# STORMWATER POLLUTION PREVENTION PLAN

Designed in accordance with the Missouri State Operating Permit

# Lee's Summit Market Plaza

### **Owner/Operator:**

City of Lee's Summit, MO 220 SE Green St., Lee's Summit, MO 64063 816.969.1800

### **Prepared by:**

Olsson 1301 Burlington Street, Suite 100 North Kansas City, MO 64116 816.361.1177

October 2023

SWPPP Certification (to be signed by permittee):

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Title:
Signature:	Date:
	olsson

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# **SECTION 1**

**Delegation Statements and Contractor Certifications** 

Delegation Statement(s) for applicable personnel should be kept in this section. Contractor Certification Statements that contain contact information for those responsible for specific activities on the project should also be kept here.

### **Delegation of Authority**

I,\_\_\_\_\_, hereby designate the person(s) or specifically described position(s) below to be a duly authorized representative(s) for the purpose of overseeing compliance with environmental requirements, including the Missouri State Operating Permit.

Duly Authorized Representative:

Name or Position:	
Company:	
Address:	
Phone:	
Email:	
<b>_</b>	

By signing the certification below, I certify that I meet the signing requirements J.5.a of the Missouri State Operating Permit, 40 CFR 122.22 and 10 CSR 20-6.010 for this project.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Permittee Name:	
Company:	
Title:	
Signature:	
Date:	

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Permittee Name:	
Company:	
Title:	
Signature:	
Date:	

Project Name:	
Permit Number:	

Project Owner: \_\_\_\_\_

As a contractor/subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review upon request.

Each contractor/subcontractor engaged in activities at the construction site that could impact stormwater should be identified and sign the following certification statement:

# I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the practices described in the SWPPP.

Service Provided:	
Company Name:	
Address:	
Telephone:	
Representative:	
Title:	
Signature:	
Date:	

Project Name:	
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Service Provided:	
Company Name:	
Address:	
Telephone:	
Representative:	
Title:	
Signature:	
Date:	

# **SECTION 2**

Permit Authorization & Missouri State Operating Permit

Permit authorization from the MDNR and a copy of the Missouri State Operating Permit will be kept in this section.

The Application for Land Disturbance Stormwater General Permit was completed through the Missouri Gateway for Environmental Management at <a href="https://dnr.mo.gov/mogem/">https://dnr.mo.gov/mogem/</a>.

# SECTION 3

SWPPP Narrative

# **SWPPP NARRATIVE CONTENTS**

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# **1.0. PROJECT CONTACT INFORMATION**

Parties directly related to the compliance of the site are listed below. Any blank contacts were not known at the time of SWPPP creation and should be filled in when contractors are assigned.

#### **Owner/Operator**

City of Lee's Summit, Missouri
Nikia Chapman-Freiberger
220 SE Green St
Lee's Summit, MO 64063
816.969.1800
nikia.chapman-
freiberger@citvofls.net

# SWPPP Preparer

Olsson

Arman Romanov 1301 Burlington Street North Kansas City, MO 64116 816.361.1177 aromanov@olsson.com

Best Management Practices (BMP) Installation

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		_
		-

**SWPPP** Inspections

**General Contractor** 

BMP Maintenance			

Should any of the above personnel change, tables will be updated and noted on the Amendment Log found in Section 7 and additional Contractor Certification Sheets will be added to Section 1 of this SWPPP.

# 2.0. INTRODUCTION AND DEFINITIONS

This document was created to comply with the Missouri State Operating Permit (MO-RA) in compliance with the Missouri Clean Water Law (Chapter 644 R.S. Mo. as amended) and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress). Relevant local ordinances are incorporated in Section 8 of this SWPPP. Permit language incorporated into this document will be denoted by *italics*.

The purpose of the SWPPP is to ensure the design, implementation, management, and maintenance of best management practices (BMPs) in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of the general permit.

## 2.1. ACRONYMS

AST	aboveground storage tank
BMP	best management practice
MDNR	Missouri Department of Natural Resources
ESA	environmental site assessment
ESC	erosion and sediment control
MO-RA	Missouri State Operating Permit
MS4	municipal separate storm sewer system
NRC	National Response Center
REC	recognized environmental condition
SPCC	spill prevention control and countermeasures plan
SVOC	semi-volatile organic compound
SWPPP	stormwater pollution prevention plan
TMDL	total maximum daily load
тос	total organic carbon
VOC	volatile organic compound

## **2.2. DEFINITIONS**

#### **Department**

The Missouri Department of Natural Resources

#### Duly Authorized Representative

The representative authorized by the permittee. The duly authorized representative is responsible for the overall operation of the facility from which the discharge occurs. The authorization is made in writing by the permittee and is submitted to the director.

#### <u>Permit</u>

Missouri State Operating Permit (MO-RA)

#### Signatory Requirements

All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified (MDNR 2017).

- Signatory for a corporation: an individual having responsibility for the overall operation of the regulated facility or activity, such as the plant manager, or by an individual having overall responsibility for environmental matters at the facility.
- Signatory for a partnership or sole proprietorship: a general partner or the proprietor, respectively.
- Signatory for a municipal, state, federal, or other public facility: either a principal executive officer or an individual having overall responsibility for environmental matters at the facility.

Documents submitted to the MDNR should be certified by the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

# **3.0. SITE DESCRIPTION**

Project Name: Lee's Summit Market Plaza

**Project Location**: SW ¼ of Section 5, Township 47N, Range 31W, Lee's Summit, Jackson County, MO 64063

Total project area: 9.06 acres

Area to be disturbed: 9.06 acres

Anticipated start date: October 2023

Anticipated end date: June 2025

Past use: Public Streets, Commercial Use.

Endangered Species Information: Though Gray Bats (Myotis grisescens), Indiana Bats (Myotis sodalis), Northern Long-Eared Bats (Myotis septentrionalis), Tricolored Bats (Perimyotis Subflavus) and Monarch Butterflies (Danaus plexippus) were noted in an IPaC inquiry with U.S. Fish and Wildlife Services, no critical habitats are located within the project limits.

An online Wildlife Heritage Review was conducted using the Missouri Department of Conservation's website. As in Endangered Species Information section, above, the review was classified as Level Two Report stating potential presence of endangered species such as Indiana Bats and Northern Long-Eared Bats and providing construction-related recommendations. The IPaC inquiry and Wildlife Heritage Review are provided in Section 10 of this binder.

Existing conditions: The existing site is a previously developed land with portions of open space areas. It was utilized mostly for commercial uses. It is bordered by SE 3<sup>rd</sup> St. to the south,SE Green St. to the west, SE Johnson St. to the east, and SE 2<sup>nd</sup> St. to the north. Limits of proposed construction will also extend across private parking lot bounded by SE Johnson St., SE Eastridge St, Wilson St. and SE 2<sup>nd</sup> St. The site is mostly Urban Land with portions of Arisburg-Urban land complex and Udarents-Urban land-Sampsel complex. Refer to the soils map in SWPPP binder Section 4 for additional information about the location and types of soils. Stormwater from the site is being captured by public storm sewer network along SE 2<sup>nd</sup> St. and SE Green St, which collects it all in an elliptical RCB that runs across the site. The RCB eventually discharges into an open channel at NW corner of Eastridge & Wilson St. intersection. The site is within East Fork Little Blue River watershed.

Description of Construction Activity: Phases of this project will include mobilization, installation of erosion control devices, utility installation, grading, paving operations, building construction, and final site stabilization. General drainage patterns will be maintained. Stormwater from majority of the site will be collected in a storm sewer and detained by proposed underground storage detention basin, which will eventually release the flow into the relocated public RCB pipe along SE 2<sup>nd</sup> St.

EROSION CONTROL PHASING CHART					
PROJECT PHASE		BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:	
A - PRE- CONSTRUCTION	A1	CONSTRUCTION ENTRANCE w/ CONCRETE WASHOUT	В	INSTALL PER APWA DETAIL ESC-01	
	A2	CURB INLET PROTECTION	В	INSTALL PER APWA DETAIL ESC-06	
	A3	SILT FENCE	В	INSTALL PER APWA DETAIL ESC-03	
	A4	ROCK DITCH CHECK	В	INSTALL PER APWA DETAIL ESC-10	
	A5	MULCH BERM	В	INSTALL PER APWA DETAIL ESC-04	
B - CONSTRUCTION	B1	INLET PROTECTION	В	INSTALL PER APWA DETAIL ESC-07	

#### Table 1a. Anticipated Sequence of Construction – Private Site and Public Utilities

#### Table 1b. Anticipated Sequence of Construction – Public Streets

EROSION AND SEDIMENT CONTROL STAGING CHART					
PROJECT STAGE	EROSION CONTROL PLAN BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:	
1A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE AND STAGING AREA	PHASE 1C	SEE EROSION CONTROL NOTES FOR DETAILS	
	2	INSTALL SILT FENCE	PHASE 1D	INSTALL SILT FENCE AS INDICATED ON PLANS	
1B - CLEARING & GRUBBING		STOCKPILE TOPSOIL	N/A	SEED STOCKPILE AREA AS SOON AS	
				STOCKPILING ACTIVITIES HAVE CEASED	
	N/A	CONCRETE WASHOUT	PHASE 1D	TO BE INSTALLED PRIOR TO POURING CONCRETE.	
				SEED WASHOUT AREA AS	
				SOON AS CONCRETE CONSTRUCTION HAS CEASED.	
1C - ROAD CONSTRUCTION	N/A	EROSION AND SEDIMENT CONTROL	N/A	PERFORM MAINTENANCE ON ALL EROSION CONTROL	
				MEASURES FOR ALL PREVIOUS PHASES AS NECESSARY.	
	N/A				
	3	INSTALL INLET PROTECTION	PHASE 1D	INSTALL INLET PROTECTION AS INDICATED ON PLANS	
	4	INSTALL DITCH CHECKS	PHASE 1D	INSTALL DITCH CHECKS AS INDICATED ON PLANS	
	N/A	BEGIN GRADING FOR ROAD IMPROVEMENTS	N/A	SEE ROADWAY PLAN AND PROFILES FOR DETAILS	
1D - FINAL STABILIZATION	N/A	STREET CLEANING	N/A	SHOVELING, BROOMING, SWEEPING, AND/OR VACUUMING	
				TO REMOVE TRACK-OUT OF SEDIMENT FROM PAVED	
				PUBLIC ROADS	

#### Table 2. Outfalls.

#	Туре	Location	Drainage Area
1	Existing RCB	N: 1001331.9684' E: 2824806.9827'	132.96 ac.

Receiving Waters: The receiving waters for the site are East Fork Little Blue River.

# 4.0. EROSION AND SEDIMENT CONTROLS

Temporary BMPs used during active construction of the project will be listed below. Specific erosion and sediment control requirements found in the permit are also located here and should be addressed in the erosion and sediment control (ESC) plan sheets located in Section 5 of this SWPPP.

#### Table 3. Anticipated BMPs.

BMP		
Site Preparation		
SWPPP Sign	$\boxtimes$	
Construction entrance	$\boxtimes$	
Wash rack	$\boxtimes$	
Temporary stream crossing		
Surface roughening		
Tree protection		
Erosion Control		
Dust control	$\boxtimes$	
Mulch	$\boxtimes$	
Erosion control blankets		
Temporary seeding		
Permanent seeding		
Hydroseeding		
Sodding		
Slope protection		

ВМР			
Sediment Control			
Silt fence	$\boxtimes$		
Curb inlet protection	$\boxtimes$		
Area inlet protection			
Filter berm	$\boxtimes$		
Diversion berm			
Rock ditch check	$\boxtimes$		
Sediment trap			
Sediment basin			
Pollution Prevention			
Stockpile	$\boxtimes$		
Concrete washout	$\boxtimes$		
Solid waste management	$\boxtimes$		
Sanitary waste management	$\boxtimes$		
Material staging areas	$\boxtimes$		

Specification and detail sheets can be found in Section 6 of this SWPPP.

During construction, if additional BMPs not listed in Table 3 are required, the SWPPP will be amended. The BMP specification and detail sheets of the new BMPs should be added to Section 6 of this SWPPP, the locations noted on the BMP Tracking Map located in Section 5, and the change noted in the Log of Amendments located in Section 7 of this SWPPP.

## 4.1. EROSION AND SEDIMENT CONTROL DESIGN REQUIREMENTS

ESC plans for the project can be found in Section 5 of this SWPPP. Excerpts of these plans will be used as the basis of the BMP Tracking Map located in Section 5 of this SWPPP.

Ensure the design, installation and maintenance of effective erosion and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:

- a. Control stormwater volume and velocity within the site to minimize soil erosion;
- b. Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
- c. Minimize the amount of soil exposed during construction activity;
- d. Minimize the disturbance of steep slopes;
- e. Minimize sediment discharges from the site. Design, install and maintain erosion and sediment controls that address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the site;
- f. Provide and maintain natural buffers around surface waters as detailed in 8.f (of the permit), direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
- g. Minimize soil compaction and, unless infeasible, preserve topsoil.
- h. Capture or treat a 2-year, 24-hour storm event. A 2-year, 24-hour storm event shall be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at <u>http://hdsc.nws.noaagov/hdsc/pfds/</u> (MDNR 2017).

# 4.2. TREE AND VEGETATION PRESERVATION

Areas where existing trees and vegetation are preserved on-site can be found on the ESC plan sheets located in Section 5 of this SWPPP.

### 4.3. NATURAL BUFFERS

When applicable, natural buffers will be identified on the ESC plans located in Section 5 of this SWPPP.

For surface waters of the state, defined as "all waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common, located on or adjacent to the site, the permittee must:

- a. Provide and maintain a 50-foot undisturbed natural buffer;
- b. Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or

- c. If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
- d. Where you are retaining a buffer of any size, the buffer should be measured perpendicularly from any of the following points, whichever is further landward from the water:
  - a. The ordinary high water mark of the water body, defined as the line on the shore established by fluctuations of the water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris; or
  - b. The edge of the stream or riverbank, bluff, or cliff, whichever is applicable (MDNR 2017).

### 4.4. STABILIZATION REQUIREMENTS

The permit requires specific stabilization schedules depending on activity level and slope characteristics.

#### Table 4. Stabilization Requirements.

Situation	Stabilization Requirement
Soil-disturbing activities that have temporarily ceased on any portion of the site and will not resume for more than 14 calendar days.	Construct BMPs to establish interim stabilization; stabilization must be initiated immediately and completed within 14 calendar days. *
Soil-disturbing activities that have permanently ceased.	Final stabilization of disturbed areas must be initiated immediately and completed within 14 calendar days. *
Slopes with a greater than 3:1 ratio or slopes greater than 3% and greater than 150 feet in length.	Establish interim stabilization within 7 days of ceasing operations.

\*Allowances to the 14-day completion period for temporary and final stabilization may be made because of weather and equipment malfunctions. The use of the allowances shall be documented in the SWPPP (MDNR 2017) and can be found in Section 5 of this SWPPP.

# **5.0. STORMWATER MANAGEMENT CONTROLS**

When applicable, permanent stormwater management BMPs will be listed and described here. Design specifications and details can be found in Section 6 of this SWPPP if applicable. These BMPs will remain in place to provide for stormwater management after construction has completed and the permit terminated.

Table 5 below lists permanent stormwater management BMPs proposed on Lee's Summit Market Plaza.

Table 5	. Post	Construction	Stormwater	Management	<b>BMPs</b>
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Туре	Location	Receiving Water	Area Treated
Underground	Under hardscape areas	East Fork Little Blue River	2.43 Acres
Detention Chambers	between Farmer's Market		
	and Pad Site 2		

# 6.0. POLLUTION PREVENTION AND SPILL REPORTING

Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state. Below are lists of prohibited discharges, authorized non-stormwater discharges, and potential pollutants that will likely be on-site during construction. Suggested BMPs to help resolve potential discharges from non-stormwater discharges as well as potential pollutants are discussed.

## 6.1. PROHIBITED DISCHARGES

- Any hazardous material, oil, lubricant, solid waste or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- Soaps or solvents used in vehicle and equipment washing;
- Hazardous substances or petroleum products from an on-site spill or handling and disposal practices;
- Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Domestic wastewaters, including gray waters; or
- Industrial stormwater runoff (MDNR 2017).

## 6.2. AUTHORIZED NON-STORMWATER DISCHARGES

The below signified discharges are anticipated to occur on-site.

- De-watering activities if there are no contaminants other than sediment present in discharge, and the discharge is treated as specified in Section C.8.m of the permit
- Solution Flushing water hydrants and potable water lines
- ☑ Water only (i.e., without detergents and additives) rinsing of streets and buildings
- $\boxtimes$  Site watering to establish vegetation

Potential BMPs used for authorized non-stormwater discharges:

Dewatering activities if there are no contaminants other than sediment present in discharge, and the discharge is treated as specified in Section C.8.m of the permit

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. Estimations of the volume of water discharged from these dewatering activities can be recorded in Section 5 of this SWPPP.

Dewatering of sediment-laden water should be discharged to a temporary or permanent sediment basin when possible, so the sediment may be allowed to settle out of suspension. If basins will be used, the existing water level should be inspected and drawn down if necessary.

Stormwater Pollution Prevention Plan 022-00393

Dewatering bags may also be used to filter sediment out of the water. They should be placed on a level surface away from slopes to prevent scouring, and water should ideally flow to a vegetated area toward perimeter controls. Premanufactured dewatering bags should be installed and maintained per manufacturer's recommendations.

