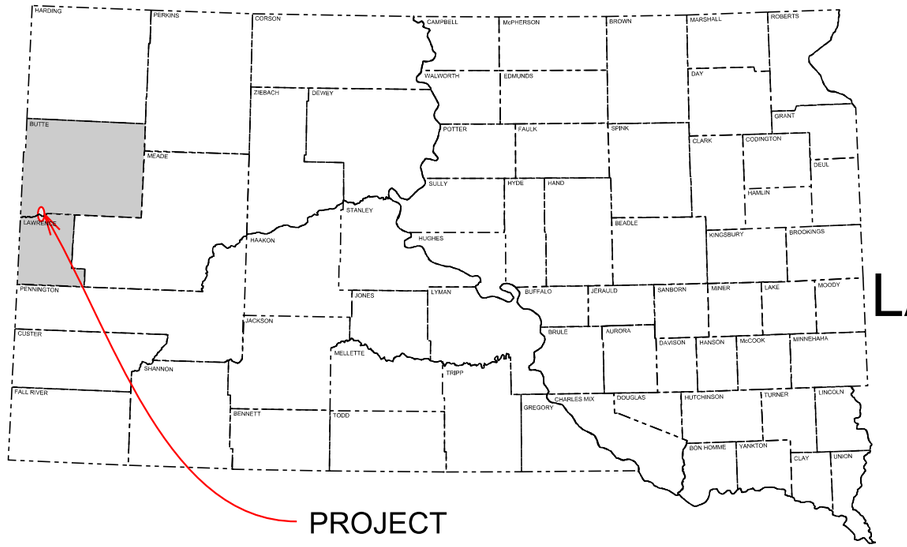


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

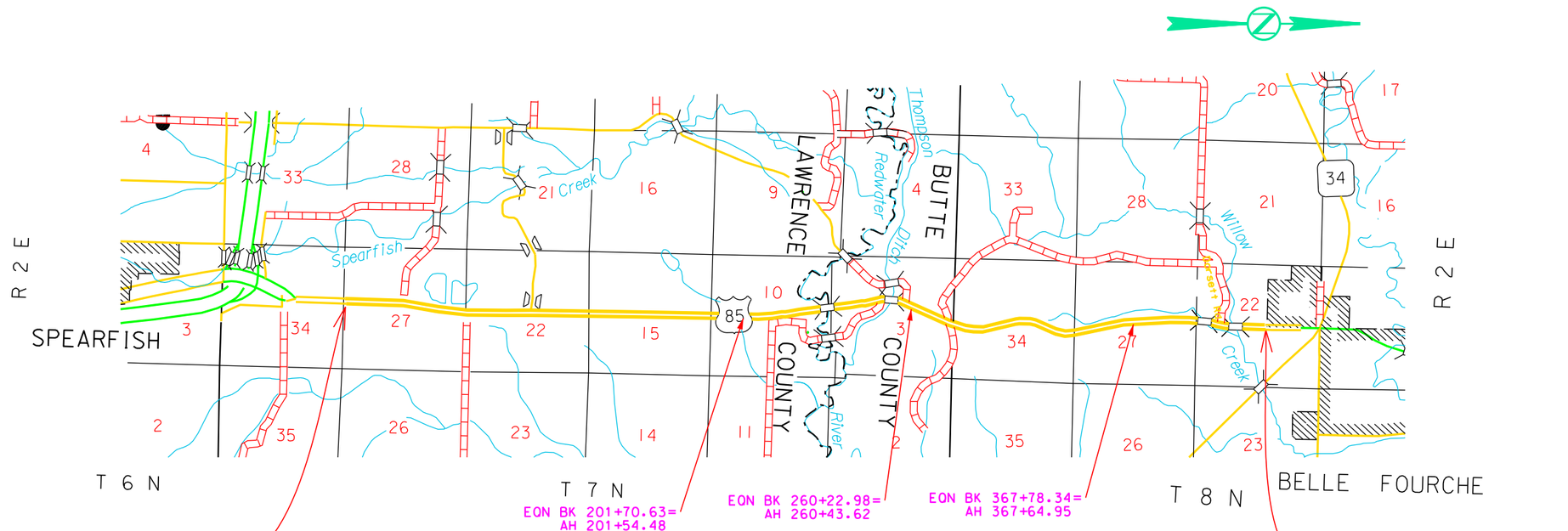
PROJECT 085 N-471
U.S. HIGHWAY 85
LAWRENCE & BUTTE COUNTY

EROSION REPAIR
PCN i2wg

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	1	15

Plotting Date: 05/13/2013

INDEX OF SHEETS



DESIGN DESIGNATION

ADT (2012)	3606
ADT (2032)	4251
DHV	505.8
D	51 %
T DHV	8.5 %
T ADT	18.7 %
V	65 mph

STORM WATER PERMIT

None Required

SCALES

		RURAL
PLAN		1"=200'
PROFILE,	HORIZONTAL:	1"=200'
	VERTICAL:	1"=20'
CROSS SECTIONS	HORIZONTAL:	1"=40'
	VERTICAL:	1"=20'

GROSS LENGTH 39,908.93 FEET 7.5585 MILES

Plot Scale - 1:200
Plotted From - trrc11610
File - ...\plans\85 Erosion\title.dgn

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E7510	Remove Pipe End Section for Reset	1	Each
120E0600	Contractor Furnished Borrow	517	CuYd
230E0020	Placing Contractor Furnished Topsoil	95	CuYd
450E9001	Reset Pipe End Section	1	Each
634E0100	Traffic Control	578	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
730E0210	Type F Permanent Seed Mixture	42	Lb
731E0200	Fertilizing	1.20	Ton
732E0200	Fiber Mulching	0.9	Ton
734E0103	Type 3 Erosion Control Blanket	3,409	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,300	Ft
734E0510	Shaping for Erosion Control Blanket	1,615	Ft

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or 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 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 I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact Jim Donohue, State Archaeological Research Center (ARC) at 605-394-1741 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water for Embankment is 4 MGal. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Contractor Furnished Borrow".

UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

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

CONTRACTOR FURNISHED BORROW

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

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

TABLE OF CONTRACTOR FURNISHED BORROW

	(CuYd)
MRM 46.08 - Sta 15+00 L	8
MRM 51.58 - Sta 304+00 R to Sta 309+50 R	136
MRM 51.61 – Sta 305+00 L to Sta 307+60 L	48
MRM 52.8 – Sta 368+60 R	32
MRM 53.0 – Sta 375+85 R to Sta 376+60 R	128
MRM 53.06 – Sta 380+50 to Sta 387+00	161
MRM 53.69 – Sta 413+60 L to Sta 414+00 L	4
Total:	517

PLACING CONTRACTOR FURNISHED TOPSOIL

The Contractor will be required to furnish and place 4 inches of topsoil on the erosion repair areas and areas as determined by the Engineer during construction.

