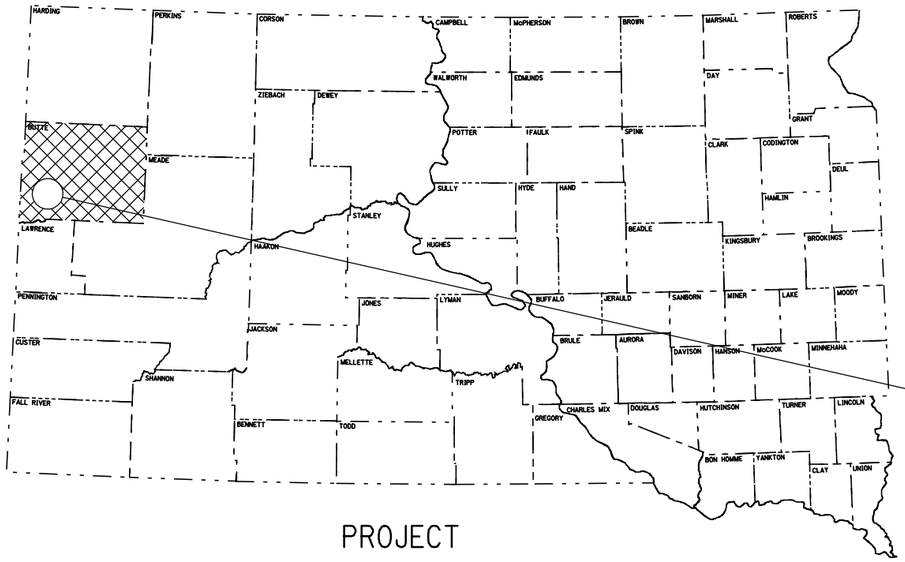
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-471	1	14

Plotting Date: 06-MAR-2012

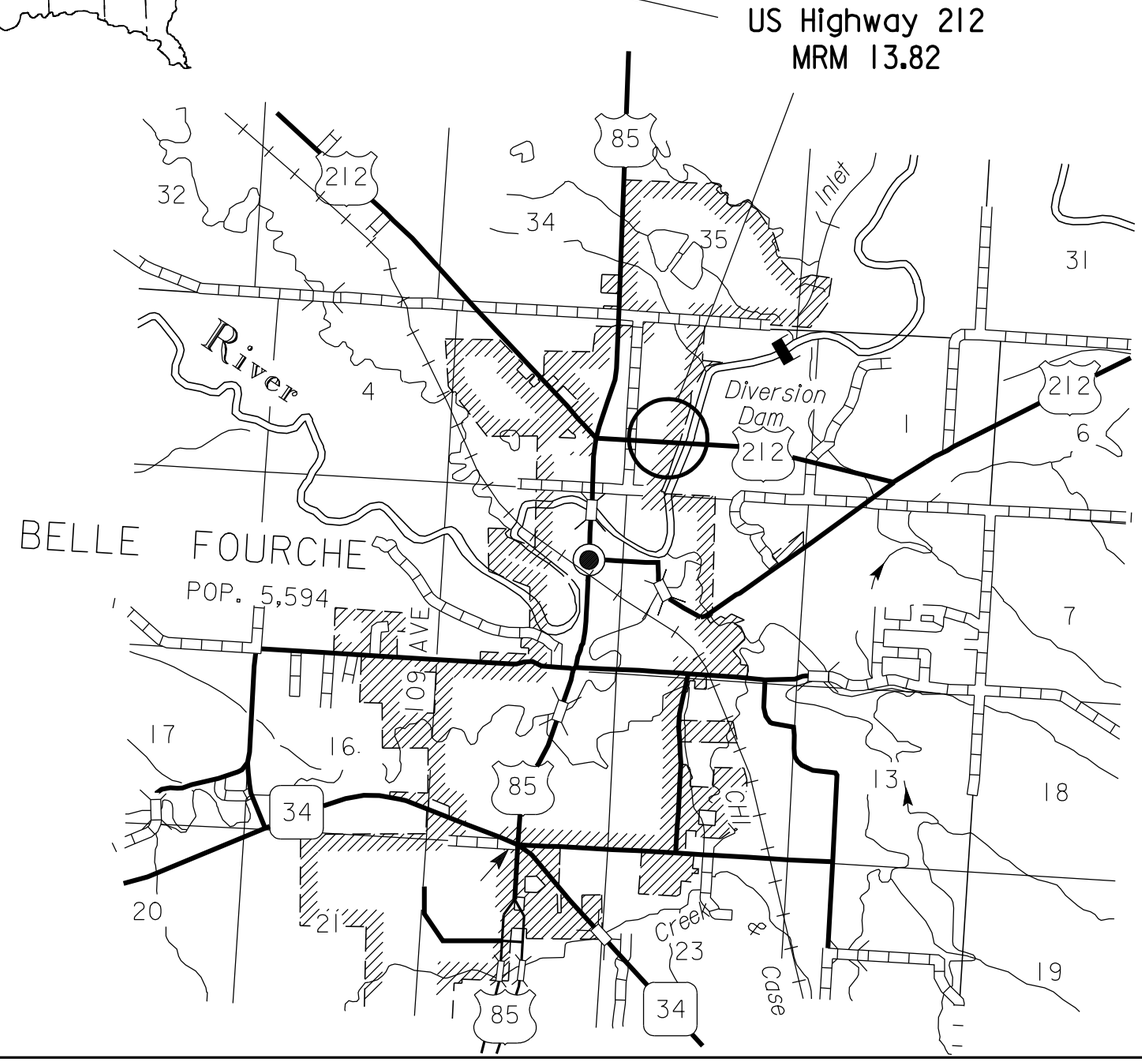
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 212-471
US HIGHWAY 212
BUTTE COUNTY

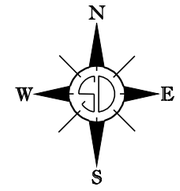
Downspout And Erosion Repair
PCN : I2AQ



PROJECT

US Highway 212
MRM 13.82





CITY MAP
BELLE FOURCHE
BUTTE COUNTY – SOUTH DAKOTA
T 9 N–R 6 E

INDEX OF SHEETS

DESIGN DESIGNATION

ADT (2010)	1,660
ADT (2030)	1,778
DHV	284.5
D	50%
T DHV	6.7%
T ADT	14.7%
V	40 MPH

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	120	Ft
120E0010	Unclassified Excavation	20	CuYd
120E0600	Contractor Furnished Borrow	204	CuYd
230E0020	Placing Contractor Furnished Topsoil	35	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
420E0400	Structure Excavation, Miscellaneous	1	CuYd
450E4789	36" CMP 16 Gauge, Furnish	120	Ft
450E4790	36" CMP, Install	120	Ft
450E5025	36" CMP Elbow, Furnish	2	Each
450E5026	36" CMP Elbow, Install	2	Each
450E5223	36" CMP Flared End, Furnish	1	Each
450E5224	36" CMP Flared End, Install	1	Each
462E0100	Class M6 Concrete	0.8	CuYd
480E0100	Reinforcing Steel	108	Lb
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0310	Class C Riprap	20.7	Ton
730E0210	Type F Permanent Seed Mixture	25	Lb
734E0103	Type 3 Erosion Control Blanket	400	SqYd
734E0510	Shaping for Erosion Control Blanket	120	Ft
734E0604	High Flow Silt Fence	84	Ft
831E0110	Type B Drainage Fabric	33	SqYd

SPECIFICATIONS

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

WORK DESCRIPTION

Work on this project will consist of the following:

1. Excavate buried inlet.
2. Replace downspout pipe.
3. Construct ditch block, reshape gravel road and shape slope.
4. Install erosion control items.

