STORMWATER POLLUTION PREVENTION PLAN FOR

Technology Drive

O'Fallon, MO 63368

Owner:

Granite Hotels, LLC

Contact Person: Gary Zimmer

3203 Missouri Avenue

Granite City, IL 62040

Continuing Authority:

Granite Hotels, LLC

Missouri State Operating Permit Number:

Estimated Project Dates:

Project Start Date:

September 2015

Project Completion Date:

December 2015

Prepared By:

PREMIER CIVIL ENGINEERING

308 TCW COURT
LAKE SAINT LOUIS MO 63367

PCE Project Number: 147401

Prepared: June 5, 2015

TABLE OF CONTENTS

THIS SWPPP INCLUDES AS PART OF IT:

1. "Model Best Management Practices For Land Disturbance – Sediment and Erosion Control" by the St. Louis County Soil and Water Conservation District
2. "Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices" by the USEPA.
3. "Protecting Water Quality" by the Missouri Department of Natural Resources.

SECTION 1.0: STORMWATER POLLUTION PREVENTION PLAN DESCRIPTION

This SWPPP is intended to assist with the National Pollutant Discharge Elimination System (NPDES) stormwater permit compliance during initial land disturbance, grading, construction, and final stabilization activities, at the referenced project site. This document is intended to be utilized prior to initial land disturbance and through construction completion. The permittee(s) and/or their appointed agent(s) are to:

1. Receive copies of all documents which (when compiled) comprise the Storm Water Pollution Prevention Plan.
2. Perform an inspection of the site and agree to proposed erosion & sediment control measures.
3. Sign an agreement to accept, maintain, and **take over responsibility** for the erosion & sediment control measures for the site.
4. Maintain a current copy of the SWPPP on the site at all times.
5. Notify and provide copies of the SWPPP to contractors and other entities who will perform work at the site, who are responsible for installation, operation or maintenance of the existence of the SWPPP and what actions or precautions shall be taken while on site to minimize the potential for erosion and the potential for damaging Best Management Practices (BMPs).
6. Determine the need for training programs to familiarize site workers with practices in erosion control, material handling and storage, and housekeeping.
7. Keep a record of the dates when major ground-disturbing activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated. These records must be maintained until the Missouri Department of Natural Resources Form H, Notice of Termination is filed.
8. At least once every week and within 48 hours of a rainfall event that causes storm water runoff to occur onsite, erosion and siltation control devices shall be inspected for damage and amount of sedimentation accumulated; if a deficiency has occurred,

corrective actions will be taken within seven calendar days of the reported deficiency. Reports of these inspections and corrective actions shall be prepared for review; sample inspection/log sheets are included as Appendix C.

9. Completion of the Notice of Termination form is to be submitted to Missouri Department of Natural Resources upon completion and stabilization of the property. A Copy of the Notice of Termination, Form H, is included as Appendix D.

SECTION 2.0: SITE DESCRIPTION

2.1 Owner

Granite Hotels, LLC

Contact Person: Gary Zimmer

3203 Missouri Avenue

Granite City, IL 62040

Continuing Authority:

Granite Hotels, LLC

Contact Person: Gary Zimmer

3202 Missouri Avenue

Granite City, IL 62040

Developer

Granite Hotels, LLC

Contact Person: Gary Zimmer

3202 Missouri Avenue

Granite City, IL 62040

618-830-1624

garyzimmer@arnettepattern.com

2.2 24 Hour Contact

Granite Hotels, LLC

Contact Person: Gary Zimmer

3202 Missouri Avenue

Granite City, IL 62040

618-830-1624

garyzimmer@arnettepattern.com

2.3 Project Name and Location: Sleep Inn is located at the northwest corner of Technology Drive and Highway K in the City of O'Fallon, Missouri. A USGS location Map is included in Appendix A1.

Latitude: 38° 71' 65" N

Longitude: 90° 70' 65" W

Source: Google Earth

2.4 Site Description

The approximately 2.00 acre site that consists of an open field/ open site where a new Sleep Inn Hotel (2.46 acres disturbed area) is to be constructed.

2.5 Existing Vegetation

Existing site vegetation consists an open field with grass.

2.6 Project Description

This project will allow an approximately 12,200 sq. ft. Sleep Inn Hotel to be constructed along with the associated sewers, detention pond, curbs and paving.

2.7 Site Area

The Sleep Inn Hotel lot will consist of 2.00 acres and will have 0.57 acres of green space, 1.15 acres of pavement and 0.28 acres of building roof within it.

2.8 Run-Off Coefficient

The Pre Construction run-off coefficient for the site area is c = .30

The Post Construction run-off coefficient for the site will be c = .85

2.9 Receiving Waters

Site is tributary via existing storm system to Schote Creek which ties into Dardenne Creek.

2.10 Soils

According to the current Soil map prepared by the USDA, Natural Resources Conservation Service (NRCS) dated June 5, 2015 the Hydrologic Soil Group is Harvester-Urban Land Complex, 2 to 9 percent slopes.

SECTION 3.0: SEQUENCE OF ACTIVITIES

1. Install and maintain stabilized construction entrance.
2. Install and maintain silt fence and seed and mulch with reinforcing if needed, throughout construction activities.
3. Clear/grub/grade site with all impacts being minimized, leaving natural vegetation when possible, and schedule/phase work to minimize bare soil areas limiting the time of exposure.
4. Upon completion of all construction activities contributing to a drainage area, and once the area is stabilized, remove unneeded sediment controls and reseed any disturbed areas.

NOTE: MAINTENANCE AND UPKEEP OF THIS DOCUMENT (Sleep Inn Hotel at the Northwest corner of Technology Drive and Highway K) CONCERNING ALL ACTIVITIES OR CHANGES OF ACTIVITIES OR INFORMATION SHOULD BE NOTED THROUGHOUT THE CONSTRUCTION PERIOD BY THE PERMITTEE, AND ARE THE SOLE RESPONSIBILITY OF THE PERMITTEE.

SECTION 4.0: BEST MANAGEMENT PRACTICES

4.1 Stabilization, Structural Practices

All temporary and permanent stabilization of disturbed areas by vegetative cover shall be as outlined in the ***"Model Best Management Practices For Land Disturbance – Sediment and Erosion Control"*** by the **St. Louis County Soil and Water Conservation District,** ***"Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices"*** by the **USEPA,** ***"Protecting Water Quality"*** by the **Missouri Department of Natural Resources..**

The rough grading plan indicates the use of seed, mulch and silt fence devices as a beginning point for the BMP's preventing the pollution of stormwater from this site

4.2 Temporary Stabilization

Disturbed portions of the site where construction activity temporarily ceases for more than **14** days shall be stabilized with mulch or other effective erosion control BMPs. No excavation or fill shall be made which creates an exposed embankment face steeper in slope than three horizontal to one vertical (3:1), unless otherwise approved. If the slope of the area is greater than three to one (3:1) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish interim stabilization within **7** days of ceasing operations on that part of the site. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.

Temporary stabilization BMPs recommended for this site are listed below, in approximate order and should be used as a beginning point to monitor effectiveness in controlling siltation deposits.

Construction Entrance - A stabilized entrance to a construction site designed to minimize the amount of sediment tracked from the site on vehicles and equipment. Stabilization generally consists of aggregate over fabric. Mud and sediment fall off of tires as they travel along the stabilized entrance; however, additional measures in the form of a wash down area may also be included on site. The stabilized entrance also distributes the axle load of vehicles over a larger area; thereby mitigating the rutting impact vehicles normally have on unpaved areas.

Wash Down Station - An area located at construction entrances designed to wash sediment, aggregate and concrete from the tires and undercarriage of exiting vehicles and prevent these materials from being tracked onto existing roadways.

Inlet Protection - Fabric Drop - A woven fabric barrier braced around an area inlet designed to prevent sediment from entering the storm sewer. Shallow temporary ponding, during and after rainfall, should be expected.

Silt Fence - A fence constructed of woven filter fabric which is stretched between posts and entrenched in the ground. Silt fencing is designed to pond stormwater runoff and cause sediment to settle out.

Sodding - A ¾ inch to 1-inch thick mat of vigorous turf, free of disease, insects and weeds. Sod prevents raindrops from disrupting the soil structure and causing erosion. Sod slows water runoff and acts as a filter when sediment-laden runoff crosses over the sodded area.

4.3 Permanent Stabilization

Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than **14** days after the last construction activity. Seeding, mulching and fertilization rates are shown on the erosion and sediment control plans, on the cover sheet, general notes, outlined in the ***"Model Best Management Practices For Land Disturbance – Sediment and Erosion Control"*** by the **St. Louis County Soil and Water Conservation District.**

Permanent stabilization BMPs recommended for this site are listed below and should be used as a beginning point to monitor effectiveness in controlling siltation deposits.

Sodding - A ¾ inch to 1-inch thick mat of vigorous turf, free of disease, insects and weeds. Sod prevents raindrops from disrupting the soil structure and causing erosion. Sod slows water runoff and acts as a filter when sediment-laden runoff crosses over the sodded area.

4.4 Long-Term Pollutant Controls

A major goal of pollution prevention efforts during project construction is to control soil and pollutants that originate on the site and prevent them from flowing into surface and ground waters. An effective pollution prevention program relies upon careful inspection and adjustments during the construction process, and also considers long-term pollutant controls.

During site inspections, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation, and maintenance. Locations where stormwater exits the site shall be inspected for evidence of erosion or sediment depositions. Deficiencies shall be noted in a report of the inspection and corrected within seven calendar days of the inspection. The permittee shall promptly notify the site contractors responsible for operation and maintenance of BMPs of deficiencies.

Disturbed areas of the project site which drain into creeks, tributaries, drainage ways, ponds or lakes require special attention. **BMPs** may include multiple rows of erosion and sediment

SECTION 5.0: NON-SEDIMENT POLLUTION CONTROLS

Control measures designed to prohibit chemicals, hazardous materials, solid waste and construction debris from polluting stormwater. Pollutants carried in solution or as surface films or runoff will be carried through most erosion control and sediment capture BMPs. Keeping substances like fuel, oil, asphalt, paint, solvents, fertilizer, soil additives, concrete wash water, solid waste and construction debris from polluting runoff can be accomplished to a large extent through good housekeeping on the site and following the manufacturer's recommendations for disposal.

5.1 Petroleum Products

Onsite vehicles are to be monitored for leaks and maintained regularly. Petroleum products are to be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite should be applied according to the manufacturer's recommendations. Lubricants are to be disposed of per manufacturer's recommendations by a licensed carrier. No fueling, servicing, maintenance, or repair of equipment or machinery should be done within 50 feet of a stream, or within 100 feet of a classified stream, losing stream or sinkhole.

5.2 Concrete Trucks

Wash off is allowed only in areas where discharge is directed to a sediment basin or other settlement device. It is not permissible to discharge concrete wash directly to streams or storm drains.

5.3 Fertilizers

Fertilizers are to be applied only in the minimum amounts recommended by the supplier. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater.

5.4 Heavy Equipment Maintenance Materials

Heavy equipment maintenance materials shall be stored in a locked container or semi-trailer with the location noted on a site map.

5.5 Other

6.4 Hazardous Waste Disposal

All hazardous waste materials will be disposed of in the manner specified by the local or state regulation or by the manufacturer. Site personnel including subcontractors will be instructed in these practices and the developer's site supervisor will be responsible for seeing that these practices are followed and adhered to.

Only the minimum amount of any hazardous material required during the job will be kept onsite.

Containment systems used to prevent hazardous wastes from exposure to stormwater shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater. In the event of a hazardous waste spill, all appropriate state and local government agencies are to be notified, regardless of size.

Substances regulated by federal law under the **Resource Conservation and Recovery Act (RCRA)** or the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)** which are transported; stored; or used for maintenance cleaning or repairs; shall be managed according to the provisions of RCRA and CERCLA.

Materials and equipment necessary to clean up a spill as recommended by the manufacturer shall be kept onsite. Site personnel will be aware of the procedures necessary.

The applicant shall notify by telephone and in writing the Department of Natural Resources, Water Pollution Control Program, Post Office Box 176, Jefferson City, MO 65102; 1-800-361-4827, of any spills or if hazardous substances are found during the prosecution of work under this permit.

6.5 Sanitary Waste

All sanitary waste will be collected from the portable units by a licensed sanitary waste management contractor as required by local regulation. Portable unit locations should be shown on base map provided and updated as needed.

6.6 Offsite Vehicle Tracking

Stabilized construction entrances have been provided to help reduce vehicle tracking of sediments into already developed areas. The paved streets adjacent to the site entrances will be swept as necessary to remove any excess mud, dirt, or rock tracked from the site to prevent personal injury, damage to personal property, and the contamination of offsite storm sewers.

6.7 Non-Stormwater Discharges

It is expected that water from line flushing, pavement wash water and uncontaminated groundwater will occur during the construction period. If contaminated with sediment non-stormwater discharges will be directed to the sediment basin prior to discharge. Allowable, non-contaminated, non-stormwater discharges may include the following:

1. Water used to wash vehicles where sediment is not involved, and solvents are not used.
2. Water used for dust control.
3. Potable water including uncontaminated water line flushing.
4. Routine external building wash down that does not use detergents.

5. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and detergents are not used.
6. Uncontaminated air conditioning or compressor condensate
7. Uncontaminated ground water or spring water
8. Foundation or footing drains where flows are not contaminated with processed materials such as solvents
9. Uncontaminated excavation dewatering
10. Landscape irrigation

6.8 Signage

A sign is to be posted near the construction entrance noting that all paperwork, including copies of the SWPPP, permits, construction plans, and inspection and maintenance records will be kept at the construction site and will be accessible upon request.

SECTION 7.0: INSPECTION AND MAINTENANCE

7.1 Inspection Personnel

Personnel selected for the inspection and maintenance responsibilities will be qualified and trained in practices necessary for keeping erosion and sediment controls in effective and functional. It is the responsibility of the inspector to identify effective BMPs and report any deficiencies in BMP performance to the site superintendent and/or permittee. The inspector must also report BMPs which require (or will soon require) maintenance. If a control measure is not functioning properly, the inspector shall recommend the measure is fixed or replaced with a more effective control measure. After reviewing with the permittee and/or site superintendent, it may become necessary to alter the control measures being used on site. If it becomes necessary to alter the control measures, the inspector will write up an inspection and maintenance form for the new measure and provide a specification sheet to be included as an addendum to this report.

7.2 Site Inspections

The permittee shall allow the project site to be inspected weekly. Additionally, the site must be inspected within 48 hours after a rainfall that causes storm water runoff to occur onsite. Weekly inspections may coincide with heavy rain event inspections. During site inspections, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation, and maintenance. Locations where stormwater exits the site shall be inspected for evidence of erosion or sediment depositions. Deficiencies shall be noted in a report of the inspection and corrected within seven calendar days of the inspection. The permittee shall promptly notify the site contractors responsible for operation and maintenance of BMPs of deficiencies

All paint, solvents, petroleum products, petroleum waste products, and storage containers holding said items (such as drums, cans, or cartons) shall be stored according to best

management practices. The materials shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the once per week inspection of BMPs.

7.3 Corrective Action Log

A log of each inspection and corrective actions taken shall be kept. The report shall include the following minimum information: inspector's name, date of inspection, observations relative to the effectiveness of the BMPs, actions taken or necessary to correct deficiencies, and listing of areas where land disturbance operations have permanently or temporarily stopped. The report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. We have included a Sample Inspection Log Sheet as Appendix C. Mandatory reporting to the St. Louis County Department of Public Works is required for corrective actions.

7.4 Record Retention

The permittee shall retain copies of this permit, the SWPPP and amendments for the site named in the permit, results of monitoring and analysis, and site inspection records required by this permit. The permittee shall retain these records at a site which is readily accessible from the permitted site until final stabilization of the site is achieved. The local office of the permittee, their contractor or consultant is considered to be readily available from the project site if it is located in the same county as the project site. The records shall be accessible during normal business hours. After final stabilization, the records may be maintained at the location of the permittee's main office or other designated storage location.

7.5 Regular Maintenance

Sediment control devices (BMPs) are subject to inspection and analysis. Details about BMPs, their installation, and operation, are attached as **Appendix B**, and can also be found in

the "Model Best Management Practices for Land Disturbance – Sediment and Erosion Control" by the St. Louis County Soil and Water Conservation District. Deficiencies shall be noted in a weekly inspection report that is available for viewing by appropriate agencies.

If an accumulation of sediment occurs over the capacity of a specific BMP, as noted in the BMPs detail sheet, **Appendix B**, then the accumulated sediment will be removed and placed in designated fill areas onsite. Again, it is the permittee's and the inspector's responsibility to properly document all activities pertaining to the maintenance and installation of BMPs.

SECTION 8.0: MODIFICATIONS AND CHANGES TO THE SWPPP

Amending/Updating the SWPPP: the permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP. At a minimum whenever the:

1. Design, operation, or maintenance of BMPs is changed;
2. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
3. Permittee's inspections indicated deficiencies in the SWPPP or any BMP;
4. MDNR and/or another regulatory agency notify the permittee of deficiencies in the SWPPP;
5. MDNR or other regulatory agencies determines violations of Water Quality Standards may occur or have occurred.

