

# Stormwater Pollution Prevention Plan

## for:

Summit at Powder Mountain: Summit Pass and Spring Park Roadway  
and Utility Construction Project  
Project No 32106  
Weber County, Utah

## Operator(s):

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## SWPPP Contact(s):

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## SWPPP Preparation Date:

July 15, 2013

*Estimated Project Dates:*

**Project Start Date: July 29, 2013**  
**Project Completion Date: Aug. 22, 2014**

**For Access Go To: <http://www.compliancego.com/cgviewer/>**  
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## Contents

<b>SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING .....</b>	<b>1</b>
1.1 Project/Site Information.....	1
1.2 Contact Information/Responsible Parties .....	2
1.3 Nature and Sequence of Construction Activity .....	3
1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns.....	3
1.5 Construction Site Estimates .....	4
1.6 Receiving Waters.....	5
1.7 Site Features and Sensitive Areas to be Protected.....	5
1.8 Potential Sources of Pollution.....	6
1.9 Endangered Species Certification.....	7
1.10 Historic Preservation.....	9
1.11 Applicable Federal, Tribal, State or Local Programs .....	9
1.12 Maps.....	10
<b>SECTION 2: EROSION AND SEDIMENT CONTROL BMPS.....</b>	<b>11</b>
2.1 Minimize Disturbed Area and Protect Natural Features and Soil.....	12
2.2 Phase Construction Activity .....	12
2.3 Control Stormwater Flowing onto and through the Project.....	13
2.4 Stabilize Soils.....	13
2.5 Protect Slopes.....	14
2.6 Protect Storm Drain Inlets .....	14
2.7 Establish Perimeter Controls and Sediment Barriers.....	15
2.8 Retain Sediment On-Site.....	15
2.9 Establish Stabilized Construction Exits.....	16
2.10 Additional BMPs .....	16
<b>SECTION 3: GOOD HOUSEKEEPING BMPS .....</b>	<b>17</b>
3.1 Material Handling and Waste Management .....	17
3.2 Establish Proper Building Material Staging Areas .....	18
3.3 Designate Washout Areas.....	18
3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices .....	19
3.5 Control Equipment/Vehicle Washing.....	19
3.6 Spill Prevention and Control Plan.....	20
3.7 Any Additional BMPs .....	20
3.8 Allowable Non-Stormwater Discharge Management.....	21
<b>SECTION 4: SELECTING POST-CONSTRUCTION BMPS .....</b>	<b>22</b>
<b>SECTION 5: INSPECTIONS.....</b>	<b>23</b>
5.1 Inspections .....	23
5.2 Delegation of Authority .....	25
5.3 Corrective Action Log .....	25
<b>SECTION 6: RECORDKEEPING AND TRAINING .....</b>	<b>26</b>
6.1 Recordkeeping.....	26
6.2 Log of Changes to the SWPPP .....	26
6.3 Training.....	27
<b>SECTION 7: FINAL STABILIZATION.....</b>	<b>28</b>

**SECTION 8: CERTIFICATION AND NOTIFICATION..... 29**  
**SWPPP APPENDICES ..... 30**  
Appendix A – General Location Map and Site Maps  
Appendix B – Construction General Permit  
Appendix C – NOI and Acknowledgement Letter from EPA/State  
Appendix D – Inspection Reports  
Appendix E – Corrective Action Log (or in Part 5.3)  
Appendix F – SWPPP Amendment Log (or in Part 6.2)  
Appendix G – Subcontractor Certifications/Agreements  
Appendix H – Grading and Stabilization Activities Log (or in Part 6.1)  
Appendix I – Training Log  
Appendix J – Delegation of Authority  
Appendix K – Additional Information (i.e., Endangered Species and Historic Preservation Documentation;  
other permits such as dewatering, stream alteration, wetland; and out of date SWPPP documents)  
Appendix L – BMP Specifications

# SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING CERTIFICATION, AND SIGNATURE

## 1.1 Project/Site Information

**Instructions:**

- In this section, you can gather some basic site information that will be helpful to you later when you file for permit coverage.
- For more information, see *Developing Your Stormwater Pollution Prevention Plan: A SWPPP Guide for Construction Sites* (also known as the *SWPPP Guide*), Chapter 2
- Detailed information on determining your site's latitude and longitude can be found at [www.epa.gov/npdes/stormwater/latlong](http://www.epa.gov/npdes/stormwater/latlong)

Project/Site Name: Summit at Powder Mountain

Project Street/Location: \_\_\_\_\_

City: Eden State: UT ZIP Code: 84310

County or Similar Subdivision: Weber County

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:

1. \_\_\_ ° \_\_\_ ' \_\_\_ " N (degrees, minutes, seconds)

2. 4 1 ° 2 2 . 6 3 ' N (degrees, minutes, decimal)

3. \_\_\_ . \_\_\_\_\_ ° N (decimal)

Longitude:

1. \_\_\_ ° \_\_\_ ' \_\_\_ " W (degrees, minutes, seconds)

2. 1 1 1 ° 4 6 . 8 3 ' W (degrees, minutes, decimal)

3. \_\_\_ . \_\_\_\_\_ ° W (decimal)

Method for determining latitude/longitude:

USGS topographic map (specify scale: 1000)  EPA Web site  GPS

Other (please specify): \_\_\_\_\_

Is the project located in Indian country?  Yes  No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable." \_\_\_\_\_

Is this project considered a federal facility?  Yes  No

UPDES project or permit tracking number\*: \_\_\_\_\_

\*(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate National Pollutant Discharge Elimination System (UPDES) construction general permit.)

## 1.2 Contact Information/Responsible Parties

**Instructions:**

- List the operator(s), project managers, stormwater contact(s), and person or organization that prepared the SWPPP. Indicate respective responsibilities, where appropriate.
- Also, list subcontractors expected to work on-site. Notify subcontractors of stormwater requirements applicable to their work.
- See *SWPPP Guide*, Chapter 2.B.

**Operator/Project Manager:**

Company: Geneva Rock Products, Inc.  
Name: Tom Hall  
Address Line 1: 2773 Industrial Drive  
Address Line 2: Ogden, UT 84401  
Telephone Number: (435) 890-9893  
Email: thall@genevarock.com

**SWPPP Contact(s):**

Company: Geneva Rock Products, Inc.  
Name: Dexter Tan  
Address Line 1: 2773 Industrial Drive  
Address Line 2: Ogden, UT 84401  
Telephone Number: 801-627-2801  
Email: dtan@genevarock.com  
Company: Geneva Rock Products, Inc.

**This SWPPP was Prepared by:**

Company: Geneva Rock Products, Inc.  
Name: Dexter Tan  
Address Line 1: 2773 Industrial Drive  
Address Line 2: Ogden, UT 84401  
Telephone Number: 801-627-2801  
Email: dtan@genevarock.com

**SWPPP Subcontractor(s):**

If any, see amendments.

**Emergency 24-Hour Contact:**

Company: Geneva Rock Products, Inc.

Name: Dexter Tan

Telephone number: 801-648-5102

### 1.3 Nature and Sequence of Construction Activity

**Instructions:**

- Briefly describe the nature of the construction activity and approximate time frames (one or more paragraphs, depending on the nature and complexity of the project).
- For more information, see *SWPPP Guide*, Chapter 3.A.

Describe the general scope of the work for the project, major phases of construction, etc:

Roadway, waterline, sanitary sewer line, and storm drain reconstruction along N. Powder Ridge Road.

What is the function of the construction activity?

- Residential     Commercial     Industrial     Road Construction     Linear Utility  
 Other (please specify):

Estimated Project Start Date: July 15, 2013

Estimated Project Completion Date: August 22, 2014

### 1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

**Instructions:**

- Describe the existing soil conditions at the construction site including soil types, slopes and slope lengths, drainage patterns, and other topographic features that might affect erosion and sediment control.
- Also, note any historic site contamination evident from existing site features and known past usage of the site.
- This information should also be included on your site maps (See *SWPPP Guide*, Chapter 3.C.).
- For more information, see *SWPPP Guide*, Chapter 3.A.

Soil type(s):

The current soil types of the site consists of 21.1% Lucky Star-Hoskin Association, 40.2% Poleline stony loam, 19.8% lucky star silt loam, and 18.4% Herd-Yence complex.

Slopes (describe current slopes and note any changes due to grading or fill activities):

Slopes are to be maintained at current slope of existing road.

Drainage Patterns (describe current drainage patterns and note any changes dues to grading or fill activities):

Drainage patterns will follow existing road drainage pattern.

Vegetation:

There are some trees that will need to be removed because they are in the way of construction.

Other:

### **1.5 Construction Site Estimates**

Instructions:

- Estimate the area to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.
- Calculate the percentage of impervious surface area before and after construction
- Calculate the runoff coefficients before and after construction.
- For more information, see *SWPPP Guide*, Chapter 3.A and Appendix C.

The following are estimates of the construction site.

Total project area:	45 acres
Construction site area to be disturbed:	40 acres
Percentage impervious area before construction:	0%
Runoff coefficient before construction:	0.20
Percentage impervious area after construction:	0%
Runoff coefficient after construction	0.75

## 1.6 Receiving Waters

**Instructions:**

- List the waterbody(s) that would receive stormwater from your site, including streams, rivers, lakes, coastal waters, and wetlands. Describe each as clearly as possible, such as Big Cottonwood Creek, *a tributary to the Jordan River*, and so on.
- Indicate the location of all waters, including wetlands, on the site map.
- Note any stream crossings, if applicable.
- List the storm sewer system or drainage system that stormwater from your site could discharge to and the waterbody(s) that it ultimately discharges to.
- If any of the waterbodies above are impaired and/or subject to Total Maximum Daily Loads (TMDLs), please list the pollutants causing the impairment and any specific requirements in the TMDL(s) that are applicable to construction sites. Your SWPPP should specifically include measures to prevent the discharge of these pollutants.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.
- Also, for more information and a list of TMDL contacts and links by state, visit [www.epa.gov/npdes/stormwater/tmdl](http://www.epa.gov/npdes/stormwater/tmdl).

**Description of receiving waters:**

Nearest receiving water is Pineview Reservoir in Eden.

**Description of storm sewer systems:**

There are 18 storm drain inlets that need to be protected.

**Description of impaired waters or waters subject to TMDLs:**

See attached sheet for TMDL document for Pineview Reservoir with appendices.

## 1.7 Site Features and Sensitive Areas to be Protected

**Instructions:**

- Describe unique site features including streams, stream buffers, wetlands, specimen trees, natural vegetation, steep slopes, or highly erodible soils that are to be preserved.
- Describe measures to protect these features.
- Include these features and areas on your site maps.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.



## 1.8 Potential Sources of Pollution

Description of unique features that are to be preserved:  
 Slopes and vegetation.

Describe measures to protect these features:  
 Drop-inlet barrier filter to be installed. Install silt fence along vegetation impact area. Install stabilized construction entrance to prevent sediment tracking.

**Instructions:**

- Identify and list all potential sources of sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- Identify and list all potential sources of pollution, other than sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- For more information, see *SWPPP Guide*, Chapter 3.A.

Potential sources of sediment to stormwater runoff:

- 1) Clearing and grubbing operations
- 2) Grading and site excavation operations
- 3) Vehicle tracking
- 4) Topsoil and stripping and stockpiling
- 5) Landscaping operations
- 6) Combined Staging Area-small fueling activities, minor equipment maintenance, sanitary facilities, and hazardous waste storage.
- 7) Materials Storage Area- general building materials, solvents, adhesives, paving materials, paints, aggregates, trash, etc.
- 8) Construction Activity- Guardrail installation

Potential pollutants and sources, other than sediment, to stormwater runoff:

Trade Name Material	Stormwater Pollutants	Location
Diesel Fuel	Petroleum distillate, oil and grease, naphthalene, xylenes	Secondary containment/staging area
Gasoline	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment/staging area
Hydraulic oil/fluids	Mineral Oil	Leaks or broken hoses from equipment

Antifreeze/coolant	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Leaks or broken hoses from equipment
Sanitary Toilets	Bacteria, parasites and viruses	Staging Area

### 1.9 Endangered Species Certification

Instructions:

- Before beginning construction, determine whether endangered or threatened species or their critical habitats are on or near your site. For help to determine this you may wish to call the Dept of Natural Resources, Div. of Wildlife Resources at 801-538-4700 or call US Fish & Wildlife at 801-975-3330.
- Adapt this section as needed for state or tribal endangered species requirements and, if applicable, document any measures deemed necessary to protect endangered or threatened species or their critical habitats.
- For more information on this topic, see *SWPPP Guide*, Chapter 3.B.
- Additional information on Endangered Species Act (ESA) provisions is at [www.epa.gov/nodes/stormwater/esa](http://www.epa.gov/nodes/stormwater/esa)

Are endangered or threatened species and critical habitats on or near the project area?

Yes       No

Describe how this determination was made:

GRP reviewed the Endangered Species Act (ESA) review procedures and endangered species list for Utah available at <http://cfpub.epa.gov/npdes/stormwater/esa.cfm> (accessed on July 15, 2013).

If yes, describe the species and/or critical habitat:

Common Name	Scientific Name	Chance of Encounter
AMERICAN WHITE PELICAN	PELECANUS ERYTHRORHYNCHOS	None
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	Slight
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	None
BOBOLINK	DOLICHONYX ORYZIVORUS	Slight
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	None
BURROWING OWL	ATHENE CUNICULARIA	Slight
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	Slight
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	Slight
FERRUGINOUS HAWK	BUTEO REGALIS	Slight
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	Slight
GRAY WOLF	CANIS LUPUS	Slight
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	Slight
JUNE SUCKER	CHASMISTES LIORUS	None
KIT FOX	VULPES MACROTIS	Slight
LEWIS'S WOODPECKER	MELANERPES LEWIS	Slight
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	None
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	Slight
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	Slight
NORTHERN GOSHAWK	ACCIPITER GENTILIS	None
SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS	Slight
SHORT-EARED OWL	ASIO FLAMMEUS	Slight
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	Slight
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	None
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	Slight

If yes, describe or refer to documentation that determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. (Note, if species are on or near your project site, EPA strongly recommends that the site operator work closely with the appropriate field office of the U.S. Fish and Wildlife Service or National Marine Fisheries Service. For concerns related to state or tribal listing of species, please contact a state or tribal official.)

[All construction crews will be educated and trained on the encounter of an endangered species.](#)

## 1.10 Historic Preservation

**Instructions:**

- Before you begin construction, you should review federal and any applicable state, local, or tribal historic preservation laws and determine if there are historic sites on or near your project. If so, you might need to make adjustments to your construction plans or to your stormwater controls to ensure that these historic sites are not damaged. For help with Utah Historic Property and Antiquities you may wish to call 801-533-3535.
- For more information, see *SWPPP Guide*, Chapter 3.B or contact your state or tribal historic preservation

Are there any historic sites on or near the construction site?

Yes       No

Describe how this determination was made:

GRP reviewed the National Park Service National Historical Register Information System database and found that there are no historic sites near the construction area. The nearest is in North Ogden miles away and unaffected from the construction.

If yes, describe or refer to documentation that determines the likelihood of an impact on this historic site and the steps taken to address that impact.

-N/A

## 1.11 Applicable Federal, Tribal, State or Local Programs

**Instructions:**

- Note other applicable federal, tribal, state or local soil and erosion control and stormwater management requirements that apply to your construction site.

Currently do not have any requirements on top of the known State and EPA's Stormwater regulations.

## 1.12 Maps

### Instructions:

- Attach site maps. For most projects, a series of site maps is recommended. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or for more complicated sites show the major phases of development.

### These maps should include the following:

- Direction(s) of stormwater flow and approximate slopes before and after major grading activities;
- Areas and timing of soil disturbance;
- Areas that will not be disturbed;
- Natural features to be preserved;
- Locations of major structural and non-structural BMPs identified in the SWPPP;
- Locations and timing of stabilization measures;
- Locations of off-site material, waste, borrow, or equipment storage areas;
- Locations of all waters of the United States, including wetlands;
- Locations where stormwater discharges to a surface water;
- Locations of storm drain inlets; and
- Areas where final stabilization has been accomplished.
- For more information, see *SWPPP Guide*, Chapter 3.C.

See Appendix A for Site Maps.

## SECTION 2: EROSION AND SEDIMENT CONTROL BMPs

### Instructions:

- Describe the BMPs that will be implemented to control pollutants in stormwater discharges. For each major activity identified, do the following
  - ✓ Clearly describe appropriate control measures.
  - ✓ Describe the general sequence during the construction process in which the measures will be implemented.
  - ✓ Describe the maintenance and inspection procedures that will be used for that specific BMP.
  - ✓ Include protocols, thresholds, and schedules for cleaning, repairing, or replacing damaged or failing BMPs.
  - ✓ Identify staff responsible for maintaining BMPs.
  - ✓ (If your SWPPP is shared by multiple operators, indicate the operator responsible for each BMP.)
- Categorize each BMP under one of the following 10 areas of BMP activity as described below:
  - 2.1 *Minimize disturbed area and protect natural features and soil*
  - 2.2 *Phase Construction Activity*
  - 2.3 *Control Stormwater flowing onto and through the project*
  - 2.4 *Stabilize Soils*
  - 2.5 *Protect Slopes*
  - 2.6 *Protect Storm Drain Inlets*
  - 2.7 *Establish Perimeter Controls and Sediment Barriers*
  - 2.8 *Retain Sediment On-Site and Control Dewatering Practices*
  - 2.9 *Establish Stabilized Construction Exits*
  - 2.10 *Any Additional BMPs*
- Note the location of each BMP on your site map(s).
- For any structural BMPs, you should provide design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information, see *SWPPP Guide*, Chapter 4.
- Consult your state's design manual or one of those listed in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs  
<http://www.epa.gov/npdes/stormwater/menuofbmps>

## 2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Instructions:

- Describe the areas that will be disturbed with each phase of construction and the methods (e.g., signs, fences) that you will use to protect those areas that should not be disturbed. Describe natural features identified earlier and how each will be protected during construction activity. Also describe how topsoil will be preserved. Include these areas and associated BMPs on your site map(s) also. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 1.)
- Also, see EPA's *Preserving Natural Vegetation BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/perserve\\_veg](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/perserve_veg)

There will be BMPs (silt fence, storm drain inlet barriers, orange construction fence, stabilized construction entrance) installed to protect the nearest water body which is the Pineview Reservoir. The BMPs will help construction crews to identify minimum distance it can work nearest to the river.

Inspections will be done weekly to ensure that all BMPs are intact and less than 50% capacity. GRP will provide the responsible staff.

## 2.2 Phase Construction Activity

Instructions:

- Describe the intended construction sequencing and timing of major activities, including any opportunities for phasing grading and stabilization activities to minimize the overall amount of disturbed soil that will be subject to potential erosion at one time. Also, describe opportunities for timing grading and stabilization so that all or a majority of the soil disturbance occurs during a time of year with less erosion potential (i.e., during the dry or less windy season). (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 2.) It might be useful to develop a separate, detailed site map for each phase of construction.
- Also, see EPA's *Construction Sequencing BMP Fact Sheet* at [http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons\\_seq](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_seq)

- Phase I
  - We will start working on installing sewer and water lines, including some electrical work. Also will be removing topsoil.
  - July-Oct
  - Silt fences and drop inlet barriers will be used.
  - We will be working concurrently with the construction areas to minimize the time of soil exposure
- Phase II
  - We will start working on finishing installation of water lines, installing fire hydrants, and completing asphalt paving. We will also redistribute topsoil and hydroseed.
  - May-Aug
  - Silt fences, concrete washout, and drop inlet barriers will be used.

- We will be working concurrently with the construction areas to minimize the time of soil exposure

## 2.3 Control Stormwater Flowing onto and through the Project

**Instructions:**

- Describe structural practices (e.g., diversions, berms, ditches, storage basins) including design specifications and details used to divert flows from exposed soils, retain or detain flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 3.)

**BMP Description:** Silt Fence

<b>Installation Schedule:</b>	May 2013
<b>Maintenance and Inspection:</b>	We will be installing a silt fence to contain erosion from polluting wetlands. We will inspect this on a weekly basis during regular inspection times to make sure it is working well.
<b>Responsible Staff:</b>	GRP

## 2.4 Stabilize Soils

**Instructions:**

- Describe controls (e.g., interim seeding with native vegetation, hydroseeding) to stabilize exposed soils where construction activities have temporarily or permanently ceased. Also describe measures to control dust generation. Avoid using impervious surfaces for stabilization whenever possible. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 4.)
- Also, see EPA's *Seeding BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/seeding](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/seeding)

**BMP Description:** Hydroseeding

<input checked="" type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>
<b>Installation Schedule:</b>	At the end of Project
<b>Maintenance and Inspection:</b>	We will hydroseed along the slopes of all disturbed areas to promote vegetation to stabilized exposed soils.
<b>Responsible Staff:</b>	GRP



## 2.5 Protect Slopes

**Instructions:**

- Describe controls (e.g., erosion control blankets, tackifiers) including design specifications and details that will be implemented to protect all slopes. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 5.)
- Also, see EPA's *Geotextiles BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/geotextiles](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/geotextiles)

**BMP Description:**

<b>Installation Schedule:</b>	
<b>Maintenance and Inspection:</b>	
<b>Responsible Staff:</b>	

## 2.6 Protect Storm Drain Inlets

**Instructions:**

- Describe controls (e.g., inserts, rock-filled bags, or block and gravel) including design specifications and details that will be implemented to protect all inlets receiving stormwater from the project during the entire project. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 6.)
- Also, see EPA's *Storm Drain Inlet Protection BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/storm\\_drain](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/storm_drain)

**BMP Description:** Drop Inlet Barrier Filter Insert

<b>Installation Schedule:</b>	July 2013
<b>Maintenance and Inspection:</b>	We will inspect this on a weekly basis during regular inspection times to make sure it is working well.
<b>Responsible Staff:</b>	GRP

## 2.7 Establish Perimeter Controls and Sediment Barriers

**Instructions:**

- Describe structural practices (e.g., silt fences or fiber rolls) including design specifications and details to filter and trap sediment before it leaves the construction site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 7.)
- Also see, EPA's *Silt Fence BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/silt\\_fences](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/silt_fences), or *Fiber Rolls BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/fiber\\_rolls](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/fiber_rolls)

**BMP Description:** Silt fence

<b>Installation Schedule:</b>	July 2013
<b>Maintenance and Inspection:</b>	A weekly inspection to ensure it is in working and good conditions. This is placed along down gradient limits of disturbance.
<b>Responsible Staff:</b>	GRP

**BMP Description:** Orange Construction Fence

<b>Installation Schedule:</b>	July 2013
<b>Maintenance and Inspection:</b>	We will install to maintain construction area and prevent unnecessary disturbance of soil.
<b>Responsible Staff:</b>	GRP

## 2.8 Retain Sediment On-Site

**Instructions:**

- Describe sediment control practices (e.g., sediment trap or sediment basin), including design specifications and details (volume, dimensions, outlet structure) that will be implemented at the construction site to retain sediments on-site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 8.)
- Also, see EPA's *Sediment Basin BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/sediment\\_basins](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/sediment_basins)

## 2.9 Establish Stabilized Construction Exits

**Instructions:**

- Describe location(s) of vehicle entrance(s) and exit(s), procedures to remove accumulated sediment off-site (e.g., vehicle tracking), and stabilization practices (e.g., stone pads or wash racks or both) to minimize off-site vehicle tracking of sediments and discharges to stormwater. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 9.)
- Also, see EPA's *Construction Entrances BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/cons\\_entrance](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_entrance)

**BMP Description:** Stabilized Construction Entrance

<b>Installation Schedule:</b>	July 2013
<b>Maintenance and Inspection:</b>	We will install a stabilized construction entrance to minimize disturbance of soil by trucks. Will be inspected weekly.
<b>Responsible Staff:</b>	GRP

## 2.10 Additional BMPs

**Instructions:**

- Describe additional BMPs that do not fit into the above categories.

**BMP Description:**

<b>Installation Schedule:</b>	
<b>Maintenance and Inspection:</b>	
<b>Responsible Staff:</b>	

**BMP Description:**

<b>Installation Schedule:</b>	
<b>Maintenance and Inspection:</b>	
<b>Responsible Staff:</b>	

## SECTION 3: GOOD HOUSEKEEPING BMPs

**Instructions:**

- Describe the key good housekeeping and pollution prevention (P2) BMPs that will be implemented to control pollutants in stormwater.
- Categorize each good housekeeping and pollution prevention (P2) BMP under one of the following seven categories:
  - 3.1 Material Handling and Waste Management*
  - 3.2 Establish Proper Building Material Staging Areas*
  - 3.3 Designate Washout Areas*
  - 3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices*
  - 3.5 Allowable Non-Stormwater Discharges and Control Equipment/Vehicle Washing*
  - 3.6 Spill Prevention and Control Plan*
  - 3.7 Any Additional BMPs*
- For more information, see *SWPPP Guide*, Chapter 5.
- Consult your state’s design manual or resources in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA’s National Menu of BMPs <http://www.epa.gov/npdes/stormwater/menuofbmps>

### **3.1 Material Handling and Waste Management**

**Instructions:**

- Describe measures (e.g., trash disposal, sanitary wastes, recycling, and proper material handling) to prevent the discharge of solid materials to receiving waters, except as authorized by a permit issued under section 404 of the CWA (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 1.)
- Also, see EPA’s *General Construction Site Waste Management BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/cons\\_wasteman](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_wasteman)

**BMP Description:** Sanitary Facilities

<b>Installation Schedule:</b>	July 2013
<b>Maintenance and Inspection:</b>	Maintenance will be done by United Site Services
<b>Responsible Staff:</b>	United Site Services

### 3.2 Establish Proper Building Material Staging Areas

**Instructions:**

- Describe construction materials expected to be stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 2.)

**BMP Description:**

<b>Installation Schedule:</b>	
<b>Maintenance and Inspection:</b>	
<b>Responsible Staff:</b>	

### 3.3 Designate Washout Areas

**Instructions:**

- Describe location(s) and controls to eliminate the potential for discharges from washout areas for concrete mixers, paint, stucco, and so on. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 3.)
- Also, see EPA's *Concrete Washout BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/concrete\\_wash](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/concrete_wash)

**BMP Description:** Portable concrete washout

<b>Installation Schedule:</b>	The day we pour concrete
<b>Maintenance and Inspection:</b>	Inspections will be on a weekly basis to ensure that the washout is not leaking and is not near overflow level.
<b>Responsible Staff:</b>	GRP

### 3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

**Instructions:**

- Describe equipment/vehicle fueling and maintenance practices that will be implemented to control pollutants to stormwater (e.g., secondary containment, drip pans, and spill kits) (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 4.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile\\_maintain](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain)

**BMP Description:** Equipment are fueled and lubed on a daily basis by a trained mechanic. He will be checking for any leakage during that time as well.

