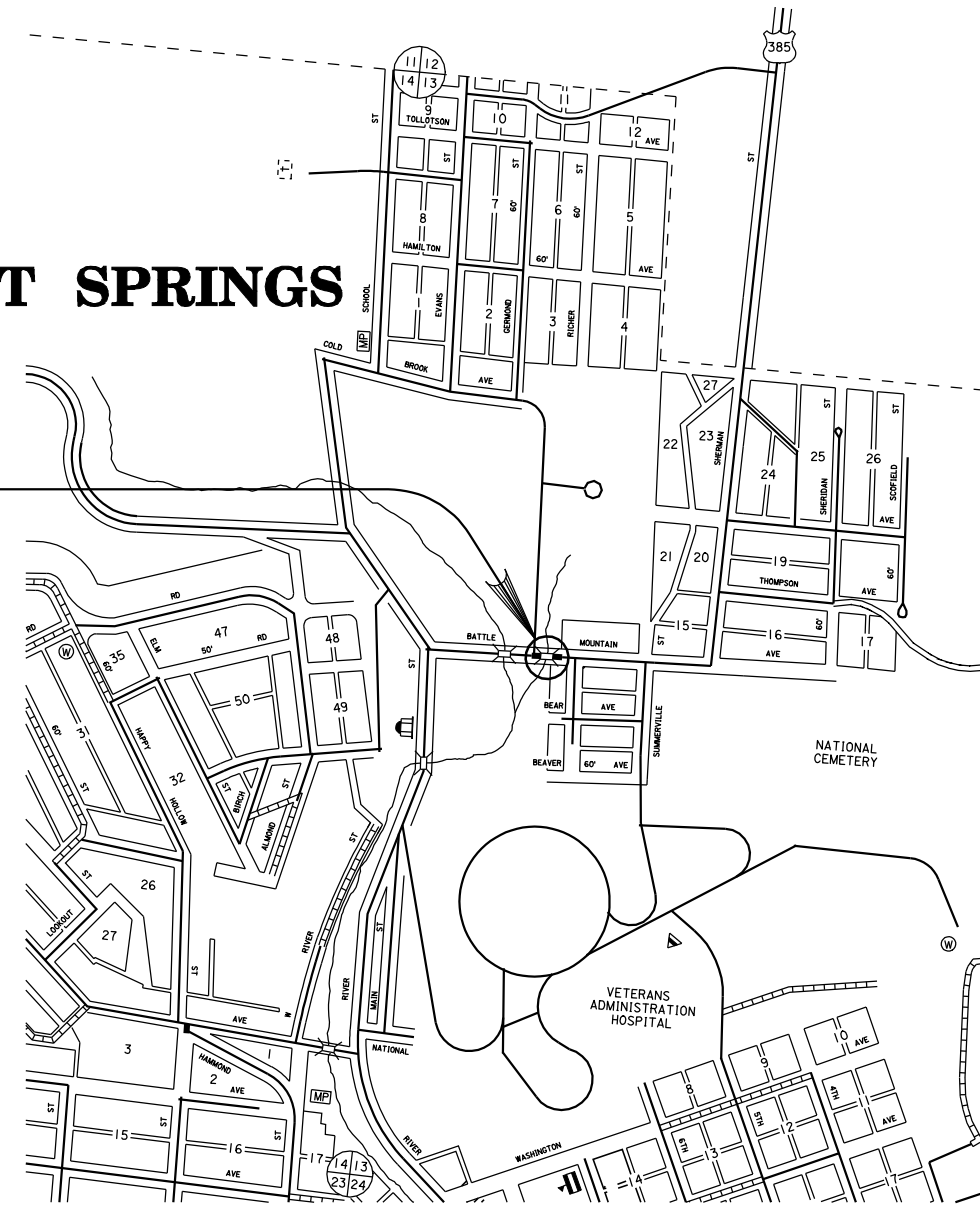
- 1 General Layout W/Index
- 2 Estimate With General Notes & Tables
- 3 - 6 Traffic Control
- 7 - 11 Structure Sheets



PROJECT

PROJECT
Str. No. 24-293-026
MRM 36.6

HOT SPRINGS



T 7 S - R 5 E

DESIGN DESIGNATION

ADT (2010)	3435
ADT (2030)	3640
DHV	775
D	50 %
T DHV	2.3 %
T ADT	5.1 %
V	25 mph

STORM WATER PERMIT

None Required

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0020	Remove Bridge Railing	31	Ft
460E0380	Install Dowel in Concrete	54	Each
470E0020	Pipe Handrail	196.7	Ft
621E0300	Chain Link Fence for Bridge Sidewalk	197	Ft
634E0100	Traffic Control	221	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

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

UTILITIES

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the contractor shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

Any damage done to a utility will be the Contractor's responsibility to repair.

Utilities within the limits of the proposed construction shall be adjusted by the owner unless otherwise indicated in these plans.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	385-492	2	11

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State 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 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/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/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.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed supports.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

All vehicles entering and exiting closed lanes of traffic shall display a flashing amber light.

