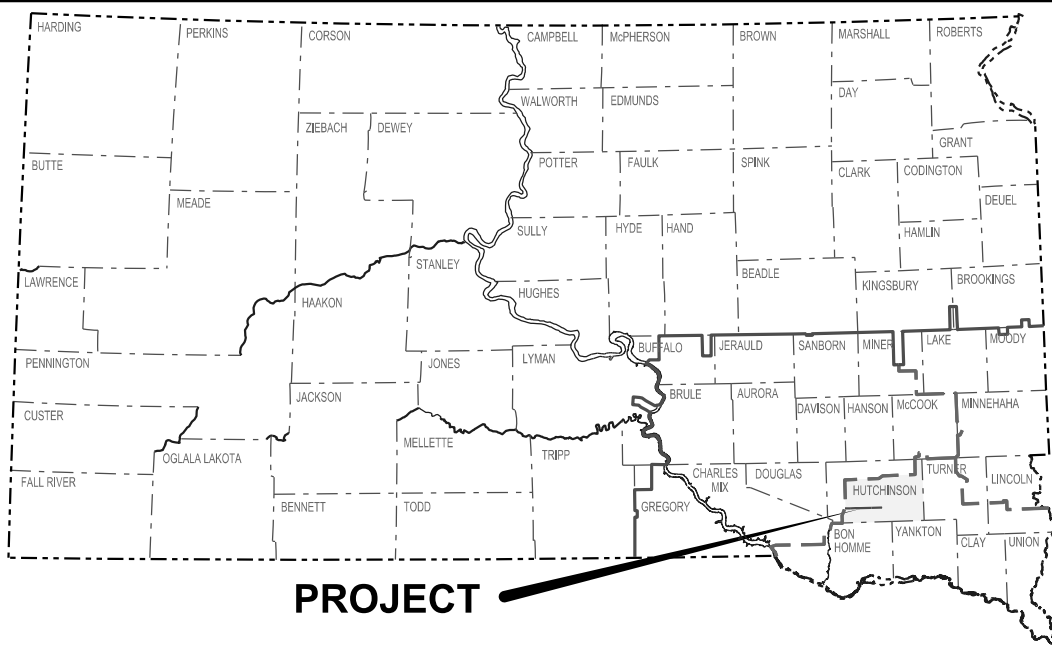


PLOT SCALE - 1"=7000'

PLOTTED FROM - TRYAINT45



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 018-292
US HIGHWAY 18
HUTCHINSON COUNTY
PIPE AND EROSION REPAIR
PCN I44P

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-292	1	10

Plans Prepared by: Joseph Sestak

INDEX OF SHEETS

Sheet 1	Layout Map & Index of Sheets
Sheet 2	Estimate of Quantities & Environmental Commitments
Sheet 3	Environmental Commitments
Sheet 4	Table for Mainline Culvert Work
Sheets 5-6	Plan Notes & Itemized List For Traffic Control Signs
Sheets 7-10	Standard Plates

