

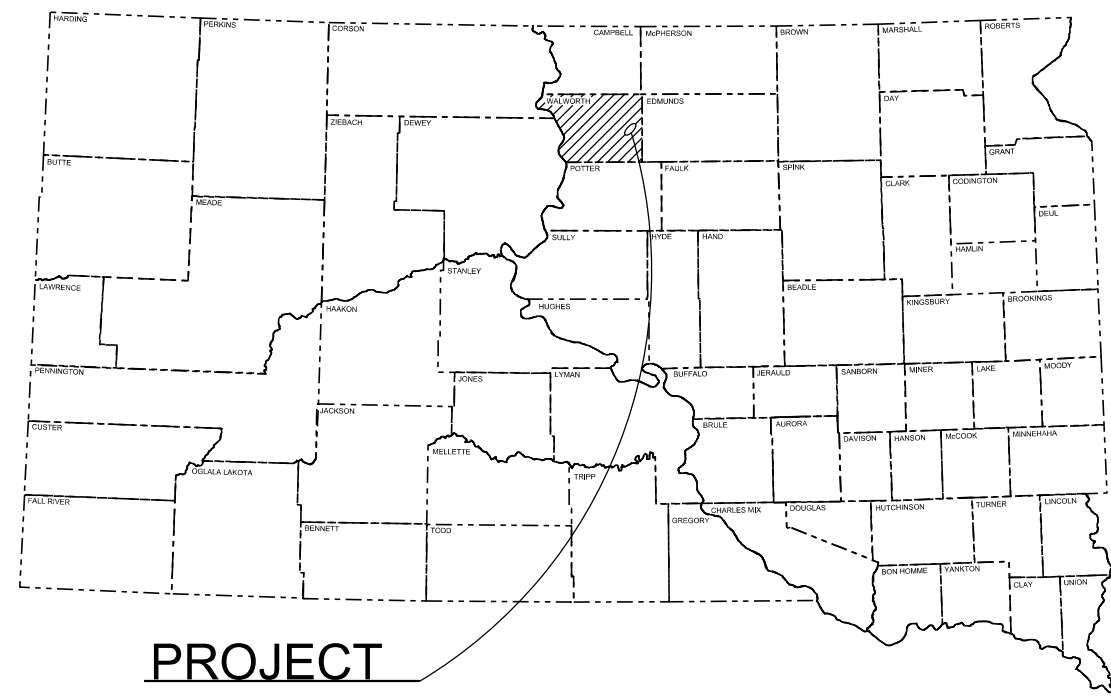
STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT 012-371
US HIGHWAY 12
WALWORTH COUNTY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	1	9
Plotting Date: 07/13/2017			