Work activities shall only be during daylight hours. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

If the Contractor elects not to work in an area for more than 3 days, for reasons within the control of the Contractor, the Contractor shall remove applicable traffic control devices and replace them when work resumes. There will be no payment for this work.

TRAFFIC CONTROL DEVICES INVENTORY

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
W20-1	48" x 48"	ROAD WORK ### FT. OR AHEAD	3	34	102
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					221

PLOT SCALE - 200.000000:1.000000

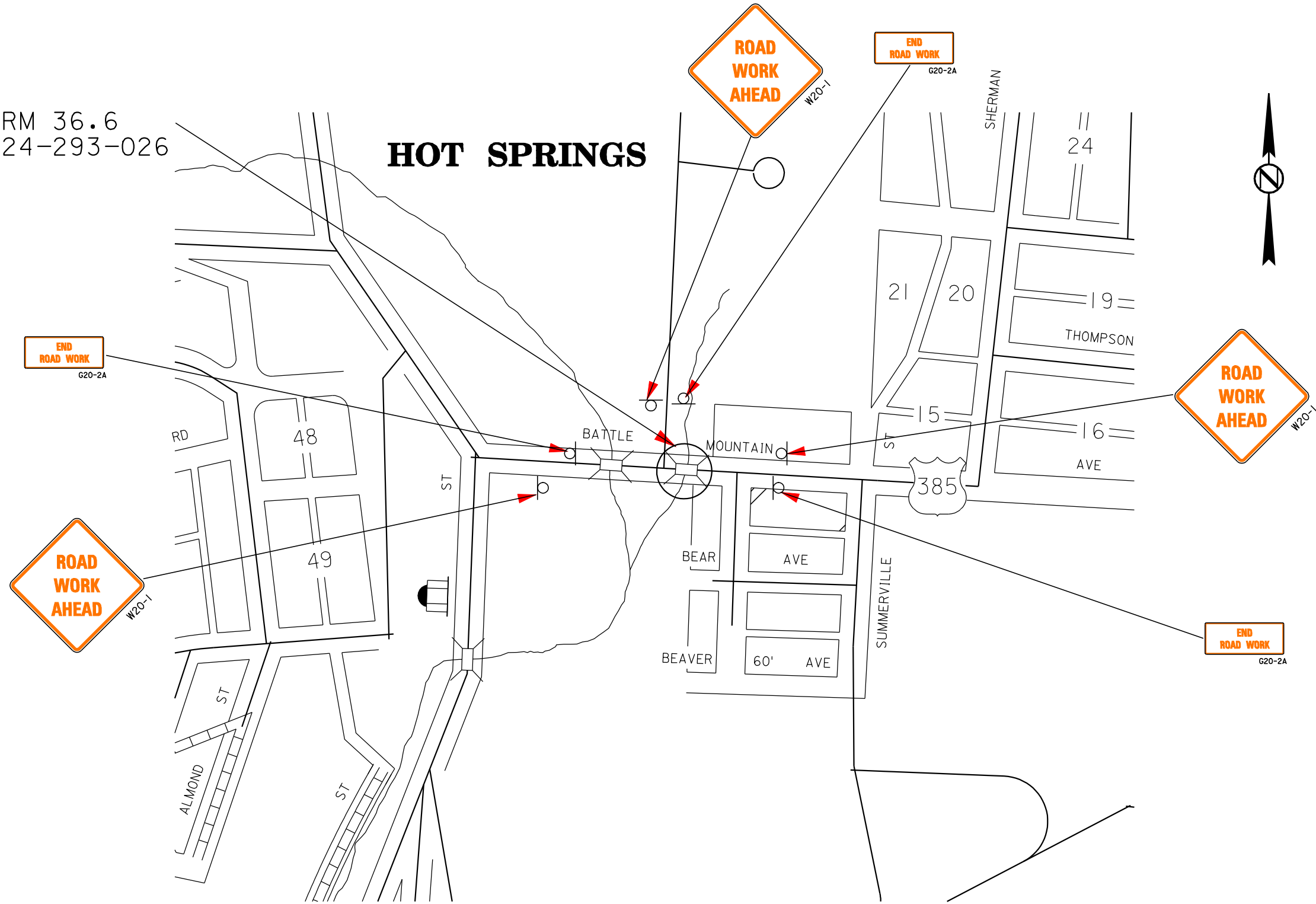
PLOTTED FROM - TRRC1.1610

STATE OF SOUTH DAKOTA	PROJECT 385-492	SHEET 4	TOTAL SHEETS 11
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Plotting Date: 18-MAY-2011

FIXED LOCATION SIGNS

Project MRM 36.6
Str. No. 24-293-026



HOT SPRINGS

T 7 S - R 5 E

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The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