UTILITIES

Other than noted below, 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.

Fiber optic cable exists along the project. The approximate location is shown in the plans. Care shall be taken to not damage this cable during construction. Any damage caused to this power line by the Contractor shall be repaired by the Contractor at no cost to the State.

SEQUENCE OF OPERATIONS - GENERAL

1. The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent landowners. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of two week prior to potential implementation.

SEQUENCE OF OPERATIONS

1. Set up traffic control.
2. Excavate buried inlet and cleanout inlet.
3. Remove existing pipe between inlet and river.
4. Install new 36" CMP pipe between inlet and river.
5. Install fabric, cutoff wall and riprap.
6. Construct ditch block adjacent to inlet.
7. Reshape the gravel road and slope.
8. Install topsoil between inlet and gravel road.
9. Install seed, erosion control blanket and silt fence.
10. Remove traffic control.

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.

To facilitate SHPO 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 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.

WASTE DISPOSAL SITE

The Contractor will 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

1. The Contractor shall at all times, keep the portion of the project being used by the traveling public in a condition that will adequately and safely accommodate traffic.

2. Storage of vehicles, materials, and equipment shall be not closer than 30' from the edge of the driving lane. 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.

3. The Contractor shall coordinate his operations such that during non-working hours the roadway shall be open to normal flow of traffic.

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

TRAFFIC CONTROL

1. Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. The cost of this work shall be incidental to the various contract bid 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.

2. Traffic control shall be in accordance with the MUTCD 2009 Edition, the Standard Specifications and the layouts contained in these plans.

3. 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.

4. Non-applicable signing will be covered or removed and reset during periods of in-activity. All costs to do this work shall be incidental to Traffic Control, Miscellaneous.

5. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed supports, unless approved by the Engineer.

6. All Contractors' vehicles or equipment entering or leaving a closed work area shall display a flashing amber light visible in all directions at a minimum distance of ¼ mile.

7. The Contractor or designated traffic control subcontractor shall make night (after dark) inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the related contract items.

TRAFFIC CONTROL (CONTINUED)

8. The Contractor shall have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
				TOTAL UNITS	170

UNCLASSIFIED EXCAVATION

Unclassified Excavation is provided to restore surface drainage to the buried inlet grate.

Excess material not required shall be handled as waste.

No field measurement of Unclassified Excavation will be required and plans quantity shall be the basis of payment.

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	20.0 CuYds

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

Compaction of fill material shall be to the satisfaction of the Engineer.

The estimated quantity of Contractor Furnished Borrow is as follows:

Ditch Block	48.0 CuYds
Erosion Area	86.0 CuYds
Restore River Bank	70.0 CuYds
Total	204.0 CuYds

INCIDENTAL WORK, GRADING

Reshape the gravel road and slope between the buried inlet and the Belle Fourche River. Restore the river bank to accommodate the new riprap.

All costs associated with the reshaping of the gravel road, slope and restoring the river bank shall be incidental to the contract lump sum price for "Incidental Work, Grading".

REMOVE PIPE CULVERT

Remove the 120 feet of 24" CMP and elbows between the buried inlet and the Belle Fourche River. The pipe culvert and elbows will become the property of the Contractor.

All costs associated with the removal and disposal of the in-place CMP pipe, elbows and ends shall be incidental to the contract unit price per foot for "Remove Pipe Culvert".

The plans quantity for "Remove Pipe Culvert" as shown in the Estimate of Quantities will be the basis of payment for this item.

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 ⅔-inch X ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

PIPE FOR DOWNSPOUTS

The pipe opening in the existing inlet will need to be increased to accommodate the new 36" CMP. All costs associated with increasing the pipe opening will be incidental to the various contract items.

M6 Concrete shall be used to pour a collar around the pipe in the area of the connection. All costs for constructing the concrete collar shall be incidental to the various contract items.

CLASS C RIPRAP

Type B Drainage Fabric shall be placed underneath the Class C Riprap. The fabric shall conform to Section 831 of the Standard Specifications.

STRUCTURE EXCAVATION, MISCELLANEOUS

Structure Excavation, Miscellaneous is provided for the cutoff wall.

PLACING CONTRACTOR FURNISHED TOPSOIL

The Contractor will furnish and place 3 inches of topsoil on areas designated in the plans and areas as determined by the Engineer during construction.

The soil shall be reasonably free from subsoil, clay lumps, stones or similar objects larger than 2 inch in diameter. Brush, stumps, roots, objectionable weeds or litter, or any other material or substance which may be harmful to plant growth will not be allowed.

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for "Placing Contractor Furnished Topsoil".

PERMANENT SEEDING

The areas to be seeded are comprised of the area under the Type 3 Erosion Control Blanket and any at locations determined by the Engineer during Construction.

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 F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

EROSION CONTROL BLANKET

Type 3 Erosion control blanket shall be installed at the locations noted in the plans 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

