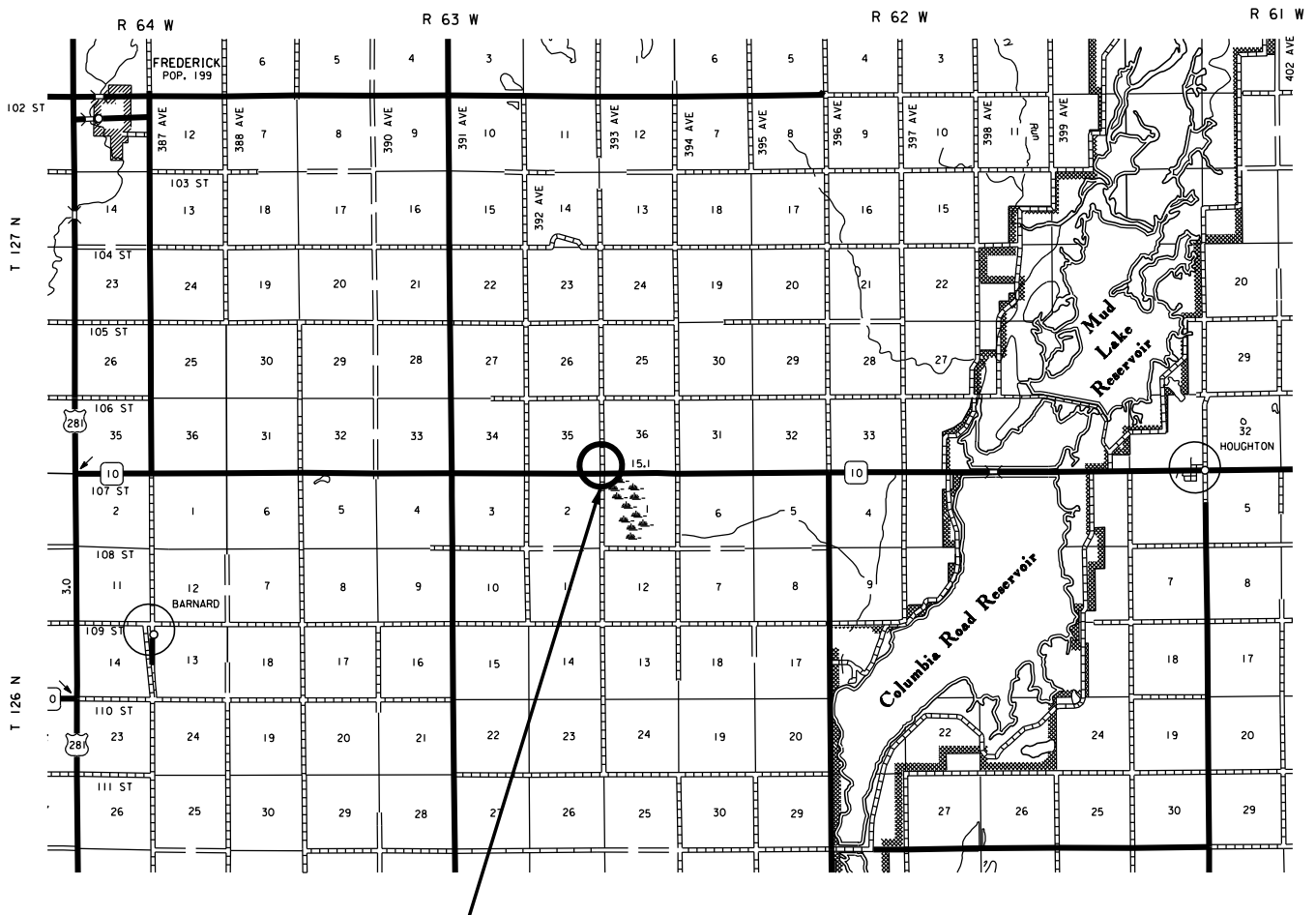


Project # 010-151
Brown County
PCN i40h
Replace Section Line Road Culvert



Storm Water Permit
None Required

Project

PIPE CULVERT REPLACEMENT QUANTITIES

MRM	In-Place Pipe Size	Remove Pipe Culvert (Ft)	Remove Pipe End Section (Each)	Install 30" CMP (Ft)	Install 30" CMP Flared End Section (Each)	Unclassified Excavation (Cu Yd)	Base Course (Ton)	Contractor Furnished Borrow Excavation (Cu Yd)	Remarks
289.000 + 0.280	30 " RCP	32	2	38	2	46	7	60	393rd Ave North Approach
289.000 + 0.280								15	Fill for gabion baskets

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

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 E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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 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 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.