* **Note:** This SWPPP must be amended as necessary during the course of construction in order to keep it current with the pollutant control measures utilized at the site. Amending the SWPPP does not mean that it has to be reprinted. It is acceptable to add addenda, sketches, new sections, and/or revised drawings.

SECTION 9.0: GENERAL NOTES

The project for which this plan has been prepared is a commercial development. As such, it is constantly evolving and progressing towards its final state and is rarely in a static condition. As the development progresses, it may become necessary to remove, relocate and replace some of the erosion and sediment control measures.

The erosion and sediment control plan has been prepared as a beginning point for these measures, but it should evolve along with the site. **Best Management Practices (BMPs)** are the most effective way to meet the ultimate goal of improving water quality by reducing pollutants into stormwater discharges. BMPs are a team effort involving the developers, engineers, contractors and inspectors.

Notice to All Contractors: The permittee shall be responsible for notifying each contractor or entity (including utility crews and city employees or their agents) who will perform work at the site of the existence of the SWPPP and what action or precautions shall be taken while on site to minimize the potential for erosion and the potential for damaging any BMP. **The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.**

The legal owner of the property on which the site is located is ultimately responsible for compliance with this SWPPP and compliance with the associated land disturbance permit.

Copies of the erosion and sediment control plan shall be included with this SWPPP for use by the site superintendent or designated inspector to update BMP changes, locations of materials storage areas, and any other notations desired.

SECTION 10.0: SUMMARY

Erosion and sediment control measures shall include **but not be limited to** those shown on the erosion and sediment control plan(s) and referenced by this SWPPP. For optimum stormwater management, in-place BMPs may need adjustments, alternatives, maintenance, and/or additional measures performed as deemed necessary by the permittee, site superintendent, grading contractors, inspectors or governing agencies. Site maintenance and inspection reports will be available for inspection onsite.

The permittee shall provide a copy of this SWPPP to MDNR, USEPA, or any local agency or government representative requesting a copy while performing their official duties. The permittee, their representative, and/or the contractor(s) responsible for installation, operation, and maintenance of the BMPs shall have a current copy of the SWPPP on the project site.

SECTION 11.0: SWPPP CERTIFICATION

I certify under penalty of law that this stormwater pollution prevention plan (and its associated erosion and sediment control plan) has to the best of my knowledge been prepared in compliance with the requirements and regulations of the Missouri Department of Natural Resources and the approval of local governing agencies. Additionally, this plan has been prepared in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit requirements of the United States Environmental Protection Agency. To the best of my knowledge and belief, the information contained in this plan is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fines and imprisonment for these violations.

Signed:_____ Date: 6-5-2015

Company: Premier Civil Engineering

SECTION 12.0: OWNER'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) Permit which authorizes the stormwater discharges associated with construction of the project referenced as part of this certification.

Signed: _____ Date: _____

Company: _____

Construction Responsibilities: _____

_____

Signed: _____ Date: _____

Company: _____

Construction Responsibilities: _____

_____

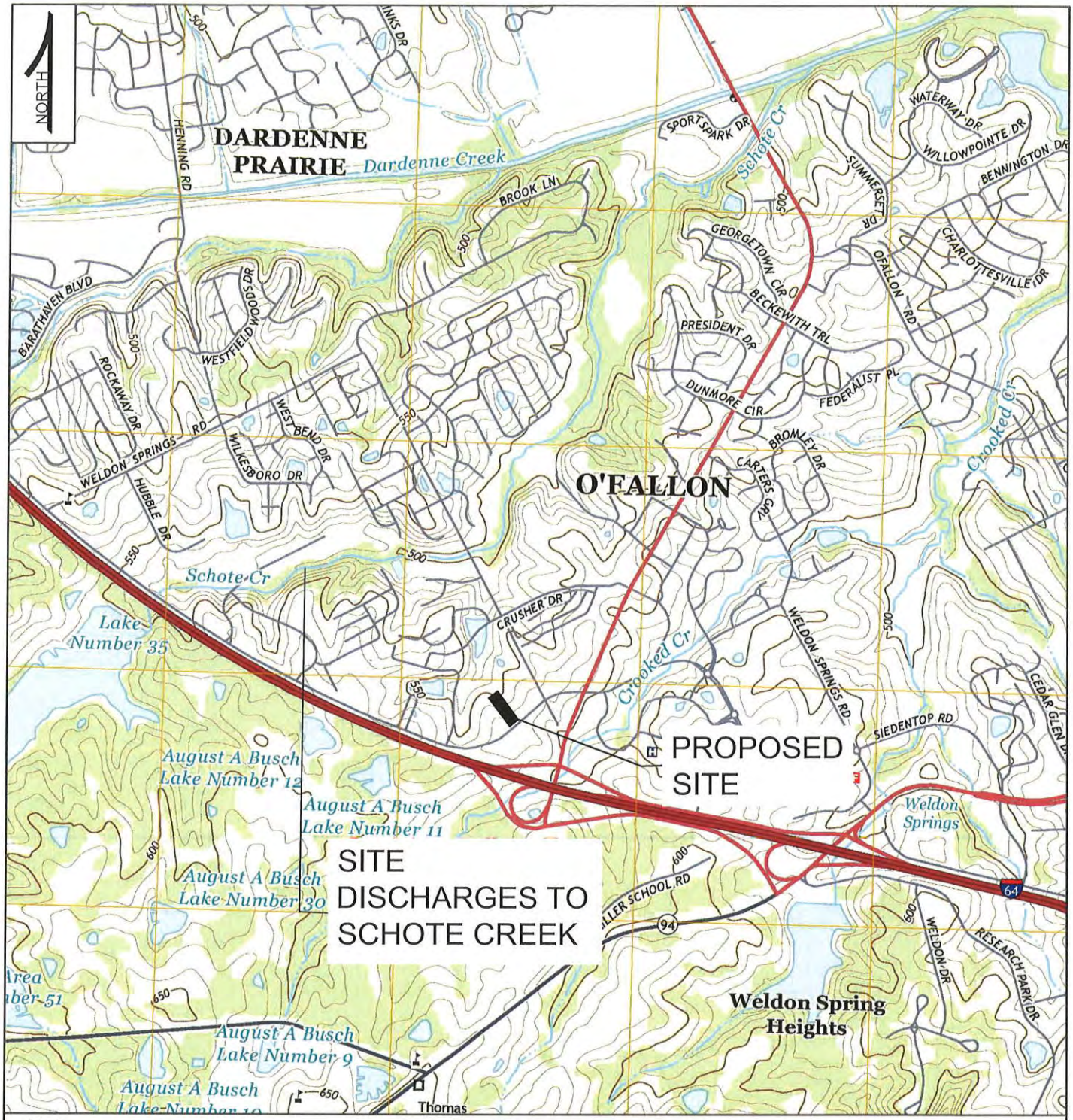
Signed: _____ Date: _____

Company: _____

Construction Responsibilities: _____

_____

SWPPP APPENDICES



Note:
USGS Topographical Map: Weldon Springs, MO Quadrangle, Dated 2015.

PREMIER CIVIL ENGINEERING
308 TCW Court
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Phone: (314) 925-7444
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SLEEP INN

79 UNIT SLEEP INN HOTEL
1147 TECHNOLOGY DRIVE
O'FALLON, MISSOURI

0 1000 2000 4000

GRAPHIC SCALE
1 inch = 2000ft.

PCE Job Number: 147401
Drawn By: S.REED Date: 6-10-15
Checked By : M.FOGARTY Date: 6-10-15

APPENDIX A2

Soil Survey Map

Map Scale: 1:1,130 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Charles County, Missouri
Survey Area Data: Version 13, Aug 5, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2014—Jun 25, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — St. Charles County, Missouri (MO183)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
60086	Crider silt loam, 9 to 14 percent slopes, eroded	C	0.0	0.1%
60124	Harvester-Urban land complex, 2 to 9 percent slopes	C	2.2	99.9%
Totals for Area of Interest			**2.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

St. Charles County, Missouri

60086—Crider silt loam, 9 to 14 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2qp53
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Crider and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crider

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over residuum weathered from dolomite

Typical profile

Ap - 0 to 11 inches: silt loam
Bt1 - 11 to 37 inches: silty clay loam
2Bt2 - 37 to 60 inches: silty clay loam

Properties and qualities

Slope: 9 to 14 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: Quercus alba-quercus velutina/rhus aromatica/ elymus virginicus-solidago ulmifolia (F115BY005MO)

St. Charles County, Missouri

60124—Harvester-Urban land complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 6604
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Harvester and similar soils: 60 percent
Urban land: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Harvester

Setting

Landform: Ridges, hillslopes
Landform position (two-dimensional): Summit, footslope, backslope
Landform position (three-dimensional): Interfluve, base slope, side slope
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Loess

Typical profile

C1 - 0 to 5 inches: silt loam
C2 - 5 to 80 inches: silty clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Quercus alba-quercus velutina/rhus aromatica/ elymus virginicus-solidago ulmifolia (F115BY001MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Data Source Information

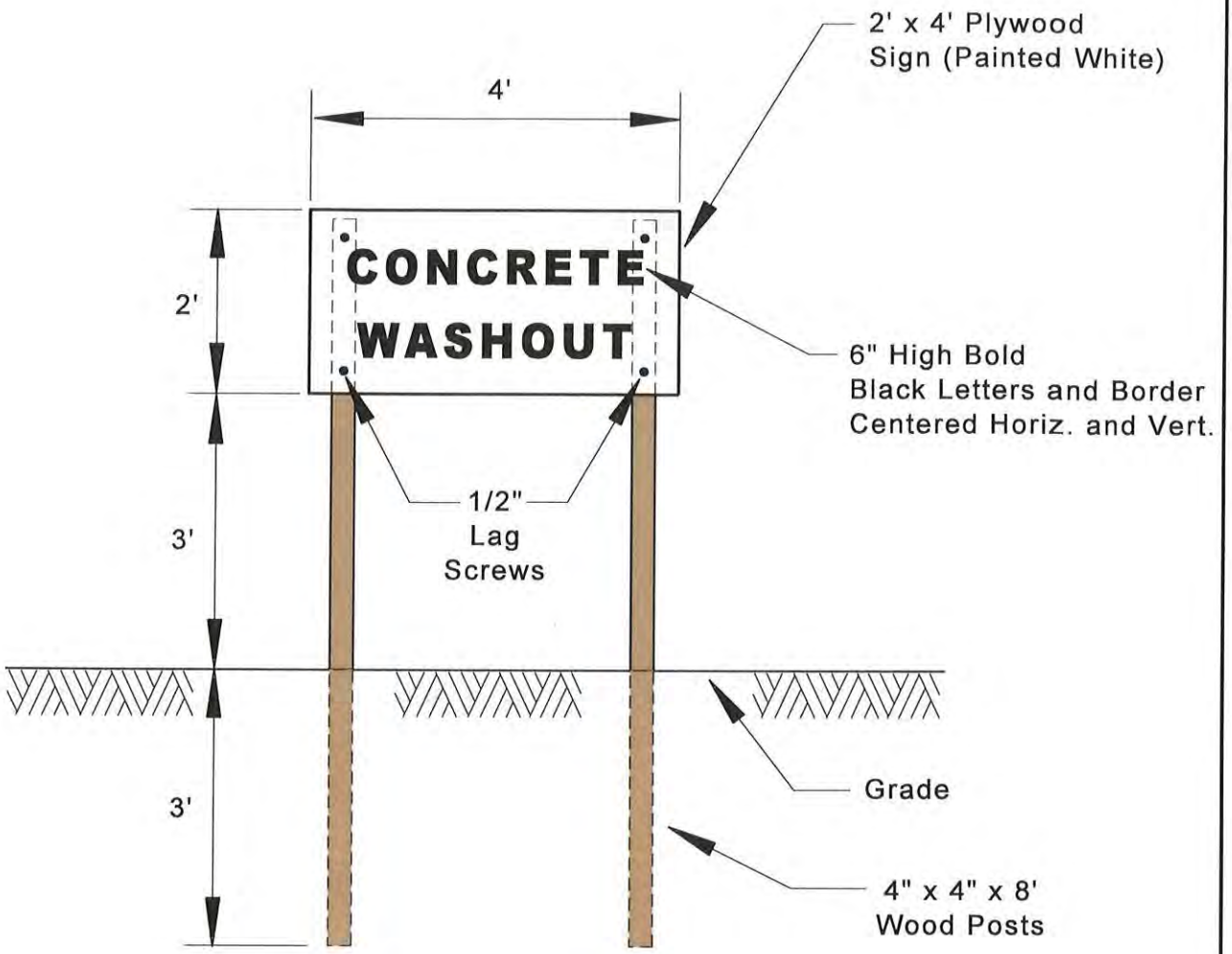
Soil Survey Area: St. Charles County, Missouri
Survey Area Data: Version 13, Aug 5, 2014

APPENDIX B

Best Management Practices

Detail Sheets

NEW	REVISIONS			
4/15/08	10/10/11			



CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT AS APPROVED BY COUNTY)

GENERAL NOTES

1) Do not scale drawing, follow dimensions.
2) Actual layout determined in the field.
3) The "Concrete Washout" sign shall be installed within 30 feet of each temporary concrete washout facility.

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL
CONCRETE WASTE MANAGEMENT
(CONCRETE WASHOUT SIGN)

REVISION DATE: October 10, 2011

DRAWING 806-46.03

CONCRETE WASTE MANAGEMENT

DESCRIPTION - The purpose of this specification is to set forth procedures and practices designed to eliminate the discharge of concrete waste materials to storm drainage systems, drainage areas, streets or watercourses, which shall be required of the contractor.

APPROPRIATE APPLICATION OF BMP - Concrete waste management procedures and practices will be implemented on construction projects as follows:

- Where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing Portland cement concrete (PCC), asphaltic concrete (AC) or bituminous concrete (BC) are generated, such as from saw cutting, coring, grinding, grooving and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on-site, when approved by the Resident Engineer or Construction Inspector.
- Where mortar-mixing station exist.

AWARENESS / ENFORCEMENT

- Contractor's and / or permit holder's superintendent or representative shall oversee and enforce concrete waste management procedures.
    - ➢ Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.
- The site superintendent shall make drivers aware of the presence of the concrete waste management facilities. The site superintendent should post signage indicating the location and designated use of the concrete waste management areas, and provide careful oversight to inspect for evidence of improper dumping of concrete waste and wash water.

IMPLEMENTATION

- Contractors, private individuals, public agencies, etc. using concrete material, shall incorporate requirements for concrete waste management into material supplier and subcontractor agreements. Include requirements in contracts with concrete delivery companies that drivers must use designated concrete washout facilities.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Do not allow excess concrete to be dumped on-site, except in designated areas.
- Cover the structures before predicted rainstorms to prevent overflows.
- Monitor on site concrete waste storage and disposal procedures at least weekly or as directed by the Resident Engineer or Construction Inspector.

- In St. Louis County, the contractor is required by Missouri State Law (10 CSR 10-6.170) and County Ordinance (612.340) to control fugitive dust blown from the construction site, signal installation, etc. Dust control, including saw-cut material etc., on the construction site shall be monitored for safety purposes and to prevent nuisances. The contractor / permittee shall apply reasonable measures to control dust and particulate matter (of any size or source) due to roadway / construction traffic, grading, clearing and grubbing, building demolition, saw-cutting etc. from migrating off the site of origin. Operations residue from grinding, saw-cutting etc. should be picked up (cleaned-up) by means of a vacuum device or swept up. Compressed or blown air may be used to clean negligible residual dust that the vacuum or sweeping did not clean up, as long as the above dust control procedures (and law and ordinance) are met. Saw cutting residue, slurry or dry, should not be allowed to enter storm drains or watercourses. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement when traffic is present, when precipitation is anticipated before cleanup or overnight. In approved locations, saw-cut slurry may flow into the dirt (where it can soak into the ground) adjacent to the saw-cutting operation and be buried, on site, 2' minimum below finished grade. Other dust control and clean-up procedures may be acceptable as approved by the Engineer or St. Louis County. See additional Concrete Waste Management requirements in this Manual.

WASHOUT AREA PROTOCOL

- Contain concrete washout on site or take it offsite for disposal in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- For onsite washout:
  - Locate washout area on-site at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough to contain liquid and solid waste. Locate it in a dirt area where the liquid portion of the washout can soak into the ground. They are preferably built below-grade to prevent breaches and reduce the likelihood of runoff. Discontinue use of the washout once it reaches 75% capacity. Washouts should be sized to handle solids and wash water to prevent overflow. It is estimated that 7 gallons of wash water are used to wash one truck chute and 50 gallons are used to wash out the hopper of a concrete pump. Implement a maintenance schedule for washout areas.
  - Temporary washout facilities should have pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
  - Wash out wastes into the pit where the concrete can set, be broken up, and used on site; or buried on site; or disposed of properly.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose of in the trash.
- Do not place concrete wash water in a pit that is connected to the storm drain system or that drains to nearby waterways.