#### Flushing water hydrants and potable water lines

Waters from hydrants and waterline flushing can be erosive and can lead to perimeter controls being overwhelmed. These waters should ideally be directed to clean, paved streets where water may enter the storm sewer system. On projects where this is not possible, diffusers should be used to prevent erosive water velocities, and flush water should be directed to relatively flat, vegetated portions of the project or to temporary or permanent basins.

<u>Water only (i.e., without detergents and additives) rinsing of streets and buildings</u> Streets should be inspected to confirm sediment and spills have been removed before they are rinsed with water. Inlet protections should remain in place, so water may be filtered before leaving the site.

Stabilization typically occurs before buildings are washed down. Washwater should be directed to stabilized areas or perimeter controls. Water that escapes through paved surfaces should be treated by inlet protections before leaving the site.

#### Site watering to establish vegetation

Efforts should be taken to time watering activities that are intended to help establish vegetation so watering does not occur prior to or during precipitation. Areas should be watered only in amounts necessary for vegetation to establish or thrive. Irrigated areas should be monitored for overwatering and, if identified, amounts and timing of watering should be adjusted.

### 6.3. POTENTIAL POLLUTANTS

Potential pollutant sources that are anticipated to be on-site during the project can be found in the table below.

The below listed suggested BMPs are meant as initial examples and should be adjusted as site conditions necessitate different BMPs. The table should be amended should additional pollutants and BMPs be utilized onsite that were not originally anticipated.

Material/Activity	Potential Pollutants	Suggested BMPs
Concrete Curing Substances	Sediment, metals, hydrocarbons	Provide secondary containment in preparation and cleanup areas. Leftover curing substances should to be removed from the site or disposed of in a designated washout bin or pit designed to contain curing substances.

#### Table 6. Anticipated Potential Pollutants.

		Do not use materials during or directly prior to an anticipated rain event, and ensure excess materials are stored in a covered area to minimize contact with stormwater.
		Curing compounds should not be washed into a gutter, onto the ground, or into a storm drain inlet.
		Concrete washwater will be controlled /contained at a designated location on-site such as a leak-proof container or settling basin of adequate size.
Concrete Washwater and Masonry Washwater	pH, heavy metals, silica	Refer to Concrete Washout Specification located in Section 6 of this SWPPP for proper design criteria and use of concrete washout area.
		The concrete washout area should be cleaned out when it has reached 75% capacity, and dried concrete material should be disposed of in accordance with state and local regulations.
		Fertilizers can be kept on-site in amounts necessary for immediate use.
Fortilizors	Nutrients	In the event fertilizers must remain on-site longer, they should be stored in a covered area to minimize contact with precipitation.
i enuizers	Numents	Refer to the manufacturer's recommendations for application and disposal.
		Do not over apply or apply before an anticipated runoff-producing rain event.
		Do not remove the original product label from container.
		Store containers in a covered area or in contractor vehicles to minimize contact with stormwater.
Form Release Oil	Petroleum	Follow the manufacturer's recommended usage instructions.
	Tydrocarbons	Do not use before or during any precipitation event.
		Use all of the product before disposing of the container and only place in a waste receptacle designated to receive this type of waste.
	Petroleum Fuels and Oils hydrocarbons and distillates	If aboveground storage tanks (ASTs) are required, locations will be tracked on the SWPPP map.
		A separate spill prevention containment and countermeasure (SPCC) plan will be developed should one or more of the following be present on-site:
Fuels and Oils		<ul> <li>A single AST for oil with 660 gallons or more capacity</li> <li>Two or more ASTs with an aggregate of 1,320 gallons or more capacity (include storage vessels stored above ground with a capacity of 55 gallons or more with the aggregate total capacity)</li> <li>Belowground oil storage vessels of 42,000 gallons or more</li> </ul>

	•••••••••••••••••••••••••••••••••••••••	
		Smaller fuel containers and gas-powered equipment should be kept in secondary containment vessels to prevent spills or leaks during fueling and operation. Small gas cans can be kept in the back of trucks when not in use.
		Drip pans should be used for parked vehicles where leaks have been identified.
		Soil stained with fuel or other petroleum products should be removed and disposed of in compliance with federal, state, and local requirements.
		If grease is to be stored on-site, it should be stored in a covered location to minimize contact with stormwater.
Grease / Lubricants	Petroleum hydrocarbons	The application of lubricants should be conducted off-site or in an area with sufficient secondary containment measures to contain any leaks or spills.
		Lubricants should not be applied in rain or on exposed areas of machinery when precipitation is expected.
		Landscape materials include—but are not limited to—items such as topsoil, compost, mulch, polymers, gypsum, and lime.
Landscape Materials	Nutrients, sediment, pH	If the materials are to be stored on-site they should be stored in a covered area or covered with plastic sheeting, tarps, or similar products to minimize contact with stormwater.
		Soil amendments should not be used before anticipated runoff producing rain events.
		As necessary and as space on the project allows, material storage areas should be dedicated on-site.
Material Storage	Solid waste, hydrocarbons, nutrients, sediment, hazardous materials	The number of access points to the material storage area should be limited, and materials should be stored away from drainage courses and low areas.
		Hazardous materials should be stored in containers or structures or otherwise covered to minimize contact with stormwater. Secondary containment should be provided for the area not only to contain spills but also to limit multiple access points.
	Organophosphates	Pesticides and herbicides should be used and disposed of per manufacturer's recommendations. Avoid overapplying products and avoid applying products before anticipated runoff-producing storm events.
Pesticides, Herbicides	icides, Herbicides isides, Herbicides icides, Herbicides carbamates, triazines, chloroacetanilides, salts, heavy metals	Storage of pesticides and herbicides on-site should be discouraged. Should storage on-site be required, items should be stored in covered areas to minimize contact with precipitation and stormwater.
		Spilled material should be promptly cleaned up per manufacturer's recommendations.

Sanitary Waste	Bacteria, viruses, parasites	Sanitary stations should be located where accidental discharge cannot flow to storm drains, gutters, surface waters, or conveyance channels. Locate stations on a level, permeable surface, away from drainage courses and low areas. These stations should not be located on streats, sidewalks, or on top of inlate.
		Stations will be inspected and maintained by a qualified person at
		operation.
	Turbidity, nutrients	Surface water impairments caused by sediment and total suspended solids will have a higher risk of occurring in areas where soils have been disturbed for construction activities.
Sediment / Total Suspended Solids		Temporary controls are described in this SWPPP to control and contain this potential pollutant during land-disturbing activities of the project.
		Vegetation (temporary or permanent stabilization) is a very efficient BMP for controlling sediment and should be used whenever possible.
	Floatable and blowable trash and debris	Solid waste created from construction activities (including but not limited to scrap building material, product/material shipping waste, food containers, and cups) should be properly contained on-site and removed frequently from the site for disposal.
Solid Waste		Dumpsters should to be emptied at regular intervals and as needed during times of high activity on the site.
		Efforts should be taken to minimize exposure of solids wastes generated on the site to stormwater.
Vehicle Washing Wheel	Sediment, petroleum hydrocarbons, heavy metals	If vehicle washing and/or wheel washing is to occur on-site, it should be done in designated areas where washwater can collect in a basin or alternative control.
Washwater		Use of detergents should be discouraged.
		Washing on paved surfaces should be discouraged unless water can be sufficiently treated before leaving the site.

# 6.4. NONREPORTABLE SPILL PROTOCOL

Most spills can be cleaned up following manufacturer's recommendations. Absorbent materials, sealable containers, plastic bags, and shovels/brooms are suggested as minimum spill response items that should be available at this location.

- Check for hazards (flammable material, noxious fumes). If flammable liquid, turn off engines and nearby electrical equipment. If serious hazards are present, leave the area and call 911.
- Make sure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any person.
- Stop the spill source.

- Call co-workers and supervisor for assistance and to make them aware of the spill and potential dangers.
- If possible, stop the spill from entering drains (use absorbent or other material as necessary).
- Stop spill from spreading (use absorbent or other material).
- If spilled material has entered a storm sewer, contact the locality at the below number.
- Clean up spilled material according to manufacturer's specifications. For liquid spills, use absorbent material and do not flush the contaminated area with water.
- Properly dispose of cleaning materials and used absorbent material according to manufacturer specifications.

## 6.5. **REPORTABLE SPILLS**

Requirements for reporting spills of hazardous materials and typical site pollutants and spill report documentations can be found in Section 9 of this SWPPP.

Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the Stormwater Pollution Prevention Plan (SWPPP) and made available to the department upon request. The department may also require the submittal of a written or electronic report detailing measures taken to clean up the spill within five (5) days of the spill. Such a report must include the type of material spilled, volume, date of spill, date clean-up was completed, clean-up method, and final disposal method. If the spill occurs outside normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the spill to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. Leaving a message on a department staff member voice-mail does not satisfy this reporting requirement (MDNR 2017).

#### Table 7. City/County Spill Reporting Contact.

Report to:	Contact Number
Kansas City Regional Office 500 NE Colbern Road Lee's Summit, MO 64086-4710	816.251.0700
MDNR 24-Hour Spill Response	573.634.2436
National Response Center (NRC)	800.424.8802

# 7.0. SWPPP IMPLEMENTATION

## 7.1. PUBLIC NOTIFICATION

The locations of the site posting will be noted on the site BMP Tracking Map located in Section 5 of this SWPPP. The location will be updated should the posting move.

The permittee shall post a copy of the public notification sign described by the Department at the main entrance to the site. The public notification sign must be visible from the public road that provides access to the site's main entrance. An alternate location is acceptable provided the public can see it and it is noted in the SWPPP. The public notification sign must remain posted at the site until the permit has been terminated (MDNR 2017).

# 7.2. INSPECTIONS

Site inspections should be conducted by qualified personnel at the frequency indicated below. Site inspection reports can be stored in Section 12 of this SWPPP unless otherwise noted.

The permittee (or a representative of the permittee) shall conduct regularly scheduled inspections. These inspections shall be conducted by a qualified person, one who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition. When practicable the receiving stream shall also be inspected for 50 feet downstream of the outfall. Any structural or maintenance problems shall be noted in an inspection report and corrected as soon as possible but no more than seven calendar days after the inspection. All BMPs must be inspected in accordance to one of the two schedules listed below, and any changes to the frequency of inspections, including switching between the options listed below, must be documented in the SWPPP:

- At least once every seven calendar days and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased during a normal work day and within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday;
- or
- □ Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches of precipitation or greater, or the occurrence of runoff from snowmelt. To determine a storm event of 0.25 inches or greater has occurred on your site, you must either keep a properly maintained rain gauge on site, or obtain the storm event information from a weather station for your location.
  - a. Inspections are only required during the project's normal working hours.
  - b. You must conduct an inspection within 24 hours once a storm event has produced 0.25 inches within a 24-hour period, even if the storm event is still continuing.
  - c. If you have elected to inspect every 14 calendar days and there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.25 inches or

more of rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm (MDNR 2017).

# 7.3. CORRECTIVE ACTIONS

Structural or maintenance problems with BMPs used in this project and noted as a result of an inspection shall be corrected as soon as possible but no more than seven calendar days after the inspection.

# 7.4. MODIFICATION AND AMENDMENTS

Modifications and amendments to the SWPPP can be tracked in Section 7 of this SWPPP. Below are minimum guidelines for when the SWPPP should be updated.

The permittee shall amend the SWPPP at a minimum whenever the:

- a. Design, operation, or maintenance of BMPs is changed;
- b. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
- c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
- d. Department notifies the permittee in writing of deficiencies in the SWPPP;
- e. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes); and/or
- f. Department determines violations of water quality standards may occur or have occurred (MDNR 2017).

# 7.5. TRANSFER OF OWNERSHIP

As necessary, permit transfers or records of sale should be placed in Section 2 of this SWPPP.

If the permittee sells any portion of the permitted site to a developer for commercial, industrial, or residential use, this land remains a part of the common sale and the new owner must obtain a permit prior to conducting any land disturbance activity. Therefore, the original permittee must amend the SWPPP to show that the property has been sold and therefore no longer under the original permit coverage.

If the entire tract is sold to a single entity, then this permit shall be terminated when the new owner obtains a new land disturbance permit for the site (MDNR 2017).

# 7.6. TERMINATION OF PERMIT

When the project is completed and has reached final stabilization, a copy of the notice of termination and confirmation from the MDNR should be placed in Section 14 of this SWPPP.

This permit may be terminated when the project is stabilized. The project is considered to be stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation cover shall be at least 70% over 100% of the site. In order to terminate the permit, the permittee shall notify the Department by submitting Form H Request for Termination of a General Permit (MDNR 2017).

### 7.7. **RECORDS**

When the project is complete, and the notice of termination has been accepted by the MDNR, records should be removed from the site and retained.

The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis and all site inspection records required by this general permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.

The permittee shall provide a copy of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.

The permittee shall provide a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. 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 with them when on the project site (MDNR 2017).

# 8.0. REFERENCES

California Stormwater Quality Association. (November 2009). *Stormwater Best Management Practice Handbook Portal: Construction*. Retrieved from <u>http://www.buenapark.com/home/showdocument?id=2557.</u>

Missouri Department of Natural Resources. (February 2017). *Missouri State Operating Permit.* Retrieved from <u>https://dnr.mo.gov/env/wpp/permits/issued/docs/RA00000.pdf</u>.

- Missouri Department of Natural Resources, ABC's of BMP's LLC and Shockey Consulting Services. (January 2011). Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri and Kansas. Retrieved from <u>https://dnr.mo.gov/env/wpp/wpcp-guide/docs/wpcp-guide.pdf.</u>
- United States Environmental Protection Agency. (May 2007). *Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites.* Retrieved from <u>https://www.epa.gov/sites/production/files/2015-10/documents/sw\_swppp\_guide.pdf.</u>
- Virginia Department of Environmental Quality. (July 2014). Single Family Residence Common Plan of Development or Sale Stormwater Pollution Prevention Plan Template. Retrieved from

http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx.







DWS: F:\2022\00001-00500\022-00383\40-Design\Reports\GNC\\SWPPP\Section 4 - Maps\CAD Files\Aerial Map\02200383\_Aerial Map Exhibit 8.5x(1.4mg USER:

#### Custom Soil Resource Report Soil Map


MAF	PLEGEND	MAP INFORMATION
Area of Interest (AOI)	Spoil Area	The soil surveys that comprise your AOI were mapped at
Area of Interest (AOI)	) 👌 Stony Spot	1:24,000.
Soils	M Very Stony Spot	Warning: Soil Man may not be valid at this scale
Soil Map Unit Polygo	ns 🖤 Wet Spot	Warning. Con Map may not be valid at this sourc.
Soil Map Unit Lines	∧ Other	Enlargement of maps beyond the scale of mapping can cause
Soil Map Unit Points	Special Line Features	line placement. The maps do not show the small areas of
Special Point Features	Water Features	contrasting soils that could have been shown at a more detailed
Blowout	Streams and Canals	scale.
Borrow Pit	Transportation	Please rely on the har scale on each man sheet for man
💥 Clay Spot	Rails	measurements.
Closed Depression	nterstate Highways	
💥 Gravel Pit	US Routes	Source of Map: Natural Resources Conservation Service Web Soil Survey URL:
Gravelly Spot	Major Roads	Coordinate System: Web Mercator (EPSG:3857)
🔇 Landfill	Local Roads	Maps from the Web Soil Survey are based on the Web Mercator
Lava Flow	Background	projection, which preserves direction and shape but distorts
Marsh or swamp	Aerial Photography	distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more
Mine or Quarry		accurate calculations of distance or area are required.
Miscellaneous Water		This product is generated from the USDA-NRCS certified data as
Perennial Water		of the version date(s) listed below.
Rock Outcrop		Cail Cumun Array Jackson County Missouri
L Saline Spot		Survey Area Data: Version 25, Aug 22, 2023
Sandy Spot		
Severely Froded Spo	st	Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.
		Date(s) aerial images were photographed: Aug 30, 2022—Sep
Side or Sip		0, 2022
g Sodic Spot		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.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10082	Arisburg-Urban land complex, 1 to 5 percent slopes	4.7	18.8%
10180	Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes	7.2	28.9%
99012	Urban land, upland, 5 to 9 percent slopes	13.0	52.4%
Totals for Area of Interest		24.9	100.0%

## **Map Unit Legend**

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Jackson County, Missouri

## 10082—Arisburg-Urban land complex, 1 to 5 percent slopes

#### **Map Unit Setting**

National map unit symbol: 2w7ld Elevation: 750 to 1,130 feet Mean annual precipitation: 39 to 45 inches Mean annual air temperature: 50 to 55 degrees F Frost-free period: 177 to 220 days Farmland classification: All areas are prime farmland

#### **Map Unit Composition**

Arisburg and similar soils: 61 percent Urban land: 30 percent Minor components: 9 percent Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Arisburg**

#### Setting

Landform: Interfluves Landform position (two-dimensional): Summit Landform position (three-dimensional): Interfluve Down-slope shape: Convex Across-slope shape: Convex Parent material: Loess

#### **Typical profile**

Ap - 0 to 6 inches: silt loam A - 6 to 13 inches: silt loam Bt - 13 to 19 inches: silty clay loam Btg - 19 to 56 inches: silty clay loam BCg - 56 to 79 inches: silty clay loam

#### **Properties and qualities**

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: C Ecological site: R107XB007MO - Loess Upland Prairie Hydric soil rating: No