<b>Installation Schedule:</b>	N/A
<b>Maintenance and Inspection:</b>	N/A
<b>Responsible Staff:</b>	GRP

### 3.5 Control Equipment/Vehicle Washing

**Instructions:**

- Describe equipment/vehicle washing practices that will be implemented to control pollutants to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 5.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile\\_maintain](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain)

**BMP Description:** All equipment will be washed prior to coming up to job site. See attached sheet on the following page for company policy.

<b>Installation Schedule:</b>	N/A
<b>Maintenance and Inspection:</b>	N/A
<b>Responsible Staff:</b>	GRP

Repeat as needed

### 3.6 Spill Prevention and Control Plan

**Instructions:**

- Describe the spill prevention and control plan to include ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 6.)
- Also, see EPA's *Spill Prevention and Control Plan BMP Fact sheet* at [www.epa.gov/npdes/stormwater/menuofbmps/construction/spill\\_control](http://www.epa.gov/npdes/stormwater/menuofbmps/construction/spill_control)

**BMP Description:** Vehicles will be maintained off-site. All vehicles and equipment will be checked for leaking oil and fluids. Vehicles leaking fluids will not be allowed on-site. Emergency contract information will be made known to all supervisors on-site.

<b>Installation Schedule:</b>	N/A
<b>Maintenance and Inspection:</b>	N/A
<b>Responsible Staff:</b>	GRP

### 3.7 Any Additional BMPs

**Instructions:**

- Describe any additional BMPs that do not fit into the above categories. Indicate the problem they are intended to address.

**BMP Description:** No additional BMPs were identified

<b>Installation Schedule:</b>	N/A
<b>Maintenance and Inspection:</b>	N/A
<b>Responsible Staff:</b>	GRP

**BMP Description:**

<b>Installation Schedule:</b>	
<b>Maintenance and Inspection:</b>	
<b>Responsible Staff:</b>	

Repeat as needed

### 3.8 Allowable Non-Stormwater Discharge Management

**Instructions:**

- Identify all allowable sources of non-stormwater discharges that are not identified. The allowable non-stormwater discharges identified might include the following (see your permit for an exact list):
  - ✓ Waters used to wash vehicles where detergents are not used
  - ✓ Water used to control dust
  - ✓ Potable water including uncontaminated water line flushings
  - ✓ Routine external building wash down that does not use detergents
  - ✓ Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
  - ✓ Uncontaminated air conditioning or compressor condensate
  - ✓ Uncontaminated ground water or spring water
  - ✓ Foundation or footing drains where flows are not contaminated with process materials such as solvents
  - ✓ Uncontaminated excavation dewatering
  - ✓ Landscape irrigation
- Identify measures used to eliminate or reduce these discharges and the BMPs used to prevent them from becoming contaminated.
- For more information, see *SWPPP Guide*, Chapter 3.A.

List allowable non-stormwater discharges and the measures used to eliminate or reduce them and to prevent them from becoming contaminated:

<b>BMP Description:</b> Water used for Dust Control	
<b>Installation Schedule:</b>	As needed
<b>Description:</b>	Dust control will be implemented as needed once site grading has been initiated and during windy conditions while site grading is occurring. Spraying of potable water at a rate of 300 gallons per acre or less will be performed by a mobile pressure-type distributor truck whenever the dryness of the soil warrants it.
<b>Responsible Staff:</b>	GRP



## SECTION 4: SELECTING POST-CONSTRUCTION BMPs

**Instructions:**

- Describe all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed. Examples of post-construction BMPs include the following:
  - ✓ Biofilters
  - ✓ Detention/retention devices
  - ✓ Earth dikes, drainage swales, and lined ditches
  - ✓ Infiltration basins
  - ✓ Porous pavement
  - ✓ Other proprietary permanent structural BMPs
  - ✓ Outlet protection/velocity dissipation devices
  - ✓ Slope protection
  - ✓ Vegetated strips and/or swales
- Identify any applicable federal, state, local, or tribal requirements for design or installation.
- Describe how low-impact designs or smart growth considerations have been incorporated into the design.
- For any structural BMPs, you should have design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information on this topic, see your state’s stormwater manual.
- You might also want to consult one of the references listed in Appendix D of the *SWPPP Guide*.
- Visit the post-construction section of EPA’s Menu of BMPs at: [www.epa.gov/npes/menuofbmps](http://www.epa.gov/npes/menuofbmps)

**BMP Description:** Nothing outside of the current job scope of silt fences, drop inlet barriers, and seeding and mulching.

<b>Installation Schedule:</b>	July 2013-Aug 2014
<b>Maintenance and Inspection:</b>	N/A
<b>Responsible Staff:</b>	GRP

## SECTION 5: INSPECTIONS

### 5.1 *Inspections*

**Instructions:**

- Identify the individual(s) responsible for conducting inspections and describe their qualifications. Reference or attach the inspection form that will be used.
- Describe the frequency that inspections will occur at your site including any correlations to storm frequency and intensity.
- Note that inspection details for particular BMPs should be included in Sections 2 and 3.
- You should also document the repairs and maintenance that you undertake as a result of your inspections. These actions can be documented in the corrective action log described in Part 5.3 below.
- For more on this topic, see *SWPPP Guide*, Chapters 6 and 8.
- Also, see suggested inspection form in Appendix B of the *SWPPP Guide*.

**1. *Inspection Personnel:*** Identify the person(s) who will be responsible for conducting inspections and describe their qualifications:

- Mr. Dexter Tan, Field Engineer for Geneva Rock Products, is responsible for site compliance with this SWPPP and EPA's Construction General Permit. Mr. Tan will conduct inspections for all areas of the site disturbed by construction activity, areas used for storage of materials that are exposed to precipitation, discharge points, and construction exits. In the absence of Mr. Tan or Mr. Jordan, Tom Hall, Project Manager for Geneva Rock Products, will conduct the inspections.

- *Qualifications:*

Dexter Tan

- 1) Mr. Tan has a Bachelor's Degree in Civil and Environmental Engineering from Brigham Young University-Provo and has attended multiple SWPPP related trainings provided by AccenaGroup.
- 2) He has done over 30 SWPPP inspections for various construction jobsites.
- 3) He is a Certified Registered Stormwater Inspector as of March, 2013 Erosion Control Supervisor as of April, 2013.

Jordan Perkes

- 1) Jordan is currently pursuing his Bachelor's Degree in Civil Engineering from Utah State University.

2) He is a certified Erosion Control Supervisor (ECS).

Tom Hall

- 1) Tom has over 20 years of construction experience and has never been cited for a SWPPP violation
- 2) He is a Certified Professional in Erosion and Sediment Control (CPESC).

## **2. *Inspection Schedule and Procedures:***

Describe the inspection schedules and procedures you have developed for your site (include frequency of inspections for each BMP or group of BMPs, indicate when you will inspect, e.g., before/during/and after rain events, spot inspections):

Inspections will be carried out at least once every 7 days and whenever is needed.. The inspections will verify that all BMPs required in Sections 2 and 3 are implemented, maintained, and effectively minimizing pollutants in stormwater runoff from the project site. For detailed inspection and procedures for each BMP implemented at the site, see Sections 2 and 3.

Describe the general procedures for correcting problems when they are identified. Include responsible staff and time frames for making corrections:

If corrective actions are identified by Mr. Dexter or Mr. Jordan during inspection for areas under day-to-day control by Geneva Rock Products, he will notify and submit a copy of the inspection reports to the Project Manager, Tom Hall. Tom will be responsible for initiating the corrective action within the time allocated based on the severity of the corrective actions which is typically within 24 hours to 7 days. Tom will try to complete the maintenance as soon as possible in good faith or before the next storm event.

Attach a copy of the inspection report you will use for your site.

[For a copy of the inspection report, see Appendix D.](#)

## 5.2 Delegation of Authority

**Instructions:**

- Identify the individual(s) or specifically describe the position where the construction site operator has delegated authority for the purposes of signing inspection reports, certifications, or other information.
- Attach the delegation of authority form that will be used.
- For more on this topic, see *SWPPP Guide*, Chapter 7.

**Duly Authorized Representative(s) or Position(s):**

Geneva Rock Products, Inc  
Mr. Dexter Tan  
Field Engineer  
2773 Industrial Drive  
Ogden, UT 84401  
801-627-2801  
[dtan@genevarock.com](mailto:dtan@genevarock.com)

[See Appendix J – Delegation of Authority](#)

## 5.3 Corrective Action Log

**Instructions:**

- Create here, or as an attachment, a corrective action log. This log should describe repair, replacement, and maintenance of BMPs undertaken as a result of the inspections and maintenance procedures described above. Actions related to the findings of inspections should reference the specific inspection report.
- This log should describe actions taken, date completed, and notes the person that completed the work.

**Corrective Action Log:**

[See Appendix E – Corrective Action Log](#)

## SECTION 6: RECORDKEEPING AND TRAINING

### 6.1 Recordkeeping

**Instructions:**

- The following is a list of records you should keep at your project site available for inspectors to review:
- Dates of grading, construction activity, and stabilization (which is covered in Sections 2 and 3)
- A copy of the construction general permit (attach)
- The signed and certified NOI form or permit application form (attach)
- A copy of the letter from EPA or/the state notifying you of their receipt of your complete NOI/application (attach)
- Inspection reports (attach)
- Records relating to endangered species and historic preservation (attach)
- Check your permit for additional details
- For more on this subject, see *SWPPP Guide*, Chapter 6.C.

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur:

[See Appendix H – Grading and Stabilization Activities Log](#)

Date(s) when construction activities temporarily or permanently cease on a portion of the site:

[See Appendix H – Grading and Stabilization Activities Log](#)

Date(s) when an area is either temporarily or permanently stabilized:

[See Appendix H – Grading and Stabilization Activities Log](#)

### 6.2 Log of Changes to the SWPPP

**Instructions:**

- Create a log here, or as an attachment, of changes and updates to the SWPPP. You should include additions of new BMPs, replacement of failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

Log of changes and updates to the SWPPP

[See Appendix F – SWPPP Amendment Log](#)

## 6.3 Training

### Instructions:

- Training your staff and subcontractors is an effective BMP. As with the other steps you take to prevent stormwater problems at your site, you should document the training that you conduct for your staff, for those with specific stormwater responsibilities (e.g. installing, inspecting, and maintaining BMPs), and for subcontractors.
- Include dates, number of attendees, subjects covered, and length of training.
- For more on this subject, see *SWPPP Guide*, Chapter 8.

### Individual(s) Responsible for Training:

[Mr. Jordan Perkes](#)

### Describe Training Conducted:

- General stormwater and BMP awareness training for staff and subcontractors:

Mr. Perkes will conduct informal training for all crew members, including subcontractors, on site. The training will be conducted primarily via tailgate sessions and will focus on avoiding damage to stormwater BMPs and preventing illicit discharges. The tailgate sessions will be conducted as frequently as needed and will address the following topics: Erosion control BMPs, Sediment Control BMPs, Non-stormwater BMPs, Waste management and materials storage BMPs, and Emergency Procedures specific to the construction site.

See Appendix I – Training Log

- Detailed training for staff and subcontractors with specific stormwater responsibilities:

Mr. Perkes will provide formal training to all crew members and subcontractors with specific stormwater responsibilities, such as installing and maintaining BMPs. The formal training will cover all design and construction specifications for installing the BMPs and proper procedures for maintaining each BMP. Formal training will occur before any BMPs are installed on site.

In the event, the subcontractor responsible for installing the BMPs are able to provide certifications or express knowledge of the proper procedures for installing and maintaining a BMP, an informal training will be carried out instead.

See Appendix I – Training Log

## SECTION 7: FINAL STABILIZATION

**Instructions:**

- Describe procedures for final stabilization. If you complete major construction activities on part of your site, you can document your final stabilization efforts for that portion of the site. Many permits will allow you to then discontinue inspection activities in these areas (be sure to check your permit for exact requirements). You can amend or add to this section as areas of your project are finally stabilized.
- Update your site plans to indicate areas that have achieved final stabilization.
- Note that dates for areas that have achieved final stabilization should be included in Section 6, Part 6.1 of this SWPPP.
- For more on this topic, see *SWPPP Guide*, Chapter 9.

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***BMP Description:*** Hydroseeding

<b><i>Installation Schedule:</i></b>	2013
<b><i>Maintenance and Inspection:</i></b>	Final inspection shall include ensuring all disturbed areas are covered with seeds and mulch.
<b><i>Responsible Staff:</i></b>	GRP

## SECTION 8: CERTIFICATION AND NOTIFICATION

**Instructions:**

- The SWPPP should be signed and certified by the construction operator(s). Attach a copy of the NOI and a copy of the General Storm Water Permit for Construction Activity. You can get a copy of the General Storm Water Permit for Construction Activity on the same web page that this template was obtained ([www.waterquality.utah.gov/UPDES/stormwatercon.htm](http://www.waterquality.utah.gov/UPDES/stormwatercon.htm))

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 gathered and evaluated 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: Shane Albrecht Title: Area Manager

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



## **SWPPP APPENDICES**

Attach the following documentation to the SWPPP:

***Appendix A – General Location Map and Site Map***

***Appendix B – Construction General Permit***

***Appendix C – NOI and Acknowledgement Letter from EPA/State/MS4***

***Appendix D – Inspection Reports***

***Appendix E – Corrective Action Log (or in Part 5.3)***

***Appendix F – SWPPP Amendment Log (or in Part 6.2)***

***Appendix G – Subcontractor Certifications/Agreements***

***Appendix H – Grading and Stabilization Activities Log (or in Part 6.1)***

***Appendix I – Training Log***

***Appendix J – Delegation of Authority***

***Appendix K – Additional Information (i.e., Endangered Species and Historic Preservation Documentation; other permits such as dewatering, stream alteration, wetland; and out of date swppp documents)***

***Appendix L – BMP Specifications***

**Appendix A—Pineview Reservoir TMDL**

**Project Implementation Plan**



### Executive Summary

The purpose of this Project Implementation Plan (PIP) is to describe the activities necessary to achieve the 24 percent reduction in nutrient loads identified in the Pineview Reservoir TMDL. Another purpose is to estimate the costs associated with those activities, establish implementation priorities, and to begin to identify parties to be involved and a proposed schedule.

Table 1 summarizes the activities that are described in this PIP and provides cost estimates for each activity. Readers should understand that these activities and estimated costs are preliminary at this point in time and will continue to be refined as better information becomes available. However, the estimated costs provide some insight into how the activities should be prioritized. For example, the anticipated costs for converting from flood irrigation to sprinkler irrigation are



Figure 1. Pineview Reservoir.

**Table 1.** List of possible implementation activities, their expected impact, and estimated costs.

Activity	Impact	Capital Costs	Annual Operating Costs
Convert all flood irrigation to sprinkler irrigation	Expected to save more than 23,000 acre-feet of water per year and reduce nitrogen and phosphorus loadings from groundwater by more than 50 percent	\$7.6 million	\$170,800
Implement a septic system pollution prevention program	Make homeowners aware of the age, location, type, capacity, and condition of their septic system	\$31,000	Minimal
Repair and replace failing septic systems	Decrease the percentage of failing septic systems from 15 to 6 percent to reduce phosphorus loading from this source by more than 60 percent.	\$327,000	\$52,200
Install sewer system in Ogden Valley	Eliminate nitrogen and phosphorus loads from wastewater	\$3.9 million	N/A
Improve livestock and animal waste management practices at AFOs and CAFOs	Reduce nutrient loadings from animal wastes by a minimum of 25 percent by preventing animal waste from reaching surface waters	\$302,000	N/A
Convert more than 20,000 acres of brush to grass to reduce erosion	Reduce total nitrogen and total phosphorus loads by reducing sheet and rill erosion	\$316,410	Minimal
Install 600 acres of vegetated buffer strips along streams	Reduce total nitrogen and total phosphorus loads by decreasing sediment delivery to streams	\$145,200	Minimal

N/A = Not Available    AFO=Animal feeding operations    CAFO=Centralized animal feeding operations

considerably higher than other activities that provide comparable benefits and should perhaps be delayed pending the outcome of other implementation options. This issue is discussed further below.

The Pineview Reservoir TMDL will use a nonregulatory approach to TMDL implementation through control of nonpoint sources of pollutants. Watershed projects will be started incrementally as they are funded. The time frame for implementation is estimated to be five years. Therefore the timeframe estimated for Pineview Reservoir to meet standards is approximately 5 to 20 years, depending on implementation activities, funding availability, effectiveness, and reservoir response. The USEPA recognizes that TMDLs with primarily nonpoint sources of pollution can be difficult to manage, and may require a long time to correct.

A review of the total costs and cost per kilogram for reducing nitrogen and phosphorus is presented in Table 2. The effectiveness for each candidate activity varies significantly. Further, what is effective for reducing nitrogen may not be effective for reducing phosphorus and visa versa. From an overall cost perspective, focusing on the septic system improvements, livestock and manure management, and range treatments (including buffer strip installation along streams) are the least expensive options with a combined estimated cost of \$1.1 million. The other two candidate activities (irrigation changes and constructing a sewer system) are an order of magnitude more expensive, with a total estimated price tag of \$11.5 million.

**Table 2.** Cost comparison for possible implementation activities.

Activity	Capital Costs	Anticipated N Reduction (kg)	Cost/kg N reduction	Anticipated P Reduction (kg)	Cost/kg P Reduction	Priority
Irrigation changes	\$7.6 million	10,999	\$691	293	\$25,939	
Septic system education, maintenance & upgrades	\$499,450	276	\$1,810	755	\$662	1
Construct sewer system	\$3.9 million	39,306	\$99	1,215	\$3,210	
Livestock & manure mgmt.	\$302,000	7,514	\$40	600	\$503	1
Range treatments & vegetated buffer strips	\$461,610	10,710	\$43	1,487	\$310	1

One common approach in addressing a nutrient enrichment water quality problem is to address the limiting nutrient (nitrogen or phosphorus) to effect the needed changes to the biological system. Although the limiting nutrient in Pineview Reservoir is unclear, phosphorus has been found to be the limiting nutrient in the majority of lakes and reservoirs nationwide. Given the cost factors discussed above, focusing on phosphorus for this TMDL may be the preferred initial course of action. If the three least expensive implementation items are undertaken the total annual phosphorus reduction is expected to be 2,842 kilograms, which is 153 percent of the goal for the TMDL. This should drive the biological system to be phosphorus limited if it is not

already. Additionally, if these three items are implemented, nitrogen will be reduced by 18,500 kilograms, which is 67 percent of the TMDL target.

It appears reasonable to proceed initially with the three least expensive options while continuing to monitor and assess reservoir water quality. Further monitoring should be undertaken to refine the understanding of the inputs to Pineview while at the same time measuring the changes in water quality as implementation activities progress. If, after a reasonable period of time such as 5 to 10 years, measurable improvements are not being observed in the reservoir water quality, it may be appropriate to consider the more costly alternatives to nutrient reduction (i.e., sewerage the valley or converting flood irrigation to sprinkler) or to reevaluate the TMDL.

To effectively implement the needed changes to Pineview Reservoir water quality, a concerted locally driven effort will be needed. Table 3 provides some details on timeframes and involved parties to achieve implementation goals.

**Table 3.** Implementation timeframes and involved parties

Activity	Timeframes & Steps	Involved Parties
1. Converting flood irrigation to sprinkler	Detailed plans 2012 Secure funding 2014 Implementation 2016 <b>(to be undertaken only if needed after items 2,4, and 5)</b>	Private landowners NRCS, FSA Weber SCD
2. Septic system improvements program	Detailed plans 2003 Secure funding 2004 Implementation 2005-07	Weber County Health Dept. Huntsville City Local residents
3. Construct sewer system for Ogden valley	Detailed plans 2012 Secure funding 2014 Implementation 2016 <b>(to be undertaken only if needed after items 2,4, and 5)</b>	Weber County Division of Water Quality Huntsville City Local residents
4. Implement livestock and manure management improvements	Detailed plans 2003 Secure funding 2004 Implementation 2005-07	Private landowners NRCS, FSA Weber SCD
5. Range treatments and vegetated buffer strips along streams	Detailed plans 2003 Secure funding 2004 Implementation 2005-07	Private landowners NRCS, FSA Weber SCD, U.S. Forest Service

The locally led Ogden Valley Watershed Committee will provide guidance and direction for implementation activities needed to achieve necessary load reductions for the Pineview Reservoir TMDL. The approaches outlined in this appendix are subject to change based on local input. There are several possible ways to achieve the nitrogen and phosphorus reductions identified in the TMDL. Some of these are outlined in this document; others are not outlined at this time. Based on input from the local watershed committee, the following potential implementation options will be investigated in addition to those items already outlined in this document: *reservoir outlet works modifications, recreational use impacts, wetlands enhancements, stream bank remediation, county ordinances to protect sensitive areas, augmentation of instream flows, stormwater management, and lot size zoning changes.*

**Actual implementation will be undertaken to meet the necessary reductions and in a manner that corresponds with local planning and direction.**

## 1.0 Introduction

The Pineview Reservoir TMDL report indicates the need to reduce phosphorus and nitrogen loadings by approximately 24 percent from their current levels. The purpose of this PIP is to identify the activities necessary to achieve this reduction. Another purpose of the PIP is to estimate the costs associated with those activities and to begin to identify involved parties and timelines. It is expected that this implementation plan will continue to evolve as more details are clarified and a process of adaptive management begins.

Listed below are the five major sources of nutrients in the Pineview Reservoir watershed. The PIP is organized according to these sources.

- Onsite wastewater treatment (septic) systems
- Animal wastes
- Tributary loads
- Residential runoff
- Irrigation return flow.

## 2.0 Septic Systems

### 2.1 Background

Septic systems provide an economically feasible way of disposing of household wastes where other means of waste treatment are unavailable (e.g., public or private treatment facilities). The basis for most septic systems involves the treatment and distribution of household wastes through a series of steps involving the following:

- A sewer line connecting the house to a septic tank.
- A septic tank that allows solids to settle out of the effluent.
- A distribution system that dispenses the effluent to a leach field.
- A leaching system that allows the effluent to enter the soil.

Septic system failure occurs when one or more components of the septic system do not work properly and untreated waste or wastewater leaves the system. The waste may pond in the leach field and ultimately run off into nearby streams or percolate into the groundwater system. Untreated septic system waste is a potential source of nutrients (nitrogen and phosphorus), organic matter, suspended solids, and bacteria. Failure can occur for several reasons. The most common reason is improper maintenance. Other reasons for failure include improper installation, location, and choice of system. Harmful household chemicals can also cause failure by killing the bacteria that digest the waste.

The analysis for the TMDL indicates that loads from septic systems are a potentially significant source of nutrients to Pineview Reservoir. They are especially important because of their impact on groundwater flows, which comprise the bulk of loads to the reservoir during the summer. Although the percentage of systems that are not functioning properly is unknown, it is likely that not all the systems are providing maximum treatment. Based on site suitability information for Ogden Valley, a national survey of wastewater management officials, and best professional judgment, it was assumed that 85 percent of the systems are functioning properly (normal), 10 percent have some surfacing of effluent (ponded), and 5 percent are located too close to streams to allow complete adsorption of phosphorus (short-circuited). Table 4 summarizes the predicted

load reductions associated with addressing loads from these systems by improving their performance. The impacts of removing the septic systems by sewerage the valley are also presented.

**Table 4.** Predicted loads from septic systems under various scenarios.

Pollutant	Current Estimate	Scenario A	Scenario B	Scenario C
Phosphorus	1,215	460	160	0
Nitrogen	39,306	39,030	39,020	0

Current: 85 percent normal, 10 percent ponded, and 5 percent short-circuited.

Scenario A: 94 percent normal, 5 percent ponded, and 1 percent short-circuited.

Scenario B: 98 percent normal, 1 percent ponded, and 1 percent short-circuited.

Scenario C: Sewering of valley with waste transported out of the watershed.

## 2.2 Recommendations

Many homeowners do not realize they have a failing septic system, whereas others may know, but choose not to remedy the problem because of cost. One recommendation is to initiate an outreach program to educate valley residents about septic systems, and in some cases provide funding to help fix or replace failing systems. The components of an example outreach program are illustrated below:

- Make homeowners aware of the age, location, type, capacity, and condition of their septic system
- Teach homeowners to recognize a failing septic system.
- Teach homeowners about proper septic system maintenance.
- Provide information about different types of septic systems, and their costs, advantages, and disadvantages.
- Provide consultation and inspection services to homeowners.
- Teach homeowners about water quality concerns in their watershed.

In addition to conducting a public outreach campaign, an effort should be made to identify and repair failing systems. In some cases extremely old systems might need to be replaced. Systems located in close proximity to the reservoir or reservoir tributaries should be targeted first. This effort should be coordinated by the Weber County Health Department.

Finally, an effort needs to be made to ensure that septic systems are properly maintained. Homeowners should be required to pump out or inspect their septic tanks on a regular schedule. Septic tanks should be pumped when the solids in the tank accumulate to a point where the effluent no longer has enough time to settle and clarify. The timing of the pump-out depends on the tank and household size (Table 5).



**Table 5.** Estimated septic tank pumping frequencies in years<sup>1,2</sup>.

Tank Size (gallons)	Household Size (number of people)								
	1	2	3	4	5	6	7	8	9
500	5.8	2.6	1.5	1.0	0.7	0.4	0.3	0.2	0.1
750	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4
1,000	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0	0.8
1,250	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4	1.2
1,500	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8	1.5
1,750	22.1	10.7	6.9	5.0	3.9	3.1	2.6	2.2	1.9
2,000	25.4	12.4	8.0	5.9	4.5	3.7	3.1	2.6	2.2

<sup>1</sup> If garbage disposals are used, frequencies may have to be reduced by as much as 40 percent.

<sup>2</sup> (Mancl and Magette, 1991).

If these efforts fail a final but very expensive option would be to sewer the valley. Because a wastewater treatment plant would not be allowed to discharge within the watershed under current water quality rules, all wastewater would need to be transported out of the watershed and loads to Pineview Reservoir would be eliminated. A likely option would be to connect residents in the valley to the Central Weber Sewer Improvement District.

### 2.3 Costs

The costs of establishing a septic system public outreach campaign can vary greatly, depending on factors such as staff time, outreach components, and the extent of septic use within a region. Table 6 provides some examples of programs from various parts of the country and the expenditures for septic outreach. Once a program is well established, the cost of creating educational materials and training programs decreases and funding can be redistributed to those outreach techniques that have proven to be the most successful. Programs should be sure to secure some funding for media outreach.

