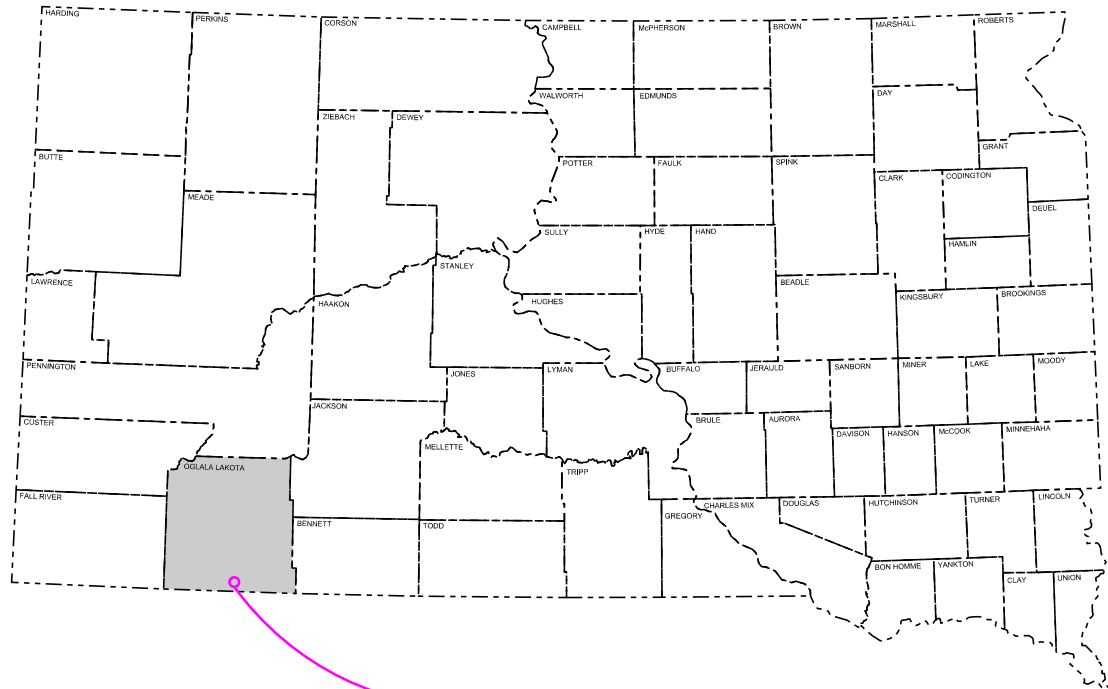


Plot Scale - 1:200

Plotted From - TRRC12608



STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
**PROJECT 018-492**  
**US HIGHWAY 18**  
**OGLALA LAKOTA COUNTY**  
EROSION REPAIR  
PCN i6tm

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	1	15

Plotting Date: 03/16/2023

INDEX OF SHEETS

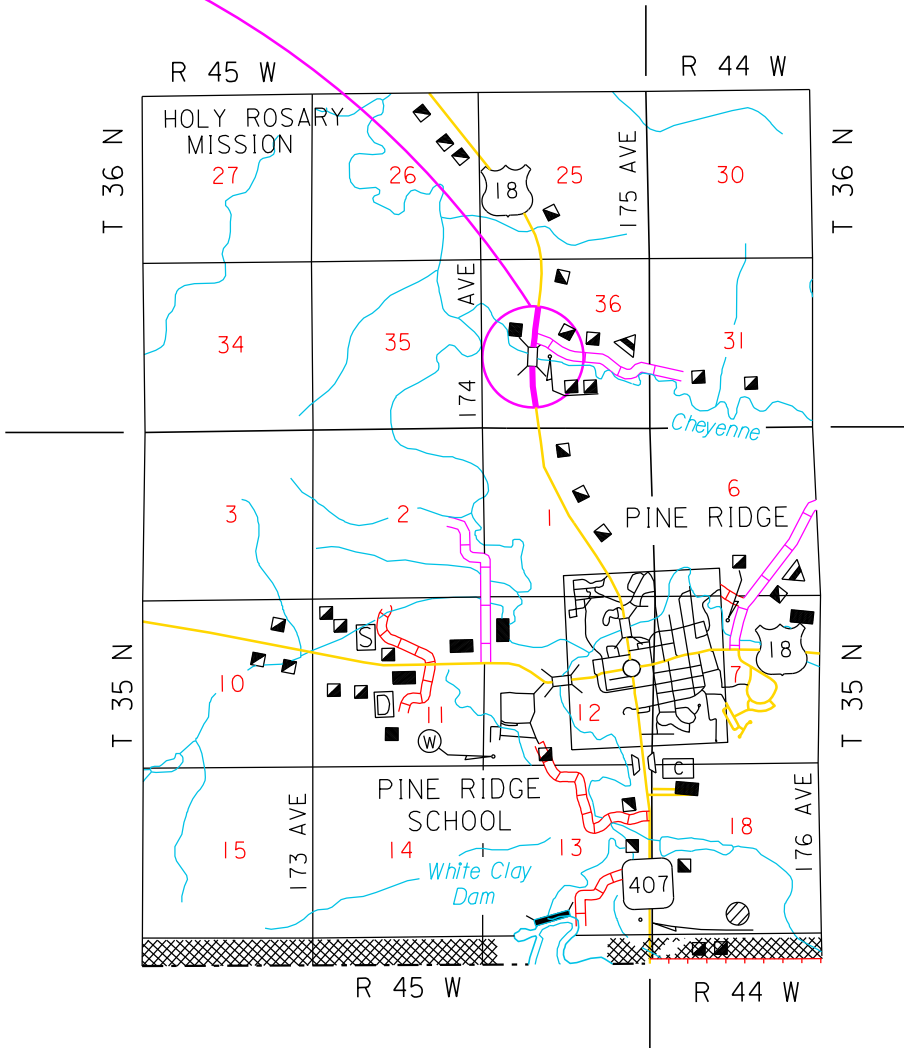
1	General Layout with Index
2	Legend
3-5	Estimate with General Notes & Tables
6-7	Special Details
8-15	Standard Plates

DESIGN DESIGNATION

AADT (2016)	3869
AADT (2036)	4910
DHV	579
D	51%
DHV T%	1.5%
AADT T%	3.2%
V	65 mph

STORM WATER PERMIT

None Required



ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	60	Ft
110E7802	Remove Fence for Reset	152	Ft
120E0010	Unclassified Excavation	60	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
620E0520	Type 2 Temporary Fence	300	Ft
620E4100	Reset Fence	152	Ft
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
720E1015	Bank and Channel Protection Gabion	42.0	CuYd
730E0210	Type F Permanent Seed Mixture	5	Lb
731E0100	Fertilizing	300	Lb
734E0133	Type 3 Turf Reinforcement Mat	224.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	96	Ft
831E0110	Type B Drainage Fabric	156	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

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT’s Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <<https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: < <https://sdleastwanted.sd.gov/maps/default.aspx>>

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

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 will 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) will 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 Agriculture and Natural Resources.

The waste disposal site(s) will 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 Environmental Office and the Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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 not to exceed the duration of the project. Prior to project completion, the waste will 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) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. 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 will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery 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 will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

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

INCIDENTAL WORK

At the MRM 101.5 location, a rock check dam will be removed and the material placed at the foot of the new gabion channel as directed by the Engineer. It is estimated that 15 CuYd of material will be moved.

All costs for removal of the rock check dam and placement of the material at the foot of the gabions will be incidental to the contract lump sum price for Incidental Work.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the 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.