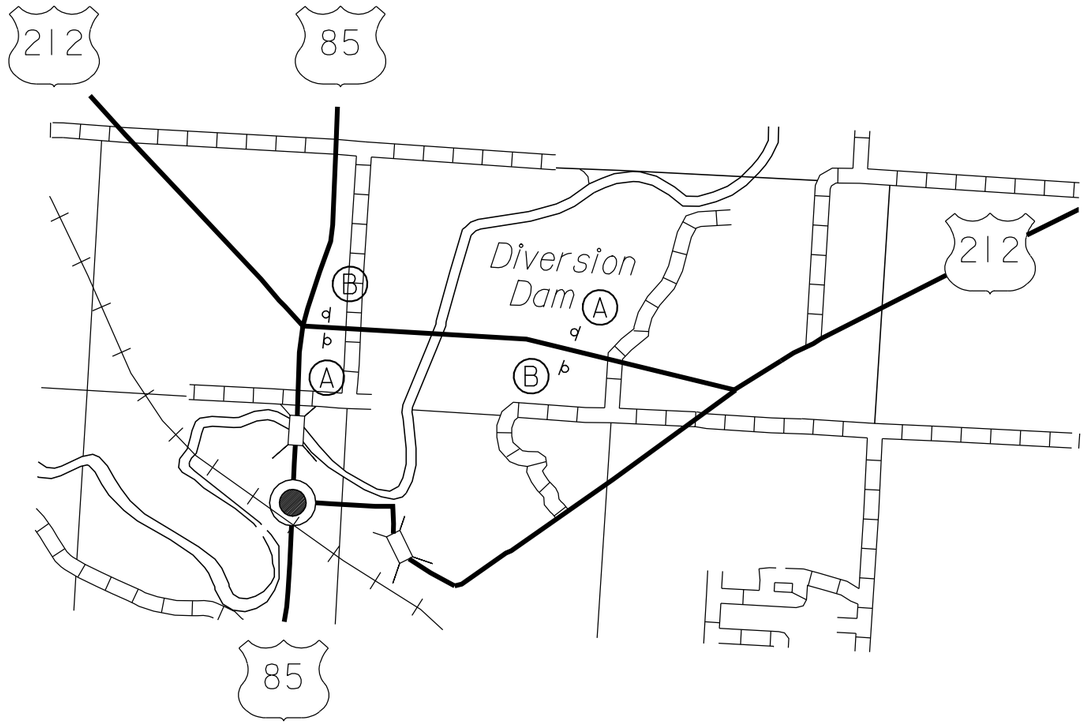
All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