- Locate concrete washout facilities in an area that allows convenient access for concrete trucks, preferably near the area where the concrete is being poured. Appropriate gravel or rock should cover paths to concrete washout facilities if the facilities are located on undeveloped property. These areas should be far enough away from other construction traffic to reduce the likelihood of accidental damage and spills. The number of facilities you install should depend on the expected demand for storage capacity. On large sites with extensive concrete work, place washouts in multiple locations for ease of use. If the dried concrete washout is buried on the site it shall have a 2-foot cover minimum. The 2-foot cover shall match with surrounding finished grade.

- Concrete washed out in areas other than those designated for such activity, shall be cleaned up by the contractor.

- Install signage adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

- Perform washout of concrete mixers, delivery trucks and other delivery systems in designated areas only.

- Wash out concrete from concrete pumper bins into concrete pumper trucks and discharge into designated washout area.

- Equipment that cannot be easily moved, such as concrete pavers, shall only be washed in designated areas that do not drain to waterways or storm drain systems.

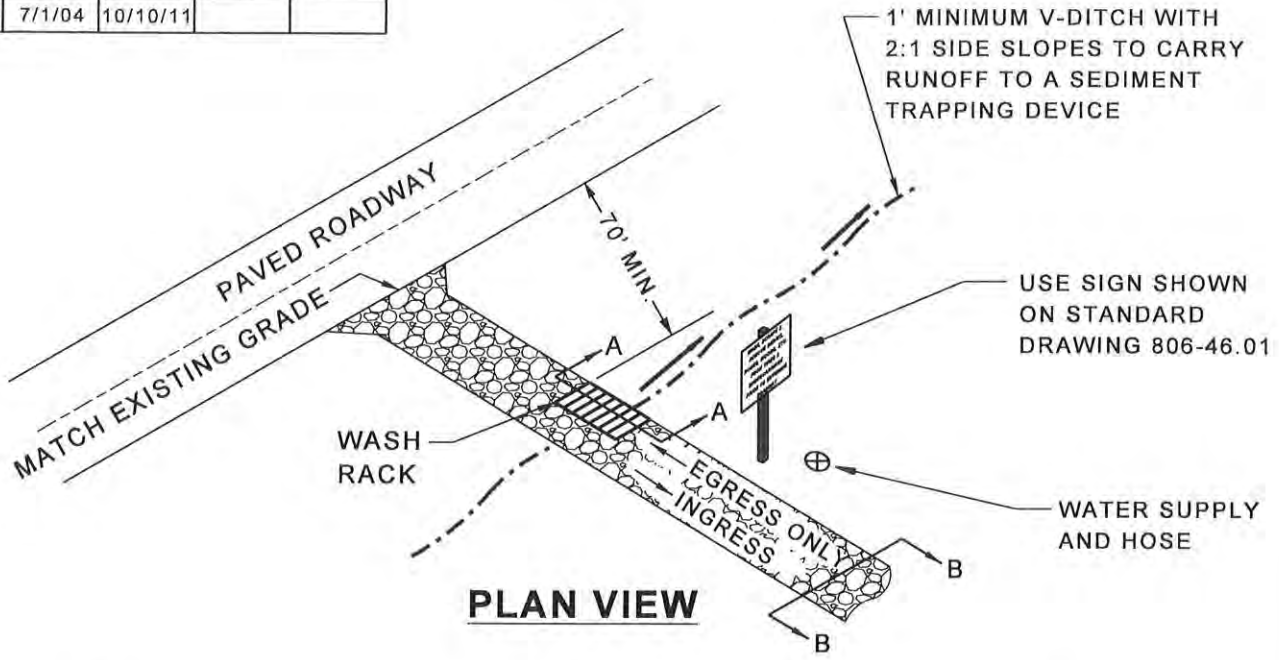
- Backfill and repair holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities.

- Wash out concrete on site into a future designated final concrete pour location. This location cannot be within 50 feet of a storm or sanitary sewer; or water course; or where it can drain off site. The washout cannot jeopardize the integrity of the final concrete pour. Concrete to be removed from the site shall be disposed of in conformance with the provisions in Standard Specification Manual, Section 202, all as directed by the Engineer. No additional payment will be made for complying with the above specification.

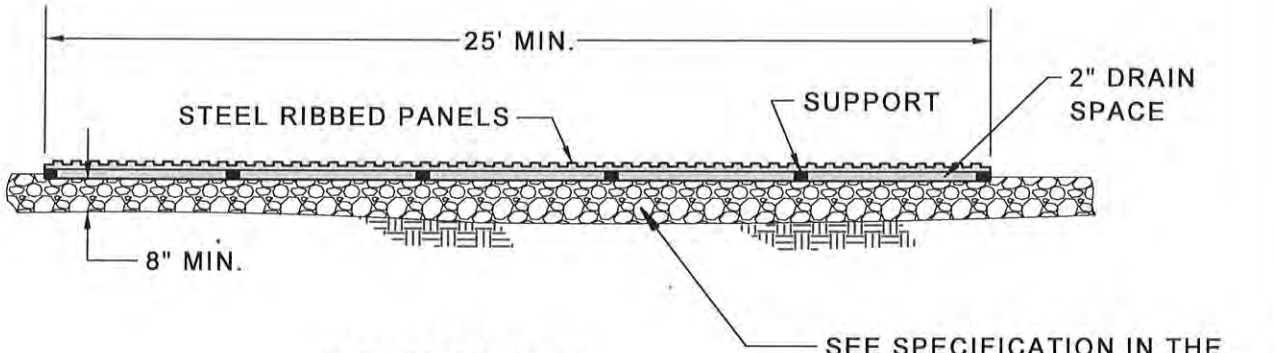
- A self-contained and watertight container may be used to control, capture, and contain concrete wastewater and wash-out material. The container must be portable and temporary, damage resistant, protect against spills and leaks, and sized to handle solids and wash water to prevent overflow. The container should be emptied and cleaned when 75% of its capacity is reached. After all liquids evaporate or are pumped or vacuumed, and the remaining slurry solidified, the Contractor may bury the solids on site. On County Highway Projects the solids may be buried on site if approved by the Engineer. In either case, solids shall be buried a minimum of 2 feet below finished grade. Disposal of container contents that are removed from the site shall be made at an approved landfill. In order to prevent overflows caused by natural occurrences and to provide security for safety purposes and against acts of vandalism, the container shall be covered at the end of each workday and remain covered until the beginning of the next workday. The cover shall remain on site with the container at all times. Container shall be free of liquids during any on-site relocation process or transport to another site. On County Highway projects, location(s) for the container shall be approved by the Engineer.

TYPICAL DETAIL - 806-46.03

NEW	REVISIONS			
1/15/04	7/1/04	10/10/11		

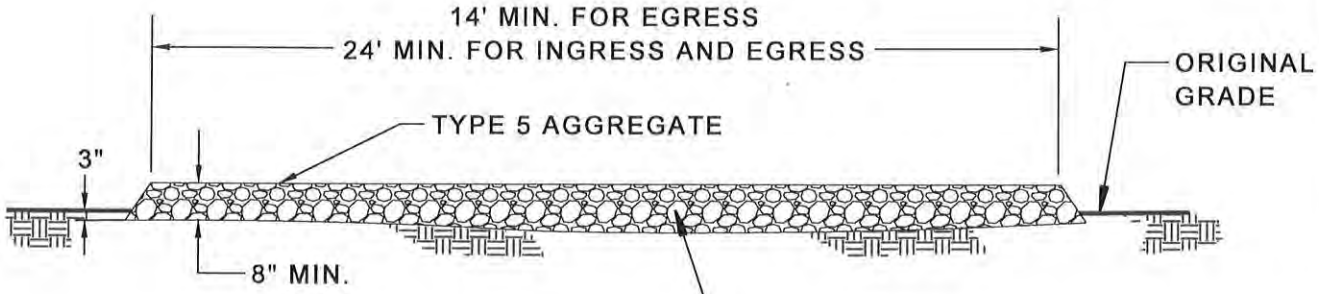


PLAN VIEW



SECTION A-A

SEE SPECIFICATION IN THE SEDIMENT AND EROSION CONTROL MANUAL FOR AGGREGATE & GEOSYNTHETIC MATERIAL (FILTER FABRIC)



SECTION B-B

SEE SPECIFICATION IN THE SEDIMENT AND EROSION CONTROL MANUAL FOR AGGREGATE & GEOSYNTHETIC MATERIAL (FILTER FABRIC)

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

WASHDOWN STATION

REVISION DATE: October 10, 2011

DRAWING 806-46.00

VEHICLE MAINTENANCE AND WASHING AREAS

DESCRIPTION - Ideally, vehicle maintenance and washing occurs in garages and wash facilities, not on active construction sites. However, if these activities must occur onsite, operators should follow appropriate BMPs to prevent untreated nutrient-enriched wastewater or hazardous wastes from being discharged to surface or ground waters. Vehicle maintenance and washing BMP's prevent construction site spills of wash water, fuel, or coolant from contaminating surface or ground water. They apply to all construction sites.

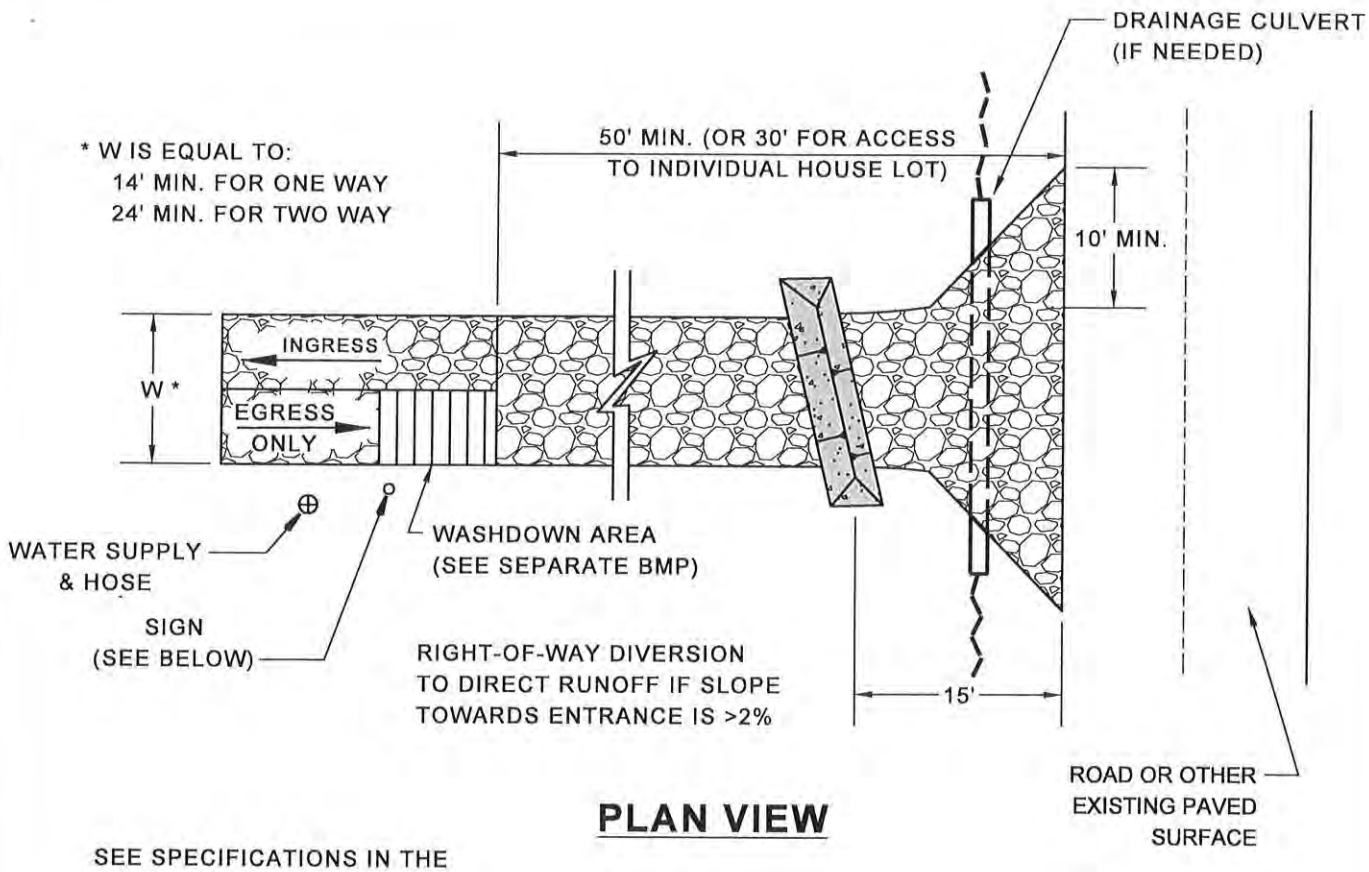
APPROPRIATE APPLICATION OF BMP - Inspect construction vehicles daily, and repair any leaks immediately. Dispose of all used oil, antifreeze, solvents and other automotive-related chemicals according to manufacturer instructions. These wastes require special handling and disposal. Used oil, antifreeze, and some solvents can be recycled at designated facilities, but other chemicals must be disposed of at a hazardous waste disposal site. Local government agencies can help identify such facilities.

Designate special paved areas for vehicle repair. To direct wash water to sanitary sewer systems or other treatment facilities, ensure that vehicle washing areas are impervious and are bermed. Use blowers or vacuums instead of water to remove dry materials from vehicles if possible. Because water alone can remove most dirt adequately, use high-pressure water spray without detergents at vehicle washing areas. If you must use detergents, avoid phosphate- or organic-based cleansers to reduce nutrient enrichment and biological oxygen demand in wastewater. Use only biodegradable products that are free of halogenated solvents. Clearly mark all washing areas, and inform workers that all washing must occur in this area.

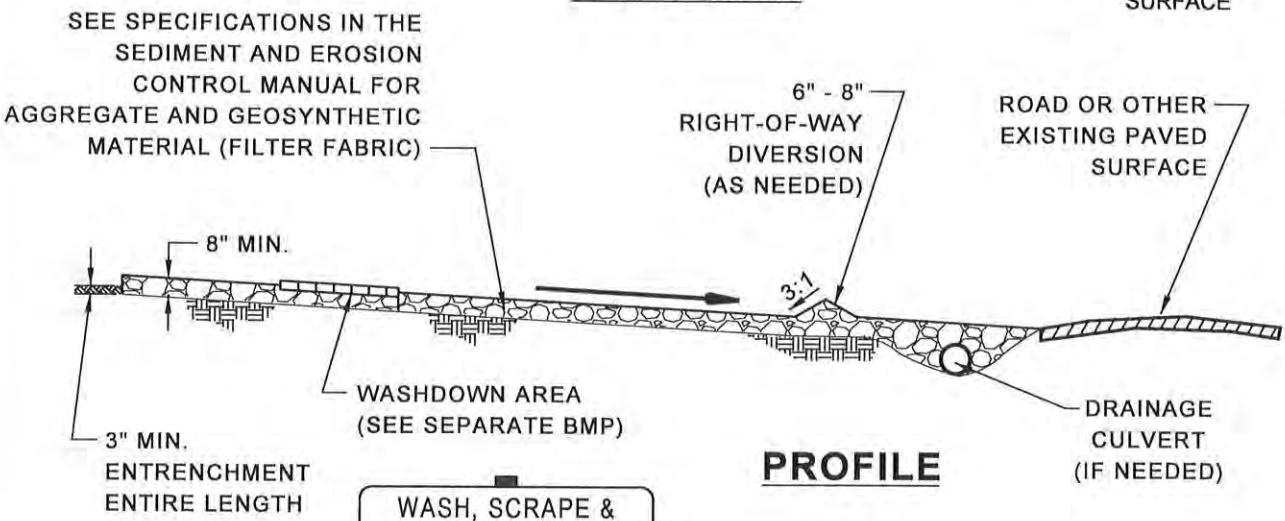
O&M PROCEDURES - Vehicle maintenance operations produce substantial amounts of hazardous and other wastes that require regular disposal. Clean up spills and dispose of cleanup materials immediately. Inspect equipment and storage containers regularly to identify leaks or signs of deterioration. Maintenance of vehicle wash areas is minimal, usually involving repairs to berms and drainage to the sanitary sewer system.

TYPICAL DETAILS - Not applicable.