HORIZONTAL ALIGNMENT DATA

Ditch Grade Horizontal Alignment at MRM 101.5					
Type	Station			Northing	Easting
POB	0+00.00			269872.476	1371412.011
		TL=126.00	N 29^02'52" E		
POE	1+26.00			269982.627	1371473.189

Mainline Horizontal Alignment from PCN 00KA					
Type	Station			Northing	Easting
PT	728+12.09			272071.975	1371727.965
		TL= 2076.51	S 10^21'23" W		
PC	748+88.59			270029.296	1371354.669
PI	752+46.44	R = 2460.00	16^33'10" Left	269677.284	1371290.339
PT	755+99.29			269321.533	1371328.964
		TL=2439.18	S 6^11'47" E		
PC	780+38.48			266896.601	1371592.244
PI	787+25.31	R = 2910.00	26^33'38" Left	266213.778	1371666.379
PT	793+87.46			265636.167	1372038.010

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/96) SF = 0.99979919

RESTORATION OF INSLOPES AND DITCHES

Any slope area or ditch that is rutted or otherwise unduly disturbed during Construction operations will be restored and seeded by the Contractor, at no expense to the State.

UNCLASSIFIED EXCAVATION

Unclassified Excavation is provided on the project to install gabions and shape the channel as needed to repair erosion. Excess excavted material will be hauled off the project and disposed of as waste.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

INVENTORY OF TRAFFIC CONTROL DEVICES

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		137.0			



REMOVE AND REPLACE TOPSOIL

Prior to beginning grading operations, all available topsoil will be salvaged within the work limits. The Contractor will minimize the damage to existing vegetation. Following completion of grading operations, topsoil will be replaced over all disturbed areas. The exact limit will be determined by the Engineer during construction.

All costs associated with removing and replacing the topsoil on the project will be incidental to the lump sum price for Remove and Replace Topsoil.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will 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 will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

- 25% *Glomus intraradices*
- 25% *Glomus aggregatum or deserticola*
- 25% *Glomus mosseae*
- 25% *Glomus etunicatum*

All seed will 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 will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 <a href="http://www.reforest.com">www.reforest.com</a>

FERTILIZING

The Contractor will apply an all-natural slow-release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow-release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <a href="http://www.sustane.com">www.sustane.com</a>
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 <a href="http://www.perfect-blend.com">www.perfect-blend.com</a>

PERMANENT SEEDING

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

Type F Permanent Seed Mixture will consist of the following:

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

TURF REINFORCEMENT MAT

Turf reinforcement mat shall be installed 8 feet wide at the locations shown on the plan sheets and at locations determined by the Engineer during construction.

Turf reinforcement mat 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>

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

1:200  
Plot Scale -  
Plotted From - TRRC12608

LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 03/16/2023

Anchor		Mailbox		Subsurface Utility Exploration Test Hole		State and National Line	
Antenna		Manhole Electric		Telephone Fiber Optics		County Line	
Approach		Manhole Gas		Telephone Junction Box		Section Line	
Assumed Corner		Manhole Miscellaneous		Telephone Pole		Quarter Line	
Azimuth Marker		Manhole Sanitary Sewer		Television Cable Jct Box		Sixteenth Line	
BBQ Grill/ Fireplace		Manhole Storm Sewer		Television Tower		Property Line	
Bearing Tree		Manhole Telephone		Test Wells/Bore Holes		Construction Line	
Bench Mark		Manhole Water		Traffic Sign Double Face		Existing R.O.W. Line	
Box Culvert		Merry-Go-Round		Traffic Sign One Post		New R.O.W. Line	
Bridge		Microwave Radio Tower		Traffic Sign Two Post		Cut and Fill Limits	
Brush/Hedge		Miscellaneous Line		Traffic Signal		Existing Control of Access Line	
Buildings		Miscellaneous Property Corner		Trash Barrel		New Control of Access Line	
Bulk Tank		Miscellaneous Post		Tree Belt		Proposed R.O.W. Line (After Property Disposal)	
Cattle Guard		Overhang Or Encroachment		Tree Coniferous			
Cemetery		Overhead Utility Line		Tree Deciduous			
Centerline		Parking Meter		Tree Stumps		Drainage Arrow	
Cistern		Pedestrian Push Button Pole		Triangulation Station			
Clothes Line		Pipe With End Section		Underground Electric Line		Remove Concrete Pavement	
Concrete Symbol		Pipe With Headwall		Underground Gas Line		Remove Concrete Driveway Pavement	
Control Point		Pipe Without End Section		Underground High Pressure Gas Line		Remove Asphalt Concrete Pavement	
Creek Edge		Playground Slide		Underground Sanitary Sewer		Remove Concrete Sidewalk	
Curb/Gutter		Playground Swing		Underground Storm Sewer		Remove Concrete Median Pavement	
Curb		Power And Light Pole		Underground Tank		Remove Concrete Curb and/or Gutter	
Dam Grade/Dike/Levee		Power And Telephone Pole		Underground Telephone Line			
Deck Edge		Power Meter		Underground Television Cable		Detectable Warning	
Ditch Block		Power Pole		Underground Water Line		Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope	
Doorway Threshold		Power Pole And Transformer		Water Fountain			
Drainage Profile		Power Tower Structure		Water Hydrant			
Drop Inlet		Propane Tank		Water Meter			
Edge Of Asphalt		Property Pipe		Water Tower			
Edge Of Concrete		Property Pipe With Cap		Water Valve			
Edge Of Gravel		Property Stone		Water Well			
Edge Of Other		Public Telephone		Weir Rock			
Edge Of Shoulder		Railroad Crossing Signal		Windmill			
Electric Transformer/Power Junction Box		Railroad Milepost Marker		Wingwall			
Fence Barbwire		Railroad Profile		Witness Corner			
Fence Chainlink		Railroad ROW Marker					
Fence Electric		Railroad Signs					
Fence Miscellaneous		Railroad Switch					
Fence Rock		Railroad Track					
Fence Snow		Railroad Trestle					
Fence Wood		Rebar					
Fence Woven		Rebar With Cap					
Fire Hydrant		Reference Mark					
Flag Pole		Retaining Wall					
Flower Bed		Riprap					
Gas Valve Or Meter		River Edge					
Gas Pump Island		Rock And Wire Baskets					
Grain Bin		Rockpiles					
Guardrail		Satellite Dish					
Gutter		Septic Tank					
Guy Pole		Shrub Tree					
Haystack		Sidewalk					
Highway ROW Marker		Sign Face					
Interstate Close Gate		Sign Post					
Iron Pin		Slough Or Marsh					
Irrigation Ditch		Spring					
Lake Edge		Stream Gauge					
Lawn Sprinkler		Street Marker					

MRM 101.5

Landowners of Allotment 296  
N1/2 SW1/4 of Section 36 - Township 36  
North - Range 45 West of the 6th P.M.  
Parcel A1

Sec. 36 - T36N - R45W

Remove Rock Check Dam and  
Repalce at the bottom of the  
gabion channel.  
(15 CuYd)  
  
Remove Silt Fence  
(60 ft)

0+00 - 1+26 (Ditch Gradeline) Install  
Bank and Channel  
Protection Gabions  
(42.0 CuYd)  
and Type B Drainage Fabric  
(156.0 SqYd)

0+00 - 1+26 (Ditch Gradeline) Install  
12" Erosion Control Wattle  
(288.0 Ft)  
  
0+00 - 1+26 (Ditch Gradeline) Install  
Type 3 Turf Reinforcement Mat  
(224.0 SqYd)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 03/16/2023

749+00 - 750+57 L  
Remove Fence for Reset  
Reset Fence  
(152 ft)

PLOT SCALE - 1"=40'

PLOT NAME - 3

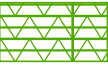
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R. O. W. Line

R. O. W. Line

1/4 Line  
PLOTTED FROM - TRRC12608

Parcel A1  
749+03 to 750+70 L  
Temporary Easement  
containing 0.2 ac.  
more or less



