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Prepared For:
Public Works Department

Engineering Services

Scale:
 Designed By: RM
 Drawn By: RM
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MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Sheet Title:	Sheet No:
SECTION D ESTIMATE OF QUANTITIES AND GENERAL NOTES	D2 of D13

SECTION D ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
100E0020	Clear and Grub Tree	1	Each
100E0100	Clearing	Lump Sum	LS
110E1690	Remove Sediment	20	CuYd
110E1693	Remove Erosion Control Wattle	1277	Ft
110E1695	Remove Sediment Filter Bag	276	Ft
230E0020	Placing Contractor Furnished Topsoil	130	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
730E0210	Type F Permanent Seed Mixture	20	Lb
731E0100	Fertilizing	972	Lb
734E0102	Type 2 Erosion Control Blanket	2354	SqYd
734E0154	12" Diameter Erosion Control Wattle	1277	Ft
734E0165	Remove and Reset Erosion Control Wattle	200	Ft
734E0180	Sediment Filter Bag	276	Ft
734E0185	Remove and Reset Sediment Filter Bag	110	Ft
734E3000	Water Pollution Control	Lump Sum	LS

WATER POLLUTION CONTROL

All costs associated with procurement and implementation of all the permit requirements shall be incidental to the contract lump sum price for Water Pollution Control.

Various quantities for erosion control items have been included in the estimate of quantities. When authorized by the Engineer and used, the erosion control devices will be field measured and paid for at the applicable unit prices. Additional quantities of erosion control measures may be needed upon construction to effectively control sediment. All additional quantities shall be authorized by the Engineer and shall be paid for at the contract unit price for the applicable items.

EROSION CONTROL PLAN

This erosion control plan is provided to establish a number of erosion control devices for bidding purposes and to provide information to the Contractor to aid in the process of obtaining associated construction permits listed in the Storm Water Pollution Prevention Plan (SWPPP). The Contractor is responsible for the methods and means required for implementing any and all construction activities to be in compliance with the permits listed in the SWPPP. Additional quantities of erosion control measures may be needed upon construction to effectively control sediment. All additional quantities shall be authorized by the Engineer and shall be paid for at the contract unit price for the applicable item.

COORDINATION

Work listed in these plans shall be coordinated with the erosion control for Mount Rushmore Road, US Highway 16 (Project NH 0016(78)67) Section D. Work completed within Section D of Project NH 0016(78)67 shall be completed under separate contract with the Department of Transportation.

The erosion control layout within this section is for the water main tie-in located within the Oakland/Tower Road intersection located outside of the proposed limits for the roadway project. Additional quantities for sediment controls have been provided in the event the water, sewer and landscaping work contemplated for this project require additional quantities to the sediment control items provided within project NH 0016(78)67.

INSTALLATION OF TEMPORARY EROSION CONTROL MEASURES

The Contractor shall not begin the removal of surfacing or topsoil within the applicable work area until all applicable temporary erosion control measures are placed and he/she is confident that work can continue uninterrupted until completion. Temporary erosion control measures shall be installed as necessary as construction progresses and these temporary erosion control devices shall be installed within 24 hours at locations identified on the Erosion and Sediment Control Plan.

CLEARING & GRUBBING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If items that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

INDISCRIMINATE DRIVING

The Contractor shall park and drive construction related vehicles within project designated areas. Disturbed areas resulting from indiscriminate driving will not be permitted. Any damage to the vegetation resulting from indiscriminate driving/activity shall be repaired and/or restored by the Contractor, at no expense to the Owner, and the satisfaction of the Engineer.

REMOVE AND REPLACE TOPSOIL

Prior to excavating, the Contractor shall strip and stockpile the topsoil. Topsoil is estimated at 4" thick. The topsoil shall be placed back over the disturbed areas to a depth of four inches. The Contractor shall limit topsoil removal only to areas of excavation. All work associated with the removal, stockpiling, and replacement of topsoil shall be incidental to the contract lump sum price for Remove and Replace Topsoil.

PLACING CONTRACTOR FURNISHED TOPSOIL

130 CuYds of Placing Contractor Furnished Topsoil have been included in the estimate based on a thickness of 2" over the disturbed area. The intent is to make the total topsoil thickness 6" prior to fertilizing and seeding operations. Topsoil will be measured by the truck haul method and the quantity of each truck will be agreed upon by the Engineer and the Contractor prior to hauling operations.

PERIMETER PROTECTION

Perimeter protection shall be installed at locations shown on the plans or as directed by the Engineer, to retain sediment from being transported off the project site. Perimeter protection shall be constructed with sediment control wattles. Perimeter protection shall be inspected in accordance with the SWPPP and/or erosion sediment control permit.

Payment for Perimeter Protection shall be at the contract unit price per foot for various items used for perimeter protection such as 12" Diameter Erosion Control Wattle.

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 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.

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/>



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MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

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SECTION D ESTIMATE OF QUANTITIES AND GENERAL NOTES	D3 of D13

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 2,000 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 designated within this section.

All permanent seed shall be planted in the topsoil at a depth of 1/4" to 1/2".

All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" to 1/2" 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.

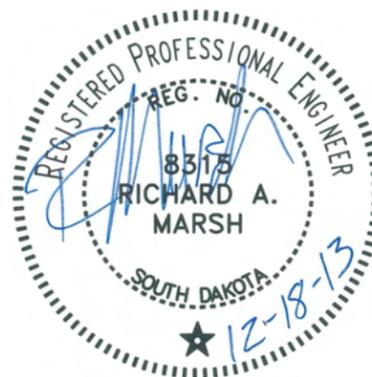
The varieties listed for the seed mixture are preferred varieties.

Native harvest seed will be allowed.

PERMANENT SEEDING CONT.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	11
Green Needlegrass	Lodorm	6
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	5
Blue Grama	Bad River, Willis	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		15
Total:		40



12" DIAMETER EROSION CONTROL WATTLES

Erosion control wattles can be used for perimeter control, inlet protection, check dams, slope protection, etc. and shall be installed at locations as shown on the drawings and at locations determined by the Engineer during construction. Additional erosion control wattles have been included in the estimate of quantities for water and sewer work on the intersecting streets with locations to be determined by the Engineer in the field. These quantities will only be used when the sediment controls provided within project NH 0016(78)67 are not sufficient or cannot be coordinated with the proposed work for this project.