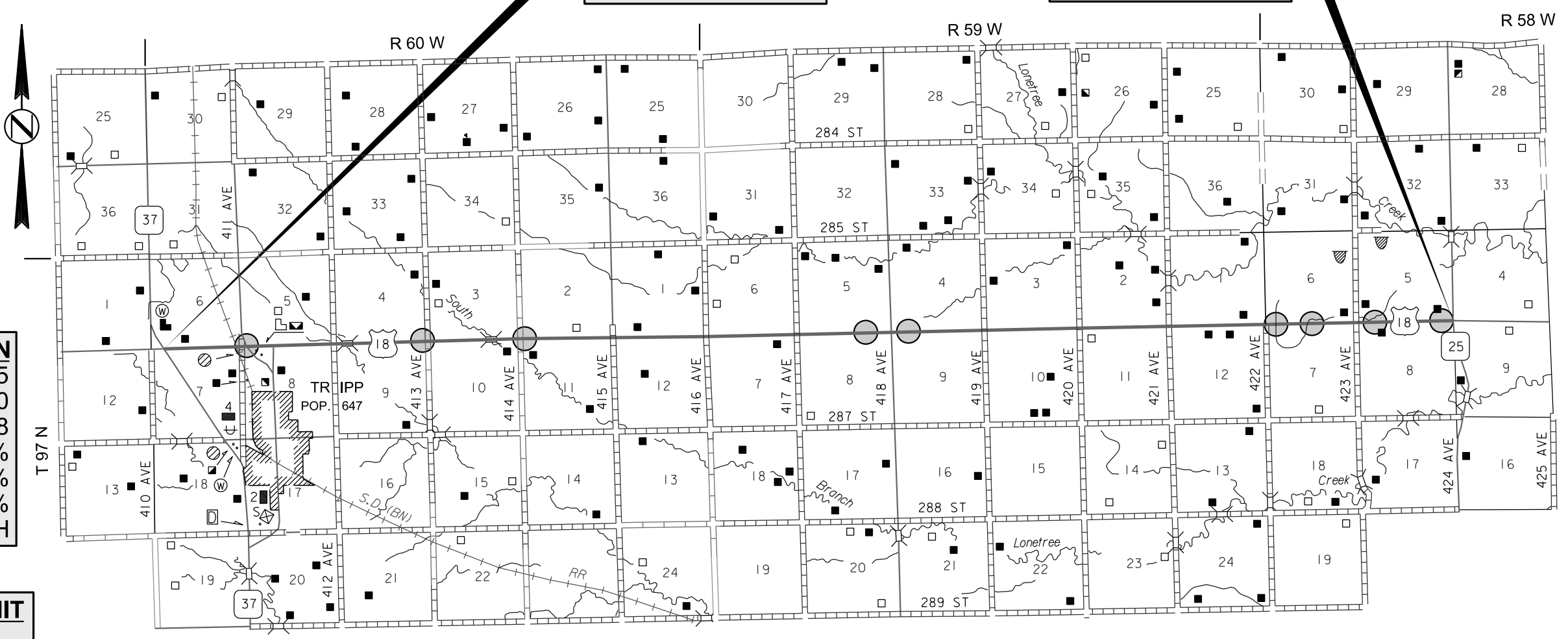
PROJECT

BEGIN PROJECT
MRM 373.94 +0.000
MILEAGE 350.772

END PROJECT
MRM 387.70 +0.000
MILEAGE 364.525

DESIGN DESIGNATION	
ADT(2014)	595
ADT(2034)	670
DHV	88
D	52%
T DHV	7.8%
T ADT	17.2%
V	65 MPH

STORM WATER PERMIT
(None required)



● Repair Work Locations

PROJECT LENGTH 13.753 Miles

FILE - ... \2016 PIPE REPAIR\TITLE\I44P.DGN PLOT NAME - 1

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E7500	Remove Pipe for Reset	132	Ft
110E7510	Remove Pipe End Section for Reset	1	Each
120E0600	Contractor Furnished Borrow Excavation	17	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
450E9000	Reset Pipe	132	Ft
450E9001	Reset Pipe End Section	1	Each
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	106	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
720E1010	PVC Coated Bank and Channel Protection Gabion	24.0	CuYd
734E0010	Erosion Control	Lump Sum	LS
831E0110	Type B Drainage Fabric	48	SqYd

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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D2: SURFACE WATER DISCHARGE

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

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute 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 Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Public 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 Public 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.