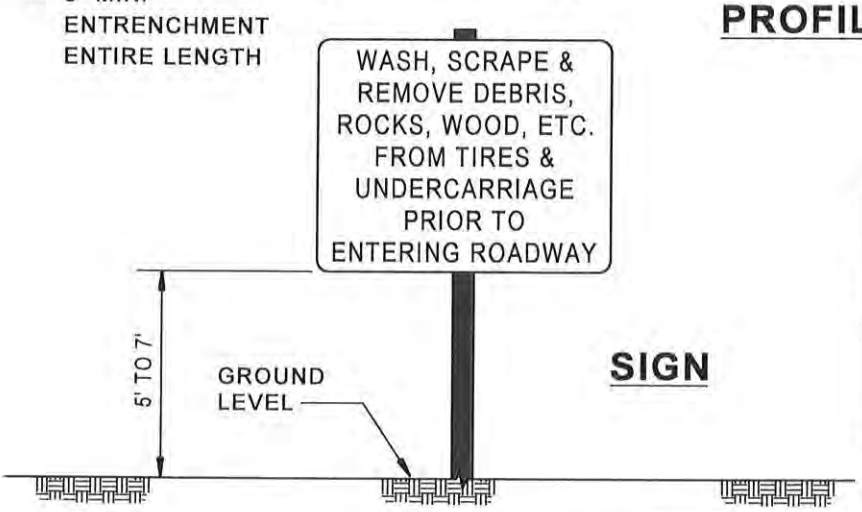
NEW	REVISIONS			
1/15/04	7/1/04	10/10/11		



PLAN VIEW



PROFILE



SIGN

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

CONSTRUCTION ENTRANCE

REVISION DATE: October 10, 2011

DRAWING 806-46.01

CONSTRUCTION ENTRANCE

PHYSICAL DESCRIPTION - A stabilized entrance to a construction site designed to minimize the amount of sediment tracked from the site on vehicles and equipment. Stabilization generally consists of aggregate over geogrid and geosynthetic material. Mud and sediment fall off of tires as they travel along the stabilized entrance; however, additional measures in the form of a washdown area should also be included on site. The stabilized entrance also distributes the axle load of vehicles over a larger area; thereby mitigating the rutting impact vehicles normally have on unpaved areas. See additional in the "Construction Site Access Requirements" section of this manual.

WHERE BMP IS TO BE INSTALLED - At locations where it is safe for construction vehicles and equipment to access existing streets – preferably at location of future streets or drives.

CONDITIONS FOR EFFECTIVE USE OF BMP

Drainage: Ditches or pipes, if needed, sized for 15 year, 20 minute storm; HGL 6" below surface of entrance

WHEN BMP IS TO BE INSTALLED - First order of work, along with washdown area, prior to vehicles or equipment accessing unpaved areas.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Grade and compact area of construction entrance.
- ✓ Install culvert under entrance if needed to maintain positive drainage.
- ✓ Place geosynthetic material next to compacted soil, lay geogrid on top of this, and cover with aggregate, forming diversion across entrance if needed to direct runoff away from roadway.
- ✓ See Washdown Station BMP for additional steps.

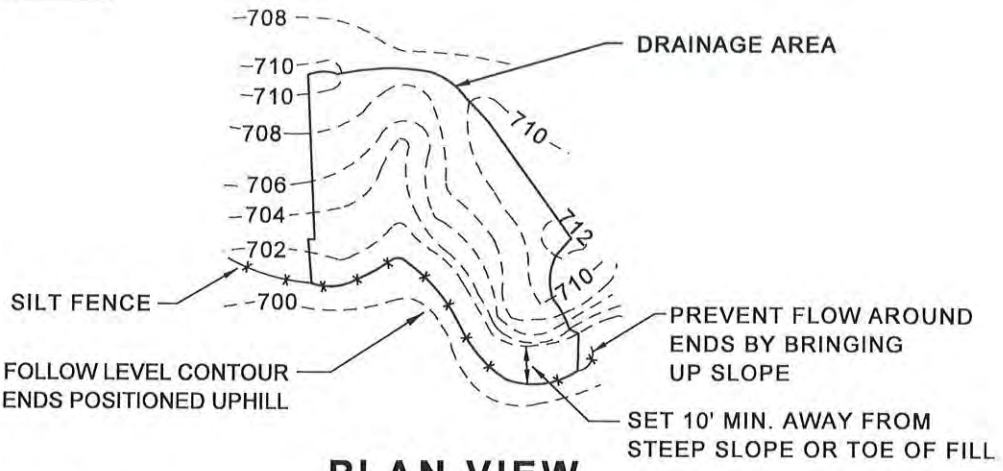
O&M PROCEDURES:

- ✓ Immediately remove any mud or debris tracked onto paved surfaces.
- ✓ Remove sediment and clods of dirt from construction entrance continuously.
- ✓ Replace rock if necessary to maintain clean surface.
- ✓ Repair settled areas.

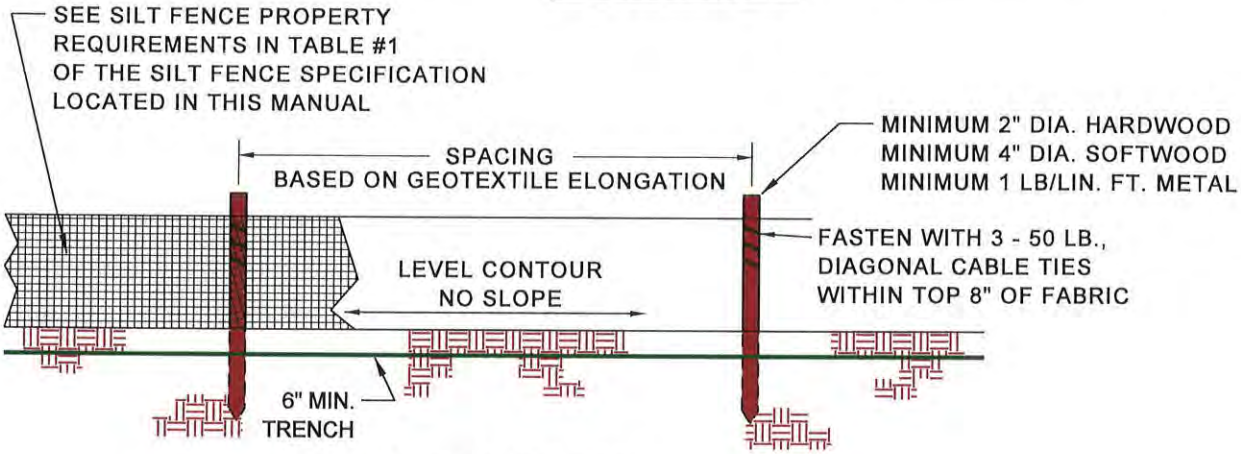
SITE CONDITIONS FOR REMOVAL - Remove when vehicles and equipment will no longer access unpaved areas.

TYPICAL DETAIL - 806-46.01

NEW	REVISIONS			
1/15/04	8/2/07	10/10/11		

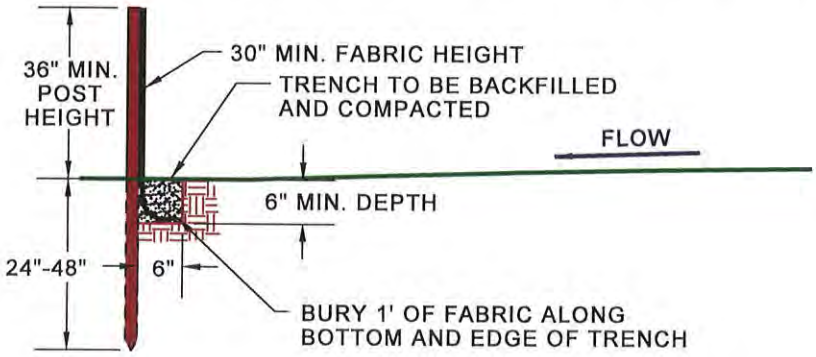


PLAN VIEW



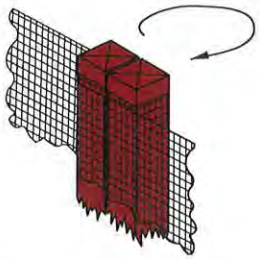
ELEVATION

FOR ADDITIONAL INFORMATION ON SILT FENCE GEOTEXTILE REQUIREMENTS, POST SPACING, HEIGHT AND SIZE, SEE THE SILT FENCE SPECIFICATION AND TABLE #1 LOCATED IN THIS MANUAL.



SECTION

WRAP GEOTEXTILE
AROUND STAKES
BEFORE DRIVING



JOINING SECTIONS OF SILT FENCE

NOTE: IF FABRIC IS INSTALLED BY EQUIPMENT DESIGNED TO SLICE INTO THE GROUND, THE TRENCH IS NOT NEEDED.

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

SILT FENCE

REVISION DATE: October 10, 2011

DRAWING 806-70.00

SILT FENCE

PHYSICAL DESCRIPTION - Silt fences are used as temporary perimeter controls, appropriate to the BMP, at sites where construction activities will disturb the soil. They can also be used on the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low and down slope areas. The filter fabric should be entrenched in the ground. When installed correctly and inspected frequently, silt fence can be an effective barrier to silt leaving the site in storm water runoff.

WHERE BMP IS TO BE INSTALLED - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 cfs. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length (100 square feet per foot of fence). The slope length above the fence should not exceed 100 feet (NAHB, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event.

CONDITIONS FOR EFFECTIVE USE OF BMP - Spacing of parallel lengths of silt fence along slopes is relative to slope steepness as follows:

Type of Flow:	Sheet flow only.
Contributing Slope Length:	30 foot maximum for 3:1 slopes. 50 foot maximum for slopes between 3:1 and 10:1. 100 foot maximum for slopes under 10%.

For additional information see Section 806.70 of St. Louis County's Standard Specification for Highway Construction.

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Install on the perimeter of the site (where storm water exits the site) prior to disturbance of natural vegetation, around material stock piles and interior to the site along slopes, at the base of slopes and at intervals during construction of slopes.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Drive post for fence line.
- ✓ Dig trench to required dimensions in front of posts for fabric burial.
- ✓ Attach wire mesh to posts.
- ✓ Attach fabric to posts, allowing required length below ground level to run fabric along bottom of trench
- ✓ Backfill and compact soil in trench to protect and anchor fabric.

If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about 6 months, depending on the amount of rainfall and runoff.

The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should have minimum dimensions of 2 by 2 inches if a hardwood like oak is used. Stakes from soft woods like No. 2 Southern Pine, should have minimum dimensions of 4 by 4 inches. When using steel (standard U, T, L or C shape sections) posts in place of wooden stakes, they should weigh no less than 1.33 lb/linear foot. If metal posts are used, attachment points are needed for fastening the filter fabric with wire ties. Posts should be least 5 feet long and driven or placed at a slight upstream angle into the ground to a

minimum depth of 18 inches. Depth shall be increased to a minimum of 22 inches if fence is placed on a slope of 3:1 or greater. When the post embedment depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

Erect silt fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches.

The Geosynthetic filter fabric and wire mesh (when applicable) shall be no less than 30 inches above ground and are stapled or wired to the upslope side of the post. Staples should be a 17-gauge wire and ½ inch long. Excavate a trench to bury the bottom of the fabric fence in a "J" configuration at least 6 inches below the ground surface. The trench shall be backfilled with native soil and the soil compacted over the geotextile. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.

The height of the fence posts should be 38 (22-inch embedment) to 42 (18-inch embedment) inches above the original ground surface. If standard-strength fabric is used with 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength), space the posts no more than 4 feet apart. If extra-strength fabric is used without wire mesh reinforcement, space the posts no more than 4 feet apart with woven or 6 feet apart with non-woven geosynthetic.

Alternate Construction: Install fence by slicing it into ground with specialized equipment.
Install posts at reduced spacing indicated on detail.

LIMITATIONS - Do not install silt fences along areas where rocks or other hard surfaces will prevent you from uniformly anchoring the fence posts and entrenching the filter fabric. Installing fences in such an area greatly reduces their effectiveness and can create runoff channels leading offsite. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. Fence shall not be used when slope is 1:1 or greater and water flow rates exceed 2 cubic feet per minute. Open, windy areas present a maintenance challenge, too, because high winds can make the filter fabric deteriorate faster. Do not install silt fences across streams, ditches, or waterways (Smolen et al., 1988).

When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of the fence. Setting and design of the silt fence should account for this. Take care to avoid unnecessarily diverting stormwater from these pools, causing further erosion damage.

MAINTENANCE CONSIDERATIONS - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment, dress the area disturbed to give it a pleasing appearance and vegetate all bare areas as well.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment buildup deeper than ½ the fence height or 12", whichever is less.
- ✓ Replace torn of clogged fabric; repair loose fabric.
- ✓ Repair unstable or broken posts.
- ✓ Stabilize any areas susceptible to undermining.
- ✓ Extend fence or add additional row(s) of fence if necessary to provide adequate protection.

SITING AND DESIGN CONSIDERATIONS - The material for silt fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, and polyester or polyethylene yarn. Choose the material based on the minimum synthetic fabric requirements shown in **Table 1** below.

Table 1- Temporary Silt Fence Property Requirements

Physical Property	Test Method	Units	*MARV Geotextile Requirements*		
			Supported Silt Fence [2]	*Unsupported Silt Fence*	
				Woven	Non-Woven
				Elongation ≥ 50% [1]	Elongation ≤ 50% [1]
Post Spacing (Maximum)		feet	4	4	6
Height of Wire / Polymer Fence (Minimum)		inches	30	---	---
Grab Strength (Minimum): Machine Direction Cross Machine Direction	ASTM D 4632	pounds	90 90	125 100	125 100
Permittivity (Minimum)	ASTM D 4491	sec^{-1}	0.05	0.05	0.05
Apparent Opening Size (AOS) [3]	ASTM D 4751	Sieve Number	30	30	30
Ultraviolet Stability (Minimum) (retained strength)	ASTM D 4355	70% after 500 h of exposure			

Notes:

MARV Minimum Average Roll Value

[1] Elongation measured in accordance with ASTM D 4632

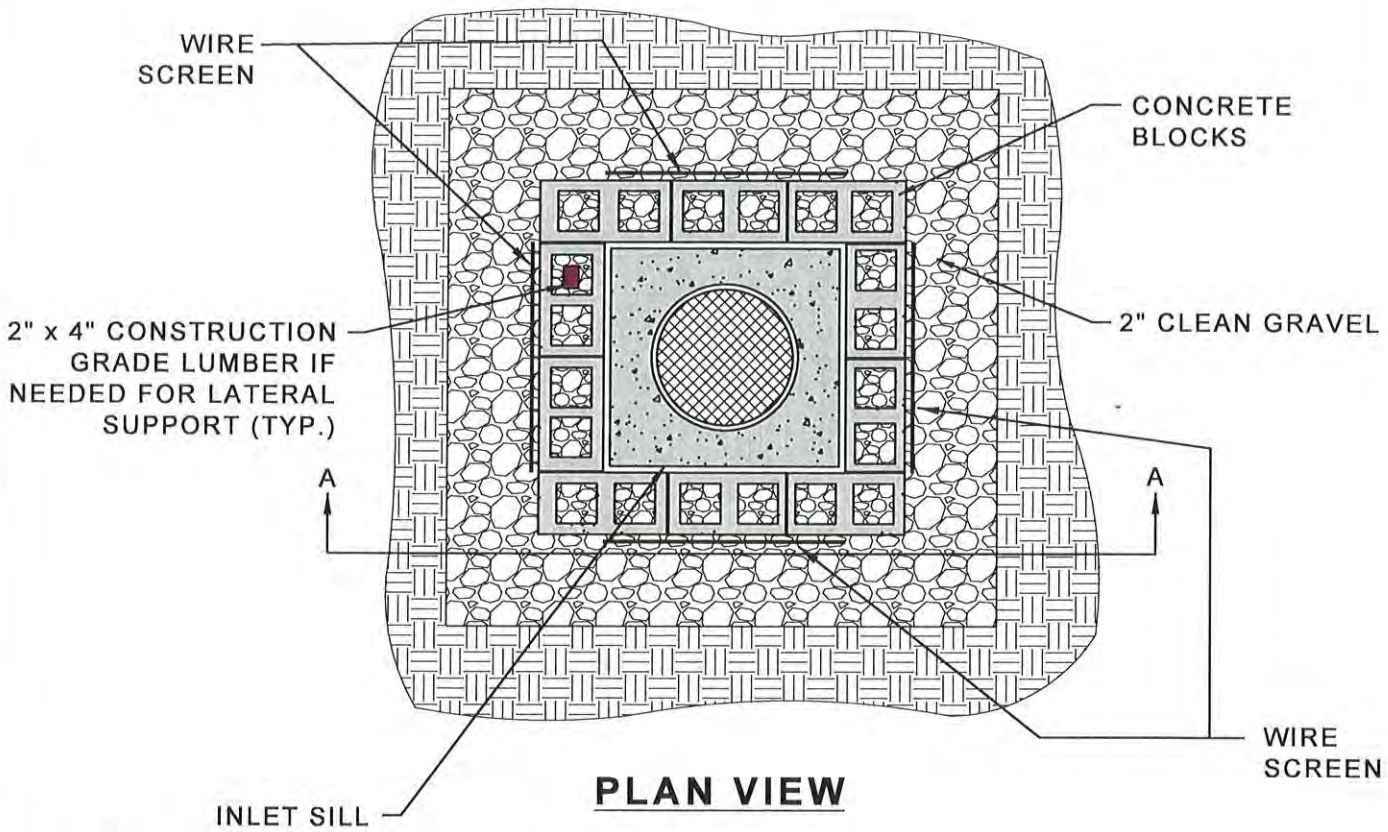
[2] **Silt Fence Support** - 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength)

[3] Maximum Average Roll Value

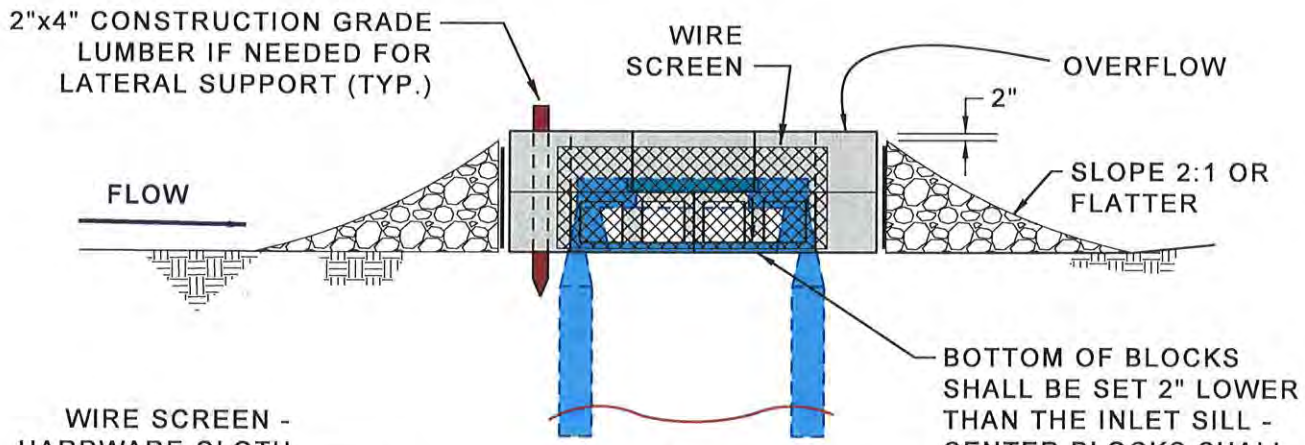
SITE CONDITIONS FOR REMOVAL - After permanent vegetation of slope is established. Remove fence and post, regrade trench area and vegetate.