#### **Description of Urban Land**

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydric soil rating: No

#### **Minor Components**

#### Sampsel

Percent of map unit: 3 percent Landform: Hills Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Convex Across-slope shape: Concave Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna Hydric soil rating: Yes

#### Greenton

Percent of map unit: 3 percent Landform: Hillslopes Landform position (two-dimensional): Shoulder Landform position (three-dimensional): Side slope Down-slope shape: Convex Across-slope shape: Convex Ecological site: R109XY002MO - Loess Upland Prairie Hydric soil rating: No

#### Sharpsburg

Percent of map unit: 3 percent Landform: Ridges Landform position (two-dimensional): Summit Landform position (three-dimensional): Interfluve Down-slope shape: Linear Across-slope shape: Linear Ecological site: R109XY002MO - Loess Upland Prairie Hydric soil rating: No

#### 10180—Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes

#### Map Unit Setting

National map unit symbol: 1n85h Elevation: 600 to 900 feet Mean annual precipitation: 33 to 43 inches Mean annual air temperature: 50 to 57 degrees F Frost-free period: 175 to 220 days Farmland classification: All areas are prime farmland

#### Map Unit Composition

Udarents and similar soils: 46 percent Urban land: 39 percent Sampsel and similar soils: 15 percent Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Udarents**

#### Setting

Landform position (two-dimensional): Summit Landform position (three-dimensional): Crest Down-slope shape: Convex Across-slope shape: Convex Parent material: Mine spoil or earthy fill

#### **Typical profile**

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

#### **Properties and qualities**

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6e Hydrologic Soil Group: C Ecological site: R107XB002MO - Deep Loess Upland Prairie Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation) Hydric soil rating: No

#### **Description of Urban Land**

#### Setting

Landform: Interfluves Landform position (two-dimensional): Summit Landform position (three-dimensional): Interfluve Across-slope shape: Convex

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydric soil rating: No

#### **Description of Sampsel**

#### Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Base slope Down-slope shape: Concave Across-slope shape: Convex Parent material: Residuum weathered from shale

#### **Typical profile**

*Ap - 0 to 13 inches:* silty clay loam *Bt - 13 to 80 inches:* silty clay

#### **Properties and qualities**

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: C/D Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna Other vegetative classification: Grass/Prairie (Herbaceous Vegetation) Hydric soil rating: No

## 99012—Urban land, upland, 5 to 9 percent slopes

#### Map Unit Setting

National map unit symbol: 2q0qh Mean annual precipitation: 36 to 43 inches Frost-free period: 170 to 220 days Farmland classification: Not prime farmland

#### Map Unit Composition

*Urban land:* 90 percent *Minor components:* 10 percent *Estimates are based on observations, descriptions, and transects of the mapunit.* 

#### **Description of Urban Land**

#### Setting

Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydric soil rating: Unranked

#### **Minor Components**

#### Udorthents

Percent of map unit: 5 percent Landform position (three-dimensional): Tread Down-slope shape: Convex Across-slope shape: Concave Ecological site: R107XB002MO - Deep Loess Upland Prairie Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation) Hydric soil rating: No

#### Harvester

Percent of map unit: 5 percent Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Linear Across-slope shape: Linear Ecological site: F115XB061MO - Anthropic Deep Loess Upland Other vegetative classification: Trees/Timber (Woody Vegetation) Hydric soil rating: No

# National Flood Hazard Layer FIRMette

94°22'49"W 38°55'3"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT Without Base Flood Elevation (BFE) Zone A. V. A9 With BFE or Depth Zone AE, AO, AH, VE, AR SPECIAL FLOOD HAZARD AREAS **Regulatory Floodway** 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee. See Notes. Zone X OTHER AREAS OF FLOOD HAZARD Area with Flood Risk due to Levee Zone D NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs OTHER AREAS Area of Undetermined Flood Hazard Zone D - - - - Channel, Culvert, or Storm Sewer GENERAL STRUCTURES LIIII Levee, Dike, or Floodwall 20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation **Coastal Transect** Mase Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary --- Coastal Transect Baseline OTHER **Profile Baseline** FEATURES Hydrographic Feature **Digital Data Available** No Digital Data Available MAP PANELS Unmapped The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/24/2023 at 12:02 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Basemap Imagery Source: USGS National Map 2023

# **SECTION 5**

BMP Tracking Map and Land Disturbance Tracking Log

This section contains:

- -Erosion and Sediment Control Plan sheet excerpts
- -Post Construction Stormwater Management Plan sheets if applicable
- -BMP Tracking Map (Working SWPPP Map)
  - -Record of Land Disturbance, Stabilization and BMP installation and removal
  - -Record of Dewatering Activities (e.g. dates and estimated volume of water discharged)





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ROCK CHECK DAM

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PROJECT STAGE	EROSION CONTROL PLAN BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AF
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	3	INSTALL INLET PROTECTION	PHASE
	4	INSTALL DITCH CHECKS	PHASE
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1D - FINAL STABILIZATION	N/A	STREET CLEANING	N//

Date Activity Initiated	Description of Grading/Dewatering Activity	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated	Description of Stabilization Measure and Location

Date Activity Initiated	Description of Grading/Dewatering Activity	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated	Description of Stabilization Measure and Location

Date Activity Initiated	Description of Grading/Dewatering Activity	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated	Description of Stabilization Measure and Location

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Date Activity Initiated	Description of Grading/Dewatering Activity	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated	Description of Stabilization Measure and Location

# **SECTION 6**

**BMP Specification and Detail Sheets** 

### DIVISION II CONSTRUCTION AND MATERIAL SPECIFICATIONS

## SECTION 2150 EROSION AND SEDIMENT CONTROL

Approved and Adopted this 15th day of February, 2017

Kansas City Metropolitan Chapter American Public Works Association

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## SECTION 2151 GENERAL REQUIREMENTS

**2151.1 Summary:** This section describes general requirements to prevent or minimize the pollution of rivers, streams, lakes, and wetlands caused by runoff from the construction zone. Such pollution includes sediment that may migrate offsite through the action of wind, water, or traffic, as well as chemical spills or other refuse from the site.

**2151.2 Contractor's Responsibility:** The Contractor shall take measures to prevent or minimize the transport of sediment or pollutants from the project limits or into bodies of water that are intended for protection, in accordance with the plans, the requirements of applicable permits and regulations, and best available management practices.

**2151.3 Compliance with NPDES Permits:** The Owner will obtain a National Pollutant Discharge Elimination System (NPDES) permit and other similar local water pollution control permits as required. Where such permits are required, the Owner will provide the Contractor with a Stormwater Pollution Prevention Plan (SWPPP) which has been prepared by the Engineer or other qualified professional. The Contractor shall comply with all requirements of such permits and the SWPPP, and shall enforce compliance with such requirements by all Subcontractors. The Contractor shall complete the required certification forms for coverage under the relevant permit and shall notify all Subcontractors in writing of the requirements of the SWPPP, obligate them under contract to comply, and enforce compliance during the work.

**2151.4 Projects Not Requiring a Permit:** If neither NPDES permit nor other local water pollution control permits are required for a project, the Engineer may waive certain documentation and record-keeping provisions of this specification. The Contractor is required to comply with all other provisions in this specification and is required to install such measures for erosion and pollution control as may be called for in the plan or ordered by the Engineer.

**2151.5 Stormwater Pollution Prevention Plan (SWPPP):** The Stormwater Pollution Prevention Plan (SWPPP) outlines methods and controls to be used to prevent stormwater pollution from the construction activities.

The SWPPP will generally consist of the following elements: (a) a site description; (b) a site map or plan sheets showing areas of soil disturbance, an outline of areas which will not be disturbed, and a drainage area map; (c) plan sheets, tables, or other schedules detailing the location of major structural and non-structural controls and areas where stabilization practices are expected to occur; (d) a description of erosion and sediment controls to be used; (e) a description of any permanent stormwater management features which are incorporated into the project; (f) a description of other controls related to waste disposal practices; (g) a description of the timing, during the construction, of when the measures will be implemented and removed; and (h) a description of maintenance procedures for control measures identified in the plan.

Where multiple agencies have jurisdiction over erosion and sediment control, the SWPPP will be prepared to satisfy the requirements of each. The use of the term "Stormwater Pollution Prevention Plan" or "SWPPP" is not intended to limit its content to the provisions of any single permit program or jurisdiction, and this specification shall have the same meaning regardless of whether the applicable plans are referred to as a "SWPPP," "erosion control plan," "erosion and sediment control plan," "temporary water pollution control plan," or other equivalent term.

All elements of the project bid documents relating to erosion and pollution control are considered part of the SWPPP, either by direct inclusion or by reference, including plan sheets,

specifications, special provisions, quantity tabulations, bid sheets, and contract documents. A copy of all NPDES and other water pollution related permits and permit applications are also part of the SWPPP. This APWA specification is an integral part of the SWPPP.

**2151.6 Contractor Amendments to the SWPPP:** Prior to beginning work, the Contractor shall review the SWPPP in detail and provide the Engineer with written recommendations for amendments to improve the effectiveness of the SWPPP or to bring it into better alignment with the Contractor's intended method of operations. The Contractor shall also advise the Engineer of any omissions or deficiencies they find in the SWPPP. During the progress of the job, the Contractor shall continue to monitor the effectiveness and performance of the control measures used and propose additional amendments as needed. No amendment shall be incorporated unless approved by the Engineer, and a log of such amendments shall be made by the Contractor. When required by the permit or state law, such amendments shall be developed and prepared under the supervision of a qualified professional as defined in said permit or law. A copy of the SWPPP and all amendments shall be retained by the Contractor onsite and ready for inspection without notice.

**2151.7 Contractor Schedule:** In addition, the Contractor shall also provide the Engineer with a detailed schedule of their work prior to beginning, which shall include information on the expected timing, duration, and sequencing of erosion and sediment control measures and overall job completion and phasing. Once approved, such schedule shall become a part of the SWPPP, and changes to the schedule shall require amendment to the SWPPP.

**2151.8 Alternate Methods or Materials:** The Contractor may propose alternative methods or materials for any of the specific erosion and sediment controls given in the SWPPP, provided that such methods provide equal or improved measures of control, as determined by the Engineer. The Contractor shall submit any documentation required by the Engineer to evaluate the alternative. If agreed to by the Engineer (and subject to state or other permitting agency approval if applicable), payment for such alternate method shall be handled in accordance with the applicable provisions of the Contract for changes in work.

**2151.9 Superintendent Training Required:** The Contractor's resident superintendent shall have no less than 8 hours of formal training on erosion and sediment control within the last 24 months. Such training shall include the principles of erosion and sediment control, technical information on typical and/or innovative controls, and the contents of these specifications and related Standard Drawings and Design Criteria. The training shall be taught primarily by a registered professional engineer or other professional who is considered by the applicable regulatory agencies to be qualified to prepare a SWPPP. Documentation of training shall be submitted to the Engineer upon request, prior to beginning work.

**2151.10 Duration of Contractor's Responsibility:** The Contractor is responsible for water pollution control and permit compliance from the issuance of Notice to Proceed until final completion of the work and during any subsequent maintenance bond period. The notice of termination will not be submitted by the Owner until all permit requirements are met, which includes the requirement that final stabilization be achieved on 100% of the site. Vegetation shall achieve a density of at least 70% of full turf to be considered acceptable as final stabilization.

**2151.11 Installation of Controls:** The Contractor shall obey all requirements for chemical and waste controls specified in Section 2152. Contractor shall provide all specific erosion and sediment controls required by the SWPPP in accordance with the requirements of Section 2153

and 2154. If the SWPPP calls out items or controls not included in this specification, refer to the project special provisions and plans for requirements. Controls shall be installed prior to disturbance in an area, unless otherwise indicated in the plans.

**2151.12 Maintenance:** The Contractor shall maintain the integrity of the temporary erosion and sediment control devices as long as they are in place and necessary. Devices not functioning properly shall be corrected or replaced. Accumulated sediments shall be removed promptly as detailed in Section 2154.

**2151.13 Removal:** Control measures shall be completely removed from the site when they are no longer needed, unless they are approved by the Engineer to remain in place for permanent stabilization or biodegradation (i.e. erosion control blankets).

**2151.14 Inspections:** The Contractor shall inspect the construction site within twenty-four hours of the end of a storm which results in precipitation of 0.5 inches or greater, during both active and inactive phases. In addition, regular inspections shall be made weekly during active phases of construction. During inactive phases (such as winter when construction activity has temporarily ceased), an inspection of the site condition shall be made no less than once every 14 days. All installed practices shall be checked for proper installation, operation, and maintenance. Locations where stormwater runoff leaves the site shall be inspected for evidence of erosion or sediment deposition. Deficiencies shall be noted in a report of the inspection and corrected within seven calendar days of the inspection.

A report of each inspection is to be made within 24 hours of the inspection and shall contain the following minimum information: inspector's name, date of inspection, observations relative to the effectiveness of the practices, actions taken or necessary to correct deficiencies, a listing of areas where construction operations have permanently or temporarily stopped, observations at stormwater discharge locations, and any other item required of an inspection by the applicable permits. The inspection report shall be signed by the person performing the inspection. Site inspection reports shall be maintained onsite with the SWPPP or the SWPPP shall contain written documentation of the off-site records storage location.

**2151.15 Records:** The Contractor shall maintain all permit required records during the job and shall transmit all necessary records to the Engineer at the completion of the work, including all Contractor and Subcontractor certifications and site inspection records, as well as other records requested by the Engineer.

**2151.16 Site Access for Inspections:** The Contractor shall allow authorized representatives of federal, state, or local agencies having jurisdiction of this permit, upon presentation of proper credentials, to enter the site where construction activities are located, to obtain samples of any discharge water, to have access to and copy at reasonable times, any records which shall be kept, and to inspect any facilities or equipment.

**2151.17 Maximum Areas of Disturbance at One Time:** The surface area of erodible earth material exposed by site operations shall be limited by the Engineer according to the Contractor's capability and progress in keeping with the approved schedule. Existing vegetation shall be preserved or retained as long as practical and the time period for soil areas to be without permanent surface or vegetative cover shall be minimized. The maximum surface area of erodible earth exposed at one time shall not exceed ten (10) acres unless approved in writing by the Engineer or otherwise provided for in the plans. The Contractor shall pay close attention to the grading and disturbance limits indicated on the plan or authorized by the Engineer.

**2151.18 Measures Where Construction has Ceased:** Soil stabilizing erosion control measures as detailed in Sections 2153 shall be implemented within 14 calendar days after construction activities have temporarily or permanently ceased on any portion of the site. Exceptions to this requirement are as follows: (a) if implementation of erosion controls is precluded by snow cover, such measures shall be taken as soon as practical after snowmelt, or (b) a waiver to this requirement is justified and approved by the Engineer in writing, in which case a specific deadline for installing erosion controls shall be established.

**2151.19 Duration Limits for Select Activities:** For certain items of work, the plans or standard sequences may contain specific time limits for the maximum duration of exposure, typically stated as "Item A construction shall have a maximum exposure time of X days." Where such limits are specified, the time shall be measured from the date in which stabilized ground cover is first disturbed in the work area until the specified construction is complete and permanent or temporary stabilization shown on the Plans is applied. Contractor shall be responsible for documenting the elapsed time on all such work, typically by noting the time in their inspection logs, taking time-stamped photographs, and/or by marking the area with a wooden stake documenting beginning and ending dates. The Engineer may grant extensions of time requested by the Contractor when justified and suitable interim stabilization measures are provided.

**2151.20 Construction near Rivers, Streams, and Waterbodies:** Construction operations in or near rivers, streams, and other water impoundments shall be restricted to those areas essential for construction. Unless otherwise provided for in the plans, a minimum 50 feet buffer of undisturbed vegetation shall be maintained between construction operations and defined drainage courses. Where such buffers are not provided, work shall not be initiated until all materials and equipment necessary to complete the work are on site and such operations shall be completed as quickly as possible once the work has begun. When no longer required, all falsework, pilings, temporary crossings, and other obstructions shall be promptly removed. Stream crossings shall be limited to those detailed in the plans or as approved by the Engineer.

**2151.21 Culverts, Ditches and Storm Sewers:** Construction of major elements of the proposed storm sewer or other drainage systems shall be coordinated to minimize the duration of time over which stormwater would run through temporary, erodible channels. Unless otherwise indicated on the plans, construction of the major elements of this system shall be among the first activities on the project. Once begun, construction shall proceed expeditiously to completion, including placement of all final headwalls, end structures, rip-rap and other end treatments. Temporary or permanent ditches which are graded on the project shall either be stabilized or have temporary sediment controls installed within seven (7) days of their grading.

**2151.22 Methods of Measurement:** No separate measurements will be made for the general requirements covered by this Section.

**2151.23 Basis of Payment:** Compliance with the general requirements of this section will not be paid separately, but shall be subsidiary to other items listed in the contract. (Note: Some Owner's may elect to pay for Administration of erosion control requirements as a separate line item. Consult the contract and job special provisions if that is the case.

## SECTION 2152 CHEMICAL AND WASTE CONTROLS

**2152.1 Summary:** This section describes specific requirements to control non-sediment related pollutant discharges from chemicals and wastes from the site, including requirements for chemical handling, spill prevention, spill response, and waste disposal.

**2152.2 Solid, Liquid, and Hazardous Wastes:** All trash shall be placed in dumpsters or trash barrels provided by the Contractor and accumulated trash shall be hauled offsite and properly disposed. Floating debris found in any waterbody on or immediately adjacent to construction shall be removed immediately, regardless of source. Hazardous wastes shall be stored, transported offsite, and disposed of properly.