COMMITMENT H: WASTE DISPOSAL SITE CONTINUED

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.

SEQUENCE OF OPERATIONS

Once work starts at the site, work shall be pursued in a continuous manner until complete.

1. Install traffic control devices.
2. Complete Culvert Work
3. Install Gabion Baskets
4. Backfill around Gabion Baskets
5. Replace Topsoil
6. Seed and mulch

SCOPE OF WORK

The Contractor shall install the culvert and gabion basket according to plan details and standard plate. Placing Contractor Furnished Borrow, or performing excavation will be done as necessary to install the gabion basket, dewatering may be required depending on seasonal conditions.

TRAFFIC CONTROL

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

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.

Work activities during non-daylight hours are subject to prior approval.

The Contractor will be allowed to close 393rd Ave while replacing the approach pipe at this location. Once work begins the Contractor will remain working on the project until all work is completed. The Contractor will have 3 Calendar days to complete all culvert work and have the road open to the public. The Contractor will place barricades at appropriate locations to allow the traveling public to detour their route around the project location. Traffic control signs have been included for the road closure.

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 location, ground mounted, breakaway supports.

Traffic Control signing as shown in the Itemized List for Traffic Control, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

UTILITIES

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.

PIPE REPLACEMENT

All material generated from the removal of the base course and subgrade shall become property of the Contractor. All costs associated with disposing of this waste material shall be incidental to the contract unit price per cubic yard for UNCLASSIFIED EXCAVATION.

The Contractor shall salvage enough topsoil to place a minimum of 4" over all areas that are to be seeded. Payment for this work shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow.

Salvage or granular material will not be allowed for backfill in the subgrade. Compaction of the Contractor Furnished Borrow Excavation and Base Course shall be to the satisfaction of the Engineer.

Pipe flow line shall match that of existing pipe. This may require that ditches be excavated in each direction from the pipe ends to maintain proper water flow through the pipe. The excavated material shall become the property of the Contractor for his disposal. All costs associated with this work shall be incidental to the contract lump sum price for INCIDENTAL WORK, GRADING.

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 2/3 inch X 1/2 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.

The soils within the project area are highly corrosive to steel. Corrugated metal pipe in these areas are specified in the Table of Pipe Quantities and the pipe shall be 14 gauge steel. Corrugated metal pipe in these areas including the connection bands shall be polymer coated and be in conformance with AASHTO M245 and AASHTO M36. The connection bands shall be 24 inches wide.

All damage to the polymer coating shall be repaired in accordance with the manufacturers recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of the polymer coating shall be incidental to the corresponding CMP bid items.

Metal pipe end sections connected to polymer coated CMP shall be aluminum coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections shall be incidental to the corresponding CMP End Section bid items.

INCIDENTAL WORK GRADING

Ditch cleanout shall be completed for the width of the ditch bottom and for 20' from each end of the culvert.

All costs associated with ditch cleanout shall be incidental to the contract lump sum price for INCIDENTAL WORK, GRADING.

INSTALLATION OF GABION BASKETS

Gabions Baskets shall be installed according to the standard plates. Gabion Baskets shall be 3 feet in height. Quantities for Gabion Baskets are based on standard gabion sizes A, B and C, see standard plate 720.01. Gabions installed under the flow line of the pipe shall match the slope of the flow line of the pipe. The Gabion Baskets shall be installed on the east end of the culvert. The gabion baskets shall be backfilled in a manner to match the existing ground level. Payment for the stone material used to fill the gabions shall be incidental to the contract unit price per cubic yard for BANK AND CHANNEL PROTECTION GABION.