Type 3 Turf Reinforcement Mat



12" Erosion Control Wattle

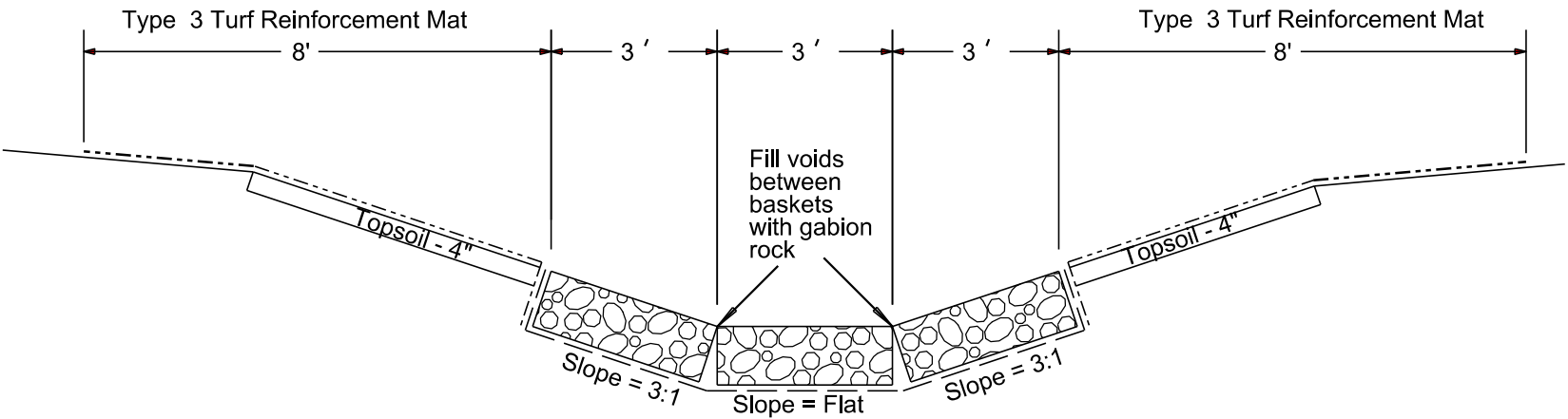
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Plotted From - TRRC12608

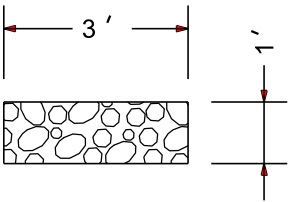
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	7	15

Plotting Date: 03/16/2023

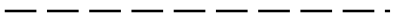
# GABION LINED CHANNEL DETAILS



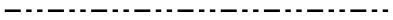
Gabion Basket Cell



Type B Drainage Fabric

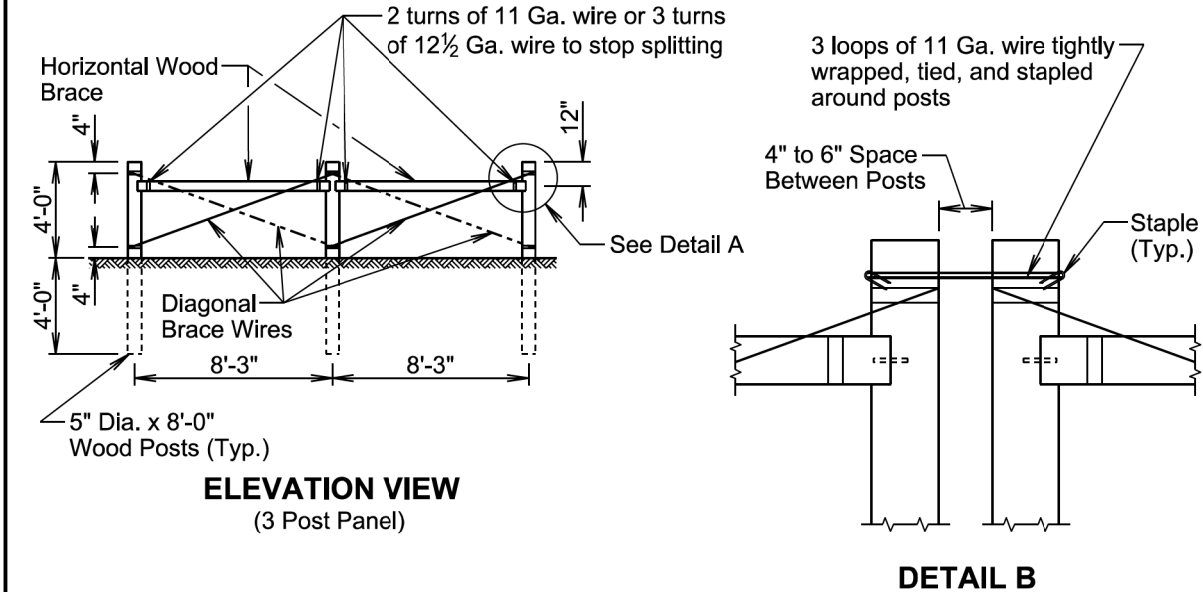
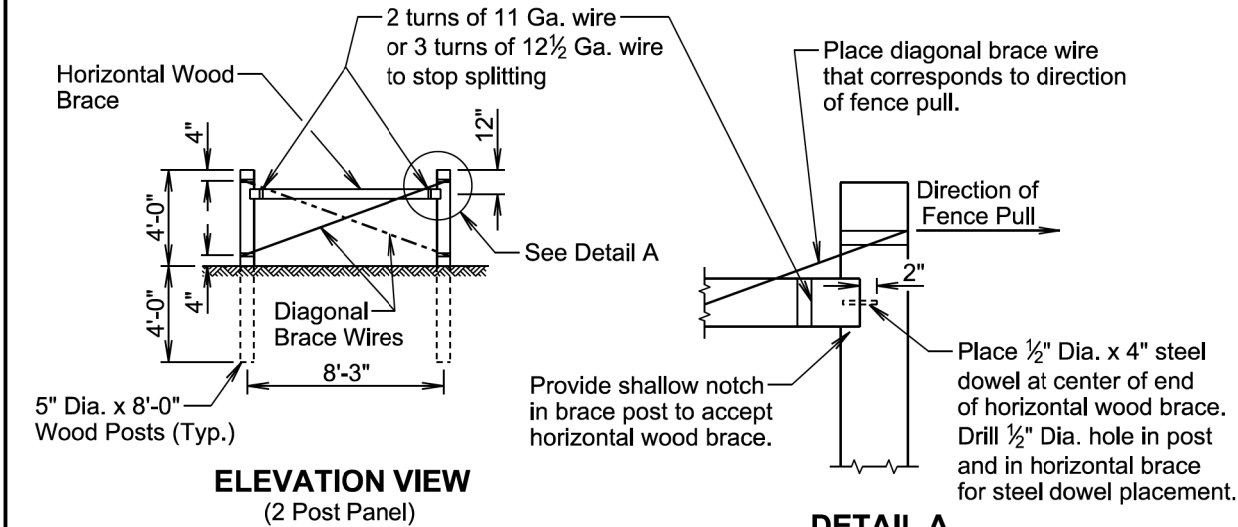


Type 3 Turf Reinforcement Mat









GENERAL NOTES:

- Two Post Panels will be installed at least every 1320' between corners.
- Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.
- Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.
- Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

June 26, 2019

Published Date: 1st Qtr. 2023	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'		** 1320'
3°15' and greater		** At P.C., P.T., and at every 1320' between P.C. and P.T.

