FOR BIDDING PURPOSES ONLY

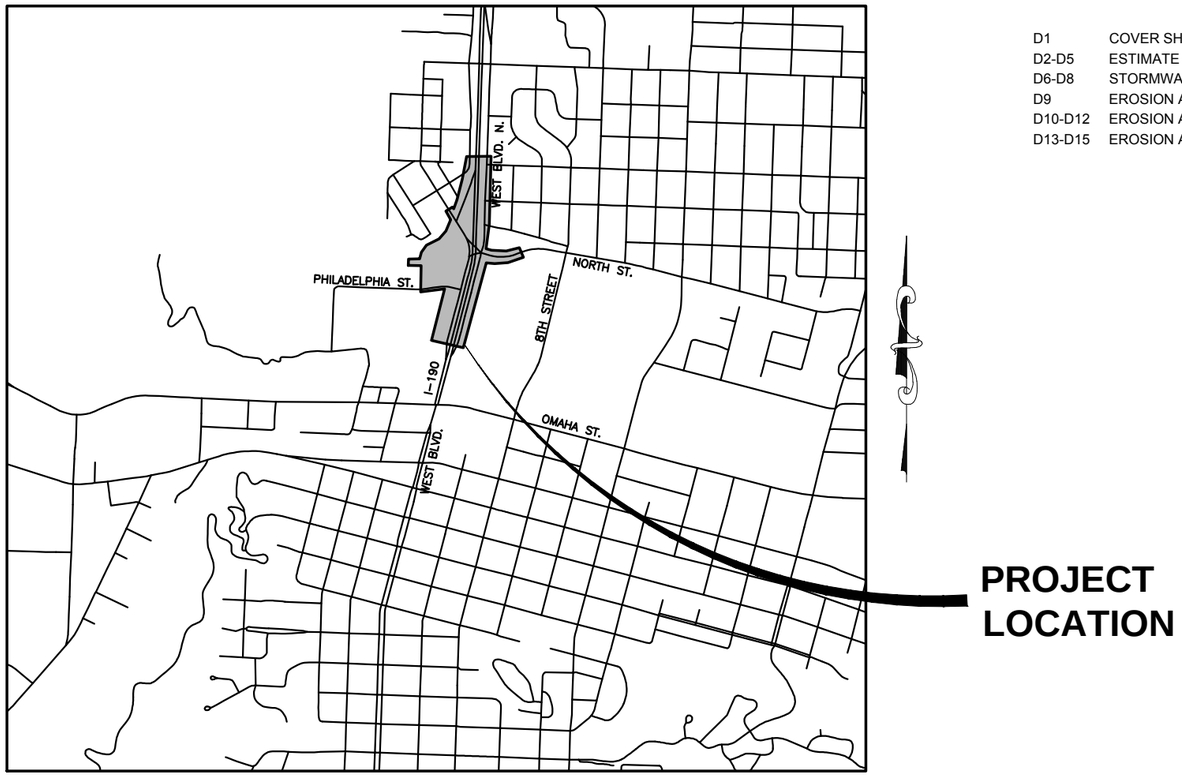
F M G, Inc.
Consulting Civil Engineers
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

SECTION D
EROSION CONTROL PLANS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8744
RICHARD A. SUDMEIER
SOUTH DAKOTA

INDEX OF SHEETS

D1	COVER SHEET
D2-D5	ESTIMATE OF QUANTITIES AND GENERAL NOTES
D6-D8	STORMWATER POLLUTION PREVENTION NARRATIVE
D9	EROSION AND SEDIMENT CONTROL LEGEND
D10-D12	EROSION AND SEDIMENT CONTROL PLANS
D13-D15	EROSION AND SEDIMENT CONTROL DETAILS



PROJECT LOCATION MAP NOT TO SCALE

CITY of RAPID CITY
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

Plan Set Number :

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT
CITY OF RAPID CITY PROJECT NO. 12-2053

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053TITLE.dwg, Sec D-Erosion, 6/15/2015 3:05:35 PM, 1:2

FOR BIDDING PURPOSES ONLY

SECTION D ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1693	Remove Erosion Control Wattle	942	Ft
110E1700	Remove Silt Fence	896	Ft
730E0206	Type D Permanent Seed Mixture	457.4	Lb
731E0200	Fertilizing	1.1	Ton
732E0200	Fiber Mulching	1.6	Ton
733E0100	Sodding	202	SqYd
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	942	Ft
734E0165	Remove and Reset Erosion Control Wattle	200	Ft
734E0604	High Flow Silt Fence	896	Ft
734E0610	Mucking Silt Fence	5.0	CuYd
734E0620	Repair Silt Fence	50	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	2	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	1	Ft
734E5010	Sweeping	6.0	Hour
900E1320	Construction Entrance	1	Each

GENERAL NOTES

See Section A for GENERAL NOTES common to all sections.

REVEGETATION

The Contractor shall coordinate the extent of disturbed areas with the combination project IM 1902(61)0, PCN 1162. Utility trench construction areas on City property or in DOT ROW that is not already included in the combination project shall be revegetated under this project.

Payment for revegetation of disturbed areas shall only be for areas within the defined project limits or temporary easement areas. Disturbed areas outside of the project limits or temporary easements areas shall be revegetated at the Contractor's expense.

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 34 pounds per 1,000 square feet on areas to be seeded.

The application rate is 9 pounds per 1,000 square feet on areas to be sodded.

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

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

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 by the seed supplier with a minimum of 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

Prior to placing sod, apply a minimum of 25,000 live propagules of inoculum per 1,000 square feet on bare soil. All costs of inoculating for the sod shall be incidental to the contract unit price per square yard for "Sodding".

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

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

SODDING

Sod shall be placed behind curb and gutter sections in residential areas at locations specified in the plans and at locations determined by the Engineer during construction. Peat sod is not permitted.

Watering of the sod shall be completed by the Contractor for a period of two weeks to establish the sod. After two weeks the Contractor shall notify the property owner of the sod condition and recommend watering as necessary. All costs involved for watering the sod shall be incidental to the contract unit price per square yard for "Sodding".

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

FOR BIDDING PURPOSES ONLY

PERMANENT SEEDING

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 seed mixtures are preferred varieties.
Type D Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal	1.4
Chewings Fescue	Ambrose, K2, VNS, Zodiac	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
	Total:	7

FIBER MULCHING

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

Fiber mulch shall be applied at the rate of 50 pounds per 1,000 square feet.

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 pound 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

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

WATER FOR VEGETATION

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding or sodding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil shall be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6 week period, an inspection shall be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

All costs for furnishing and applying the water including hauling, materials, equipment, labor, and incidentals necessary shall be incidental to the various revegetation bid items and no separate payment will be made.

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.

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)
I-190 Alignment				
102+00-106+16	R	12	E. Side Sewer	485
106+44-109+22	L	12	W. Side Sewer	268
W. Blvd. Alignment				
6+09-6+26	L	12	11th St Bike Path	41
6+17-6+60	L	12	11th St Bike Path	48
			Additional Quantity:	100
			Total:	942

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".

FOR BIDDING PURPOSES ONLY

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

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

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
I-190 Alignment			
101+79-102+44	R	E. Side Sewer	132
102+02-106+44	L	W. Side Sewer	540
124+57-124+92	L	36" RCP by Boegel St	124
		Additional Quantity:	100
		Total:	896

MUCKING SILT FENCE

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade. Payment will be made under the contract bid item per cubic yard for "Mucking Silt Fence."