Refer to City of Rapid City Detail 150-3 and the manufacturers installation instructions for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds. Compost filter socks can be used a substitute for erosion control wattles and the Contractor shall provide certification that the compost used is free from noxious weed seeds.

The Contractor shall remove sediment trapped by the wattle when the surface of the sediment reaches one-half the height of the exposed wattle. Damaged areas should be repaired immediately until the vegetation is established and growing through the material.

The wattles shall be the diameter shown on the drawings and selected from the manufacturers listed below; or approved equal:

Manufacturer	Product Name
American Excelsior Company Arlington, TX Phone: 1-800-777-7645 www.amerexcel.com	Curlex Sediment Log and AEC Premier Straw Wattle
Flaxtech LLC Rocklake, ND Phone: 701-266-5417 www.flaxtech.net	Biolog Flax Straw Wattle
Dioten Engineering, Inc. Rapid City, SD www.dioten.com	Compost Filter Sock
Aspen Ridge Rapid City, SD Phone 605-415-0695 www.siltsock.com	Silt Sock

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

Payment for all materials, labor and equipment necessary to install, maintain, and repair the wattles shall be incidental to the contract unit price per foot for 12" Diameter Erosion Control Wattle.

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MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

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TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Quantity (Ft)
0+75 to 6+16	R	12	580
0+98 to 1+19	R	12	22
3+30 to 3+54	L	12	25
Fairmont Blvd	L/R	12	50
Highland Park Dr	L/R	12	50
Cleveland Street	L/R	12	50
Indiana Street	L/R	12	50
Meade Street	L/R	12	50
Flormann Street	L/R	12	100
Mt Rushmore Rd	L/R	12	300
Total:			1277

EROSION CONTROL BLANKET (ECB)

Erosion control blanket shall be installed at locations as shown on the drawings and at locations determined by the Engineer during construction. Refer to City of Rapid City Detail 150-4 and the manufacturers installation instructions for details.

Erosion control blankets are placed into the following categories:

Type 1 - used for temporary stabilization of slopes of less than 10h:1v, not allowed in channel applications;

Type 2 - used for temporary stabilization of slopes of 3h:1v or less, can be used in low gradient ditches and channels;

Type 3 - used for temporary stabilization of slopes of 2h:1v or less, used in ditches and channels; and

Type 4 - used for temporary stabilization of slopes of 1h:1v or less, used in ditches and channels.

The erosion control blanket shall be selected from the manufacturers listed below; or approved equal:

Manufacturer	Product Name
American Excelsior Co. Arlington, Tx Phone: 1-800-777-7645 www.amerexcel.com	Type 1: Curlex Netfree, Curlex I; AEC Premier Straw S Type 2: Curlex II; AEC Premier Straw 2 Type 3: Curlex III; AEC Premier Straw/Coconut 2 Type 4: AEC Premier Coconut 2/Net
Western Excelsior Mancos, CO Phone: 1-800-833-8573 www.westernexcelsior.com	Type 1 -SS2 RG Type 2 - SS2 Type 3 - S2 Type 4 - CC4

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

Erosion Control Blanket will be measured to the nearest square yard, measurement of the overlap and top and bottom folds will not be made.

Payment at the contract unit price per square yard will be full compensation for shaping and finishing the topsoil prior to placement, and all materials, labor, equipment, staples, and incidentals necessary for the proper installation of Erosion Control Blanket.

TABLE OF EROSION CONTROL BLANKET

Station to	Station	L/R	Location	Type	Quantity (SqYd)
0+56	6+25	L&R	Disturbed Area resulting from water main installation between Oakland and Mt Rushmore Road	II	2354
Total Type 2 Erosion Control Blanket:					2354

REMOVE AND RESET EROSION CONTROL WATTLE

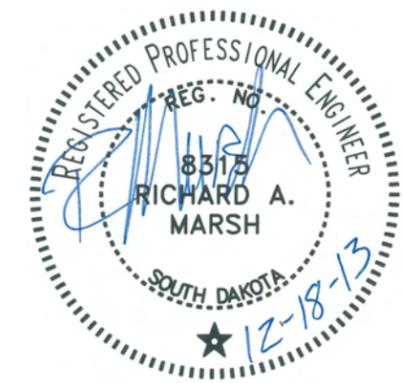
Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for Remove and Reset Erosion Control Wattle.

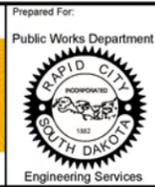
REMOVE SEDIMENT CONTROL WATTLE

Sediment control wattle shall be removed when vegetation is established. Some or all of the sediment control wattle may be left on the project until vegetation is established. Quantities for all sediment control wattles left in place will be deducted from the quantity for the bid item Remove Sediment Control Wattle.

SHAPING FOR EROSION CONTROL BLANKET

The areas receiving erosion control blanket shall be shaped as specified in manufacturer's recommendations. No separate payment will be made.





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SECTION D ESTIMATE OF QUANTITIES AND GENERAL NOTES	D5 of D13

GUTTER CHECK, SEDIMENT FILTER BAG

Refer to the standard detail for installation guidance.

Additional gutter check, sediment bags have been included in the estimate of quantities for water and sewer work on the intersecting streets with locations to be determined by the Engineer in the field. These quantities will only be used when the sediment controls provided within project NH 0016(78)67 are not sufficient or cannot be coordinated with the proposed work for this project.

The sediment filter bag shall be the Snake Bag from Sacramento Bag Manufacturing Company or an approved equal.

All costs for furnishing and installing the sediment filter bags including aggregate shall be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags shall be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Sediment Filter Bags may be removed and reset as necessary as work progresses. The sediment filter bags removed and reset shall be in useable condition. All costs for removing and resetting the sediment filter bags shall be incidental to the contract unit price per foot for Remove and Reset Sediment Filter Bag.