**2152.3 Sanitary Wastes:** Sanitary facilities shall be made available and their use enforced by the Contractor.

**2152.4 Leak Prevention:** All equipment used onsite shall be free of leaks, receive regular preventative maintenance, and be inspected daily to reduce chance of leakage. No fueling, servicing, maintenance, or repair of equipment shall be done within 50 feet of a stream, drainage way, lake, storm sewer manhole or other water body. Onsite fuel tanks shall be in good condition, free of leaks or drips, painted brightly for visibility, and monitored daily. All fuel tanks, including mobile trailers, shall be protected by a secondary containment system or earthen berm sized to contain 110% of the full tank volume.

**2152.5 Concrete Washout:** Concrete wash or rinse water from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., shall not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out shall be designated on site and installed in accordance with the Standard Drawings.

**2152.6 Chemical Handling and Storage:** Chemicals or materials capable of causing pollution shall only be stored onsite in their original container. Materials stored outside shall be in closed and sealed water-proof containers and located outside of drainage ways or areas subject to flooding. Manufacturer's data regarding proper use and storage, potential impacts to the environment if released, spill response, and federally-defined reportable quantities for spill reporting shall be maintained by the field superintendent onsite at all times. Locks and other means to prevent or reduce vandalism shall be used.

**2152.7 Herbicides, Pesticides and Fertilizers:** Herbicides, pesticides and fertilizers used as part of the work shall be applied only in accordance with manufacturer recommendations. Direct spray into water bodies is prohibited. Such chemicals shall not be used if rain is forecast within 24 hours, unless they are approved for wet weather application.

**2152.8 Spill Clean-up and Management:** If it is safe to do so, Contractor shall stop the source of any spills or leaks and shall contain spills immediately with an appropriate device, earthen berm, sawdust, sand, kitty litter, rags or other absorbents. Manufacturer recommendations shall be followed. Leaks from broken hoses shall be immediately contained with hose clamps, plugs, or drained into leak-proof containers. Contractor shall have the tools, equipment, and supplies necessary for spill response onsite at all times and ready for immediate use. Contractor personnel shall be trained to properly respond immediately to a leak or spill. All spills shall be cleaned up and disposed of in accordance with applicable federal, state, and local regulations. Local hazardous materials response units shall be called if assistance is needed in stopping or containing the spill.

**2152.9 Spill Reporting:** All spills in excess of reportable quantities shall be reported to the appropriate federal, state, and local agencies within 24 hours of their occurrence. The Contractor shall maintain a listing of all such agencies onsite within the SWPPP and in easy reference for onsite personnel. Spills that pose an immediate threat to public safety or contamination of a water body shall be reported immediately to designated first response authorities. A current listing of applicable phone numbers for the jurisdiction shall be placed at the front of the SWPPP and posted conspicuously on the jobsite.

**2152.10 Methods of Measurement:** No separate measurements will be made for the requirements covered by this Section.

**2152.11 Basis of Payment:** Compliance with the requirements of this section will not be paid separately, but shall be subsidiary to other items listed in the contract.

## SECTION 2153 EROSION CONTROLS

## 2151.1 Referenced Standards:

The following standards are referenced directly in this section. The latest version of these standards shall be used.

### APWA, Kansas City Metropolitan Chapter (KC-APWA):

Standard Drawings, Division III of Standard Specifications and Design Criteria

### **Erosion Control Technology Council (ECTC):**

Standard Specification for Rolled Erosion Control Products (RECPs).

## Kansas Department of Transportation (KDOT):

Standard Specifications for State Road & Bridge Construction, 2015 Edition or later including all latest errata and adopted Special Provisions, as well as associated Standard Drawings.

### Missouri Department of Transportation (MoDOT):

Missouri Standard Specifications for Highway Construction, 2011 edition or later including all supplemental specifications, as well as associated Standard Plans.

### **Texas Department of Transportation (TxDOT):**

Approved Products List (APL) for Erosion Control. Based on testing and standards cited in the report "TXDOT / TTI Hydraulics, Sedimentation and Erosion Control Laboratory: Field Performance Testing of Selected Erosion Control Products".

### US Composting Council (USCC):

STA – Seal of Testing Assurance Program; and TMECC - Test Methods for the Examination of Composting and Compost. Information available online at <u>www.compostingcouncil.org</u>.

**2153.2 Summary:** This section describes specific requirements for installation and maintenance of temporary measures to stabilize onsite soils and prevent erosion during construction.

**2153.3 Materials:** Materials used for erosion controls shall meet the requirements of the following subsections. Unless otherwise specified herein, the Contractor shall submit, for each material used, a certification prepared by the manufacturer which states that the materials meet all the requirements of this specification. The manufacturer shall also provide supporting documentation and testing results to validate this certification, if requested by the Engineer. Manufacturer's instructions for installation of materials (when applicable) shall be available onsite whenever work is occurring and a copy shall be submitted to the Engineer upon request.

**2153.4 Permanent Seeding and Sodding:** Final stabilization with vegetation by either permanent seeding or sodding is the most effective form of erosion control and shall be achieved as early in the construction process as possible.

A. Materials, Construction Requirements and Maintenance: Permanent seeding or sodding shall be provided as specified in Section 2400 of these Standard Specifications.

Contractor shall schedule work so that permanent seeding is conducted as early as practical in the construction process. Multiple mobilizations of seeding or sodding operations shall be expected.

- **B. Out-of-Season Special Provision:** The Engineer may request that permanent seeding be conducted anytime between April 16 and August 14 and/or that sodding be conducted anytime between June 1 and September 1, even though such dates are outside the standard seasons established in Section 2400. If agreed to by the Contractor, then the Contractor shall conduct such seeding or sodding and shall be responsible for the establishment of a vigorous and healthy seed or sod cover. The Contractor will be paid, however, for all watering necessary during the period that falls outside the standard season.
- **C. Measurement and Payment:** Shall be as specified in Section 2400. If out-of-season seeding or sodding has been authorized, then "Out of Season Watering" will be measured by the 1,000-gallon unit applied and paid for at the contract unit price.

**2153.5 Temporary Seeding:** Interim stabilization with annual vegetation to provide temporary cover to minimize erosion. This item only covers seeding installed by conventional drilling.

A. Materials: Seed and equipment used for temporary seeding shall meet all the criteria given for permanent seeding in Section 2400 of these Standard Specifications. Fertilizer is not required.

Mulch used for temporary seeding shall meet the same requirements as "mulch cover" in subsection 2153.6. Mulch is required unless erosion control blankets are being used instead.

The following seed mixtures and planting rates shall be used:

1. <u>Type "TR" Seed:</u> This mixture will normally be used when temporary seeding is conducted between February 15 and May 31, or between September 1 and October 31. The seed mixture will be as follows:

		Rate of
	Minimum Pure	Pure Live Seed
Kind of Seed	Live Seed (%)	(Ibs per Acre)
Annual Rye Grass	83	90

<u>Type "TM" Seed:</u> This mixture will normally be used when temporary seeding requires heat tolerance, typically for planting anytime between May 1 and August 15. (Volunteer millet is aesthetically objectionable in turf grass lawns; therefore, some jurisdictions may restrict use of this mix. Confirm local requirements before use.) The seed mixture will be as follows:

		Rate of
	Minimum Pure	Pure Live Seed
Kind of Seed	Live Seed (%)	(Lbs per Acre)
Millet	77	65

3. <u>Type "TW" Seed:</u> This mixture will normally be used when temporary seeding requires cold tolerance, typically for planting anytime between September 15 and November 30. The seed mixture will be as follows:

		Rate of
	Minimum Pure	Pure Live Seed
Kind of Seed	Live Seed (%)	(Lbs per Acre)
Winter Wheat	83	120

- В. **Construction Requirements:** Preparation, planting and all other construction requirements for temporary seeding shall be as specified for permanent seeding in Section 2400, except as modified herein. Temporary seeding shall be drilled (see 2153.8 for hydraulic application of temporary seed). Prior to application, the soil shall be tilled to a depth of at least 2 inches and gullies, depressions, and large clods eliminated. Roller compaction of the seedbed is not required. Within 24 hours of seeding, mulch or erosion control blankets shall be applied. When mulch is used, it shall be applied in accordance with the same requirements given for "Mulch Cover" in subsection 2153.6. When erosion control blankets are used, they shall be installed in accordance with the requirements in subsection 2153.9. The Contractor shall initially water all areas of temporary seeding at least one-quarter inch as soon as the mulch is laid. Additional watering may be necessary for plant germination and adequate growth to provide cover. Contractor shall schedule work so as to provide temporary seeding as early as practical in the construction process. Contractor shall maintain a readiness to perform temporary seeding frequently during the progress of the project. No more than 7 calendar days shall elapse between the Engineer's request for temporary seeding and its application. Multiple mobilizations to seed areas as construction progresses shall be expected.
- **C. Maintenance:** Mulch shall be replaced or repaired as needed during germination and early growth. Bare spots shall be patched, by hand seeding if necessary. Vehicle and personnel traffic shall be minimized in areas seeded.
- D. Measurement and Payment: "Temporary Seeding" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No differentiation shall be made for type of temporary seed used. Mulch and watering shall not be measured or paid for separately on any temporary seeding, but all such costs shall be subsidiary to the item. Erosion control blankets, when used, will be measured and paid separately as "Erosion Control Blanket."

**2153.6 Mulch Cover:** Mulch applied without seeding to protect the soil surface from raindrop impact and reduce wind erosion and dust. Mulch Cover (without seed) is generally used when ground cover is required and temporary or permanent seeding is not feasible.

- A. **Materials:** Mulch shall be vegetative type only, consisting of cereal straw from stalks of oats, rye, wheat or barley and shall be free of prohibited and noxious weed seeds.
- **B. Construction:** Prior to applying mulch, the soil shall be tilled to a depth of 2 inches to eliminate hard crust and allow rainwater intercepted by mulch to infiltrate the soil. Gullies, depressions, and large clods shall be eliminated.

Mulch shall be applied at the rate of 1.5 tons/acre (3,000 lbs/acre) and be anchored into the soil a minimum depth of 3 inches by use of a heavy disc harrow, set nearly straight, or a similar approved tool. Discs of the anchoring tool shall be set approximately 9

inches apart. Anchoring shall be accomplished by not more than two passes of the tool. If approved by the Engineer, a tackifier may be applied to the mulch to anchor it instead of using the disc harrow.

- **C. Maintenance:** Mulch cover shall be replaced or repaired as needed. Bare spots shall be filled in, by hand if necessary. Vehicle and personnel traffic shall be minimized in areas mulched.
- **D. Measurement and Payment:** "Mulch Cover" will be measured per acre or hundredth part thereof and paid for at the contract unit price. Mulch is not measured and paid separately when laid down in conjunction with seeding operations.

**2153.7 Hydrocover (Standard):** Hydraulic application of a standardized mixture of fiber mulch, tackifier, and temporary seed to provide temporary cover.

### A. Materials:

- Fiber Mulch: Fiber mulch shall be a manufactured, pre-packaged, biodegradable material. The material supplied shall be meet the requirements of ECTC's Standard Specification for Hydraulic Erosion Control Products (HECPs) (version 2.4 dated April 2, 2014) for Type 3 products, having a functional longevity of 3 months, a maximum uninterrupted slope length of 50 feet, and applied to a slope that is flatter than 3:1. In addition, the material shall also be listed on the TxDOT Approved Products List for Erosion Control under the category "Mulches 4:1 or Flatter Slopes" and specified for use on "Clay or Tighter Soils".
- 2. **Tackifier:** Shall be food-grade hydrolyzed guar gum powder or alternate material as specified by the manufacturer. It shall be mixed with the cellulose fibers based on the manufacturer's recommendations.
- 3. **Water:** Shall be clean, potable water mixed at a rate suitable for the equipment being used and as recommended by the manufacturer.
- 4. **Seed:** Shall be Type TR, TM or TW seed as specified in Section 2153.5 and appropriate for the season. Seed shall be mixed to provide no less than the seeding rate per acre given in that section.
- 5. **Fertilizer**: Not required unless specified by the Engineer
- **B. Construction Requirements:** The fiber mulch shall be added to the hydraulic seeder along with proportionate amounts of seed, tackifier, and water in accordance with the manufacturer's recommendation. It shall be applied to make a uniform coverage of the soil surface. Prior to application, the soil shall be tilled to a depth of at least 2 inches and smoothed to eliminate gullies, depressions, or large clods. The Standard Mix Hydrocover mix shall not be used on any slope steeper than 4:1. Contact the engineer for alternate specifications to be used on steeper slopes if there is a discrepancy.

Hydrocover shall be applied at a minimum rate of 2,000 pounds dry weight of fiber per acre (0.41 pounds per square yard), unless otherwise specified by the manufacturer. Once applied, the area shall be allowed to dry and vehicle and personnel traffic shall be

kept off the stabilized area. Water shall be applied as needed for seed germination and plant growth. The hydrocover operation shall be accomplished with hydraulic sprayers suitable for spreading and projecting the mixture and fitted with the appropriate nozzle tips. Sprayers shall be mechanically mixed or jet agitated.

Contractor shall maintain a readiness to provide hydrocover frequently during the progress of the project. No more than 7 calendar days may elapse between the Engineer's request for hydrocover and its application. Multiple mobilizations of hydrocover operations shall be expected.

- **C. Maintenance:** Areas which are disturbed by construction shall be patched with additional application of slurry at the next available mobilization of equipment at no additional cost. Small areas of poor coverage may be stabilized through erosion control blankets, mulch for cover, straw wattle protection or other measures, at no additional cost.
- **D. Measurement and Payment:** "Hydrocover (Standard)" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No payment will be made for applications made outside the area intended for coverage.

**2153.8 Hydrocover (Specialty Mix):** Hydraulic application of specialized mixtures of fiber mulch, tackifiers, seed and other additives to provide temporary cover. Such specialized mixtures may provide for steeper slopes, more robust protection, longer durability, or enhanced vegetative growth, as compared to the Standard Mix.

- A. Materials: When specialty mixtures are used, the particular mix design and ingredient requirements shall be given in the plans or special provisions. Such specialty mixtures may include additives for improved seed germination, mixtures of special polymer tackifiers and heavier rates of cellulose fiber or other cross-linking organic fibers to produce a more continuous cover (i.e. "Bonded Fiber Matrix"), or mixtures that contain polyacrylamides that chemically stabilize the underlying soils (i.e. "Stabilized Fiber Matrix"). Seed and additives shall conform to the requirements of standard hydrocover, except as modified in the plans, special provisions or by the manufacturer's recommendations for the specialty mix.
- **B. Construction and Maintenance Requirements:** All construction and maintenance requirements shall be the same as for standard hydrocover, except as modified by the plans or the manufacturer's recommendation for the specialty mix. Equipment for specialty mixes shall conform to manufacturer's recommendations.
- **C. Measurement and Payment:** "Hydrocover (Named Specialty Mix)" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No payment will be made for applications made outside the area intended for coverage.

**2153.9 Erosion Control Blankets (including Turf Reinforcing Mats)**: Blankets or mats of natural, synthetic, or composite materials that can be rolled onto bare earth and anchored in place to provide temporary or permanent cover and/or to stabilize bare earth or channels subject to overland or concentrated surface flow. This item of work includes the use of Turf Reinforcing Mats.
A. **Materials:** Erosion control blankets of the class and type specified in the contract shall be a "Rolled Erosion Control Product" as defined by the ECTC Standard Specification. Further, the material shall be listed in the current TxDOT Approved Products List for Erosion Control. Blankets are categorized by expected use and application, as follows:

Class 1: For use as Cover and Slope Protection from overland flow:

- Type A: On slopes 1:3 or flatter with clay soils.
- Type B: On slopes 1:3 or flatter with sandy soils.
- Type C: On slopes steeper than 1:3 with clay soils.
- Type D: On slopes steeper than 1:3 with sandy soils.

Class 2: For use as Flexible Channel Liner under concentrated flow:

- Type E. For shear stresses below 2 lb/sq. ft.
- Type F. For shear stresses below 4 lb/sq. ft.
- Type G. For shear stresses below 6 lbs/sq. ft.
- Type H. For shear stresses below 8 lb/ sq. ft.

Materials supplied for Type A, B, C, D, E and F blankets shall have a minimum expected longevity of 12 months, unless otherwise stated on the plans or approved by the Engineer. Materials supplied for Type G and H shall have a longevity of greater than 5 years. Materials for Type H shall be 100% synthetic. Expected longevity shall be evaluated based on the manufacturer's data.

- **B. Construction Requirements:** The Contractor shall install erosion control blankets in the locations shown in the plans and in accordance with the Standard Drawings and manufacturer's recommendations.
- **C. Maintenance**: Maintain blankets in accordance with the Standard Drawings and manufacturer's recommendations.
- D. Measurement and Payment: "Erosion Control Blanket (Named Type)" will be measured per square yard of sloped surface area covered by the completed mat and paid for at the contract unit price for the given type. Excess blanket used for overlap at seams, anchoring, waste, repairs, etc. will not be included in the measurement. When blankets are used in conjunction with permanent or temporary seeding, erosion control blanket will be paid for at the contract unit price and the seeding operation shall be paid separately.

**2153.10 Compost Cover:** Organic compost applied with or without seeding to protect the soil surface from raindrop impact, absorb stormwater, facilitate vegetation growth and reduce wind erosion and dust.