FIXED LOCATION SIGNS

Ⓐ

Ⓑ

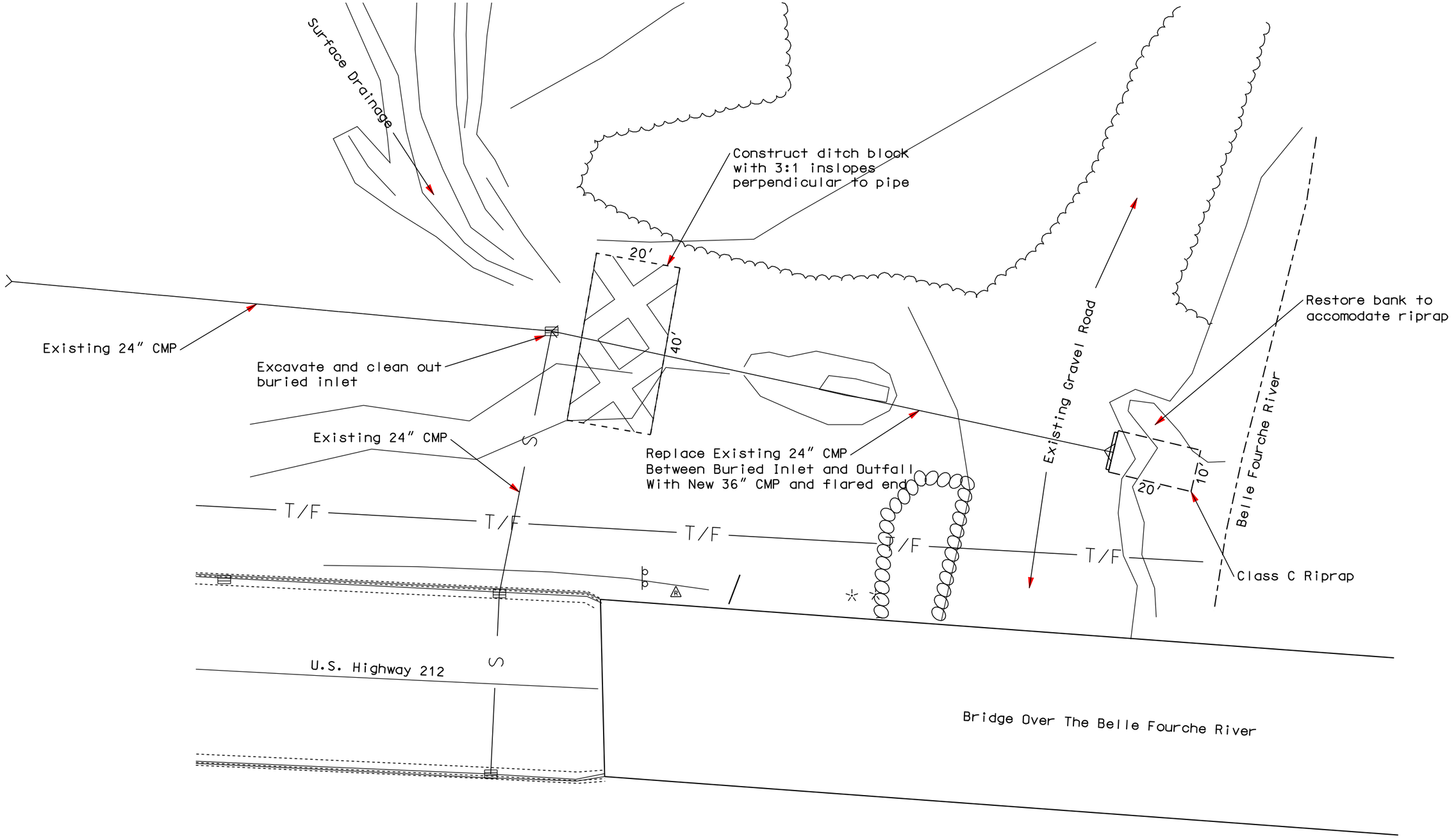
G20-2



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-471	6	14

Plotting Date: 06-MAR-2012

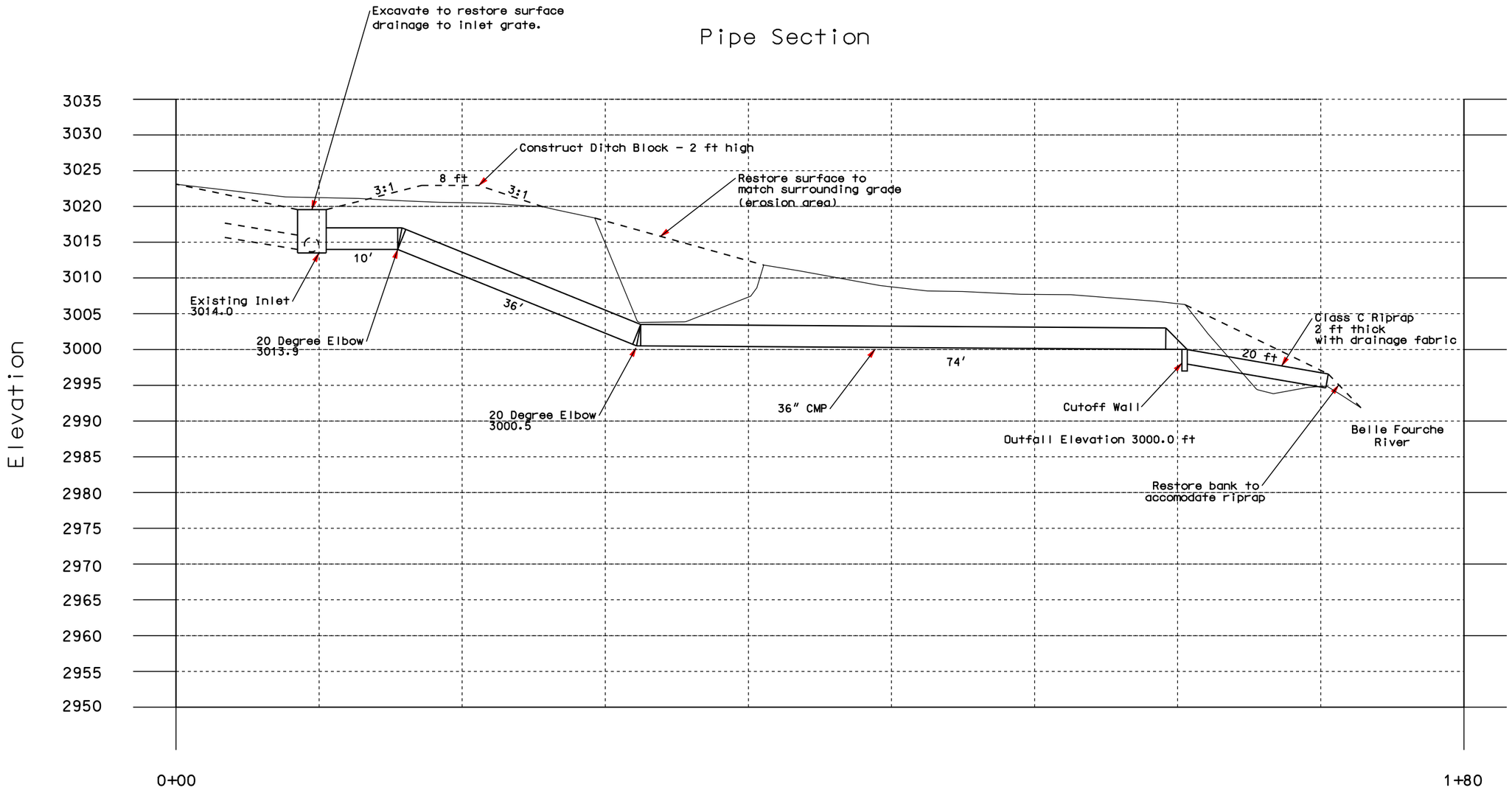
Pipe Replacement Plan



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-471	7	14

Plotting Date: 06-MAR-2012

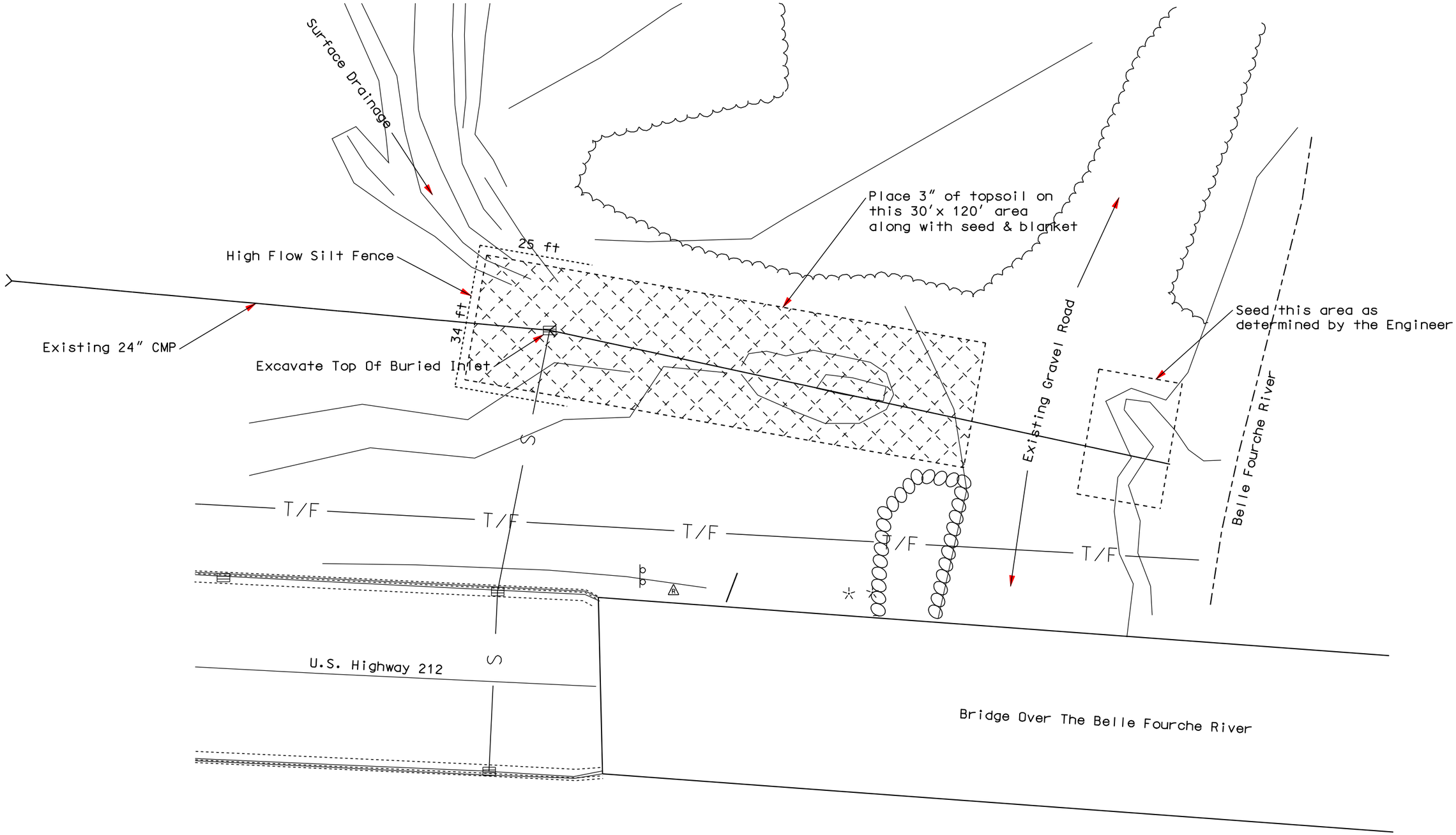
Pipe Section



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-471	8	14

Plotting Date: 06-MAR-2012

Erosion Control Plan



PLOT SCALE - 22.915818:1.000000

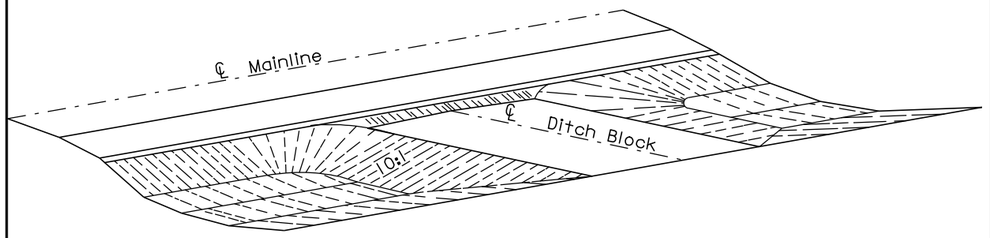
PLOTTED FROM - TRBEINT18

PLOT NAME - 12AQ - EROSION PLAN-8

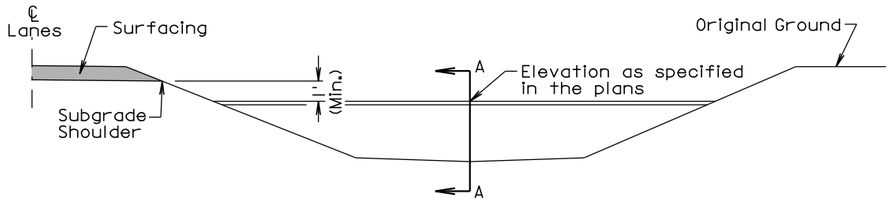
FILE - C:\2012 PLANS\PCN 12AQ\12AQ - PLAN.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-471	9	14

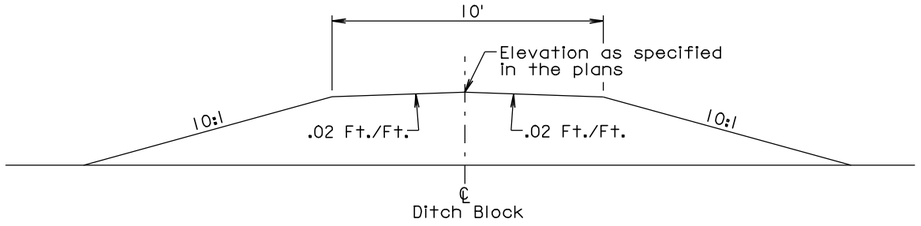
Plotting Date: 06-MAR-2012



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

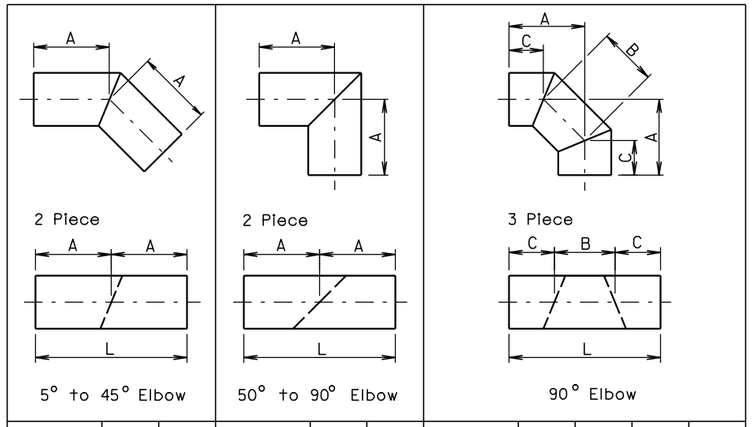
The inslopes of the ditch block shall be 10:1 or as specified in the plans.

The transition area between the mainline inslope and the ditch block inslope shall be rounded to eliminate an abrupt transition.

February 14, 2011

Published Date: 1st Qtr. 2012	SDDOT	**DITCH BLOCK**	***PLATE NUMBER*** *120.02*
			Sheet 1 of 1

Username - trbeintl8



Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

GENERAL NOTES:

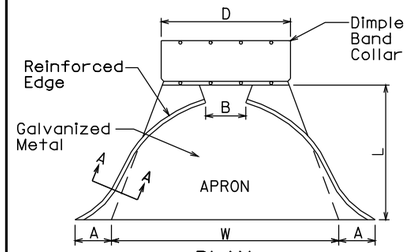
All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

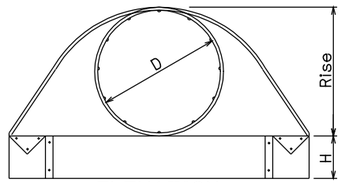
June 26, 2001

Published Date: 1st Qtr. 2012	SDDOT	C.M.P. FABRICATED LENGTHS FOR ELBOWS	PLATE NUMBER 450.32
			Sheet 1 of 1

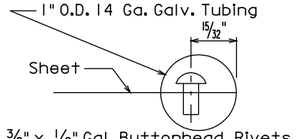
Alternate Type Connector Sections may be used with approval of the Engineer.



PLAN

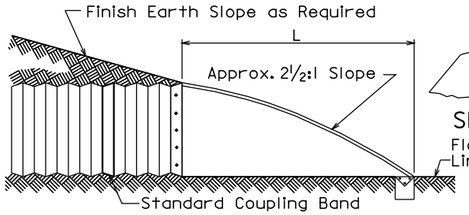


ELEVATION



3/8" x 1/2" Gal. Buttonhead Rivets spaced 6" C. to C. Overall length of rivets=0.78"

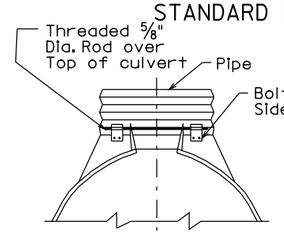
TUBING ATTACHMENT DETAILS
SECTION A-A



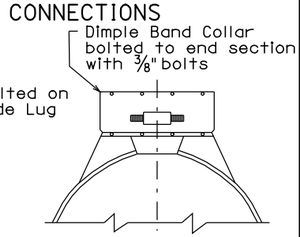
TYPICAL CROSS-SECTION

Dia. D (In.)	Ga.	DIMENSIONS (In.) A	B	H	L	W	Approx. Slope	Body
12	16	6	6	6	21	24	2½:1	1 Pc.
15	16	7	8	6	26	30	2½:1	1 Pc.
18	16	8	10	6	31	36	2½:1	1 Pc.
21	16	9	12	6	36	42	2½:1	1 Pc.
24	16	10	13	6	41	48	2½:1	1 Pc.
30	14	12	16	8	46	60	2½:1	1 Pc.
36	14	14	19	9	51	72	2½:1	2 Pc.
42	12	16	22	11	60	84	2½:1	2 Pc.
48	12	18	27	12	69	90	2¼:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1¾:1	3 Pc.
66	12	18	36	12	87	120	1½:1	3 Pc.
72	12	18	39	12	87	126	1⅓:1	3 Pc.
78	12	18	42	12	87	132	1¼:1	3 Pc.
84	12	18	45	12	87	138	1⅙:1	3 Pc.