**Table 6.** Examples of cost and staff time to establish septic system outreach programs<sup>1</sup>.

Program	Expenditure	Staff Time (Full-time equivalent)	Components
City of Olympia, WA	\$40,000	0.50	Flyers/brochures Training workshops System monitoring
Thurston County, WA	\$35,000	0.50	Flyers/brochures Discount coupons for septic pumping
Minnesota Cooperative Extension	\$18,000	0.25	Publications/videos Flyers/brochures Training workshops/community visits Septic system owner's guide distributed with new permits Satellite conferences for policymakers "Train the Trainers" program

<sup>1</sup> SMRC, 2001a.

Research has shown that most of the causes of septic system failure are relatively easy and inexpensive to repair, with an average cost of only \$285 per system (Glasoe and Tompkins, 1996). The average cost of replacing a system is much higher, perhaps around \$4,500 for a conventional system (USEPA, 1993). The average cost to pump out a system is approximately \$150 (URI, 2002). Using these costs and a number of assumptions about systems within the valley the following calculations can be made:

**Table 7.** Estimated septic system repair and replacement costs.

Item	Value	Source
Valley population (2000)	6,622	Festin, 2002.
Population served by septic systems	5,959	90 percent (from TMDL report); remaining population served by lagoons.
Number of septic systems	2,384	5,959 ÷ 2.5 persons/household.
Number of failing septic systems	357	15 percent (from TMDL report).
Repair costs	\$76,950	270 systems * \$285/system (Glasoe and Tompkins, 1996).
Replacement costs	\$391,500	87 systems * \$4500/system (USEPA, 1993).
Annual pump out costs	\$71,550	477 systems * \$150/system to achieve annual pump-out of all systems every five years (URI, 2002).

Of the 357 septic systems assumed to be failing, it was furthermore assumed that 270 require repairs and 87 require replacement. This was based on limited data from the literature (Glasoe and Tompkins, 1996). Until inspections occur, the number of failing systems, the number of

systems requiring repairs, and the number of systems requiring replacement will remain unknown.

No current estimates of the cost of sewerage the valley are available. However, the Pineview Reservoir Clean Lakes Study (WBWQMC, 1990) estimated that the costs would be approximately \$2.6 million in 1988. This translates into approximately \$3.9 million today (EHS, 2002).

### **3.0 Animal Wastes**

#### **3.1 Background**

Animal feeding operations (AFOs) are agricultural enterprises where animals are kept and raised in confined situations. AFOs congregate animals, feed, manure and urine, and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures or fields or on rangeland. Concentrated animal feeding operations (CAFOs) are a relatively small number of AFOs that are regulated by the USEPA because of their size. An inventory of AFOs and CAFOs in the Ogden Valley was underway at the time of the Pineview TMDL. An estimate of CAFOs and 20 AFOs in Ogden Valley was used for this PIP, based on initial information from the inventory effort (Warnick, 2002). The Farm Services Agency estimates that there are 500 horses, 400 beef cattle, and 80 dairy cattle within the watershed (Fowers, 2001).

The way manure is stored and handled within AFOs affects its nutrient content dramatically. All of the nitrogen in manure that drops directly into streams goes into the aquatic system. When animals have a live stream in the corral, about 70 percent of the urine and feces is excreted directly into the water. On the other hand, if manure is in a corral and is scraped and gathered in the fall, almost all the nitrogen will have volatilized in dry warm summer conditions.

The TMDL report indicates the need to reduce nutrient loading to Pineview Reservoir from animal wastes. This can be accomplished by improving livestock and animal waste management practices at the AFOs and CAFOs within the Valley. The goal of Utah's AFO/CAFO strategy is to correct "unacceptable conditions" associated with AFOs and curtail the movement of animal waste into waterways.

#### **3.2 Recommendations**

An effort should be made to exclude livestock within the AFOs from riparian areas. This will reduce the quantity of nutrients that are directly deposited into surface waters. It will also allow the stream buffer to become more vegetated and stable, which can reduce the risk of streambank erosion, provide shade and habitat for aquatic species, and filter nutrients and sediments from runoff. The largest operations located in closest proximity to the reservoir and inflowing streams should be targeted first.

Livestock are usually excluded by fencing. Several alternatives are available for providing water to animals that can no longer obtain it directly from the stream. These include pipelines, ponds, wells, troughs, and tanks. Options are also available for providing livestock stream crossings and alternative shade areas.

### 3.3 Costs

Costs of excluding livestock are associated with the construction of fences and water pipelines and any planting programs aimed at reestablishing vegetation on streambanks. Rough estimates for the costs of excluding livestock from watercourses and for manure management facilities at the CAFOs in Ogden Valley will be \$250,000 (five operations \* \$50,000/operation). Fencing the AFOs and installing stream buffers is expected to cost an additional \$52,000 (20 operations \* \$2,400 for fencing + 20 operations \* \$200 for stream buffer). (Fencing costs assume 1,500 feet at \$1.60/foot for 4-strand barbwire; stream buffer costs include grading, seeding, and irrigation).

### 4.0 Tributary Loads

#### 4.1 Background

The TMDL report indicates the need to reduce nutrient loading to Pineview Reservoir from tributary loadings by 40 percent. A portion of these load reductions could come from reducing sheet and rill erosion by converting brushland to grasslands. Loads could also be reduced by installing vegetated filter strips along streams to catch pollutants before they enter the stream.

#### 4.2 Recommendations

Conversion of brushland to grassland should be prioritized for areas of the watershed where erosion is expected to be the greatest, such as subwatersheds with steep slopes. Areas closer to the reservoir should also be given top priority.

Vegetated filter strips are used to reduce the amount of nutrients and sediments that enter a waterbody, reduce erosion around a stream channel, and protect a waterbody from encroachment. If vegetated buffers are designed correctly, they can prevent suspended solids, nitrogen, and phosphorus from entering a stream. The ability for the buffer to uptake nutrients depends on the design and the residence time of the water.

Suspended solids (which can transport nutrients) are more easily removed by vegetated buffers through settling. The Stormwater Manager's Resource Center (2001b) summarized several studies that indicate that buffers may reduce nitrogen and phosphorus concentrations in stormwater runoff (Table 8).



**Figure 2. Example of the benefits of revegetation from Bear River, Utah.**

**Table 8.** Pollutant removal rates (%) in buffer zones<sup>1</sup>

Study	Buffer Vegetation	Buffer Width (meters)	Pollutant Removal Rate (%)		
			Total Suspended Solids	TP	Total Nitrogen
Dillaha et al., 1989	Grass	4.6	63	57	50
		9.1	78	74	67
Magette et al., 1987	Grass	4.6	72	41	17
		9.2	86	53	51
Schwer and Clausen, 1989	Grass	26.0	89	78	76
Lowrance et al., 1983	Native hardwood forest	20–40.0	-	23	-
Doyle et al., 1977	Grass	1.5	-	8	57
Barker and Young, 1984	Grass	79.0	-	-	99
Young et al., 1980	Grass	27.4	-	88	87

<sup>1</sup>SMRC, 2001b.

### 4.3 Costs

NRCS estimated the costs of converting brushland to grassland at \$15 per acre, primarily to pay for spraying (Garn, 2002). Assuming that 20 percent of the land currently classified as brush is converted to grass results in a total cost of \$316,430 (Table 9).

**Table 9.** Estimated costs associated with converting brush to grass in Pineview Reservoir watershed.

<b>Tributary</b>	<b>Current Brush (Acres)</b>	<b>Proposed Acreage to Convert to Grass (20 percent)</b>	<b>Estimated Cost (\$)</b>
North Fork	19,407	3,881	58,220
Middle Fork	14,156	2,831	42,470
South Fork	65,704	13,141	197,110
Subbasin 4	3,385	677	10,160
Subbasin 5	1,512	302	4,540
Subbasin 6	410	82	1,230
Subbasin 7	766	153	2,300
Subbasin 8	89	18	270
Subbasin 9	42	8	130
<b>Total</b>	<b>105,472</b>	<b>21,094</b>	<b>316,430</b>

To estimate the number of acres of filter strips required in the Pineview Reservoir watershed the total length of stream miles was measured using a geographic information system (GIS). There are a total of 429 miles (100 miles in the North Fork subwatershed, 66 miles in the Middle Fork subwatershed, and 263 miles in the South Fork subwatershed). To achieve a 20 percent reduction in phosphorus loads it will be necessary to install filter strips along 35 percent of the stream miles in the watershed (57 percent pollutant removal rate [Dillaha et al., 1989] \* 35 percent of streams = 20 percent load reduction). This means that filter strips will need to be installed along approximately 150 miles of streams. Assuming a width of 5 meters, the 150 miles of filter strips equals 600 acres.

The costs of installing vegetated filter strips were summarized by USEPA (1993) and are presented in Table 10. The average cost of the three case studies was \$136 per acre, which converts to approximately \$242 in current dollars (EHS, 2002). The capital costs of planting approximately 600 acres of filter strips is therefore \$145,200.

**Table 10.** Cost of installing vegetated filter strips<sup>1</sup>.

<b>Location</b>	<b>Year</b>	<b>Unit</b>	<b>Capital Costs (\$/unit)</b>
National	1985	Acre	117.93
Michigan	1981	Acre	191.55
North Carolina	1980	Acre	98.61

<sup>1</sup> USEPA, 1993.

## 5.0 Residential Runoff

Nutrient loads from residential runoff are not considered a significant source when compared to other sources within Ogden Valley. However, an effort should still be made to reduce loadings

from this source wherever feasible, especially since residential land in the valley has been rapidly increasing since 1960.

Urban land can be a source of a wide range of pollutants. Cars, lawns, factories, and construction sites are some of the many sources of urban pollutants. In addition to being a source of pollutants, urban areas also tend to increase the imperviousness in a watershed. Impervious areas reduce the amount of water infiltration and increase the amount of stormwater that flows into surface waterbodies. When water is allowed to run off of urban areas, it can transport various pollutants, including metals, greases and oils, nutrients, and sediment to surface waters. Stormwater flows and volumes are often higher in urban streams than in other streams. The Center for Watershed Protection (CWP, 1998) has estimated that watersheds with 11 to 25 percent impervious cover have impacted stream quality, and watersheds with more than 25 percent impervious cover have nonsupporting stream quality. The Pineview Reservoir watershed currently has less than 1 percent impervious cover.

Outreach programs are used to educate the public about watershed concerns, urban runoff issues, and alternative construction practices (such as open space planning). These programs can also teach the community about individual practices that can reduce nutrient loadings. For example, lawn fertilization and animal wastes may be a source of nutrient pollution in streams in urban areas. Instruction in proper fertilization practices could help reduce nutrient loadings from individual residential lots. Other individual homeowner practices include using nonphosphorus-containing detergents and reducing overall water use. Studies have found that newspapers and television are more effective in outreach programs than brochures and meetings (Tetra Tech, 2001).

The main goal of structural urban best management practices (BMPs) is to increase the amount of water infiltration and reduce the amount of runoff. By doing this, stormwater and pollutants carried by stormwater are prevented from directly entering a stream. Some common structural urban BMPs are listed below:

- Infiltration basin
- Infiltration trench
- Dry or wet ponds
- Porous pavement
- Constructed wetlands.

The premise of each of these BMPs is to route stormwater to a holding basin so that more water can infiltrate and suspended solids can settle out of the water. The Pineview Reservoir Clean Lakes Report (1988) suggests total containment of stormwater from all high-density development in the Pineview Reservoir watershed. The effectiveness of each of these BMPs depends on the retention time, the size (volume of the basin), flow, and type of soils. Pollutant removal effectiveness also depends on these factors. USEPA (1993) reports that the average nitrogen and phosphorus removal of an infiltration basin from several U.S. studies is 60 and 65 percent, respectively (Table 11). Basin costs depend on size and site conditions (Table 12).

**Table 12.** Average pollutant removal efficiency (%) of several urban BMPs<sup>1</sup>.

BMP	Total Suspended Solids	Total Nitrogen	TP
Infiltration basin	75	60	65
Infiltration trench	75	55	60
Extended detention dry pond	45	30	25
Wet pond	60	35	45
Porous pavement	90	85	65
Constructed wetland	65	20	25

<sup>1</sup> USEPA, 1993.**Table 12.** Costs of selected urban BMPs<sup>1</sup>.

BMP	Average Construction Cost	Annual Average Maintenance Cost	Total Annual Cost
Infiltration basin	\$0.5/ft <sup>3</sup>	7% of capital cost	\$0.03–\$0.05/ft <sup>3</sup>
Infiltration trench	\$4.0/ft <sup>3</sup>	9% of capital cost	\$0.3–\$0.9/ft <sup>3</sup>
Extended detention dry pond	\$0.5/ft <sup>3</sup>	4% of capital cost	\$0.007–\$0.3/ft <sup>3</sup>
Wet pond	\$0.5/ft <sup>3</sup>	3% of capital cost	\$0.008–\$0.07/ft <sup>3</sup>
Porous pavement	\$1.5/ft <sup>2</sup>	\$0.01/ft <sup>2</sup>	\$0.15/ft <sup>2</sup>
Constructed wetland	N/A	N/A	N/A

<sup>1</sup> USEPA, 1993.

## 6.0 Irrigation Return Flows

### 6.1 Background

Irrigation return flows are a substantial component of current nutrient loads in the Pineview Reservoir watershed. A large number of acres are flood-irrigated during the summer and their return flows cause increased nutrient loadings to the reservoir. The TMDL report indicates the need to reduce nutrient loading to Pineview Reservoir from these irrigation return flows by 50 percent. This can be accomplished by improving irrigation practices within the valley because there is a great deal of inefficiency associated with the current systems. The following description of the potential impact of improved irrigation practices was provided by the Natural Resources Conservation Service (NRCS) (Hansen, 2002a).

The valley bottom has annual precipitation of 20 inches. Many of the valley-bottom soils have a plant-available water capacity of 6 inches or more. Snowmelt fills the soil profile in the spring,



and in an average year this stored water and spring rains provide adequate water for plant growth to the end of June. If the soil profile is filled again at that time it stores enough water to last another 30 days. Sandy or gravelly soils hold less water and need more frequent irrigation. Unnecessary spring irrigation leaches nitrogen and organic forms of phosphorus and contributes a major part of the groundwater. It also adds nutrients to surface water because of irrigation runoff. The technology exists to schedule irrigation water very precisely based on the needs of the crops, but this technology has thus far not been fully utilized in the valley.

NRCS uses the Farm Irrigation Rating Index (FIRI) to estimate the amount of change different irrigation systems and management styles cause in irrigation efficiency. Using this index with a typical flood-irrigated field in the valley-irrigation efficiencies are approximately 20 to 30 percent. Conveyance efficiencies are very low because most of the ditches are on gravelly soils with high percolation rates. The fields have relatively uneven, steep slopes and in many of the alluvial areas have quite shallow soils over gravel. Efficient surface irrigation systems are not an option because laser leveling would remove too much topsoil.

## 6.2 Recommendations

A number of options exist for improving irrigation practices within the valley. NRCS recommends that the following activities take place:

- Install sprinkler irrigation systems for the irrigated land south of the north branch of South Fork. This will include about 1,600 acres served by a mainline system with gravity pressure. Plans are available but project funding is required.
- Another 1,600 acres from the north side of South Fork to Middle Fork are planned for the future as a mainline system with gravity pressure. Some sprinkler irrigation systems already exist in this area.
- Eden Irrigation Company has approached NRCS for technical assistance in developing a pressurized irrigation system in Eden. If it is feasible it will bring in another 2,000 acres.
- Most of the land in the North Fork area is already under sprinkler irrigation. To finish that area, about 300 acres will need to be supplied with pressurized irrigation water.



**Figure 3. Example of sprinkler irrigation.**

Table 13 shows the expected water savings when the valley is converted to sprinkler irrigation systems, if the systems are managed based on consumptive use by the crops. The water savings will translate directly into reduced groundwater flows, which in turn will lead to reduced nutrient loadings. Since the annual water savings (23,120 acre-feet) are expected to be greater than 50 percent of current water use (43,200 acre-feet) it can reasonably be expected that nutrient loads will also be reduced by at least 50 percent.

**Table 13.** Summary of potential irrigation water management projects in the Pineview Reservoir watershed.

Location	Current			Planned		
	Surface (acres)	Sprinkler (acres)	Water Used (acre ft)	Surface (acres)	Sprinkler (acres)	Water Used (acre-ft)
South Fork	800	800	10800	0	1,600	5,540
Middle Fork	1200	400	12600	0	1,600	5,540
Eden	1500	100	13950	0	1,600	5,540
North Fork	300	700	5850	0	1,000	3,460
Total	3800	2000	43200	0	5,800	20,080

### 6.3 Costs

Implementing the irrigation practices described above is expected to be expensive. NRCS estimates that installation costs for on-farm sprinkler systems will cost approximately \$1,000 per acre and delivery systems will cost an additional \$1,000 per acre (Hansen, 2002b). These costs are higher than those reported in the literature (Table 14), perhaps because there are a lot of small fields with multiple landowners in the valley. The actual costs will vary with field size, crops, precipitation, and needs.

The estimated capital cost for converting to sprinkler irrigation is \$7.6 million (3,800 acres \* \$2,000/acre) and the estimated operation costs are \$170,800 (3,800 acres \* \$44.94/acre). The average per acre operation costs are based on values reported in the literature (Scherer, 1998).

**Table 14.** Comparative costs of sprinkler irrigation systems in North Dakota. Costs for these systems include equipment cost, well drilling and maintenance (if needed), electricity, and annual maintenance<sup>2</sup>.

	Center Pivot	Center Pivot with Corner	Linear Move	Big Gun	Side Roll	Average
Acres Irrigated <sup>1</sup>	130	152	158	157	158	151
Total Capital Cost	\$73,000	\$98,000	\$109,000	\$97,000	\$90,000	\$93,400
Capital Cost per Acre	\$561.54	\$644.74	\$689.87	\$617.83	\$569.62	\$618.54
Total Annual Operating Cost per acre	\$33.97	\$35.22	\$39.29	\$63.32	\$52.92	\$44.94

<sup>1</sup>Acres irrigated is out of 160 total acres with one well on the center of the field.

<sup>2</sup>Scherer, 1998.

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**STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WATER QUALITY**

**Authorization to Discharge Under the  
Utah Pollutant Discharge Elimination System**

**Storm Water General Permit for  
Construction Activities  
Permit No. UTR300000**

This Permit is issued in compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 2004, as amended (the "Act") and the federal Water Pollution Control Act (33 U.S.C. §§ 1251 *et. seq.*, as amended to date), and the rules and Regulations made pursuant to those statutes.

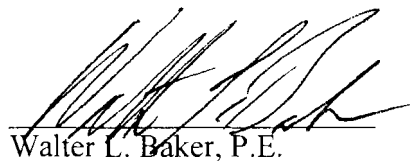
This Permit authorizes storm water discharges to waters of the State of Utah resulting from construction activities, including construction support activities, anywhere within the State of Utah as provided in Parts 1.4 and 1.5 of this Permit. This authorization is conditioned upon a discharger meeting the eligibility requirements in Part 1.2.2 of this Permit, including preparation of a Storm Water Pollution Prevention Plan prior to filing a Notice of Intent ("NOI") to discharge under this General Permit. A discharger is not covered by this Permit if the discharger submits an NOI but has not met these conditions.

This authorization is subject to the authority of the Utah Water Quality Board or the Executive Secretary of the Utah Water Quality Board to reopen this Permit (*see* Part 5.15 of this Permit), or to require a discharger to obtain an individual permit or use an alternative general permit (*see* Part 2.3 of this Permit). The issuance of a discharge permit authorization under this general Permit does not relieve Permittees of other duties and responsibilities under the Act or rules made under that Act. Significant terms used in this Permit are defined in Part 6 of this Permit.

This Permit shall become effective on July 1, 2008.

This Permit and the authorization to discharge shall expire at midnight, June 30, 2013, except as described in Part 2.4 of this Permit.

Signed this 26<sup>th</sup> day of June, 2008.



Walter L. Baker, P.E.  
Executive Secretary,  
Utah Water Quality Board

## TABLE OF CONTENTS

<b>PART 1: PERMIT SCOPE AND COVERAGE</b> .....	3
1.1 Persons Required to Obtain Authorization for Discharge. ....	3
1.2 Permit Area and Eligibility. ....	3
1.3 Authorization to Discharge. ....	3
1.4 Allowable Storm Water Discharges. ....	3
1.5 Allowable Non-storm Water Discharges. ....	4
1.6 Discharges Not allowed Under This Permit. ....	4
1.7 Authorization to Discharge Date. ....	5
1.8 Notice of Intent .....	5
1.9 Coverage Before October 1, 2008. ....	5
1.10 Late Notifications. ....	6
<b>PART 2. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, RESPONSIBILITIES, AND OTHER NON-NUMERIC LIMITATIONS</b> .....	7
2.1 Releases in Excess of Reportable Quantities. ....	7
2.2 Discharge Compliance with Water Quality Standards and TMDL Requirements. ....	7
2.3 Requiring an Individual Permit or an Alternative General Permit. ....	8
2.4 Continuation of the Expired General Permit. ....	9
<b>PART 3. STORM WATER POLLUTION PREVENTION PLANS</b> .....	10
3.1 SWPPP Required. ....	10
3.2 SWPPP Location, Availability, Revision, and Signature. ....	10
3.3 Keeping SWPPPs Current. ....	11
3.4 More Than One Permittee. ....	11
3.5 Contents of SWPPP. ....	12
<b>PART 4. TERMINATION/CHANGES IN OWNER/OPERATOR FOR SITE</b> .....	19
4.1 Termination of Coverage .....	19
4.2 Conditions for Submitting an NOT. ....	19
4.3 Updating the SWPPP .....	
<b>PART 5. STANDARD PERMIT CONDITIONS</b> .....	20
5.1 Duty to Comply. ....	20
5.2 Duty to Reapply. ....	20
5.3 Need to Halt or Reduce Activity Not a Defense. ....	20
5.4 Duty to Mitigate. ....	20
5.5 Duty to Provide Information. ....	20
5.6 Other Information. ....	20
5.7 Oil and Hazardous Substance Liability. ....	21
5.8 Property Rights. ....	21
5.9 Severability .....	21
5.10 Record Retention. ....	21
5.11 Addresses. ....	21
5.12 State Laws. ....	21
5.13 Proper Operation and Maintenance. ....	21
5.14 Inspection and Entry .....	22
5.15 Reopener Clause. ....	22
5.16 Signatory Requirements. ....	22
<b>PART 6. DEFINITIONS</b> .....	24

**PART 1: PERMIT SCOPE AND COVERAGE**

- 1.1 Persons required to obtain authorization for discharge. No person may conduct construction activities that disturb an area greater than or equal to one acre without authorization for storm water discharge from the Executive Secretary. (See Utah Admin. Code Sections R317-8-3.9(6)(d)(10) and R317-8-3.9(6)(e)(1).) In addition, no person may conduct construction activities that disturb an area smaller than one acre if the disturbance is part of a larger common plan of development or sale that will ultimately disturb an area greater than or equal to one acre. *Id.* See Part 6.5 of this Permit for a definition of “construction activities.”
- 1.2 Permit Area and Eligibility.
  - 1.2.1. Construction activities located within the State of Utah, except for Indian Country (see Part 6.16 of this Permit for a definition of “Indian Country”) may be eligible to be covered under this Permit.
  - 1.2.2. Eligibility for authorization to discharge under this Permit is conditioned upon:
    - a. Preparation of a Storm Water Pollution Prevention Plan (“SWPPP”) (see Part 3 of this permit) prior to submission of a Notice of Intent (“NOI”);
    - b. Submission of a complete and accurate Notice of Intent to be covered by this Permit (see Part 1.8 of this Permit); and
    - c. Payment of applicable fees.
- 1.3 Authorization to Discharge. This Permit authorizes discharges of storm water from construction activities that disturb an area greater than or equal to one acre, and from construction activities that disturb an area smaller than one acre if the disturbance is part of a larger common plan of development or sale that will ultimately disturb an area greater than or equal to one acre. This authorization is subject to all of the terms and conditions of this Permit, including the requirement that the discharger must submit a Notice of Intent (“NOI”), and the prohibitions on discharges specified in Part 1.6.
- 1.4 Allowable Storm Water Discharges. Subject to compliance with the terms and conditions of this Permit, a Permittee is authorized to discharge pollutants in:
  - 1.4.1. Storm water associated with construction activity as that term is defined in Part 6.5 of this Permit (but see Part 1.4.3 of this Permit for limitations on discharges from construction support activities);
  - 1.4.2. Storm water discharges designated by the Executive Secretary as needing a storm water permit under R317-8-3.9(6)(e)(2);
  - 1.4.3. Discharges from construction support activities as that term is defined in Part 6.6 of this Permit, provided:
    - a. The support activity is directly related to the construction site required to have UPDES permit coverage for discharges of storm water associated with construction activity;
    - b. The support activity is not a commercial operation serving multiple unrelated construction projects by different owners/operators, and does not operate beyond the completion of the construction activity at the last construction project it supports; and
    - c. Appropriate controls and measures are identified in a Storm Water Pollution

Prevention Plan (SWPPP) covering the discharges from the support activity areas; and

- 1.4.4. Discharges composed of allowable discharges listed in Part 1.4 and 1.5 of this Permit commingled with a discharge authorized by a different UPDES permit and/or a discharge that does not require UPDES permit authorization.
- 1.5. Allowable Non-storm Water Discharges. A Permittee is authorized to make the following non-storm water discharges, provided the non-storm water component of the discharge is in compliance with Part 3.5.5 of this Permit:
  - 1.5.1. Discharges from fire-fighting activities;
  - 1.5.2. Fire hydrant flushings;
  - 1.5.3. Waters used to wash vehicles where detergents are not used;
  - 1.5.4. Water used to control dust in accordance with Part 3.5.2(c)(2);
  - 1.5.5. Potable water including uncontaminated water line flushings;
  - 1.5.6. Routine external building wash down that does not use detergents;
  - 1.5.7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
  - 1.5.8. Uncontaminated air conditioning or compressor condensate;
  - 1.5.9. Uncontaminated ground water or spring water;
  - 1.5.10. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
  - 1.5.11. Landscape and other irrigation drainage.
- 1.6. Discharges not allowed under this Permit. Notwithstanding any other language in this Permit, the following storm water discharges are not authorized by this Permit:
  - 1.6.1. Discharges from Construction Activities within Indian Country. This Permit does not cover discharges within Indian Country as that term is defined in Part 6.16 of this Permit;<sup>1</sup>
  - 1.6.2. Post Construction Discharges. Storm water discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization;
  - 1.6.3. Discharges Mixed with Non-storm Water. Discharges that are mixed with sources of non-storm water other than discharges which are identified in Part 1.5 of this Permit and in compliance with Part 3.5.5 (non-storm water discharges) of this Permit;
  - 1.6.4. Discharges Covered by Another Permit. Storm water discharges associated with construction activity for which an individual permit has been issued, or for which the owner/operator is required to or may obtain coverage under an individual permit or an alternative general permit (*see* Part 2.3 of this Permit), including a general

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<sup>1</sup> The State of Utah, *Division of Water Quality*, does not have permit authority for Indian Country. Storm water permits for Indian Country within the State must be acquired through EPA Region VIII, except for facilities on the Navajo Reservation or on the Goshute Reservation which must acquire storm water permits through EPA Region IX.



permit issued for areas regulated by a qualified municipal Separate Storm Sewer System Program;

- 1.6.5. Discharges Threatening Water Quality. Storm water discharges from construction activities that cause or have the reasonable potential to cause a violation of a water quality standard. *See* Part 2.2 of this Permit;
  - 1.6.6. Discharges from commercial construction support and related activities. Storm water discharges from construction support activities unless they are included within the definition in Part 6.6 of this permit;
  - 1.6.7. Spills. This Permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill; and
  - 1.6.8. Discharges that result from violations of this Permit.
- 1.7 Authorization to Discharge Date.
- 1.7.1. This permit is effective as of July 1, 2008 and is effective for five years, expiring at 11:59 p.m. on June 30, 2013.
  - 1.7.2. Unless notified by the Executive Secretary to the contrary, a discharger is authorized for coverage under this Permit and may begin construction activities immediately after preparing a SWPPP for the construction activities (*see* Part 1.2.2(a) of this Permit), and after submitting an NOI and permit fee (*see* Part 1.2.2(b) and (c) of this Permit). The date of submission of the NOI or a permit fee shall be the date of its receipt by the Executive Secretary, or the date the NOI or permit fee are submitted electronically using the website for the Utah Division of Water Quality. Any NOIs mailed to the Executive Secretary shall be mailed to the address specified in Part 5.11 of this Permit.
  - 1.7.3. The Executive Secretary may, with written notice (including electronic notice) delay authorization to verify an applicant's eligibility or resolve other concerns. In these instances, a discharger is not authorized for coverage under this permit until it receives notice from the Executive Secretary.
- 1.8 Notice of Intent
- 1.8.1. A person who wishes to submit an NOI must use the NOI form provided by the Executive Secretary (or a copy thereof), or submit an NOI electronically (<https://secure.utah.gov/stormwater/>).
  - 1.8.2. All questions in an NOI form provided by the Executive Secretary or answered in the course of submitting an NOI electronically must be answered completely and accurately.
  - 1.8.3. The NOI, whether on the form provided by the Executive Secretary or submitted electronically, must include a certification statement, and must be signed and dated by an authorized representative as specified in Part 5.16 of this Permit.
- 1.9 Coverage before June 30, 2010. Permittee's that previously received authorization to discharge under the October 1, 2002 General Permit (2002 General Permit) and still have active coverage shall without submission of an NOI continue coverage under UTR200000 until June 30, 2010 at which time, or before if desired, the Permittee shall, by submission of an NOI (either on-line [www.waterquality.utah.gov/updes/stormwatercon.htm](http://www.waterquality.utah.gov/updes/stormwatercon.htm) or by paper submission) obtain coverage under this Permit (UTR300000).