Cost 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 department designated sources and designated option material sources, stockpile sites, storage areas, and waste 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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

TABLE OF PIPE REPAIR

PROJECT	MRM			SIZE AND TYPE	REMOVE AND RESET PIPE CULVERT (FT)	REMOVE AND RESET PIPE END SECTION (EACH)	3 ft DEEP BANK AND CHANNEL PROTECTION GABIONS (CUYD)	DIMENSIONS FOR GABIONS (FT)	CONTR. FURN. BORROW EXCAVATION (CUYD)	TYPE B DRAINAGE FABRIC (SQYD)	COMMENTS	APPROXIMATE GPS COORDINATES		SIDE OF ROAD
												NORTHING	EASTING	
018-292	374	+	0.820	18" RCP		1						N 43.24087	E 97.97221	South
018-292	376	+	0.759	24" RCP	22				3		14 ft north, 8 ft south	N 43.24111	E 97.93381	Both
018-292	377	+	0.809	18" RCP	24				4		12 ft north, 12 ft south	N 43.24128	E 97.91341	Both
018-292	381	+	0.400	18" RCP	24				4		12 ft north, 12 ft south	N 43.24137	E 97.84237	Both
018-292	381	+	0.721	24" RCP	12				2		4 ft north, 8 ft south	N 43.24144	E 97.83611	Both
018-292	385	+	0.737	18" RCP	22				3		14 ft north, 8 ft south	N 43.24181	E 97.75658	Both
018-292	386	+	0.166	4' x 6' Box Culvert			24	12' x 18' x 3'		48		N 43.24161	E 97.74815	North
018-292	386	+	0.828	30" RCP	8				1			N 43.24176	E 97.73505	South
018-292	387	+	0.432	24" RCP	20						8 ft north, 12 ft south	N 43.24167	E 97.72280	Both
018-292 PCN I44P TOTALS					132	1	24		17	48				