All costs for removing and disposing of sediment collected by the sediment control device shall be incidental to the contract unit price per cubic yard for Remove Sediment.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

The Contractor and Engineer shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

TABLE OF GUTTER CHECK, SEDIMENT FILTER BAG

Station	L/R	Sediment Filter Bag Quantity (Ft)
0+50 Oakland	44'R	6
0+50 Oakland	48'R	6
Fairmont Blvd	L/R	24
Highland Park Dr	L/R	24
Cleveland St	L/R	24
Indiana St	L/R	24
Meade St	L/R	24
Flormann St	L/R	48
Mt Rushmore Rd	L/R	96
Total:		276



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MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Sheet Title:	Sheet No:
SECTION D SWPPP NARRATIVE	D6 of D13

STORM WATER POLLUTION PREVENTION PLAN AND PERMITS

The Owner is the responsible party for preparing a Notice of Intent (NOI) with the South Dakota Department of Environment and Natural Resources (SDDENR) to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities. The Prime Contractor is responsible for preparing the associated Contractor Certification form (211OLD V1). The Prime Contractor shall submit the complete NOI and Contractor Certification form to the SDDENR. The Notice of Intent (NOI) shall be submitted to the SDDENR a minimum of 15 days prior to project start by the Contractor.

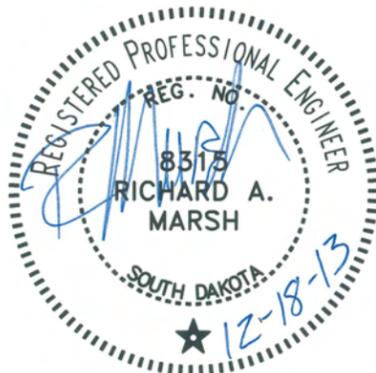
The Prime Contractor is the responsible party for obtaining a City of Rapid City Erosion and Sediment Control Permit and Grading Permit from the City of Rapid City per City Ordinance.

The Prime Contractor is the responsible party for submitting a Notice of Termination (NOT) with the South Dakota Department of Environment and Natural Resources once "final stabilization" has been obtained on the project. Please refer to the SDDENR General Permit for definitions of final stabilization.

The Contractor shall provide copies of all permits to the City and Project Engineer at a minimum of 5 working days prior to beginning construction operations.

This storm water pollution prevention plan and associated erosion control plan are provided to establish a number of erosion control devices for bidding purposes and to provide information to the Contractor to aid in the process of obtaining associated construction permits listed above. The Contractor is responsible for the methods and means required for implementing any and all construction activities to be in compliance with the above referenced permits.

The Contractor is advised that several agencies have the authority to issue a stop work order if the pollution and sediment prevention control is not implemented or is not effective in the prevention of environmental damage from construction activities. No compensation will be forthcoming for contract time lost due a stop work order.



CONSTRUCTION DEWATERING PERMIT

If ground water is encountered, the Contractor is required to obtain a general permit to discharge under the South Dakota Surface Water Discharge System for Temporary Discharge Activities in South Dakota. SDDENR Permit No. SDG 070000. The Contractor shall coordinate completion of the application with the Owner and Owner's representative and to follow the requirements set forth by the permit. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit. Contractor shall complete applicable certification forms and route for signatures as needed.

Because groundwater was found during geotechnical investigations, it is recommended that the Contractor obtain the permit prior to construction operations.

The Contractor is responsible for performing self-monitoring activities including sampling, testing and reporting as may be determined to be required under the authorization to discharge. There will be no separate payment for obtaining the necessary authorization to discharge, and for all compliance activities and obligations by the Contractor. All costs for construction/trench dewatering is incidental to the utility being installed per section 11.5.B of the standard specifications.

SIGNAGE

Per permit requirements, the Contractor shall at all times have a copy of the SDDENR NOI permit letter, City of Rapid City Erosion and Sediment Control Permit, Storm Water Pollution Prevention Plan with associated Erosion and Sediment Control Plan drawings, and inspection reports located within or adjacent to the project limits available for review. The Contractor shall ensure that this information is located within a weather tight, secure enclosure clearly labeled SWPPP. The Contractor shall also post a sign with appropriate contact information. The sign shall be clearly legible, securely anchored, and appropriately weatherproofed to assure its integrity throughout construction. The contents of the sign shall be as follows:

TO REPORT AN EROSION, SEDIMENT, OR SPILL PROBLEM AT THIS CONSTRUCTION SITE TO THE RESPONSIBLE CONTRACTOR PLEASE CALL: **(Contractor name and phone number)**

TO REGISTER A COMPLAINT ABOUT THIS CONSTRUCTION SITE TO THE CITY OF RAPID CITY, PLEASE CALL 605-394-4154.

PROJECT DESCRIPTION

This project includes the construction of a 12" PVC water main and 8" PVC sewer main within the limits of the SDDOT proposed roadway project NH 0016(78)67. It also includes an extension of the 12" water main from the intersection of Tower and Oakland Streets west through City of Rapid City property to Mount Rushmore Road (US Hwy 16) and associated work. This work is being coordinated with the Mount Rushmore Road reconstruction project. Please refer to the plans for illustrations of proposed work areas and limits of construction.

Project Limits: See Title Sheet and project drawings

Site Map(s): See Title Sheet and project drawings

Existing Site Conditions:

Mt Rushmore Road consists of a 5 lane urban arterial roadway with commercial development on each side of the roadway.



The offsite water main to Oakland Street is bounded on the West side by Mount Rushmore Road, East side by Tower Road, South Side by the Holiday Inn Express and an electrical substation on the north. The topography of the site varies in elevation from 3395' to 3345' and generally slopes from each edge to the center of the lot to the drainage channel for the detention pond. In general, the site is typical of rolling hills found along the "hog back" that separates west and east Rapid City. Please refer to the project drawings for contours of the existing site and proposed water main location.



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**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

Sheet Title:
 SECTION D
 SWPPP
 NARRATIVE

Sheet No:
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PROJECT DESCRIPTION CONT.