A. Materials: (Note: The material requirements in this subsection do not apply for compost filter berms and compost filter socks, and are described more fully in Sections 2154.10 and 2154.11.)

All compost shall be mature, sanitized, well-composted organic matter free of identifiable feedstock constituents and offensive odors. Compost shall have been produced by the aerobic decomposition of organic material. Organic material sources may include leaves and yard trimmings, paper fiber, wood, bark, biosolids, food scraps, composted manures, or combinations of these products. Biosolids compost shall comply with the

Standards for Class A biosolids outlined in 40 Code of Federal Regulations (CFR) Part 503. The compost shall be free of any refuse, contaminants, and any material toxic to plant growth. Compost must not be derived from mixed municipal solid waste. Compost shall comply with all applicable state and federal regulations regarding production and distribution.

All compost material supplied shall be certified through one of the following programs:

A. The USCC STA Program through a certified supplier, and wherein all testing procedures follow the USCC TMECC manual.

B. The KDOT Specification found at Section 2105 for Soil Compost Materials, wherein all testing procedures are in accordance with the requirement listed there. Under this specification, however, compost sources from the State of Missouri are not excluded, provided that such sources are in compliance with Missouri regulations, satisfy the material and testing requirements found in the KDOT specification, and are otherwise found to be suitable by the Engineer.

Before delivering of the compost, the suppler shall provide a copy of the lab analysis and certifications as outlined for the applicable program. The supplier shall also document the feedstocks and sources used in the compost to be supplied.

**B. Construction:** Prior to applying compost, the soil shall be tilled to a depth of 2 inches to eliminate hard crust and allow rainwater intercepted by the compost cover to infiltrate into the soil. Gullies, depressions, and large clods shall be eliminated.

Compost shall be applied to a depth of 1.5 to 2 inches when alone or 1 to 1.5 inches when used in conjunction with seeding operations. Compost shall be uniformly applied using an approved spreader unit, which may include mechanical or pneumatic (blower) devices. Compost shall extend at least 3 feet beyond the shoulder of any slope to ensure that runoff does not flow under the cover. Once applied, the compost shall be thoroughly watered to improve settling.

- **C. Maintenance:** Compost shall be replaced or repaired as needed. Bare spots shall be filled in, by hand if necessary. Vehicle and personnel traffic shall be minimized in areas covered.
- D. Measurement and Payment: "Compost Cover" will be measured per cubic yard of compost in the vehicle at the point of delivery to the project. When compost cover is used in conjunction with permanent or temporary seeding, compost cover will be paid at the contract unit price and the seeding operation shall be paid separately. The unit price for compost cover will include any deductions for standard mulching that is no longer required.

**2153.11 Surface Roughening:** Any rough graded slope that is not yet ready for seeding or other treatment and which will not be disturbed by ongoing construction for a period of 7 days or more shall be roughened by grooving, tracking, disking, or ripping it with a disc, tiller, spring harrow or other suitable implement. Such grooves shall be located traverse to the slope face and shall not be less than 3 inches deep nor spaced more than 15 inches apart. The requirement to roughen slopes by tracking or grooving shall apply to all slopes steeper than 6:1

horizontal to vertical. No measurement or payment shall be made for this item, but it shall be subsidiary to the earthwork.

**2153.12 Dust Control:** Contractor shall take effective measures to prevent blowing dust. Adequate moisture content shall be maintained in all exposed soils by application of water or other approved dust suppressant. Areas to be subsequently paved may be treated with asphalt emulsion. When dust produced by operations such as sand blasting, concrete grinding, and sawing of concrete or masonry would create a public nuisance, they shall be performed under a water spray or an alternate construction method shall be used. No measurement or payment shall be made for this item, but it shall be subsidiary to other work.

**2153.13 Method of Measurement:** Erosion controls will be measured in the manner specified in each applicable subsection.

**2153.14 Basis of Payment:** Erosion controls will be paid for at the contract unit price specified in each applicable subsection.

## SECTION 2154 SEDIMENT CONTROLS AND DIVERSIONS

## 2154.1 Referenced Standards:

The following standards are referenced directly in this section. The latest version of these standards shall be used.

## AASHTO:

M 288 - Geotextile Specification for Highway Applications

## APWA, Kansas City Metropolitan Chapter (KC-APWA):

Standard Drawings, Division III of Standard Specifications and Design Criteria

## ASTM:

- D 3786 Test Method for Hydraulic Bursting Strength of Textile Fabrics Diaphragm Bursting Strength Tester Method
- D 4355 Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

## Kansas Department of Transportation (KDOT):

Standard Specifications for State Road & Bridge Construction, 2015 Edition or later including all latest errata and adopted Special Provisions, as well as associated Standard Drawings.

### Missouri Department of Transportation (MoDOT):

Missouri Standard Specifications for Highway Construction, 2011 edition or later including all supplemental specifications, as well as associated Standard Plans.

**2154.2 Summary:** This section describes specific requirements for installation and maintenance of temporary measures to detain, filter, or cause settlement of sediment from runoff, as well as measures used to temporarily direct or divert runoff onsite or at the site perimeter.

**2154.3 Materials:** Materials used for sediment controls and diversions shall meet the requirements of the following subsections. Unless otherwise specified herein, the Contractor shall submit a certification prepared by the manufacturer for each material used which states that the materials meet all the requirements of this specification. The manufacturer shall also provide supporting documentation and testing results to validate this certification, if requested by the Engineer. Manufacturer's instructions for installation of materials (when applicable) will be available onsite whenever work is occurring and a copy shall be submitted to the Engineer upon request.

**2154.4 Sediment Removal and Disposal:** Removal of accumulated, settled sediment from behind barriers, traps, or within basins.

- **A. Materials:** Not applicable.
- **B. Construction Requirements:** Accumulated sediment shall be removed when it exceeds the volumes specified for any particular measure or would otherwise impede the proper operation of control measures. Sediments removed shall be mixed with other onsite materials and incorporated into project fills, spread loosely across the site, or

hauled offsite as necessary. Sediments shall not form an identifiable layer or seam in any fill. Sediments hauled offsite shall be dewatered first or hauled in a water tight truck. Sediments shall be located and compacted in a way which minimizes the likelihood of being resuspended in future rainfalls. Removal shall be by machine or hand work, whichever is most feasible.

- C. Maintenance: Not applicable.
- **D. Measurement and Payment:** Sediment removal is not measured or paid separately, but shall be subsidiary the other items in the contract. The proper and timely use of erosion controls will help reduce the quantity of sediment that must otherwise be cleaned out of downstream controls.

**2154.5 Silt Fence:** A temporary barrier of synthetic fabric embedded in the ground and supported by posts used to divert water or to maintain a trap for settlement.

- A. Materials, Construction Requirements and Maintenance: Refer to the Standard Drawings.
- **B. Measurement and Payment:** Silt fence will be measured by the linear foot and will be paid for at the contract unit price for "Silt Fence" Initial excavation of depressions on the upstream side of silt fence to create added storage shall be subsidiary.

2154.6 Straw Bales: Straw bales shall not be used.

**2154.7 Rock Ditch Checks:** Small temporary stone ditch checks used to form protect ditches with larger flows.

A. Materials: Rock shall be a clean aggregate free of deleterious substances, including earth, chert, cracks, seams, soapstone, shale or other easily disintegrated materials. Rock shall come from a primary run and be screened to remove the easily separated fines. It shall meet the gradation requirements below for the nominal size specified:

<u>2-inch Rock</u>: Fifty percent (50%) by weight of the particles shall be larger than 1.5 inches in diameter and none shall be larger than 4 inches. Total aggregate and fines smaller than  $\frac{1}{2}$  inch shall not exceed 2 % by weight.

<u>4-inch Rock</u>: Fifty percent (50%) by weight of the particles shall be larger than 4 inches in diameter and none shall be larger than 9 inches. Total aggregate and fines smaller than 1" shall not exceed 2 % by weight.

<u>6-inch Rock</u>: Fifty percent (50%) by weight of the particles shall be larger than 6 inches in diameter and none shall be larger than 12 inches. Total aggregate and fines smaller than 1" shall not exceed 2 % by weight.

The Engineer may approve modifications to these gradations to accommodate readily available stockpiles from local quarries.

**B. Construction Requirements:** See Standard Drawings.

- C. Maintenance: See Standard Drawings.
- **D. Measurement and Payment:** "Rock Ditch Checks (Named Rock Size)" will be measured per ton or tenth part thereof, as placed, and paid for at the contract unit price for the nominal size of rock indicated. Initial excavation of depressions on the upstream side of rock barriers to create added storage shall be subsidiary.

**2154.8 Synthetic Sediment Barriers (Type):** Any one of various proprietary ditch checks, primarily composed of synthetic materials, that can be used instead of the other measures specified herein to control velocities and erosion in ditches or swales.

- A. **Materials:** Materials for any given Type of Synthetic Sediment Barrier shall be as called out in the plans or Standard Drawings. In addition, this category may also include those measures called out as "Synthetic Sediment Barrier" in KDOT Specification Sections 902 and 2114 or those called out as "Alternate Ditch Checks" in MoDOT Specification 806.
- **B. Construction Requirements:** Install Synthetic Sediment Barrier's in accordance with manufacturer instructions. Pay particular attention to anchoring, protection of channel underneath, and to conditions at the ends to avoid bypassing.
- **C. Maintenance:** Remove silt when it accumulates to 20% of the height of the barrier or when the accumulation prevents the proper operation of the ditch check, whichever is less. If units are damaged or dislodged during the sediment removal process, repair and re-establish continuity.
- **D. Measurement and Payment:** "Synthetic Sediment Barriers (Type) " will be measured per linear foot and paid for at the contract unit price. Underlying erosion control blanket or geotextiles shall be subsidiary. If no specific type is given, then all such measures allowed for the job will be paid for at a uniform price.

**2154.9 Biodegradable Logs (or Wattles):** Circular tubes of netting filled with straw or other biodegradable fibers and used as a small height barrier for diversion of water or settlement.

**A. Materials:** Biodegradable logs are manufactured using a variety of filler materials. For this specification, the following two classes of filler are specified:

Class A: Rice or wheat straw fibers Fiber material shall be certified as weed free in accordance with state standards. Fibers shall have an average length greater than 3 inches. Type A wattles shall have a durability in the field of no less than 3 months. Type A wattles shall be specified with dimensions and minimum weights of 9-inch diameter (1.7 lbs./lin ft.); 12-inch diameter (2.5 lbs/lin. ft.) or 20-inch diameter (3.5 lbs/lin. Ft.)

Class B: Excelsior wood fibers, coconut fiber (i.e. coir), jute, or other longer-lasting biodegradable materials. Such materials shall be free of deleterious substances, compacted tightly, and shown to have an in-field durability of 6-months or greater. Class B wattles shall be specified with dimensions 9-inch diameter, 12-inch diameter, or 20-inch diameter.

Containment netting shall be jute or light-weight plastic. The entire wattle unit shall be sufficiently durable to withstand weather, construction, and installation conditions for no less than the life of the filler material (see above), including multiple movements and

reinstallations. Wood posts of sufficient strength withstand installation and weather shall be used for anchoring.

- **B. Construction Requirements:** Biodegradable logs shall be located as shown on the plans or directed by the Engineer. Individual units shall be installed in accordance with manufacturer's recommendations and the Standard Drawings.
- C. Maintenance: Maintain as called out in the Standard Drawings.
- **D. Measurement and Payment:** "Biodegradable Logs (Size and Class)" will be measured per linear foot and paid for at the contract unit price. When used without other qualifier, the phrase "Straw Wattle" shall be considered equivalent to a 9-inch Class A Biodegradable Log.
- **2154.10 Compost Filter Berm:** A berm or dike of compost placed to trap pollutants and filter runoff from small areas of overland flow.
  - A. Materials: Compost to be used in filter berms shall meet the following requirements:

Parameter	Range
рН	5.0-8.5
Moisture Content	<60%
Organic Matter Content	>25% of dry weight
Particle Size	99% < 2", 30%-50% < 3/8"

- **B. Construction Requirements:** Compost filter berms shall be constructed using specially designed pneumatic equipment (blowers) and a berm shaping device, or other equipment as approved by the Engineer. If a blower is used, compost shall be blown directly at the soil surface to help settle, compact and shape the berm. The berm shall be formed in a trapezoidal shape, having a typical dimension of 3 feet wide at the base and 1.5 feet high. Position the berm around designated soil areas and parallel to the contour. The ends of the berm shall be pointed up slope such that the bottom elevation at each end is higher than the top elevation throughout most of the slope, so as to prevent water from flowing around the end of the berms.
- **C. Maintenance:** Berms shall be reshaped and compost added as necessary to maintain their function and dimensions. Breaches in the berm shall be repaired promptly. Compost may be added by hand and tamped in place. Unless otherwise directed by the final landscape plans or by the Engineer, removal of the compost berm shall be made by spreading the compost in a thin layer over adjacent planted areas.
- **D. Measurement and Payment:** "Compost Filter Berm" will be measured per linear foot and paid for at the contract unit price.
- **2154.11 Compost Filter Sock:** A compost filter encased in a geotextile tube that serves a similar purpose to compost filter berms, particularly in areas with more concentrated overland runoff.

A. **Materials:** Compost to be used in filter socks shall meet the respective requirements for compost specified in Section 2154.10 for Filter Berms.

Tubes used for compost filter socks shall be produced from a 5 mil thick continuous HDPE or polypropylene filament, woven into a tubular mesh netting material, with openings in the knitted mesh 1/8 in (3 mm) to 3/8 in (10 mm). Tubes shall have a diameter of either 8, 12, or 18 inches, as specified. The 12-inch tubes are for general use, the 8-inch tubes are typically for flat slopes, and the 18 inch tubes are typically for steep slope protection and minor check dams.

Stakes for securing filter socks shall be hardwood with a 2" by 2" nominal dimension. Steel or other non-biodegradable stakes shall not be used.

- B. Construction Requirements: Compost filter socks shall be constructed on site or delivered to the jobsite. When assembled on site, the sock shall be filled using a pneumatic blower. The sock shall be formed continuously for the length needed, up to 200 feet long. When multiple socks are needed, the end of one sock shall be pulled over the second to create a "sleeved" overlap. Once overlapped, the second section is filled with compost to create a seamless unit. Once placed, the filter sock will settle into an oval shape. Trenching is not required. Existing soil in the vicinity of the filter sock shall remain undisturbed to the extent practical. The sock shall be anchored by driving stakes through the center of the filter sock at 10 foot intervals, at all sleeved overlaps, and at each end. Where an adjustable section of filter sock is necessary (such as to permit dry weather vehicle access), the stakes may be placed on the downhill side of the sock rather than through it. Filter socks may be seeded.
- C. Maintenance: Compost filter socks shall be inspected to ensure the sock material is intact and to determine if runoff is bypassing or undermining the units. Additional filter socks may be stacked as needed. Breaches in the line shall be repaired promptly. Unless otherwise directed by the final landscape plans or by the Engineer, removal of the compost sock shall be made by spreading the compost in a thin layer over adjacent planted areas. The HDPE or polypropylene sock shall be sliced open longitudinally to release the compost and the sock disposed of.
- **D. Measurement and Payment:** "Compost Filter Sock (Named Diameter)" will be measured per linear foot and paid for at the contract unit price for the nominal diameter indicated.

**2154.12 Diversion Berms:** Earthen berms temporarily graded and compacted to provide a diversion of overland flow. Can be used in conjunction with slope drains at the top of slopes to prevent sheet flow down the slope face.

- A. Materials, Construction and Maintenance: Refer to the Standard Drawings.
- **B. Measurement and Payment:** "Diversion Berms" will be measured per linear foot and paid for at the contract unit price. Such payment shall be full compensation for berm installation, maintenance, removal and any other work noted on the plans.

**2154.13 Slope Drain:** A flexible tubing or conduit used to convey concentrated water from the top of a slope down to the toe and thereby preventing erosion over the slope face.

- A. Materials, Construction and Maintenance: Refer to the Standard Drawings.
- **B. Measurement and Payment:** "Temporary Slope Drain" will be measured per linear foot and paid for at the contract unit price. Such payment shall include installation of outlet protection.

**2154.14 Inlet Protection:** Any one of a variety of devices or procedures used to allow water to enter an stormwater inlet while filtering or temporarily impeding the flow sufficiently to reduce the quantity of sediment carried.

- A. Materials: When used, biodegradable logs, compost filter socks, synthetic sediment barriers, silt fence, or rock ditch checks shall meet the material requirements given by other items of this specification. All other material specifications are as shown in the Standard Details or on the plans. Straw wattles are not allowed for curb inlet protection. Unless otherwise restricted in the plans, the Contractor may also use any applicable inlet protection system allowed by KDOT Specification 902 and 2114 and the Standard Drawings or pre-approved materials list under the category "Temporary Inlet Sediment Barriers (if in Kansas); or any applicable inlet protection system allowed by MoDOT Specification 806 and Standard Plans under the category "Inlet Checks" (if in Missouri).
- **B. Construction Requirements:** Use the inlet protection systems shown on the plan, as appropriate. Provide the given system in accordance with the Standard Drawings. Alternate inlet protection methods may be approved or specified by the Engineer. The appropriate details for a given inlet will change during the progress of the job and adjustments shall be made as inlet construction progresses. Each inlet shall be protected continuously from initial construction until final stabilization. The ultimate test of acceptability is performance in preventing the migration of sediments through the inlet.