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for “Placing Contractor Furnished Topsoil”. The plans quantity for “Placing Contractor Furnished Topsoil” as shown in the Estimate of Quantities will be the basis of payment for this item.

TABLE OF CONTRACTOR FURNISHED TOPSOIL

	(CuYd)
MRM 46.08 - Sta 15+00 L	0.9
MRM 46.13 – Sta 17+82 R	0.9
MRM 51.58 – Sta 304+00 R to Sta 309+50 R	27.2
MRM 51.61 – Sta 305+00 L to Sta 307+60 L	9.6
MRM 52.8 – Sta 368+60 R	4.0
MRM 53.0 – Sta 375+85 R to Sta 376+60 R	9.3
MRM 53.06 – Sta 380+50 L to Sta 387+00 L	32.1
MRM 53.69 – Sta 413+60 L to Sta 414+00 L	4.0
Additional Quantity	7
Total:	95.0

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:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall be inoculated 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 unit price per pound for the corresponding permanent seed mixture.

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (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 shall 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 shall 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 shall 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 all-natural slow release fertilizer shall be applied according to the manufacturer’s application recommendations.

The application rate is 1,500 pounds per acre.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

PERMANENT SEEDING

The areas to be seeded comprise of all areas where Contractor Furnished Borrow is placed (18 lbs.) and areas around delineators (24 lbs.) as directed by the Engineer. The area around the delineators to be seeded was based on areas that have no vegetation in a 25’ x 25’ area.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”.

All seed broadcast must be raked or dragged in (incorporated) within the top ¼” to ½” of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

The varieties listed for the seed mixture are preferred varieties. Native harvest seed will be allowed.

Type F Permanent Seed Mixture shall consist of the following:

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

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per ton for “Fiber Mulching”.

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

TABLE OF FIBER MULCHING

Location	Quantity (Ton)
Sta 15+00, Sta 17+82 & areas around delineators	0.90
Total:	0.90

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall 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 shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project until vegetation has been established.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels.

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

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

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
15+00	L	12	Inlet	20
17+82	R	12	Inlet	100
304+50 to 309+75	R	12	Ditch	240
305+75 to 309+50	L	12	Ditch	180
368+25	R	12	Ditch	30
369+05	R	12	Inlet	20
376+00 to 376+75	R	12	Ditch	60
381+00 to 387+00	L	12	Ditch	270
388+83	L	12	Inlet	20
413+60 to 414+00	L	12	Ditch	60
			Additional Quantity:	300
			Total:	1300

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 16 or 20’ feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

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

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

TABLE OF EROSION CONTROL BLANKET

Station to	Station	L/R	Location	Type	Quantity (SqYd)
304+00	309+50	R	Ditch Channel	3	978
305+00	307+60	L	Ditch Channel	3	578
368+60	369+00	R	Ditch Channel	3	71
375+85	376+60	R	Ditch Channel	3	167
380+50	387+00	L	Ditch Channel	3	1444
413+60	414+00	L	Ditch Inslope	3	71
			Additional Quantity:	3	100
			Total Type 3 Erosion Control Blanket:		3409

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	5	15

SEQUENCE OF OPERATIONS – GENERAL NOTES

1. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined, as ½ hour after sunset until ½ hour before sunrise.

3. Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of 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.

4. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Non-applicable signing shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 36 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for, Traffic Control, Miscellaneous.

5. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.

6. If inappropriate/conflicting pavement markings exist, the markings shall be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict shall be placed at a spacing of ½ G. Pavement marking removals shall be paid for at the contract unit price for Remove Pavement Marking, 4" or equivalent. Temporary pavement marking shall be paid for at the contract unit bid price for Temporary Pavement Marking. The additional channelizing devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

7. The quantity of Signs paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.

8. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

SEQUENCE OF OPERATIONS – GENERAL NOTES (Cont.)

9. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

10. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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

12. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

13. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable.

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

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

16. Temporary Road Markers shall be used for lane closure tapers or lane shift tapers. Temporary Road Markers used for tapers and shifts will not be measured for payment and will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

17. Drums are required in all lane closure tapers.

18. Construction work zones shall be limited to 3 miles in length. The distance between the closest points of any two construction work areas, including channelizing devices shall not be less than 3 miles.

19. Lane closures will be required in both the northbound and southbound direction if median work, or equipment is required to complete such work.

20. Sufficient traffic control devices have been included in these plans to sign two lane closures. 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 unit for Traffic Control.

TABLE OF TRAFFIC CONTROL DEVICES

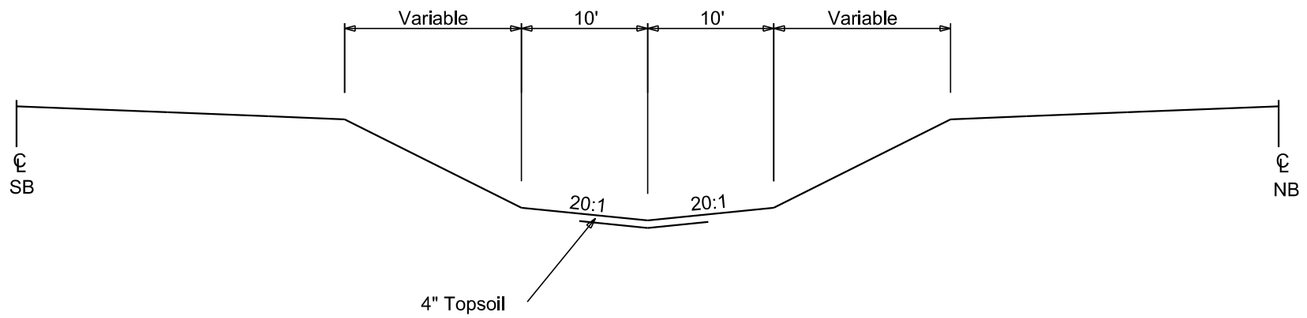
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W21-5	48" x 48"	SHOULDER WORK	4	34	136
				TOTAL UNITS	578