INDEX OF SHEETS

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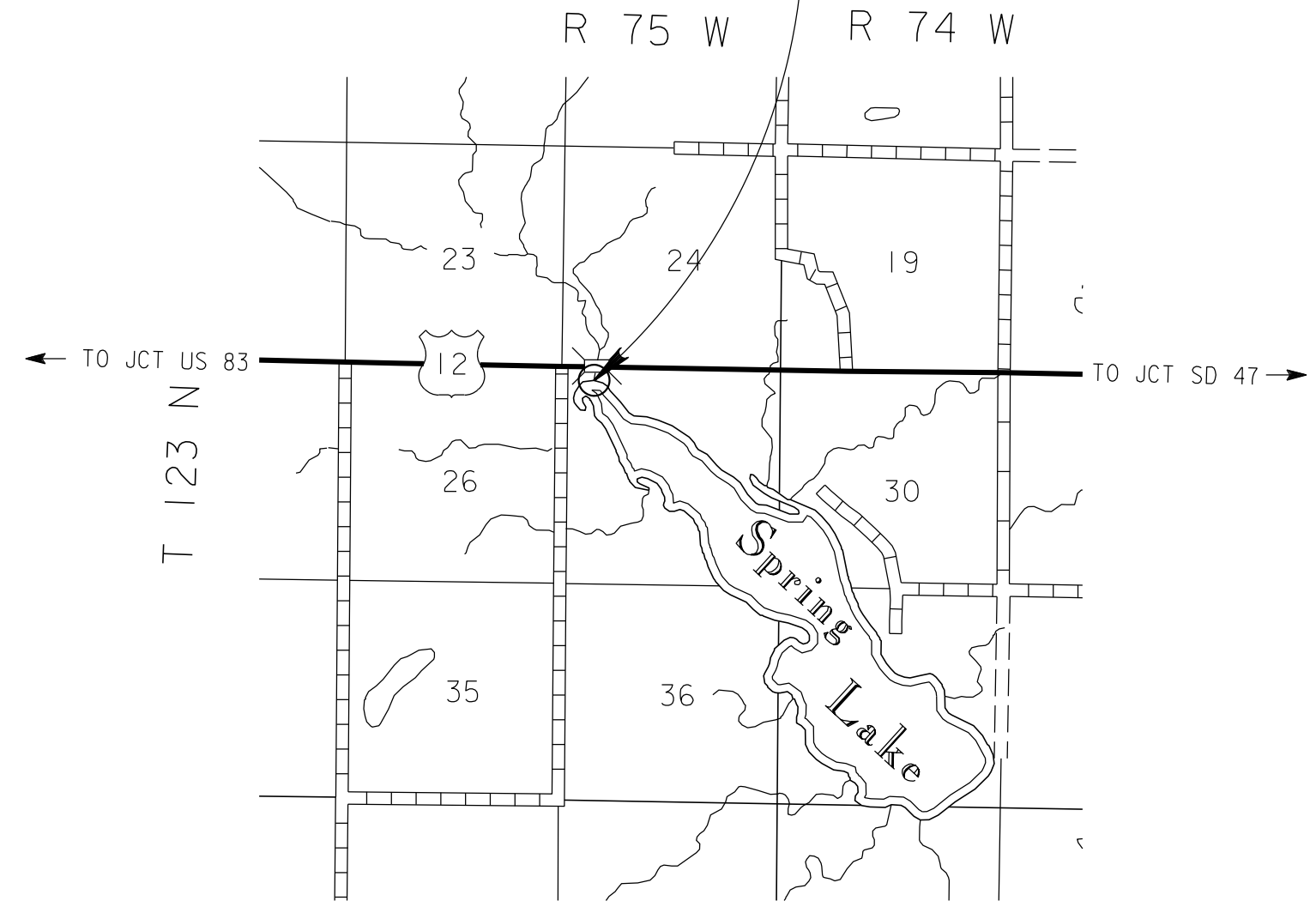
PROJECT

STORM WATER PERMIT (none required)

DESIGN DESIGNATION

ADT (2015)	1416
ADT (2035)	1451
DHV	186
D	52.0
T DHV	52
T ADT	409
V	65

012-371 PCN I44K
 MRM 223.0 TO 223.2



Plot Scale - 1:200

Plotted From - tmo1n104

File - ...1012-371Title.dgn

Estimate of Quantities

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0010	Flagging	8.0	Hour
634E0110	Traffic Control Signs	218.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0110	Class A Riprap	994.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0630	Floating Silt Curtain	475	Ft
831E0110	Type B Drainage Fabric	1,420	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 A: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.094 acre of wetlands becoming permanently impacted. Refer to the plan sheets for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	479+00 to 496+00	0.0	0.094	0	0.02	0.114

Action Taken/Required:

Mitigation is required in accordance with the "Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2016)". Replacement of 0.094 acre of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts will not be mitigated as original contours and elevations will be re-established.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

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 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 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:

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:

- 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".
- Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10.06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

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.

SCOPE OF WORK

Work on this project involves repairing eroded inslope areas that exist along US Highway 12 along Spring Lake.

SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be used for this project. The Contractor may submit an alternate Sequence of Operations for consideration by the Area Engineer. An alternate Sequence of Operations shall be submitted to the Area Engineer a minimum of 2 weeks prior to the preconstruction meeting.

1. Install construction signing.
2. Install the floating silt curtain prior to disturbing any dirt.
3. Salvage topsoil from inslopes.
4. Shape area to receive fabric and riprap.
5. Install drainage fabric and riprap.
6. Repair shoulder/inslope above riprap.
7. Install erosion control (seeding).
8. Project cleanup and removal of construction signing.