- 1.10 Late Notifications. Persons are not prohibited from submitting NOIs after initiating clearing, grading, excavation activities, or other construction activities. When a late NOI is submitted, authorization for discharges occurs consistent with Subpart 2.1. The Agency reserves the right to take enforcement action for any un-permitted discharges that occur between the commencement of construction and discharge authorization.

**PART 2. SPECIAL CONDITIONS, MANAGEMENT PRACTICES,  
RESPONSIBILITIES, AND OTHER NON-NUMERIC LIMITATIONS**

- 2.1 Releases in excess of Reportable Quantities. The discharge of hazardous substances or oil in the storm water discharge(s) from a site shall be prevented or minimized in accordance with the applicable SWPPP for the site. This Permit does not relieve the Permittee of the reporting requirements of 40 CFR part 117, 40 CFR 110, and 40 CFR part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reportable quantity established under either 40 CFR 117, 40 CFR 110, or 40 CFR 302, occurs during a 24 hour period:
- 2.1.1. The Permittee is required to notify the National Response Center (NRC) (800-424-8802) in accordance with the requirements of 40 CFR 117, 40 CFR 110, and 40 CFR 302 and the Division of Water Quality (DWQ) (801-538-6146) or the 24 hour DWQ answering service at 801-536-4123 as soon as he or she has knowledge of the discharge;
  - 2.1.2. The Permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, the measures taken and/or planned to be taken to cleanup the release, and steps to be taken to minimize the chance of future occurrences to the Executive Secretary; and
  - 2.1.3. The SWPPP required under Part 3 of this Permit must be modified within 14 calendar days of knowledge of the release to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the SWPPP must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the SWPPP must be modified where appropriate.
- 2.2 Discharge Compliance with Water Quality Standards and TMDL requirements. Storm water discharges from construction activities that cause or have the reasonable potential to cause a violation of a water quality standard or a violation of Total Maximum Daily Load (“TMDL”) requirements are not authorized by this Permit. If there is a TMDL requirement for the receiving water, that requirement, rather than a water quality standard, will govern. If a discharge that would otherwise be covered by this Permit causes a violation or if there is a reasonable potential a discharge will cause a violation, the Permittee will take all necessary actions to ensure future discharges do not cause or contribute to the violation of a water quality standard or a TMDL requirement, and shall document these actions in the SWPPP.

If the Executive Secretary determines that construction activities have caused or have the reasonable potential to cause a violation of a water quality standard or a TMDL requirement, the discharger will be notified by the Executive Secretary of additional requirements for treatment or handling of the discharge to ensure future discharges do not cause or contribute to the violation. The Permittee will document these requirements in the SWPPP. The Executive Secretary may authorize continued coverage under this Permit after appropriate controls and implementation procedures, designed to bring the discharges

into compliance with water quality standards or TMDL requirements, have been included in the SWPPP.

Alternatively, the Executive Secretary may notify the Permittee that an individual permit application is necessary (see Part 2.3 of this Permit).

If violations remain or re-occur, then coverage under this Permit may be terminated by the Executive Secretary and an alternative permit may be issued or denied. Compliance with this requirement does not preclude any enforcement activity as provided by the Water Quality Act for the underlying violation.

### 2.3 Requiring an Individual Permit or an Alternative General Permit.

- 2.3.1. The Executive Secretary may require any person authorized by this Permit to apply for and/or obtain either an individual UPDES permit or an alternative UPDES general permit. Any interested person may petition the Executive Secretary to take action under this paragraph. Where the Executive Secretary requires a discharger authorized to discharge under this Permit to apply for an individual UPDES permit, the Executive Secretary shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form or reference to the application requirements, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual UPDES permit or the alternative general permit as it applies to the individual Permittee, coverage under this general Permit shall automatically terminate. Applications shall be submitted to the address of the Division of Water Quality shown in Part 5.11 of this Permit. The Executive Secretary may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual UPDES permit application as required by the Executive Secretary under this paragraph, then the applicability of this Permit to the individual UPDES permittee is automatically terminated at the end of the day specified for application submittal.
- 2.3.2. Any discharger authorized by this Permit may request to be excluded from the coverage of this Permit by applying for an individual permit. In such cases, the discharger shall submit an individual application in accordance with the requirements of Utah Administrative Code ("UAC") R317-8-3.9(2)(b)2 with reasons supporting the request, to the Executive Secretary at the address for the Division of Water Quality in Part 5.11 of this Permit. The request may be granted by issuance of any individual permit or an alternative general permit if the reasons cited by the Permittee are adequate to support the request.
- 2.3.3. When an individual UPDES permit is issued to a discharger who would otherwise be subject to this Permit, or the discharger is authorized to discharge under an alternative UPDES general permit, the applicability of this Permit to the individual UPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization for coverage under the alternative general permit, whichever the case may be. When an individual UPDES permit is denied to a discharger otherwise subject to this Permit or the discharger is denied for coverage under an alternative UPDES general permit, the applicability of this Permit to the

individual UPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Executive Secretary.

- 2.4 Continuation of the Expired General Permit. This Permit expires on June 30, 2013. However, an expired general permit shall continue in force and effect after the expiration date until a new general permit is issued. If a discharger was eligible for and permitted under this Permit, and this Permit expires, the discharger will remain covered by this Permit until the earliest of:
- 2.4.1. One hundred twenty days after re-issuance or replacement of this Permit;
  - 2.4.2. The discharger submits a Notice of Termination in compliance with this Permit;
  - 2.4.3. The discharger is issued an individual permit for the project's discharges; or
  - 2.4.4. 180 days after the Executive Secretary makes a formal decision not to reissue or replace this Permit, at which time the discharger must seek coverage under an alternative general permit or an individual permit.

**PART 3. STORM WATER POLLUTION PREVENTION PLANS**

- 3.1. SWPPP required. A Storm Water Pollution Prevention Plan (“SWPPP”) shall be developed for each construction project covered by this Permit prior to submission of an NOI. A SWPPP shall be prepared in accordance with good engineering practices. It is recommended that the plan be signed by a Professional Engineer (P.E.) registered in the State. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site, shall describe and ensure the implementation of practices which will be used to reduce the pollutants in storm water discharges associated with construction activity at the construction site and to assure compliance with the terms and conditions of this Permit, and shall otherwise meet the requirements of this Permit. As a condition of this Permit, Permittees must implement the SWPPP as written or modified from commencement of construction until final stabilization is complete and an NOT has been submitted. (This provision is not intended to address the potential liability of a Permittee or other current or former operator or owner in the event of a discharge of pollution from the property of an individual homeowner.)
- 3.2. SWPPP Location, Availability, Revision, and Signature.
- 3.2.1. SWPPP Location. A copy of the SWPPP, including a copy of the Permit, the NOI, and any amendments to the SWPPP, shall be retained on-site at the site which generates the storm water discharge in accordance with this Part 3.2 and with Part 5.10 of this Permit. If the site is inactive or does not have an onsite location adequate to store the copy of the SWPPP, reasonable local access to a copy of the SWPPP during normal working hours (e.g., at a local library or government building), must be provided and the location of the SWPPP, along with a contact phone number, shall be posted on site at a publicly-accessible location. For linear construction projects, such as pipelines, the posted notice shall be located at a publicly accessible location near the active part of the construction project.
- 3.2.2. SWPPP Availability. The Permittee shall make the copy of the SWPPP that is kept on-site or kept locally available for review upon request to the Executive Secretary; EPA; other local agencies approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; or to the operators of a municipal separate storm sewer receiving discharges from the site. The Permittee need not provide a free copy of the SWPPP to these entities upon request, but if it chooses not to do so, it shall keep two copies of the SWPPP, in its entirety, and shall allow these entities to borrow one to make a copy at their own expense.
- 3.2.3. Original SWPPP. If requested by the Executive Secretary, the original SWPPP, including any previous versions requested, shall be provided to the Executive Secretary within five working days of the request. The original provided shall be signed in accordance with Part 5.16 of this Permit.
- 3.2.4. SWPPP Availability to the Public. The Permittee shall also make a copy of the SWPPP available to the public to review at reasonable times during regular business hours. Advance notice by the public of the desire to view the SWPPP may be required, not to exceed two working days. The Permittee need not provide a free copy of the SWPPP to members of the public, but if it chooses not to do so, it shall

- keep two copies of the SWPPP, in its entirety, and shall allow members of the public to borrow one to make a copy at their own expense.
- 3.2.5. Compelled Revisions. The Executive Secretary, or an authorized representative of the Executive Secretary, may notify the Permittee (co-Permittees) at any time that the SWPPP does not meet one or more of the minimum requirements of this Part 3. Such notification shall identify those provisions of the Permit which are not being met by the SWPPP, and identify which provisions of the SWPPP require modifications in order to meet the minimum requirements of this Part 3. Within 7 days of such notification from the Executive Secretary, (or as otherwise provided by the Executive Secretary), or authorized representative, the Permittee shall make the required changes to the SWPPP and shall submit to the Executive Secretary a written certification that the changes have been made. The Executive Secretary may take appropriate enforcement action for the period of time the Permittee was operating under a SWPPP that did not meet the minimum requirements of the Permit.
- 3.2.6. All SWPPPs must be signed and certified in accordance with Part 5.16 of this Permit.
- 3.3. Keeping SWPPPs Current.
- 3.3.1. The Permittee shall amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the discharge of pollutants to the waters of the State and which has not otherwise been addressed in the SWPPP.
- 3.3.2. The Permittee shall amend the SWPPP whenever inspections or investigations by site operators, local, state, or federal officials indicate the SWPPP is proving ineffective in eliminating or significantly minimizing pollutants from sources identified under Part 3.5.1 of this Permit, or is otherwise not achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity.
- 3.3.3. The Permittee shall amend the SWPPP whenever a new owner/operator becomes responsible for implementing all or part of the SWPPP, as further described in Part 3.4 and Part 4.3 of this Permit.
- 3.3.4. The following records of activities shall be maintained as part of the SWPPP:
- Dates when major grading activities occur;
  - Dates when construction activities temporarily or permanently cease on a portion of or all of the site; and
  - Dates when stabilization measures are initiated.
- 3.3.5. Once an area has been finally stabilized, the Permittee may identify this area in the SWPPP and no further SWPPP or inspection requirements shall apply to that area.
- 3.4. More than one Permittee. A SWPPP may identify more than one Permittee and may specify the responsibilities of each Permittee by task, area, and/or timing. Permittees may coordinate and prepare more than one SWPPP to accomplish this. However, in the event there is a requirement under the SWPPP for which responsibility is ambiguous or is not included in the SWPPP(s), each Permittee shall be responsible for implementation of that requirement. Each Permittee is also responsible for assuring that its activities do not render another Permittee's controls ineffective.

3.5. Contents of SWPPP. The SWPPP shall include the following items:

3.5.1. Site Description. Each SWPPP shall provide a description of pollutant sources and other information as indicated:

- a. A description of the nature of the construction activity;
- b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g. grubbing, excavation, grading, utilities, and infrastructure installation);
- c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities, including areas for construction support;
- d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;
- e. A general location map (e.g. portion of a city or county map or similar scale) and a site map indicating:
  - 1) drainage patterns and approximate slopes anticipated after major grading activities;
  - 2) construction boundaries and a description of existing vegetation prior to grading activities;
  - 3) areas of soil disturbance, and areas of no disturbance;
  - 4) the location of major structures and nonstructural controls identified in the SWPPP;
  - 5) Locations of areas used for construction support;
  - 6) the location of areas where stabilization practices are expected to occur;
  - 7) the location of surface waters (including wetlands); and
  - 8) locations where storm water is discharged or will discharge to a surface water;
- f. A description of any discharge associated with industrial activity other than construction at the site (including storm water discharges from dedicated portable asphalt plants and dedicated portable concrete plants), whether or not those discharges are covered by the Permit; and the location of that activity;
- g. The name of the receiving water(s), and aerial extent of wetland acreage at the site; and
- h. A copy of this Permit.

3.5.2. Controls. The SWPPP shall employ best management practices to control pollutants in storm water discharges. Each plan shall include a description of appropriate controls and measures that will be implemented during construction activity and while the site is unstabilized. The plan must clearly describe for each major activity identified in Part 3.5.1(b) appropriate control measures and the timing during the construction process that the measures will be implemented. The description and implementation of controls shall address the following minimum components:

- a. Erosion and Sediment Controls.
  - 1) Short and Long Term Goals and Criteria:
    - A) The construction-phase erosion and sediment controls should be designed to retain sediment on site to the maximum extent



- practicable.
- B) All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, incorrectly, or is ineffective the Permittee must replace or modify the control for site situations.
  - C) If sediments escape the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize the possibility of offsite impacts such as fugitive sediments washing into storm sewers by the next rain or posing a safety hazard to users of public streets.
  - D) Sediment must be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.
  - E) Litter, construction debris, and construction chemicals exposed to storm water shall be picked up prior to anticipated storm events (e.g. forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges (e.g. screening outfalls, picked up daily, etc.).
  - F) Offsite material storage areas (also including overburden and stockpiles of dirt, etc.) used solely by the Permitted project are considered a part of the project and, unless a Permittee submits a separate NOI for such areas or they are subject to a separate UPDES permit, they shall be addressed in the SWPPP.
- 2) Stabilization Practices. A description of existing interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. SWPPPs should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geo-textiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Use of impervious surfaces for stabilization should be avoided. Except as provided in paragraphs (A) and (B) below (Parts 3.5.2(a)(2)(A) and (B)), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.
- A) Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
  - B) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site.
- 3) Structural Practices. The permittee shall provide a description of

structural practices that divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Placement of structural practices in floodplains should be avoided to the degree attainable. The installation of these devices may be subject to Section 404 of the federal Clean Water Act (“CWA”).

- A) 10 Acre Sediment Basin Requirement. Where attainable, for common drainage locations that serve areas with 10 or more acres disturbed at one time, the Permittee shall provide a temporary (or permanent) sediment basin that provides storage for a 10 year, 24 hour storm event, a calculated volume of runoff for disturbed acres drained, or equivalent control measures, until final stabilization of the site. Where calculations are not performed, a sediment basin providing 3,600 cubic feet of storage per acre drained (a 1 inch storm event), or equivalent control measures, shall be provided where attainable until final stabilization of the site. The required sizing of the sediment basin does not include flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. In determining whether installing a sediment basin is attainable, factors such as site soils, slope, and available area on site shall be considered. For drainage locations which serve 10 or more disturbed acres at one time and where a temporary sediment basin or equivalent controls is not attainable, smaller sediment basins and/or sediment traps (with comparable storage) must be used; or
- (i) at a minimum, equivalent controls in silt fences, vegetative buffer strips, sod, mulch, geo-textiles, stepped check dams, pipe slope drains or other sediment or erosion controls are required for all erodible areas, down slope boundaries of the construction area and side slope boundaries deemed appropriate as dictated by individual site conditions; or
  - (ii) it can be shown that site meteorological conditions do not warrant equivalent storage during the time period the 10-acres are destabilized (little or no chance of precipitation for the period of surface destabilization).
- B) Less Than 10 Acre BMP Requirement. For drainage locations serving less than 10 acres, sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area unless a sediment basin providing storage for

3,600 cubic feet of storage per acre drained is provided.

- b. Storm Water Management. Description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA. This Permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site. However, post-construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate UPDES permit and are likely regulated under local municipal requirements.
- 1) Such measures may include:
    - A) storm water detention structures (including wet ponds);
    - B) storm water retention structures;
    - C) flow-attenuation by use of open vegetated swales and natural depressions;
    - D) infiltration of runoff onsite; and
    - E) sequential systems (which combine several practices).
  - 2) The SWPPP shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels.
  - 3) Storm water velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected. The objective is to minimize significant changes in the hydrological regime of the receiving water.
- c. Other Controls.
- 1) Waste Disposal. No solid materials, including building materials, shall be discharged to waters of the State, except as authorized by a federal CWA Section 404 permits.
  - 2) Off-site Tracking. Off-site vehicle tracking of sediments and the generation of dust shall be minimized.
  - 3) Septic, Waste, and Sanitary Sewer Disposal. The SWPPP shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.
  - 4) Exposure to Construction Materials. The SWPPP shall include a narrative description of practices to reduce pollutants from construction related materials which are stored onsite including an inventory of construction materials (including waste materials), storage practices to minimize exposure of the materials to storm water, and spill prevention and

response.

- 5) Support Areas. A description of pollutant sources from areas other than construction (including storm water discharges from dedicated portable asphalt plants and dedicated portable concrete plants), and a description of controls and measures that will be implemented at those sites.

d. Other Laws and Requirements.

- 1) Local Storm Water Control Requirements. This Permit does not relieve the Permittee from compliance with other laws effecting erosion and sediment control or requirements for the permanent storm water system. Where applicable, compliance efforts to these requirements should be reflected in the SWPPP.
- 2) Threatened or Endangered Species & Historic Properties. This Permit does not relieve the Permittee from compliance with Federal or State laws pertaining to threatened or endangered species or historic properties. Where applicable compliance efforts to these laws should be reflected in the SWPPP.
- 3) Variance of Permit Requirements. Dischargers seeking alternative permit requirements shall submit an individual UPDES permit application in accordance with applicable law to the address indicated in Part 5.11 of this Permit, along with a description of why requirements in this Permit should not be applicable as a condition of a UPDES permit.

3.5.3. Maintenance. All vegetation, erosion and sediment control measures and other protective measures identified in the SWPPP shall be maintained in effective operating condition. A description of procedures to ensure the timely maintenance of these measures shall be identified in the SWPPP. Maintenance needs identified in inspections or by other means shall be accomplished before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable.

3.5.4. Inspections.

- a. Inspections must be conducted in accordance with one of the two schedules listed below. The Permittee shall specify in its SWPPP which schedule it will be following.
  - 1) At least once every 7 calendar days; or
  - 2) At least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.
- b. Inspection frequency may be reduced to at least once every month if:
  - 1) The entire site is temporarily stabilized; or
  - 2) Runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen).
- c. The inspection requirement is waived until one month before thawing conditions are expected to result in a discharge if all of the following requirements are met:
  - 1) The project is located in an area where frozen conditions are anticipated to continue for extended periods of time (i.e., more than one month);

- 2) Land disturbance activities have been suspended; and
  - 3) The beginning and ending dates of the waiver period are documented in the SWPPP.
- d. Inspections must be conducted by qualified personnel (provided by the operator or cooperatively by multiple operators). "Qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.
- e. Inspections must include all areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation. Inspectors must look for evidence of, or the potential for, pollutants entering the storm water conveyance system. Sedimentation and erosion control measures identified in the SWPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
- f. Inspections at construction sites involving utility line installation, pipeline construction, and other long, narrow, linear construction may be more limited if the areas described in Part 3.5.4(e) of this Permit are not reasonably accessible or could cause additional disturbance of soils and increase the potential for erosion. In these circumstances, controls must be inspected at the same frequency as other construction projects, but personnel may instead inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described above. In the absence of evidence to the contrary, the conditions of the controls along each inspected 0.25 mile segment may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile segment to either the end of the next 0.25 mile inspected segment, or to the end of the project, whichever occurs first.
- g. For each inspection required above, the inspector must complete an inspection report. At a minimum, the inspection report must include:
- 1) The inspection date;
  - 2) Names, titles, and qualifications of personnel making the inspection;
  - 3) Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
  - 4) Weather information and a description of any discharges occurring at the time of the inspection;
  - 5) Location(s) of discharges of sediment or other pollutants from the site;

- 6) Location(s) of BMPs that need to be maintained;
  - 7) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
  - 8) Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
  - 9) Corrective action required including any changes to the SWPPP necessary and implementation dates.
- h. A record of each inspection and of any actions taken in accordance with this Part 3 must be retained as part of the SWPPP for at least three years from the date that permit coverage expires or is terminated. The inspection reports must identify any incidents of non-compliance with the permit conditions. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the construction project or site is in compliance with the SWPPP and this permit. The report must be signed in accordance with Part 5.16 of this Permit.

3.5.5. Non-Storm Water Discharges. Except for flows from fire fighting activities, sources of non-storm water listed in Part 1.5 of this Permit that are combined with storm water discharges associated with industrial activity must be identified in the SWPPP. The SWPPP shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

#### **PART 4 . TERMINATION/CHANGES IN OWNER/OPERATOR FOR SITE**

- 4.1. Termination of Coverage: Permittees may or shall (as specified) terminate coverage under this Permit under the following conditions:
  - 4.1.1. Completion of construction activities and site stabilization: Permittees shall terminate coverage under this Permit by submitting a Notice of Termination (“NOT”) within thirty days after completion of all construction activities, completion of final stabilization of all areas of the site as defined in Part 6.15. The NOT shall be submitted on the form specified by the Executive Secretary.
  - 4.1.2. Partial completion of construction activities and site stabilization: A Permittee who, as specified in Part 3.4 of this Permit, is identified in the SWPPP as responsible for a specific area may terminate coverage under this Permit by submitting an NOT within thirty days after completion, for that area, of all construction activities, completion of final stabilization of all areas for which the Permittee was responsible and that were disturbed. The NOT shall be submitted on the form specified by the Executive Secretary, and the Permittee shall indicate on the form that it is a partial NOT.
  - 4.1.3. New responsible owner/operator: A Permittee may terminate its coverage under this Permit by submitting an NOT if another party (or parties) assumes responsibility for all remaining SWPPP requirements. Termination of the Permittee’s responsibilities under the SWPPP will not be final until the other party (or parties) submits an NOI. If the new responsible owner/operator fails to submit an NOI, the Permittee may complete termination by demonstrating to the Executive Secretary that it has entered into contracts that obligate the new owner/operator to undertake all remaining responsibilities under the SWPPP.
- 4.2. Conditions for Submitting an NOT: A Permittee may not submit an NOT unless it meets the requirements specified in Part 4.1. Appropriate enforcement actions may be taken if an NOT is submitted without these requirements having been met, and the Permittee may also continue to be responsible for any Permit violations.
- 4.3. Updating the SWPPP: If an NOT is submitted under Part 4.1.2 or 4.1.3, the SWPPP shall be updated by the remaining Permittee(s) to meet the requirements of Part 3.4 of the Permit.

## **PART 5. STANDARD PERMIT CONDITIONS**

### **5.1. Duty to Comply.**

5.1.1. The Permittee must comply with all conditions of this Permit. Any Permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

#### 5.1.2. Penalties for Violations of Permit Conditions.

a. Violations. The Act provides that any person who violates the Act, Utah wastewater rules, or conditions of a permit issued under the Act is subject to a fine of \$10,000 per day.

b. Willful or Gross Negligence. The Act provides that any person who discharges a pollutant to waters of the State as a result of criminal negligence or who intentionally discharges is criminally liable and is subject to imprisonment and a fine of up to \$50,000 per day. Utah Code Ann. § 19-5-115.

c. False Statements. The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act, the rules, or this Permit, or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for 6 months, or by both. Utah Code Ann. § 19-5-115(4).

5.2. Duty to Reapply. If a Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, it must apply for and obtain a new permit except as provided in Part 2.4 of this Permit.

5.3. Need to halt or reduce activity not a defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

5.4. Duty to Mitigate. The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this Permit which has a reasonable likelihood of adversely affecting human health or the environment.