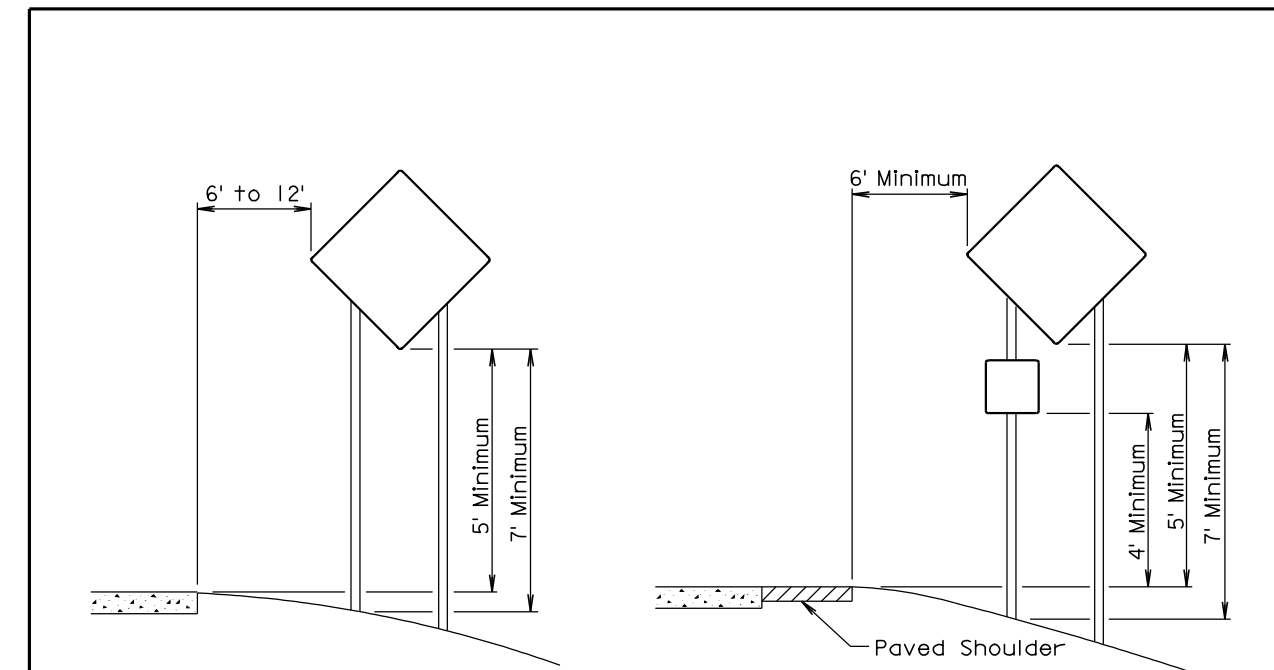


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



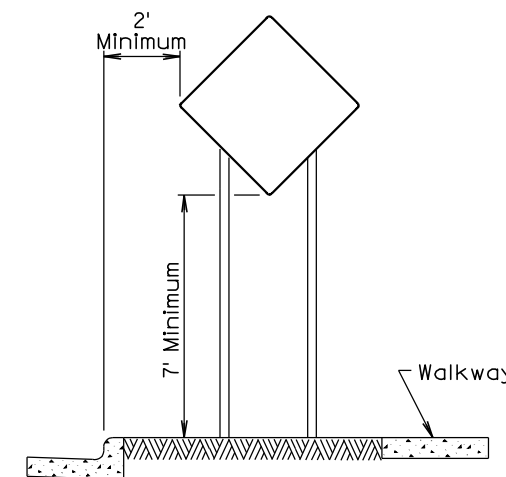
July 1, 2005

Published Date: 2nd Qtr. 2011

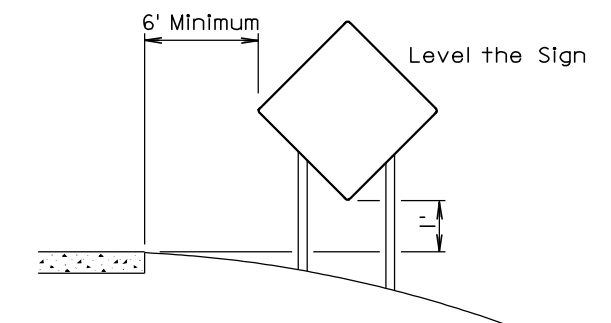


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



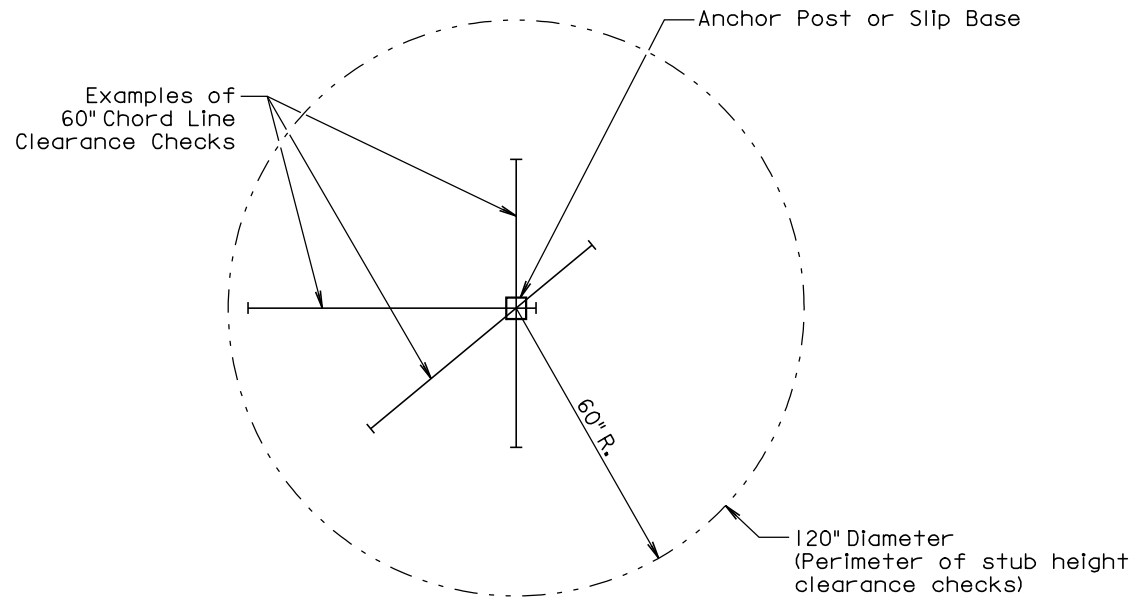