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	6	15

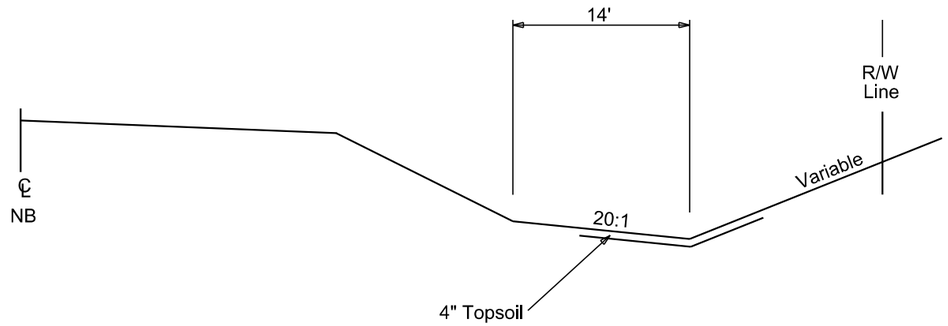
Plotting Date: 05/13/2013

TYPICAL DITCH SECTION

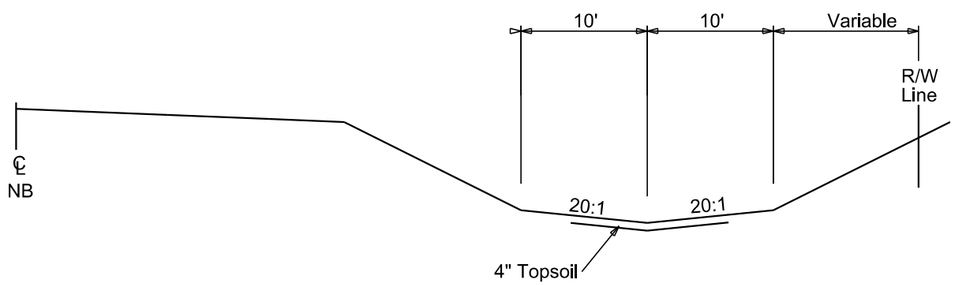
Sta 15+00 L
Sta 305+00 L to Sta 30760 L
Sta 380+50 L to Sta 387+00 L



Sta 304+00 R to Sta 309+50 R
Sta 368+60 R



Sta 375+85 R to Sta 376+60 R



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	7	15

Plotting Date: 05/13/2013

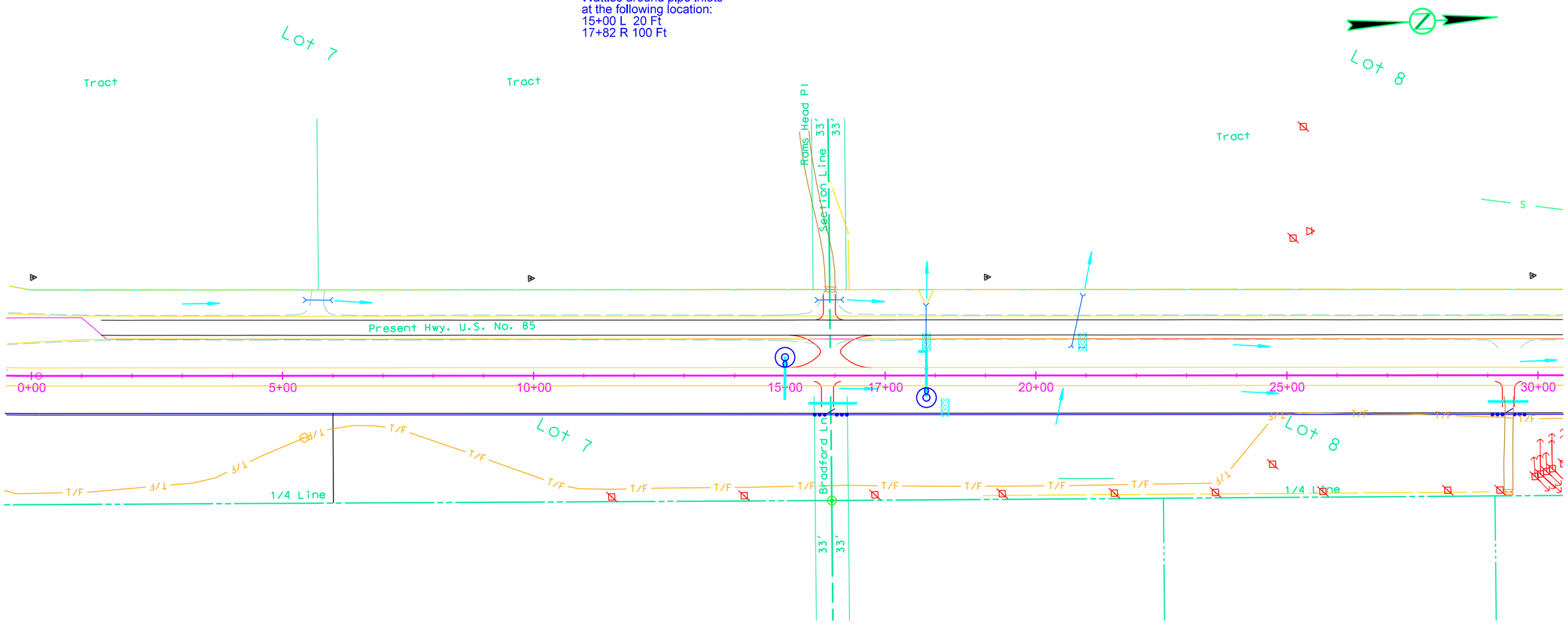
15+00 L
Remove Pipe End Section for Reset

15+00 L
Reset Pipe End Section

Contractor Furnished Borrow
15+00 L Repair Erosion - 8 CuYd

Install 12" Diameter Erosion Control
Wattles around pipe inlets
at the following location:
15+00 L 20 Ft
17+82 R 100 Ft

Apply Fiber Mulch (0.90 Ton)
at the following locations:
15+00 L Inslope
17+82 R Backslope
Areas around delineators L/R Inslope



Legend:

Erosion Control Wattle (Inlet)

PLOT SCALE - 1:200

PLOT NAME - 3

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	8	15

Plotting Date: 05/13/2013

Contractor Furnished Borrow (Repair Erosion)
(MRM 51.58) 304+00± L to 309+50± L - 136 CuYd
(MRM 51.61) 305+00± R to 307+60± R - 48 CuYd

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
at the following locations:
(MRM 51.58) 304+00± R to 309+50± R 978 SqYd (16' wide)
(MRM 51.61) 305+00± L to 307+60± L 578 SqYd (20' wide)