5.5. Duty to Provide Information. The Permittee shall furnish to the Executive Secretary or an authorized representative, within a reasonable time, any information which is requested to determine compliance with this Permit. The Permittee must also furnish to the Executive Secretary or an authorized representative copies of records to be kept by this Permit.

5.6. Other Information. When the Permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Executive Secretary, he or she shall promptly submit such facts or information.



- 5.7. Oil and Hazardous Substance Liability. Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under the "Act".
- 5.8. Property Rights. The issuance of this Permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.
- 5.9. Severability. The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.
- 5.10. Record Retention.
- 5.10.1. The Permittee shall retain copies of SWPPPs and all reports required by this Permit, and records of all data used to complete the Notice of Intent to be covered by this Permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Executive Secretary at any time.
- 5.10.2. After final stabilization of the construction site is complete, the SWPPP is no longer required to be maintained on site, but may be maintained by the Permittee(s) at its primary headquarters. Access to the SWPPP will continue as described in Part 3.2, however.
- 5.11. Addresses. All written correspondence under this permit shall be directed to the Division of Water Quality at the following address:
- Department of Environmental Quality  
Division of Water Quality  
288 North 1460 West  
PO Box 144870  
Salt Lake City, Utah 84114-4870
- 5.12. State Laws.
- 5.12.1. Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Utah Code Ann. § 19-5-117.
- 5.12.2. No condition of this Permit shall release the Permittee from any responsibility or requirements under other environmental statutes or regulations.
- 5.13. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions

of this Permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a Permittee only when necessary to achieve compliance with the conditions of the Permit.

5.14. Inspection and Entry. The Permittee shall allow, upon presentation of credentials, the Executive Secretary or an authorized representative:

- 5.14.1. To enter upon the Permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this Permit;
- 5.14.2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this Permit;
- 5.14.3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
- 5.14.4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by law, any substances or parameters at any location.

5.15. Reopener Clause.

- 5.15.1. Reopener Due to Water Quality Impacts. If there is evidence indicating that the storm water discharges authorized by this Permit cause, have the reasonable potential to cause or contribute to, a violation of a water quality standard, the discharger may be required to obtain an individual permit or an alternative general permit in accordance with Part 2.3 of this Permit or the Permit may be modified to include different limitations and/or requirements.
- 5.15.2. Reopener Guidelines. Permit modification or revocation will be conducted according to UAC R317-8-5.6 and UAC R317-8-6.2.
- 5.15.3. Permit Actions. This Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Permit condition.

5.16. Signatory Requirements.

- 5.16.1. All Notices of Intent, SWPPPs, reports, certifications or information submitted to the Executive Secretary, or that this Permit requires be maintained by the Permittee, shall be signed as follows:
  - a. All Notices of Intent shall be signed as follows:
    - 1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars) if authority to sign

- documents has been assigned or delegated to the manager in accordance with corporate procedures;
- 2) For a partnership of sole proprietorship: by a general partner or the proprietor, respectively; or
  - 3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).
- b. All reports required by the Permit and other information requested by the Executive Secretary or by an authorized representative of the Executive Secretary shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- 1) The authorization is made in writing by a person described above and submitted to the Executive Secretary; and
  - 2) The authorization specifies either an individual or a position having responsibility for overall operation of the regulated site, facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).
- c. Certification. Any person signing documents under this Part 5.16 shall make the following 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 gathered and evaluated 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.*

- 5.16.2. If a document is to be signed electronically, the Division's rules regarding electronic transactions govern.

## **PART 6. DEFINITIONS**

As used in this Permit:

- 6.1. "Act" means the "Utah Water Quality Act"
- 6.2. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- 6.3. "Common plan of development or sale" means one plan for development or sale, separate parts of which are related by any announcement, piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, plat, blueprint, contract, permit application, zoning request, computer design, etc.), physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.), or continuing obligation (including contracts) that identify the scope of the project. A plan may still be a common plan of development or sale even if it is taking place in separate stages or phases, is planned in combination with other construction activities, or is implemented by different owners or operators.
- 6.4. "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.
- 6.5. "Construction activity" means soil disturbing activities such as clearing, grading, and excavating of land. The term also includes construction support activities.
- 6.6. "Construction support activities" means construction material and equipment storage and maintenance, concrete or asphalt batch plants, except as provided in Part 1.4.3 of this Permit.
- 6.7. "Control Measure" refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State.
- 6.8. "CWA" means Clean Water Act or the Federal Water Pollution Control Act.
- 6.9. "Dedicated portable asphalt plant" means a portable asphalt plant that is located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to.
- 6.10. "Dedicated portable concrete plant" means a portable concrete plant that is located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.
- 6.11. "Discharge," when used without qualification, means the discharge of a pollutant.

- 6.12. "EPA" means the United States Environmental Protection Agency.
- 6.13. "Eligible" means qualified for authorization to discharge storm water under this general permit.
- 6.14. "Executive Secretary" means Executive Secretary of the Utah Water Quality Board.
- 6.15. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geo-textiles) have been employed. In some parts of the country, background native vegetation will cover less than 100% of the ground (e.g. arid areas). Establishing at least 70% of the natural cover of native vegetation meets the vegetative cover criteria for final stabilization. For example, if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization. For individual lots in residential construction, final stabilization means that either the homebuilder has completed final stabilization as specified above, or the homebuilder has established temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and has obligated the homeowner, by contract, to complete the requirements for final stabilization within two years.
- 6.16. "Indian Country" is defined as in 40 CFR §122.2 to mean:
1. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;
  2. All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and
  3. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-ways running through the same.
- 6.17. "Municipal Separate Storm Sewer System" refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, county, district, association, or other public body having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer districts, flood control districts or drainage districts, or similar entity that discharges to waters of the State.
- 6.18. "NOI" means notice of intent to be covered by this Permit.
- 6.19. "NOT" means notice of termination.
- 6.20. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system,

vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

- 6.21. "Runoff coefficient" means the fraction of total rainfall that will appear at conveyance as runoff.
- 6.22. "Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.
- 6.23. "Storm water" means storm water runoff, snow melt runoff, and surface runoff and drainage.
- 6.24. "Storm water discharge associated with industrial activity" is defined in the Utah Administrative Code (UAC) R317-8-3.9(6)(c) & (d) and incorporated here by reference. Most relevant to this Permit is UAC R317-8-3.9(6)(d)10, which relates to construction activity including clearing, grading and excavation activities.
- 6.25. SWPPP means Storm Water Pollution Prevention Plan, referring to the plan required in Part 3 of this Permit.
- 6.26. "Total Maximum Daily Load" or "TMDL" means the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.
- 6.27. Waters of the State means all streams, lakes, ponds, marshes, water-courses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion thereof, except that bodies of water confined to and retained within the limits of private property, and which do not develop into or constitute a nuisance, or a public health hazard, or a menace to fish and wildlife, shall not be considered to be waters of the state (UAC R317-1-1.31).

**Appendix B—Pineview Reservoir TMDL**

**Description of SWAT Modeling**





### The Soil Water Assessment Tool

The Soil Water Assessment Tool (SWAT) model was developed to predict the impact of land management practices, such as vegetative changes, reservoir management, groundwater withdrawals, and water transfer, on water, sediment, and agricultural chemical yields in large complex watersheds with varying soils, land use, and management conditions over long periods of time. SWAT can analyze large watersheds and river basins (greater than 100 square miles) by subdividing the area into homogenous subwatersheds. The model uses a daily time step, and can perform continuous simulation for a 1- to 100-year period. SWAT simulates hydrology, pesticide and nutrient cycling, erosion, and sediment transport.

### Hydrology

The hydrology component of SWAT is based on the water balance equation. A distributed Soil Conservation Services (SCS; now Natural Resources Conservation Service) curve number is generated for the computation of overland flow runoff volume, given by the standard SCS runoff equation (USDA, 1986). The curve number method is empirically based and relates runoff potential to land use and soil characteristics. The curve number method combines infiltration losses, depression storage, and interception into a potential maximum storage parameter called  $S$ . Runoff depth is given by the following set of empirical relationships:

$$Q = \frac{(P - 0.2S)^2}{P + 0.8S}$$

where  $Q$  is the accumulated runoff depth or rainfall excess,  $P$  is the accumulated precipitation, and  $S$  is a maximum soil water retention parameter given by

$$S = \frac{1000}{CN} - 10$$

where  $CN$  is known as the curve number.

The equation above indicates that precipitation,  $P$ , must exceed  $0.2S$  before any runoff is generated. Consequently, a cumulative rainfall depth of  $0.2S$  must fall before runoff is initiated. Furthermore, equation 1 yields a depth of runoff. To calculate runoff volume, the computed depth must be multiplied by area.

The curve number indicates the runoff potential of an area for the combination of land-use characteristics and soil type. Curve numbers are a function of hydrologic soil group, vegetation, land use, cultivation practice, and antecedent moisture conditions. The SCS has classified more than 4,000 soils into 4 hydrologic soil groups according to their minimum infiltration rate for bare soil after prolonged wetting. The characteristics associated with each hydrologic soil group are given in Table 1. The amount of moisture present in the soil is known to affect the volume and the rate of runoff. Consequently, the SCS developed three antecedent soil moisture conditions: Condition I, Condition II, and Condition III (see Table 2.). Drier antecedent conditions (Condition I) reflect soils that are dry but not to the wilting point. Wetter conditions (Condition III) characterize soils that have experienced heavy rainfall, light rainfall and low temperatures within the last 5 days, or saturated soils. Condition II is known as the average condition.

Table 3 gives curve numbers for average antecedent soil moisture conditions for various land uses, practices, hydrologic conditions and soil groups. For example, the CN for an area of small grain with surficial crop residue and good hydrologic condition on soil group C is 80. For soil group D, the CN

would increase to 84. Curve numbers for dryer antecedent conditions (condition I) and for wetter antecedent conditions (condition III) are found in Table 3.

**Table 1.** Characteristics of hydrologic soil groups<sup>1</sup>.

Soil Group	Characteristics	Minimum Infiltration Capacity (in./hr)
A	Sandy, deep, well-drained soils; deep loess; aggregated silty soils	0.30–0.45
B	Sandy loams, shallow loess, moderately deep and moderately well-drained soils	0.15–0.30
C	Clay loam soils, shallow sandy loams with a low-permeability horizon impeding drainage (soils with a high clay content), soils low in organic content	0.05–0.15
D	Heavy clay soils with swelling potential (heavy plastic clays), water-logged soils, certain saline soils, or shallow soils over an impermeable layer	0.00–0.05

<sup>1</sup>Source: SCS, 1972.

**Table 2.** Seasonal rainfall limits for antecedent rainfall conditions<sup>1</sup>.

Antecedent Moisture Condition Class	5-Day Total Antecedent Rainfall (inches)	
	Dormant Season	Growing Season
I	Less than 0.5	Less than 1.4
II	0.5–1.1	1.4–2.1
III	Over 1.1	Over 2.1

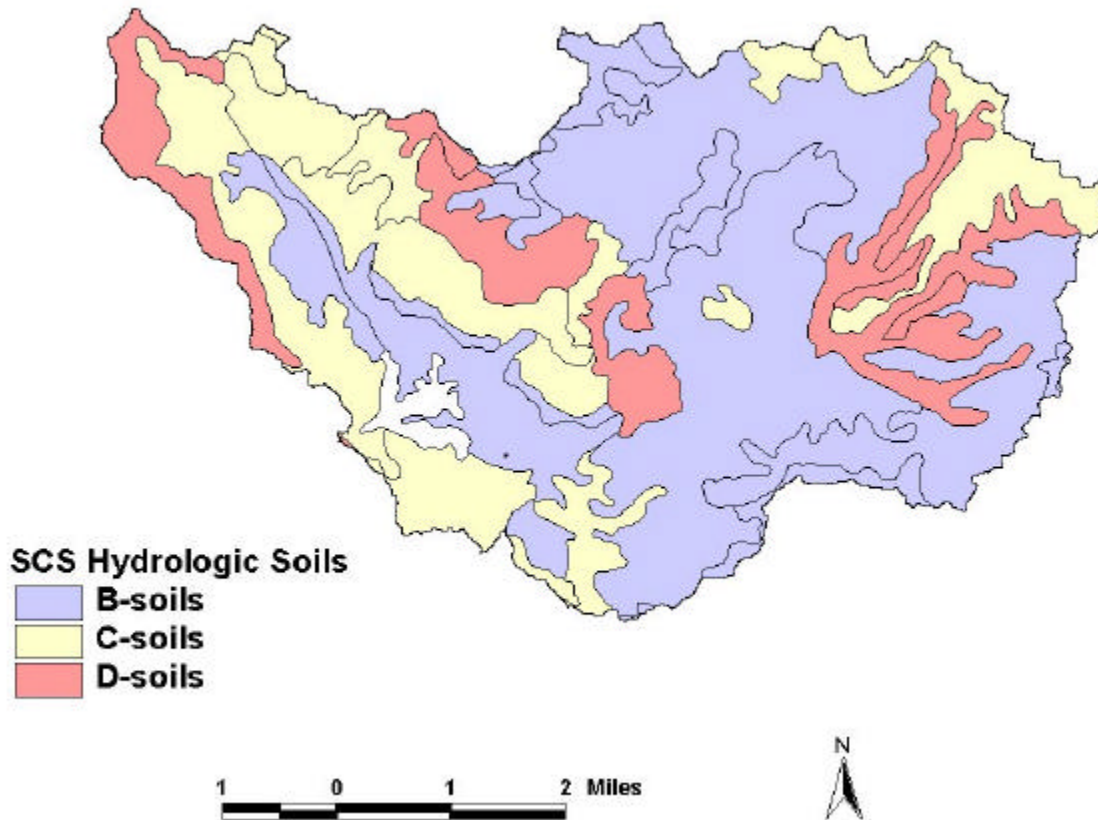
<sup>1</sup>Source: SCS, 1972.

**Table 3.** Curve number adjustments from antecedent moisture condition II to antecedent moisture conditions I and III. (Source: SCS, 1972)

<b>CN for Antecedent Moisture Condition II</b>	<b>CN for Antecedent Moisture Condition I</b>	<b>CN for Antecedent Moisture Condition III</b>
100	100	100
95	87	99
90	78	98
85	70	97
80	63	94
75	57	91
70	51	87
65	45	83
60	40	79
55	35	75
50	31	70
45	27	65
40	23	60
35	19	55
30	15	50
25	12	45
20	9	39
15	7	33
10	4	26
5	2	17
0	0	0

<sup>1</sup>Source: SCS, 1972

Curve numbers are updated daily as a function of initial soil moisture storage. A soil database is used to obtain information on soil type, texture, depth, and hydrologic classification. Figure 1 shows the distribution of hydrologic soils within the Pineview Reservoir watershed. The figure shows that “B” and “C” hydrologic soil groups dominate the watershed. In SWAT, soil profiles can be divided into 10 layers. Infiltration is defined in SWAT as precipitation minus runoff. Infiltration moves into the soil profile where it is routed through the soil layers. A storage routing flow coefficient is used to predict flow through each soil layer, with flow occurring when a layer exceeds field capacity. When water percolates past the bottom layer, it enters the shallow aquifer zone (Arnold et al., 1993). Channel transmission loss and pond or reservoir seepage replenishes the shallow aquifer while the shallow aquifer interacts directly with the stream. Flow to the deep aquifer system is effectively lost and cannot return to the stream (Arnold et al., 1993). The irrigation algorithm developed for SWAT allows irrigation water to be transferred from any reach or reservoir to any other in the watershed. Based on surface runoff calculated using the SCS runoff equation, excess surface runoff not lost to other functions makes its way to the



**Figure 1. Hydrologic soil groups in the Pineview Reservoir watershed.**

channels where it is routed downstream.

Another important model parameter obtained from the soils database is the Universal Soil Loss Equation (USLE) erodibility factor,  $k$ . The erodibility factor is an empirically derived value reflecting a soil's inherent erodibility. The USLE is used in SWAT to estimate initial soil detachment and upland erosion. Figure 2 shows the distribution of the  $k$ -factor within the watershed. The figure shows that most of the soils in the Pineview Reservoir watershed are classified as moderately susceptible to erosion. Sediment yield used for instream transport is determined from the Modified Universal Soil Loss Equation (MUSLE) (Arnold, 1992). For sediment routing in SWAT, deposition calculation is based on fall velocities of various sediment sizes. Rates of channel degradation are determined from Bagnold's (1977) stream power equation. Sediment size is estimated from the primary particle size distribution (Foster et al., 1980) for soils the SWAT model obtains from the STATSGO (USDA 1992) database. Stream power also is accounted for in the sediment routing routine, and is used for calculation of reentrainment of loose and deposited material in the system until all of the material has been removed. Data input requirements are relatively high, and experienced personnel are required for successful simulations.

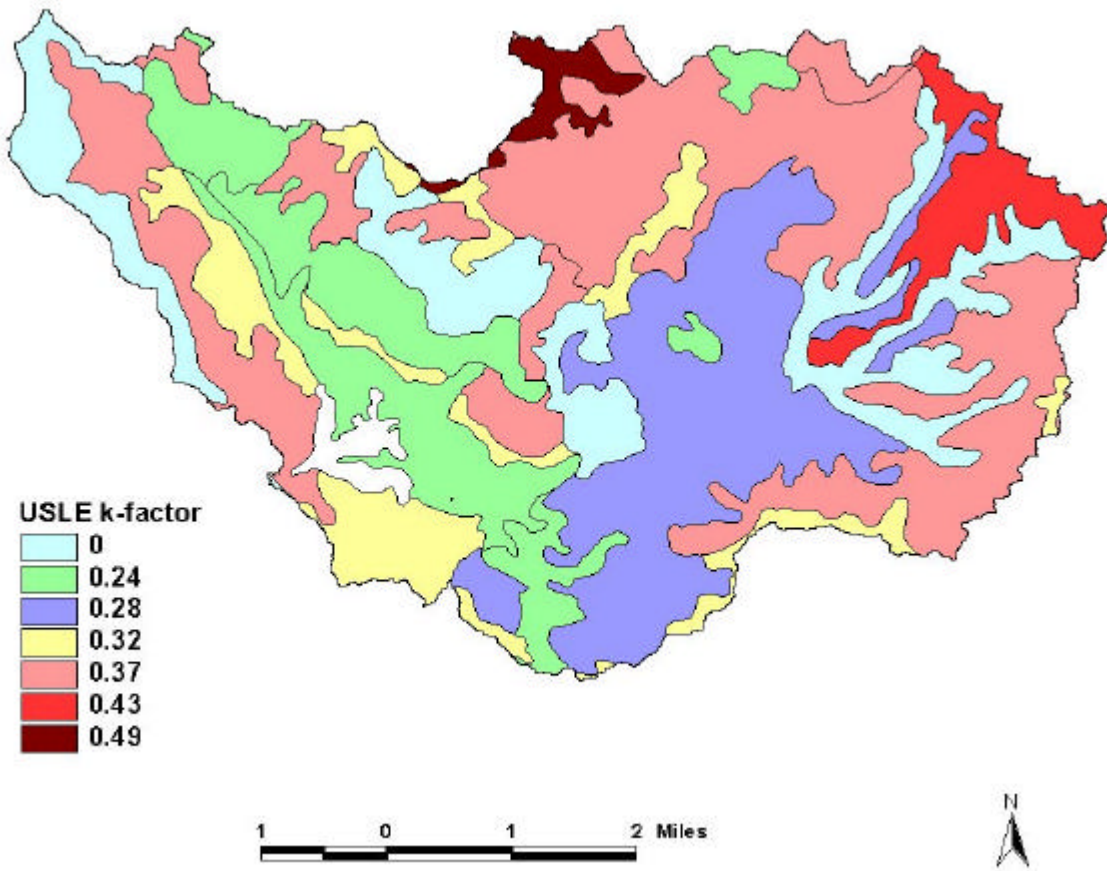


Figure 2. Distribution of the USLE *k*-factor in the Pineview Reservoir watershed.

## Data Description

The primary inputs for creation of a watershed model include spatial coverages of land use, land cover, soils, slopes, hydrography, and meteorological data. The assembly of these data is described in the Detailed Sources Report (Tetra Tech, 2001). As described in that document, land use and land cover were assembled from USGS MRLC (1992) data. A detailed, up-to-date land use coverage, however, is not available.

Soils data are derived from the USGS STATSGO coverages, while slopes were obtained from USGS in the form of a digital elevation model. Hydrography is based on USEPA's Reach File 3. All these spatial coverages were processed using the SWAT interface.

Meteorological data was obtained from the Huntsville Monastery station. However, it is understood that precipitation and temperature vary strongly across the basin, primarily due to elevation effects, and the single station's reach relative to the size of the watershed is sufficiently small as to introduce significant uncertainty into the prediction of hydrologic response to individual weather events. To compensate for this relatively sparse coverage, the influence of elevation on temperature and precipitation was accounted for in the model through use of lapse rates, which estimate the change in precipitation and temperature per change in elevation relative to a monitoring station. A standard temperature lapse rate of  $-6^{\circ}\text{C}$  per km was used for the model. Use of this correction improves the performance of the model relative to a direct use of nearest station records. However, the elevation corrections do not take into account other effects, such as rain shadow, and the ability of the model to reproduce observations would likely be improved significantly through use of a denser network of meteorological stations.

## Model Subbasins

Application of the SWAT model begins by breaking the watershed down into subbasins. These subbasins represent the degree to which the simulation is assigned to spatial locations. Sub-basin delineation used the automated routines available in BASINS 3. The delineation was based on a 1:24,000 digital elevation model of the watershed (obtained by USGS) coupled with a "burn-in" of USEPA's Reach File 3 spatial database of stream reaches. This approach assures that the subbasins conform to topography while requiring that catalogued stream segments connect in the proper order and direction.

Breaking the area of interest into multiple subbasins allows a detailed representation of the spatial distribution of land use and meteorology in the Pineview Reservoir watershed. It also provides a framework within which the accuracy of the model can be improved in future through calibration to multiple points within the drainage network.

## Hydrologic Response Units

Each of the model subbasins was further subdivided into Hydrologic Response Units (HRUs) using automated GIS processing. HRUs are intended to be summed areas of similar land use/land cover and soils within a subbasin. The individual land parcels included within an HRU is expected to possess similar hydrologic and load generating characteristics, and can thus be simulated as a unit. The HRUs were created from a GIS overlay of land use class (as defined in Tetra Tech, 2001) and dominant soil type, as defined in the USDA STATSGO database. HRUs are treated as a fraction of the area of a subbasin (representing the sum of the area of the land use/soil overlay in that subbasin), and so are not assigned a spatial location more exact than that of the subbasin.

It is not feasible to include every small area representing a land use/soil combination in the model. Cutoff criteria were therefore defined. These required first that a land use must constitute 1 percent or more of the land area in a subbasin to be included in the model. Soils associated with a given land use within a subbasin were only included if they represented at least 5 percent of the area in that land use in a subbasin. Areas are then renormalized so that the whole land area of a subbasin is assigned to HRUs. Most model parameters are specified on an HRU basis, which can require a significant effort. Fortunately, the BASINS 3 SWAT interface automates this process to a large extent, deriving many of the relevant parameters from the STATSGO soils database, land-use coverage, and digital elevation model (DEM).

An important consequence of the minimum area requirement in SWAT is that residential and commercial lands were typically omitted from the model. Thus, pollutant loading estimates are available for comparison with the projected growth scenarios of the years 2010 and 2020. Also, the MRLC data have a spatial resolution of 80- meters (imagine a square 80 meters wide and 80 meters high). This resolution is not adequate to represent all of the land uses and land covers that occur within the 80- meter area. Much of the residential impervious areas, such as roof tops, driveways, and sidewalks, are neglected in favor of the more dominant surrounding cover types that also occur within the 80 square meter area. Therefore, the MRLC data typically underestimates urban and residential land use in less-heavily developed areas.

### **Diversions and Irrigation**

Diversions of surface water for irrigation are important in several areas of the basin, particularly in the lower portions of the North, Middle and South Fork subbasins. Such diversions have several impacts. First, they remove water from a stream reach. However, irrigation also returns water to the soil moisture profile and shallow groundwater, some of which is eventually returned to surface flow, while the higher saturation of the soil increases runoff during rain events. In addition, many of the diversions are through gravity-fed channels that remain open for most of the growing season, with excess water returning to the river. This has the effect of slowing and dampening the rate of flow of water through the system, while increasing evaporative and percolation losses.

Little information is available about the volume of irrigation diversions in the Pineview Reservoir watershed. Diversions occur in the lower sections of the North, Middle, and South Fork subbasins, and typically all stream flow is removed from April through September. In the South Fork Subbasin, releases from Causey Reservoir to the South Fork of the Ogden River are the dominant control on stream flow. The model is specified to represent these controlled releases to the river coupled with diversion and irrigation based on crop water deficit within the adjacent subbasin. Similarly, diversion and irrigation requirements in the North Fork and Middle Fork subbasins are based on crop water deficits within the adjacent subbasin.

Land use/land cover data were obtained from the MRLC archive for the State of Utah. The MRLC land use/land cover classifications do not exactly match those required by SWAT, and therefore some of the MRCL classifications had to be slightly altered. Table 4 gives the MRLC land use/land cover classification and the SWAT classifications used in the Pineview Reservoir watershed. Table 5 lists the curve numbers applicable to the Pineveiw Reservoir watershed.

**Table 4.** Comparison of MRLC and SWAT land use and land cover classifications.

<b>MRLC Land Use/Land Cover Classification</b>	<b>SWAT Land Use/Land Cover Classification</b>
Water	Water
Perennial ice and snow	Water
Low-intensity residential	Urban residential low-density
High-intensity residential	Urban residential high-density
Commercial/industrial/transportation	Urban commercial
Barren rock/sand	Barren
Deciduous rorest	Deciduous forest
Evergreen rorest	Evergreen forest
Mixed rorest	Mixed forest
Shrubland	Rangeland—shrubs
Grassland	Rangeland—grasses
Pasture/hay	Pasture
Row crop	Agricultural Land—row crop
Small grain	Alfalfa
Fallow	Fallow
Urban/recreational grasses	Bermuda grass
Woody wetlands	Wetlands—forested
Emergent Herbaceous Wetlands	Wetlands-nonforested



**Table 5.** SCS curve numbers (CN-II) for land use and land cover in the Pineview Reservoir watershed.

SWAT Land Use/Land Cover Classification	SCS Curve Numbers for Land Use and Hydrologic Soil Group			
	A	B	C	D
Water	100	100	100	100
Urban residential low density	46	65	77	82
Urban residential high density	63	77	85	88
Urban commercial	89	92	94	96
Barren	75	85	90	94
Deciduous forest	45	66	77	83
Evergreen forest	25	55	70	77
Mixed forest	36	60	73	79
Rangeland—shrubs	39	61	74	80
Rangeland—grasses	49	69	79	84
Pasture	49	69	79	84
Agricultural land—row crop	67	78	85	89
Alfalfa	62	73	81	84
Fallow	75	84	89	91
Bermuda grass	31	59	72	79
Wetlands—forested	45	66	77	83
Wetlands—nonforested	49	69	79	84

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY  
195 North 1950 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)536-4300

**NOI**

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under the UPDES  
General Permit No. UTR364425 **SEE REVERSE FOR INSTRUCTIONS**

Submission of this Notice of Intent constitutes notice that the party(s) identified in Section I of this form intends to be authorized by UPDES General Permit No. UTR364425 issued for storm water discharges associated with construction activity in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

Is this NOI seeking continuation for previously expired permit coverage at the same site? N (Y or N)  
If yes, what is the number of the previous permit coverage? Permit No.