Payment for excavation shall be incidental to the contract unit price per cubic yard for BANK AND CHANNEL PROTECTION GABION. There is an estimated 15 cubic yards of contractor furnished borrow for fill around the Gabion Baskets. Payment for filling with borrow material shall be incidental to the contract unit price per cubic yard for CONTRACTOR FURNISHED BORROW EXCAVATION. Compaction of the Contractor Furnished Borrow Excavation shall be to the satisfaction of the Engineer.

The basis of payment shall be plans quantity. There will be no additional payment for dewatering if it is needed.

The Contractor is encouraged to visit the site prior to bidding to verify the extent of work needed.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

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

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.

An estimated ½ acre will need to be seeded. Payment for seeding and mulching shall be incidental to the contract lump sum price for EROSION CONTROL.

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

EROSION CONTROL WATTLE

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

100 feet of 12" Diameter Erosion Control Wattles have been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels.

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>

12" Diameter Erosion Control Wattles will remain in place and be removed by SDDOT Forces.

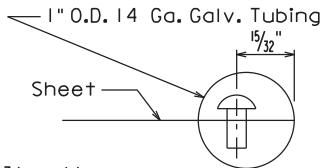
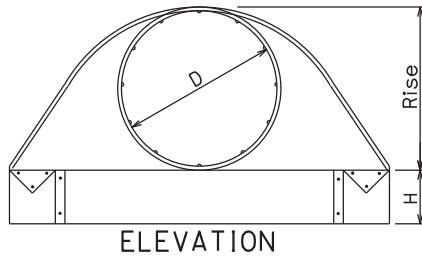
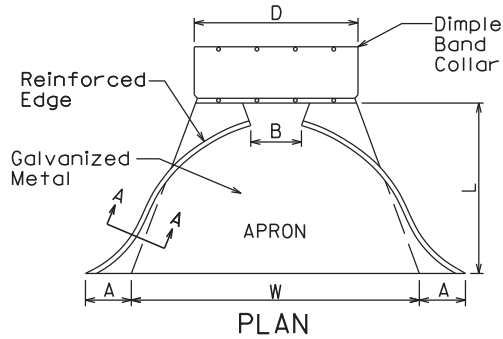
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10	20
R11-3a	ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY	1	60" x 30"	13	13
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-3	ROAD CLOSED AHEAD	1	48" x 48"	16	16
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		81			

TYPE 3 BARRICADES

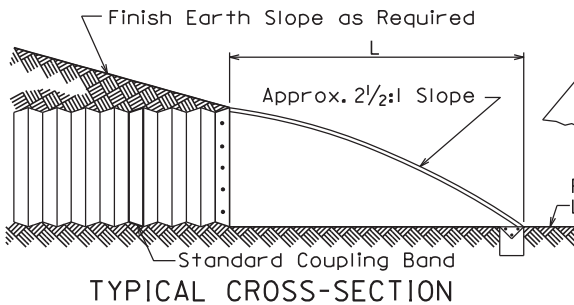
ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	7 Each
Type 3 Barricade, 6' Double Sided	1 Each

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



$\frac{3}{8}$ " x $\frac{1}{2}$ " Gal. Buttonhead Rivets
spaced 6" C. to C. Overall length
of rivets=0.78"

TUBING ATTACHMENT DETAILS SECTION A-A



GENERAL NOTES:

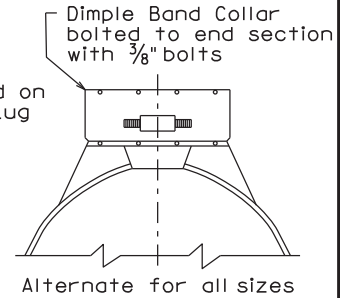
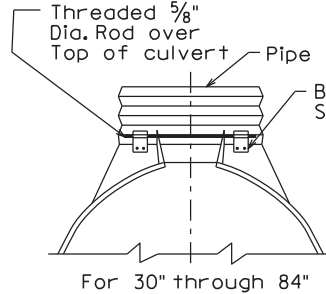
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by $\frac{3}{8}$ " Dia. galvanized rivets or bolts.