REMOVE SILT FENCE

Silt fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established. The interim sediment control devices shall be immediately replaced by Sediment Control at Inlets with Frames and Grates, Sediment Control at Type S Reinforced Concrete Drop Inlets, and/or the appropriate lids.

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlet with Frame and Grate" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlets with Frames and Grates shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

Sediment Control at Inlet with Frame and Grate Approved List:

Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Sediment Catchers	Shaun Jensen Brookings, SD Phone: 1-605-690-4950
Grate FX, Slammer, or VertPro	Enviroscape ECM, Ltd. Oakwood, OH Phone: 1-419-594-3210 www.strawblanket.com

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.com
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

FOR BIDDING PURPOSES ONLY

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor shall install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material shall be obtained from a granular source and shall conform to the following gradation:

Sieve Size	Percent Passing
6”	100%
#4	0-60%
#200	0-20%

The pit run material shall be compacted to the satisfaction of the Engineer.

The aggregate for the granular material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3”	100%
2 ½”	90-100%
1 ½”	25-60%
¾”	0-10%
½”	0-5%

The granular material shall be placed in 6” maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The MSE geotextile shall conform to Section 831 of the SDDOT Standard Specifications. The MSE geotextile shall be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The MSE geotextile should be kept as taut as possible prior to placing.

Equipment shall not be allowed on the MSE geotextile until the first lift of granular material is in place.

All seams in the MSE geotextile shall be overlapped at least 2’ and shingled.

SDDOT Construction Entrance will be paid for under the unit price per each for “Construction Entrance”. All costs for furnishing materials, excavation, installation, and maintenance thereof will be included in the unit price. There may be times during the course of the project were additional pit run or granular material will be necessary for rejuvenation of the construction entrance. All costs for additional materials will be considered incidental to the contract unit price per each for “Construction Entrance”

STREET SWEEPING

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms.

At a minimum, sweeping will be required:
1. Prior to opening any segment or roadway to traffic.
2. Following pavement grooving operations and prior to the application of the pavement marking tape.
3. When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust.

Use of street sweeping due to neglect of other BMP installation or maintenance shall not be considered for payment. Prior approval and direction of the Engineer is required prior to payment for “Sweeping”.

All costs for cleaning the roadway with a pickup broom shall be incidental to the contract unit price per hour for “Sweeping”.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

FOR BIDDING PURPOSES ONLY

STORMWATER POLLUTION PREVENTION NARRATIVE

PROJECT AND SITE DESCRIPTION

1. Project Description:
   This project consists of installation of City of Rapid City sanitary sewer and water main utilities within and in the vicinity of the Silver Street Interchange of Interstate 190
2. Existing Site Condition:
   The site lies in State of SD ROW and a Rapid City greenway tract that was cleared due to the 1972 flood. The site is predominately grass surface with large trees and various roadway, parking, and sidewalk surfacing.
3. Adjacent Areas:
   The area to the west of the site is generally the Executive Golf Course and park lands on the south end and the Silver Street residential neighborhood on the north end. The area to the east of the site is generally park land and Central High School on the south end and the West Boulevard North neighborhood on the north end. There are no wetlands located within or adjacent to the project.
4. Soils:
   The soil profile encountered east of I-190, from Van Buren St. south to Rapid Creek, generally consisted of a layer of moist lean clay underlain by coarse sands, gravels and cobbles of varying density. The soil profile encountered in west of I-190 and between Philadelphia St and Silver St, generally consisted of variably thick layers of lean to fat clay underlain by weathered shale and hard competent shale. The materials were moist and ranged from stiff to hard with depth.
5. Disturbed Area:
   Area disturbed is 39.2 acres.
6. Construction Schedule:

EROSION AND SEDIMENT CONTROL CONSTRUCTION SITE PLAN

The attached erosion and sediment control construction site 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 all associated construction permits. The Contractor is responsible for the methods and means required for implementing any and all construction activities to be in compliance with all permits.

EROSION AND SEDIMENT CONTROL PERMIT

The Prime Contractor is the responsible party for obtaining a City of Rapid City erosion and sediment control permit from the City of Rapid City.

STORMWATER POLLUTION PREVENTION PLAN AND PERMITS

The Prime Contractor is the responsible party for preparing a Notice of Intent (NOI) for filing for coverage under 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 City of Rapid City is the Project Owner. The NOI and the contractor certification shall be submitted to the Project Owner. The Project Owner will return to the Contractor once signatures have been obtained. The Contractor shall submit NOI to SDDENR.

The Prime Contractor is the responsible party for preparing the Notice of Termination (NOT) for the SDDENR once “final stabilization” has been obtained on the project. The NOT shall be submitted to the Project Owner. The City will submit the NOT to the SDDENR. Please refer to the SDDENR general permit for definitions of final stabilization.

Per City permit requirements, the Contractor shall at all times have a copy of the SDDENR NOI permit letter, Stormwater Pollution Prevention Plan (SWPPP) with associated Erosion and Sediment Control Plan (ESCP) 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 and clearly labeled.

MODIFICATIONS TO THE ESCP

The Engineer may order changes to the ESCP and/or the Contractor is responsible to request changes to the ESCP if unforeseen changes occur, or the ESCP does not perform as intended, or to improve the effectiveness of the ESCP, or to comply with the SDDENR permit. The Engineer will evaluate and determine if any Contractor requested changes to the ESCP should be made. The Contractor is responsible to implement these changes as soon as practical.

The Contractor shall have available, on-site, the original ESCP with any modifications implemented identified on the ESCP.

INSPECTIONS

The Contractor shall ensure that qualified personnel perform inspections on the project at the following minimum frequency until the site has reached final stabilization and a Notice of Termination is submitted to the SDDENR:

1. Prior to removal of any surfacing or topsoil.
2. Once every seven calendar days (minimum). When runoff is unlikely due to winter conditions the inspections may be reduced to once a month.
3. Within 24 hours of every rainfall 1/2 inch or greater.
4. After a snow melt that causes erosion.
5. Within 24 hours of a complaint being made to the Contractor or Project Owner.

The Engineer reserves the right to perform inspections more frequently than identified and additional inspections will be made of obvious items if non-compliance exists. If the Contractor fails to attend any inspections, it does not relieve them of their responsibility to comply with any correction of maintenance actions required.

Items noted as being non-compliant or needing maintenance as a result of the inspections must be corrected as soon as practical. The site shall continue to be considered in non-compliance until the issue has been corrected to the satisfaction of the Engineer.

NOTICE OF TERMINATION

The Contractor is responsible for complying with the ESCP until a Notice of Termination (NOT) of coverage under the general permit has been issued. The notice will be prepared by the Contractor for submittal to the City and to the SDDENR when all storm water discharges covered by the permit are eliminated and final stabilization has been achieved on all portions of the site for which the permitee is responsible. Final stabilization means either or a combination of:

1. All soil disturbing activities at the site have been completed and uniform perennial vegetative cover with a density of 70% of the native cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geo-textiles) have been employed; or
2. For construction projects on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed area to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to “waters of the state” and areas which are not being returned to their pre-construction agricultural use must meet the final stabilization criteria in (1) above.

GOOD HOUSEKEEPING

Non-structural bmp's used as good housekeeping measures can, to some degree, prevent the deposition of pollutants on the urban landscape or remove pollutants at their source. The source of pollutants for assimilation into storm water is the land surface itself, especially the impervious surfaces in the urban area. Thus, it is expected that when non-structural measures are effectively implemented, they will reduce the amount of pollutants being deposited on the land surfaces for eventual contact with storm water and transported to the receiving water system. Therefore, the Contractor should evaluate and determine which appropriate good housekeeping measures listed below should be used.