Stockpiling of riprap shall be allowed only beyond the clear zone. If not possible, the stockpile area shall be delineated with candles or other traffic control devices.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

Utilities are 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.

TRAFFIC CONTROL

The Contractor shall designate an employee to be responsible for the maintenance of traffic. The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (605-773-5294), SD Highway Patrol (Pierre State Radio (605-773-3536)), and Walworth County Sheriff Department (605-649-7600).

All traffic control devices shall be in "like new" condition.

GENERAL MAINTENANCE OF TRAFFIC

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

Channelizing devices in a series shall be of the same type. Channelizing drums shall be of a two part construction with breakaway bases. The cost of additional channelizing devices shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

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.

Traffic Control Signs, as shown in the Estimate of Quantities, 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. The cost for additional signs shall be paid for at the contract unit price per square foot for "Traffic Control Signs".

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16	32
W20-1	ROAD WORK AHEAD	3	48" x 48"	16	48
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	4	48" x 48"	16	64
G20-2	END ROAD WORK	2	36" x 18"	5	10
				CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT	218

REMOVE AND REPLACE TOPSOIL

Enough topsoil shall be salvaged and stockpiled from the area to be excavated for riprap to repair any damage to the inslopes.

The area disturbed is estimate at 430 ft by 5 ft = 240 sy

RIPRAP AND DRAINAGE FABRIC

Due to variability in the elevations of Spring Lake, the design elevations were assumed for the bottom of the lake at the flow line of the box culvert (1948.8) and the water elevation in the spring of 2015 was at the top of the box (1954.8). These elevations were the basis for determining quantities. The inslope through the project area varies from 4:1 to 10:1. The excavation for the riprap shall approximately follow the existing groundline at a depth of 1.5 feet. The stations and offsets shown on the Plans along with the existing ground elevations with appropriate shaping between the key in points will be the typical section final elevations. The work will require excavation and placement of fabric and riprap underwater in depths approaching 6 feet in portions of the riprap layout (2 to 3 foot typical).

The Engineer reserves the right to adjust the riprap placement configuration, alignment, and/or limits at the time of construction to better accommodate the overall design and functionality of the riprap system. If the Engineer determines that a change is required, then all quantities affected by the change may be decreased or increased accordingly. The actual quantities installed/placed will be the basis for payment and will be paid for at the contract unit price for that particular item.

The existing riprap at the box culvert shall remain in place. The Contractor shall expose the existing fabric and overlap it with the new fabric then place new riprap to tie the new and old together. The Contractor shall be responsible for visiting the project site and determining the amount of work required.

An estimated quantity of 534 cy of waste material may be generated by the excavation for the riprap.

Any excess material excavated that cannot be used to fill eroded areas will become property of the Contractor for his/her disposal.

The drainage fabric and riprap shall be placed as per the Typical Section on the inslopes.

The quantity of Type B Drainage Fabric shown in the Estimate of Quantities is based upon a width of 30 ft.

Location	L/R	Class A Riprap (Ton)	Type B Drainage Fabric (SqYd)
US 12	R	994.0	1420
Totals:		994.0	1420

EROSION CONTROL

The areas to be seeded shall consist of areas disturbed by the construction within the project limits.

It is estimated approximately 0.1 acre will be disturbed and require seeding.

Mulch shall be applied at a rate of 2 tons/acre.

Application of fertilizer will not be required on this project.

All costs associated with furnishing and placing the seed and mulch, including labor, equipment and incidentals shall be paid for at the contract lump sum price for "Erosion Control".

PERMANENT SEEDING

The varieties listed for seed mixtures are preferred varieties.

Type B 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
Canada Wildrye	Mandan	2
Total:		18

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 from the list below or an approved equal:

Product
MycoApply

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

FLOATING SILT CURTAIN

Floating silt curtains shall be installed at locations noted in the table and at locations determined by the Engineer during construction.