SCOPE OF WORK

The scope of work on this project shall include, but is not limited to the following:

- 1. Remove and reset separated pipe culvert and end sections.
- 2. Install tie bolts on all removed and reset sections.
- 3. Clean silt from ditches adjacent to pipe culverts.
- 4. Grade and shape ditch cleanout sections and place gabions.
- 5. Seed and apply erosion control blanket to disturbed areas.

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 Engineer to determine modifications that will be necessary to avoid utility impacts.

GPS COORDINATES

The approximate GPS coordinates of the work locations have been included in the plans to help verify the work locations. The coordinates are not to be used for survey control or locates without verification by the Contractor. In the event that the GPS coordinates do not match the Mileage Reference Marker indicated the Contractor shall notify the Engineer for verification of the work location.

TIE BOLTS FOR RCP/RCP ARCH CULVERTS

Tie Bolts shall be installed at the inlet and outlet on all sections of new/reset culvert and on new/reset culvert ends (requires connection from existing culvert to new end section). Connection shall be made from the first section left in place to the first new/reset section and to all new/reset sections.

For informational purposes:
Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends and on existing culvert when installing a new/reset end section.

Cost for removing tie bolts for reuse, drilling tie bolt holes and providing, installing and reinstalling tie bolts shall be incidental to the contract unit prices for installing or resetting RCP Culverts and End Sections.

REMOVE AND RESET TYPE II OBJECT MARKERS

The Contractor will be required to remove prior to the work and reset after the work the Type II Object Markers delineating the pipe ends. Cost for this work shall be incidental to the contract unit prices for the various items.

DRAINAGE FABRIC

Type B Drainage Fabric shall be placed on all surfaces to be covered with Bank & Channel Protection Gabions.

Cost for furnishing and placing Type B Drainage Fabric shall be included in the contract unit price per square yard for Type B Drainage Fabric. Plans quantity shall be the basis of payment unless changes are ordered by the Engineer.

CULVERT REPAIRS FOR MAINLINE CULVERTS

The Contractor is encouraged to thoroughly investigate the culvert repair sites prior to bidding.

Hauling of embankment material on established traveled roadways shall be limited to trucks or small scrapers hauling legal loads and which do not cause damage to the roadway, as approved by the Engineer. Hauling of material in the roadway ditches will not be allowed.

The Contractor shall be responsible for restoration of any areas disturbed outside the limits of the work area.

Joints between concrete pipe culvert sections shall be protected against infiltration as indicated in Section 450.3 A of the Specifications. If an existing concrete pipe culvert section has a damaged joint or there is poor alignment of the joints, 2 layers of drainage fabric shall be placed over the joint.

REMOVE AND REPLACE TOPSOIL

Prior to starting construction operations, a sufficient volume of topsoil shall be removed from the construction limits to cover the disturbed areas to the required thickness as indicated in these plans.

Following completion of grading operations, topsoil shall be spread evenly over the disturbed areas. The thickness will be approximately 4 inches.

Removal and replacement of topsoil will not be measured for payment but shall be included in the contract lump sum price for Remove and Replace Topsoil.

PERMANENT SEEDING AND EROSION CONTROL BLANKET

The areas to be seeded comprise of all newly graded areas and disturbed areas within the project limits. All disturbed areas shall be covered by Type 2 Erosion Control Blanket.

Type G Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

There shall be no Seasonal Limitations per 730.3 B for the seeding on this project due to the sensitivity of the disturbed areas. Seed and Erosion Control Blanket shall be applied to each site not more than 14 calendar days after the completion of the work at the site.