URBAN DISTRICT



RURAL DISTRICT
3 DAY MAXIMUM

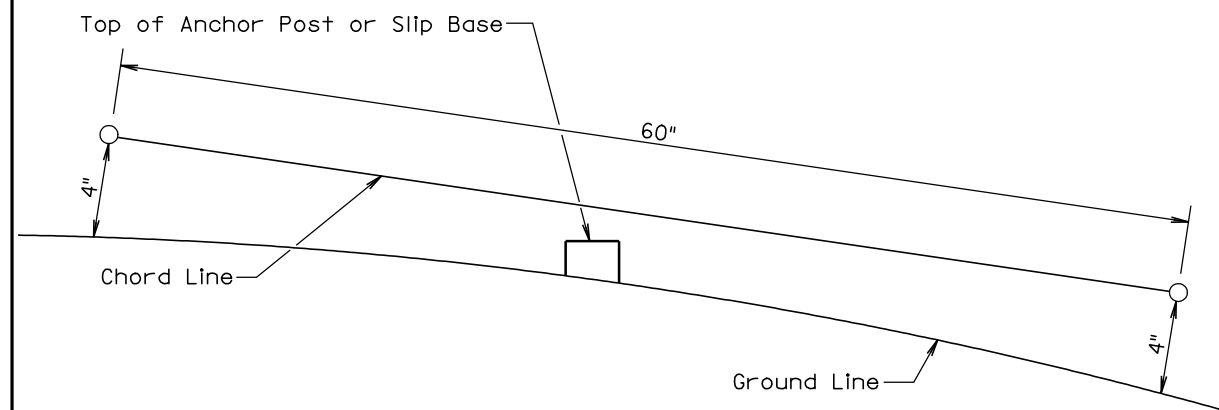
February 14, 2011

Published Date: 2nd Qtr. 2011



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 2nd Qtr. 2011

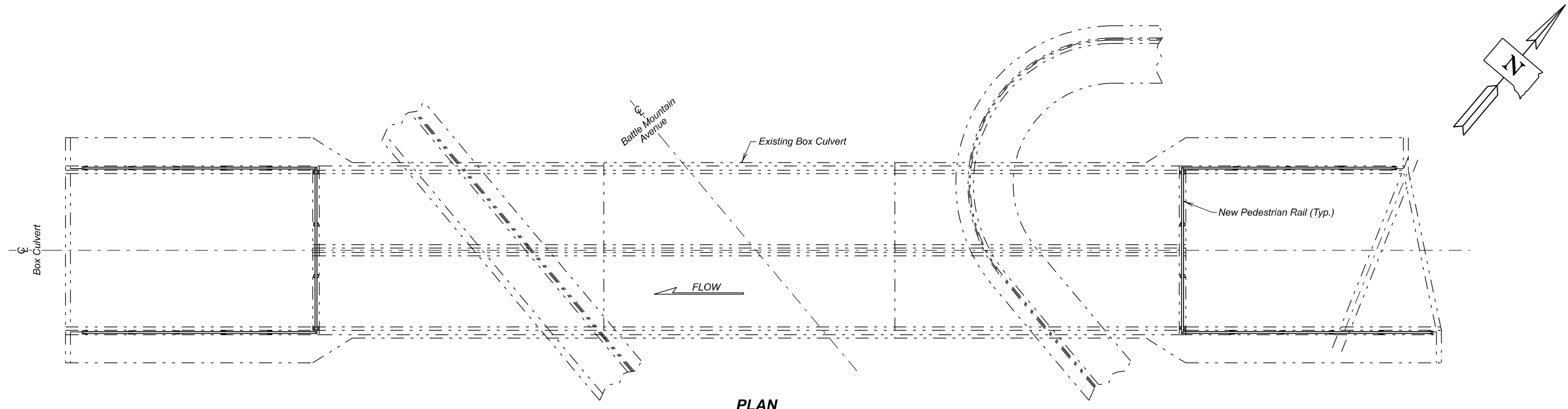
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BREAKAWAY SUPPORT STUB CLEARANCE