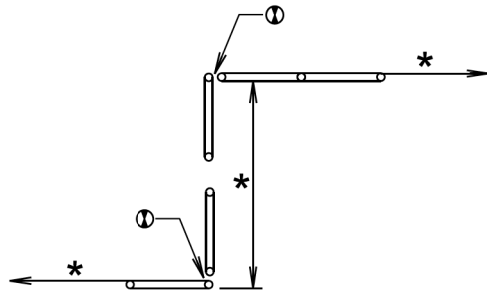
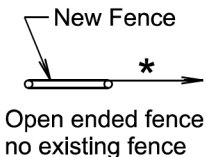
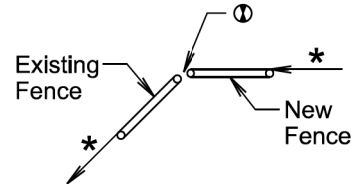
GENERAL NOTE:

All degrees of curvature stated for fence are at centerline of roadway.

- \* If fence length is less than 600' to next corner use a 2 post panel.
- If fence length is greater than 600' to next corner use a 3 post panel.

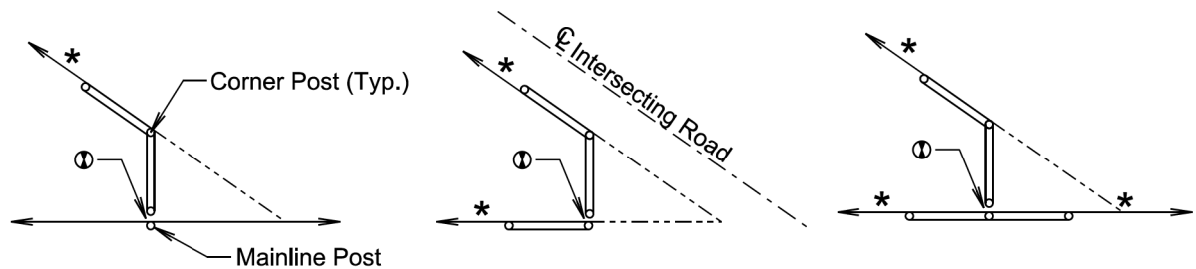
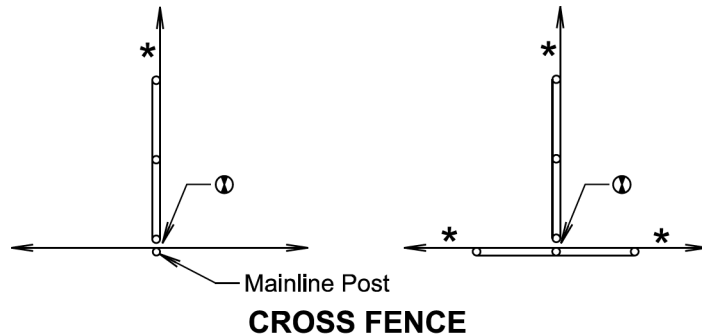
\*\* Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

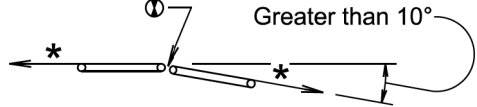
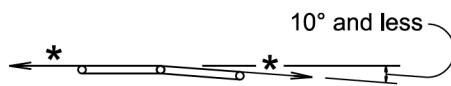


BEGIN OR END FENCE  
(Where new fence ties into existing fence)

SHORT JOGS IN FENCE



SHARP ANGLES IN CROSS FENCE



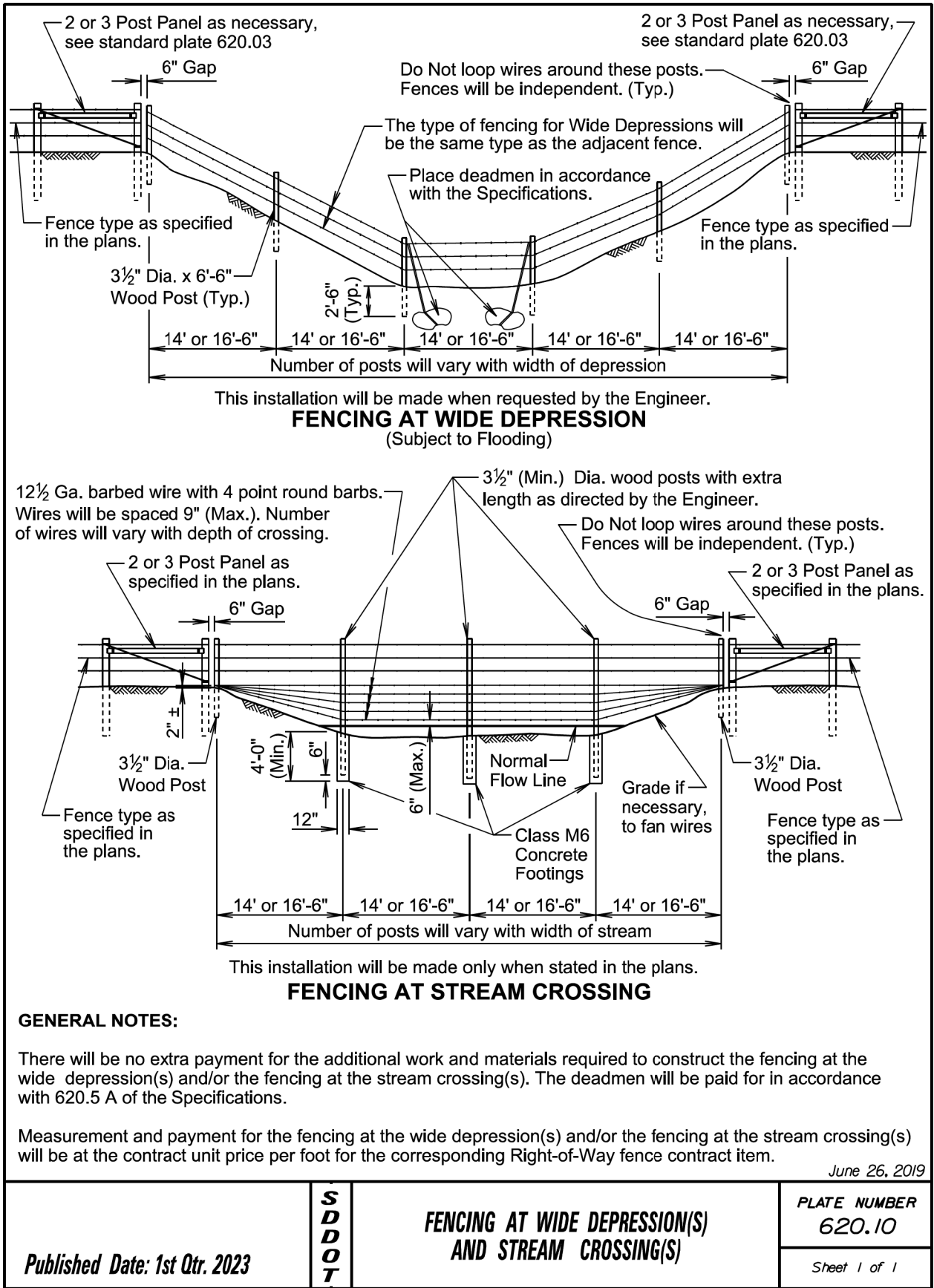
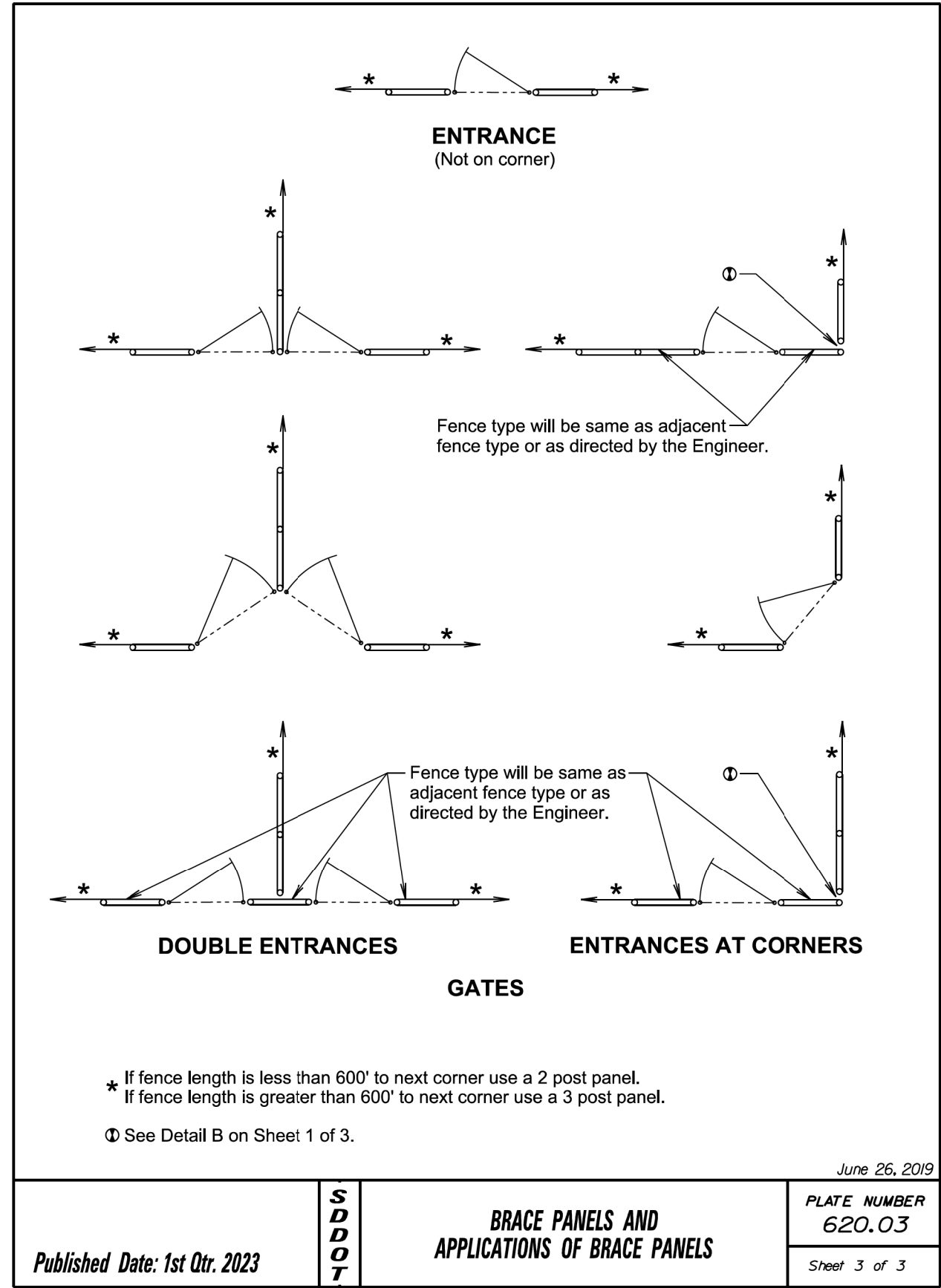
Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