The area to be seeded is estimated at 0.2 acre. The area to be covered with Type 2 Erosion Control Blanket is estimated at 0.2 acre (968 square yards).

Cost for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, and placing erosion control blanket shall be incidental to the contract lump sum price for Erosion Control.

The limits of erosion control work will be determined by the Engineer during construction.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

<i>Glomus intraradices</i>	25%
<i>Glomus aggregatu</i>	25%
<i>Glomus mosseae</i>	25%
<i>Glomus etunicatum</i>	25%

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract lump sum price for Erosion Control.

The mycorrhizal inoculum shall be as shown below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

EROSION CONTROL BLANKET

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

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

DITCH CLEANOUT

Ditch cleanout is required at all locations as directed by the Engineer. There shall be no specific contract item for ditch cleanout. Ditch cleanout shall be incidental to the various contract items.

Ditch cleanout shall extend from the end of the culvert to within 1 foot of the Right-of-Way (ROW) Line. The bottom of the ditch cleanout shall be a minimum of 10 feet wide and the side slopes on the channel shall be 20:1 or flatter. For those locations where there is no channel from the inlet/outlet of the culvert to the ROW Line ditch cleanout shall be completed such that there is a flat area of 100 Square Feet created at the inlet/outlet and the sides slopes around the flat area shall be 20:1 or flatter.

Material from the ditch cleanout may be placed on the inslopes at the ditch cleanout locations, used as Contractor Furnished Borrow Excavation, or spread on the backslopes at some locations as directed by the Engineer.

Cleaning of existing ditches and disposal of soil shall be incidental to the various items.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor Furnished Borrow Excavation material. The Contractor Furnished Borrow Excavation may be obtained from ditch cleanout at the pipe end in some locations.

The borrow material shall be approved by the Engineer.

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

It is not anticipated that water for compaction will be required; however, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. Cost for water shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

The basis for payment for Contractor Furnished Borrow Excavation will be plans quantity. Additional quantities will be included for payment only in the event that work sites other than those shown on the plans are added to the contract.

Restoration of the Contractor Furnished Borrow Excavation site shall be the responsibility of the Contractor.

The Contractor is responsible for obtaining all required permits and clearances for the borrow site.

GENERAL MAINTENANCE OF TRAFFIC

Sufficient traffic control devices have been included in these plans to sign one workspace for a lane closure using flaggers. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control Signs.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		106			

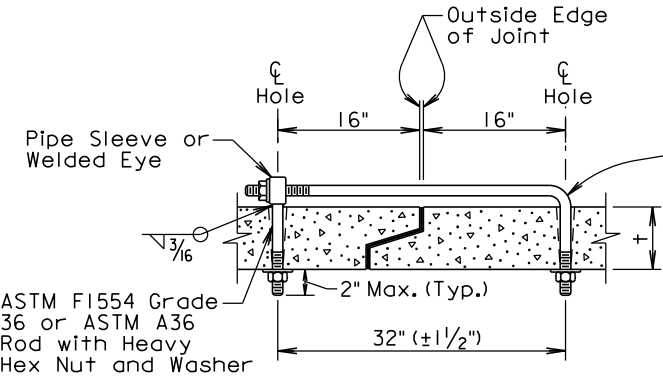
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2 - 6 1/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

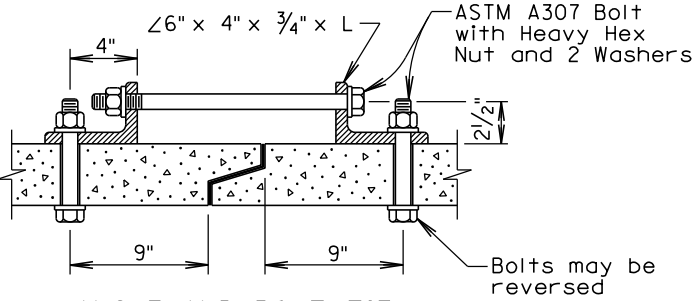
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



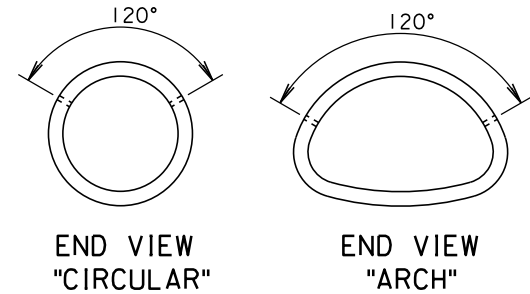
ANGLE AND BOLT TIE

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.