The Contractor shall determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor shall install the floating silt curtain according to the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may also use Engineer approved floating silt curtain from manufacturers that are not included in the list.

ABASCO, LLC
Houston, TX
Phone: 1-800-242-7745
www.abasco.net

Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com

American Boom and Barrier Corp.
Cape Canaveral, FL
Phone: 1-800-843-2110
www.abbcoboom.com

ENVIRO-USA, LLC
Cocoa, FL
Phone: 1-321-222-9551
www.enviro-usa.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com

TABLE OF FLOATING SILT CURTAIN

Location	Station to	Station	L/R	Quantity (Ft)
US 12	478+75	483+50	R	475
		Total:		475

For information only:

The depth of Spring Lake at 75 feet from centerline as measured on June 21, 2017:

0.6 ft.at Station 479+00

2.7 ft.at Station 482+00

5.1 ft. at the box culvert

CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	012-371	6	9

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
12-230.02			149.6' N and 30.8 E of Jct. Walworth-Edmunds Co. line and US 12 (HARN point)	589159.450	2043440.630	1965.28
12-220.93			145.0' N and 89.9' W of Jct. SD 271 and US 12	589356.010	1995599.034	2057.20
CP1			2.4 miles E of Spring Lake box culvert 98' S of US 12 east side of approach	589041.184	2019690.023	2057.60

HORIZONTAL ALIGNMENT DATA

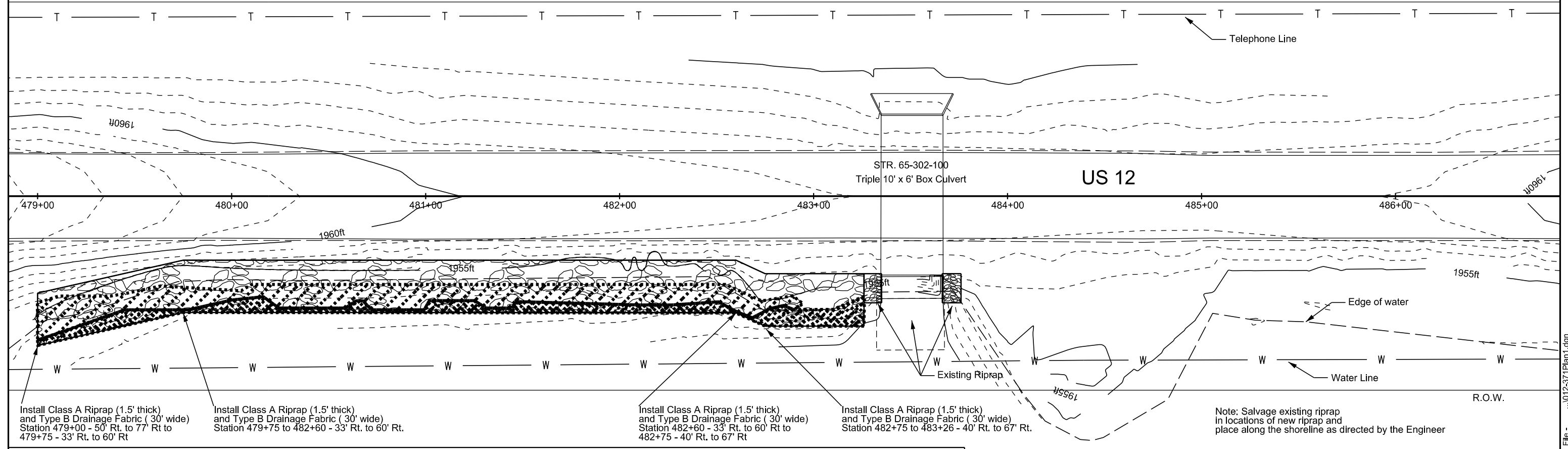
<u>Type</u>	<u>Station</u>			<u>Northing</u>	<u>Easting</u>
POB	470+20.2			589205.255	2005701.792
		TL = 98.94	N 89°51'10" E		
PC	471+19.1			589205.509	2005800.736
		R = 171,887'	Delta = 0°18'R		
PT	480+19.1			589205.466	2006700.764
		TL = 1096.60	S 89°50'50" E		
POE	491+15.7			589202.542	2007797.364

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/2011); epoch 2010.00
 Geoid 12B; SF = 0. 0.9998769107
 The elevations shown on this sheet are based on NAVD 88.