Install (12") Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
304+50 R 30 Ft
305+25 R 30 Ft
306+00 R 30 Ft
306+75 R 30 Ft
307+50 R 30 Ft
308+25 R 30 Ft
309+00 R 30 Ft
309+75 R 30 Ft
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306+50 L 30 Ft
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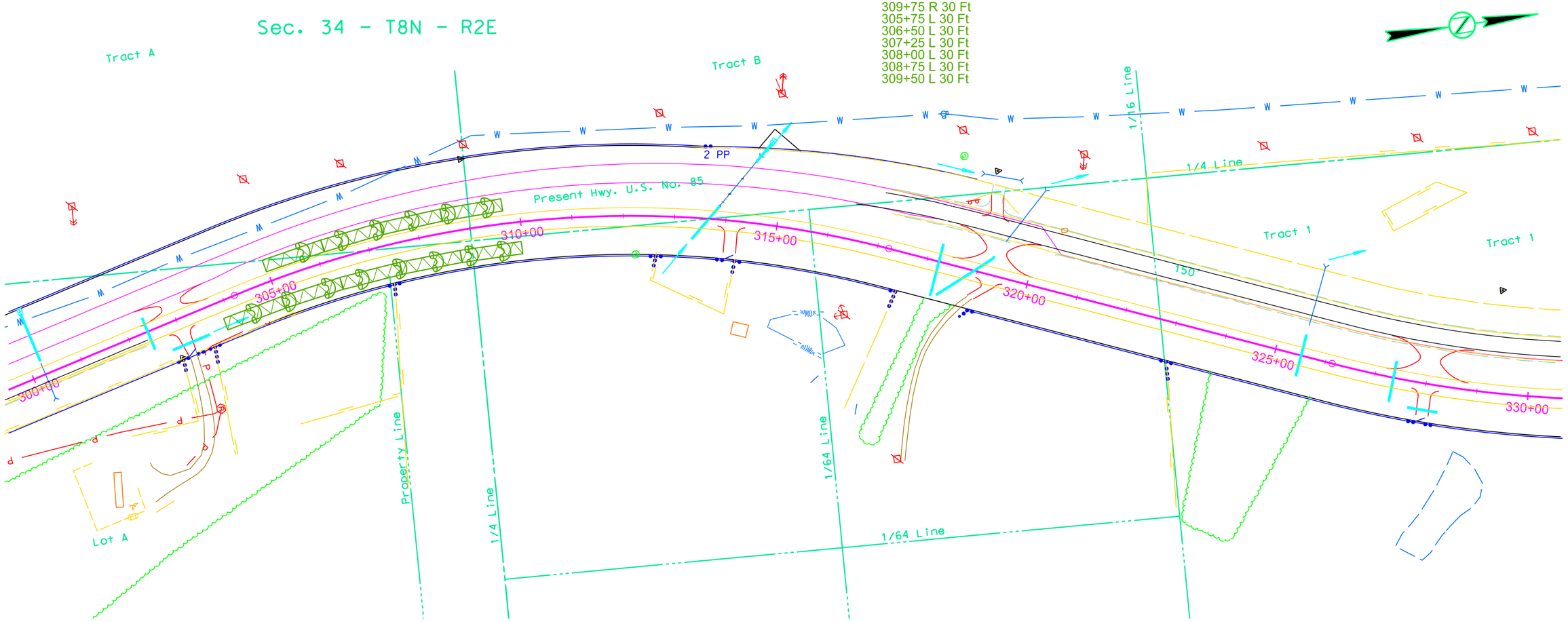
308+00 L 30 Ft
308+75 L 30 Ft
309+50 L 30 Ft



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PLOT NAME - 4
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	9	15