Permit Registration Date: 07/23/2013

Permit Start Date: 07/23/2013

Permit Expiration Date: 07/23/2014

**I. OPERATOR INFORMATION**

Name (Main operator): Geneva Rock Products

Phone: 8016485102

Address: 2773 Industrial Drive

Status of Owner/Operator: PRIVATE

City: OGDEN

State: UT

Zip: 84401

Contact Person: Tom Hall

Phone: 435-890-9893

Name (1st Co-permittee):

Phone:

Address:

Status of Owner/Operator:

City:

State: UT

Zip:

Contact Person:

Phone:

Name (2nd Co-permittee):

Phone:

Address:

Status of Owner/Operator:

City:

State: UT

Zip:

Contact Person:

Phone:

Name (3rd Co-permittee): \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Status of Owner/Operator: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Zip: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: \_\_\_\_\_

Please copy this form if you have more co-permittees than what is allowed on this form.

**II. FACILITY SITE / LOCATION INFORMATION**

Is the facility located  
in Indian Country?

Name: Summit at Powder Mountain: Summit Pass and Spring Park Roadway and Utility

N (Y or N)

Project No. (if any): 32106

Address: Summit Pass and Spring Park Road

County: WEBER

City: WEBER COUNTY (UNINCORPORATE)

State: UT

Zip: 84310

Latitude: 41.377222

Longitude: 111.780556

Method (check one):  USGS Topo Map, Scale 1000

EPA Web site

GPS

Other

# INSTRUCTIONS

## Notice Of Intent (NOI) For Permit Coverage Under the UPDES General Permit For Storm Water Discharges From Construction Activities

**Who Must File A Notice Of Intent (NOI) Form** State law at UAC R317-8-3.9 prohibits point source discharges of storm water from construction activities to a water body(ies) of the State without a Utah Pollutant Discharge Elimination System (UPDES) permit. The operator of a construction activity that has such a storm water discharge must submit a NOI to obtain coverage under the UPDES Storm Water General Permit. If you have questions about whether you need a permit under the UPDES Storm Water program, or if you need information as to whether a particular program is administered by EPA or a state agency, contact the storm water coordinator at (801) 536-4300.

**Where To File NOI Form** NOIs, with fee payment(s), must be sent to the following address:

Department of Environmental Quality  
Division of Water Quality  
P.O. Box 144870  
Salt Lake City, UT 84114-4870

(The NOI can also be completed on line at:  
<http://www.waterquality.utah.gov/UPDES/stormwatercon.htm>)

**Beginning of Coverage** Storm Water General Permits are issued immediately after submitting an NOI with the permit fee. The permittee should be aware that though you may not have a permit in hand, if you have submitted a completed NOI with the permit fee you are covered by the conditions in the permit and will be expected to comply with permit conditions. If you wish, contact the Division of Water Quality at (801) 536-4300 to receive a copy of the permit or you can print a copy from the DWQ web site.

**Permit Fees (MAKE CHECKS PAYABLE TO: DIVISION OF WATER QUALITY)** The permit fee is \$110.00 per year. This fee is prorated on a yearly basis. For example if construction is scheduled for one year and one day the fee would be \$220.00 because construction went into a second year. The minimum fee is \$110.00 which gives one year of coverage. The fee must be received with the NOI before permit coverage is activated.

**Length of Coverage:** Construction Storm Water Permits start on the day that the NOI and fee payment is received at DWQ (on line if that is the case) and expire on the date that the fee is paid up to. The minimum fee is \$110, therefore all permits where the minimum fee is paid will automatically receive coverage for one year. When a project is completed and the permittee wishes to discontinue permit coverage, wants to be released from accountability for permit conditions, and has stabilized the site according to permit requirements the permittee must submit the a notice of termination (NOT). The site must be clean and all temporary storm water control measures must be removed. In most cases the DWQ or municipal (for the municipality of jurisdiction) storm water coordinator will perform a final inspection. If the site passes the final inspection the permit is terminated.

The Storm Water General Permit for Construction Activities UTR300000 will expire on June 30, 2013. The Clean Water Act requires that all UPDES permits be renewed every 5 years. If a project extends beyond the expiration date of the Permit it must continue coverage under the renewed permit that will subsequently be developed to continue the same or similar permit service for construction activity.

**SECTION I - FACILITY OPERATOR INFORMATION** Give the legal name(s) of the person(s), firm(s), public organization(s), or any other entity(ies) that conducts the construction operation at the facility or site described in this application. The name of the operator(s) may be the developer, the owner, the general contractor, the design firm, the excavation contractor and/or others (e.g. anyone that fits the definition of operator). Most often it is the general contractor. An operator is anyone that has control over site/project specifications and/or control of day to day operational activities. Do not use a colloquial name.

Enter the complete address and telephone number of the operator(s). Enter the appropriate letter to indicate the legal status of the operator of the facility.

**F = Federal M = Public (other than Fed or State) S = State P = Private**

**SECTION II - FACILITY/SITE LOCATION INFORMATION** Enter the facility name or legal name and project number (if any) of the site and complete street address, including city, state and ZIP code. The latitude and longitude of the facility must be included to the approximate centroid of the site, and the method of how the Lat/Long was obtained (USGS maps, GPS, Internet Map sites [such as Google Earth], other). The township and range is desirable but not necessary.

Indicate whether the facility is located in Indian Country. If the facility is located in Indian Country, do not complete this NOI, instead complete form 3510-6 and submit to EPA Region VIII except for facilities on the Navajo Reservation or on the Goshute Reservation which should submit EPA form 3510-6 to Region IX.

**SECTION III - SITE ACTIVITY INFORMATION** If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4 if it is known (if it is not known please estimate or guess and indicate so). (An MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, county, district, association or other public body which is designed or used for collecting or conveying storm water).

**SECTION IV - TYPE OF CONSTRUCTION** Check each type of construction that applies to this application.

**SECTION V - BEST MANAGEMENT PRACTICES** Check each type of best management practice that will be used to control storm water runoff at the job site.

**SECTION VI - ADDITIONAL** Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre). Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans. An email address is required of the best contact associated with the project for the communication needs of DWQ.

**SECTION VII - CERTIFICATION** State statutes provide for severe penalties for submitting false information on this application form. State regulations require this application to be signed as follows:

*For a corporation:* by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

*For a partnership or sole proprietorship:* by a general partner or the proprietor; or

*For a municipality, state, Federal, or other public facility:* by either a principal executive officer or ranking elected official.

**POLLUTION PREVENTION PLAN** A storm water pollution prevention plan (SWP3) is required to be in hand before the NOI can be submitted. It is important to know SWP3 requirements (contained in the permit) even during the design portion of the project. A copy of the permit can be obtained from the Division of Water Quality's storm water construction web site. Guidance material for developing a SWP3 can be obtained from EPA (NTIS) or from the Division of Water Quality's storm water construction web site.

**III. SITE ACTIVITY INFORMATION**

Municipal Separate Storm Sewer System (MS4) Operator Name: Weber County

Receiving Water Body: Pineview Reservoir known

How far to the nearest water body? 8 miles

Is this a sensitive Water Body? No

List the Number of any other UPDES permits at the site:

**IV. TYPE OF CONSTRUCTION (Check all that apply)**

1.  Residential 2.  Commercial 3.  Industrial 4.  Road 5.  Bridge 6.  Utility 7.  Contouring, Landscaping

8.  Other (Please list)

**V. BEST MANAGEMENT PRACTICES**

Identify proposed Best Management Practices (BMPs) to reduce pollutants in storm water discharges: (Check all that apply)

1.  Silt Fences 2.  Sediment Pond 3.  Seeding/Preservation of Vegetation 4.  Mulching/Geotextiles 5.  Check Dams

6.  Structural Controls (Berms, Ditches, etc.)

7.  Other (Please list)

**VI. ADDITIONAL INFORMATION REQUIRED**

Estimated Area to be Disturbed (in Acres): 40

Total Acreage: 45

A storm water pollution prevention plan has been prepared for this site and is to the best of my knowledge in Compliance with State and/or Local Sediment and Erosion Plans and Requirements. Y (Y or N)  
(A pollution prevention plan is required to be on hand before submittal of the NOI.)

Enter the best e-mail address for contacting the permittee: dtan@genevarock.com

**VII. CERTIFICATION:** I certify under penalty of law that I have read and understand the *Part 1* eligibility requirements for coverage under the general permit for storm water discharges from construction activities. I further certify that to the best of my knowledge, all discharges and BMPs that have been scheduled and detailed in a pollution prevention plan will satisfy requirements of *Part 1*, and *Part 3* of this permit. I understand that continued coverage under this storm water general permit is contingent upon maintaining eligibility as provided for in *Part 1*.

I also certify under penalty of law that this document and all attachments were prepared under the direction or supervision of those who have placed their signature below, 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.

Title: Field Engineer

Print Name (of responsible person for the main operator from first page):

Geneva Rock Products

Date:

07/23/2013

Signature: \_\_\_\_\_

Print Name (of responsible person for the 1st co-permittee from first page):

Date:

\_\_\_\_\_

Signature: \_\_\_\_\_

Print Name (of responsible person for the 2nd co-permittee from first page):

Date:

\_\_\_\_\_

Signature: \_\_\_\_\_

Print Name (of responsible person for the 3rd co-permittee from first page):

Date:

\_\_\_\_\_

Signature: \_\_\_\_\_

Amount of Permit Fee Enclosed: \$ 150.00

# Appendix D

## SWPPP Inspection

	YES	NO	N/A
1 - Has an NOI permit (applicable state and/or city) been filed for construction activities specific to this project and are these permits current and in the SWPPP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 - Is the NOI posted on site with a Site Notice that signifies where the SWPPP is located and the person to call for SWPPP questions regarding this site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 - Are certification pages in the SWPPP signed by the owner and operator of the project according to local/state/federal signature standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 - Are qualifications listed in the SWPPP for the person inspecting the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 - Is site FREE from any discharges of sediments (i.e: erosion/stockpiles) or pollutants (i.e., fuel, concrete waste/washout waters, stucco waste, portable toilet, trash, debris, etc.) leaving site boundaries or perimeters (i.e. lot boundaries, into streets, parking areas, or site perimeter boundary)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 - Are current erosion/sediment pollutant controls (BMPs) described in the SWPPP and applied to the site adequate to keep any sediment/pollutants from leaving site boundaries or perimeters?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 - Are impervious surfaces FREE from evidence of tracking of sediment/pollutants (roads, ramps, sidewalks, parking areas, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 - Are all construction traffic access/exit points stabilized properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 - Is the site FREE from any offsite (i.e. stream, creek, or concentrated flows onto the site) flows entering the construction site and causing erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 - Is the site FREE from any conditions that would require dewatering off site perimeter boundaries (i.e., any water on the construction site that needs to be discharged off the site perimeter boundary or into the storm drain system)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 - Are BMPs implemented on site described/depicted in the BMP section of the SWPPP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"><li>NOTE: For SWPPP updating, this requires entering the specific BMP information on the project site map in the SITE MAPS section by description, date and location when managing your SWPPP in complianceGO.</li></ul>			
12 - Are BMPs utilized on site able to be noted on the SWPPP map (are the SWPPP and site consistent with each other)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"><li>NOTE: For map updating, this requires the SITE MAP to be updated with specific BMPs (including dates/locations when a BMP was added, moved,</li></ul>			

repaired, or removed with an activity description where applicable) in the SITE MAPS section when using complianceGO.

13 - Is the site active with no temporary or permanent delay in construction activities that exceeds 21 days?

14 - Are all pollutants/hazardous materials (fuel, concrete waste/washout waters, stucco waste, paint, portable toilet, trash bin, etc.) /spoils/stockpiles on site identified on the SWPPP map?

- NOTE: For map updating, this requires the SITE MAP to be updated with specific pollutants (including dates/locations when a pollutant was introduced, moved, or removed with an activity description where applicable) in the SITE MAPS section when using complianceGO.

15 - Have all BMPs identified in the SWPPP been removed where they are no longer needed?

- NOTE: For SWPPP updating, this requires the site map to be updated in the SITE MAPS section when managing your SWPPP in complianceGO.

16 - Are future inspections still needed?

**Site Activity and Required** Please also update the current map with this information in the site maps section when using complianceGO.

**Disturbance/Stabilization Information:**

- Please indicate the current phase or phases of construction activity for this site.
- Note the dates and locations of any new disturbances/excavations/major digs in this section.
- Note the date and location of any areas that have been temporarily/permanently stabilized or sold.
- Note the date and location when construction or development activities have temporarily or permanently ceased on any given portion of the site. Please also indicate what temporary or permanent stabilization measures will be applied to applicable areas.

**Communication / and Regulatory (where applicable):**

- Please indicate who these inspection findings were reviewed with on site, including the approximate time of communication.
- Describe in detail the outcomes if a regulatory inspection has been conducted. Please list who the regulatory inspector was, what aspects of the documents and/or site were discussed, whether or not there were any concerns, and any new action items that were a result of the visit.

---

**Notes and Required  
Weather  
Information:**

- weather conditions for this site at the time of inspection
- weather conditions since the last inspection
- Best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches) and whether any discharge occurred.

## Appendix E –Corrective Action Log

Project Name: Summit at Powder Mountain

<b>Inspection Date</b>	<b>Inspector Name(s)</b>	<b>Description of BMP Deficiency</b>	<b>Corrective Action Needed (including planned date/responsible person)</b>	<b>Date Action Taken/Responsible person</b>



# *Certificate of Training*

**Dexter Tan**

---

*has satisfactorily completed*

## **Environmental Control Supervisor Training**

Location: Online

Certification Date: 5/15/2013

Hours of Instruction: 3

*Expires 3 years from above date*

*Terry Johnson*

---

Terry Johnson, Environmental



## Appendix G –Subcontractor Certifications/Agreements

### SUBCONTRACTOR CERTIFICATION STORMWATER POLLUTION PREVENTION PLAN

Project Number: 32106

Project Title: Summit at Powder Mountain

Operator(s): Geneva Rock Products, Inc.

As a 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 at our office or on [www.compliancego.com](http://www.compliancego.com). Kindly contact Dexter Tan at [dtan@genevarock.com](mailto:dtan@genevarock.com) for login details.

Each subcontractor engaged in activities at the construction site that could impact stormwater must 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 BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Type of construction service to be provided: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

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

Geneva Rock Products, Inc.

# *Certificate of Training*

**Jordan Perkes**

---

*has satisfactorily completed*

## **Environmental Control Supervisor Training**

Location: Online

Certification Date: 5/9/2013

Hours of Instruction: 3

*Expires 3 years from above date*

*Terry Johnson*

---

Terry Johnson, Environmental



## Appendix H –Grading and Stabilization Activities Log

Project Name: Summit at Powder Mountain  
SWPPP Contact: Dexter Tan

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

# Appendix I –SWPPP Training Log

## Stormwater Pollution Prevention Training Log

Project Name: Summit at Powder Mountain

Project Location: Eden, UT

Instructor's Name(s):

Instructor's Title(s):

Course Location: \_\_\_\_\_ Date: \_\_\_\_\_

Course Length (hours): \_\_\_\_\_

Stormwater Training Topic: *(check as appropriate)*

- Erosion Control BMPs
- Emergency Procedures
- Sediment Control BMPs
- Good Housekeeping BMPs
- Non-Stormwater BMPs

Specific Training Objective: \_\_\_\_\_

---

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
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## Appendix J – Delegation of Authority Form

### Delegation of Authority

I, Shane Albrecht, hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the Summit at Powder Mountain construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

Dexter Tan, Field Engineer and Stormwater Compliance Officer  
Geneva Rock Products, Inc.  
2773 Industrial Drive  
Ogden, UT 84401  
801-627-2801

**Name:** Shane Albrecht

**Company:** Geneva Rock Products, Inc.

**Title:** Area Manager

**Signature:** \_\_\_\_\_

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

## Utah's State Listed Species by County

Disclaimer: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS); other species of special concern likely occur in Utah Counties. This list includes both current and historic records. (Last updated on March 29, 2011).

### Beaver County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
DARK KANGAROO MOUSE	MICRODIPODOPS MEGACEPHALUS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HAMLIN VALLEY PYRG	PYRGULOPSIS HAMLINENSIS	SPC
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

### Box Elder County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GREAT PLAINS TOAD	BUFO COGNATUS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
JUNE SUCKER	CHASMISTES LIORUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC

## Box Elder County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
LAHONTAN CUTTHROAT TROUT	ONCORHYNCHUS CLARKII HENSHAWI	S-ESA
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
NORTHWEST BONNEVILLE PYRG	PYRGULOPSIS VARIEGATA	SPC
PREBLE'S SHREW	SOREX PREBLEI	SPC
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA
YELLOWSTONE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII BOUVIERI	SPC

## Cache County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
CANADA LYNX	LYNX CANADENSIS	S-ESA
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREAT PLAINS TOAD	BUFO COGNATUS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC



## Cache County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Carbon County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC

## Daggett County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BEAR LAKE SCULPIN	COTTUS EXTENSUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC

**Daggett County (con't)**

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC

**Davis County**

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

**Duchesne County**

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
EUREKA MOUNTAINSNAIL	OREOHELIX EUREKENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
MOUNTAIN PLOVER	CHARADRUUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC

## Duchesne County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
SPOTTED BAT	EUDEMA MACULATUM	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Emery County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
CORNSNAKE	ELAPHE GUTTATA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
GRAY WOLF	CANIS LUPUS	S-ESA
GREAT PLAINS TOAD	BUFO COGNATUS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Garfield County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
ARIZONA TOAD	BUFO MICROSCAPHUS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK CANYON PYRG	PYRGULOPSIS PLICATA	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BONYTAIL	GILA ELEGANS	S-ESA
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA

## Garfield County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
COMMON CHUCKWALLA	SAUROMALUS ATER	SPC
DESERT NIGHT LIZARD	XANTUSIA VIGILIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

## Grand County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
CORNSNAKE	ELAPHE GUTTATA	SPC
EUREKA MOUNTAINSNAIL	OREOHELIX EUREKENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREAT PLAINS TOAD	BUFO COGNATUS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
GUNNISON SAGE-GROUSE	CENTROCERCUS MINIMUS	S-ESA, CS
GUNNISON'S PRAIRIE-DOG	CYNOMYS GUNNISONI	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC

## Grand County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Iron County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ARIZONA TOAD	BUFO MICROSCAPHUS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BRIAN HEAD MOUNTAINSNAIL	OREOHELIX PARAWANENSIS	SPC
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
DARK KANGAROO MOUSE	MICRODIPODOPS MEGACEPHALUS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Juab County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS

## Juab County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
DARK KANGAROO MOUSE	MICRODIPODOPS MEGACEPHALUS	SPC
EUREKA MOUNTAINSNAIL	OREOHELIX EUREKENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Kane County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
ARIZONA TOAD	BUFO MICROSCAPHUS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COMMON CHUCKWALLA	SAUROMALUS ATER	SPC
CORAL PINK SAND DUNES TIGER BEETLE	CICINDELA LIMBATA ALBISSIMA	S-ESA
DESERT NIGHT LIZARD	XANTUSIA VIGILIS	SPC
DESERT SUCKER	CATOSTOMUS CLARKII	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREAT PLAINS TOAD	BUFO COGNATUS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KANAB AMBERSNAIL	OXYLOMA KANABENSE	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS

## Kane County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SOUTHWESTERN WILLOW FLYCATCHER	EMPIDONAX TRAILLII EXTIMUS	S-ESA
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
VIRGIN SPINEDACE	LEPIDOMEDA MOLLISPINIS	CS
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Millard County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIFID DUCT PYRG	PYRGULOPSIS PECULIARIS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
CLOAKED PHYSA	PHYSA MEGALOCHELMYS	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
DARK KANGAROO MOUSE	MICRODIPODOPS MEGACEPHALUS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LONGITUDINAL GLAND PYRG	PYRGULOPSIS ANGUINA	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SUB-GLOBOSE SNAKE PYRG	PYRGULOPSIS SAXATILIS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

## Morgan County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	SPC

## Morgan County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Piute County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
OTTER CREEK PYRG	PYRGULOPSIS FUSCA	SPC
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

## Rich County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BEAR LAKE SCULPIN	COTTUS EXTENSUS	SPC
BEAR LAKE SPRINGSNAIL	PYRGULOPSIS PILSBRYANA	SPC
BEAR LAKE WHITEFISH	PROSOPIUM ABYSSICOLA	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CISCO	PROSOPIUM GEMMIFER	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BONNEVILLE WHITEFISH	PROSOPIUM SPILONOTUS	SPC
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA



## Rich County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Salt Lake County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
JUNE SUCKER	CHASMISTES LIORUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## San Juan County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
ARIZONA TOAD	BUFO MICROSCAPHUS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS

## San Juan County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COMMON CHUCKWALLA	SAUROMALUS ATER	SPC
DESERT NIGHT LIZARD	XANTUSIA VIGILIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
GUNNISON SAGE-GROUSE	CENTROCERCUS MINIMUS	S-ESA, CS
GUNNISON'S PRAIRIE-DOG	CYNOMYS GUNNISONI	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
MOGOLLON VOLE	MICROTUS MOGOLLONENSIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SILKY POCKET MOUSE	PEROGNATHUS FLAVUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SOUTHWESTERN WILLOW FLYCATCHER	EMPIDONAX TRAILLII EXTIMUS	S-ESA
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YAVAPAI MOUNTAINSNAIL	OREOHELIX YAVAPAI	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Sanpete County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC

## Sanpete County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
NINEMILE PYRG	PYRGULOPSIS NONARIA	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
SOUTHERN BONNEVILLE SPRINGSNAIL	PYRGULOPSIS TRANSVERSA	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

## Sevier County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CANADA LYNX	LYNX CANADENSIS	S-ESA
CARINATE GLENWOOD PYRG	PYRGULOPSIS INOPINATA	SPC
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
OTTER CREEK PYRG	PYRGULOPSIS FUSCA	SPC
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GLENWOOD PYRG	PYRGULOPSIS CHAMBERLINI	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC

## Summit County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS

## Summit County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
NORTHERN LEATHERSIDE CHUB	LEPIDOMEDA COPEI	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
WESTERN PEARLSHELL	MARGARITIFERA FALCATA	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC

## Tooele County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
DARK KANGAROO MOUSE	MICRODIPODOPS MEGACEPHALUS	SPC
EUREKA MOUNTAINSNAIL	OREOHELIX EUREKENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LYRATE MOUNTAINSNAIL	OREOHELIX HAYDENI	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
NORTHWEST BONNEVILLE PYRG	PYRGULOPSIS VARIEGATA	SPC
PREBLE'S SHREW	SOREX PREBLEI	SPC
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN BONNEVILLE SPRINGSNAIL	PYRGULOPSIS TRANSVERSA	SPC
SOUTHERN TIGHTCOIL	OGARIDISCUS SUBRUPICOLA	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC

## Uintah County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC

## Uintah County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONYTAIL	GILA ELEGANS	S-ESA
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
CORNSNAKE	ELAPHE GUTTATA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Utah County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS	SPC
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
EUREKA MOUNTAINSNAIL	OREOHELIX EUREKENSIS	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC

## Utah County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
JUNE SUCKER	CHASMISTES LIORUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEAST CHUB	IOTICHTHYS PHLEGETHONTIS	S-ESA, CS
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SOUTHERN BONNEVILLE SPRINGSNAIL	PYRGULOPSIS TRANSVERSA	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PHYSA	PHYSELLA UTAHENSIS	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Wasatch County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Washington County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
ARIZONA TOAD	BUFO MICROSCAPHUS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLACK SWIFT	CYPSELOIDES NIGER	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COMMON CHUCKWALLA	SAUROMALUS ATER	SPC
DESERT IGUANA	DIPSOSAURUS DORSALIS	SPC
DESERT NIGHT LIZARD	XANTUSIA VIGILIS	SPC
DESERT SPRINGSNAIL	PYRGULOPSIS DESERTA	SPC
DESERT SUCKER	CATOSTOMUS CLARKII	SPC
DESERT TORTOISE	GOPHERUS AGASSIZII	S-ESA
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GILA MONSTER	HELODERMA SUSPECTUM	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
MOJAVE RATTLESNAKE	CROTALUS SCUTULATUS	SPC
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
RELICT LEOPARD FROG	RANA ONCA	S-ESA
SHORT-EATRED OWL	ASIO FLAMMEUS	SPC
SIDEWINDER	CROTALUS CERASTES	SPC
SOUTHWESTERN WILLOW FLYCATCHER	EMPIDONAX TRAILLII EXTIMUS	S-ESA
SPECKLED RATTLESNAKE	CROTALUS MITCHELLII	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
VIRGIN CHUB	GILA SEMINUDA	S-ESA
VIRGIN SPINEDACE	LEPIDOMEDA MOLLISPINIS	CS
WESTERN BANDED GECKO	COLEONYX VARIEGATUS	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC
WESTERN THREADSNAKE	LEPTOTYPHLOPS HUMILIS	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WET-ROCK PHYSA	PHYSELLA ZIONIS	SPC
WOUNDFIN	PLAGOPTERUS ARGENTISSIMUS	S-ESA

## Washington County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA
ZEBRA-TAILED LIZARD	CALLISAURUS DRACONOIDES	SPC

## Wayne County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
ALLEN'S BIG-EARED BAT	IDIONYCTERIS PHYLLOTIS	SPC
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BIG FREE-TAILED BAT	NYCTINOMOPS MACROTIS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS	SPC
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SOUTHERN LEATHERSIDE CHUB	LEPIDOMEDA ALICIAE	SPC
SPOTTED BAT	EUDERMA MACULATUM	SPC
SPOTTED OWL	STRIX OCCIDENTALIS	S-ESA
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
UTAH PRAIRIE-DOG	CYNOMYS PARVIDENS	S-ESA
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

## Weber County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
AMERICAN WHITE PELICAN	PELECANUS ERYTHORHYNCHOS	SPC
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BOBOLINK	DOLICHONYX ORYZIVORUS	SPC
BONNEVILLE CUTTHROAT TROUT	ONCORHYNCHUS CLARKII UTAH	CS
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS	CS
DESERET MOUNTAINSNAIL	OREOHELIX PERIPHERICA	SPC
FERRUGINOUS HAWK	BUTEO REGALIS	SPC



**Weber County (con't)**

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM	SPC
GRAY WOLF	CANIS LUPUS	S-ESA
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	S-ESA
JUNE SUCKER	CHASMISTES LIORUS	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
LYRATE MOUNTAIN SNAIL	OREOHELIX HAYDENI	SPC
MOUNTAIN PLOVER	CHARADRIUS MONTANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS	SPC
SHORT-EARED OWL	ASIO FLAMMEUS	SPC
SMOOTH GREENSNAKE	OPHEODRYS VERNALIS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

**Key to State Status Field**

<u>Symbol</u>	<u>Definition</u>
S-ESA	Federally-listed or candidate species under the Endangered Species Act.
SPC	Wildlife species of concern.
CS	Species receiving special management under a Conservation Agreement in order to preclude the need for Federal listing.