R.O.W.

Plot Scale - 1:50



Install Class A Riprap (1.5' thick) and Type B Drainage Fabric (30' wide) Station 479+00 - 50' Rt. to 77' Rt. to 479+75 - 33' Rt. to 60' Rt.

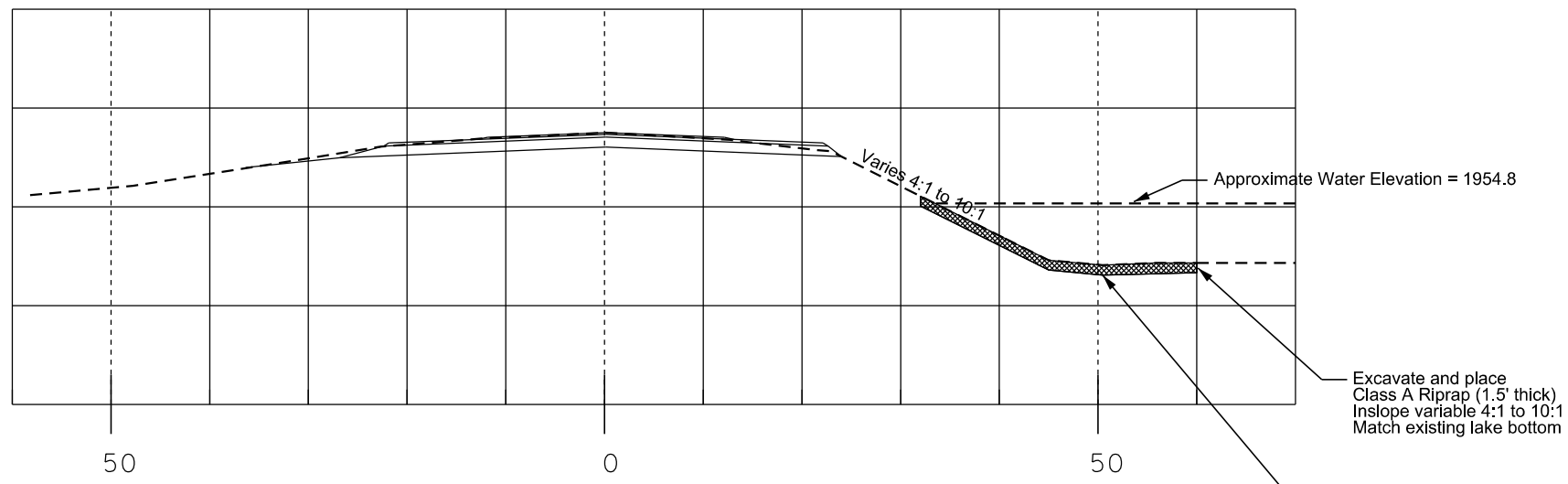
Install Class A Riprap (1.5' thick) and Type B Drainage Fabric (30' wide) Station 479+75 to 482+60 - 33' Rt. to 60' Rt.

Install Class A Riprap (1.5' thick) and Type B Drainage Fabric (30' wide) Station 482+60 - 33' Rt. to 60' Rt. to 482+75 - 40' Rt. to 67' Rt.

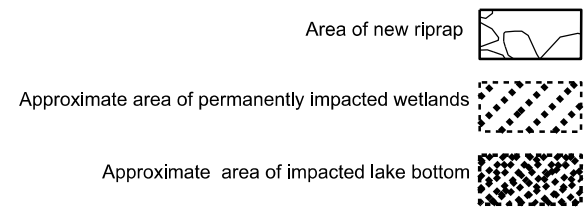
Install Class A Riprap (1.5' thick) and Type B Drainage Fabric (30' wide) Station 482+75 to 483+26 - 40' Rt. to 67' Rt.