STANDARD CONNECTIONS

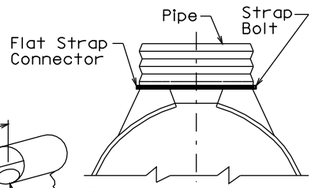


For 30" through 84"

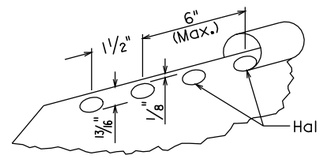


Alternate for all sizes

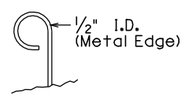
NOTE:
Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.



For 12" through 24" only



SECTION A-A (alternate)



SECTION A-A (alternate)

GENERAL NOTES:

All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2½" x 2½" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.

Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

Published Date: 1st Qtr. 2012	SDDOT	C.M.P. FLARED ENDS	PLATE NUMBER 450.35
			Sheet 1 of 1

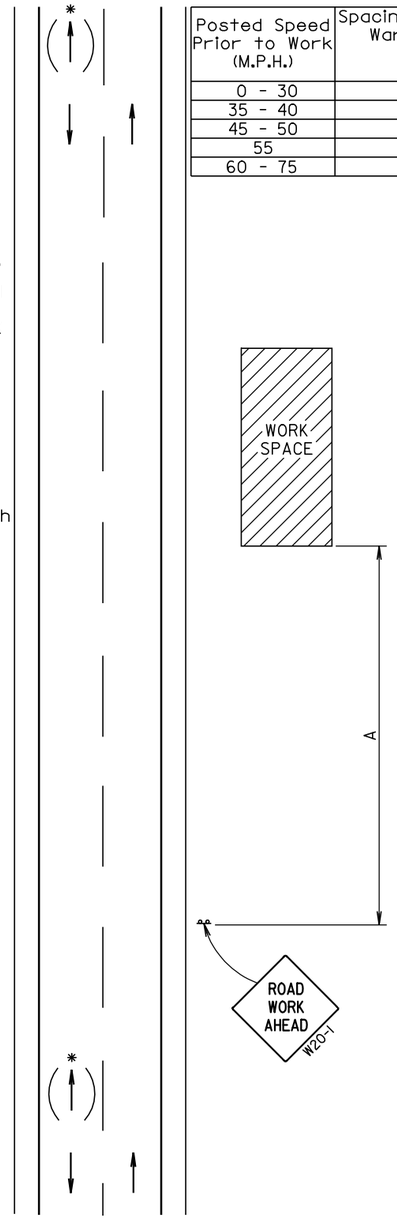
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

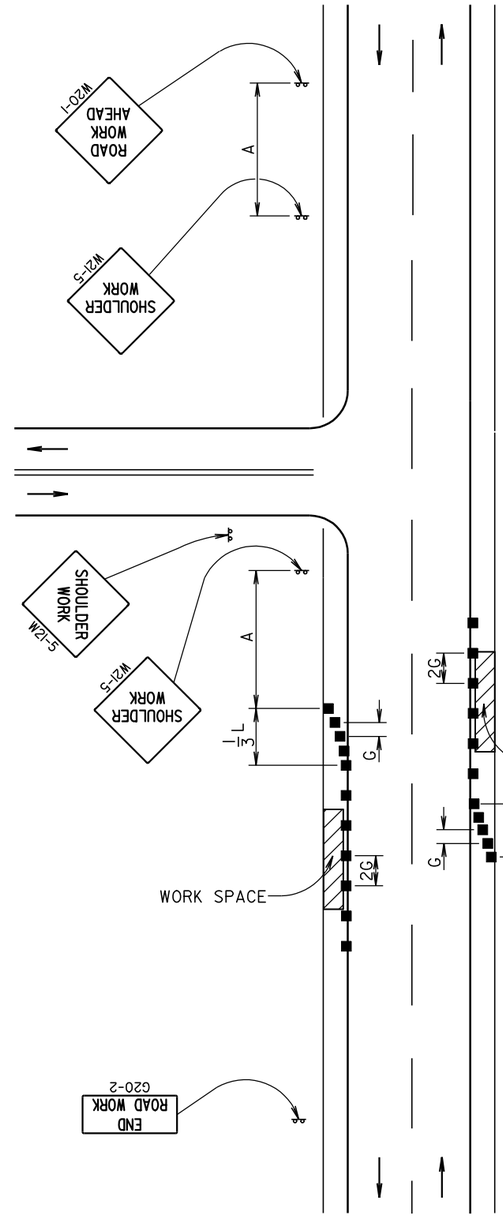
Published Date: 1st Qtr. 2012

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER

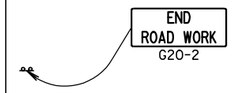
PLATE NUMBER 634.01

Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	100 - 200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device



The channelizing devices shall be drums or 42" cones if traffic control must remain overnight or longer.

For short duration operations (1 hour or less) all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

February 14, 2011

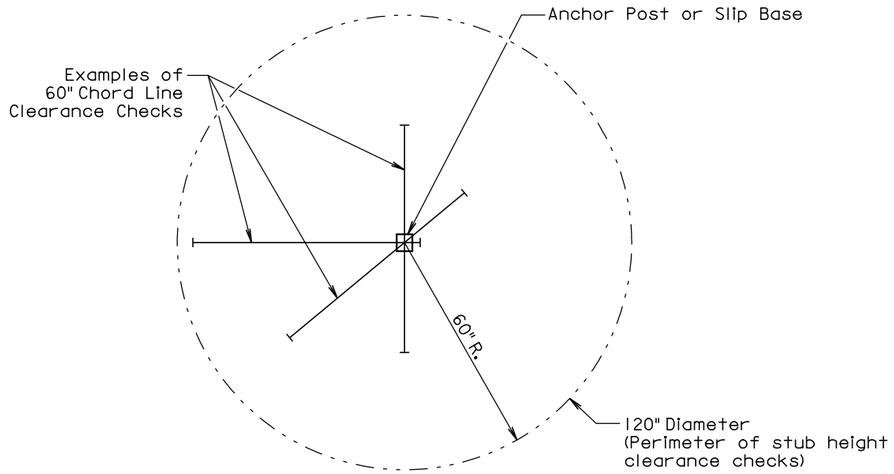
Published Date: 1st Qtr. 2012

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS

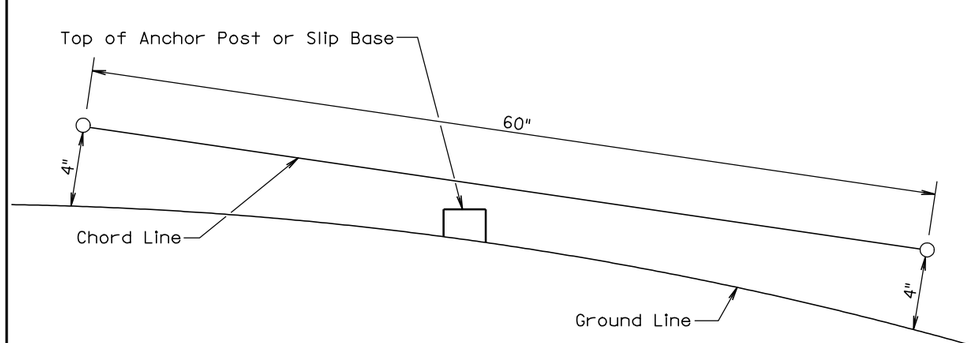
PLATE NUMBER 634.03

Sheet 1 of 1



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

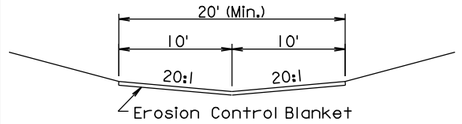
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