Major Soil Disturbing Activities

- Clearing and grubbing
- Excavation
- Grading and shaping
- Filling
- Trenching
- Other (describe): Water Main Installation.

Total Project Area from Tower Road to Flormann Street: 11.0 Acres +/-

Total Area to Be Disturbed outside of Project 0016(78)67: 0.49 Acres +/-

Existing Vegetative Cover: 10% +/- in Mount Rushmore Road Corridor.

Soil Properties: Please refer to the associated Geotechnical Engineering Report for this project titled "Mt. Rushmore Road Utility Reconstruction, Tower Road to St. Patrick Street, Rapid City, South Dakota, November 14, 2011, Terracon Project No. B4115030, City of Rapid City Project No. SSW11-1926/CIP No. 50840. AASHTO Soil Classifications SM, CH, CL.

Name of Receiving Water Body/Bodies: Drainage along the corridor is contained within three previously studied sub basins of the Meade/Hawthorne Drainage Basin Design Plan. Drainage outlet points include a storm sewer at station 12+55 L&R, a detention basin at 20+00 R and a storm sewer outfall at St. Francis Street north of the project limits. All three outfalls continue easterly within storm sewer and open channel elements through the Robbinsdale area of Rapid City ultimately ending up in the Meade/Hawthorne Drainage Ditch. The drainage then flows within the Meade/Hawthorne Ditch easterly until it empties into Rapid Creek near Lombardy Drive. Please refer to Meade/Hawthorne Drainage Basin Design plan or Technical Memorandum #12 for Project 11-1926/CIP No. 50840 for detailed information.

ORDER OF CONSTRUCTION ACTIVITIES

Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.

- Special sequencing requirements (see construction documents/plans for construction sequencing).
- Install perimeter protection where runoff sheets from the site.
- Install inlet protections and gutter check sediment filter bags.
- Clearing and grubbing.
- Remove and stockpile topsoil.
- Stabilize/protect disturbed areas as necessary.
- Complete water main installation and backfill trench as soon as practical.
- Replace topsoil as soon as practical.
- Complete permanent stabilization operations including seeding, fertilizing, and erosion control blanket installation on disturbed areas.
- Remove temporary Erosion and Sediment Control as applicable. It may be necessary to leave the temporary structural items in-place until sufficient vegetation is established per permit.

EROSION AND SEDIMENT CONTROLS

Stabilization Practices

- Temporary Seeding (Cover Crop Seeding)
- Permanent Seeding
- Sodding
- Planting (Woody Vegetation for Soil Stabilization)
- Mulching (Grass Hay or Straw)
- Hydraulic Mulch (Wood Fiber Mulch)
- Soil Stabilizer
- Bonded Fiber Matrix
- Erosion Control Blankets or Mats
- Vegetation Buffer Strips
- Roughened Surface (e.g. tracking)
- Dust Control
- Other:

Structural Temporary Erosion and Sediment Controls

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other: Sediment Filter Bags

Wetland Avoidance

This project will not impinge on regulated wetlands.

Storm Water Management

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Temporary and permanent controls will be shown on the plans.

Other Storm Water Controls

▪ **Waste Disposal**

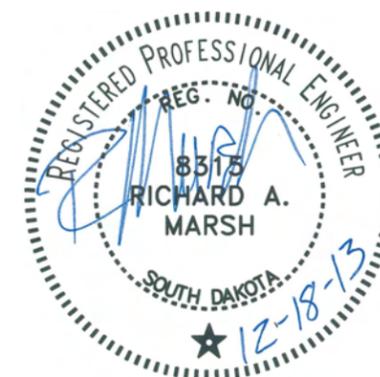
All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

▪ **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.

▪ **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

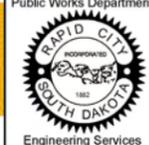


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Prepared For:



Engineering Services

Scale:

Designed By:

RM

Design Date:

12.18.2013

Internal Job No.:

11119.02

Surveyed By:

SDDOT

Project Number:

11-1926, CIP NO.50840, PCN X02D

Drawn By:

RM

Print Date:

12.18.2013

Survey Date:

2012

Revisions:

Number:

Description:

MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Sheet Title:

SECTION D
SWPPP
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Maintenance and Inspection

Maintenance and Inspection Practices

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Compost Filter Socks will be inspected for depth of sediment and for tears in order to ensure the proper operation. Sediment buildup will be removed from the compost filter socks when it reaches ½ of the height of the sock.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared in accordance with Section 3.0 of the General Permit for Storm Water Discharges Associated with Construction Activities. Copies of the inspection reports shall be distributed to the Engineer and the City of Rapid City as well as filed with the SWPPP documents on site.
- The Contractor is responsible for inspections and reports. Maintenance and repair activities are the responsibility of the Contractor.

Non-Storm Water Discharges

The following non-storm water discharges are anticipated during the course of this project.

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

Materials Inventory

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION"

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other

Spill Prevention

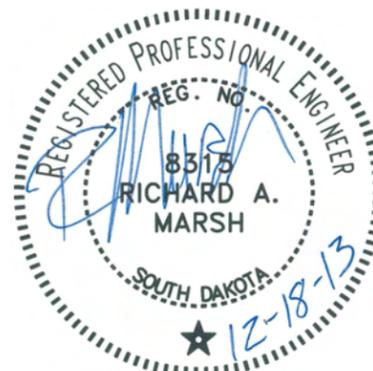
Material Management

Housekeeping

- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the Contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.



Product Specific Practices

Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

Fertilizers

Fertilizers will be applied only in the amounts specified by the plans. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

Spill Control Practices

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed:

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

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 Engineering Services

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Designed By: RM	Number:
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**MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION**

Sheet Title:
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Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants:

- The Contractor's Site Superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the Superintendent or the Superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site Superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

Spill Notification

In the event of a spill, the Contractor's Site Superintendent will make the appropriate notification(s), consistent with the following procedures: A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:

- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:54:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:54:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

CONSTRUCTION CHANGES

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the storm water pollution prevention plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The Contractor will modify the SWPPP plan and drawings to reflect the needed changes. All changes shall be initialed and dated by the responsible party. Copies of forms and the SWPPP shall be retained in a designated place for review over the course of the project. Copies of the changes shall also be provided to the Engineer and the City.