February 28, 2013

Published Date: 1st Qtr. 2016	S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			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.

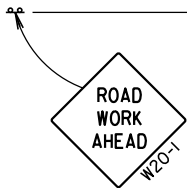
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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 - 80	1000



A



April 15, 2015

Published Date: 1st Qtr. 2016	S D D O T	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)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

- Flagger
■ Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

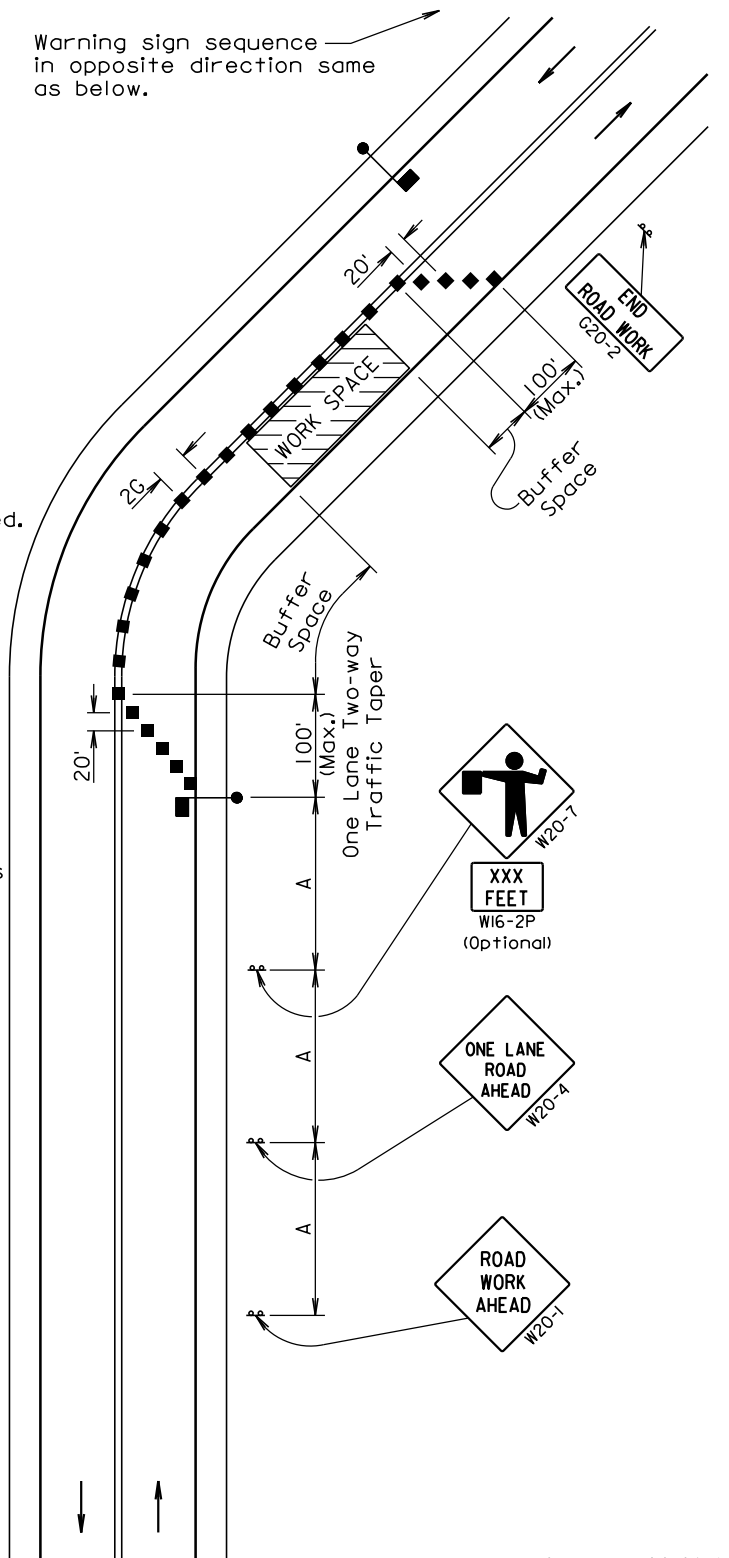
END
ROAD WORK
G20-2

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



September 22, 2014

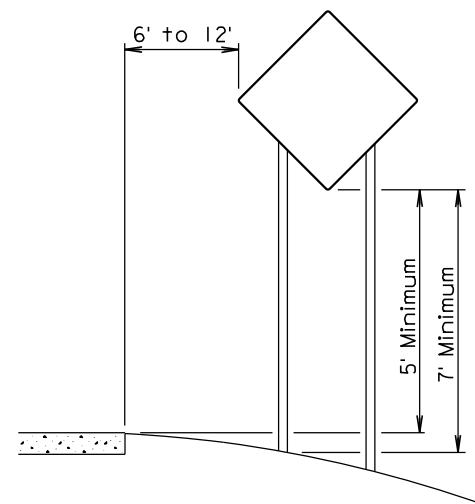
Published Date: 1st Qtr. 2016

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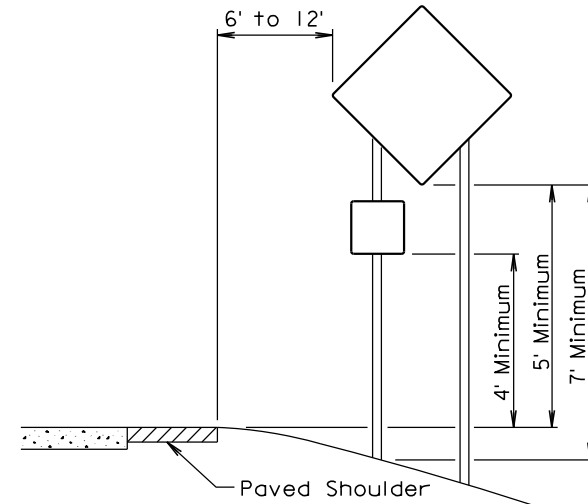
GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER
634.23