Operations and maintenance: to assure that equipment and work related processes are working well; the following practices can be implemented:

1. Maintain dry and clean floors and ground surfaces by using brooms, shovels, vacuum cleaners, or cleaning machines rather than wet cleanup methods.
2. Regularly pick up and dispose garbage and waste material.
3. Make sure all equipment and related processes are working properly and preventative maintenance is kept up with on both.
4. Routinely inspect equipment and processes for leaks or conditions that could lead to discharges of chemicals or contact of storm water with raw materials, intermediate materials, waste materials, or products used on-site.
5. Assure all spill cleanup procedures are understood by employees. Training of employees on proper cleanup procedures shall be implemented.
6. Designate separate areas of the site for auto parking vehicle refueling, concrete truck wash-out, and routine maintenance.
7. Clean up leaks, drips, and other spills immediately.
8. Cover and maintain dumpster's and waste receptacles.

Material storage practices: improperly storing material on-site can lead to the release of materials and chemicals that can cause storm water runoff pollution. Proper storage techniques include the following:

1. Provide adequate aisle space to facilitate material transfer and ease of access for inspection.
2. Store containers, drums, and bags away from direct traffic routes to prevent accidental spills.
3. Stack containers according to manufacturer's instructions to avoid damaging the containers from improper weight distribution.
4. Store containers on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground.
5. Store toxic or hazardous liquids within curbed area or secondary containers.
6. Assign responsibility of hazardous material inventory to a limited number of people who are trained to handle such materials.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

FOR BIDDING PURPOSES ONLY

GOOD HOUSEKEEPING (CONTINUED)

Material inventory practices: an up-to-date inventory kept on all materials (both hazardous and non-hazardous) present on-site will help track how materials are stored and handled onsite, and identify which materials and activities pose the most risk to the environment. The following description provides the basic steps in completing a material inventory:

1. Identify all chemical substances present at the work site. Perform a walk-through of the site, review purchase orders, list chemical substances used, and obtain material safety data sheets (msds) for all chemicals.
2. Label all containers. Labels shall provide name and type of substance, stock number, expiration date, health hazards, handling suggestions, and first aid information. This material can also be found on the msds.
3. Clearly mark on the hazardous materials inventory which chemicals require special handling, storage, use, and disposal considerations. Decisions on the amounts of hazardous materials that are stored on-site shall include an evaluation of any emergency control systems that are in place. All storage areas shall be designed to contain any spills.

Training and participation: frequent and proper training in good housekeeping techniques reduces the possibility of chemicals or equipment that will be mishandled. Reducing waste generation is another important pollution prevention technique. The following are ways to get people involved in good housekeeping practices.

1. Provide information sessions on good housekeeping practices in training programs.
2. Discuss good housekeeping at meetings.
3. Publicize pollution prevention through posters or signs.

SPILL PREVENTION AND RESPONSE

A Spill Prevention Control and Countermeasure Plan (SPCC) identifies area where spills can occur on-site, specifies materials handling procedures, storage requirements, and identifies spill cleanup procedures. The plan is intended to establish standard operating procedures and necessary employee training to minimize the likelihood of accidental releases of pollutants that can contaminate storm water.

Storm water contamination assessment, flow diversion, record keeping, internal reporting, employee training, and preventative maintenance are associated bmp's that can be incorporated into a comprehensive spill prevention plan.

Emergency spill cleanup plans shall include the following information:

1. A description of the facility including the nature of the facility activity and general types and quantities of chemicals stored at the facility.
2. A site plan showing the location of storage areas of chemicals, the location of storm drains, site drainage patterns, firefighting equipment and water source locations, and the location and description of any devices used to contain spills such as positive control valves.
3. Notification procedures to be implemented in the event of a spill such as phone numbers of key personnel and appropriate regulatory agencies.
4. Instructions regarding cleanup procedures.
5. Designated personnel with overall spill response cleanup responsibility.
6. Quick notification of Rapid City fire and rescue for spills that cannot be handled by local site staff.

METHODS OF ENSURING SURFACE WATER QUALITY

The only non-storm water discharge allowed by the general permit for storm water discharge associated with construction activities is uncontaminated ground water or waters, used as a best management practice, to wash vehicles and control dust. It is the responsibility of the Contractor to obtain a general permit to discharge under the South Dakota surface water discharge system for temporary discharge activities in South Dakota (dewatering permit) for all other non-storm water discharges. All monitoring, testing, and other requirements of the dewatering permit are the responsibility of the Contractor.

Pumping (mechanically discharging) sediment laden water including ponded storm water or contaminated trench dewatering into the storm sewer or off the project site is not covered under the general permit. It is the responsibility of the contractor to obtain and comply with a dewatering permit for these activities. The Engineer may notify the SDDENR if the Contractor is observed pumping sediment laden water into the storm sewer or off site. Pumping sediment laden storm water through inlet protection is not allowed as a bmp.

In lieu of pumping sediment laden water the following are some methods the Contractor may use to control sediment laden water:

1. The best method is for the contractor to maintain positive drainage during all phases of the project to prevent water from ponding on the project.
2. Treat the sediment laden water on-site through the use of filter bags, deflocculating chemicals, sediment basins, or a portable containment system.
3. Pump or discharge the water to other portions of the site. This is allowed if waters do not leave the project limits.

No separate payment will be made to the Contractor to comply with the dewatering permit.

MODIFICATIONS OF EROSION AND SEDIMENT CONTROL DEVICES TO PREVENT PROPERTY DAMAGE

The Contractor is responsible to maintain drainage. In the event that an erosion or sediment control device is obstructing drainage and damage to property is possible the Contractor may temporarily modify or remove the device to facilitate drainage. The Contractor shall immediately notify the Engineer to discuss and implement alternatives to comply with the ESCP and general permit.

During the course of construction heavy rainfall events may occur. The Contractor shall make sure that the stormwater runoff will go into the inlets, which may require removing the inlet protection temporarily. In no case shall the inlets be so plugged as to allow stormwater to get onto homeowners property or into basements. i.e. The Contractor needs to have personnel on-site during rain events to pull inlet protection if flooding of private property begins. Do not pull prior to storm events or if the event is small.

SOIL SURFACE STABILIZATION PRACTICES

After construction begins, soil surface stabilization shall be applied within 14 days to all disturbed areas that may not be at final grade but will remain dormant (undisturbed) for periods longer than 21 calendar days. Within 14 days after final grade is reached on any portion of the site, permanent or temporary soil surface stabilization shall be applied to disturbed areas and soil stockpiles. The following table lists the amount of time various erosion control measures are applicable:

Maximum time limits of land exposures for selection of erosion controls.

Erosion Control Method	Maximum Allowable Period of Exposure (Months)
Surface Roughening	1
Mulching	12
Temporary Re-Vegetation	12-24
Permanent Re-Vegetation	24 or More
Soil Stockpile Re-Vegetation	2
Early Application of Road Base	1

MAINTENANCE

The Contractor is responsible for maintaining and repairing all temporary and permanent erosion and sediment control devices until a notice of termination is filed.

REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES

The Contractor is responsible to remove all temporary erosion control and sediment control devices when the site reaches final stabilization. The Engineer may order specific temporary erosion control and sediment control devices to remain in-place past final stabilization. The Contractor will not be responsible to remove these items.