June 26, 2019

Published Date: 1st Qtr. 2023	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEET
	018-492	11	15

Plotting Date: 03/16/2023

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.

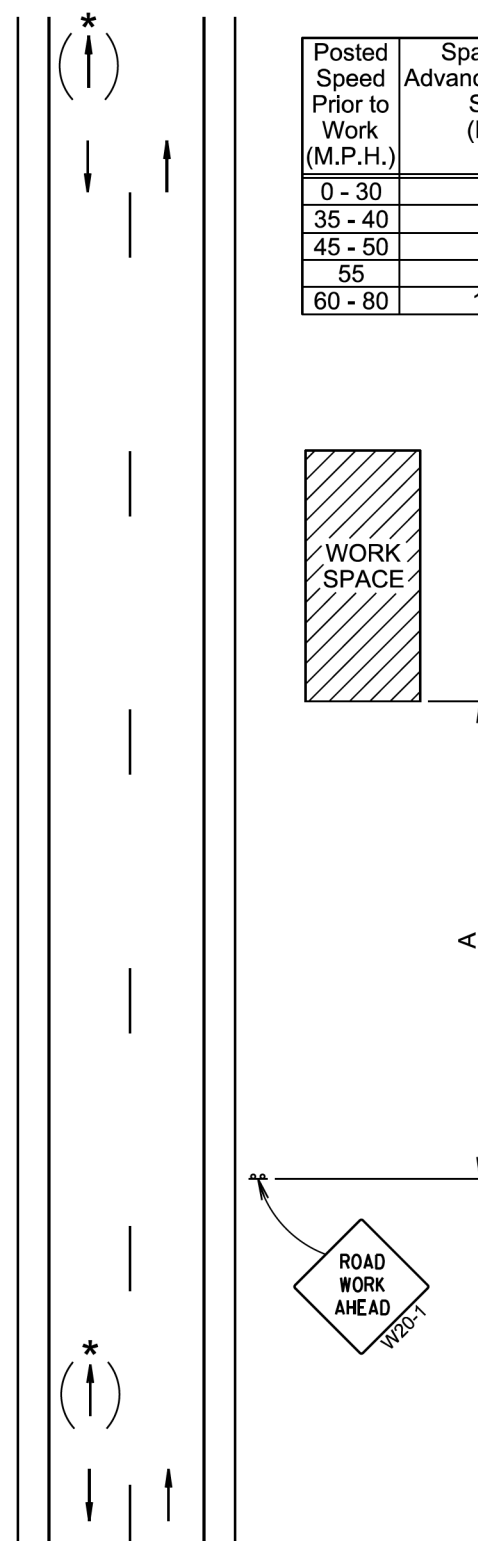
The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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