CERTIFICATIONS

"This erosion control plan appears to fulfill the technical criteria for erosion and sediment control requirements of the City of Rapid City and the South Dakota Department of Environment and Natural Resources. I understand that additional erosion control measures may be needed if unforeseen erosion problems occur or if the submitted plan does not function as intended."

Terry Wolterstorff, Public Works Director, City of Rapid City (Date)

Project Owner/Engineer
 City of Rapid City
 300 Sixth Street
 Rapid City, SD 57701
 Owner Representative: Klare Schroeder, P.E.
 Email Address: Klare.schroeder@rcgov.org
 Phone Number: (605) 394-4154

Prime Contractor
 Company Name: _____
 Address: _____
 City, State, Zip: _____
 Project Manager: _____
 Email Address: _____
 Phone Number: _____

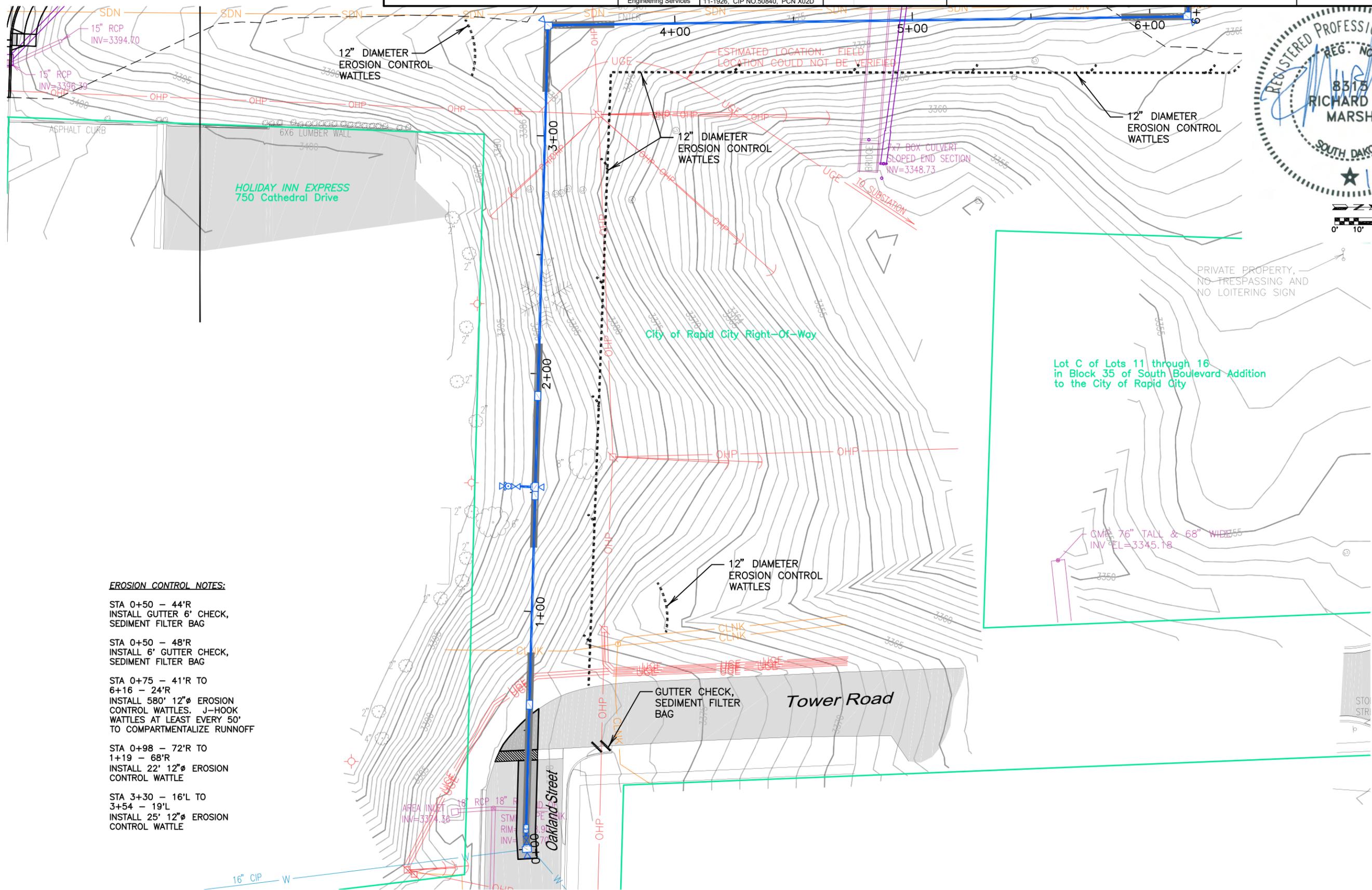
Engineer Certification
 "I certify that this document and associated attachments were prepared under my direction or supervision and that I am a registered professional engineer in the State of South Dakota."


 Rich Marsh, P.E. REG NO. 8315 (Date) 12-18-13



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 richm@cetecengineering.com

MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION



- EROSION CONTROL NOTES:**
- STA 0+50 - 44'R
 INSTALL GUTTER 6" CHECK,
 SEDIMENT FILTER BAG
 - STA 0+50 - 48'R
 INSTALL 6" GUTTER CHECK,
 SEDIMENT FILTER BAG
 - STA 0+75 - 41'R TO
 6+16 - 24'R
 INSTALL 580' 12"Ø EROSION
 CONTROL WATTLES. J-HOOK
 WATTLES AT LEAST EVERY 50'
 TO COMPARTMENTALIZE RUNOFF
 - STA 0+98 - 72'R TO
 1+19 - 68'R
 INSTALL 22' 12"Ø EROSION
 CONTROL WATTLE
 - STA 3+30 - 16'L TO
 3+54 - 19'L
 INSTALL 25' 12"Ø EROSION
 CONTROL WATTLE