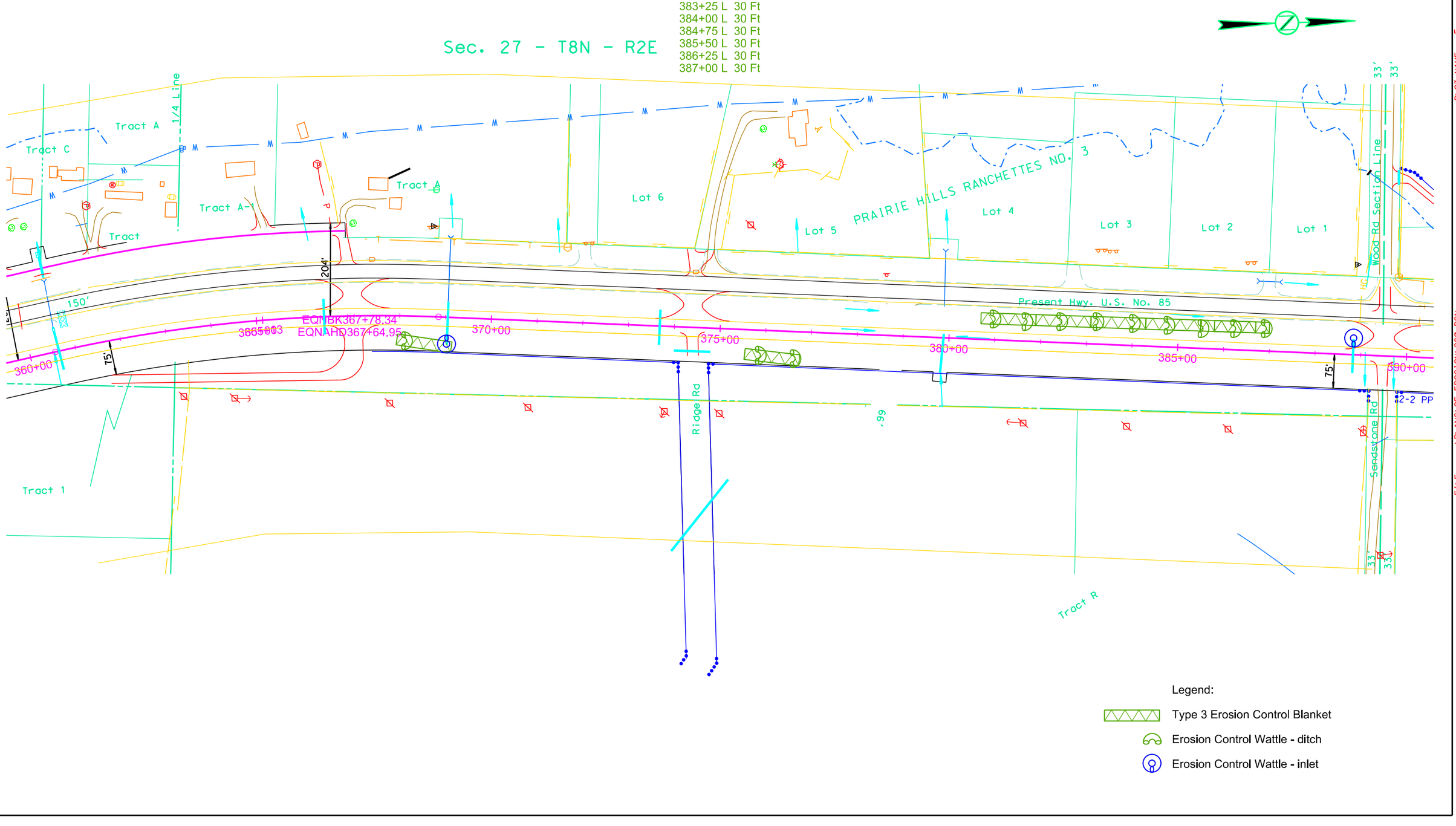
Plotting Date: 05/13/2013

Contractor Furnished Borrow (Erosion Repair)
at the following locations:
(MRM 52.8) 368+60± R to 369+00± R 32 CuYd
(MRM 53.0) 375+85± R to 376+60± R 128 CuYd
(MRM 53.06) 380+50± L to 387+00± L 161 CuYd

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
at the following locations:
(MRM 52.8) 368+60± R to 369+00± R 71 SqYd (16' wide)
(MRM 53.0) 375+85± R to 376+60± R 167 SqYd (20' wide)
(MRM 53.06) 380+50± L to 387+00± L 1444 SqYd (20' wide)

Install (12") Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
368+25 R 30 Ft
376+00 R 30 Ft
376+75 R 30 Ft
381+00 L 30 Ft
381+75 L 30 Ft
382+50 L 30 Ft
383+25 L 30 Ft
384+00 L 30 Ft
384+75 L 30 Ft
385+50 L 30 Ft
386+25 L 30 Ft
387+00 L 30 Ft

Install 12" Diameter Erosion Control
Wattles around pipe inlets
at the following locations:
369+05 R 20 Ft
388+83 L 20 Ft



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PLOT NAME - 5
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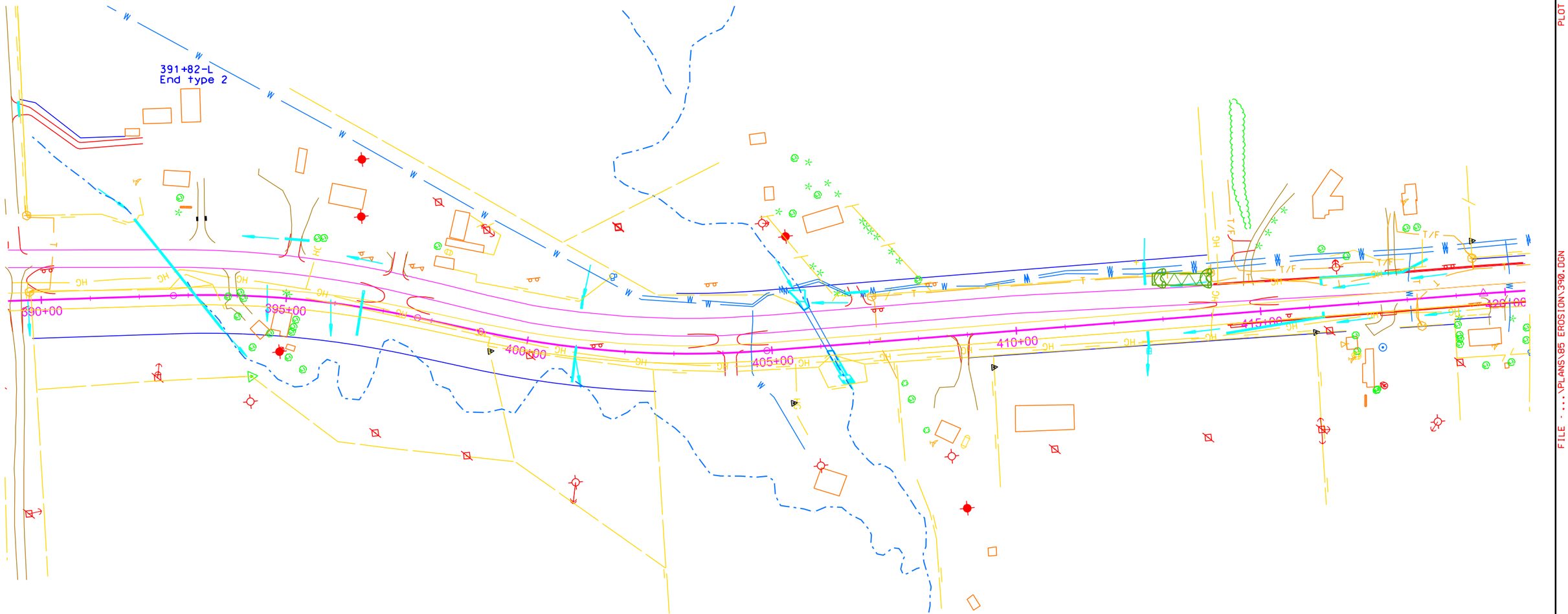
PLOTTED FROM - TRRC11610

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	10	15

Plotting Date: 05/13/2013

413+60 L to 414+00 L 71 SqYd
Install Type 3 Erosion Control Blanket
in the highway inslop/ditch

Install (12") Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
413+60 L 30 Ft
414+00 L 30 Ft



Legend:

Type 3 Erosion Control Blanket

Erosion Control Wattle - ditch

PLOT SCALE - 1:200

PLOT NAME - 6

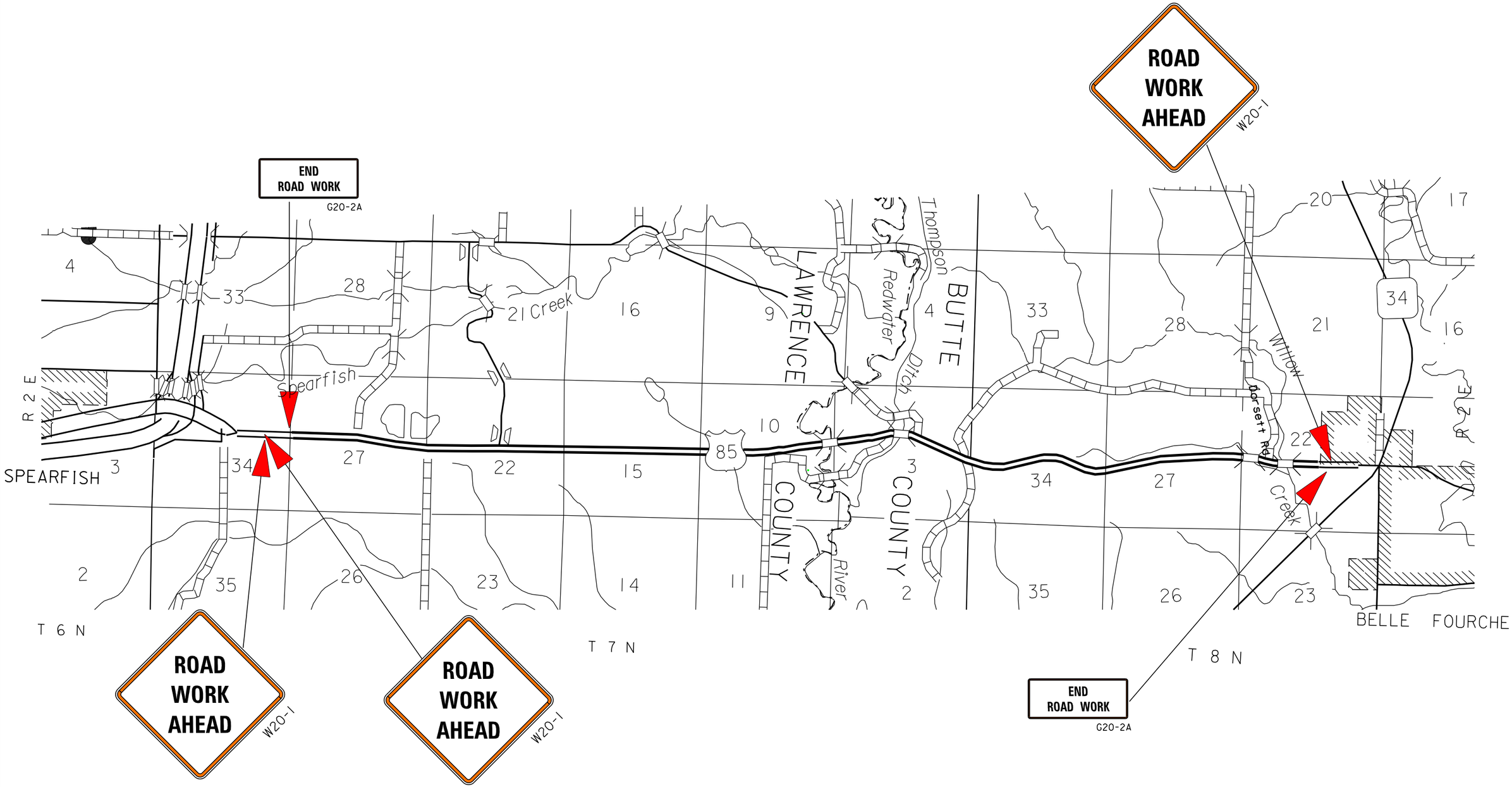
FILE - ...\PLANS\85 EROSION\390.DGN

PLOTTED FROM - TRRC11610

FIXED LOCATION SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085 N-471	11	15

Plotting Date: 05/13/2013

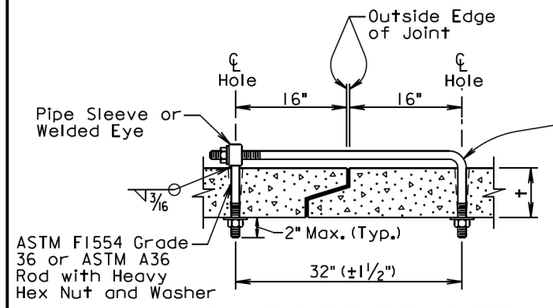


Plot Scale - 1:200

Plotted From - trrc11610

File - ...\plans\85 Erosion\traffic.dgn

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

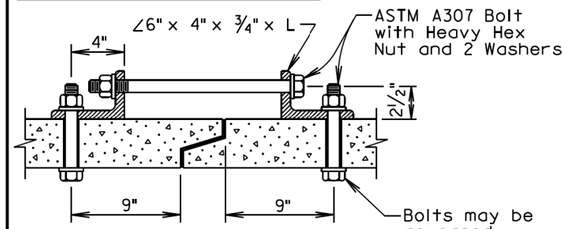
GENERAL NOTES:

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 adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



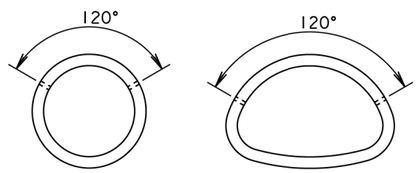
ANGLE AND BOLT TIE

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.



END VIEW "CIRCULAR"

END VIEW "ARCH"

GENERAL NOTES:

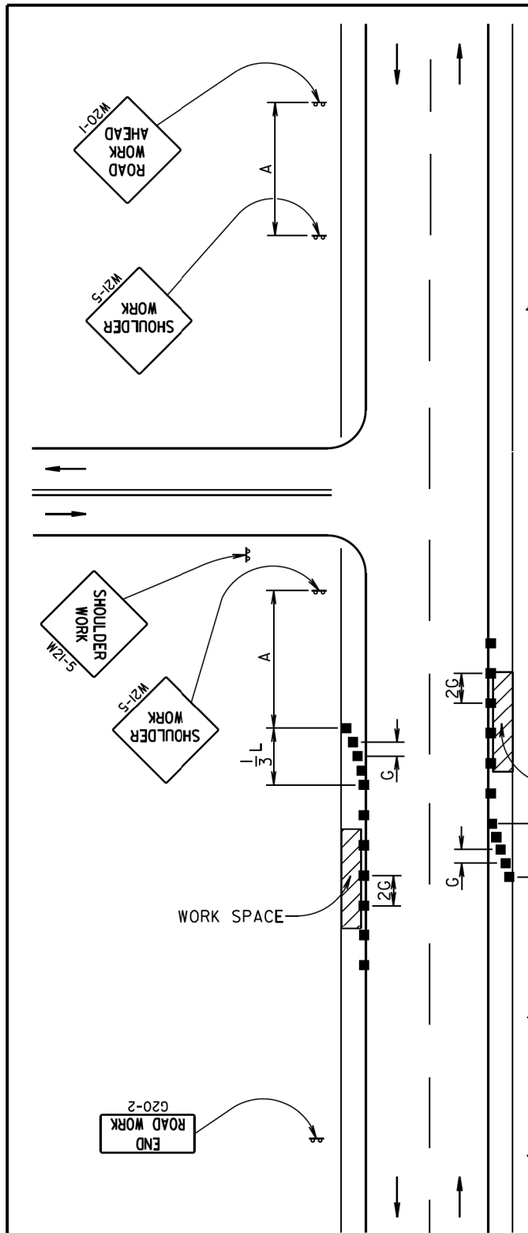
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

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.