January 22, 2021

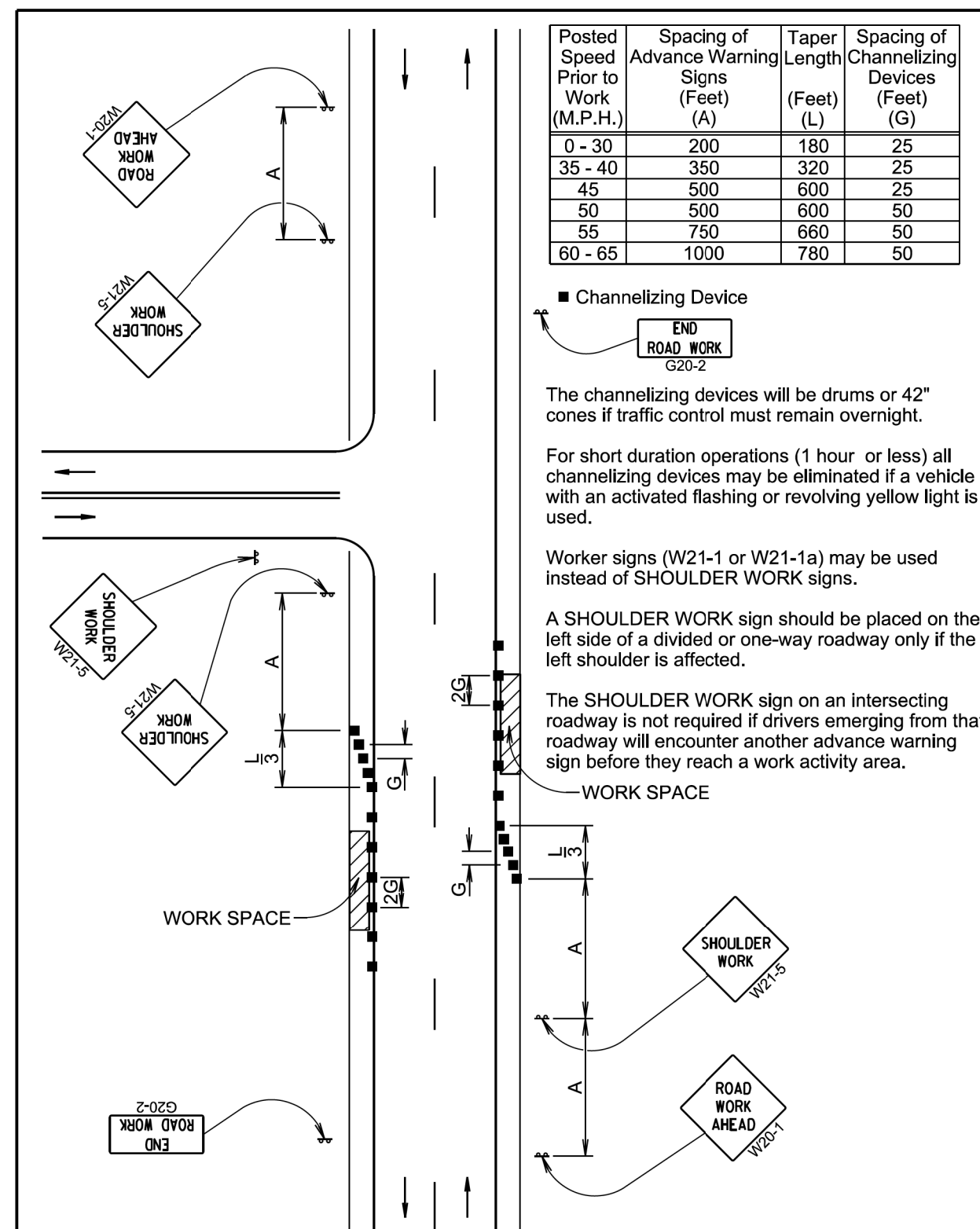
SDDOT

## WORK BEYOND THE SHOULDER

PLATE NUMBER  
634.01

Sheet 1 of 1

**Published Date: 1st Qtr. 2023**



January 22, 2021

**S  
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## WORK ON SHOULDERS

PLATE NUMBER  
634.03

Sheet 1 of 1

**Published Date: 1st Qtr. 2023**

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	500	25
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) will 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 will 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.

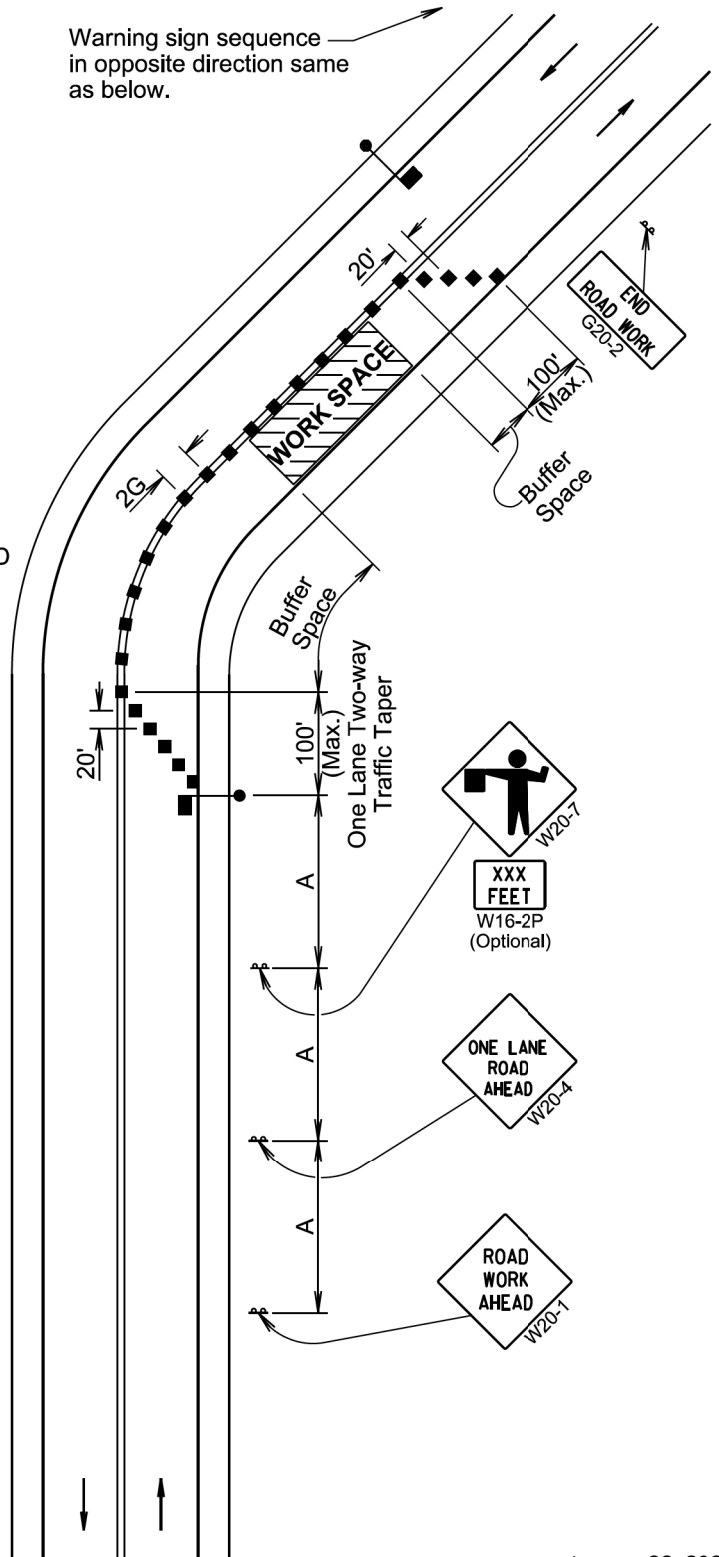
END ROAD WORK G20-2

Channelizing devices and flaggers will 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.

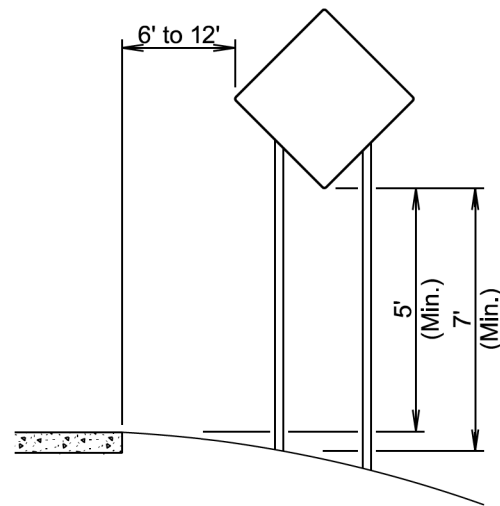
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.