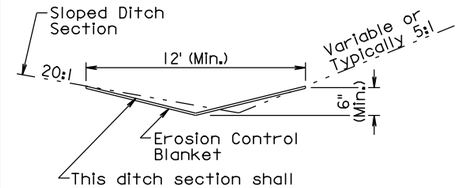
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

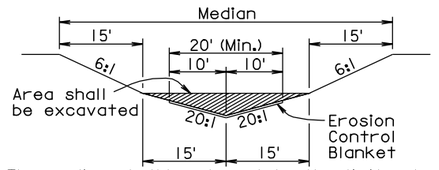
Published Date: 1st Qtr. 2012	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99 Sheet 1 of 1



STANDARD DITCH SECTION

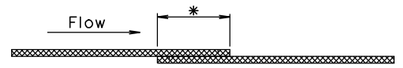


SLOPED DITCH SECTION



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

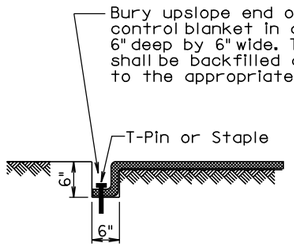
MEDIAN SECTION



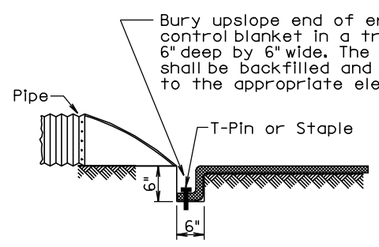
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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.

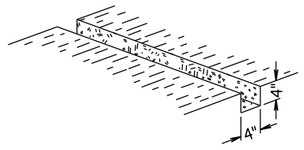
After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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".

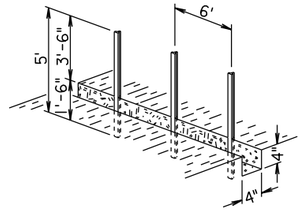
December 23, 2004

Published Date: 1st Qtr. 2012	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01 Sheet 1 of 1

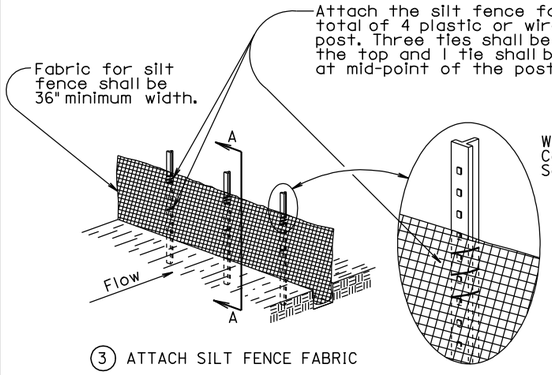
MANUAL HIGH FLOW SILT FENCE INSTALLATION



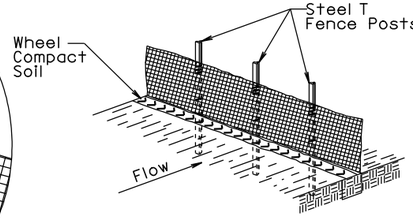
(1) EXCAVATE TRENCH



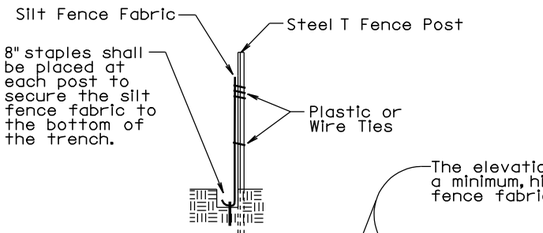
(2) DRIVE STEEL T FENCE POSTS



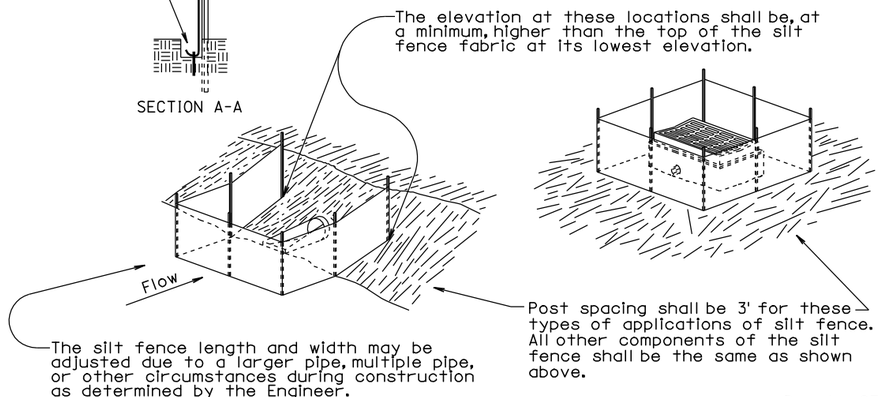
(3) ATTACH SILT FENCE FABRIC



(4) BACKFILL TRENCH AND WHEEL COMPACT SOIL



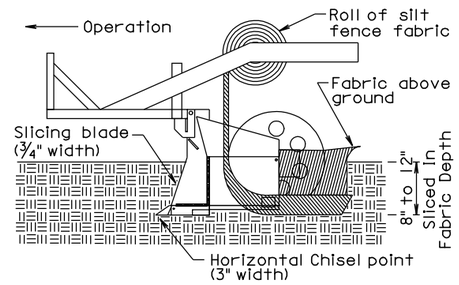
SECTION A-A



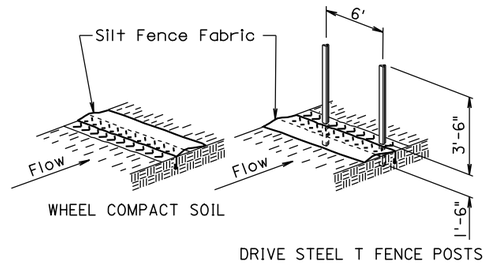
December 23,2003

Published Date: 1st Qtr. 2012	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