When surrounding conditions are such that protection of the inlet would lead to an increased risk of flooding of adjacent structures or produce a hazard to motorists, the barriers shall be adjusted or eliminated to avoid such impacts. In those cases, extra attention shall be paid to minimize the degree of sediment carried in the flow that reaches the inlet.

The general cases of inlet protection and the performance expected from each are as follows:

- 1. <u>All Inlets at Sump Conditions</u>: Inlets at sump conditions shall remain accessible for flow at all times. Small barriers, depressions and/or filters are used to screen larger sediments and initiate settlement of the water prior to it entering the inlet by creating a ponding zone. Generally, stormwater will enter the inlet via weir flow over the top of the barrier. Such water is generally the least-sediment laden as it is decanted from the top of the ponded area.
- 2. <u>Street Inlets on Grade</u>: On-grade inlet shall be converted into a localized sump condition by installing a barrier downstream and around the inlet of sufficient height to produce ponding and prevent bypass, while a barrier, depression, and/or filter in front of the inlet induces settlement of solids. Bypassing of water

at the on-grade inlet shall not be allowed and the inlet shall remain open to accept flow without causing excessive flooding.

- 3. <u>Selected Inlets Closed to Flow</u>: In select locations, the plans may designate certain inlets as "closed to flow." In those situations, the objective is to provide sufficient blockage of permanent and temporary openings to prevent entry of stormwater into the inlet. Such locations will be clearly indicated on the plans, and the closed condition for flow may be designated for only a portion of the construction period. The Contractor shall notify the Engineer if they believe that the closure of such inlets would result in an increased risk of flooding or downstream erosion, and such concerns shall be resolved before closing an inlet to flow.
- C. Maintenance: Sediment shall be removed from each inlet after every rainfall event that exceeds 1/2" or which results in a visible accumulation of sediment. Particular attention shall be paid to prevent blockage of inlets or cases where resuspension of captured sediment is likely. Specific maintenance issues unique to each inlet protection type shall be addressed as outlined in the Standard Drawings.
- D. Measurement and Payment: "Inlet Protection" will be measured per each inlet protected and paid for at the contract unit price. Each inlet will be measured only one time for the duration of the project regardless of the number of phases or protection methods used to protect a single inlet. Unless otherwise specified in the plans or contract documents, inlet protection at all locations will be paid at the same unit price.

**2154.15 Construction Entrance:** A stabilized layer of large aggregate and other features, located in areas of high traffic and at the construction entrance and exit, intended to remove mud and silt embedded in tires, to prevent tracking sediments off the site.

- A. Materials, Construction and Maintenance: See Standard Drawings.
- **D. Measurement and Payment:** "Construction Entrance" will be measured by the square yard and paid for at the contract unit price. All other features required for the entrance shall be subsidiary.

**2154.16 Sediment Trap:** A temporary reservoir and embankment with a stone outlet that is constructed across a drainage way to intercept sediment-laden runoff and provide retention time sufficient to settle out a majority of solids. Used for smaller watersheds where the engineered outlet works of a sediment basin are not required.

- A. Materials: See Standard Drawings.
- **B. Construction Requirements**: See Standard Drawings. The construction of the sediment trap shall be carried out in a manner such that it does not result in sediment problems downstream. The embankment of the sediment trap shall be stabilized with temporary or permanent vegetation immediately after installation.
- C. Maintenance: See Standard Drawings.

- **D. Measurement and Payment:** "Sediment Traps" shall be measured per each trap constructed and paid for at the contract unit price. Unless otherwise specified in the plans or contract documents, each trap shall be paid for at the same unit price.
- **2154.17 Sediment Basin:** A temporary reservoir and embankment with engineered outlet works that is constructed across a drainageway to intercept sediment-laden runoff from large areas and provide retention time sufficient to settle out a majority of solids.
- A. Materials: See Standard Drawings.
- **B. Construction Requirements**: See Standard Drawings. Where the plans indicate that a temporary sediment basin is to be converted into a permanent basin, pond, or other stormwater facility, the construction, use, and removal or alterations shall be coordinated to result in a final facility that is operational in the time frame specified in the plans and which causes a minimum amount of disruption to the sitework, downstream channel, or future facility and minimizes the amount of rework needed. The construction of the sediment basin shall be carried out in a manner such that it does not result in sediment problems downstream. The embankment and emergency spillway of the sediment basin shall be stabilized with temporary or permanent vegetation immediately after installation of the basin.
- C. Maintenance: See Standard Drawings.
- **D. Measurement and Payment:** "Sediment Basin" shall be lump sum, and no measurement for payment of any item will be made. If multiple basins are used on a project, then this item shall be lump sum for all basins collectively, unless the bidding list designates individual locations.

Eighty percent (80%) of the lump sum payment shall be made once the basin is complete, in-place and operational. The final twenty percent (20%) shall be made when the basin is removed. Such payment shall be full compensation for clearing, grubbing, grading, spillway installation, stabilization, maintenance, removal, and any other work noted on the plans, including installation of outlet protection. Routine removal of sediment shall be subsidiary

If the basin indicated on the plans is to be converted at the end of construction into a permanent pond, basin, or other stormwater facility, then this item shall include payment only for the incremental costs associated with its use as a temporary basin. Permanent embankments, excavations, spillways, or other appurtenances that are constructed will be handled by the other appropriate items of the Contract for the permanent facility.

- **2154.18 Temporary Stream Crossings:** A temporary culvert constructed in a creek, river, or stream to allow construction access and crossing.
- A. Materials: See Standard Drawings.
- **B. Construction Requirements**: See Standard Drawings. Culvert sizing, number, and orientation shall be as dictated in the plans. Care shall be taken to ensure that the stream crossing does not cause inadvertent flooding of adjacent homes, buildings, or other structures. Concerns about adequacy of culvert sizing shall be brought to the

immediate attention of the Engineer and no installation made until such concerns are resolved.

- C. Maintenance: See Standard Drawings.
- **D. Measurement and Payment:** "Temporary Stream Crossing" shall be lump sum and such payment shall be full compensation for installation, maintenance, removal and any other work noted on the plans. If multiple crossings are used on a project, then this item shall be lump sum for all crossings collectively, unless the bidding list designates locations individually.

Eighty percent (80%) of the lump sum payment shall be made once the crossing is complete, in-place and operational. The final twenty percent (20%) shall be made when the crossing is removed.

- **2154.19 Diversion Channels:** A temporary channel excavated and stabilized to divert flow from a stream around a culvert or other in-stream structure being constructed, so as to avoid excessive erosion in the construction zone.
- **A. Materials:** See Standard Drawings.
- **B. Construction Requirements**: See Standard Drawings. Diversions of streams shall only be allowed if covered by the plans and approved permits for the project. Such construction, stabilization, and restoration will conform the plans and Standard Drawings. Concerns about adequacy of culvert sizing shall be brought to the immediate attention of the Engineer and no installation made until such concerns are resolved.
- C. Maintenance: See Standard Drawings.
- D. Measurement and Payment: "Diversion Channels" shall be lump sum and such payment shall be full compensation for installation, maintenance, removal and any other work noted on the plans. If multiple crossings are used on a project, then this item shall be lump sum for all diversions collectively, unless the bidding list designates locations individually.

Eighty percent (80%) of the lump sum payment shall be made once the diversion is complete, in-place and operational. The final twenty percent (20%) shall be made when the crossing is removed.

- **2154.20 Turbidity Curtains:** Floating barriers of synthetic fabric curtain suspended in the water and held in a vertical position, used in lakes and perennial rivers to slow, contain or direct the flow from disturbed areas allowing solids to settle out before spreading into the surrounding water.
- **A. Materials:** All components shall conform to the requirements given for the specific turbidity curtain system specified in the plans.
- **B. Construction Requirements**: Shall conform to the manufacturer's recommendations for the curtain system specified in the plans, plus such additional requirements as may be listed in the plans. A manufacturer's representative shall be onsite during installation of the system.

- **C. Maintenance:** Anchor lines shall be kept secure and properly positioned. Fabric, cable, and other appurtenances shall be repaired immediately as needed and in accordance with manufacturer's instructions.
- **D. Measurement and Payment:** "Turbidity Curtain" will be measured by the linear foot and paid for at the contract unit price.

**2154.21 Dewatering Filter:** A device for filtering sediments from water that is discharged during pumping or dewatering activities.

- A. Materials: Dewatering filters shall be constructed of materials as shown on the Standard Plans. Proprietary devices that provide equal or better performance than filters in the Standard Plans may be approved by the Engineer.
- **B. Construction Requirements**: Dewatering filters shall be used whenever sedimentladen effluent is discharged from pumps used during construction for dewatering or other activities. For proprietary devices, the manufacturer's recommendations shall be followed.
- **C. Maintenance:** Filters shall be cleaned or replaced as necessary to maintain filtration capacity.
- **D. Measurement and Payment:** No measurement or payment will be made for "Dewatering Filters," but the use of such devices shall be subsidiary to the dewatering activity or other items of the contract. Removal of sediments from dewatering devices shall also be subsidiary.

**2154.22 Method of Measurement:** Sediment controls and diversions will be measured in the manner specified in each applicable subsection.

**2154.23 Basis of Payment:** Sediment controls and diversions will be paid for as specified in each applicable subsection.

## SECTION 2155 SCHEDULING AND STANDARD SEQUENCES

It is intended that future editions of this specification will contain guidelines and requirements for scheduling and standard sequences of work in order to minimize the duration of exposure and potential for sediment discharge. This section has been reserved for that purpose.

## SECTION 2156 MEASUREMENTS AND PAYMENTS

**2156.1 Summary:** This section includes the method of measurement and the basis of payment, for furnishing all labor, equipment, tools and materials and for the performance of all related work necessary to complete any work covered in Section 2150. Unless otherwise indicated, the maintenance, repair, removal and disposal of all temporary measures shall be subsidiary to the initial installation.

**2156.2 General:** Unless specifically altered by the Contract Special Provisions, the methods of measurement and payment shall be as specified in each section herein, and as listed in the Proposal.

**2156.3 Measurement:** The Engineer or his representative will measure the work for payment. The method of measurement and computations used in determination of quantities of work performed will be those methods generally recognized as conforming to good engineering practice.

**2156.4** Items not listed in the Proposal: There shall be no measurement or separate payment for any item of work not specifically identified and listed in the Proposal and all costs pertaining thereto shall be included in the contract unit prices for other items which are listed in the Proposal.

## 2156.5 Measurement and Payment Summary Table

Item Description	Ref. Section	Method of Measurement	Basis of Payment
General Requirements	2151	No measurement	Subsidiary to other items
Chemical and Waste	2152	No measurement	Subsidiary to other
Controls			items
Permanent Seeding or	2153.4	See Section 2400	See Section 2400
Sodding			
Out of Season Watering	2153.4	1,000 gallon unit	Unit Bid Price
Temporary Seeding	2153.5	0.01 acre	Unit Bid Price
Mulch Cover	2153.6	0.01 acre	Unit Bid Price
Hydrocover (Standard)	2153.7	1.0 lbs dry-weight of fiber	Unit Bid Price
Hydrocover (Named	2153.8	1.0 lbs dry-weight of fiber	Unit Bid Price
Specialty Mix)			
Erosion Control Blanket	2153.9	1.0 sq. yd.	Unit Bid Price
(Named Type)			
Compost Cover	2153.10	1.0 cu. yd.	Unit Bid Price
Surface Roughening	2153.11	No measurement	Subsidiary to
			earthwork items
Dust Control	2153.12	No measurement	Subsidiary to other
			items
Sediment Removal	2154.4	No measurement	Subsidiary to other
			items
Silt Fence	2154.5	1.0 lin. ft.	Unit Bid Price
Rock Barrier (Named Size)	2154.7	0.1 ton	Unit Bid Price
Open-Flow Ditch Check	2154.8	1.0 lin. ft.	Unit Bid Price
(Туре)			
Biodegradable Logs (Size	2154.9	1.0 lin. ft.	Unit Bid Price
and Class)			
Compost Filter Berm	2154.10	1.0 lin. ft.	Unit Bid Price
Compost Filter Sock	2154.11	1.0 lin. ft.	Unit Bid Price
(Named Diameter)			
Diversion Berm	2154.12	1.0 lin. ft.	Unit Bid Price
Slope Drain	2154.13	1.0 lin. ft.	Unit Bid Price

## Measurement and Payment Summary Table (continued)

Item Description	Ref. Section	Method of Measurement	Basis of Payment
Inlet Protection	2154.14	Each inlet	Unit Bid Price
Construction Entrance	2154.15	1.0 sq. yd.	Unit Bid Price
Sediment Trap	2154.16	Each trap	Unit Bid Price
Sediment Basin	2154.17	No measurement	Lump Sum
Temporary Stream Crossing	2154.18	No measurement	Lump Sum
Diversion Channels	2154.19	No measurement	Lump Sum
Turbidity Curtain	2154.20	1.0 lin. ft.	Unit Bid Price
Dewatering Filter	2154.21	No measurement	Subsidiary to other
_			items

### STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN FOR:

-LOCATION OF STOCKPILES

-TYPE OF STOCKPILE PROTECTION

- 2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENTS CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE. THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE. THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER. AND OTHER FACTORS.
- 3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING. TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- 4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

### STOCKPILE PROTECTION MAINTENANCE NOTES

- USER: 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES
- (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUS SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMP'S IN EFFECTIVE OPERATING CONDITION. INPSECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHL WHERE BMP'S HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - INITIATED UPON DISCOVERY OF THE FAILURE.

- INITIATED UPON DISCOVERY OF THE FAILURE.
  INITIATED UPON DISCOVERY OF THE FAILURE.
  STOCKPILE PROTECTION MAINTENANCE NOTES
  STOCKPILE, REPLACE PERIMETER CONTROL BY THE END OF THE
  WORKDAY.
  STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE
  MATTENAL EROM THE STOCKPILE HAS BEEN USED
- Jsers/ 05, MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- SN No Ci (DETAILS ADAPTED FROM PARKER, COLORADO)

WITH NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD  $\overline{\langle}$  STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

PROJECT NO: A18-0558

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DRAWN	BY:	NDH

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nheiser

DATE: 11/05/2018



### NOTES:



### STABILIZED STAGING AREA MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITH 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 4. ROCK SHALL BE REAPPLIED OR REGARDED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
- 5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE AND UNLOADIN/LOADING OPERATIONS.
- 6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)



### STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR

- -LOCATION OF STAGING AREA(S)
- -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM LOCAL JURISDICTION
- 2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- 3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- 4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- 5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703. AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- 6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.



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Notes for Concrete Washout:

- placement on site.
- concrete washout areas.
- and pump rigs.

## Maintenance for Concrete Washout:

- capacity for wasted concrete.
- the project is placed.
- concrete washout areas shall be stabilized.

Existing Grade

Excavated material Shall be used for perimeter berm.



for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

1. Concrete washout areas shall be installed prior to any concrete

2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.

3. Vehicle tracking control is required at the access point to all

4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck

5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.

2. Concrete washout areas shall be enlarged as necessary to maintain

3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.

4. Concrete washout areas shall remain in place until all concrete for

5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the



1. APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.

2. Typical anchors and pattern/spacing shall be installed according

3. LONGITUDINAL SEAMS: The edges of the blanket or mat should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.

1. Torn or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by

2. Edges or seams that are loose or frayed shall be secured.



Installation in Channels



## Notes for Installation in Channels:

- 1. Erosion Control Blankets and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.
- 2. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
- 3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.
- 4. CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be slotted in, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
- 5. EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.
- 6. TERMINUS: The bottom edge of the mat shall be anchored.

<u>Trapezoidal Channel</u>



<u>V Channel</u>

- <u>Critical Points:</u>
- A Overlaps and seams;
- B Projected water line;
- C Channel bottom / side slope vertices;





## <u>Notes:</u>

- 1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
- 2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
- 3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
- 4. Attach fabric to upstream side of post.
- 5. Install posts a minimum of 2' into the ground.
- 6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

## <u>Maintenance:</u>

- 1. Remove and dispose of sediment deposits when the deposit approaches  $\frac{1}{3}$  the height of silt fence.
- 2. Repair as necessary to maintain function and structure.

















## Notes for Sediment Trap at Culvert Opening:

- 1. The inlet protection device shall be constructed in a manner that will facilitate clean-out and disposal of trapped sediment and minimize interference with construction activities.
- 2. The inlet protection devices shall be constructed in such manner that any resultant ponding stormwater will not cause excessive inconvenience or damage to adjacent areas or structures.
- 3. Geometry of the design will be a horseshoe shape around the culvert inlet.
- 4. The toe of the riprap shall be no closer than 24" from the culvert opening to provide an acceptable emergency outlet for flows from larger storm events.
- 5. Storage requirements equivalent to that of temporary sediment trap.
- 6. 67 C.Y./Acre wet storage below base of stone.
- 7. 67 C.Y./Acre dry storage from base of stone to top of stone berm.

# SEDIMENT TRAP AT CULVERT OPENING

ADOPTED:
10/24/2016



<u>Temporary Roc</u> Spa	<u>ck Ditch Check</u> cing	
Ditch Centerline Slope ( % )	Spacing Interval (Feet)	
5.0	60	
6.0	50	
7.0	43	
8.0	36	
9.0	33	
10.0	29	
Note: Use this spacing only for Rock Ditch Checks.		





## <u>Notes</u>:

- 1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
- 2. Use rock checks only in situations where the ditch slope exceeds 6%.