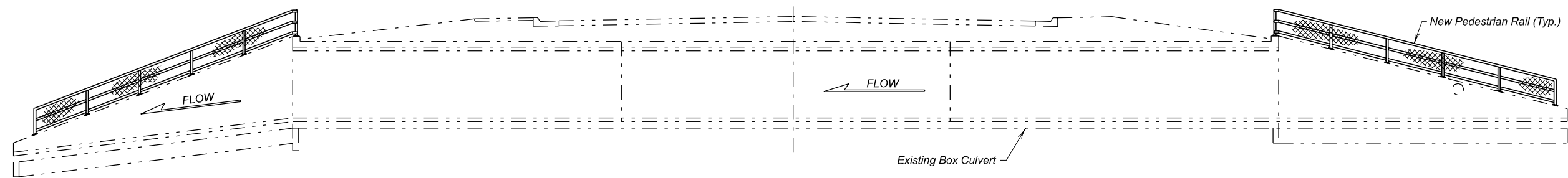
PLATE NUMBER
634.99

Sheet 1 of 1

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	385-492	7	11



PLAN



ELEVATION

INDEX OF CULVERT SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Pipe Handrail Details
- Sheet No. 5 - Pipe Handrail Details (Continued)

LAYOUT FOR UPGRADING
FOR
SPECIAL 2 - 12' X 10' BOX CULVERT
OVER DRY RUN 40° L.H.F. SKEW
STR. NO. 24-293-026 SEC. 13-T7S-R5E
PCN 125S 385-492

FALL RIVER COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2011

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY DJS FR125S	DRAWN BY BT 125STA01	CHECKED BY BWS	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	385-492	8	11

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
110E0020	Remove Bridge Railing	30.8	Ft
460E0380	Install Dowel in Concrete	54	Each
470E0020	Pipe Handrail	196.7	Ft
621E0300	Chain Link Fence for Bridge Sidewalk	197	Ft

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 2002 Edition with 2003 Interim Specifications using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.
- All Welding and Welding Inspection shall be in conformance with the AASHTO/AWS Bridge Welding Code D1.5M/D1.5:2002 unless otherwise noted in this plan set.

DIMENSIONS OF EXISTING BOX CULVERT

All details and dimensions of the Existing Box Culvert, 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 dimensions affecting the satisfactory completion of the work required for this project. Original Construction Plans can be obtained from the Office of Bridge Design.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer at the pre-construction meeting.

- Remove the existing railing on the east side of the box culvert.
- Install new pedestrian railing as shown in the plans.

REMOVAL OF EXISTING BRIDGE RAIL

- The existing rail and rail posts shall be completely removed by the Contractor and disposed of in accordance with the Construction Specifications. If the Contractor elects to salvage the rail and rail posts for his own use, they must be removed from view of the ROW to the satisfaction of the Engineer prior to project completion.
- The existing rail anchor bolts protruding from the concrete shall be cut off and ground flush with the concrete surface as approved by the Engineer. The exposed ends shall be coated with a zinc-rich galvanizing paint in conformance with ASTM A780.
- The cost of all labor, tools, materials, and incidentals necessary to cut and remove the steel rail, cut off the anchor bolts, and paint their exposed ends shall be incidental to the contract price per foot for "Remove Bridge Railing".

INSTALLING THREADED RODS IN CONCRETE

- The epoxy resin mixture shall be of a type for bonding steel to hardened concrete and shall conform to AASHTO M235 Type IV (Equivalent to ASTM C881, Type IV).
- The diameter of the drilled holes shall not be less than 1/8 inch greater, nor more than 3/8 inch greater than the diameter of the threaded rods or as per the Manufacturer's recommendations. Holes shall not be drilled using core bits. The drilled holes shall be blown out with compressed air using a device 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 an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes to 1/2 full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping or painting methods will not be allowed.
- No loads shall be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.
- Embed threaded rods 8" into existing concrete.
- Threaded rods shall be 3/4" diameter and conform to ASTM F1554 Grade 55.
- The cost of drilling holes, epoxy resin, threaded rods, installation and other incidental items shall be included in the contract unit price per each for Install Dowel in Concrete.