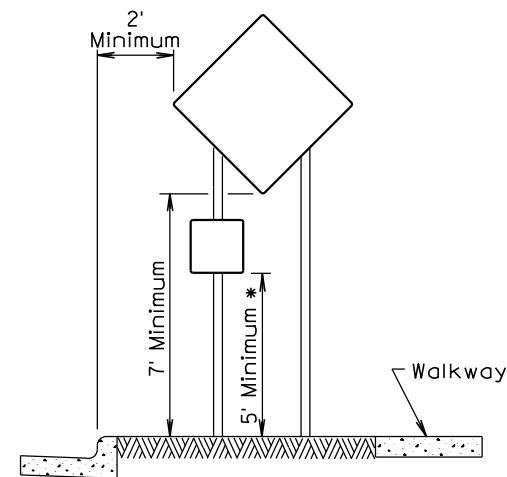
Sheet 1 of 1



RURAL DISTRICT

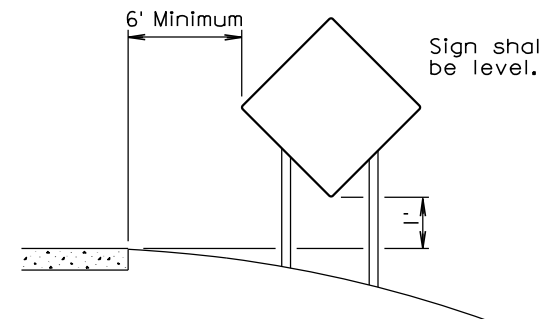


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

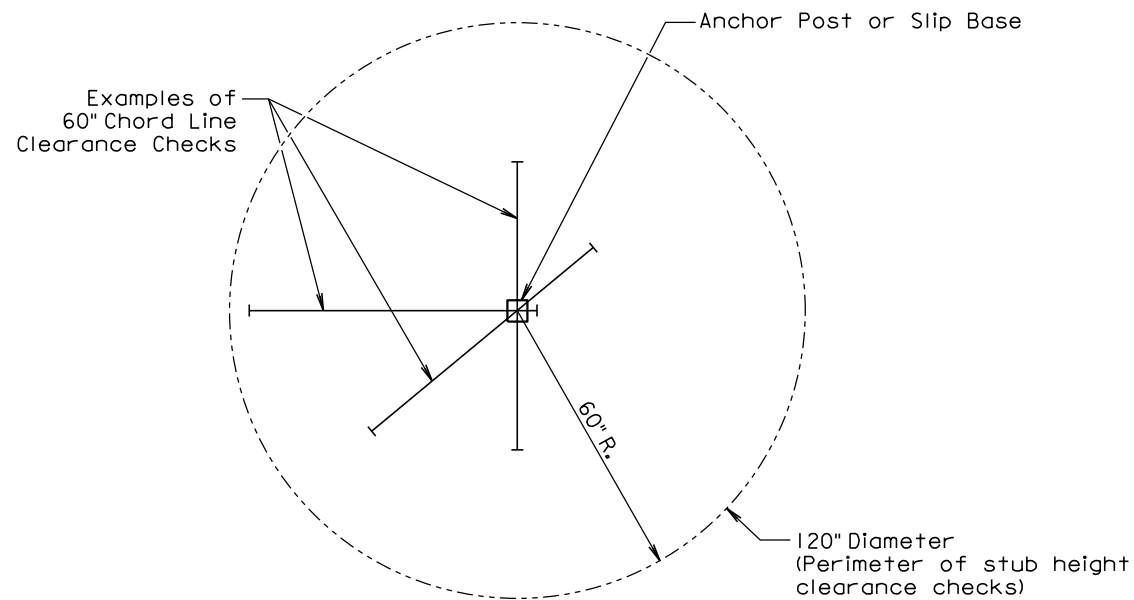
Published Date: 1st Qtr. 2016

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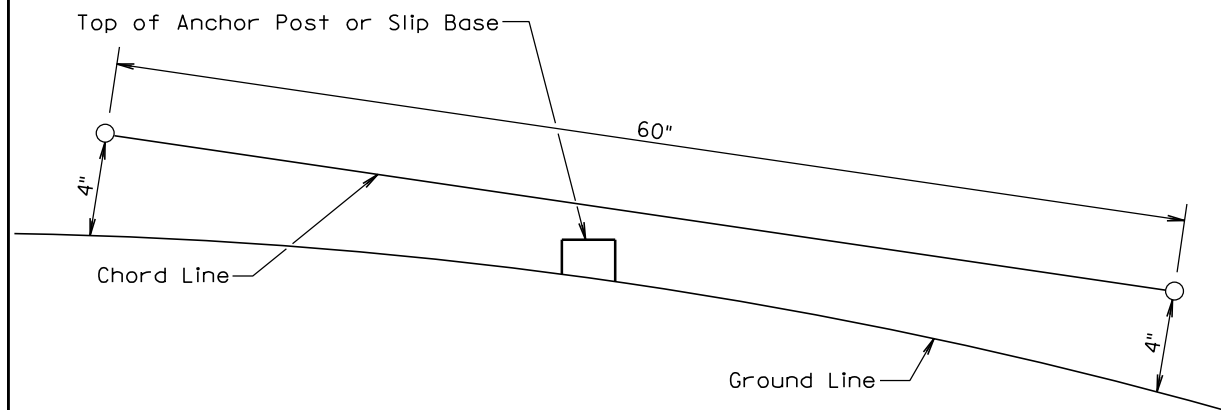
CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)