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

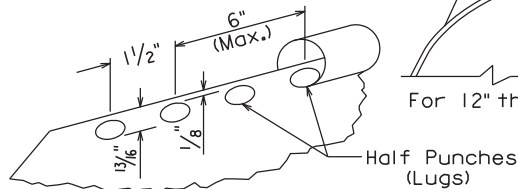
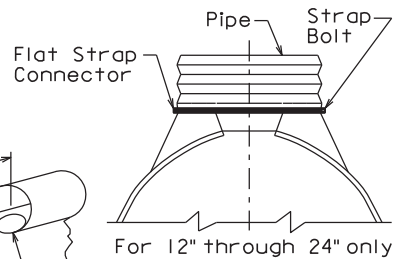
Rivets and Bolts shall be $\frac{3}{8}$ " Dia. Min. for 10 Ga. and 12 Ga. sheet, and $\frac{5}{16}$ " Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

Dia. D (in.)	Ga.	DIMENSIONS (in.)					Approx. Slope	Body
		A	B	H	L	W		
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.

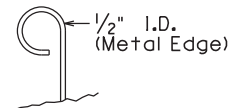
STANDARD CONNECTIONS



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



SECTION A-A (alternate)



SECTION A-A (alternate)

March 31, 2000

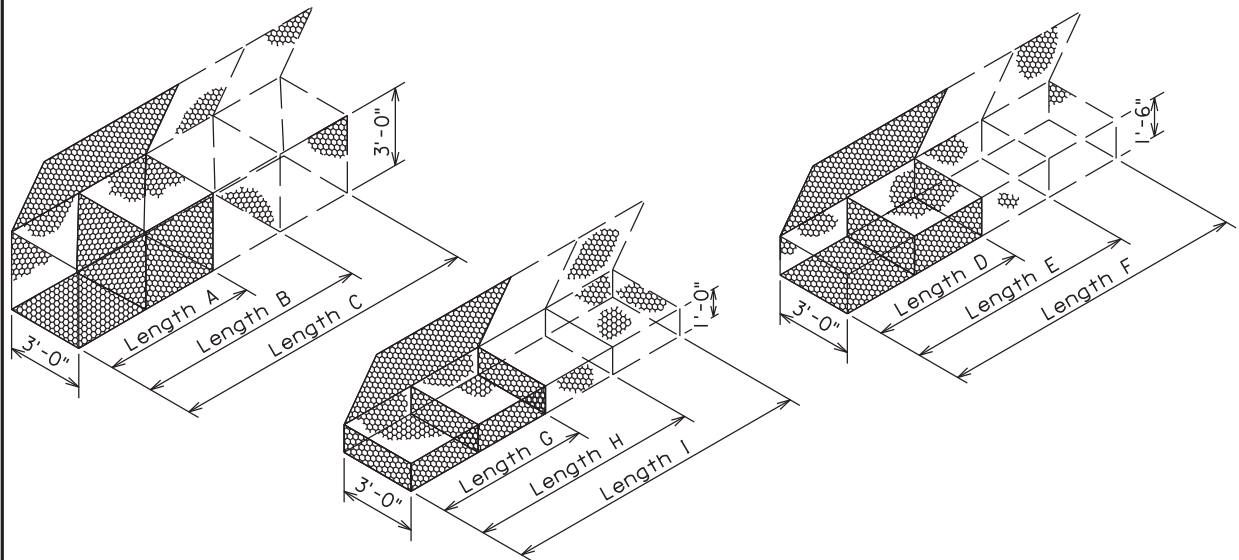
Published Date: 3rd Qtr. 2015

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C.M.P. FLARED ENDS

**PLATE NUMBER
450.35**

Sheet 1 of 1



GABION DETAILS

STANDARD SIZES

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately $1 \frac{1}{2}$ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches.