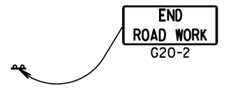
February 28, 2013

Published Date: 2nd Qtr. 2013	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



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

■ Channelizing Device



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

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

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

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

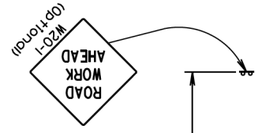
The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

February 14, 2011

Published Date: 2nd Qtr. 2013	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

WITHOUT BARRIER

** Shall be used for overnight and long term operations.



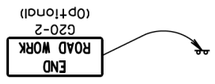
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 75	1000 1600 2600	900

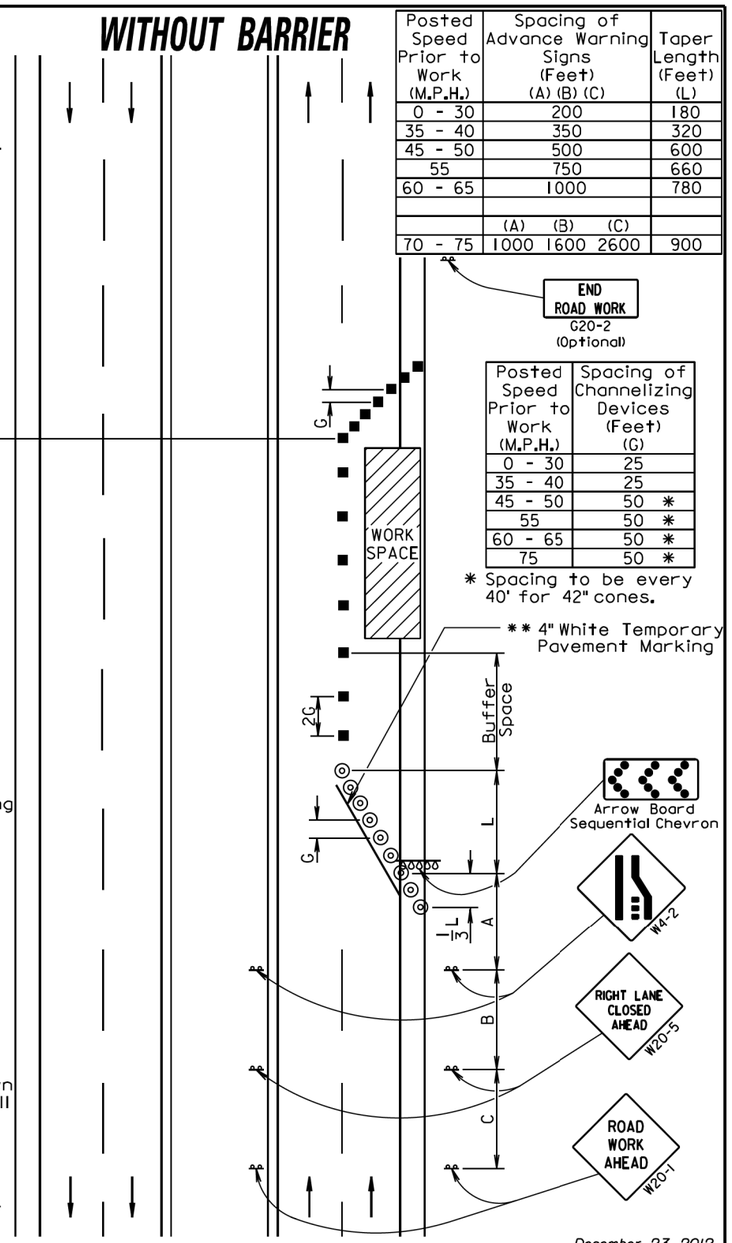
Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485
70	535
75	585

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

- ◎ Reflectorized Drum
- ■ Channelizing Device shall be 42" cones or drums

42" cones may be used in place of the drums shown in the taper if setup will not be used during any night time hours.



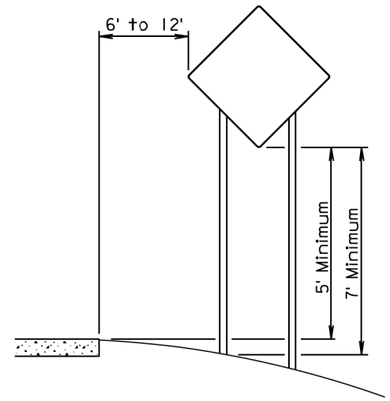


Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 65	50 *
75	50 *

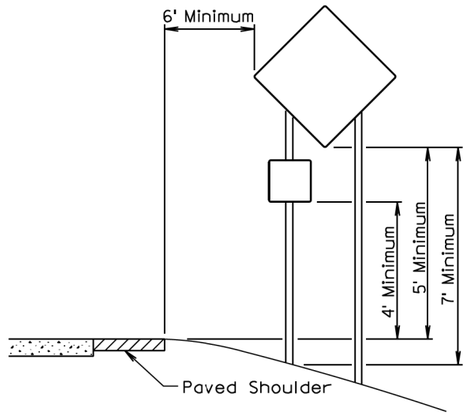
* Spacing to be every 40' for 42" cones.

December 23, 2012

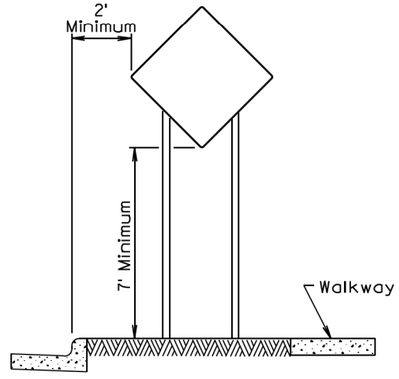
Published Date: 2nd Qtr. 2013	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64
			Sheet 1 of 1



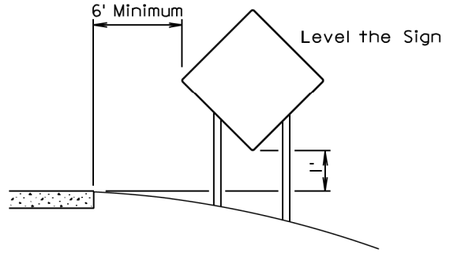
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT 3 DAY MAXIMUM