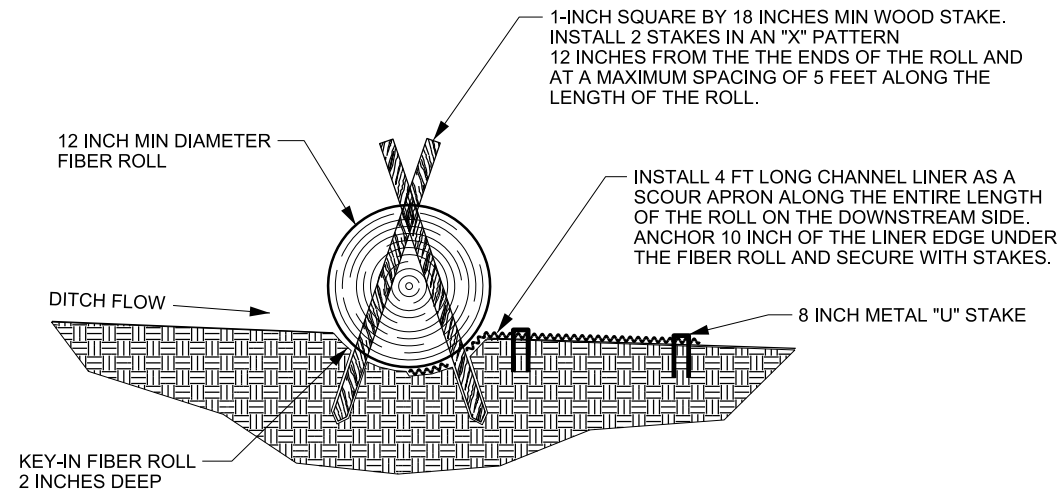


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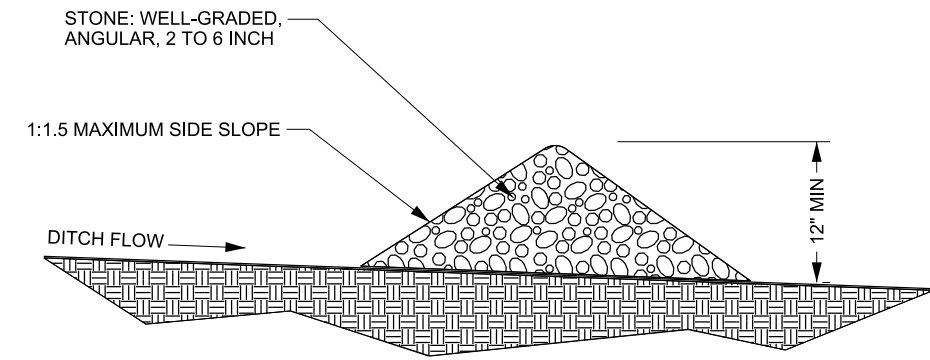
RE: Transporting Equipment

It is the policy of Geneva Rock Products to ensure that all equipment, prior to being transported, be cleaned sufficiently such that mud, dirt, rock and other debris are not carried with the load from one location to another. All transport drivers are to sweep and remove dirt from trailers after each move. Likewise, construction crews shall sufficiently remove dirt and other debris prior to transporting equipment. If equipment is not suitable for transport, crews will be notified that more cleaning is necessary and equipment will not be moved until this is complete. If a water truck is needed, one will be provided. Ultimately it is the responsibility of the construction crew and the transport driver to ensure that equipment is properly cleaned and ready to be transported.

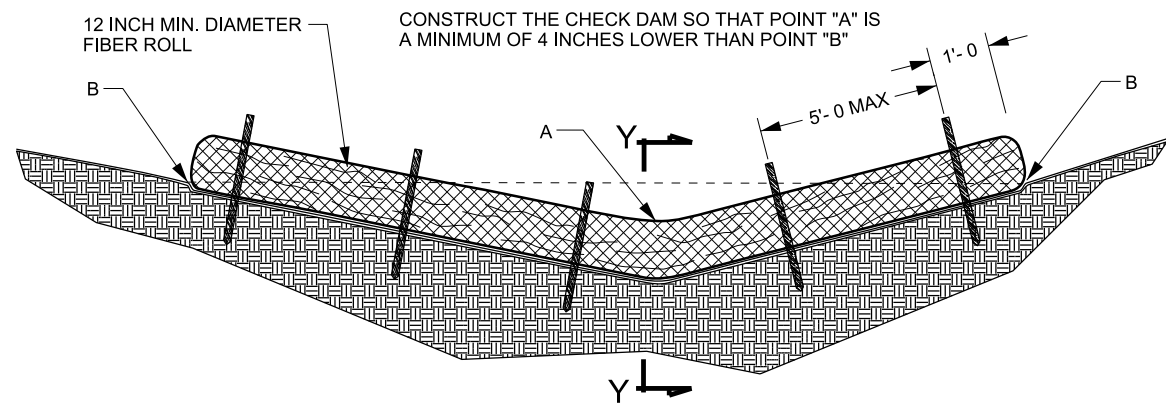
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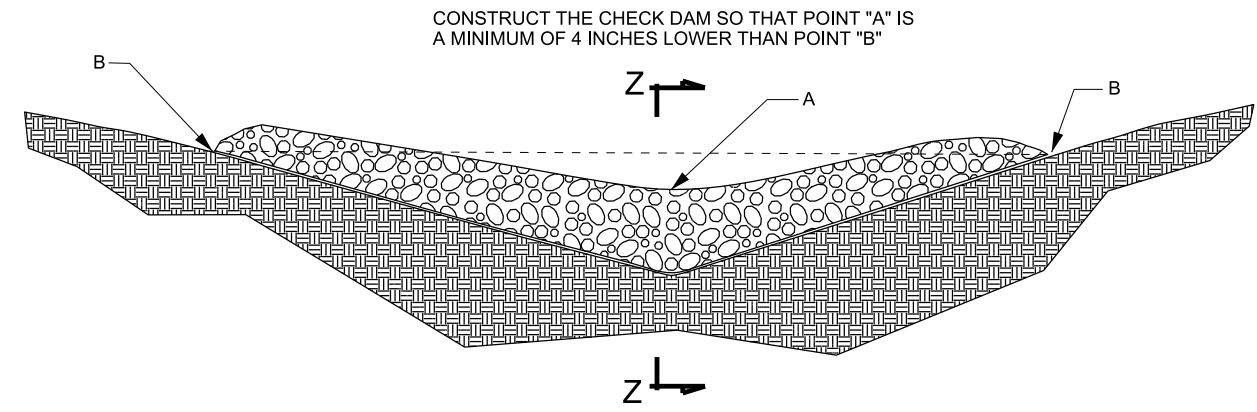
**SECTION Y - Y**



**SECTION Z - Z**



**FIBER ROLL CHECK DAM**



**STONE CHECK DAM**

MATERIAL QUANTITY CHART		
DITCH SIDE SLOPE	LENGTH (FT) OF 12 INCH DIAMETER FIBER ROLL REQUIRED FOR HALF OF DITCH	CUBIC YARDS OF STONE REQUIRED FOR HALF OF DITCH
2:1	2.5	0.17
3:1	3.5	0.24
4:1	4.7	0.31
6:1	7.0	0.45
8:1	9.4	0.60
10:1	11.7	0.75
12:1	14	0.90

EXAMPLE: A CUT DITCH WITH A 6:1 FORE SLOPE AND A 2:1 BACK SLOPE WOULD REQUIRE A 9.5 (7.0 + 2.5) FT MIN. FIBER ROLL OR 0.62 (0.45 + 0.17) CUBIC YARD MIN. OF STONE.

**NOTES:**

1. PLACE A CHECK DAM AT EVERY ONE FT DROP IN ELEVATION ALONG THE CUT DITCH.
2. PLACE CHECK DAMS PERPENDICULAR TO THE FLOW LINE OF THE DITCH.
3. DO NOT PLACE CHECK DAMS ACROSS NATURAL STREAM BEDS.
4. DO NOT USE STONE CHECK DAMS WITHIN CLEAR ZONES.
5. CONSTRUCT CHECK DAMS SO THAT WATER DOES NOT FLOW AROUND THE ENDS OF THE DAM.
6. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.
7. SPREAD ROCK FROM CHECK DAMS TO LINE THE CUT DITCH AND BREAK APART FIBER ROLLS AND SPREAD THE STRAW OVER SEEDED AREAS OR REMOVE AFTER SURROUNDING AREAS HAVE BEEN SEEDED AND MULCHED.

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL  
APPROVED  
CHAIRMAN STANDARDS COMMITTEE  
*Raymond H. Park*  
DATE  
JAN.01, 2012

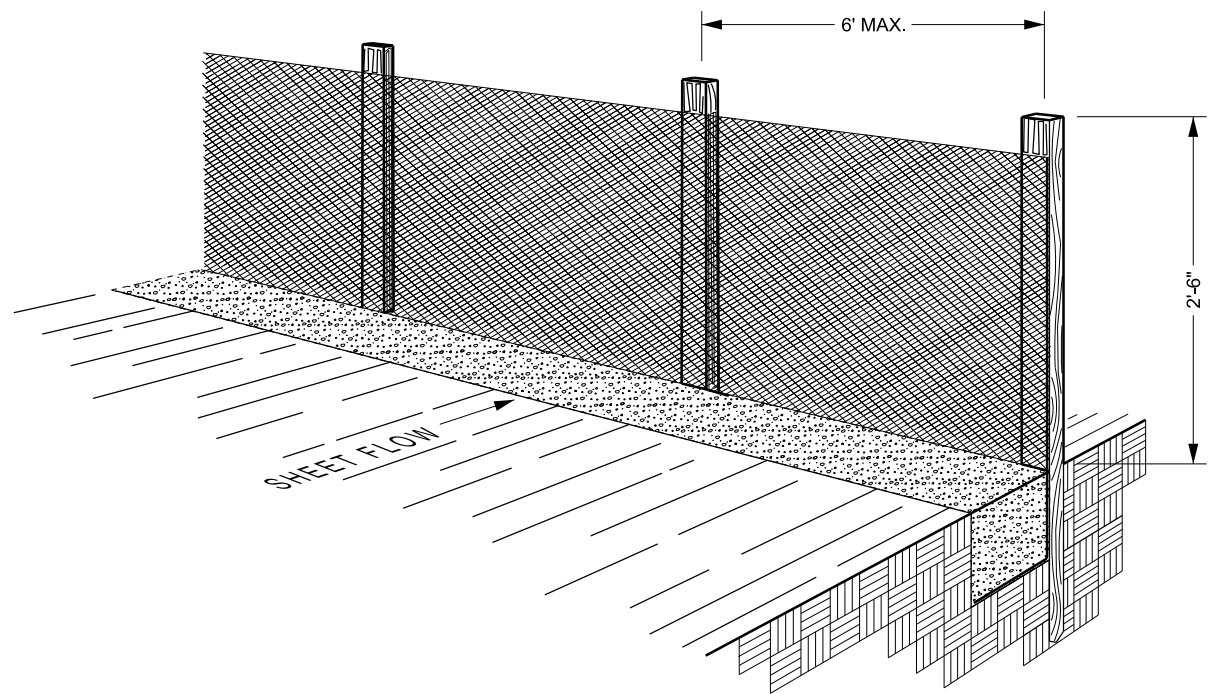
DEPUTY DIRECTOR  
APPR.  
DATE  
JAN.01, 2012

TEMPORARY  
EROSION CONTROL  
(CHECK DAMS)

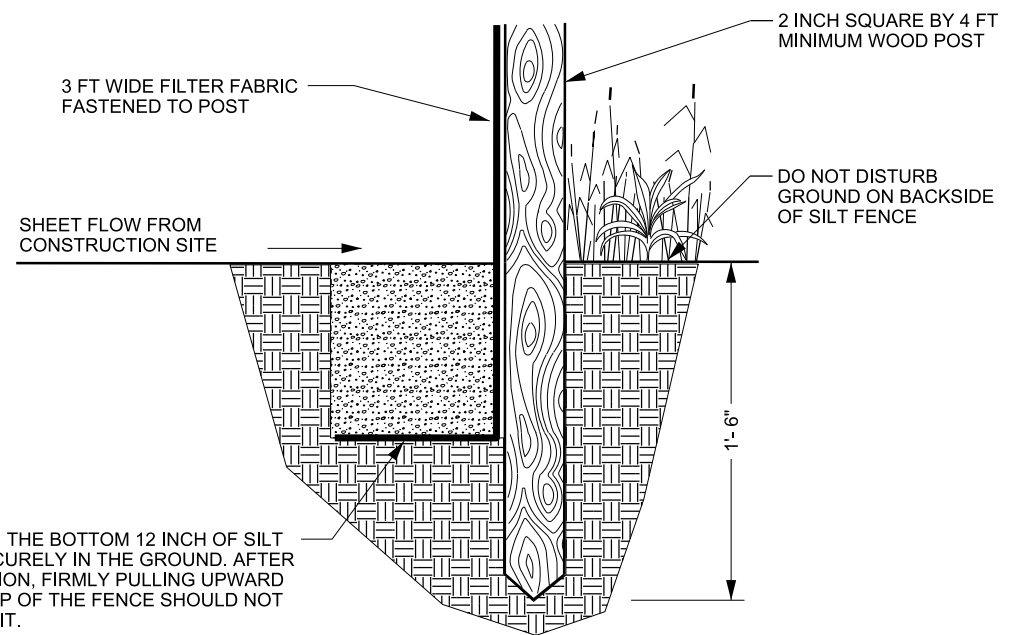
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STD. DWG. NO.  
EN 1

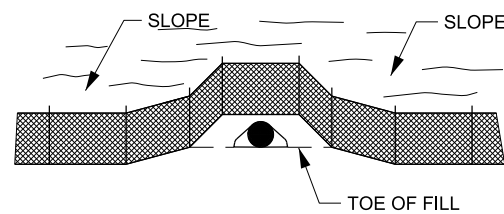
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**PERSPECTIVE VIEW**

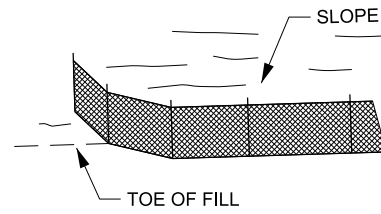


**SECTION**



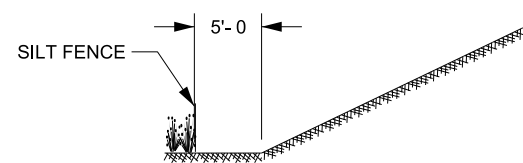
**AROUND A PIPE OUTLET**

SEE NOTE 5



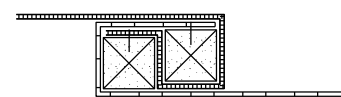
**AT END OF SILT FENCE**

SEE NOTE 4



**AT TOE OF FILL SLOPE**

SEE NOTE 1



**SPLICES (TOP VIEW)**

SEE NOTE 6

**SILT FENCE INSTALLATIONS**

**NOTES:**

1. POSITION THE SILT FENCE 5 FT BEYOND THE TOE OF SLOPE WHERE PERMITTED.
2. ALIGN THE FENCE ALONG THE CONTOUR AS MUCH AS POSSIBLE TO AVOID CREATING LOW POINTS ALONG THE SILT FENCE. PROVIDE AN OPENING IN THE FENCE AND INSTALL A SEDIMENT TRAP WHERE EXCESSIVE RUNOFF WILL ACCUMULATE AT A LOW POINT.
3. USE MACHINERY THAT WILL MINIMIZE DISTURBANCE WHEN EXCAVATING THE TRENCH.
4. RUN THE ENDS OF THE FENCE UP SLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE ENDS OF THE SILT FENCE.
5. DO NOT PLACE SILT FENCE ACROSS POTENTIAL CONCENTRATED FLOWS (e.g., PIPE OUTLETS, DRAINAGE CHANNELS, CUT DITCHES).
6. AVOID USING SPLICES ALONG THE FENCE AS MUCH AS POSSIBLE. OVERLAP THE END POSTS AND TWIST 180 DEGREES IF A SPLICE IS NECESSARY, BEFORE STAKING THE END POSTS.
7. MAINTAIN A PROPERLY FUNCTIONING SILT FENCE THROUGHOUT THE DURATION OF THE PROJECT OR UNTIL DISTURBED AREAS HAVE BEEN VEGETATED.
8. REMOVE THE SEDIMENT AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER WHEN A STORM EVENT DEPOSITS SEDIMENT BEHIND THE FENCE.
9. REMOVE SILT FENCE UNLESS THEY ARE PROTECTING A WETLAND OR WATER BODY IN AREAS THAT HAVE BEEN SEEDED AND MULCHED.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

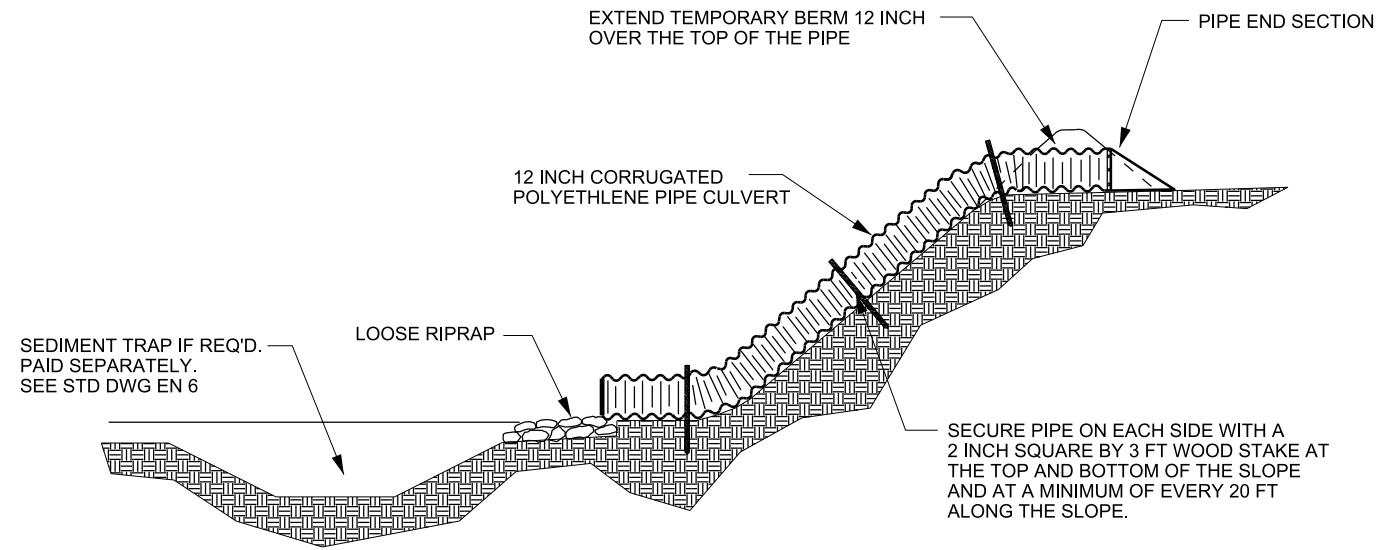
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CHAIRMAN STANDARDS COMMITTEE  
DATE: JAN. 01, 2012

APPROVED  
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DEPUTY DIRECTOR  
DATE: JAN. 01, 2012

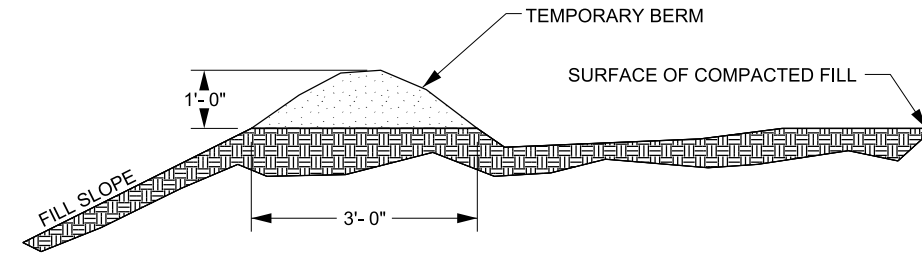
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EROSION CONTROL  
(SILT FENCE)

STANDARD DRAWING TITLE

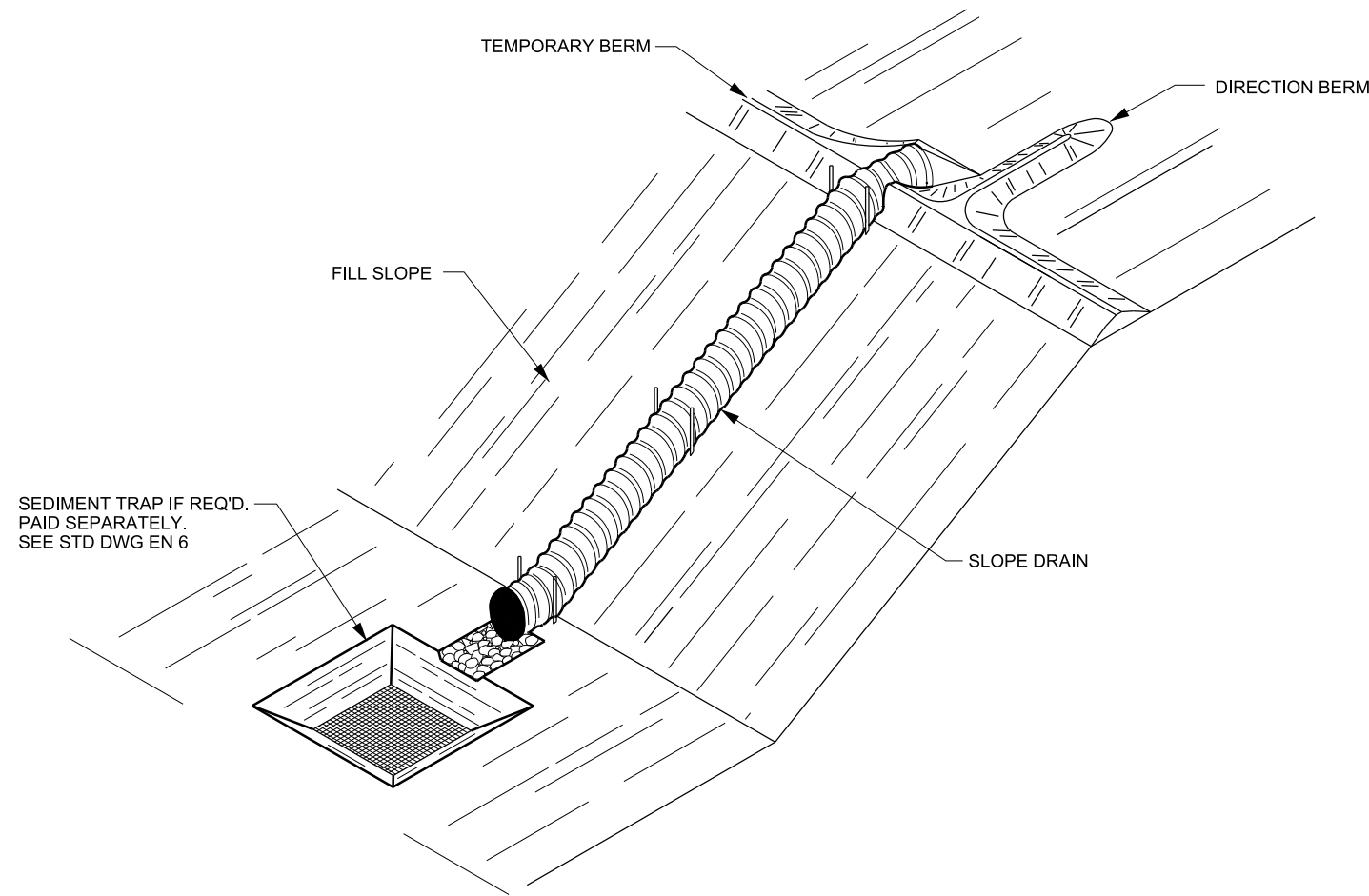
STD. DWG. NO.  
EN 2



**SLOPE DRAIN SECTION**



**TEMPORARY BERM**



**SLOPE DRAIN ISOMETRIC**

**NOTES FOR TEMPORARY BERM:**

1. COMPACT THE RIDGE OF EXISTING SOIL TO PROVIDE A NON-ERODIBLE BERM THAT DIVERTS STORM RUNOFF FROM RECENTLY CONSTRUCTED SLOPES. REPAIR ANY EROSION OF THE BERM IMMEDIATELY.
2. TEMPORARY BERMS ARE TYPICALLY USED IN CONJUNCTION WITH SLOPE DRAINS.