TYPICAL DETAIL - 806-70.0

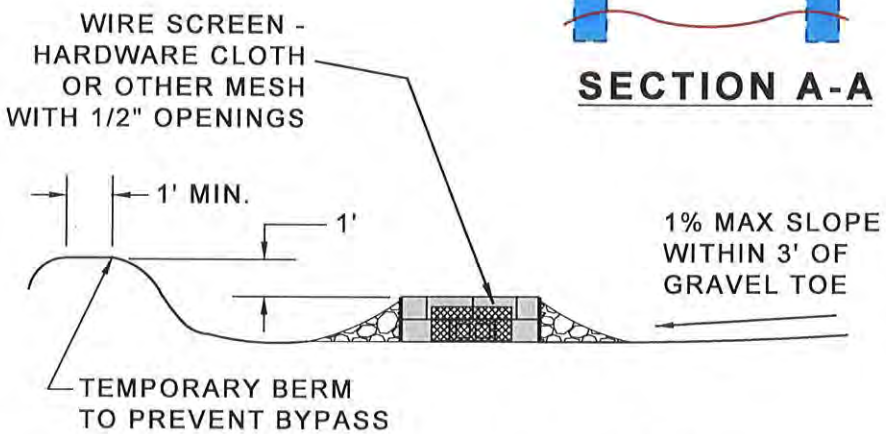
NEW	REVISIONS			
1/15/04	10/10/11			



PLAN VIEW



SECTION A-A



DOWNSTREAM BERM

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

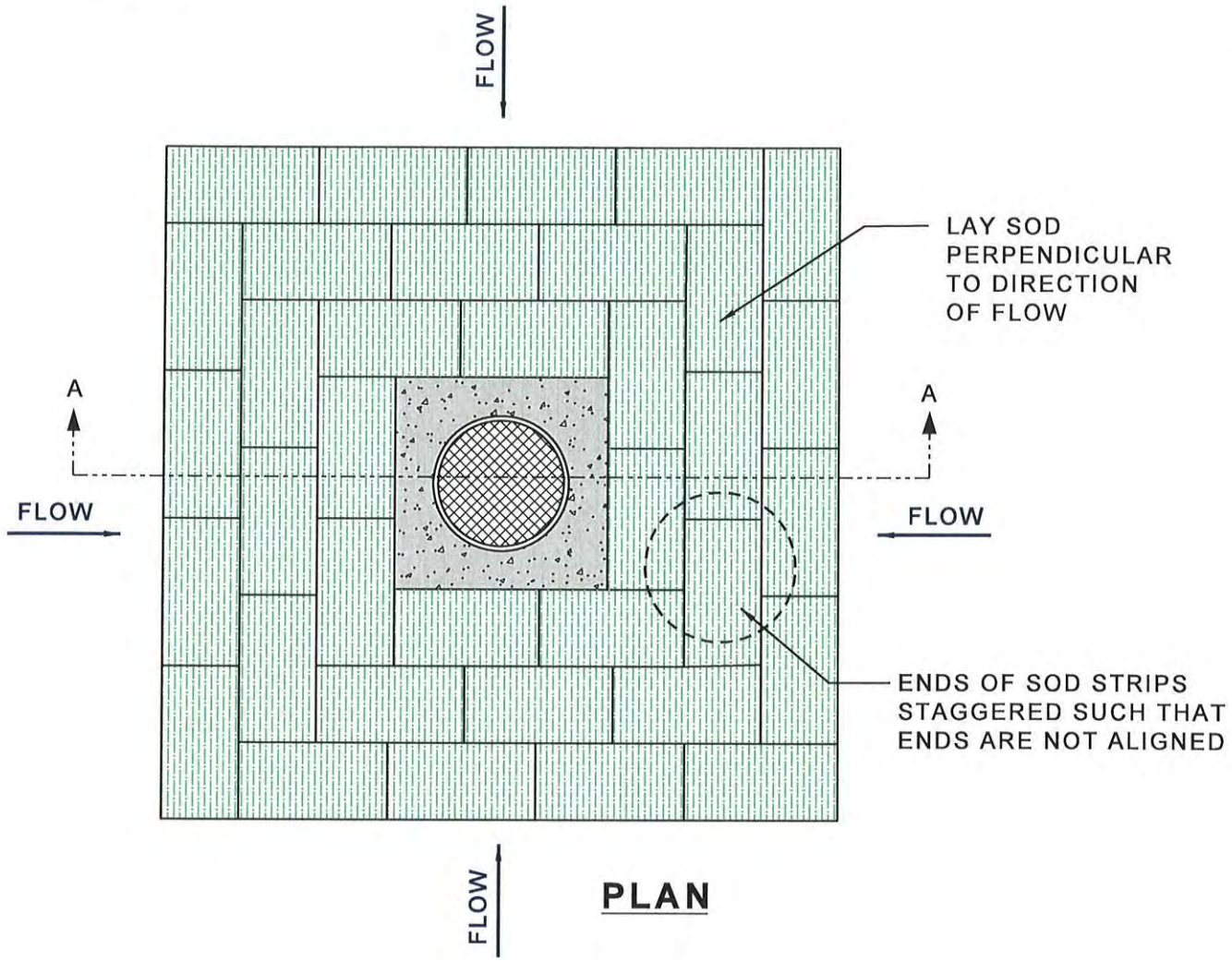
TYPICAL BMP DETAIL

INLET PROTECTION - BLOCK AND GRAVEL

REVISION DATE: October 10, 2011

DRAWING 806-45.02

NEW	REVISIONS			
1/15/04	10/10/11			



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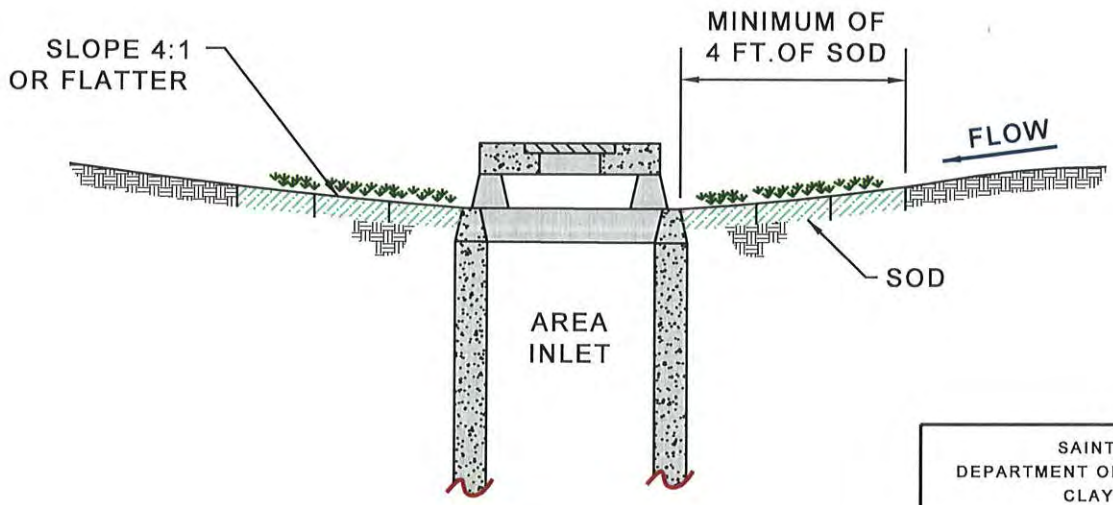


SECTION A-A

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

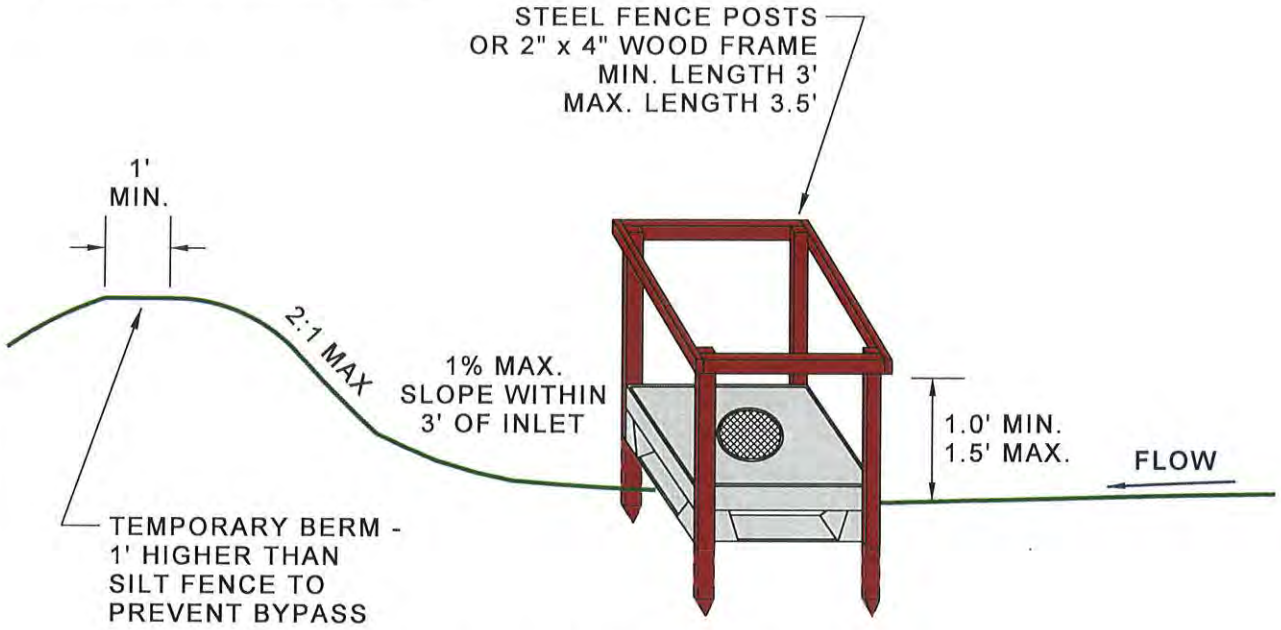
TYPICAL BMP DETAIL

INLET PROTECTION - SOD FILTER

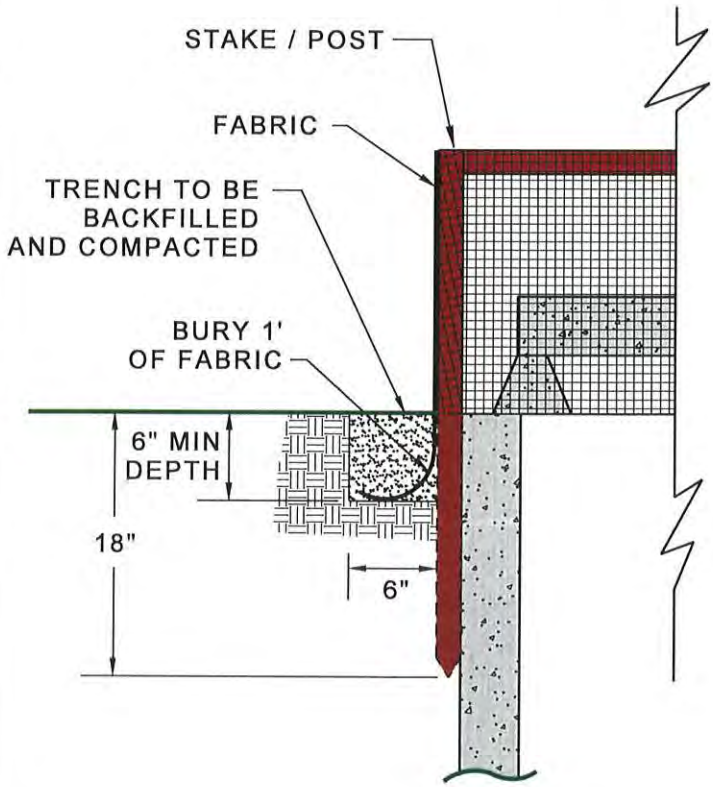
REVISION DATE: October 10, 2011

DRAWING 806-45.06

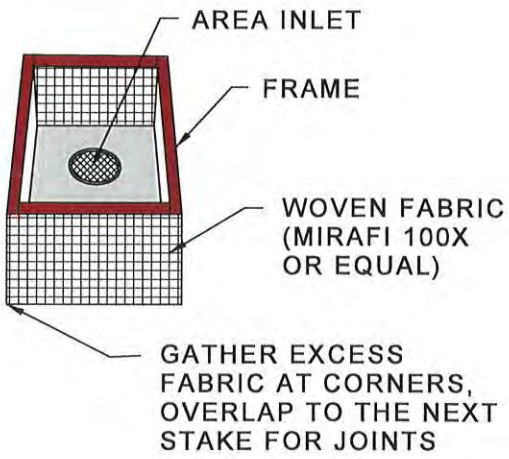
NEW	REVISIONS			
1/15/04	10/10/11			



PERSPECTIVE



ELEVATION



FABRIC

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

INLET PROTECTION - FABRIC DROP

REVISION DATE: October 10, 2011

DRAWING 806-45.12

INLET PROTECTION -
BLOCK & GRAVEL, GRAVEL BAGS, AND FIBER ROLLS

PHYSICAL DESCRIPTION - A temporary sediment control barrier consisting of a short concrete block wall supporting gravel filter media or gravel bags (806-55.17) or fiber rolls (806-65.00) around a storm water inlet designed to prevent sediment from entering the storm sewer. Shallow temporary ponding during and after rainfall should be expected. Use an alternate method if flooding of driving lanes, adjacent property, etc. is possible.

WHERE BMP IS TO BE INSTALLED - At inlets where heavy flows are expected and an overflow capacity is necessary to prevent excessive ponding around the structure.

CONDITIONS FOR EFFECTIVE USE OF BMP

Type of Flow:	Sheet flow and concentrated flow
Contributing Area:	Maximum of 1 acre

WHEN BMP IS TO BE INSTALLED - Immediately after placement of inlet and before construction starts on existing inlets.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Backfill, compact and uniformly grade area around inlet.
- ✓ Install first row of concrete blocks adjacent to the inlet sill, placing one block on its side on each side of inlet. The blocks are placed against the sill for lateral support and to avoid washouts when overflows occur.
- ✓ If needed for lateral support, install 2 x 4 lumber through vertical block openings.
- ✓ Fill vertical block openings with gravel for stability.
- ✓ Place second row of block offsetting one-half block from the first row, in a brick-like pattern.
- ✓ Fill vertical block openings with gravel.
- ✓ Anchor wire screen over horizontal block openings to support gravel.
- ✓ Place gravel around the blocks.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment accumulation to keep it at least 8 inches from the top of the blocks.
- ✓ Remove trash accumulation at inlet.
- ✓ Repair elements to original configuration as needed.

SITE CONDITIONS FOR REMOVAL - Remove after contributing drainage areas have been adequately stabilized. Restore area to grade and vegetate.