## <u>Maintenance:</u>

- 1. Remove and dispose of sediment deposits when the deposit approaches  $\frac{1}{2}$  the height of the ditch check.
- 2. Replace and reshape as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

Not to Scale



# **SECTION 7**

## Log of Amendments

The permittee shall amend the SWPPP at a minimum whenever the:

- a. Design, operation, or maintenance of BMPs is changed;
- b. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
- c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
- d. Department notifies the permittee in writing of deficiencies in the SWPPP;
- e. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes); and/or
- f. Department determines violations of water quality standards may occur or have occurred.

# SWPPP Amendment Log

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Authorized by [Name(s) and Title]

# SWPPP Amendment Log

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Authorized by [Name(s) and Title]

# **SECTION 8**

Local Regulations and Additional Permits

Local Ordinances can be located here for reference only. Additional permits (i.e. 404, NWP, grading permits if required, etc.) can be kept here for reference only.

# **SECTION 9**

## Spill Response

This section contains Missouri Code of State Regulations as they pertain to hazardous substances and emergency response. Contained within are:

Division 24 - Hazardous Substance Emergency Response Office -10 CSR 24-1.010 - Organization -10 CSR 24-2.010 - Definitions -10 CSR 24-3.010 - Emergency Notification Procedures

Spill Report Forms

# Rules of Department of Natural Resources Division 24—Hazardous Substance Emergency Response Office Chapter 1—Organization

Title		Page
10 CSR 24-1.010	General Organization	3

CSR

### Title 10—DEPARTMENT OF NATURAL RESOURCES Division 24—Hazardous Substance Emergency Response Office Chapter 1—Organization

### 10 CSR 24-1.010 General Organization

PURPOSE: This rule explains the organization and responsibilities of the Hazardous Substance Emergency Response Office. Also explained is how to obtain additional information regarding these activities and where to make submittals to this office.

(1) The Department of Natural Resources is authorized under sections 260.500–260.550, RSMo to administer the state's Hazardous Substance Emergency Response Office. The director of the Department of Natural Resources appoints a director and staff who provide day-to-day operation of the Hazardous Substance Emergency Response Office.

(A) Among its operations, the Hazardous Substance Emergency Response Office performs the following administrative and technical functions: develop and adopt rules relating to hazardous substance emergencies; develop and update the state Hazardous Substance Emergency Response plan in cooperation with other state agencies and other affected persons; respond to, investigate, document and take action regarding hazardous substance emergencies in accordance with sections 260.500-260.550, RSMo; provide technical assistance to other state agencies, to political subdivisions of the state and to other persons upon request for the prevention, control and response to hazardous substance emergencies; enter into agreements with state, local and federal agencies and with other persons as necessary to develop and implement the Hazardous Substance Emergency Response Plan and to implement sections 260.500-260.550, RSMo; monitor the statewide telephone used to notify Missouri whenever a hazardous substance emergency occurs; notify appropriate agencies of hazardous substance emergencies; and cooperate with appropriate units of government and other persons to prevent the occurrence and improve response to hazardous substance emergencies.

(B) Requests for copies of rules, reports of incident investigations, technical information and assistance and any other submissions are to be made to the department's Hazardous Substance Emergency Response Office, Environmental Services Program, P.O. Box 176, Jefferson City, MO 65102. The telephone number during office hours is (573) 526-

3348. For emergencies, the Hazardous Substance Emergency Response Office can be contacted any time at (573) 634-2436.

(2) Information.

(A) The mailing address for the Hazardous Substance Emergency Response Office is: Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102.

(B) The Hazardous Substance Emergency Response Office files, except trade secrets as provided for in section 260.550, RSMo, are public information and are located at 2710 West Main Street, Jefferson City, MO 65109.

(C) Anyone wishing to review information in the Hazardous Substance Emergency Response Office files is requested to make an appointment by calling (573) 526-3348. There is no fee for reviewing file information. There is a copying fee if copies of file information are made, and it must be paid by check, money order or exact change.

(D) Any request for information shall be in writing. All requests for information shall be available during normal business hours for inspection by the public.

(E) Nonemergency information can be obtained by contacting the department at the post office box listed previously or by calling (573) 526-3348.

(F) The number to contact the department for emergency release notifications under section 260.505, RSMo is (573) 634-2436. This is for emergencies only.

AUTHORITY: section 260.520, RSMo (Supp. 1995).\* Original rule filed Nov. 30, 1983, effective April 12, 1984. Emergency amendment filed Dec. 2, 1992, effective Jan. 1, 1993, expired April 20, 1993. Amended: Filed Oct. 5, 1992, effective April 8, 1993. Amended: Filed June 14, 1994, effective Jan. 29, 1995. Amended: Filed July 22, 1996, effective Feb. 28, 1997.

\*Original authority 1983, amended 1993, 1995.

# Rules of Department of Natural Resources Division 24—Hazardous Substance Emergency Response Office Chapter 2—Definitions

Title	Page
10 CSR 24-2.010	Definitions
#### Title 10—DEPARTMENT OF NATURAL RESOURCES Division 24—Hazardous Substance Emergency Response Office Chapter 2—Definitions

#### 10 CSR 24-2.010 Definitions

PURPOSE: This rule provides definitions for terms used in 10 CSR 24.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Administrator—the administrator of the United States Environmental Protection Agency.

(2) Cleanup—all actions necessary to contain, collect, control, identify, analyze, cleanup, treat, disperse, remove or dispose of a hazardous substance.

(3) Cleanup costs—all costs incurred by the state or any of its political subdivisions or their agents or by any other person participating with the approval of the Department of Natural Resources in the prevention or mitigation of damages from a hazardous substance emergency or the cleanup of a hazardous substance involved in a hazardous substance emergency.

(4) Department—the Department of Natural Resources.

(5) Director—director of the Department of Natural Resources.

(6) Extremely hazardous substance—a substance listed under 40 CFR part 355 by the administrator.

(7) Hazardous substance—any substance or mixture of substances that presents a danger to the public health or safety or the environment and includes: (A) Any hazardous waste identified or listed by the department under sections 260.350-260.430, RSMo;

(B) Any element, compound, mixture, solution or substance designated pursuant to Sections 101(14) and 102 of the Comprehensive Environment Response, Compensation and Liability Act (CERCLA) of 1980 or designated pursuant to section 304 of the Federal Emergency Planning and Community Rightto-Know Act of 1986; and

(C) Any hazardous material designated by the secretary of the United States Department of Transportation under the Hazardous Materials Transportation Act.

(8) Hazardous substance emergency and emergency involving a hazardous substance—

(A) Any release of hazardous substances or extremely hazardous substances in quantities equal to or in excess of those determined pursuant to section 101(14) or 102 of the CER-CLA of 1980 or section 304 of the Federal Emergency Planning and Community Rightto-Know Act of 1986;;

(B) Any release of petroleum including crude oil or any fraction, natural gas, natural gas liquids, liquefied natural gas or synthetic gas usable for fuel (or mixture of natural gas and synthetic gas) in excess of fifty (50) gallons for liquids or three hundred (300) cubic feet for gases;

(C) Any release of a hazardous waste which is reportable under sections 260.350-260.430, RSMo;

(D) Any release of a hazardous substance which requires immediate notice under 49 CFR part 171; and

(E) The department shall promulgate rules identifying the substances and the quantities of substances which, if released, constitute a hazardous substance emergency.

(9) Hazardous Substance Emergency Response Plan—the plan, as specified in section 260.505, RSMo, developed and maintained by the Missouri Department of Natural Resources for response to hazardous substance emergencies.

(10) Local Emergency Planning Committee (LEPC) or committee—the people appointed by the Missouri Emergency Response Commission (MERC) for the purpose of improving hazardous chemical safety and preparedness.

(11) Local government—any county, township, municipal corporation, school district or other governmental body of equivalent rank.

(12) Person—any individual, partnership, copartnership, firm, company, public or private corporation, association, joint stock company, trust, estate, political subdivision or any agency, board, department or bureau of the state or federal government or any other legal entity which is recognized by law as the subject of rights and duties.

(13) Person having control over a hazardous substance—any person producing, handling, storing, transporting, refining or disposing of a hazardous substance when a hazardous substance emergency occurs, including bailees, carriers and any other person in control of a hazardous substance when a hazardous substance emergency occurs, whether they own the hazardous substance or are operating under a lease, contract or other agreement with the legal owner.

(14) Release—any threatened or real emission, discharge, spillage, leakage, pumping, pouring, emptying or dumping of a substance into or onto the land, air or waters of the state unless done in compliance with the conditions of a federal or state permit, unless the substance is confined and is expected to stay confined to property owned, leased or otherwise controlled by the person having control over the substance or unless, in the case of pesticides, application is done in accordance with the product label.

(15) State of Missouri Basic Emergency Operations Plan—the state plan, its annexes and appendices as developed or maintained by the state emergency management agency for response to natural and man-made disasters in this state.

(16) Waters of the state—all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two (2) or more persons jointly or as tenants in common and include waters of the United States lying within the state.

AUTHORITY: section 260.520, RSMo Supp. 1993.\* Original rule filed Nov. 30, 1983, effective April 12, 1984. Emergency amendment filed Dec. 2, 1992, effective Jan. 1, 1993, expired April 30, 1993. Amended: Filed Oct. 5, 1992, effective April 8, 1993. Amended: Filed June 14, 1994, effective Jan. 29, 1995.

CSR

\*Original authority: 260.520, RSMo 1983, amended 1993.

# Rules of Department of Natural Resources Division 24—Hazardous Substance Emergency Response Office Chapter 3—Emergency Notification Procedures

	ge
<b>10 CSR 24-3.010</b> Notification Procedures for Hazardous Substance Emergencies and for Emergency Notification of Releases of Hazardous Substances and Extremely Hazardous Substances	3

CSR

#### Title 10—DEPARTMENT OF NATURAL RESOURCES Division 24—Hazardous Substance Emergency Response Office Chapter 3—Emergency Notification Procedures

#### 10 CSR 24-3.010 Notification Procedures for Hazardous Substance Emergencies and for Emergency Notification of Releases of Hazardous Substances and Extremely Hazardous Substances

PURPOSE: This rule establishes a statewide emergency telephone number to notify Missouri whenever a hazardous substance emergency occurs and specifies the requirements for emergency notification and follow-up written notices in the event of a hazardous substance emergency, the release of a reportable quantity of a hazardous substance and the release of a reportable quantity of an extremely hazardous substance.

PUBLISHER'S NOTE: The publication of the full text of the material that the adopting agency has incorporated by reference in this rule would be unduly cumbersome or expensive. Therefore, the full text of that material will be made available to any interested person at both the Office of the Secretary of State and the office of the adopting agency, pursuant to section 536.031.4, RSMo. Such material will be provided at the cost established by state law.

(1) Any person having control over a hazardous substance shall contact Missouri by telephone at (573) 634-2436 or the National Response Center at (800) 424-8802 at the earliest practical moment upon discovery of an emergency involving a hazardous substance under his/her control. Information to be provided to Missouri to the best ability of the person having control over the hazardous substance includes: substance(s) involved, an indication of whether the substance is an extremely hazardous substance; the medium or media into which the release occurred; any known or anticipated acute or chronic health risks associated with the release and, where appropriate, advice regarding medical attention necessary for exposed individuals; proper precautions to take as a result of the release, including evacuation; amount of the substance(s) released or in danger of being released; location of the hazardous substance emergency and directions to the site; names, addresses and phone numbers of persons that may have information on the substances involved: when the hazardous substance emergency occurred, duration of the release

and when it was discovered; actions taken to cleanup the hazardous substance and to end the hazardous substance emergency and when those actions will be taken; and any other pertinent information requested by Missouri, or as specified in the Missouri hazardous waste management commission regulations at 10 CSR 25-7.264(2)(D) and (E) and 10 CSR 25-7.265(2)(D) and (E). Federal reporting requirements for releases of hazardous substances can be found in 40 CFR parts 302 and 355. In addition, state reporting requirements contained in 11 CSR 40-4.030 reference these regulations, and require that certain information be provided to Local Emergency Planning Committees (LEPCs) for reportable releases of hazardous substances and extremely hazardous substances.

(2) The person monitoring the statewide emergency telephone shall notify appropriate agencies of the hazardous substance emergency as designated in the Hazardous Substance Emergency Response Plan.

(3) Upon request, written follow-up notifications are required for releases of hazardous substances and extremely hazardous substances as listed in 40 CFR parts 302 and 355. If requested, the person having control of the hazardous substance or extremely hazardous substance shall provide a written follow-up emergency notice (or notices, as more information becomes available) to the department setting forth and updating the information with respect to—

(A) Information required in section (1);

(B) Actions taken to respond to and contain the release;

(C) Any known or anticipated acute or chronic health risks associated with the release; and

(D) Where appropriate, advice regarding medical attention necessary for exposed individuals.

(4) If requested, a written report shall be provided to the department for any other hazardous substance emergency. The requested reports shall contain the information as specified in sections (1) and (3) of this rule and any other pertinent information as requested by the department. In addition, state reporting requirements in 11 CSR 40-4.030 require that written follow-up reports be provided to the Department of Public Safety and appropriate LEPCs for any reportable releases of hazardous substances or extremely hazardous substances.

AUTHORITY: section 260.520, RSMo (Supp. 1995).\* Original rule filed Nov. 30, 1983, effective April 12, 1984. Emergency amend-

ment filed Dec. 2, 1992, effective Jan. 1, 1993, expired April 30, 1993. Amended: Filed Oct. 5, 1992, effective April 8, 1993. Amended: Filed June 14, 1994, effective Jan. 29, 1995. Amended: Filed July 22, 1996, effective Feb. 28, 1997.

\*Original authority 1983, amended 1993, 1995.

## **Spill Report Form**

#### For spills of reportable quantities that impact soil, surface water or ground water call MDNR 24-hour Environmental Emergency Response at 573-634-2436.

Site:	Primary Contractor:	-

Date: \_\_\_\_\_

Incident Date: \_\_\_\_\_

\_\_\_\_

Complete for any type of petroleum product or hazardous materials / waste spill or incident. If the spill is of reportable quantity, report must be submitted within five (5) business days.

Keep a copy of this report with the SWPPP Log.

Person Reporting Spill or Incident	
Name	Address
Organization	
Title	
Telephone	
Email	Signature

Type of Spill:	
Common Name of Spilled Substance	
Estimated Quantity Spilled	
Estimated Concentration	
Date and Duration of Spill	
Date Clean Up Completed	

SPILL TO LAND	SPILL TO WATER BODY
Name of site:	Name of water body:
Street address:	Location of discharge
City	Description of area from which spilled material
County:	may reach:

### Actions Taken:

To contain spill:

To clean up spill:

To remove/dispose of spilled substance and cleanup material:

To prevent reoccurrence:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Person responsible for managing spill response:		
Name	Signature	
Phone	Email	

## **Spill Report Form**

#### For spills of reportable quantities that impact soil, surface water or ground water call MDNR 24-hour Environmental Emergency Response at 573-634-2436.

Site:	Primary Contractor:	-

Date: \_\_\_\_\_

Incident Date: \_\_\_\_\_

\_\_\_\_

Complete for any type of petroleum product or hazardous materials / waste spill or incident. If the spill is of reportable quantity, report must be submitted within five (5) business days.

Keep a copy of this report with the SWPPP Log.

Person Reporting Spill or Incident	
Name	Address
Organization	
Title	
Telephone	
Email	Signature

Type of Spill:	
Common Name of Spilled Substance	
Estimated Quantity Spilled	
Estimated Concentration	
Date and Duration of Spill	
Date Clean Up Completed	

SPILL TO LAND	SPILL TO WATER BODY
Name of site:	Name of water body:
Street address:	Location of discharge
City	Description of area from which spilled material
County:	may reach:

### Actions Taken:

To contain spill:

To clean up spill:

To remove/dispose of spilled substance and cleanup material:

To prevent reoccurrence:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Person responsible for managing spill response:		
Name	Signature	
Phone	Email	

# **SECTION 10**

Endangered Species Documentation



### **Missouri Department of Conservation**

Missouri Department of Conservation's Mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunities for all citizens to use, enjoy and learn about these resources.

#### Natural Heritage Review <u>Level Two Report: State Listed Endangered Species and/or Missouri</u> <u>Species/Natural Communities of Conservation Concern</u>

There are records of state-listed Endangered Species, or Missouri Species or Natural Communities of Conservation Concern within or near the defined Project Area. <u>Please contact Missouri Department of Conservation for further coordination</u>.

**Foreword:** Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this report is to provide information to federal, state and local agencies, organizations, municipalities, corporations, and consultants regarding sensitive fish, wildlife, plants, natural communities, and habitats to assist in planning, designing, and permitting stages of projects.

#### **PROJECT INFORMATION**

Project Name and ID Number: Lee's Summit Market Plaza #13507
Project Description: Redevelopment of downtown areas in the city of Lee's Summit, Jackson County, MO, S5 T47N R31W.
Site discharges into public storm sewer into East Fork Little Blue River
Project Type: Residential, Commercial and Governmental Building Development
Contact Person: Arman Romanov
Contact Information: aromanov@olsson.com or 8163611177

**Disclaimer:** This NATURAL HERITAGE REVIEW REPORT identifies if a species or natural community tracked by the Natural Heritage Program is known to occur within or near the project area submitted, and shares recommendations to avoid or minimize project impacts to sensitive species or natural habitats. Incorporating information from the Natural Heritage Program into project plans is an important step in reducing impacts to Missouri's sensitive natural resources. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information.