RAILING

- All rail posts shall be built vertical.
- Structural steel for railing shall conform to ASTM A53. Rail post base plates shall conform to ASTM A709, Grade 36.
- Anchor Bolts and nuts shall conform to ASTM A307. Threaded rods shall conform to F1554 Grade 55. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM A153 or 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).
- Painting of steel railing shall be done in accordance with Section 411 of the South Dakota Standard Specifications. The finish color shall be an approved green.
- Steel for beveled plate washers shall conform to ASTM A36. The finish color of the beveled washers shall be an approved green.
- Welding and weld inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code - Steel.
- The cost of structural steel, drilling holes, anchor bolts, painting, galvanizing, welding and weld inspection, and all that is incidental to the fabrication of the railing shall be included in the contract unit price per foot for Pipe Handrail.
- Add a beveled plate washer, provide correct length bolts, and cut washer at the 3 locations shown on the existing railing at the box culvert inlet.
- It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary dimensions affecting the satisfactory completion of the work required at this project.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR SPECIAL 2 – 12' X 10' BOX CULVERT

OVER DRY RUN
STR. NO. 24-293-026

40° L.H.F. SKEW
SEC. 13-T7S-R5E
385-492

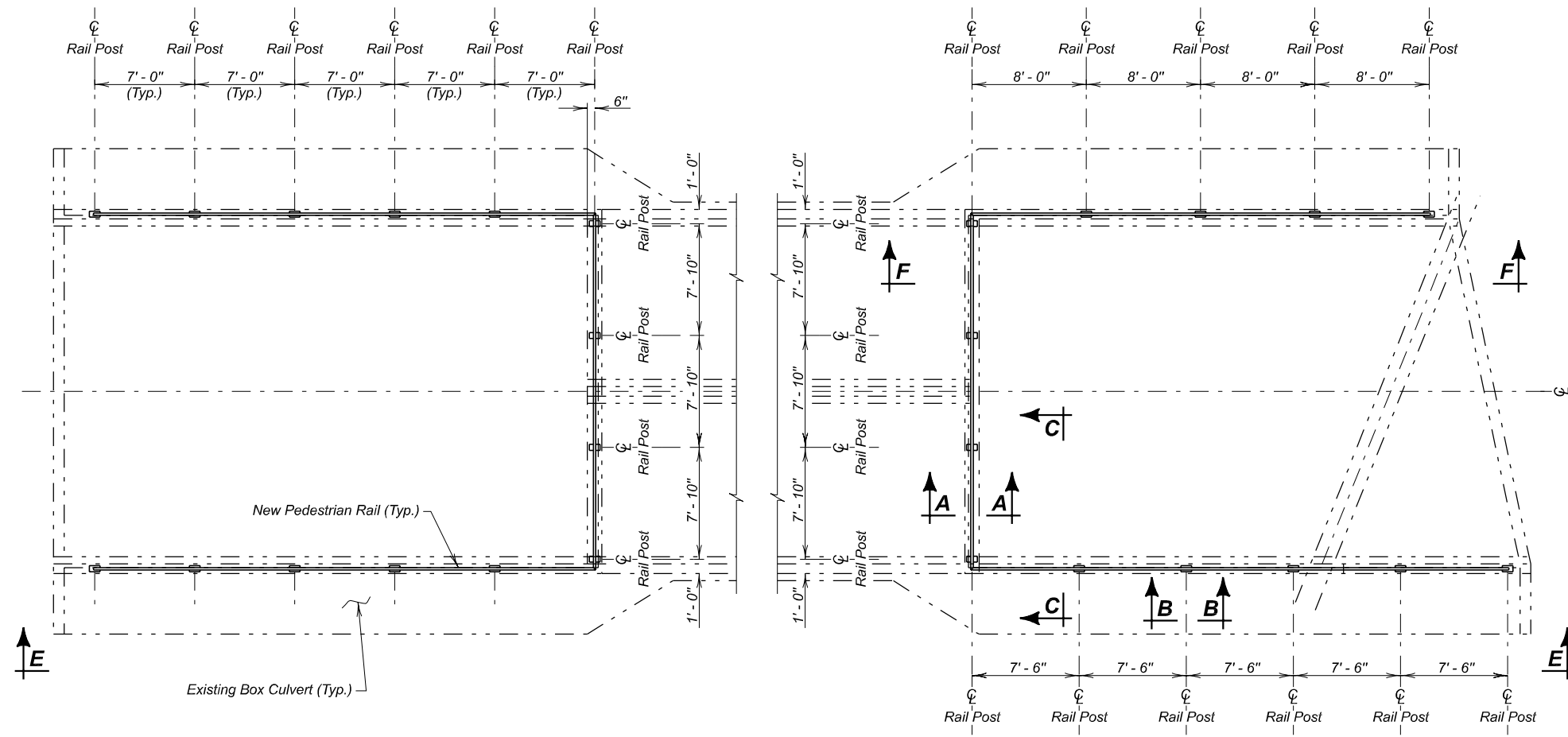
FALL RIVER COUNTY
S.D. DEPARTMENT OF TRANSPORTATION