TYPICAL DETAIL - 806-45.02 (Single Unit)
806-45.03 (Double Unit)

INLET PROTECTION - FABRIC DROP AND DROP IN FILTER

PHYSICAL DESCRIPTION - A woven fabric barrier braced around an area inlet or drop in type filter designed to prevent sediment from entering the storm sewer. Shallow temporary ponding during and after rainfall should be expected. Use an alternate method if flooding of driving lanes, adjacent property, etc. is possible.

WHERE BMP IS TO BE INSTALLED - At inlets designed to drain a small gently sloping area with maximum grade of 5%. Overflow capacity is limited on standard area inlets.

CONDITIONS FOR EFFECTIVE USE OF BMP

Type of Flow:	Shallow sheet flow.
Contributing Area:	Maximum of 2 cfs flowing to inlet.

WHEN BMP IS TO BE INSTALLED - Immediately after placement of inlet and before construction starts on existing inlets.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Backfill, compact and uniformly grade area around inlet.
- ✓ Construct downstream berm, if required. Rock bags or sand bags may be used to construct berm.
- ✓ Drive posts or wood frame close to inlet sill so overflow will fall directly on the structure and not on unprotected soil.
- ✓ Dig trench around inlet for fabric to be buried.
- ✓ Cut required length of fabric from one roll to eliminate joints. Fasten fabric tightly around posts/frame to enhance stability.
- ✓ Backfill and compact trench.
- ✓ Install drop in type filter per manufacturer specifications.

O&M PROCEDURES

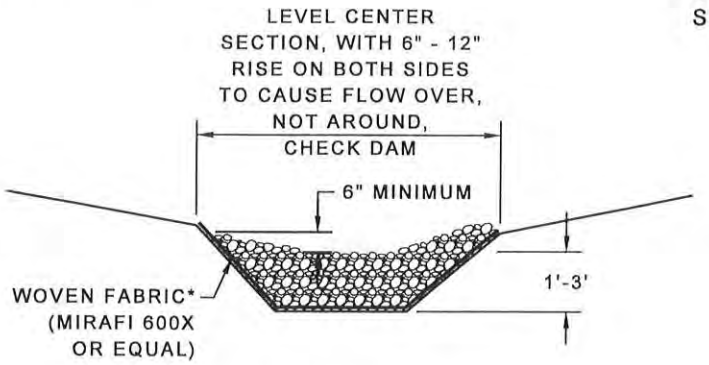
- ✓ Inspect every week and after every storm.
- ✓ Remove trash accumulation and sediment once it reaches depth of 6" at inlet.
- ✓ Replace loose, torn or clogged fabric.
- ✓ Repair any erosion or settlement of temporary berm downstream of inlet.
- ✓ Maintain drop in type filter per manufacturer specifications.

SITE CONDITIONS FOR REMOVAL - Remove after contributing drainage areas have been adequately stabilized. Restore area to grade and vegetate.

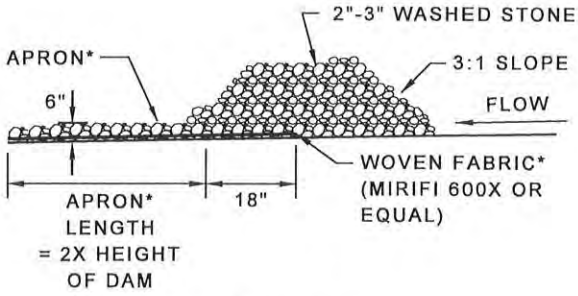
TYPICAL DETAIL - 806-45.12 (Single Unit)
806-45.13 (Double Unit)

NEW	REVISIONS			
1/15/04	10/10/11			

* FABRIC AND APRON INSTALLED ON LAST CHECK DAM IN NEWLY SEEDED AREAS.

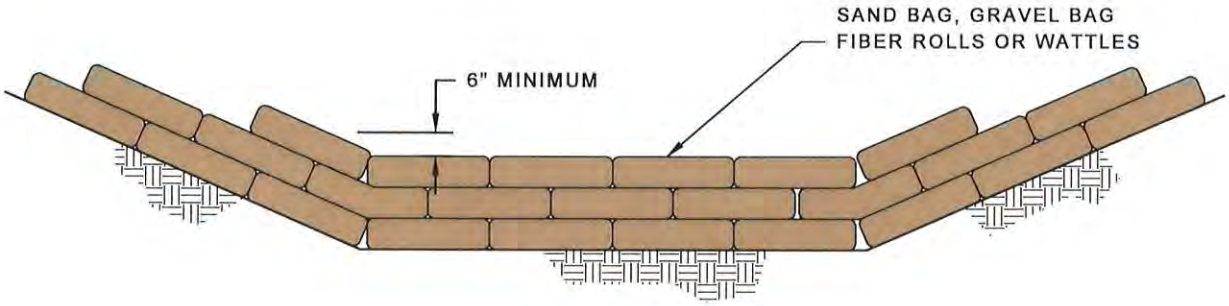


CROSS SECTION

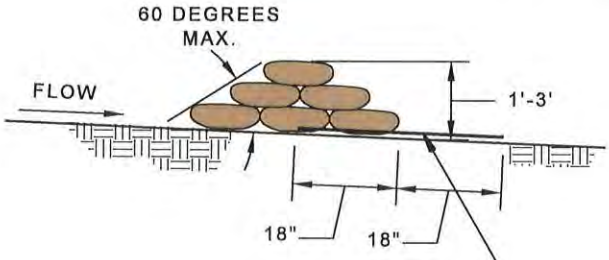


PROFILE

ROCK CHECK DAM



CROSS SECTION



PROFILE

WOVEN FABRIC* (MIRAFI 600X OR EQUAL)

GENERAL NOTES

1. NUMBER OF BAGS AND ARRANGEMENT MAY VARY WITH ON-SITE CONDITIONS.
2. SEE GRAVEL BAG OR WATTLE BMP FOR ADDITIONAL INFORMATION.
3. INSTALL GEOTEXTILE FABRIC PER MANUFACTURER'S SPECIFICATIONS.
4. SEE ADDITIONAL GEOTEXTILE REQUIREMENTS AT THE END OF THE SEDIMENT & EROSION CONTROL MANUAL.

SAND BAG OR GRAVEL BAG FILTER ROLLS OR WATTLES CHECK DAM

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

CHECK DAM

REVISION DATE: October 10, 2011

DRAWING 806-35.00

NON-SEDIMENT POLLUTION CONTROL

PHYSICAL DESCRIPTION - Control measures designed to prohibit chemicals, hazardous materials, solid waste and construction debris from polluting stormwater. Pollutants carried in solution or as surface films on runoff will be carried through most erosion control and sediment capture BMP's. Keeping substances like fuel, oil, asphalt, paint, solvents, fertilizer, soil additives, concrete wash water, solid waste and construction debris from polluting runoff can be accomplished to a large extent through good housekeeping on the site and following the manufacturer's recommendations for disposal.

WHERE BMP IS TO BE INSTALLED - Collection, storage and fueling areas should be located onsite in an area that does not receive a substantial amount of runoff from upland areas and does not drain directly to lakes, creeks, streams, rivers, sewers, groundwater, wetlands, or road ditches.

CONDITIONS FOR EFFECTIVE USE OF BMP

- ✓ Reduction in pollutants depends heavily on how construction personnel perform their duties. An effective management system requires training and signage to promote proper storage, handling and disposal of materials. Follow up observations of actions and inspection of storage areas by management personnel is also required.
- ✓ Plans should contain notes clearly stating requirements for addressing potential pollutants.
- ✓ Fueling areas and storage areas for hazardous materials should be protected by berms or other means of catching leaks or spills.

WHEN BMP IS TO BE INSTALLED - Immediately following installation of construction entrance and wash station.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Place waste receptacles near area of work.
- ✓ Construct protective berm or other devices around fueling and hazardous materials storage areas.
- ✓ Install appropriate signage.
- ✓ Post guidelines for proper handling, storage and disposal of materials, and emergency spill cleanup on site.

O&M PROCEDURES:

- ✓ Inspect activities on regular basis.
- ✓ Inspect storage areas and control devices at least every two weeks and after every storm.
- ✓ Make necessary corrections and repairs.

SITE CONDITIONS FOR REMOVAL - Maintain practices until all construction on the site has been completed.

TYPICAL DETAILS - General pollution prevention notes attached.

POLLUTION PREVENTION PROCEDURES

DESCRIPTION - Building materials and other construction site wastes must be properly managed and disposed of to reduce the risk of pollution from materials such as surplus or refuse building materials or hazardous wastes. Practices such as trash disposal, recycling, proper material handling, and spill prevention and cleanup measures can reduce the potential for storm water runoff to mobilize construction site wastes and contaminate surface or ground water.

APPROPRIATE APPLICATION OF BMP - The proper management and disposal of wastes should be practiced at every construction site to reduce contaminated storm water runoff. Use waste management practices to properly locate refuse piles, to cover materials that might be displaced by rainfall or storm water runoff, and to prevent spills and leaks from hazardous materials that were improperly stored.

Solid Wastes

- Designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.
- Ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas. Contact a local environmental agency to identify these disposal sites.

Pesticides and Fertilizers

- Follow all federal, state, and local regulations that apply to the use, handling, or disposal of pesticides and fertilizers.
- Do not handle the materials any more than necessary.
- Store pesticides and fertilizers in a dry, covered area.
- Construct berms or dikes to contain stored pesticides and fertilizers in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in storage and application areas to immediately contain and clean up any spills that occur.

Detergents - Phosphorous and nitrogen containing detergents are used in wash water for cleaning vehicles. Excesses of these nutrients can be a major source of water pollution. Use detergents only as recommended, and limit their use on the site. Do not dump wash water containing detergents into the storm drain system; direct it to a sanitary sewer or contain it so that it can be treated at a wastewater treatment plant.

1) **HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS**

DO

- Prevent spills
- Use products up
- Follow label directions for disposal
- Remove lids from empty bottles and cans when disposing in trash
- Recycle wastes whenever possible

DON'T

- Don't pour waste into sewers or waterways or on the ground
- Don't pour waste down the sink, floor drain or septic tanks
- Don't bury chemicals or containers, or dispose of them with construction debris
- Don't burn chemicals or containers
- Don't mix chemicals together
- Don't remove the original product label from the container

2) Containers shall be provided for collection of all waste material including construction debris, trash, petroleum products and any hazardous materials to be used onsite. All waste material shall be disposed of at facilities approved for that material.

3) No waste materials shall be buried on-site.

4) Mixing, pumping, transferring or otherwise handling construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any water course, ditch or storm drain.

5) Equipment fueling and maintenance, oil changing, etc., shall be performed only in an area designated for that purpose. The designated area is equipped for recycling oil and catching spills.

6) Concrete wash water shall not be allowed to flow directly to storm sewers, streams, ditches, lakes, etc without being treated. A sump or pit shall be constructed to contain concrete wash water. See additional requirements in the "Concrete Waste Management" section of this manual.

7) If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto soil, the soil shall immediately be dug up and disposed of at a licensed sanitary landfill (not a construction / demolition debris landfill). Spills on pavement shall be immediately absorbed with sawdust, kitty litter or product designed for that purpose and disposed of at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. These materials will be removed from the site and recycled or disposed of in accordance with MoDNR requirements.

8) State law requires the party responsible for a petroleum product spill in excess of 50 gallons to report the spill to Missouri Department of Natural Resources (MoDNR) at (537) 634-2436, as soon as practical after discovery. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area, like a road ditch, that drains into one of the above

O&M PROCEDURES - The only way to be sure that waste management practices are being followed is to be aware of worker habits and to inspect storage areas regularly. Extra management time may be required to ensure that all workers are following the proper procedures. Inspect storage and use areas and identify containers or equipment that could malfunction and cause leaks or spills. Check equipment and containers for leaks, corrosion, support or foundation failure, or other signs of deterioration, and test them for soundness. Immediately repair or replace any that are found to be defective.

TYPICAL DETAILS - Not applicable.

CHECK DAM

PHYSICAL DESCRIPTION - A small dam built within a drainage swale or temporary diversion channel designed to pond water and cause sediment to settle out. Dams can be constructed of rock, sand bags, filter rolls / wattles, triangular dikes, or gravel bags. Silt fence shall not be used to construct check dams.

WHERE BMP IS TO BE INSTALLED - At intervals along drainage swales or channels. The top of the downstream check dam should be level with the base of the upstream check dam.

CONDITIONS FOR EFFECTIVE USE OF BMP

Type of Flow:	Moderate concentrated flow
Contributing Area:	Maximum of 2 acres
Channel Slope:	Maximum of 2%

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation in contributing drainage area; immediately after construction of drainage way.

For additional information see Section 806.30 of St. Louis County's Standard Specification for Highway Construction.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Grade drainage way and compact area of check dam.
- ✓ Place rock, sand bags, filter rolls / wattles or gravel bags to required configuration perpendicular to flow.

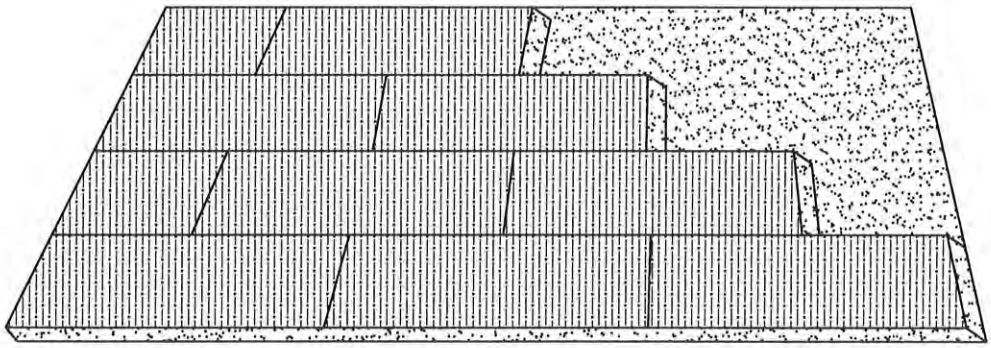
O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove trash and leaf accumulation.
- ✓ Remove sediment buildup once it reaches ½ depth of check dam or 12" depth, whichever is less.
- ✓ Restore dam structure to original configuration to protect banks.
- ✓ Replace rock on upstream face of dam if ponding does not drain in reasonable timeframe.

SITE CONDITIONS FOR REMOVAL - Remove after contributing drainage areas have been adequately stabilized and vegetation is adequately established in drainage way. Regrade and vegetate area of check dam.

TYPICAL DETAIL - 806-35.00

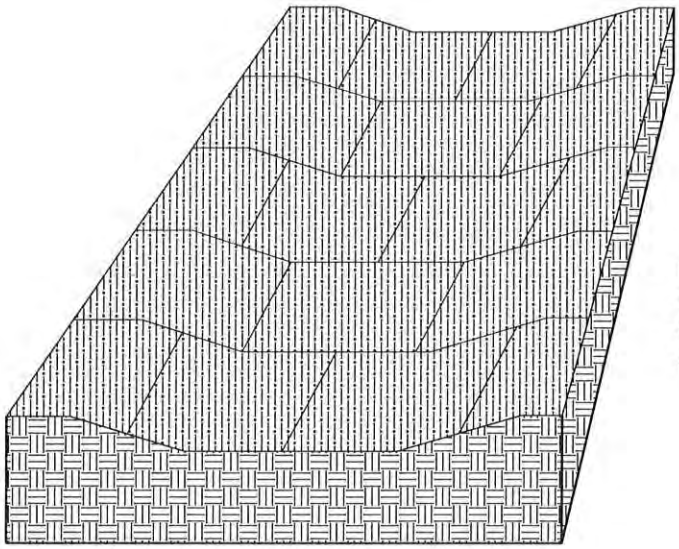
NEW	REVISIONS			
1/15/04	10/10/11			



1) LAY SOD IN A STAGGERED PATTERN WITH STRIPS BUTTED TIGHTLY AGAINST EACH OTHER.

2) ON SLOPES GREATER THAN 4%, USE PEGS OR STAPLES TO FASTEN SOD FIRMLY AT THE CORNERS AND CENTERS.

INSTALLATION OF GRASS SOD



LAY SOD PERPENDICULAR TO THE DIRECTION OF FLOW. USE PEGS OR STAPLES TO FASTEN SOD FIRMLY AT THE CORNERS AND CENTERS.

INSTALLATION OF SOD IN WATERWAYS

NOTE: JUTE MATTING CAN BE USED WHERE ADDITIONAL STABILITY IS REQUIRED.

BERMUDA---803-10.20
ZOYSIA------803-10.10
STRIP--------803-20.00

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

SODDING

REVISION DATE: October 10, 2011

DRAWING 803-10.00

SODDING

PHYSICAL DESCRIPTION - A ¾-inch to 1-inch thick mat of vigorous turf, free of disease, insects and weeds. Sod prevents raindrops from disrupting the soil structure and causing erosion. Sod slows water runoff and acts as a filter when sediment-laden runoff crosses over the sodded area. Sodding-803-10.00, Zoysia-803-10.10, Bermuda-803-10.20, Strip-803-20.00.