Note: Salvage existing riprap in locations of new riprap and place along the shoreline as directed by the Engineer

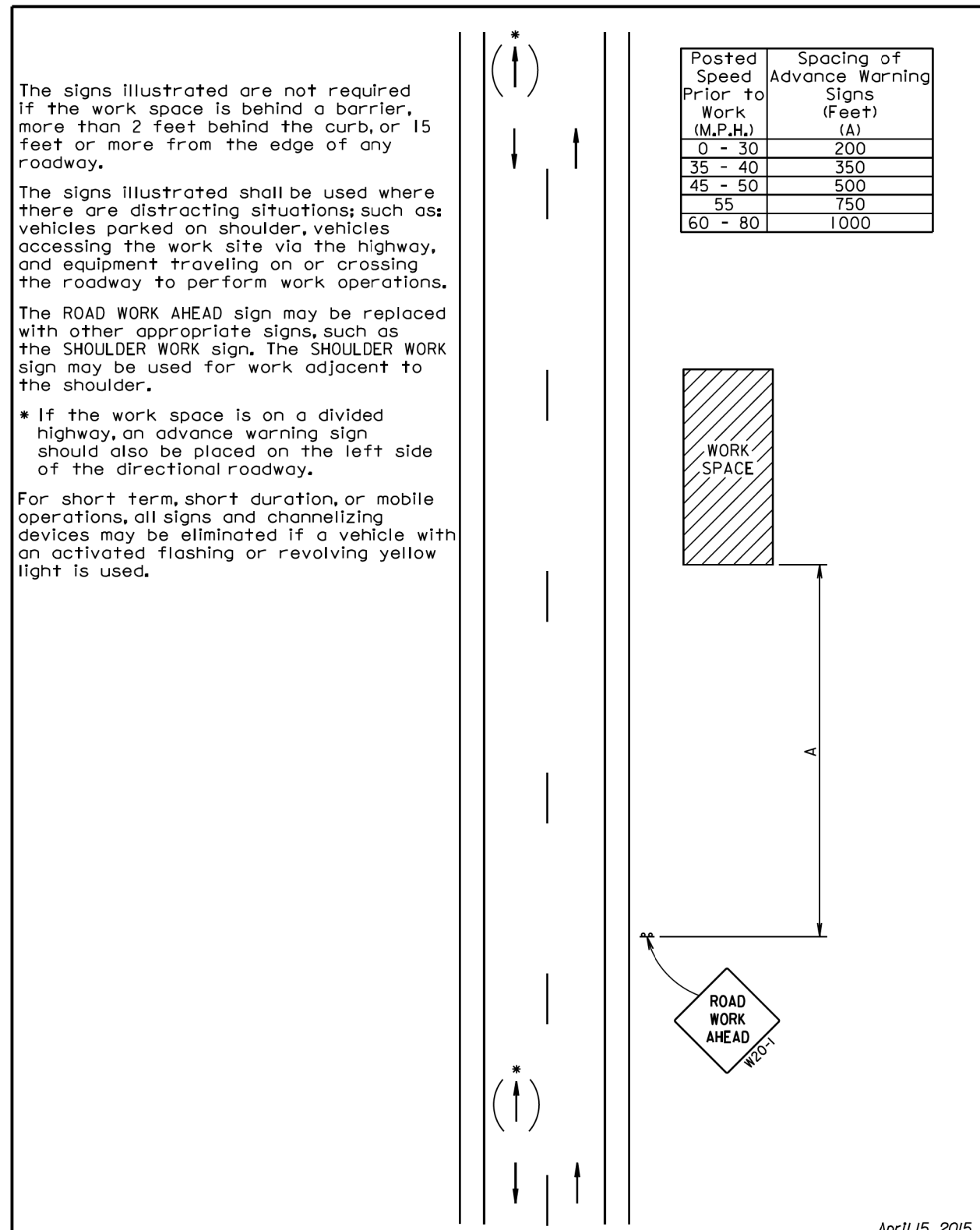
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Typical section Sta 479+00 to 483+26 through Riprap