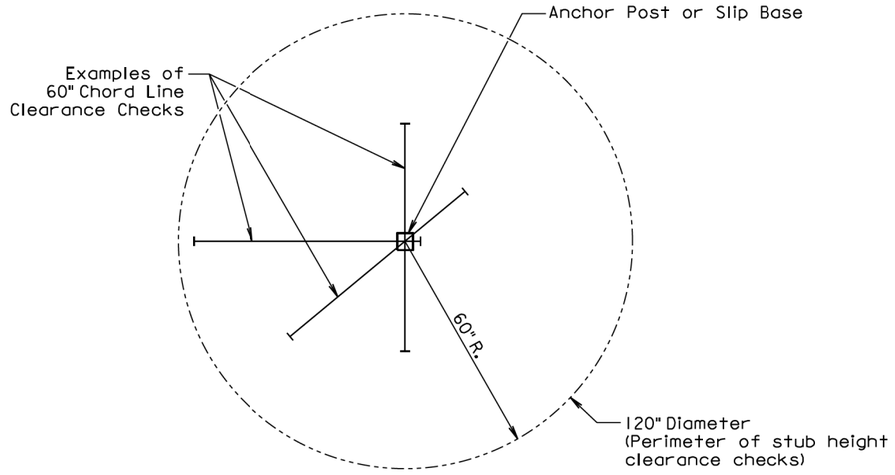
February 14, 2011

Published Date: 2nd Qtr. 2013	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1

Plot Scale - 1:200

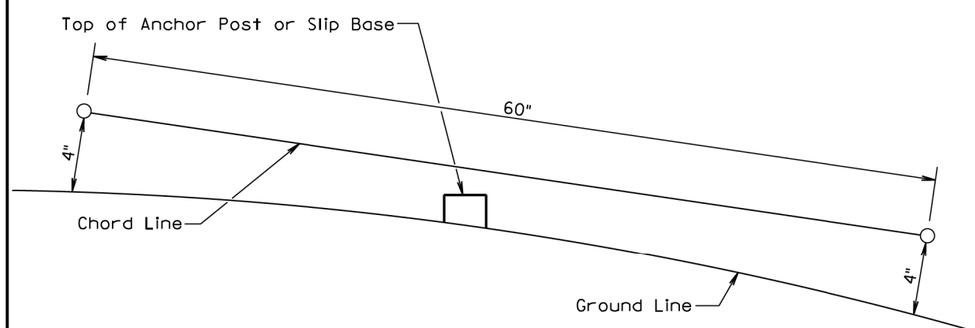
- Plotted From - trnc11610

File - ...\85 Erosion\StdplatePg1b.dgn



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

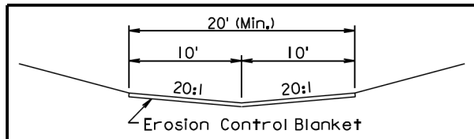
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

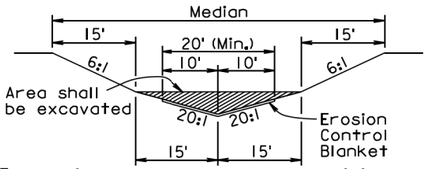
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 2nd Qtr. 2013	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

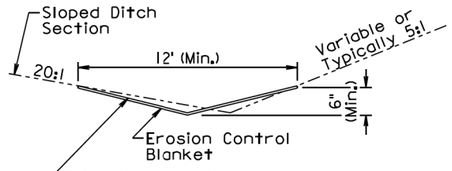


STANDARD DITCH SECTION

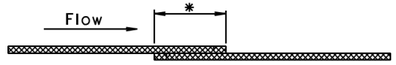


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



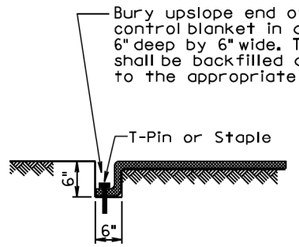
SLOPED DITCH SECTION



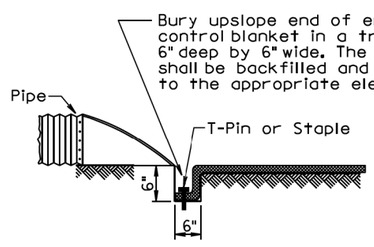
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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.

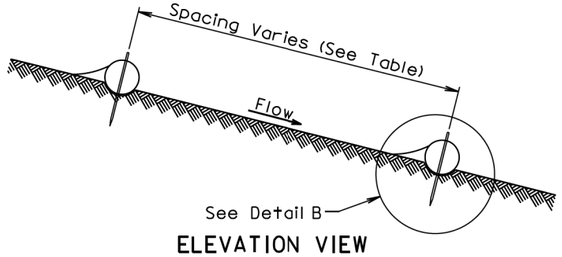
The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

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".

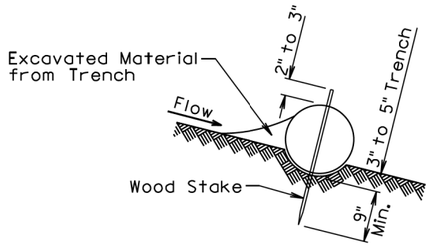
December 23, 2004

Published Date: 2nd Qtr. 2013	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

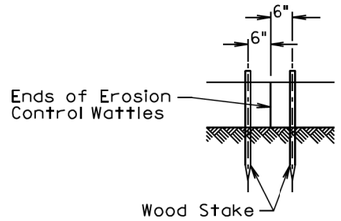


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

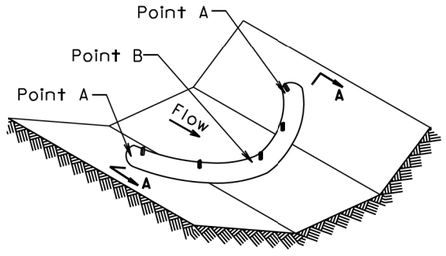
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



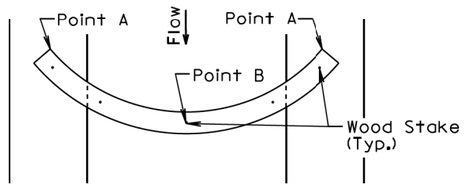
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

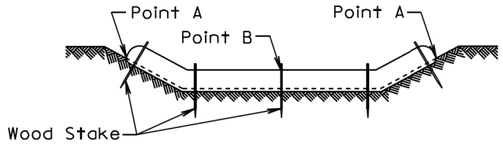


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

December 23, 2004

Published Date: 2nd Qtr. 2013	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

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

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than ½". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

December 23, 2004

Published Date: 2nd Qtr. 2013	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2