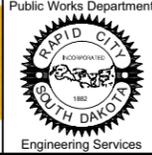
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 Drawing: EROSION CONTROL.DWG (SCHILLE) \\MAN-DATA\CETEC\PROJECTS & PROPOSALS\11119.02 - MOUNT RUSHMORE RD. UTILITY RECONSTRUCTION\DRAWINGS\SHEETS\PHASE 1 - TOWER TO FLORIMANN\

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Prepared For:



Engineering Services

Scale: AS NOTED

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Drawn By: MS
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Survey Date: 2012
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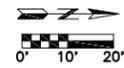
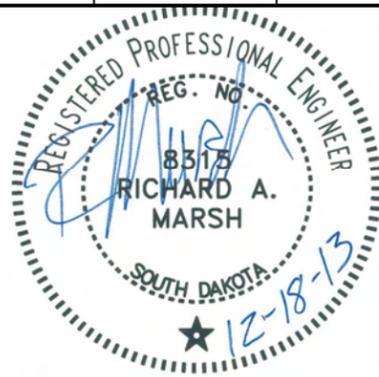
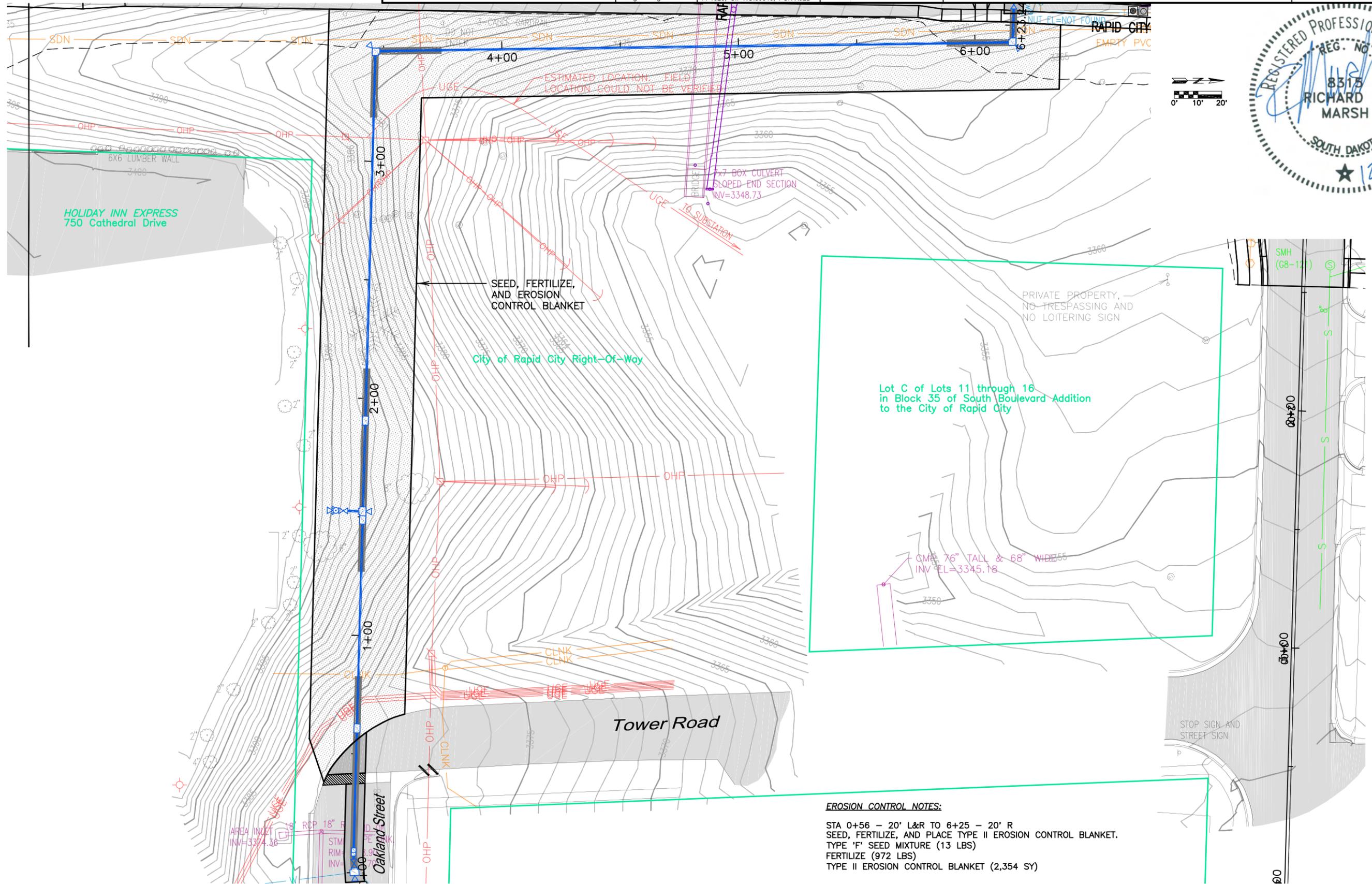
MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Sheet Title:

SITE
RESTORATION
PLAN

Sheet No:

D11
of
D13



EROSION CONTROL NOTES:

STA 0+56 - 20' L&R TO 6+25 - 20' R
 SEED, FERTILIZE, AND PLACE TYPE II EROSION CONTROL BLANKET.
 TYPE 'F' SEED MIXTURE (13 LBS)
 FERTILIZE (972 LBS)
 TYPE II EROSION CONTROL BLANKET (2,354 SY)