**NOTES FOR SLOPE DRAIN:**

1. COMPACT THE SOIL SURFACE AND BERMS AROUND THE ENTRANCE TO THE PIPE INLET END SECTION TO PREVENT WATER FROM UNDERMINING THE PIPE AND ERODING THE SLOPE. REPAIR ANY EROSION AROUND THE INLET, OUTLET, OR SLOPE IMMEDIATELY.
2. SECURE THE PIPE TO THE GROUND EVERY 20 FT TO PREVENT PIPE MOVEMENT AND SUBSEQUENT FAILURES DURING STORM EVENTS.
3. USE WATER-TIGHT FITTINGS AT ALL SLOPE DRAIN CONNECTIONS.
4. EXTEND THE SLOPE DRAIN AS REQUIRED TO COINCIDE WITH THE HEIGHT OF THE EMBANKMENT.
5. EXTEND THE DRAIN A MINIMUM OF 3 FT BEYOND THE TOE OF THE SLOPE AND PROVIDE OUTLET PROTECTION.
6. PROVIDE 50 PERCENT OF THE RIPRAP TO BE BETWEEN 6 AND 8 INCH WITH A MAXIMUM SIZE OF 12 INCH AND A MINIMUM SIZE OF 4 INCH.
7. PROVIDE A SEDIMENT TRAPPING DEVICE BEFORE THE PIPE INLET IF A SEDIMENT TRAP CANNOT BE CONSTRUCTED AT THE PIPE OUTLET.
8. MAINTAIN SLOPE DRAINS UNTIL SLOPES HAVE BEEN PERMANENTLY STABILIZED. REMOVE SLOPE DRAINS AS DIRECTED BY ENGINEER.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

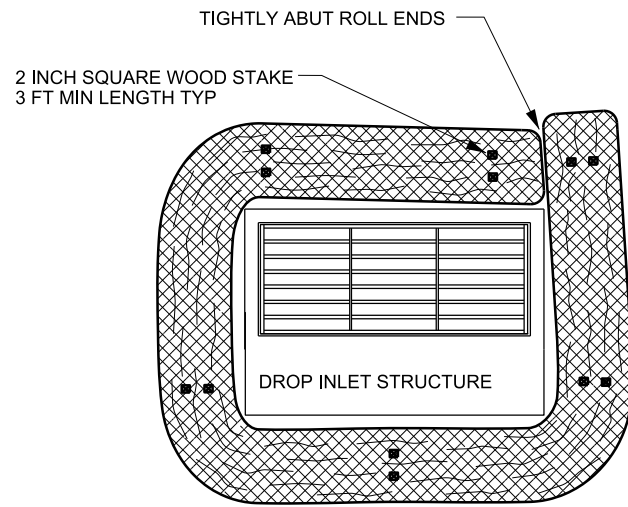
RECOMMENDED FOR APPROVAL  
  
 CHAIRMAN STANDARDS COMMITTEE  
 APPROVED  
  
 DEPUTY DIRECTOR

TEMPORARY  
EROSION CONTROL  
(SLOPE DRAIN AND  
TEMPORARY BERM)

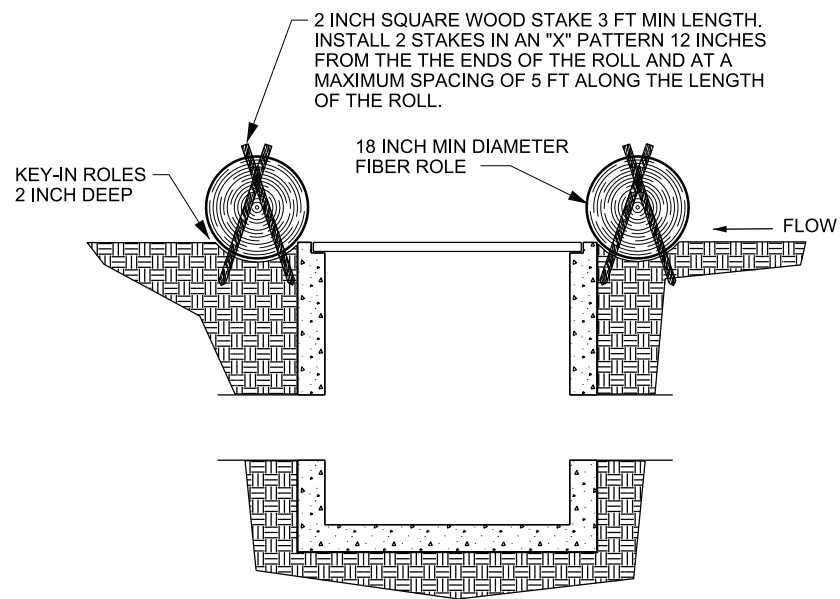
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EN 3



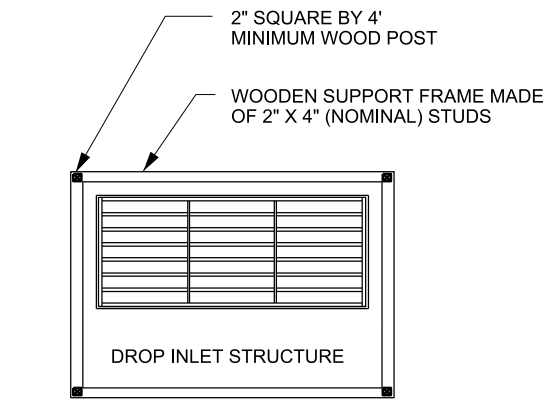
**FIBER ROLL  
DROP INLET BARRIER PLAN**



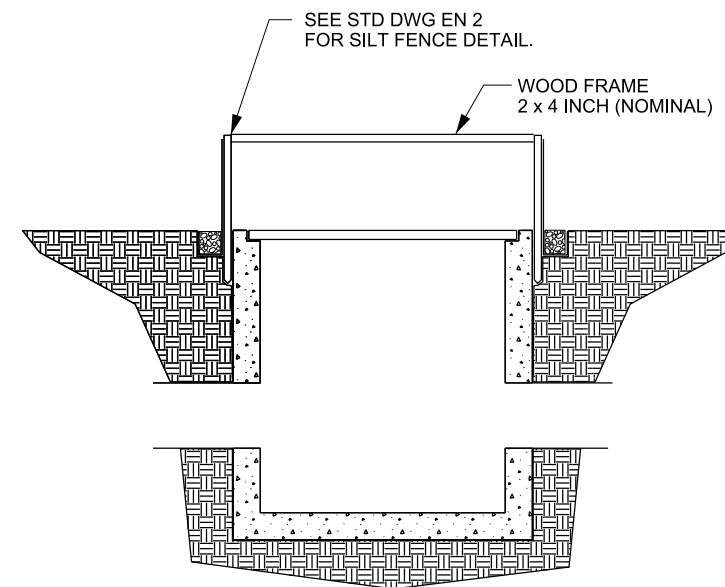
**SECTION**

**NOTES:**

1. KEY-IN FIBER ROLLS 2 INCH DEEP AROUND THE PERIMETER OF THE DROP INLET STRUCTURE AND STAKE AS SHOWN.
2. OVERLAP THE ENDS OF THE FIBER ROLL AT LEAST 18 INCHES.
3. CONSTRUCT ROLLS IN MEDIAN AREAS SO THAT THE TOPS OF THE ROLLS ARE NOT HIGHER THAN THE ADJACENT ROADWAY.
4. MAINTAIN A PROPERLY FUNCTIONING FIBER LOG BARRIER THROUGHOUT CONSTRUCTION OR UNTIL DISTURBED AREAS CONTRIBUTING TO THE INLET HAVE BEEN PAVED OR VEGETATED.
5. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.



**SILT FENCE  
DROP INLET BARRIER PLAN**



**SECTION**

**NOTES:**

1. ENTRENCH THE BOTTOM 18 INCH OF SILT FENCE SECURELY IN THE GROUND AROUND THE PERIMETER OF THE DROP INLET.
2. DRIVE POSTS AT EACH CORNER OF THE INLET STRUCTURE. PLACE ANOTHER POST(S) BETWEEN THEM IF THE DISTANCE BETWEEN CORNER POSTS EXCEEDS 4 FT.
3. CROSS-BRACE THE TOPS OF ALL POSTS WITH A WOODEN FRAME MADE OF 2 x 4 STUDS. USE NAILS OR SCREWS FOR FASTENING.
4. CONSTRUCT SILT FENCE IN MEDIAN AREAS SO THAT THE TOPS OF THE SILT FENCE ARE NOT HIGHER THAN THE ADJACENT ROADWAY.
5. MAINTAIN A PROPERLY FUNCTIONING SILT FENCE BARRIER THROUGHOUT CONSTRUCTION OR UNTIL DISTURBED AREAS CONTRIBUTING TO THE INLET HAVE BEEN PAVED OR VEGETATED.
6. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.

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REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL  
  
 CHAIRMAN STANDARDS COMMITTEE  
 APPROVED  
  
 DEPUTY DIRECTOR

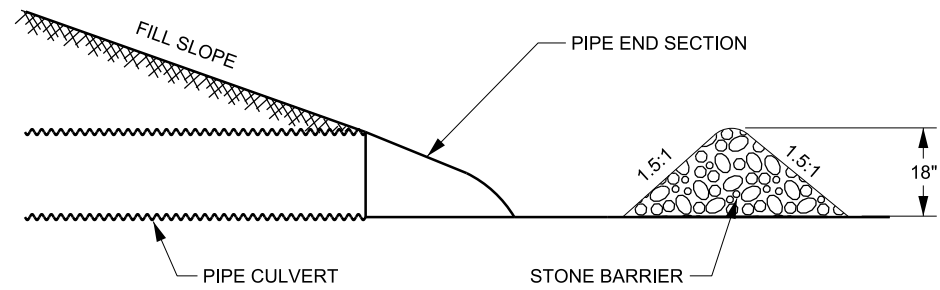
TEMPORARY  
EROSION CONTROL  
(DROP INLET BARRIERS)

STD. DWG. NO.  
**EN 4**

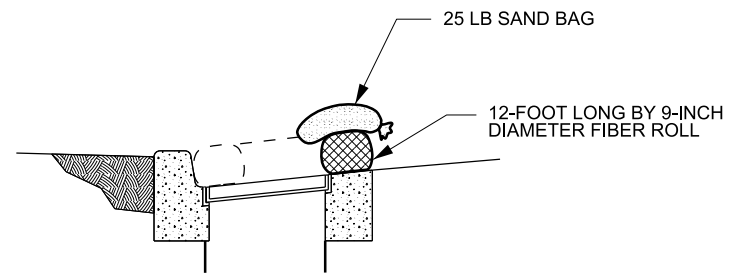
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JAN.01.2012  
DATE

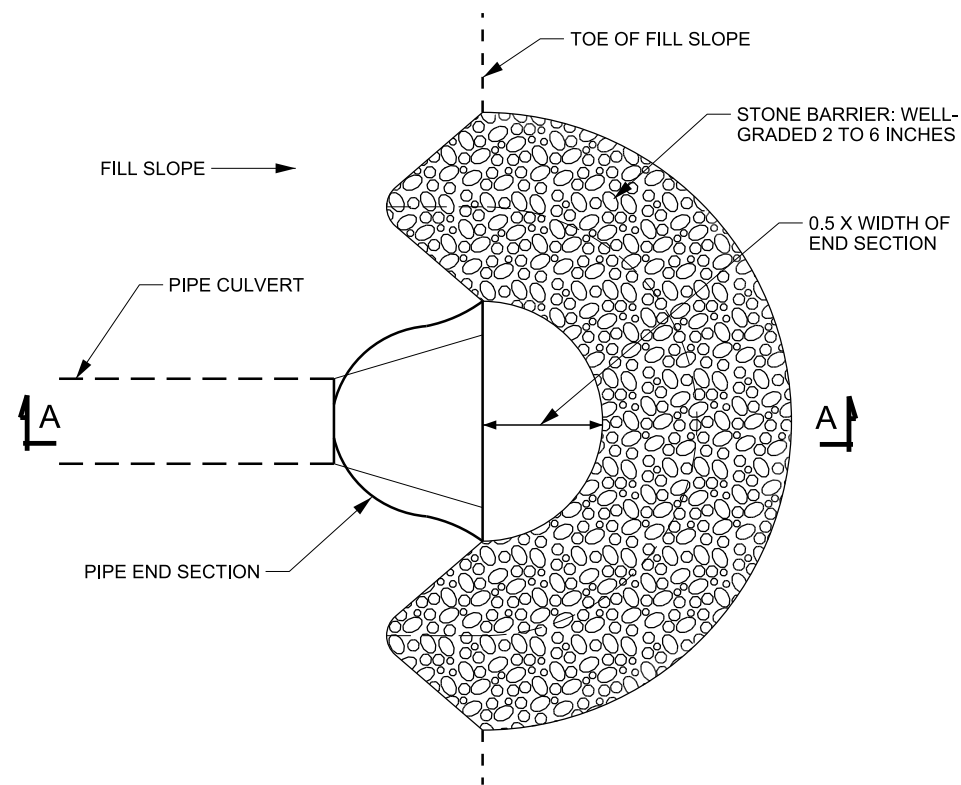
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DATE



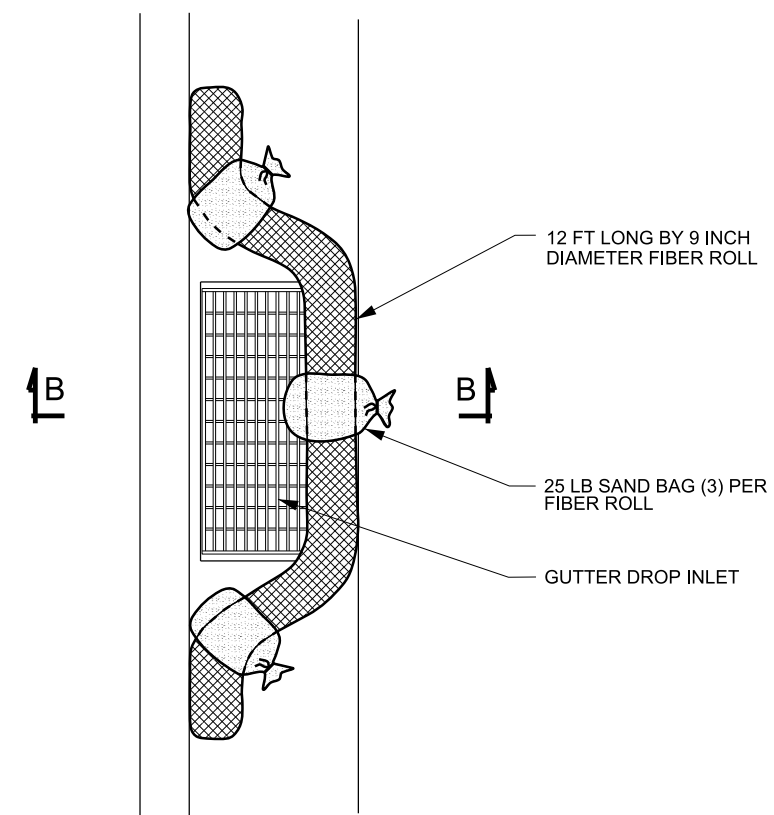
**SECTION A-A**



**SECTION B-B**



**PIPE INLET BARRIER PLAN**



**GUTTER INLET BARRIER PLAN**

**NOTES FOR PIPE INLET BARRIER:**

1. PLACE PIPE INLET BARRIERS AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. MAINTAIN A PROPERLY FUNCTIONING SEDIMENT BARRIER THROUGHOUT CONSTRUCTION.
3. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.
4. REMOVE THE STONE BARRIER BY SPREADING THE STONE ALONG THE CUT DITCH WHEN SURROUNDING AREAS HAVE BEEN SEEDED AND MULCHED.
5. AN 18-INCH MINIMUM DIAMETER FIBER ROLL MAY BE USED AS A SUBSTITUTE FOR THE STONE BARRIER. STAKE AS SHOWN ON STD DWG EN 1.
6. DO NOT SEAL OFF THE PIPE INLET. ALLOW RUNOFF FLOWING THROUGH THE SEDIMENT BARRIER TO ENTER THE PIPE.
7. DO NOT PLACE BARRIERS ACROSS NATURAL CHANNELS FLOWING TO THE PIPE INLET FROM OFF THE RIGHT-OF-WAY.

**NOTES FOR GUTTER INLET BARRIER:**

1. PLACE FIBER ROLL AND SAND BAGS AS SHOWN AROUND GUTTER INLETS AND AVOID PLACING THE BARRIER IN THE TRAVEL LANE.
2. USE GUTTER INLET BARRIERS ONLY WHERE THERE IS THE POTENTIAL OF SEDIMENT FROM NON-STABILIZED AREAS GETTING INTO THE INLET.
3. MAINTAIN A PROPERLY FUNCTIONING GUTTER INLET BARRIER THROUGHOUT CONSTRUCTION OR UNTIL DISTURBED AREAS CONTRIBUTING TO THE INLET HAVE BEEN PAVED OR VEGETATED.
4. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.

REVISIONS

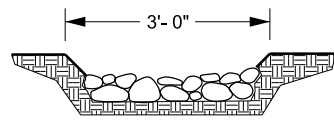
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UTAH DEPARTMENT OF TRANSPORTATION  
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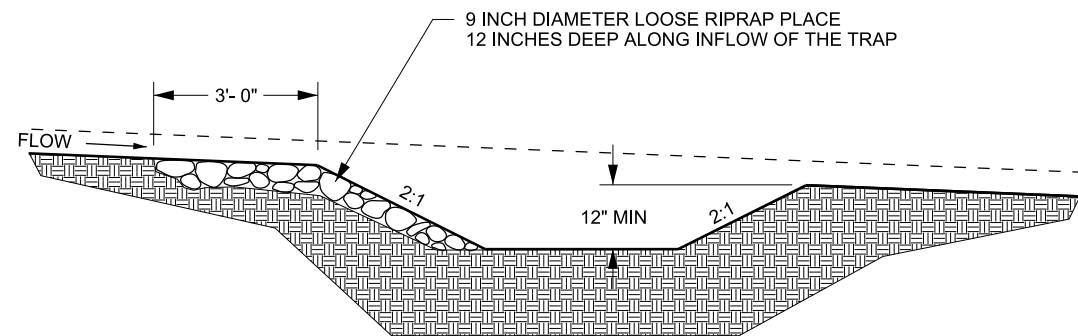
RECOMMENDED FOR APPROVAL  
  
 CHAIRMAN STANDARDS COMMITTEE  
 APPROVED  
  
 DEPUTY DIRECTOR

TEMPORARY EROSION CONTROL (PIPE INLET AND GUTTER INLET BARRIERS)

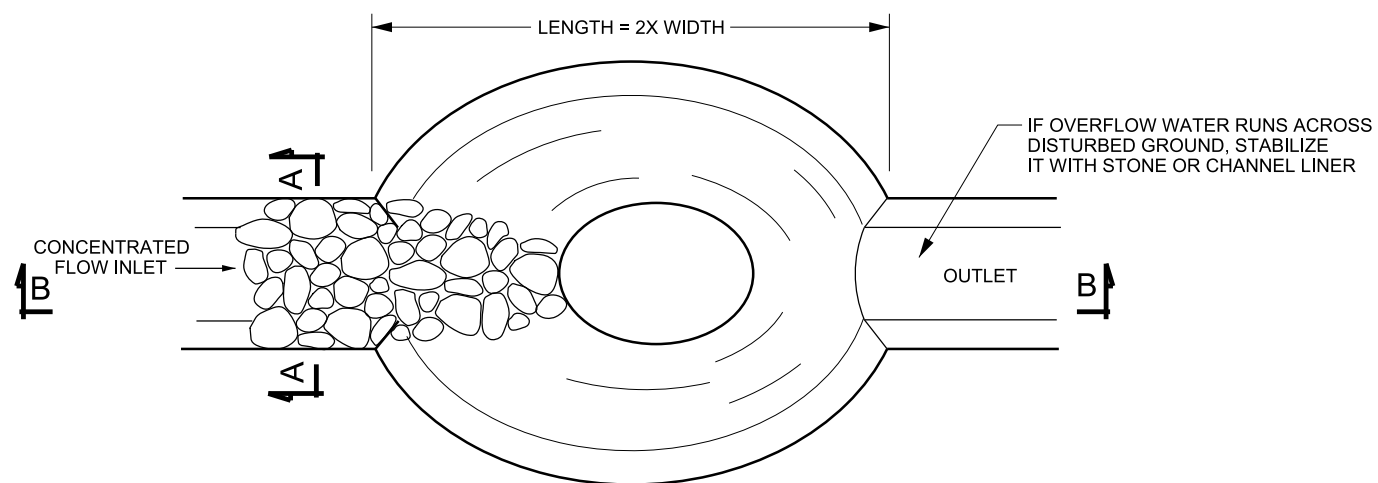
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**EN 5**



**SECTION A-A**



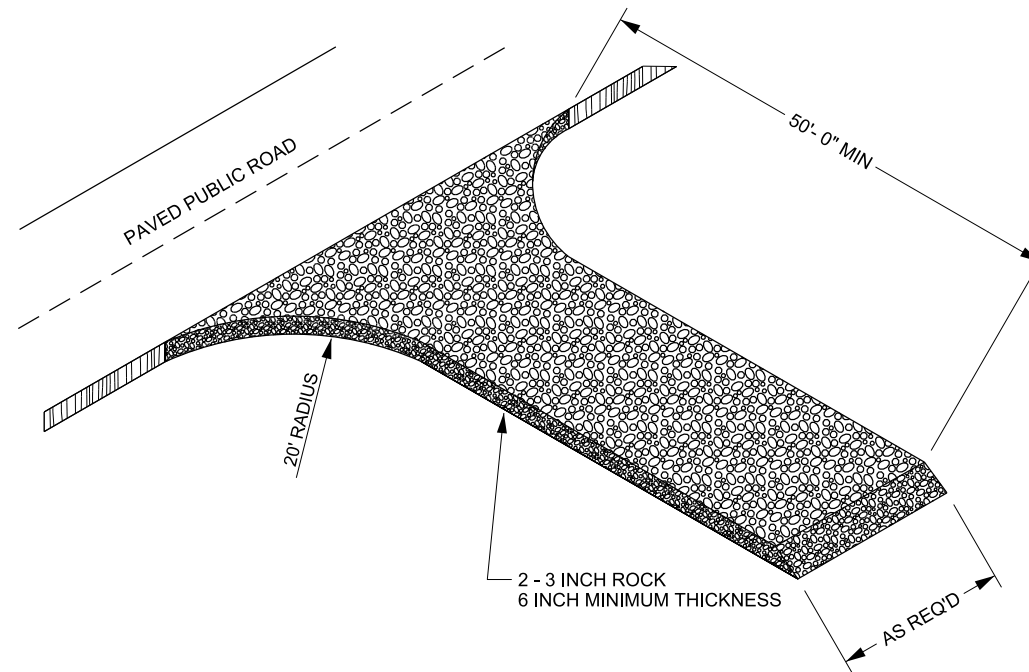
**SECTION B-B**



**SEDIMENT TRAP PLAN**

**NOTES FOR SEDIMENT TRAPS:**

1. PLACE SEDIMENT TRAPS AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. IDENTIFY THE STORAGE CAPACITY OF EACH SEDIMENT TRAP IN THE PROJECT PLAN SET.
3. CONSTRUCT TRAP LENGTH TWICE AS LONG AS THE WIDTH.
4. MAINTAIN A PROPERLY FUNCTIONING SEDIMENT TRAP THROUGHOUT CONSTRUCTION OR UNTIL DISTURBED AREAS CONTRIBUTING TO THE BASIN HAVE BEEN PAVED OR SEEDED AND MULCHED.
5. REMOVE SEDIMENT AS IT ACCUMULATES AND PLACE IT IN A STABLE AREA APPROVED BY THE ENGINEER.



**STABILIZED CONSTRUCTION ENTRANCE**

**NOTES FOR STABILIZED CONSTRUCTION ENTRANCE:**

1. PLACE STABILIZED CONSTRUCTION ENTRANCES AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. MAINTAIN A PROPERLY FUNCTIONING CONSTRUCTION ENTRANCE THROUGHOUT CONSTRUCTION OR UNTIL DISTURBED AREAS HAVE BEEN PAVED.
3. DO NOT ALLOW VEHICLES LEAVING THE CONSTRUCTION SITE TO TRACK MUD ONTO PAVED ROADS.

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REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL  
*Paul M. Spack*  
CHAIRMAN STANDARDS COMMITTEE  
DATE: JAN.01.2012

APPROVED  
*Carl D. ...*  
DEPUTY DIRECTOR  
DATE: JAN.01.2012

TEMPORARY EROSION CONTROL (SEDIMENT TRAP AND STABILIZED CONSTRUCTION ENTRANCE)

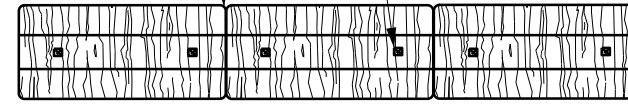
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EN 6



2 INCH SQUARE WOOD STAKE 4 FT MIN LENGTH  
INSTALL 2 STAKES PER BALE TYP

TIGHTLY BUTT BALE ENDS

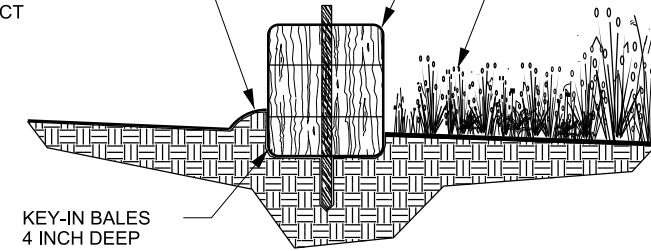


**STRAW BALE BARRIER PLAN**

PLACE 3 INCHES OF EXCAVATED  
MATERIAL ALONG THE  
RECEIVING SIDE OF THE  
BALE AND COMPACT

STRAW OR HAY BALE

DO NOT DISTURB GROUND  
ON BACKSIDE OF BALE



KEY-IN BALES  
4 INCH DEEP

**SECTION**

**NOTES FOR STRAW BALEBARRER:**

1. PLACE STRAW BALE BARRIERS BEFORE BEGINNING EARTH DISTURBING ACTIVITIES.
2. DO NOT PLACE STRAW BALE BARRIERS ACROSS NATURAL STREAM BEDS.
3. MAINTAIN A PROPERLY FUNCTIONING STRAW BALE BARRIER THROUGHOUT THE DURATION OF THE PROJECT OR UNTIL DISTURBED AREAS HAVE BEEN SEEDING AND MULCHED.
4. REMOVE BALES AND STAKES AND LEVEL AND SEED THE AREA AFTER SURROUNDING AREAS HAVE BEEN STABILIZED. BALES MAY BE BUSTED APART AND SPREAD AS MULCH.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL  
*[Signature]*  
CHAIRMAN STANDARDS COMMITTEE  
APPROVED

JAN.01.2012 DATE  
JAN.01.2012 DATE  
DEPUTY DIRECTOR

TEMPORARY  
EROSION CONTROL  
(STRAW BALE  
BARRIER)

STANDARD DRAWING TITLE

STD. DWG. NO.

EN 7