PLATE NUMBER
634.85

Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

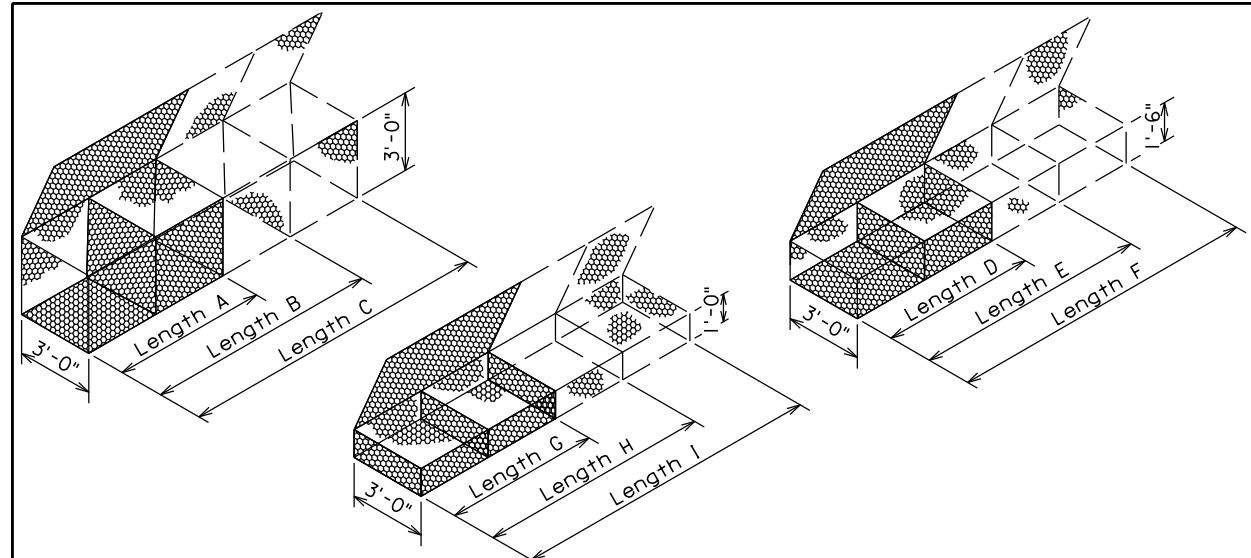
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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. 2016	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			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:

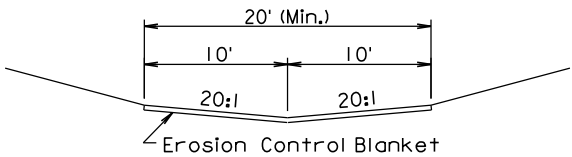
1. Cut a length of lacing wire approximately 1 1/2 times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing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

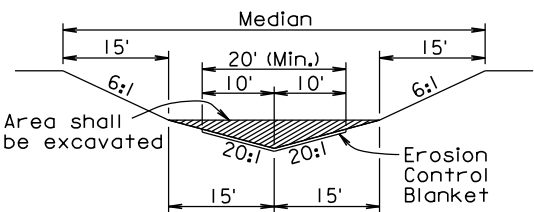
Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

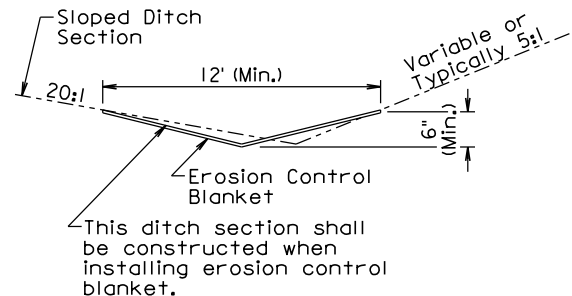
Published Date: 1st Qtr. 2016	S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



STANDARD DITCH SECTION



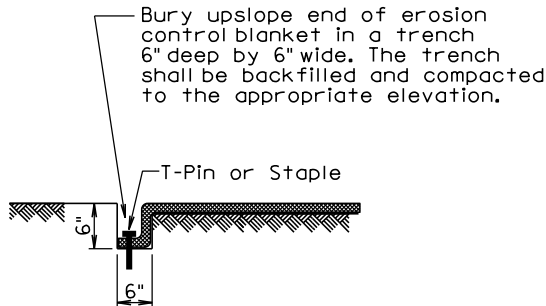
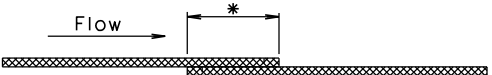
MEDIAN SECTION



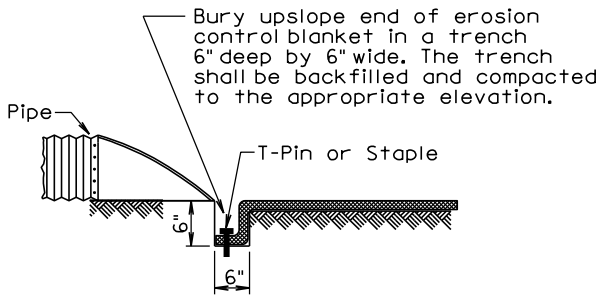
SLOPED DITCH SECTION

- * Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.
- * Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

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

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

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

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

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

December 23, 2004

Published Date: 1st Qtr. 2016

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EROSION CONTROL BLANKET

PLATE NUMBER
734.01

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