This Natural Heritage Review Report is not a site clearance letter for the project. Rather, it identifies public lands and records of sensitive resources located close to and/or potentially affected by the proposed project. If project plans or location change, this report may no longer be valid. Because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, reports include information about records near but not necessarily on the project site. Lack of an occurrence record does not mean that a sensitive species or natural community is not present on or near the project area. On-site verification is the responsibility of the project. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts and additional information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

**U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination:** Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. This report does not fulfill Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit IPaC: Home (fws.gov) to initiate USFWS Information for Planning and Conservation (IPaC) consultation. Contact the Columbia Missouri Ecological Field Services Office (573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203) for more information.

**Transportation Projects:** If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or visit <u>Home Page | Missouri Department of Transportation (modot.org)</u> for additional information on recommendations.

## Lee's Summit Market Plaza



Esri, NASA, NGA, USGS, FEMA, City of Lees Summit, Missouri Dept. of Conservation, Missouri DNR, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

#### Species or Communities of Conservation Concern within the Area:

There are records of state-listed Endangered Species, or Missouri Species or Natural Communities of Conservation Concern within or near the defined Project Area. <u>Please contact the Missouri Department of Conservation for further coordination.</u>

Email (preferred): <u>NaturalHeritageReview@mdc.mo.gov</u> MDC Natural Heritage Review Science Branch P.O. Box 180 Jefferson City, MO 65102-0180 Phone: 573-522-4115 ext. 3182

#### **Other Special Search Results:**

No results have been identified for this project location.

#### **Project Type Recommendations:**

New construction, maintenance and remodeling, including government, commercial and residential buildings and other structures. Fish, forest, and wildlife impacts can be avoided by siting projects in locations that have already been disturbed or previously developed, where and when feasible, and by avoiding alteration of areas providing existing habitat, such as wetlands, streams, forest, native grassland, etc. The project should be managed to minimize erosion and sedimentation/runoff to nearby wetlands, streams and lakes, including adherence to any Clean Water Act permit conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate areas in which the natural cover is disturbed to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crownvetch and sericea lespedeza. Pollutants, including sediment, can have significant impacts far downstream. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor the site after rain events and until a well-rooted ground cover is reestablished. Please see <u>Best Management Practices for Construction and Development Projects Affecting Missouri Rivers and Streams (mo.gov)</u>.

#### Project Location and/or Species Recommendations:

Endangered Species Act Coordination - If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act. Indiana bats (*Myotis sodalis*, federal- and state-listed endangered) and Northern long-eared bats (*Myotis septentrionalis*, federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April.

**Karst**: This county has known karst geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are Species of Conservation Concern) are influenced by changes to water quality; please check your project site for any karst features and make every effort to protect groundwater in the project area. Additional information and specific recommendations are available at <u>Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat (mo.gov)</u>.

**Invasive exotic species** are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See <u>Managing Invasive Species in Your Community | Missouri Department of Conservation (mo.gov)</u> for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (>140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

**Streams and Wetlands – Clean Water Act Permits:** Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (Kansas City District Regulatory Branch (army.mil)) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (Section 401 Water Quality Certification | Missouri Department of Natural Resources (mo.gov)), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit Wastewater Permits | Missouri Department of Natural Resources (mo.gov) for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

# For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below:

Email (preferred): <u>NaturalHeritageReview@mdc.mo.gov</u> MDC Natural Heritage Review Science Branch P.O. Box 180 Jefferson City, MO 65102-0180 Phone: 573-522-4115 ext. 3182 U.S. Fish and Wildlife Service Ecological Service 101 Park Deville Drive Suite A Columbia, MO 65203-0007 Phone: 573-234-2132

#### **Miscellaneous Information**

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

See <u>Missouri Species and Communities of Conservation Concern Checklist (mo.gov)</u> for a complete list of species and communities of conservation concern. Detailed information about the animals and some plants mentioned may be accessed at <u>Mofwis Search Results</u>. Please contact the Missouri Department of Conservation to request printed copies of any materials linked in this document.



## United States Department of the Interior

FISH AND WILDLIFE SERVICE Missouri Ecological Services Field Office 101 Park Deville Drive Suite A Columbia, MO 65203-0057 Phone: (573) 234-2132 Fax: (573) 234-2181



October 24, 2023

In Reply Refer To: Project Code: 2024-0008152 Project Name: Lee's Summit Market Plaza

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

#### **Threatened and Endangered Species**

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list. **Consultation Technical Assistance** 

Refer to the Midwest Region <u>S7 Technical Assistance</u> website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects:

projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

#### **Federally Listed Bat Species**

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features – particularly within stream corridors, riparian areas, or associated upland woodlots –gray bats could be affected. Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags  $\geq 5$  inches diameter at breast height (dbh) for Indiana bat, and  $\geq 3$  inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.

Examples of <u>unsuitable</u> habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

#### Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example <u>"No Effect" document</u> also can be found on the S7 Technical Assistance website.

- 2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project other than bats (see #3 below) then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the Species website.
- 3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:
  - a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
  - b. Any activity in or near the entrance to a cave or mine;
  - c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
  - d. Construction of one or more wind turbines; or
  - e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example <u>"No Effect" document</u> also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of <u>suitable</u> forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the <u>Range-wide Indiana Bat Summer Survey</u> <u>Guidelines</u>.

#### **Other Trust Resources and Activities**

*Bald and Golden Eagles* - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

*Migratory Birds* - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA

to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

*Communication Towers* - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

*Transmission Lines* - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to <u>guidelines</u> developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

*Wind Energy* - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's <u>Wind Energy Guidelines</u>. In addition, please refer to the Service's <u>Eagle</u> <u>Conservation Plan Guidance</u>, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

#### Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

John Weber

Attachment(s):

Official Species List

## **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether

any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

#### **Missouri Ecological Services Field Office**

101 Park Deville Drive Suite A Columbia, MO 65203-0057 (573) 234-2132

### **PROJECT SUMMARY**

Project Code:2024-0008152Project Name:Lee's Summit Market PlazaProject Type:Commercial DevelopmentProject Description:Redevelopment of downtown area in the city of Lee's Summit, MOProject Location:Vertical Commercial Co

The approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@38.91495355,-94.37453764409918,14z</u>



Counties: Jackson County, Missouri

### **ENDANGERED SPECIES ACT SPECIES**

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

#### MAMMALS

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/6329</u>	Endangered
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/5949</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/7HPYZMJ2BJHEFMO3MQDKQFTJT4/documents/</u> <u>generated/6868.pdf</u>	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/7HPYZMJ2BJHEFMO3MQDKQFTJT4/documents/</u> <u>generated/6868.pdf</u>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/10515</u>	Proposed Endangered

NAME

Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9743</u>

#### **CRITICAL HABITATS**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

STATUS

Candidate

## **IPAC USER CONTACT INFORMATION**

Agency:	Private Entity
Name:	Arman Abdigaliyev
Address:	1301 Burlington
Address Line 2:	Suite 100
City:	North Kansas City
State:	MO
Zip:	64116
Email	aabdigaliyev@olsson.com
Phone:	8163611177

# **SECTION 11**

## **Historic Preservation Documentation**

Section 106 of the 1966 National Historic Preservation Act (as amended) aims to protect historic and cultural properties from unintentional federal action. A federal action can be through a permit, license or funding. If the preceding situations do not apply to this project a Section 106 review is not required. The permittee must still comply with relevant state and local regulations.

# **SECTION 12**

**Inspection Reports** 

-Log of Inspections

-Inspection Reports

-Inspector Credentials

# Log of Inspections

Inspection Date	Inspector Name	Type of Inspection		Inspection Date	Inspector Name	Type of Inspection
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General Information						
Project Name		Date of Inspection				
Permit Number		Time of Inspection				
Inspector's Name(s)		Inspector's Title				
Inspector's Contact Information			1			
Describe present phase of construction						
Type of Inspection:	□ Routine □ Post-storm	event				
	Weather Infor	mation				
Has there been a storm event since	the last inspection? • Yes	□No				
If yes, provide:						
Storm Start Date: Approxima	te Amount of Precipitation (in	ı):				
Weather at time of this inspection	Weather at time of this inspection?					
□ Clear □ Cloudy □ Rain	□ Sleet □ Fog □ Snov	ving 🛛 High Winds				
Generation Other:	Temperature:					
Were any discharges noted at the time of inspection? □Yes □No						
If yes, describe:						
	BMP Effectiv	veness				
Were BMPs operating effectively of	Were BMPs operating effectively during inspection?  UYes  No					
If no, does SWPPP need to be amended?						

List any non-effective BMPs in the corrective action log on the next page.

List any amendments to the SWPPP that were identified as being necessary during inspection:

# Areas Where Land Disturbance Operations Have Permanently or Temporarily Stopped

#### **CERTIFICATION STATEMENT**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print name and title:

#	BMP Location	Corrective Action Needed	Date Corrected	Corrective Actions Taken

General Information						
Project Name		Date of Inspection				
Permit Number		Time of Inspection				
Inspector's Name(s)		Inspector's Title				
Inspector's Contact Information			1			
Describe present phase of construction						
Type of Inspection:	□ Routine □ Post-storm	event				
	Weather Infor	mation				
Has there been a storm event since	the last inspection? • Yes	□No				
If yes, provide:						
Storm Start Date: Approxima	te Amount of Precipitation (in	ı):				
Weather at time of this inspection	Weather at time of this inspection?					
□ Clear □ Cloudy □ Rain	□ Sleet □ Fog □ Snov	ving 🛛 High Winds				
Generation Other:	Temperature:					
Were any discharges noted at the time of inspection? □Yes □No						
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	Weather Infor	mation				
Has there been a storm event since	the last inspection? • Yes	□No				
If yes, provide:						
Storm Start Date: Approxima	te Amount of Precipitation (in	ı):				
Weather at time of this inspection	Weather at time of this inspection?					
□ Clear □ Cloudy □ Rain	□ Sleet □ Fog □ Snov	ving 🛛 High Winds				
Generation Other:	Temperature:					
Were any discharges noted at the time of inspection? □Yes □No						
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Inspector's Name(s)		Inspector's Title				
Inspector's Contact Information			1			
Describe present phase of construction						
Type of Inspection:	□ Routine □ Post-storm	event				
	Weather Infor	mation				
Has there been a storm event since	the last inspection? • Yes	□No				
If yes, provide:						
Storm Start Date: Approxima	te Amount of Precipitation (in	ı):				
Weather at time of this inspection	Weather at time of this inspection?					
□ Clear □ Cloudy □ Rain	□ Sleet □ Fog □ Snov	ving 🛛 High Winds				
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Were any discharges noted at the time of inspection? □Yes □No						
If yes, describe:						
	BMP Effectiv	veness				
Were BMPs operating effectively of	Were BMPs operating effectively during inspection?  UYes  No					
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Print name and title:

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General Information						
Project Name		Date of Inspection				
Permit Number		Time of Inspection				
Inspector's Name(s)		Inspector's Title				
Inspector's Contact Information			1			
Describe present phase of construction						
Type of Inspection:	□ Routine □ Post-storm	event				
	Weather Infor	mation				
Has there been a storm event since	the last inspection? • Yes	□No				
If yes, provide:						
Storm Start Date: Approxima	te Amount of Precipitation (in	ı):				
Weather at time of this inspection	Weather at time of this inspection?					
□ Clear □ Cloudy □ Rain	□ Sleet □ Fog □ Snov	ving 🛛 High Winds				
Generation Other:	Temperature:					
Were any discharges noted at the time of inspection? □Yes □No						
If yes, describe:						
	BMP Effectiv	veness				
Were BMPs operating effectively of	Were BMPs operating effectively during inspection?  UYes  No					
If no, does SWPPP need to be amended?						

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# Areas Where Land Disturbance Operations Have Permanently or Temporarily Stopped

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Print name and title:
#	BMP Location	Corrective Action Needed	Date Corrected	Corrective Actions Taken

## **SECTION 13**

Regulatory Correspondence

Pertinent correspondence from regulatory agencies relating to this project can be located here.

# **SECTION 14**

Notice of Termination

This section should contain the completed Notice of Termination for the project that can be accessed through the Missouri Gateway for Environmental Management at <a href="https://dnr.mo.gov/mogem/">https://dnr.mo.gov/mogem/</a>.

Documentation of acceptance from the DNR should also be kept here and all documents must be retained for 3 years after the date of NOT acceptance.

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#### MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH REQUEST FOR TERMINATION OF OPERATING PERMIT (REPLACES TERMINATION FORMS H AND J)

FOR OFFICE USE ONLY

DATE RECEIVED

IF A FACILITY OR SITE HAS BEEN SOLD. BUT PERMITTED ACTIVITIES HAVE NOT CEASED. A TRANSFER OF OWNERSHIP							
FORM (MO 780-1517) MUST BE COMPLETED RATHER THAN A TERMINATION FORM.							
ALL APPLICABLE SECTIONS OF THIS FORM MUST BE COMPLETED.							
1. FACILITY INFORMATION							
PERMIT NUMBER			COUNTY				
NAME OF FACILITY							
PHYSICAL ADDRESS		CITY	CITY		ZIP CODE		
FACILITY CONTACT NAME	FACILITY CONTACT TELEPHONE	NUMBER	FACILITY CONTACT EMA	<u> </u>			
2. OWNER							
NAME		TELEPHONE NUMBER WITH AREA CODE					
ADDRESS		СІТҮ		STATE	ZIP CODE		
EMAIL							
3. CONTINUING AUTHORITY							
NAME		TELEPHO	NE NUMBER WITH AREA COD	Ε			
ADDRESS		CITY		STATE	ZIP CODE		
EMAIL		I					
4. REASON FOR TERMINATION RE	QUEST (CHECK ONE)						
Permitted activities have ceased, o supporting documents as required	r facility is closed (must selec ).	ct facility	type in section five a	nd attach i	photographs or any other		
General Permit MO-G	or MO-R		has been issued and	d covers al	Il regulated activities.		
Site specific permit MO has been issued and covers all regulated activities.							
Facility has obtained a "No Exposure" certification, MO-NX							
Industrial activity (SIC Code #) is not regulated.							
For CAFOs, facility size is unregulated (Class II and smaller operations only).							
Other (Specify).							
MO 780-2814 (02-19)							

### 5. FACILITY TYPE (CHECK ONE FACILITY TYPE, COMPLETE ONLY IF PERMITTED ACTIVITY HAS CEASED OR FACILITY HAS CLOSED)

□ For land disturbance sites, the area is stabilized; perennial vegetation, pavement, buildings or other permanent structures cover all areas that have been disturbed; no further land disturbance activities are planned; all building construction (commercial or residential) is completed; temporary best management practices are removed, and construction equipment is removed. With respect to areas that have been vegetated, vegetation cover shall be at least 70 percent over 100 percent of the site not covered in impervious material. Attach photographs showing stabilized areas.
□ For wastewater treatment plants, the treatment plant is removed and sludge was removed and properly disposed of, and a closure plan in accordance with <u>10 CSR 20-6.010(12)</u> or <u>10 CSR 20-6.015(5)</u> was approved and implemented. Attach documentation required by the approved closure plan and photographs of the closed area. See the <i>Water Treatment Plant Closure</i> -PUB2568 fact sheet at <u>dnr.mo.gov/pubs/pub2568.htm</u> for more information on closure requirements for wastewater treatment plants.
For industrial facilities, regulated activities have ceased, no "significant materials" remain on-site and disturbed areas are properly stabilized or vegetated. The area is stabilized when perennial vegetation, pavement, buildings or structures using permanent materials cover all areas that have been disturbed. Vegetation cover shall be at least 70 percent over 100 percent of the site not covered in impervious material. Attach applicable closure documents and photographs of the closed area that demonstrate no

For quarries or sand and gravel operations, submit documentation of release from the department's Land Reclamation Program.

For landfills, official closure has been received from department's Solid Waste Management Program (SWMP); cap is vegetated as required by SWMP; and any additional industrial activities are permitted appropriately (i.e., transfer stations, mulching operations, land disturbance, etc.). Attach the official SWMP closure letter and permit numbers of any continuing active industrial or land disturbance activities.

#### For CAFOs

permitted activities or materials remain.

Class I CAFOs must properly close lagoons and waste storage structures per a closure plan in accordance with <u>10 CSR</u> <u>20-6.300(6)</u> and approved by the department. Attach photographs of closed lagoons. Also attach any additional information that supports closure of the facility.

Class II CAFOs must close waste storage structures in accordance with <u>10 CSR 20-6.300(6)(B)</u>, or shall continue to maintain all storage structures so there is no discharge to waters of the state. Attach photographs of closed or repurposed lagoons, or an explanation of "no discharge" methods. Also attach any additional information that supports closure of the facility.

#### 6. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE			
SIGNATURE	DATE SIGNED			

#### 7. MAIL COMPLETED COPY TO:

For Site Specific (MO-), Abandoned Mine And Land Reclamation (MO-G05), Land Disturbance By County Or City (MO-R100), Pesticide Application (MO-G87), Sewer Extension Construction (MO-GC) and CAFO (MO-G01, MO-GS1) Permit Terminations:

> Missouri Department of Natural Resources Water Protection Program Water Pollution Control Branch Attn: Operating Permits Section P.O. Box 176 Jefferson City, MO 65102-0176

#### For General Permit Terminations (MO-G or MO-R):

Send to the appropriate regional office. Regional office is determined based on the county where the facility is physically located.

> To determine the correct regional office for the permitted facility, see dnr.mo.gov/regions.

MO 780-2814 (02-19)