All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

Published Date: 3rd Qtr. 2015

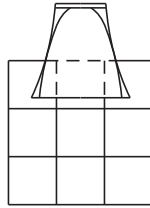
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BANK AND CHANNEL PROTECTION GABIONS

PLATE NUMBER
720.01

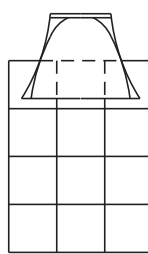
Sheet 1 of 1

12", 18", & 24" RCP & CMP
12", 18", & 24" RCP Arch & CMP Arch



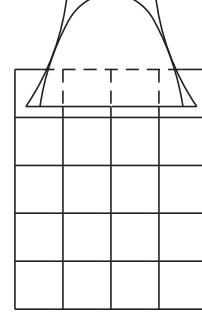
4.5 Cu. Yds.

30" & 36" RCP & CMP
30" & 36" RCP Arch & CMP Arch



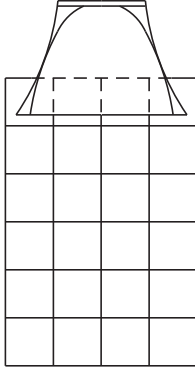
6.0 Cu. Yds.

42" RCP & CMP
42" RCP Arch & CMP Arch



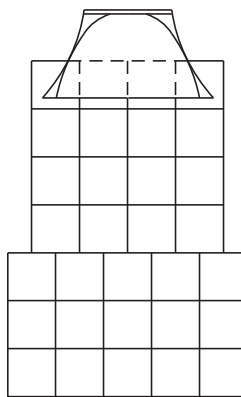
10.0 Cu. Yds.

48" & 54" RCP & CMP
48" & 54" RCP Arch & CMP Arch



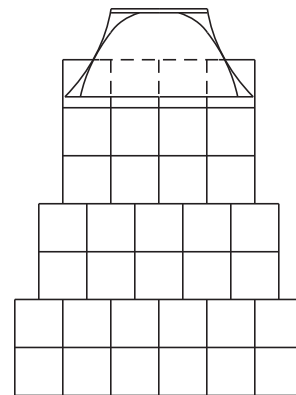
12.0 Cu. Yds.

60" RCP & CMP
60" RCP Arch & CMP Arch



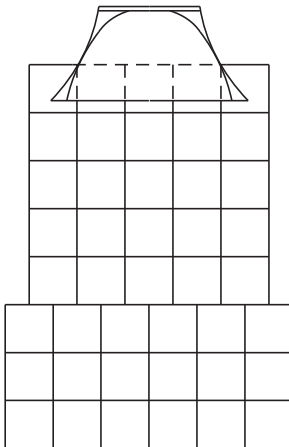
15.5 Cu. Yds.

66" RCP & CMP



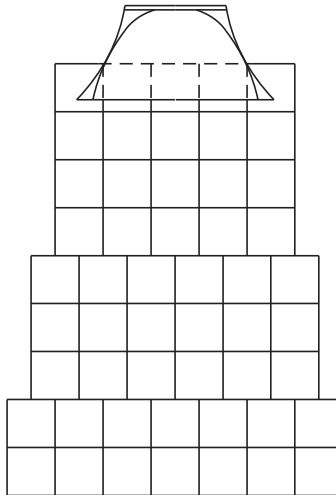
17.0 Cu. Yds.

72" RCP & CMP
72" RCP Arch & CMP Arch



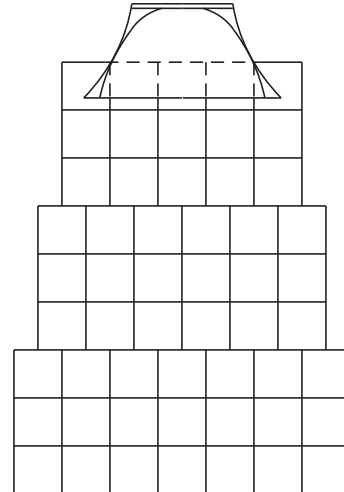
21.5 Cu. Yds.