PERMANENT STABILIZATION MEASURES

Permanent seeding and/or sod along with replacement all preconstruction hard surfaces will be used for permanent stabilization of all areas located throughout the project. Erosion Control Fabric will also be used to stabilize slopes as determined by the Engineer.

FOR BIDDING PURPOSES ONLY

EROSION AND SEDIMENT CONTROL SEQUENCE AND TIME SCHEDULE

The following sequence and time schedule are intended to provide a guideline to the Contractor for the installation and implementation of the ESCP during construction. The sequence and time schedule are for reference only and may change depending on the Contractor's sequence of operations and must be approved by the Engineer prior to making changes.

SEQUENCING:

Prior To Start of Construction – All Phases:

Install applicable preliminary erosion control measures such as silt fence, wattles, vehicle tracking pads, inlet protection, and sediment traps prior to beginning grading activities in each phase.

Coordinate Construction Activities with the combination project.

Erosion Control Removals - All Phases:

Vehicle tracking stations shall be removed when all roadway gravel base has been placed in particular phase. Silt traps, silt ditch, and temporary silt fence shall be removed after all hard surfacing is complete and final stabilization has been achieved within each drainage basin.

EROSION AND SEDIMENT CONTROL PLAN PROJECT OWNER CERTIFICATION:

"This erosion and sediment control report and attached site construction plan appear to fulfill the technical criteria and the criteria for erosion and sediment control requirements of the City of Rapid City. I understand that additional erosion control measures may be needed if unforeseen erosion or sediment control problems occur or if the submitted plan does not function as intended."

_____ _____

Terry Wolterstorff Date

Public Works Director

City Of Rapid City

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:

EROSION AND SEDIMENT CONTROL PLAN PREPARED BY:

Jason Pettyjohn, P.E.

3700 Sturgis Road

Rapid City, SD 57702

Email Address: jpettyjohn@fmgengineering.com

Phone Number (605) 342-4105

Engineer's Certification: I hereby certify that these plans were prepared under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota.

SYMBOLOGY FOR BEST MANAGEMENT PRACTICES

- STORM WATER DISCHARGE POINT
- LOW FLOW SILT FENCE
- HIGH FLOW SILT FENCE
- SILT TRAP
- SEDIMENT CONTROL AT INLET WHEN SURFACING IS IN PLACE
- TEMPORARY SEDIMENT BARRIER
- TEMPORARY WATER BARRIER
- FLOATING SILT CURTAIN
- SEDIMENT FILTER BAGS
- TRIANGULAR SILT BARRIERS
- EROSION CONTROL WATTLES
- EROSION BALES
- SURFACE ROUGHENING
- SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
- CUT INTERCEPTOR DITCH
- TEMPORARY SLOPE DRAIN
- SEDIMENT CONTROL AT INLET BEFORE PLACEMENT OF SURFACING
- HYDRAULIC STRAW MULCH / FIBER MULCHING / BONDED FIBER MATRIX / FIBER REINFORCED MATRIX
- ROCK CHECK DAM
- SODDING
- TYPE 1 EROSION CONTROL BLANKET
- TYPE 2 EROSION CONTROL BLANKET
- TYPE 3 EROSION CONTROL BLANKET
- TYPE 4 EROSION CONTROL BLANKET
- TYPE 1 TURF REINFORCEMENT MAT
- TYPE 2 TURF REINFORCEMENT MAT
- TYPE 3 TURF REINFORCEMENT MAT
- SYNTHETIC CHANNEL PROTECTION
- (TS) TOPSOIL STOCKPILES
- (B) BORROW AREAS
- (CE) STABILIZED CONSTRUCTION ENTRANCES
- (CW) CONCRETE WASHOUTS
- (BS) VEGETATED BUFFER STRIPS
- (AP) ASPHALT PLANT SITE
- (CP) CONCRETE PLANT SITE
- (M) ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
- (SK) SPILL KIT
- (WP) WORK PLATFORM
- (TP) PORTABLE TOILET
- (V) VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS
- (D) DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

FOR BIDDING PURPOSES ONLY

BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMP'S) SHOULD BE USED THROUGHOUT CONSTRUCTION. TO REMIND CONTRACTORS AND FIELD PERSONNEL THAT BMP'S FOR WATER QUALITY SHOULD BE UTILIZED THROUGHOUT THE CONSTRUCTION PROCESS. THE SYMBOLOGY IS COLORED AS FOLLOWS:

RED BMPS ARE TO BE INSTALLED BEFORE EARTH MOVING ACTIVITIES COMMENCE. RED BMPS ARE USED FOR PERIMETER CONTROL. THEY PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING FROM ANOTHER SITE. THEY MAY ALSO DETER WATER AWAY FROM OR AROUND THE SITE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL.

BLUE BMPS ARE TO BE INSTALLED DURING CONSTRUCTION. BLUE BMPS ARE USED FOR TEMPORARY STABILIZATION. THEY PREVENT EROSION DURING CONSTRUCTION. THEY MAY ALSO BE SEDIMENT CONTROLS UTILIZED AFTER DRAIN PIPES AND STORM SEWERS ARE IN PLACE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL. SOME YELLOW BMPS WILL BE REMOVED OR REPLACED DURING CONSTRUCTION.

GREEN BMPS ARE TO BE INSTALLED WHEN GRADING IS COMPLETE. GREEN BMPS ARE USED FOR FINAL STABILIZATION. THEY ARE PERMANENT EROSION CONTROL MEASURES THAT ARE NOT REMOVED.

IF THE CONTRACTOR OR ENGINEER DECIDE TO USE ADDITIONAL BEST MANAGEMENT PRACTICES OR LABEL THE LOCATIONS OF THEM THEY SHOULD USE THE SYMBOLOGY SHOWN. OTHER BEST MANAGEMENT PRACTICES FOR WHICH THERE IS NO SYMBOLOGY INCLUDE:

PERMANENT SEEDING IS DONE BEFORE THE APPLICATION OF ALL TYPES OF MULCHING AND HYDRAULICALLY APPLIED SOIL MULCHES AND MATRIXS. PERMANENT GRASS HAY/ STRAW MULCH IS NOT SHOWN ON PLAN SHEETS, BUT IT CAN BE ASSUMED THAT ALL AREAS THAT ARE NOT ROADWAYS ON RURAL PROJECTS WILL BE SEEDED THEN MULCHED. AREAS WHERE AN ALTERNATE TO GRASS HAY /STRAW MULCH IS USED WILL BE SHOWN WITH THE APPROPRIATE SYMBOLOGY.

SEDIMENT BASINS UTILIZED DURING CONSTRUCTION WILL BE SHOWN ON PLAN SHEETS AND IN SECTION X.

GEOTEXTILE FABRIC USUALLY SUPPLEMENTS OTHER BMPS, BUT IT MAY BE USED TO TEMPORARILY COVER AREAS FOR EROSION PROTECTION UNTIL IT IS PERMENANTLY INSTALLED.

STREET SWEEPING SHOULD BE DONE AS NEEDED TO KEEP SEDIMENT ON ROADWAYS FROM LEAVING THE SITE.

DEWATERING AND SEDIMENT COLLECTING IS SHOWN ON A DETAIL SHEET WHEN IT IS NEEDED. DEWATERING WITHOUT SEDIMENT COLLECTING DOES NOT HAVE A DETAIL, JUST A DETAILED NOTE. SEDIMENT LADEN WATER SHOULD NEVER BE PUMPED OFF THE SITE.