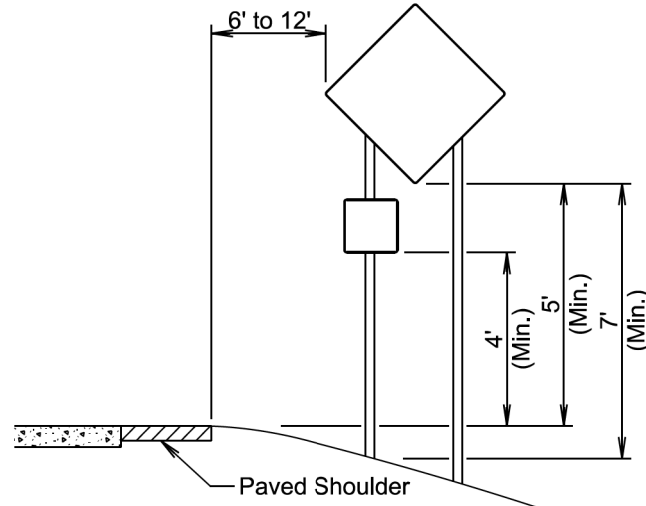


January 22, 2021

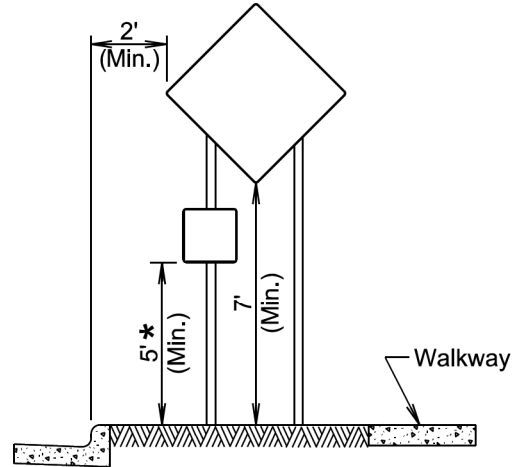
Published Date: 1st Qtr. 2023	S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER
			634.23
			Sheet 1 of 1



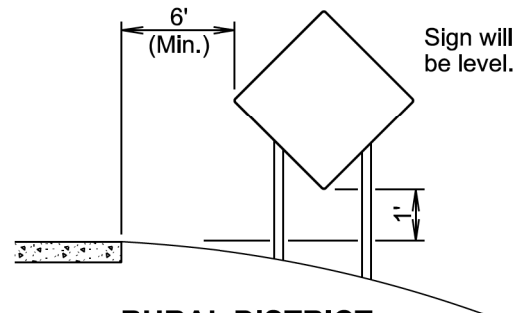
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT 3 DAY MAXIMUM

(Not applicable to regulatory signs)

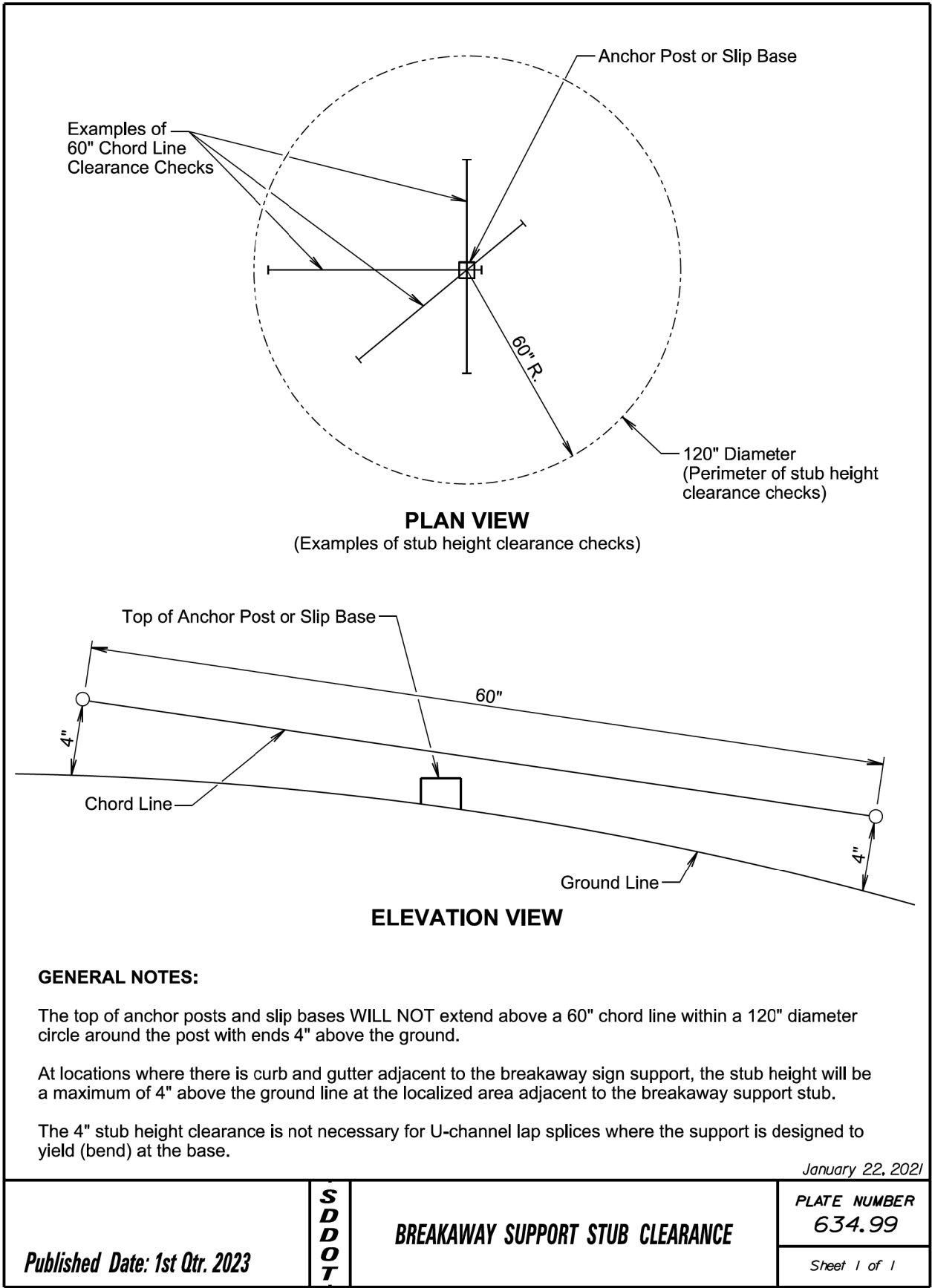
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

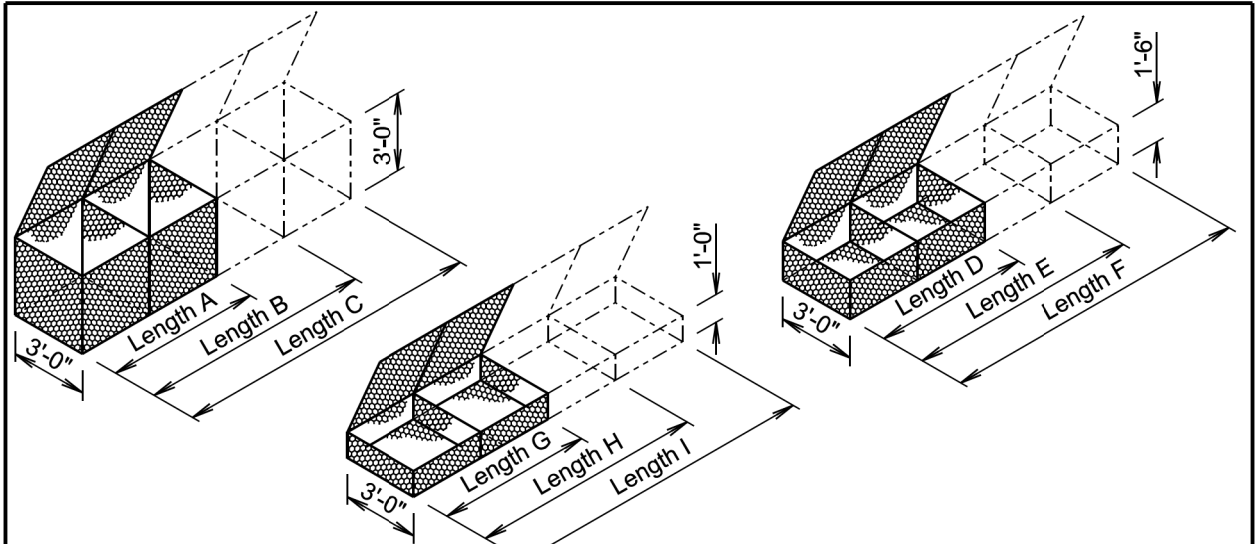
Published Date: 1st Qtr. 2023	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER
			634.85
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	13	15

Plotting Date: 03/16/2023







**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

**GENERAL NOTES:**

Above dimensions subject to mill tolerances.