78" RCP & CMP



26.0 Cu. Yds.

84" RCP & CMP



27.0 Cu. Yds.

GENERAL NOTES:

Gabions at outlets of C.M. pipe and R.C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C.M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

June 26, 2001

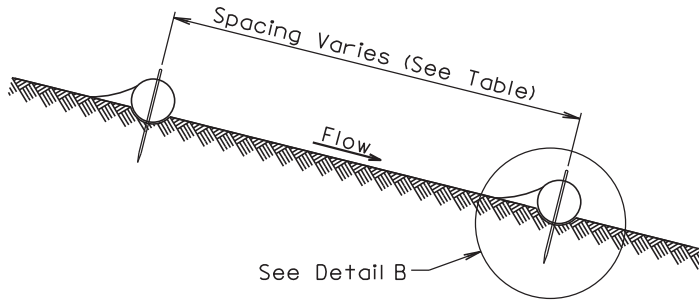
Published Date: 3rd Qtr. 2015

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**BANK AND CHANNEL PROTECTION GABION
PLACEMENT UNDER PIPE END SECTIONS**

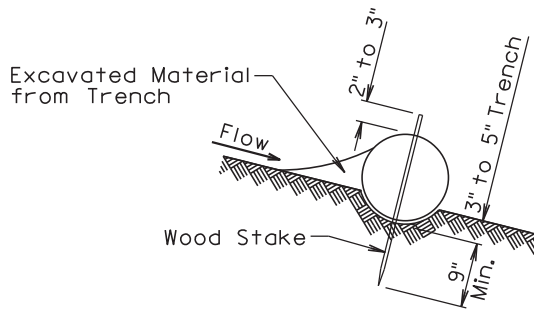
**PLATE NUMBER
720.03**

Sheet 1 of 1

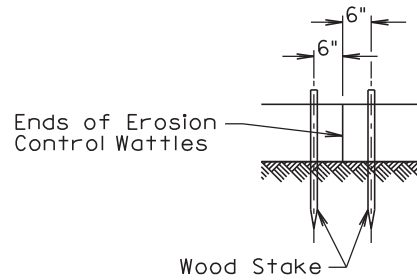


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

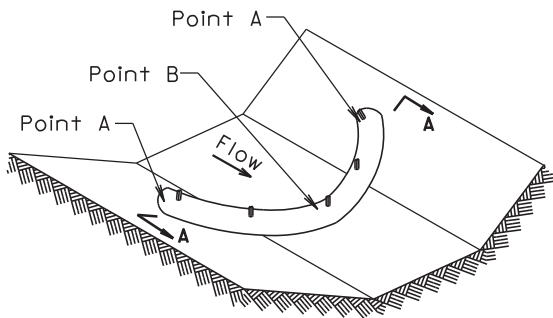
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



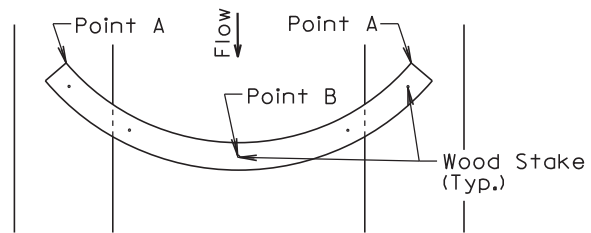
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

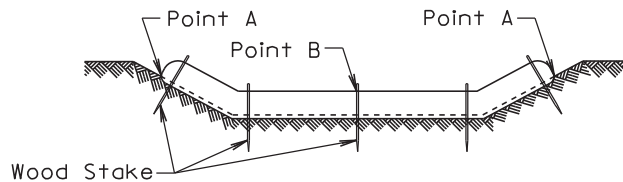


ISOMETRIC VIEW
DITCH INSTALLATION



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: 3rd Qtr. 2015

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EROSION CONTROL WATTLE

**PLATE NUMBER
734.06**

Sheet 1 of 2

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 $\frac{1}{2}$ ". 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

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EROSION CONTROL WATTLE

PLATE NUMBER
734.06

Sheet 2 of 2