GABIONS AND RIP RAP AT PIPE AND CULVERT OUTLETS ARE DETAILED IN SECTION B.

PROJECT PHASING

PROJECT PHASING MAY BE ONE OF THE MOST IMPORTANT BMPS. DURING PHASING REMEMBER THE FOLLOWING:

ALWAYS INSTALL PERIMETER CONTROLS BEFORE BEGINNING EARTH MOVING ACTIVITIES.

DO NOT DISTURB MORE AREA THAN WHAT IS NEEDED TO COMPLETE EACH PHASE OF CONSTRUCTION.

IF POSSIBLE CONSTRUCT SEDIMENT BASINS AND STABILIZE THEM BEFORE BEGINNING ROADWAY GRADING.

TEMPORARILY STABILIZE AREAS THAT WILL NOT BE TOUCHED WITHIN 14 DAYS.

PERMANENTLY STABILIZE AREAS WHEN GRADING IN THAT AREA IS COMPLETE. PERMANENT STABILIZATION CAN BE COMPLETED IN PHASES AND DOES NOT HAVE TO WAIT UNTIL THE WHOLE ROADWAY HAS BEEN CONSTRUCTED.

CONTINUALLY MAINTAIN ALL SEDIMENT CONTROLS AND MONITOR AREAS WHERE EROSION CONTROL HAS BEEN INSTALLED.

Prepared By:
F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Rapid City, South Dakota
Engineering Services

Scale: NTS	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

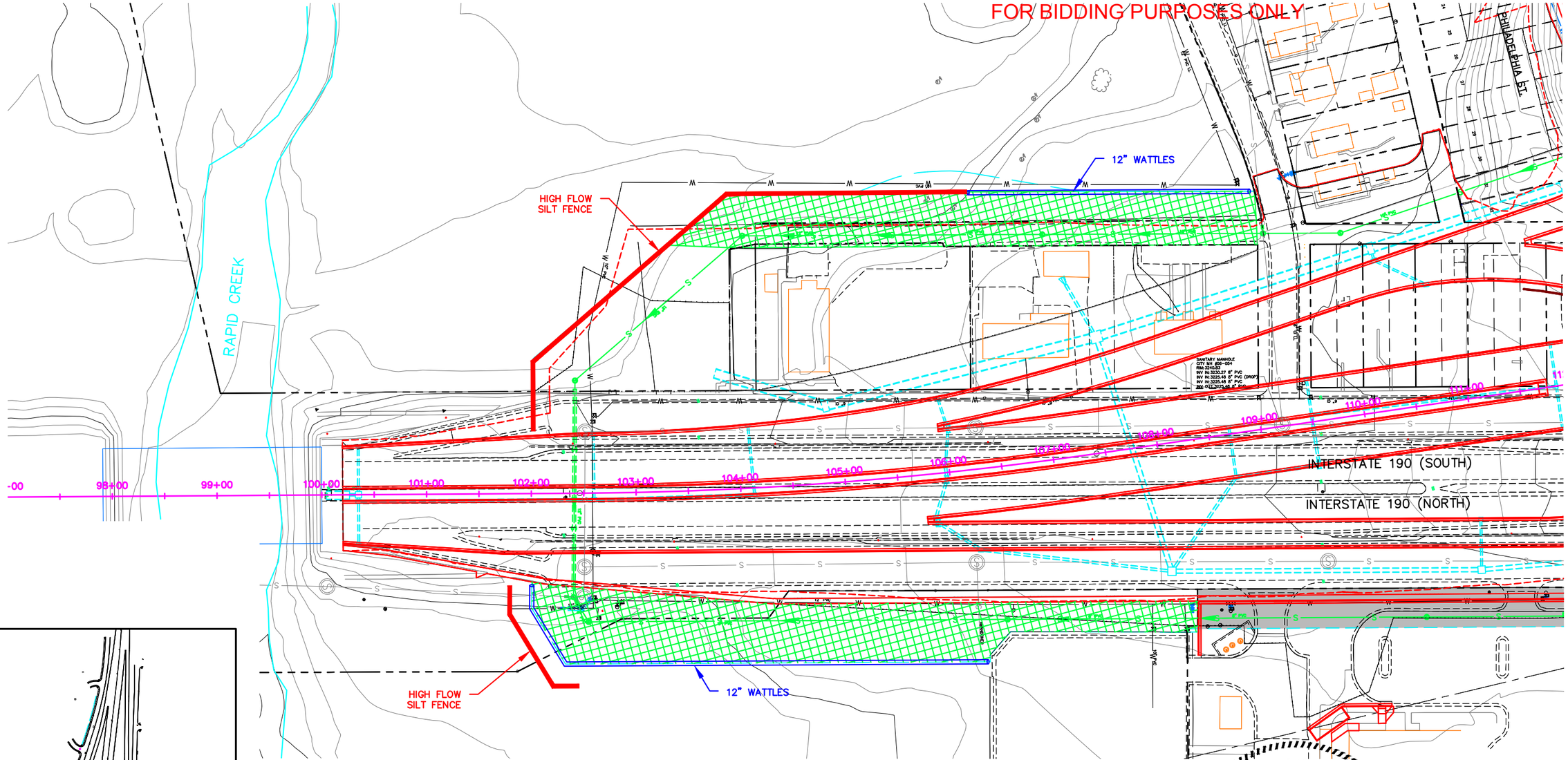
12-2053 / CIP 50940 / PCN X03T

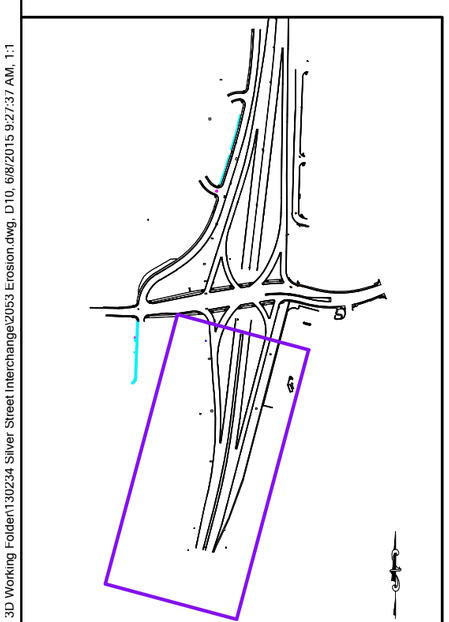
Sheet Title: EROSION CONTROL LEGEND

Sheet: D9 of D15

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D9, 6/8/2015 9:17:42 AM, 1:1

FOR BIDDING PURPOSES ONLY





SHEET KEY

TEMPORARY STABILIZATION

INSTALL 12" DIAMETER EROSION CONTROL WATTLE
AT THE FOLLOWING LOCATIONS:
102+00–88'R to 102–109'R to 102+32–162'R to 106+16–184'R (485 FT)
106+44–264'L to 109+22–228'L (268 FT)

PERIMETER PROTECTION

INSTALL HIGH FLOW SILT FENCE AT THE FOLLOWING LOCATIONS:
101+79–88'R to 101+79–115'R to 102+20–184'R to 102+44–184'R (132')
102+02–60'L to 102+02–126'L to 104+00–282'L to 106+44–264'L (540')

FINAL STABILIZATION

TYPE D PERMANENT SEED MIXTURE,
FERTILIZING, AND MULCHING

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9992
JASON A.
PETTYJOHN
SOUTH DAKOTA
6/8/15

0 25' 50' 100'
SCALE: 1"=100'

Prepared By:

F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Engineering Services

Scale: 1" = 100'	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

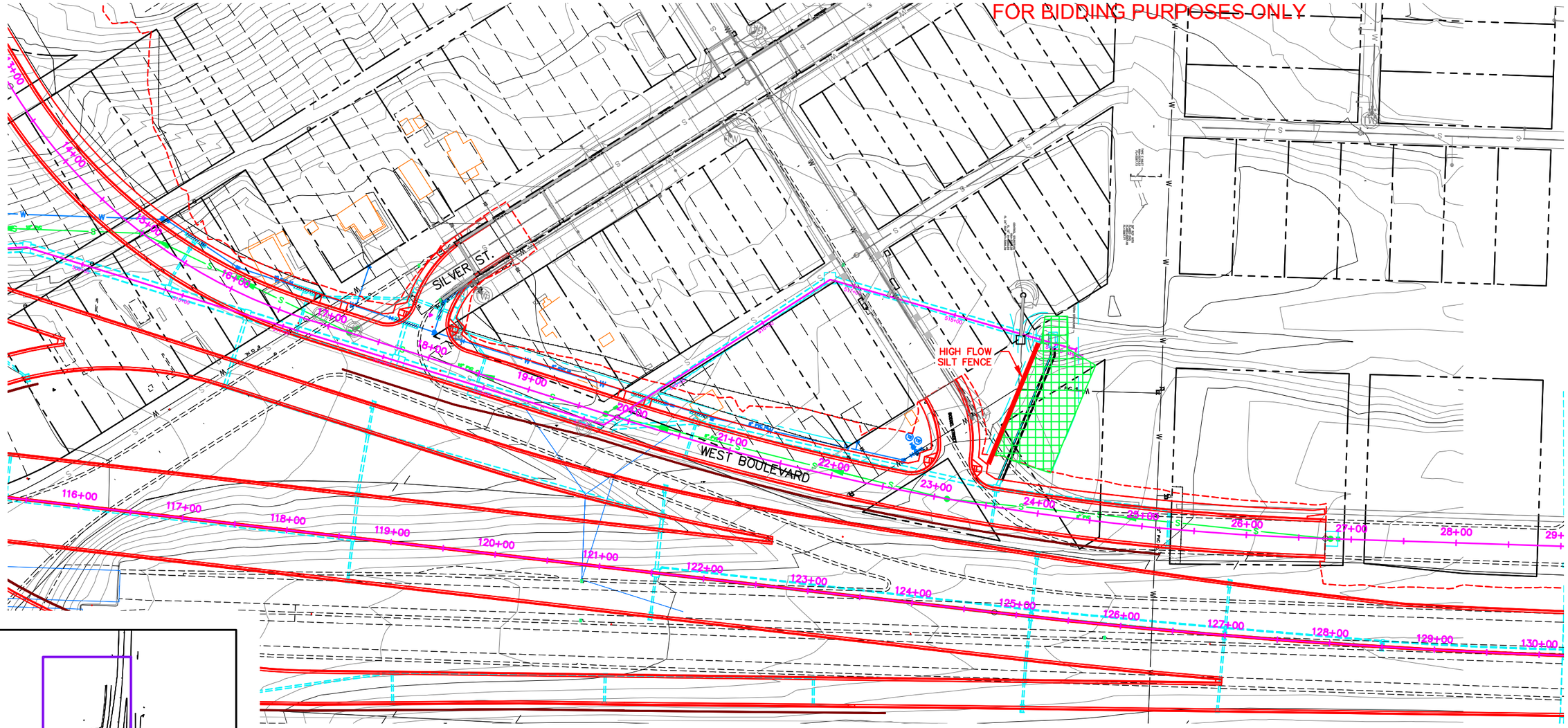
12-2053 / CIP 50940 / PCN X03T

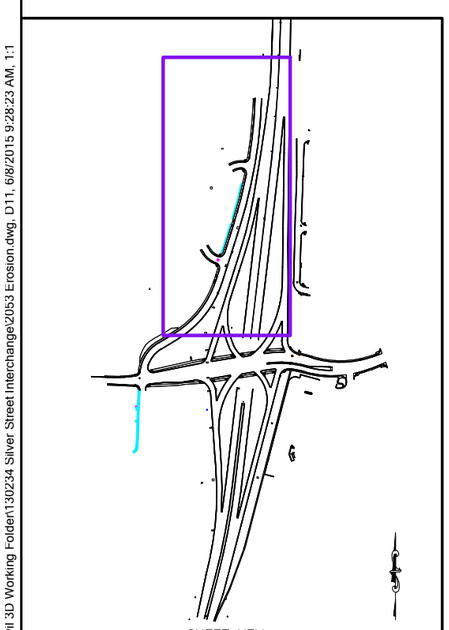
Sheet Title: EROSION CONTROL PLAN

Sheet: D10 of D15

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D10, 6/8/2015 9:27:37 AM, 1:1

FOR BIDDING PURPOSES ONLY





PERIMETER PROTECTION

INSTALL HIGH FLOW SILT FENCE AT THE FOLLOWING LOCATIONS:
124+57–140'L to 124+92–260'L (124')

FINAL STABILIZATION

TYPE D PERMANENT SEED MIXTURE,
FERTILIZING, AND MULCHING

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9992
JASON A.
PETTYJOHN
SOUTH DAKOTA
6/8/15

0 25' 50' 100'
SCALE: 1"=100'

Prepared By:

F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Engineering Services

Scale: 1" = 100'	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

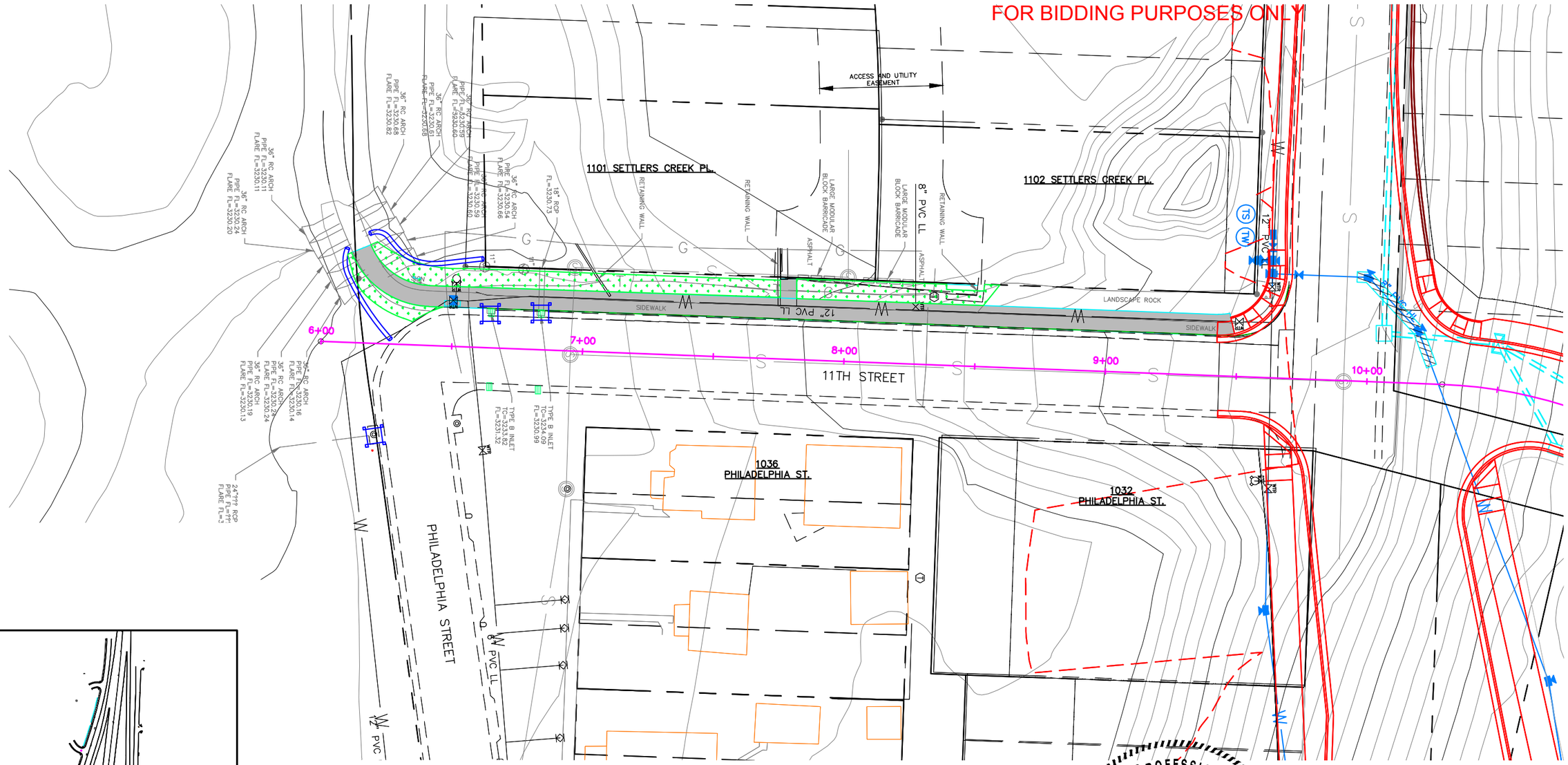
12-2053 / CIP 50940 / PCN X03T

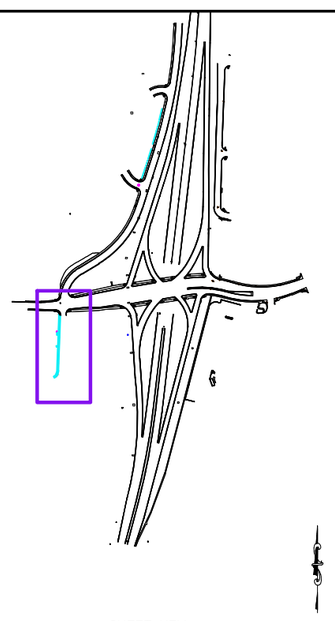
Sheet Title: EROSION CONTROL LEGEND

Sheet: D11 of D15

H:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D11, 6/8/2015 9:28:23 AM, 1:1

FOR BIDDING PURPOSES ONLY





SHEET KEY

TEMPORARY STABILIZATION

INSTALL 12" DIAMETER EROSION CONTROL WATTLE AT THE FOLLOWING LOCATIONS:
6+09–36'L to 6+26–2'L (41 FT)
6+17–42'L to 6+60–34'L (48 FT)

PERIMETER PROTECTION

INSTALL SEDIMENT CONTROL AT INLET AT THE FOLLOWING LOCATIONS:

6+21–35'R	TYPE E
6+64–14'L	TYPE B
6+83–14'L	TYPE B

FINAL STABILIZATION

SODDING AT THE FOLLOWING LOCATION:
6+20–38'L to 8+59–32'L (180 SY)
6+09–33'L to 6+35–9'L (22 SY)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9992
JASON A. PETTYJOHN
SOUTH DAKOTA
6/8/15

0 10' 20' 40'
SCALE: 1"=40'

Prepared By:

F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
RAPID CITY INCORPORATED 1882 SOUTH DAKOTA
Engineering Services

Scale: 1" = 100'	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

12-2053 / CIP 50940 / PCN X03T

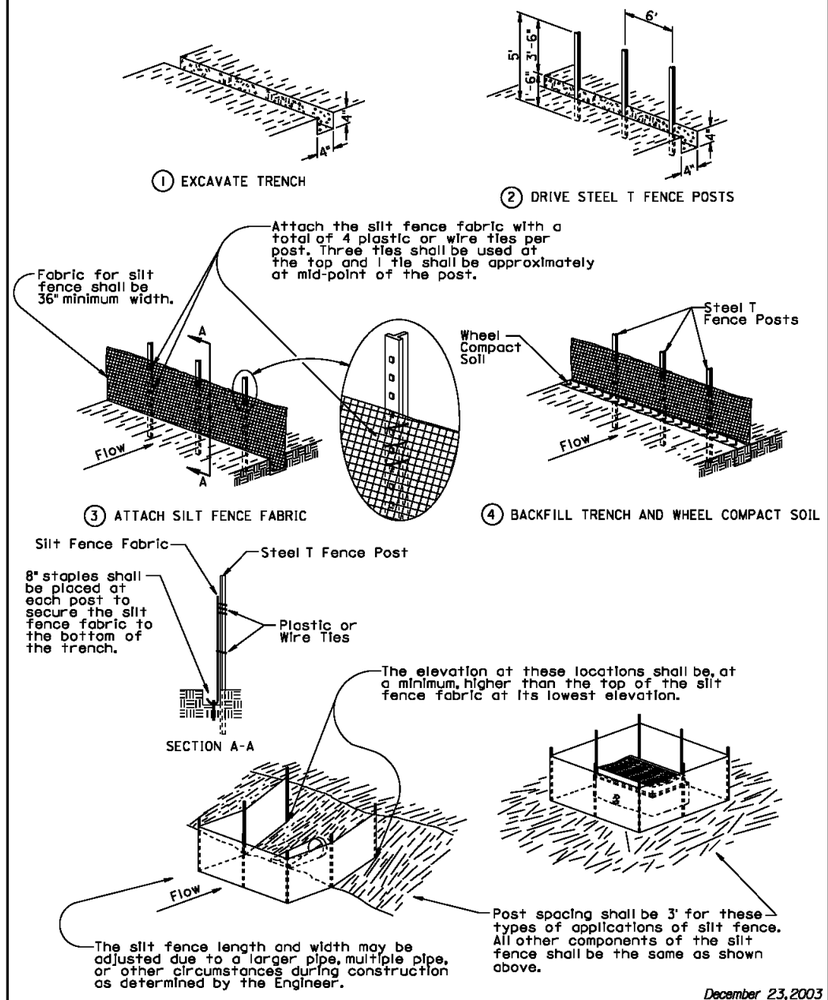
Sheet Title: EROSION CONTROL LEGEND

Sheet: D12 of D15

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D12, 6/8/2015 9:29:16 AM, 1:1