WHERE BMP IS TO BE INSTALLED - Typically installed in areas requiring immediate erosion protection, such as swales or detention ponds and as filter strips, around inlets, and adjacent to curbs. Also installed in areas requiring immediate aesthetic appearance or function such as entrances to new subdivision and off site construction areas.

CONDITIONS FOR EFFECTIVE USE OF BMP - Type of Flow: Sheet flow and low concentrated flows with velocities less than 5 fps.

WHEN BMP IS TO BE INSTALLED - Immediately after finish grading, installation of area inlets, and installation of underground services and foundations of new homes.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Finish grade area and remove all debris larger than ½-inch in diameter and concentrated areas of smaller debris.
- ✓ Soil preparation of area to be sodded shall be determined by tests to determine lime and fertilizer requirements. Soil amendments shall be mixed into top 3 to 6 inches of soil by disking or other means.
- ✓ Level and roll soil lightly to provide an even grade and firm the surface. Soil should not be excessively wet or dry.
- ✓ Lay first row of sod perpendicular to the slope or direction of flow. Butt subsequent rows tight against previous rows with strips staggered in brick-like pattern. Fill minor gaps with good soil and roll entire surface to ensure contact.
- ✓ Stake, staple and/or net corners and centers of sod strips as required.
- ✓ Water immediately after installation enough to soak 4 inches into soil without causing runoff.
- ✓ For additional information see Section 803 of St. Louis County's Standard Specification for Highway Construction.
- ✓ Type of sod shall be as specified in the contract or on the approved plans.

O&M PROCEDURES:

- ✓ Water sod daily for 3 weeks - enough to soak 4-inches into soil without causing runoff.
- ✓ Reposition areas of sod that has moved along the slope.
- ✓ Remove sediment accumulations - replace sod if necessary.
- ✓ Repair any eroded areas, replace sod, and stabilize as needed.
- ✓ Do not mow until 3-inches of new growth occur. During the first 4 months, mow no more than ⅓ the grass height.

SITE CONDITIONS FOR REMOVAL - Not applicable.

TYPICAL DETAIL - 803-10.00

MULCH

PHYSICAL DESCRIPTION - A layer of organic material designed to protect exposed soil or freshly seeded areas from erosion by eliminating direct impact of precipitation and slowing overland flow rates. Mulch materials may include, but are not limited to, such things as grass, hay, straw, wood chips, wood fibers, hydro mulch and shredded bark.

- Type I Mulch-Vegetative (includes grass, hay, straw), 802-10.00.
- Type II Mulch-Vegetative with asphalt emulsion (includes grass, hay, straw), 802-20.00.
- Type III Mulch-Vegetative with overspray (includes grass, hay, straw), 802-30.00.
- Type V Mulch-Hydro mulch (includes wood fiber, wood cellulose), 802-50.00.
- Shredded Hardwood Bark Mulch, 802-60.90.
- Wood Chips, (not recycled lumber), 802-60.92.

WHERE BMP IS TO BE INSTALLED - Typically installed on seeded areas for temporary use, and in landscaped areas for permanent use.

CONDITIONS FOR EFFECTIVE USE OF BMP

Type of Flow:	Sheet flow only
Slopes:	See attached chart for types of mulch acceptable as a function of slope length and steepness
Mulching Rates:	See attached table

WHEN BMP IS TO BE INSTALLED - Immediately after grading landscaped areas or seeding other areas.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Install upstream BMP's to protect area to be mulched
- ✓ Rough grade area and remove all debris larger than 1 inch if area is to be vegetated and mowed in the future, larger than 2 inches if area is to be permanently mulched
- ✓ If area is to be seeded, follow requirements of Seeding BMP
- ✓ Spread mulch and anchor by punching it into the ground, using netting, peg and twine, or tacking with liquid binder
- ✓ For additional information see Section 802 of St. Louis County's Standard Specification for Highway Construction.

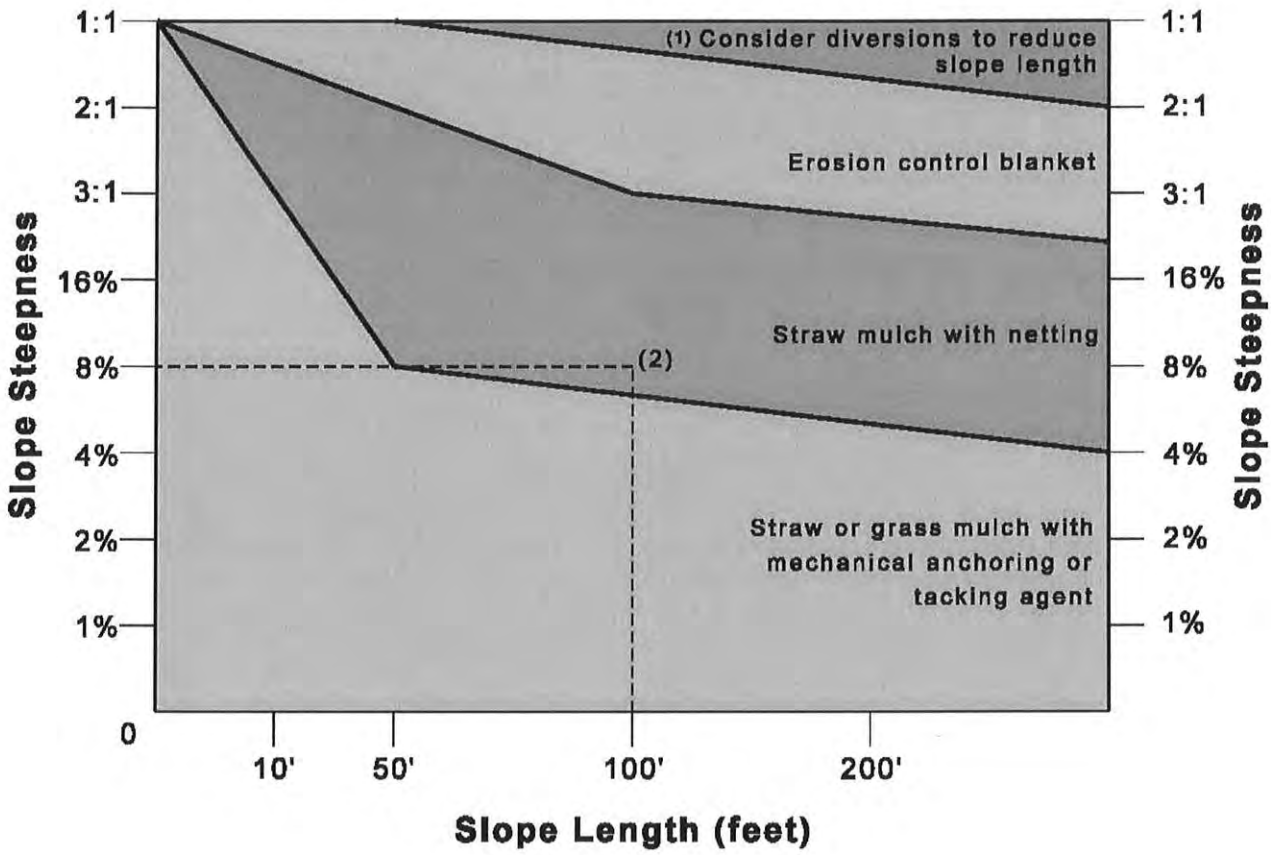
O&M PROCEDURES

- ✓ Inspect every week and after every storm until adequate vegetation is established; annually for permanent mulch.
- ✓ Protect from vehicular and foot traffic.
- ✓ Repair damaged, degraded or eroded areas - reseed as needed and replace mulch.

SITE CONDITIONS FOR REMOVAL - Temporary mulch should be removed when adequate vegetation is established.

TYPICAL DETAILS - Type of mulch required for various slopes and application rates attached.

MULCH SELECTION AS A FUNCTION OF SLOPE



(1) For slopes steeper than 1:1, consider building a diversion above slope to divert water.
(2) Example: An 8% slope, 100 feet long, requires straw mulch with netting

GENERAL MULCH RECOMMENDATIONS TO PROTECT FROM SPLASH AND SHEET FLOW

Material	Rate Per Acre	Requirements	Notes
Straw	2 to 2.5 tons	Dry, unchopped unweathered; avoid weeds	Spread by hand or machine; must be tacked or tied down
Wood Fiber or Wood Cellulose	0.5 to 1 ton		Use with hydro seeder; may be used to tack straw. Do not use in hot, dry weather.
Wood Chips	5 to 6 tons	Air dry. Add nitrogen fertilizer at 12 lb per ton	Apply with blower, chip handler, or by hand. Not for fine turf areas.
Bark	35 cu. yds.	Air dry, shredded, or hammermilled; or chips	Apply with mulch blower, chip handler or by hand. Do not use asphalt tack.

APPENDIX C

Sample Inspection Log Sheets

Stormwater Pollution Prevention Plan Inspection Log

(To be completed on a regular weekly basis and within 24 hours after a storm event with a HALF inch or greater total precipitation)

Inspectors name _____ Project Name and Permit # _____

Qualifications _____

_____

_____

Inspection Date _____ Date Next Inspection Needed_____

Precipitation Amt_____ Signature of Inspector _____

Not Applicable	Satisfactory	Needs Attention	
			General
☐	☐	☐	Is all identifying information for the SWPPP, owner/developer/addresses/contact numbers/etc., current and is the SWPPP signed?
☐	☐	☐	Is the site description still current in all aspects?
☐	☐	☐	Is the list of "Materials Expected to be on Site" within the SWPPP up to date?
☐	☐	☐	Are signs displaying information about the location of permits, SWPPP, construction plans, inspections, and maintenance records visible and posted near the construction entrance?
☐	☐	☐	Have any structural practices that are no longer needed been removed?
			Erosion Control
☐	☐	☐	Are all finished cut and fill slopes adequately stabilized and free of bare areas that may require temporary or permanent stabilization?

☐ ☐ ☐ Do any structural practices show evidence of overtopping, breaks, or erosion? (SEE LIST BELOW)

☐ ☐ ☐ Are all earthen structures seeded and mulched? Is vegetation providing adequate protection?

☐ ☐ ☐ Are slopes currently in excess of the ratios indicated on the site plans? (e.g. >2:1,>3:1)

Pollutant Sources

☐ ☐ ☐ Are there any debris piles with petroleum cans, chemical containers, concrete washouts, or other sources of possible pollution?

☐ ☐ ☐ Are all hazardous material/waste (sanitary and solid) cleanup supplies, containers, and equipment available on site and stored, labeled, disposed of, and marked properly on site map?

Sediment Control

☐ ☐ ☐ Are the perimeter sediment trapping measures in place and functioning properly?

☐ ☐ ☐ Have sediment-trapping practices been installed in the proper location and before extensive grading begins?

☐ ☐ ☐ Is sediment leaving the site and/or damaging adjacent property?

Sediment Control cont.

☐ ☐ ☐ Is there rock or sediment on the public roads or at intersections with public roads? Is the Vehicle Wash Down Area working effectively?

Runoff Conveyance and Control

☐ ☐ ☐ Are all on site drainage channels and outlets adequately stabilized? (Channel Lining , Seeding, other_____: Outlet Stabilization_____)

☐ ☐ ☐ Are all storm sewer inlets protected so that sediment will not enter the system?

☐ ☐ ☐ Is there evidence of increased offsite erosion since project began?

☐ ☐ ☐ Are downstream waterways and property adequately protected from increases in stormwater runoff?

☐ ☐ ☐ Are utility ditches being backfilled and seeded properly?

Maintenance

☐ ☐ ☐ Do seeded areas require fertilizer, reseeding or additional mulch?

☐ ☐ ☐ Do structural practices require repair or clean out?

☐ ☐ ☐ Have temporary structural practices that are no longer needed been removed?

☐ ☐ ☐ IS ALL REQUIRED INFORMATION UP TO DATE AND LISTED ON SITE PLANS?

Below are checklists of the siltation control mechanisms expected to be used on site, followed by a list of some of the most commonly used siltation control mechanisms. Please review all siltation control mechanisms that are on site and see that they are being used according to their specifications; this includes but is not limited to their maintenance and proper installation.

Siltation Control Mechanisms expected to be used on site:

☐ ☐ ☐ Dust Control

☐ ☐ ☐ Wash Down Station

☐ ☐ ☐ Construction Entrance

☐ ☐ ☐ Silt Fence

☐ ☐ ☐ Non-Sediment Pollution Control

☐ ☐ ☐ Pollution Prevention Procedures

☐ ☐ ☐ Inlet Protection- Fabric Drop

Not Applicable	Needs Attention	Satisfactory	
☐	☐	☐	Sodding

Other BMP's that are commonly used:

☐	☐	☐	Check Dam
☐	☐	☐	Erosion Control Blankets
☐	☐	☐	Grass Lined Channel
☐	☐	☐	Mulching
☐	☐	☐	Seeding
☐	☐	☐	Sediment Basin
☐	☐	☐	Construction Road
☐	☐	☐	Rock Outlet
☐	☐	☐	Filter Strip
☐	☐	☐	Diversion- Ridge Channel
☐	☐	☐	Inlet Protection- Block and Gravel
☐	☐	☐	Inlet Protection- Gravel and Wire Mesh
☐	☐	☐	Inlet Protection- Sod Filter
☐	☐	☐	Bonded Fiber Matrix
☐	☐	☐	Diversion- Storm Sewer
☐	☐	☐	Grading Terraces
☐	☐	☐	Gravel Bags

☐	☐	☐	Level Spreader
☐	☐	☐	Sediment Trap
☐	☐	☐	Soil Binders
☐	☐	☐	Straw Bale Barriers
☐	☐	☐	Stream Bank Protection
☐	☐	☐	Surface Roughing
☐	☐	☐	Temporary Slope Drain
☐	☐	☐	Temporary Stream Crossing (You WILL NEED a 404 permit from COE)
☐	☐	☐	Other: _____
☐	☐	☐	Other: _____

Make Notes and Changes in development on Erosion and Sediment Control Plan Drawing Attached as Appendix E.

Problems Noted and Corrective Actions Recommended

Corrective Actions Taken with Date of Action

Signature of Inspector _____ **Date**

APPENDIX D

Form H

Notice of Termination

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)

FORM H – REQUEST FOR TERMINATION OF A GENERAL PERMIT

UNDER MISSOURI CLEAN WATER LAW

1.00 TYPE OF GENERAL PERMIT REQUESTED TO BE TERMINATED

1.10 PERMIT NUMBER

MO -

2.00 FACILITY

NAME		COUNTY	
ADDRESS	CITY	STATE	ZIP CODE

3.00 OWNER

NAME	E- MAIL	PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP CODE

4.00 CONTINUING AUTHORITY

NAME		PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP CODE

5.00 REASON FOR TERMINATION REQUEST: (CHECK ONE)

- ☐ For land disturbance sites, area is stabilized by seeding, mulching, sodding, paving, or other means, no further land disturbance activities are planned, all building construction (commercial or residential) is completed, and construction equipment removed.
- ☐ For industrial facilities, site activities have ceased and site closed and no significant materials remain exposed to storm water.
- ☐ For any type of site, a site specific permit was obtained.
- ☐ Other reason (specify) _____

6.00 I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE TERMINATION REQUEST, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NO. (AREA CODE)
SIGNATURE	DATE SIGNED

APPENDIX F

MDNR PERMIT

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)

FORM H – REQUEST FOR TERMINATION OF A GENERAL PERMIT

UNDER MISSOURI CLEAN WATER LAW

1.00 TYPE OF GENERAL PERMIT REQUESTED TO BE TERMINATED

1.10 PERMIT NUMBER

MO -

2.00 FACILITY

NAME		COUNTY	
ADDRESS	CITY	STATE	ZIP CODE

3.00 OWNER

NAME	E- MAIL	PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP CODE

4.00 CONTINUING AUTHORITY

NAME		PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP CODE

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NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NO. (AREA CODE)
SIGNATURE	DATE SIGNED