MAY 2011

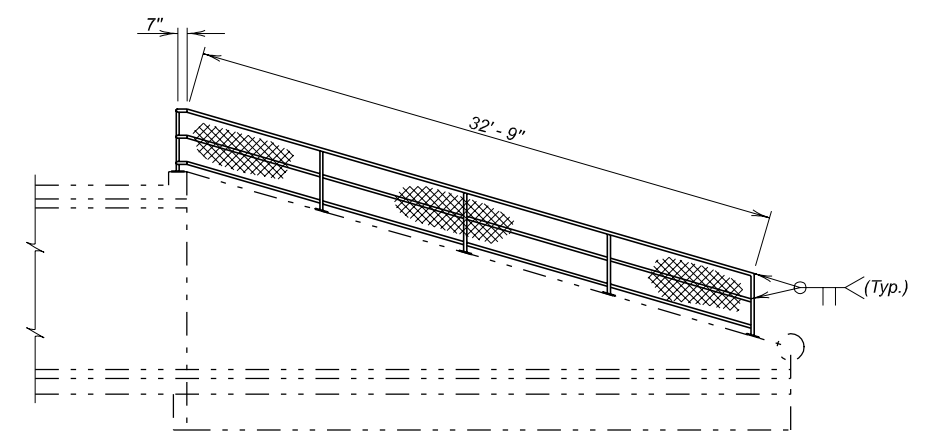
2 OF 5

DESIGNED BY: DJS FRIV25s	DRAWN BY: DJS i25sNOTA	CHECKED BY: BWS	<i>Kevin M. Coeden</i> BRIDGE ENGINEER
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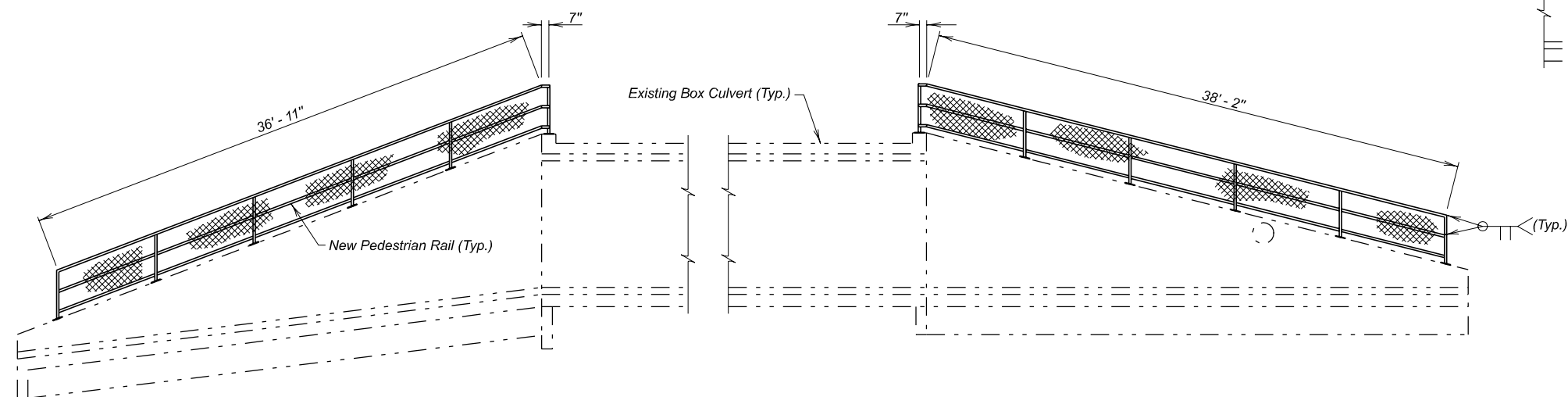
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	385-492	10	11



PLAN



VIEW F - F

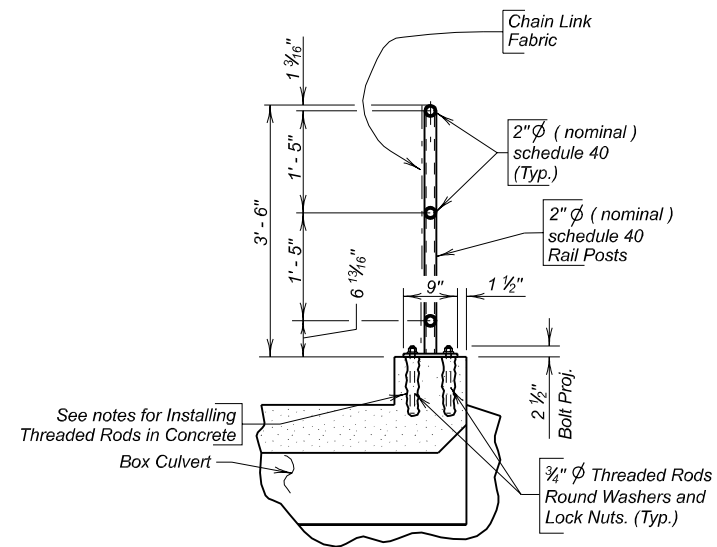


VIEW E - E

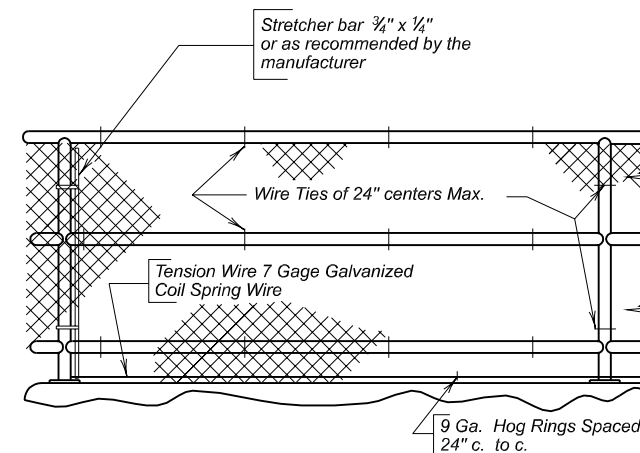
PIPE HANDRAIL DETAILS
 FOR
SPECIAL 2 - 12' X 10' BOX CULVERT
 OVER DRY RUN 40° L.H.F. SKEW
 STR. NO. 24-293-026 SEC. I3-T7S-R5E
 385-492