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will 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 1½ 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.

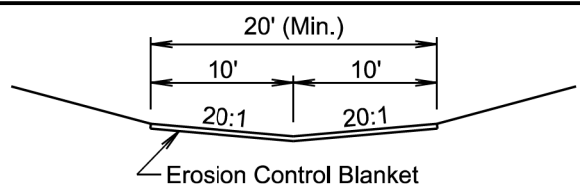
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92,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

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

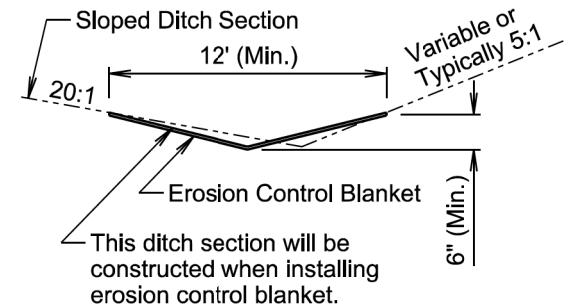
All fasteners will be placed where the mesh weaves around the selva wire at the vertical and horizontal joints.

February 14, 2020

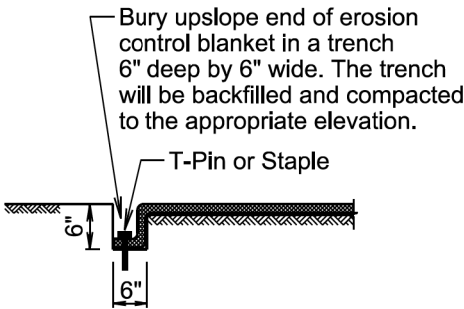
Published Date: 1st Qtr. 2023	S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



**STANDARD DITCH SECTION**



**SLOPED DITCH SECTION**



**TRENCH DETAIL**

**GENERAL NOTES:**

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

Erosion control blanket will 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 will be buried in a trench 6" wide by 6" deep. There will 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.

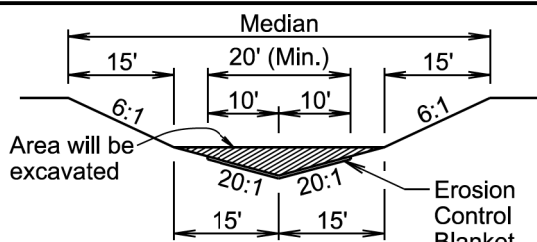
The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor will 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 will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

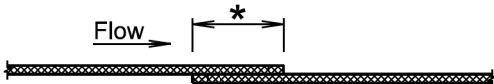
February 14, 2020

Published Date: 1st Qtr. 2023	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1



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

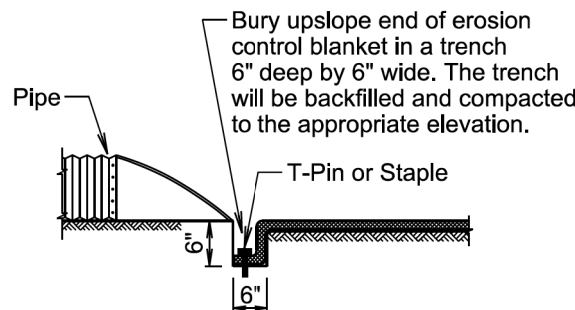
**MEDIAN SECTION**



\* 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.

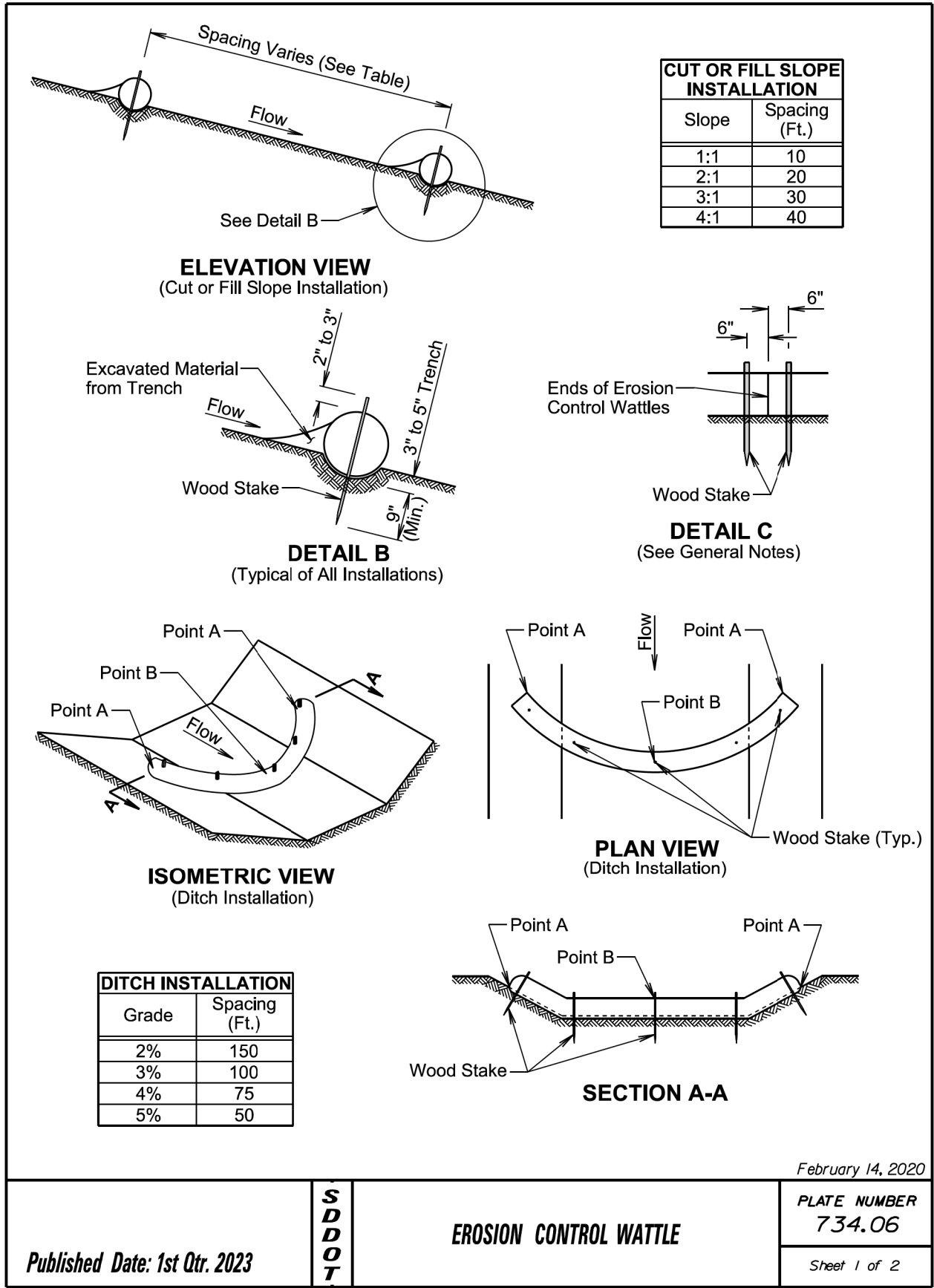
**OVERLAP DETAIL**



**PIPE END DETAIL**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	15	15

Plotting Date: 03/16/2023



**GENERAL NOTES:**

At cut or fill slope installations, wattles will 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 will 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 will 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 will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

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

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will 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 will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

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

		February 14, 2020	
Published Date: 1st Qtr. 2023	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2