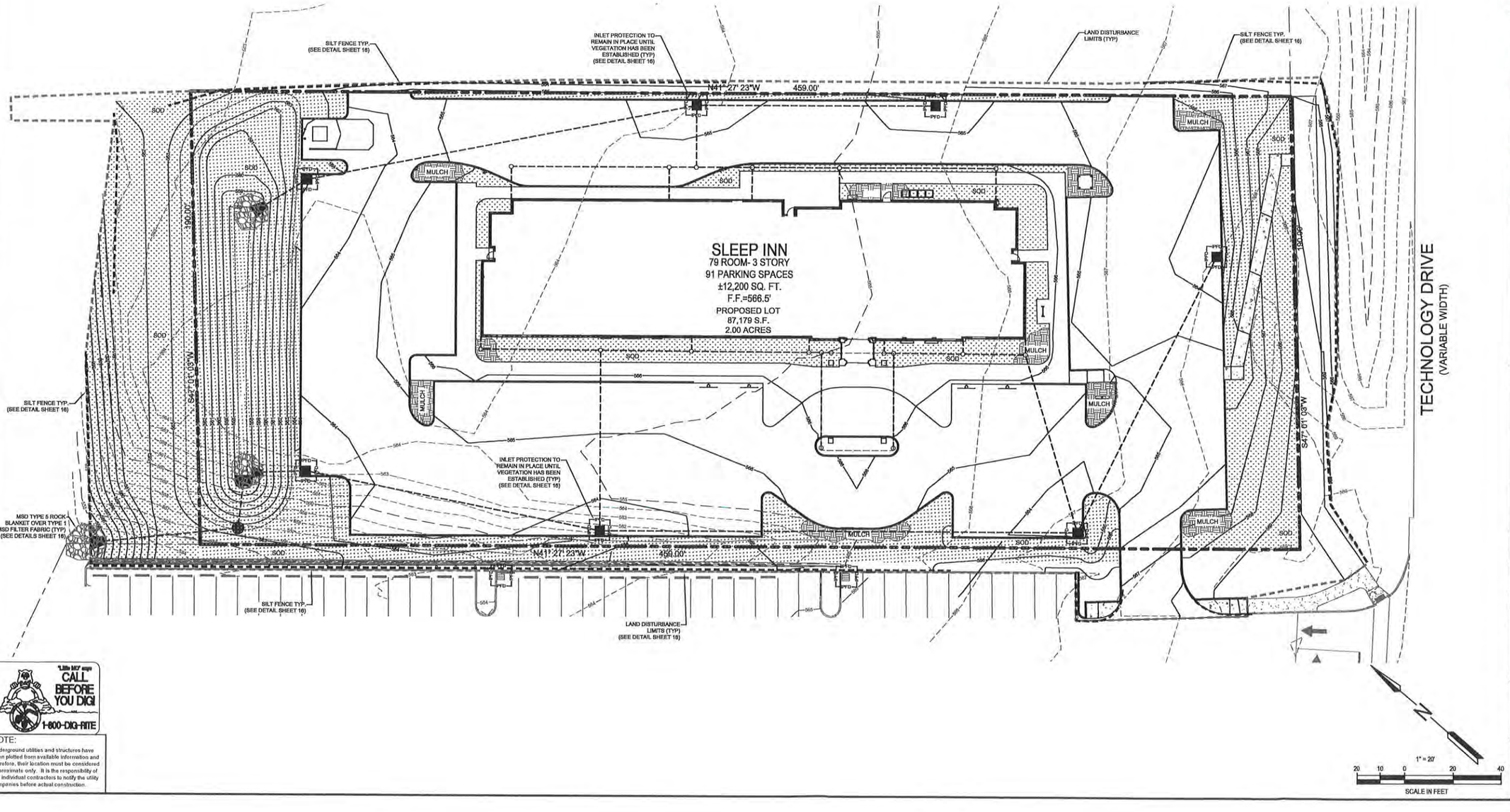
NOTES:

1. REFER TO THE EROSION CONTROL DETAILS FOR CONSTRUCTION METHODS OF THESE DEVICES.
2. CONTRACTOR MUST WASH DOWN ALL VEHICLES DURING CONSTRUCTION. CONTRACTOR SHALL KEEP ALL MUD AND DEBRIS OFF OF ALL CITY AND COUNTY STREETS.
3. LOCATION AND FINAL DIMENSIONS OF ALL WASHDOWN AND STAGING AREAS SHALL BE BY THE GENERAL CONTRACTOR, AND SHALL BE IN COMPLIANCE WITH BEST MANAGEMENT PRACTICES FOR STORMWATER POLLUTION PREVENTION.
4. ADDITIONAL SILTATION CONTROL SHALL BE INSTALLED AS REQUIRED BY THE CITY OF O'FALLON.
5. G.C. TO BE AWARE A LAND DISTURBANCE PERMIT WILL BE REQUIRED. SITEPLAN/PLAT APPROVAL IS NOT TO BE CONSTRUCTED AS APPROVAL OF A LAND DISTURBANCE PERMIT.
6. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN, AND THE PERSON ISSUED A LAND DISTURBANCE PERMIT ASSUMES AND ACKNOWLEDGES RESPONSIBILITY FOR COMPLIANCE WITH THE APPROVED STORM WATER POLLUTION PLAN AT THE SITE OF THE PERMITTED ACTIVITY.
7. PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES WILL BE REQUIRED.
8. SOD SHALL BE PLACED IN THE R.O.W. ALONG MID RIVERS MALL DRIVE AND HIGHWAY N. IF SIGN COMPANY DISTURBS NEW SOD, THE CONTRACTOR SHALL REPLACE THE SOD TO THE CITY OF O'FALLON SPECIFICATIONS.
9. ALL EROSION CONTROL MEASURES MUST ABIDE BY THE CITY OF O'FALLON SEDIMENT AND EROSION CONTROL SPECIFICATIONS AND GUIDELINES.
10. THE GENERAL CONTRACTOR SHALL PROVIDE A SCHEDULE OF SEQUENCE FOR THE CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES TAILORED TO THE SPECIFIC EROSION CONTROL PHASE DEPICTED ON THIS SHEET.

SILTATION CONTROL PLAN LEGEND

SYMBOL

- SYNTHETIC FILTER BARRIER — DETAIL ESC-5 SHEET 16
- VEHICLE WASHDOWN AREA & CONSTRUCTION ENTRANCE — DETAIL ESC-4 SHEET 16
- INLET PROTECTION FABRIC DROP — DETAIL ESC-14 SHEET 16
- LAND DISTURBANCE LIMITS
- SOD
- MULCH
- OFF STREET GRAVEL PARKING



"Little Mo" says CALL BEFORE YOU DIG! 1-800-DIG-RITE

NOTE:
Underground utilities and structures have been plotted from available information and therefore, their location must be considered approximate only. It is the responsibility of the individual contractors to notify the utility companies before actual construction.

PROJECT TITLE

SLEEP INN

NEW PROJECT FOR
79 UNIT
SLEEP INN HOTEL
1147 TECHNOLOGY DR
O'FALLON, MO

SLONE ARCHITECTS
1200 E. WOODHURST DR.
SUITE J-100
SPRINGFIELD, MO 65804
P: 417.887.4575
F: 417.887.5060
SLONEARCHITECTS.COM

PREMIER CIVIL ENGINEERING
308 TCW Court
Lake Saint Louis, MO 63367
Phone: (314) 925-7444 Fax: (314) 925-7457
Missouri Certificate of Authority # E-2011000031
Missouri Certificate of Authority # LS-2012007849

ENGINEERS AUTHENTICATION

STEVE MARION P.E.
ENGINEER
PE2009027695

Developer / Owner Information
GRANITE HOTELS, LLC
74 VIA PREMINENTA
SUNRISE BEACH, MO 65079

FINAL EROSION CONTROL PLAN

P+Z No.
APPROVED
City No.

Sheet Number:
8

PCE PROJECT NO. 147401

\\Vault-pcivault\CIVIL 3D PROJECTS\2014\147401 SLEEP INN OFALLON\COMMERCIAL\CONSTRUCTION DRAWINGS\147401 - EROSION CONTROL PLAN.dwg

NOTES:

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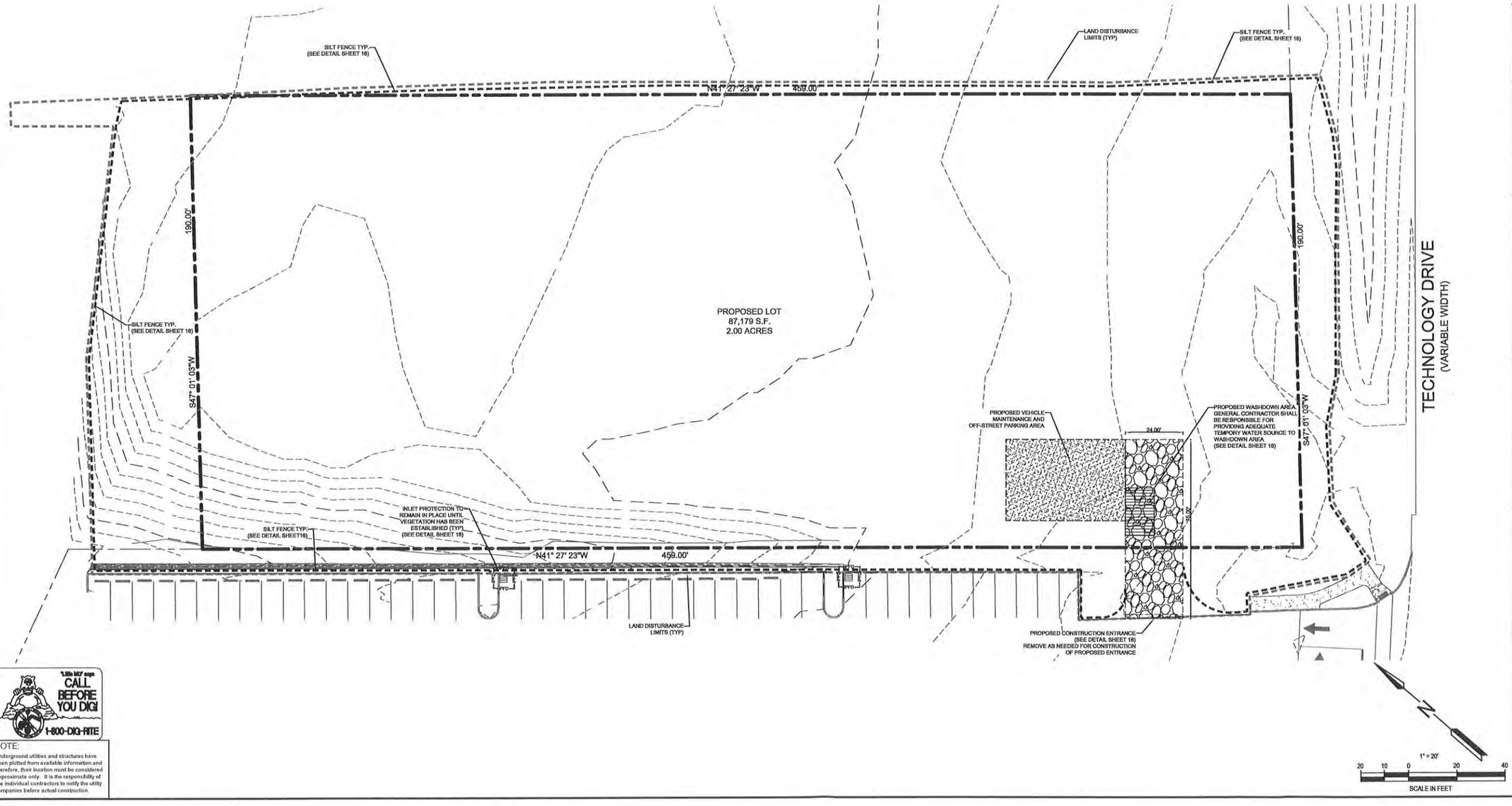
SILTATION CONTROL PLAN LEGEND

SYMBOL	
	SYNTHETIC FILTER BARRIER DETAIL ESC-5 SHEET 16
	LAND DISTURBANCE LIMITS
	VEHICLE WASHDOWN AREA & CONSTRUCTION ENTRANCE DETAIL ESC-4 SHEET 16
	OFF STREET GRAVEL PARKING
IPD IPD IPD	INLET PROTECTION FABRIC DROP DETAIL ESC-14 SHEET 16



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Phone: (314) 925-7457 Fax: (314) 925-7444
Missouri Certificate of Authority #: E-2011000031
Missouri Certificate of Authority #: LS-2012007849

ENGINEERS AUTHENTICATION
The responsibility for professional engineering lies only on the project or notary limited to the set of plans authenticated by this seal, signature, and date hereunder attached. Responsibility is disclaimed for all other engineering plans involved in the project and specifically excludes revisions after the date hereon rendered.

STEVE MARION P.E.
ENGINEER
PE2008007195

Developer / Owner Information
GRANITE HOTELS, LLC
74 VIA PREMINENTA
SUNRISE BEACH, MO 65079

INITIAL EROSION CONTROL PLAN

P-I-Z No.
APPROVED
City No.

Sheet Number:
6
PCE PROJECT NO. 147401

\\Vault-pc\vault\CIVIL 3D PROJECTS\2014\147401 SLEEP INN OFALLON\COMMERCIAL\CONSTRUCTION DRAWINGS\147401 - INITIAL EROSION CONTROL PLAN.dwg

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SILTATION CONTROL PLAN LEGEND

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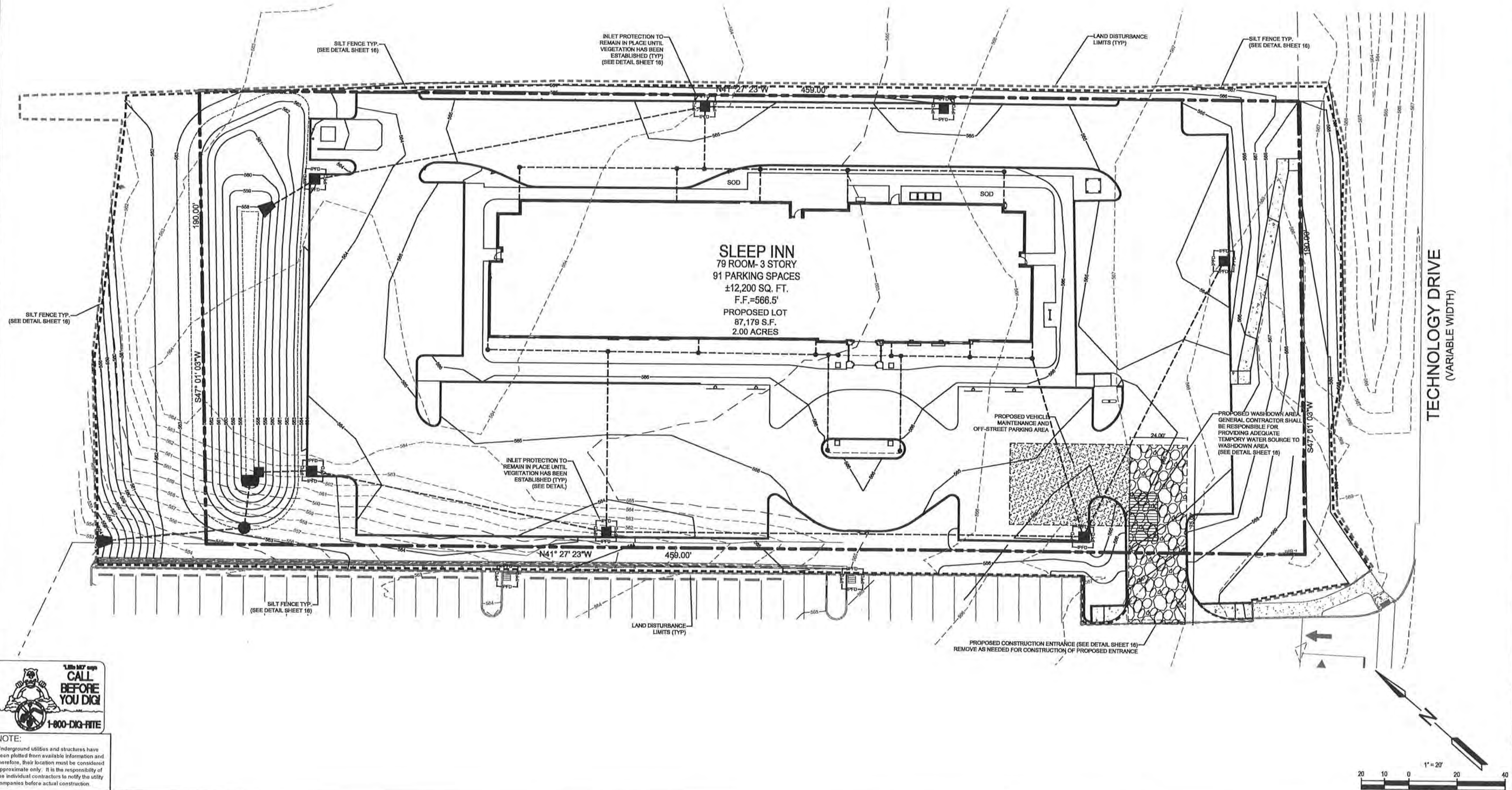

\\Vault-pc\vault\CIVIL 3D PROJECTS\2014\147401 SLEEP INN OFALLON\COMMERCIAL\CONSTRUCTION DRAWINGS\147401 - INTERMEDIATE EROSION CONTROL PLAN.dwg

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ENGINEERS AUTHENTICATION

STEVE MARION P.E.
ENGINEER

Developer / Owner Information
GRANITE HOTELS, LLC
74 VIA PREMINENTA
SUNRISE BEACH, MO 65079

INTERMEDIATE EROSION CONTROL PLAN

P+Z No.
APPROVED
City No.

Sheet Number:
7

PCE PROJECT NO. 147401