FALL RIVER COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MAY 2011

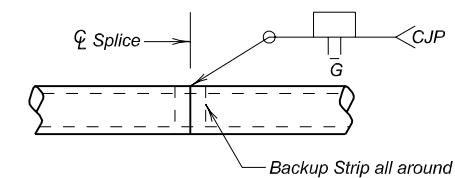
DESIGNED BY DJS FR1V125S	DRAWN BY BT I25STA04	CHECKED BY BWS	Kevin N. Coeden BRIDGE ENGINEER
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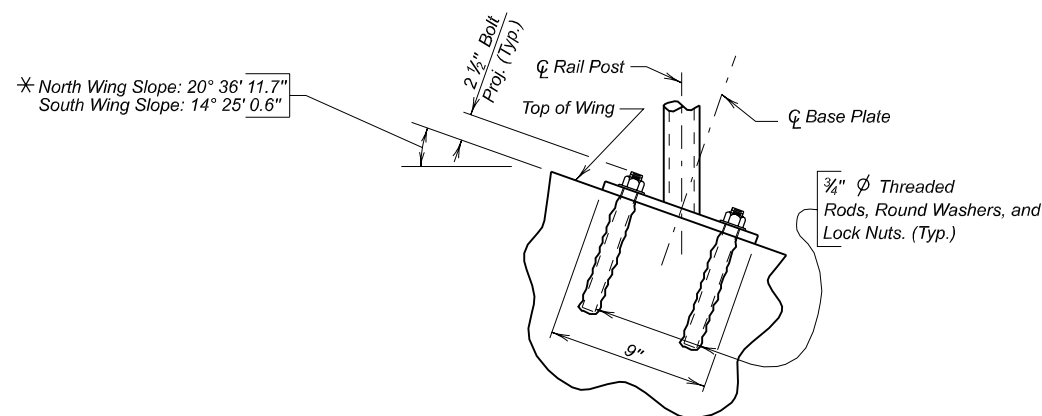
SEC. A - A



VIEW C - C

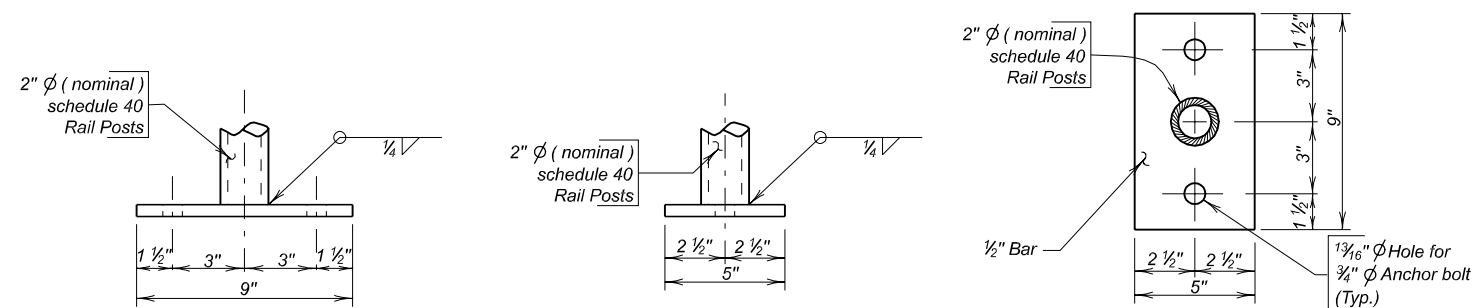


RAIL SPLICE DETAILS



VIEW B - B

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Pipe Handrail	Ft.	196.7
Chain Link Fence for Bridge Sidewalk	Ft.	197
Remove Bridge Railing	Ft.	30.8
Install Dowel in Concrete	Each	54



BASE PLATE DETAILS

PIPE HANDRAIL DETAILS (CONTINUED)
 FOR
SPECIAL 2 - 12' X 10' BOX CULVERT
 OVER DRY RUN 40° L.H.F. SKEW
 STR. NO. 24-293-026 SEC. 13-T7S-R5E
 385-492

FALL RIVER COUNTY
 S. D. DEPT. OF TRANSPORTATION

MAY 2011

5 OF 5

* The wing slopes are calculated based on original construction plans and are for information only. The contractor shall field verify prior to ordering rail.

DESIGNED BY DJS FRIV25S	DRAWN BY BT T25STA05	CHECKED BY BWS	Kevin N. Coeden BRIDGE ENGINEER
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