FOR BIDDING PURPOSES ONLY

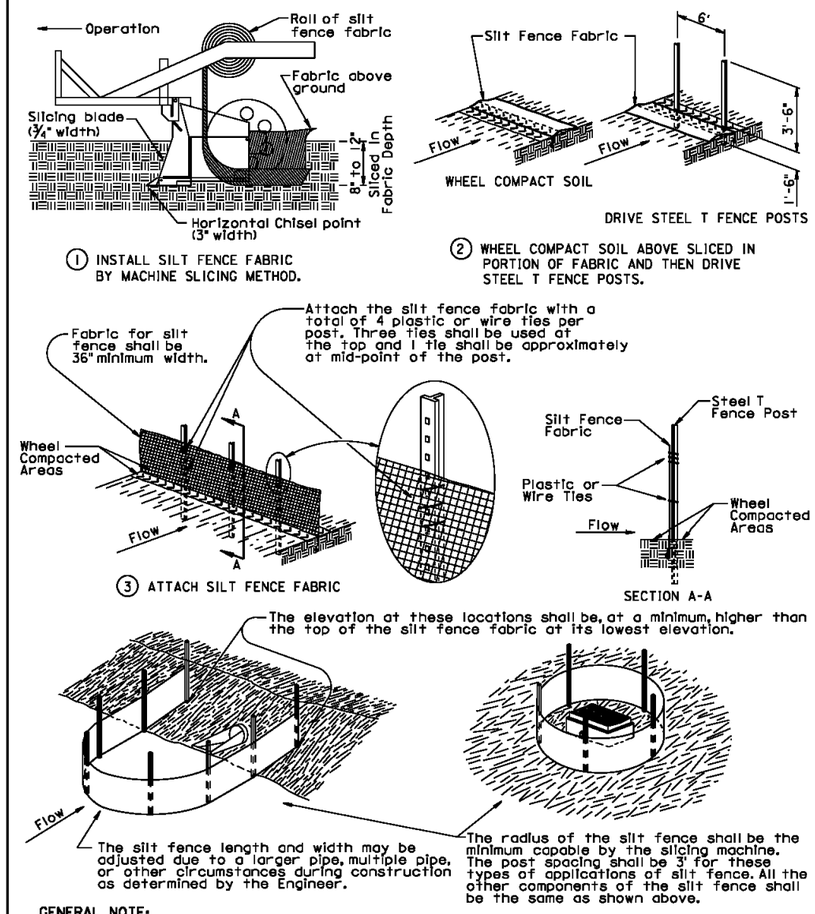
MANUAL HIGH FLOW SILT FENCE INSTALLATION



December 23, 2003

Published Date: 1st Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

Published Date: 1st Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

Prepared By:

F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Rapid City, South Dakota, Incorporated 1882
Engineering Services

Scale: NTS	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

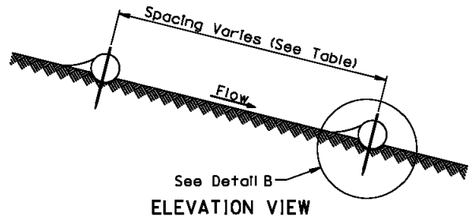
12-2053 / CIP 50940 / PCN X03T

Sheet Title: EROSION CONTROL DETAILS

Sheet: D13 of D15

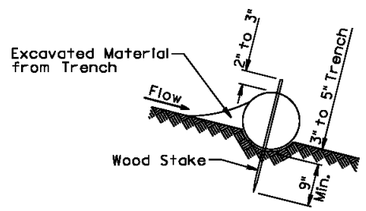
I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D13, 6/8/2015 9:30:12 AM, 1:1

FOR BIDDING PURPOSES ONLY

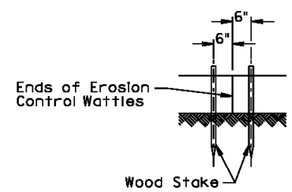


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

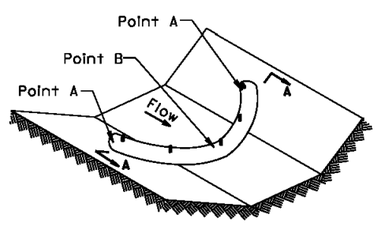
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



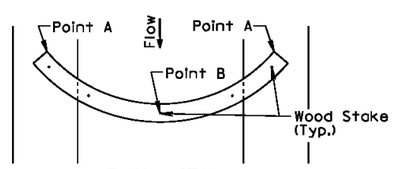
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

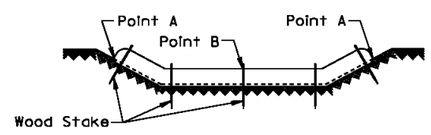


ISOMETRIC VIEW
DITCH INSTALLATION



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: 1st Qtr. 2015 | 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: 1st Qtr. 2015 | SDDOT | EROSION CONTROL WATTLE | PLATE NUMBER 734.06 | Sheet 2 of 2

Prepared By:
F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Rapid City, South Dakota
Engineering Services

Scale: NTS	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

12-2053 / CIP 50940 / PCN X03T

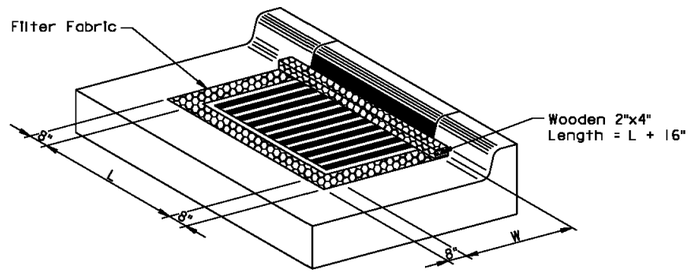
Sheet Title: EROSION CONTROL DETAILS

Sheet: D14 of D15

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D14, 6/8/2015 9:30:40 AM, 1:1

FOR BIDDING PURPOSES ONLY

L = Length of Grate
W = Width of Grate



ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric shall be the type specified in the plans.

The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

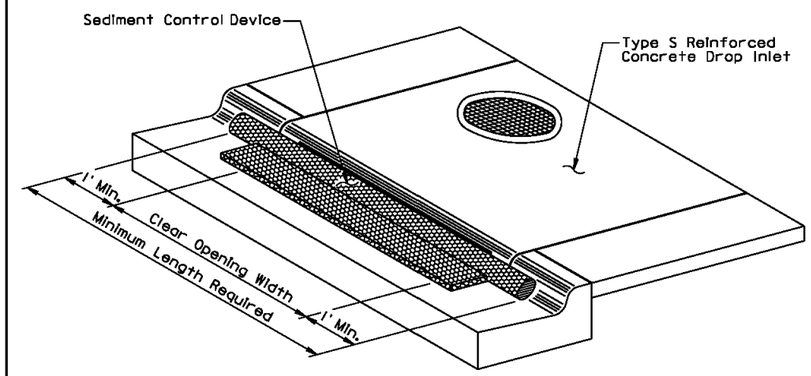
The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

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.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

Published Date: 1st Qtr. 2014	SDDOT	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10 Sheet 1 of 1



ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used shall be one of the types as specified in the plans.

The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.

The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

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.

Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

Published Date: 1st Qtr. 2014	SDDOT	SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS	PLATE NUMBER 734.11 Sheet 1 of 1

Prepared By:

F M G, Inc.
3700 Sturgis Road
Rapid City, SD 57702-0317
(605) 342-4105 FAX (605) 342-4222
www.fmgengineering.com

Prepared For:
Public Works Department
Engineering Services

Scale: NTS	
Designed By: JAP	Drawn By: JRK
Design Date: JUNE 2015	Print Date: JUNE 2015
Internal Job No: 130234	
Surveyed By: DOT / FMG	Survey Date: SURVEY BY DOT
SDDOT Project No. 1M 1902(61)0	

SILVER STREET INTERCHANGE
UTILITY RECONSTRUCTION PROJECT

12-2053 / CIP 50940 / PCN X03T

Sheet Title: EROSION CONTROL DETAILS

Sheet: D15 of D15

I:\Civil 3D Working Folder\130234 Silver Street Interchange\2053 Erosion.dwg, D15, 6/8/2015 9:31:02 AM, 1:1