June 09, 2014, 2:45:19 p.m.
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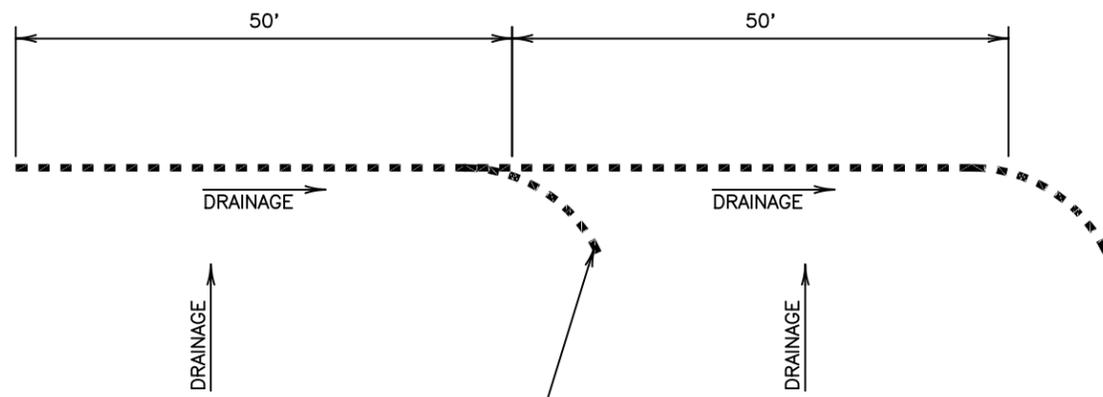
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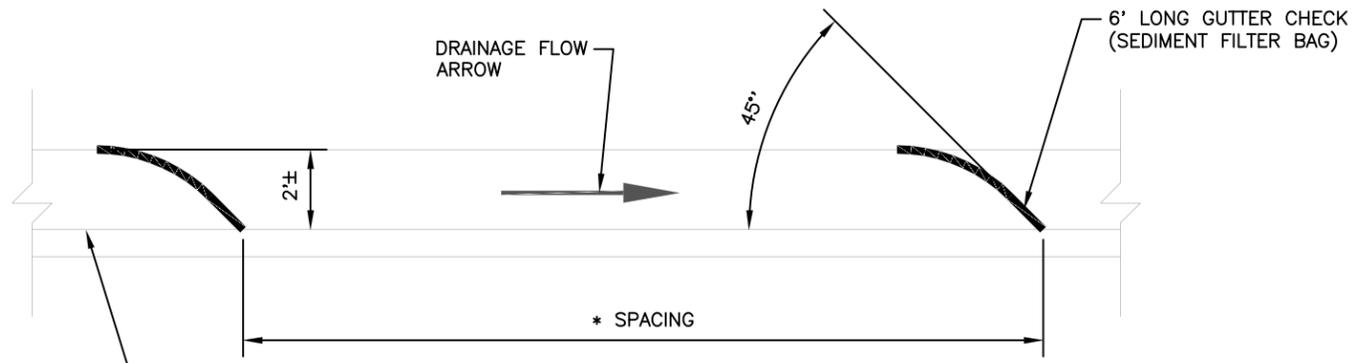
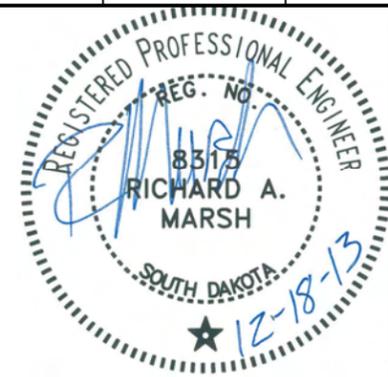
MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Sheet Title:	Sheet No:
STANDARD DETAILS	D12 of D13



WRAP WATTLE UPGRADE A VERTICAL DISTANCE EQUAL TO THE DIAMETER OF THE WATTLE TO SPLIT & COMPARTMENTALIZE CONTRIBUTING AREAS

EROSION CONTROL WATTLE INSTALLATION NOT TO SCALE



CURB & GUTTER FACE OR EXCAVATION CUT EDGE FOR GUTTER PLACEMENT

PLAN
NOT TO SCALE

LONGITUDINAL SLOPE	SPACING
1%	75'
2%	38'
3%	25'
4%	19'
5%	15'

NOTES:

1. FILTER SOCK SHALL BE FILLED WITH CLEAN OR WASHED AGGREGATE 2" MINUS OR SMALLER.
2. GRAVEL FILTER SOCK SHALL BE 9" IN DIAMETER AND SHALL BE THE "SNAKE BAG" FROM SACRAMENTO BAG MANUFACTURING COMPANY OR OTHER PRODUCT OFF OF SDDOT APPROVED PRODUCT LIST FOR USE AS SEDIMENT FILTER BAG.

GUTTER CHECK, SEDIMENT FILTER BAG NOT TO SCALE

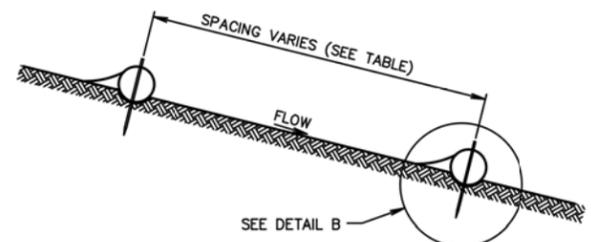
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MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION



SEDIMENT CONTROL WATTLE





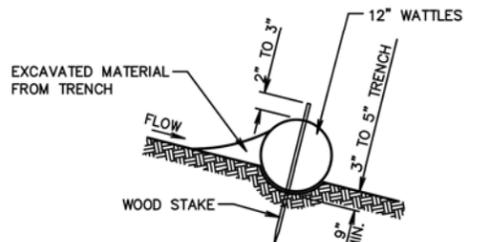
SPACING VARIES (SEE TABLE)

FLOW

SEE DETAIL B

ELEVATION VIEW
 CUT OR FILL SLOPE INSTALLATION

SLOPE	SPACING (FT)
1:1	10
2:1	20
3:1	30
4:1	40



EXCAVATED MATERIAL FROM TRENCH

FLOW

WOOD STAKE

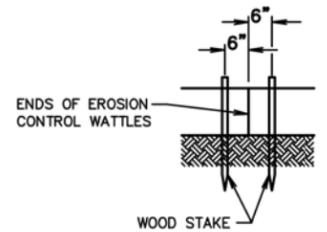
12" WATTLES

2" TO 3"

3" TO 5" TRENCH

9" MIN

DETAIL B
 (TYPICAL OF ALL INSTALLATIONS)



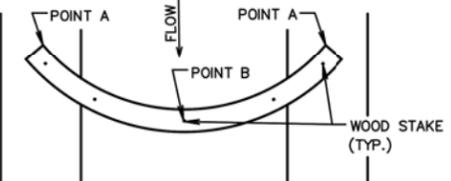
ENDS OF EROSION CONTROL WATTLES

WOOD STAKE

6"

6"

DETAIL C



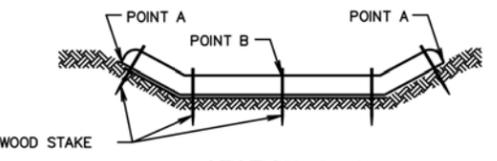
POINT A

POINT B

FLOW

WOOD STAKE (TYP.)