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

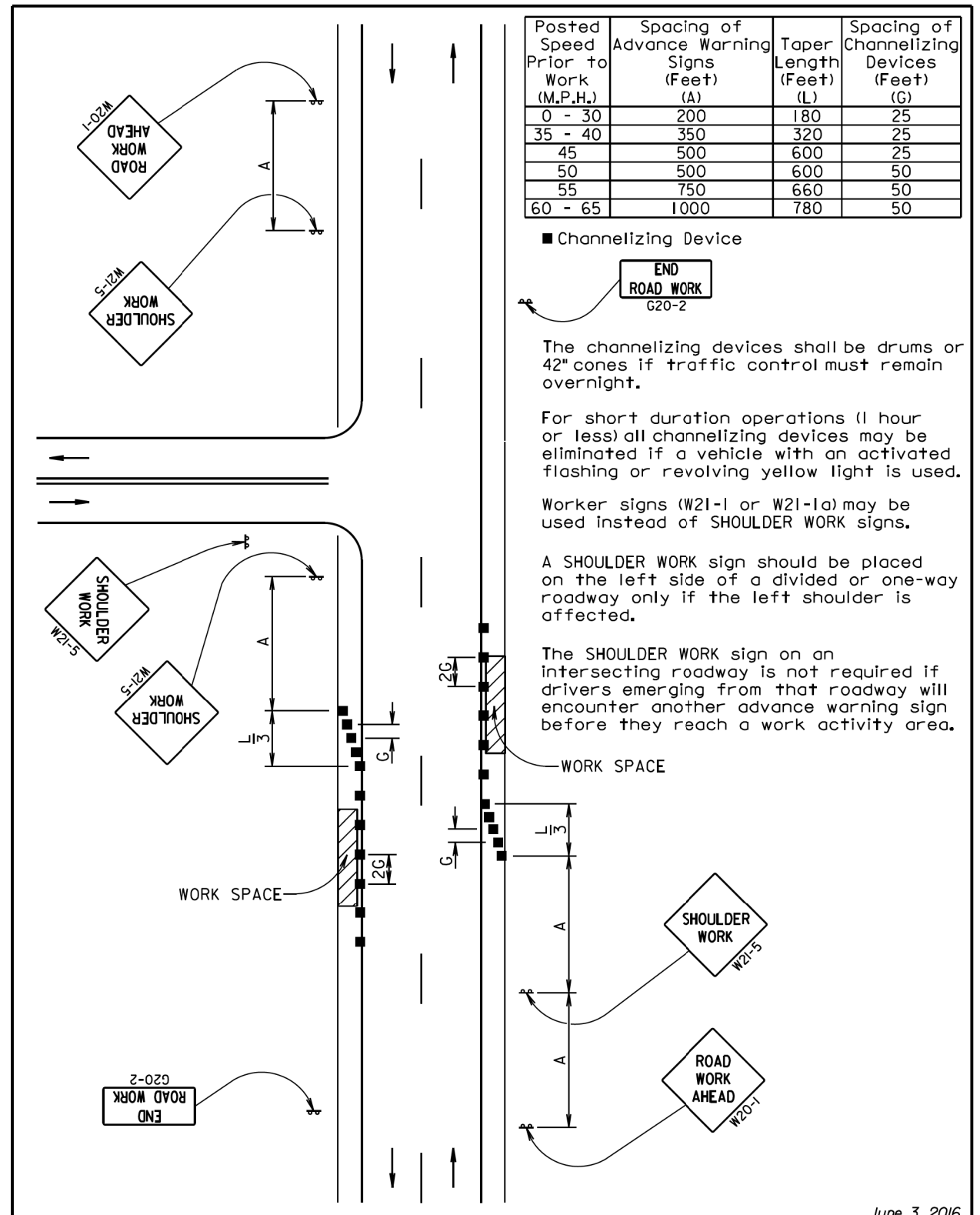
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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

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

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

Apr 11 15, 2015



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

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

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

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

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

June 3, 2016

1:200 Plot Scale - - Plotted From - - rmo1n04

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SDDOT
Published Date: 3rd Qtr. 2017

**GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER**

PLATE NUMBER
634.01
Sheet 1 of 1

SDDOT
Published Date: 3rd Qtr. 2017

**GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS**

PLATE NUMBER
634.03
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	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.