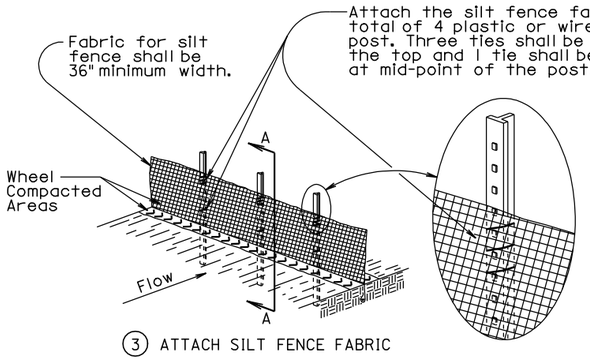
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



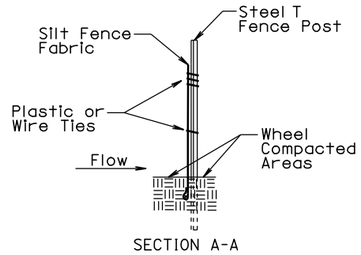
(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



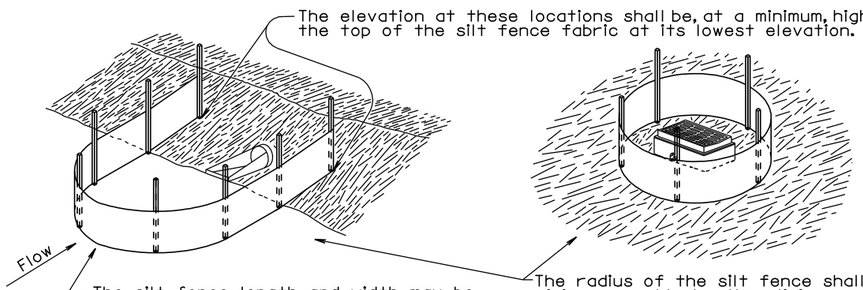
(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



(3) ATTACH SILT FENCE FABRIC



SECTION A-A



GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23,2003

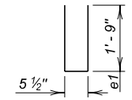
Published Date: 1st Qtr. 2012	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

Username - trbeintl8

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	212-471	14	14

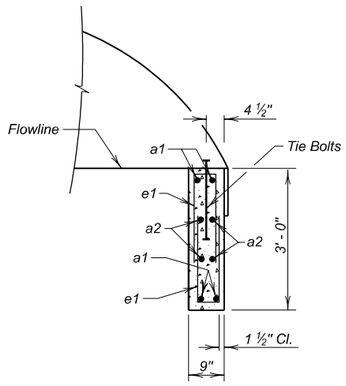
REINFORCING SCHEDULE
(For One Inlet or One Outlet Cutoff Wall)

Mk.	No.	Size	Length	Type	Bending Details
a1	4	5	8' - 9"	Str.	
a2	4	4	8' - 9"	Str.	
e1	18	4	4' - 0"	S10	

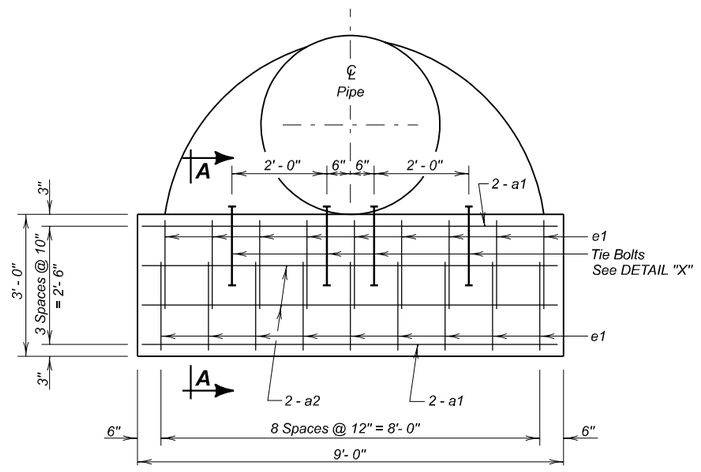


Type S10

NOTE:
All dimensions are out to out of bars.



SEC. A-A



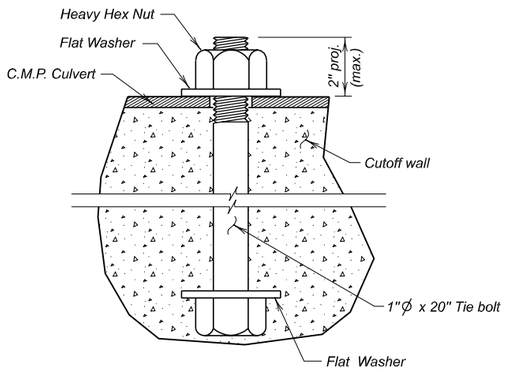
ELEVATION
(Inlet or Outlet Cutoff Wall)

SPECIFICATIONS-

1. 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.

GENERAL NOTES-

1. Concrete shall be Class M6 in conformance with Section 462.
2. Reinforcing Steel shall conform to ASTM A615 Grade 60.
3. Use 1 ½" clear cover on all reinforcing steel except as shown.
4. All exposed edges shall be chamfered ¾".
5. Tie Bolts shall be 1"Ø x 20" A307 bolts with heavy hex nuts and 2 washers. Bolts, nuts and washers shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable. Four bolts, or equivalent as approved by the Engineer, are required for each cutoff wall. Embed bolts in concrete cutoff wall as detailed.
6. Cutoff wall dimensions and quantities shown are based on S. D. Standard Plate No. 450.35. For CMP Flared Ends with differing dimensions, adjust cutoff wall as required and submit revised details to the Office of Bridge Design, thru proper channels, for approval. Minimum cutoff wall depth below Flowline is 3' - 0". Payment will be for plans quantities unless changes are ordered by the Engineer.
7. All costs for furnishing and installing the galvanized Tie Bolts shall be incidental to the other contract items.



DETAIL "X"

ESTIMATED QUANTITIES
(for one cutoff wall)

ITEM	Class M6 Concrete	Reinforcing Steel	★Structure Excavation, Misc.
UNI T	Cu. Yd.	Lb.	Cu. Yd.
30" to 36" C.M.P.	0.8	108	0.8

★ Quantity based on neat line excavation to the dimensions of the cutoff wall below the bottom of the pipe. Payment will be for plans quantity regardless of actual volume excavated.

STD 3'- 0'' CUTOFF WALL DETAILS
FOR
30'' TO 36'' C. M. P. FLARED ENDS
0° SKEW

S. D. DEPT. OF TRANSPORTATION

FEBRUARY 2010

1 OF 1

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

DESIGNED BY	DRAWN BY	CHECKED BY	
XX	XX	XX	Kevin N. Goeden
CNTYPCEM	PCEMDSPG	CMPHW5	BRIDGE ENGINEER