PLAN VIEW
 DITCH INSTALLATION



POINT A

POINT B

POINT A

WOOD STAKE

SECTION A-A

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.

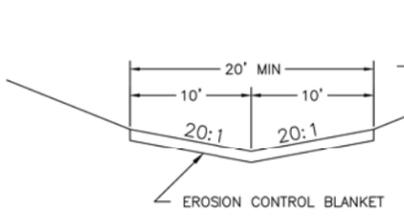
THE STAKES SHALL BE 1"x2" OR 2"x2" WOOD STAKES, THE STAKES SHALL BE PLACED 6" FROM THE ENDS OF THE WATTLES AND THE SPACING OF THE STAKES ALONG THE WATTLES SHALL BE 3' TO 4'.

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

GRADE	SPACING (FT)
2%	150
3%	100
4%	75
5%	50



SEDIMENT CONTROL BLANKET



20' MIN

10'

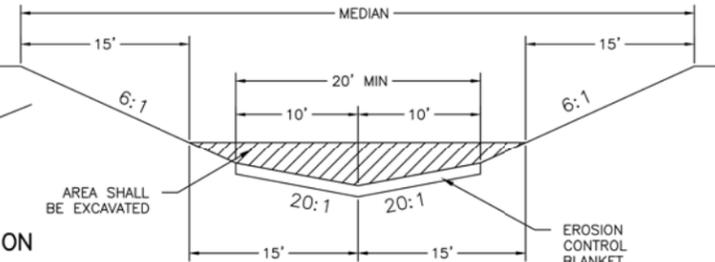
10'

20:1

20:1

EROSION CONTROL BLANKET

STANDARD DITCH SECTION



15'

6:1

20' MIN

10'

10'

20:1

20:1

15'

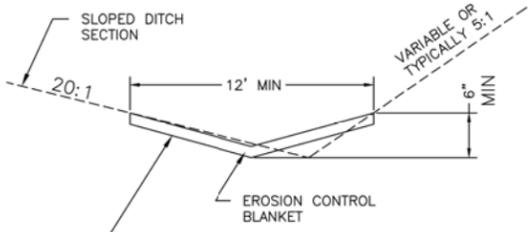
15'

EROSION CONTROL BLANKET

MEDIAN SECTION

AREA SHALL BE EXCAVATED

THE MEDIAN SHALL BE SHAPED TO THE LIMITS SHOWN IN THIS DETAIL WHERE THE EROSION CONTROL BLANKET WILL BE PLACED.



SLOPED DITCH SECTION

20:1

12' MIN

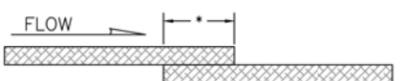
EROSION CONTROL BLANKET

VARIABLE OR TYPICALLY 5:1

6" MIN

THIS DITCH SECTION SHALL BE CONSTRUCTED WHEN INSTALLING EROSION CONTROL BLANKET.

SLOPED DITCH SECTION



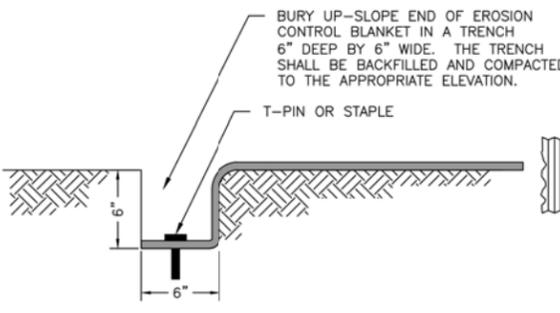
FLOW

4"

OVERLAP DETAIL

* 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.



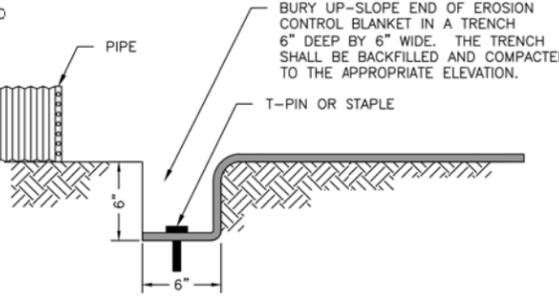
BURY UP-SLOPE END OF EROSION CONTROL BLANKET IN A TRENCH 6" DEEP BY 6" WIDE. THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO THE APPROPRIATE ELEVATION.

T-PIN OR STAPLE

6"

6"

TRENCH DETAIL



BURY UP-SLOPE END OF EROSION CONTROL BLANKET IN A TRENCH 6" DEEP BY 6" WIDE. THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO THE APPROPRIATE ELEVATION.

PIPE

T-PIN OR STAPLE

6"

6"

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 UP-SLOPE END OF THE EROSION CONTROL BLANKET SHALL BE BURIED IN A TRENCH 6" DEEP BY 6" WIDE. THERE SHALL BE AT LEAST A 6" OVERLAP WHEREVER ONE ROLL OF EROSION CONTROL BLANKET ENDS AND ANOTHER BEGINS, WITH THE UP-SLOPE 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 TO SIDE DRAINAGE DIRECTLY ONTO THE EROSION CONTROL BLANKET.

ALL DITCH SECTIONS SHALL BE SHAPED WHEN INSTALLING THE EROSION CONTROL BLANKET.

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