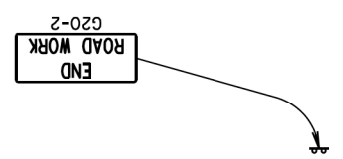
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) 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.

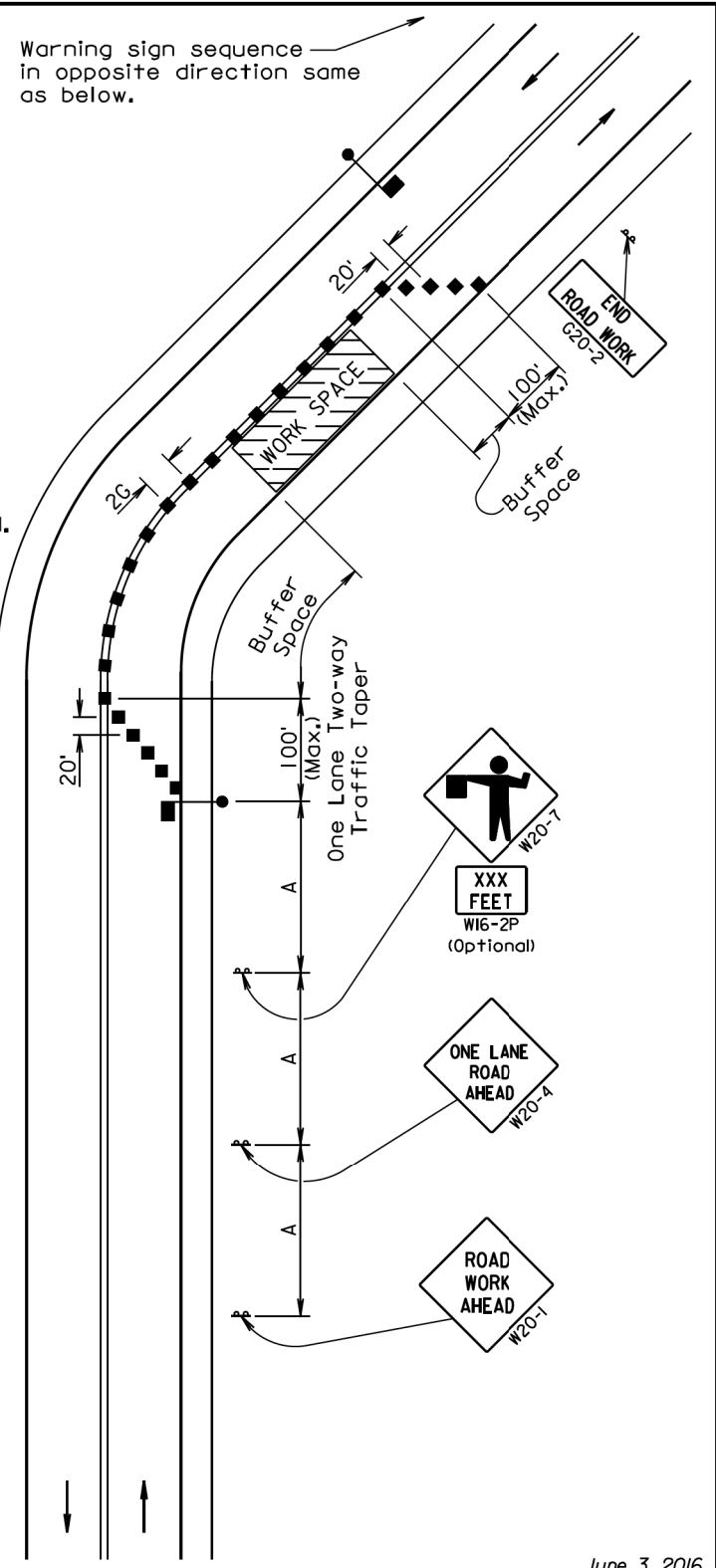
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.



June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 3rd Qtr. 2017	Sheet 1 of 1

Plot Scale - 1:200

- Plotted From - tmo1n104

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