



Storm Water Pollution Prevention Plan

For:

Smart Field Subdivision Ph 1

1800 S 4300 W

Ogden, UT

Operator

Lync Construction

Joshua Wiscombe

1407 N Mountain Rd

Ogden, Ut 84404

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SWPPP Contact

Cearley SWPPP Management

Michelle Cearley

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SWPPP Preparation Date: 10/1/2021

UPDES Permit Tracking Number:

UTRC03627

This SWPPP is intended to be a living document with tasks, goals, and BMPs added and deleted as new management practices arise, and other management practices are found to be ineffective.



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- Appendix F – Additional Information
(i.e., other permits and out of date SWPPP documents)
- Appendix G – BMP Specifications
- Appendix H – Construction General Permit

All Documents Available at Compliance Go

<https://app.compliancego.com/site/28659493-acc3-4d7c-a949-dc5a8b3c8479>



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SECTION 1: CONTACT INFORMATION/ RESPONSIBLE PARTIES

1.1

Name and/or Position, and Contact	Responsibilities, Qualifications, and Training
Lync Construction Joshua Wiscombe 1407 N Mountain Rd Ogden, UT 84404 801-808-6906 joshuajwiscombe@gmail.com	Owner, Operator, SWPPP responsible staff
TBD	Project Manager, SWPPP responsible staff
Excavator TBD	Excavation, underground utilities, SWPPP responsible staff
Cearley SWPPP Management 3102 S 885 W Syracuse, UT 84075 385-289-6198 michelle@cearleyswppp.com	SWPPP writer, inspector, management RSI, RSR, RSW

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SECTION 2: NATURE OF CONSTRUCTION ACTIVITIES

2.1 Construction Site Estimates

Total project area (lot size):	11.03 acres
Construction site area to be disturbed:	11.03 acres

2.2 Construction Description and Information

Development of a single living subdivision containing 13 lots. Development includes grubbing, grading, underground utilities (wet and dry), curb, gutter, sidewalk, and asphalt. Development includes a Pond with 20' Drainage Easement along lots 104 and 105.

2.3 Phase/Sequence of Construction Activity

Timing on phasing is TBD based on permitting, scheduling, and material availability.

Phase I

- Site preparations for SWPPP: Install initial BMP's track out pad, portable toilet, storm drain protections, etc.
- Grub and clear lot
- Prep pond areas

Phase II

- Install underground utilities – Sewer, water, storm drain, and dry utilities

Phase III

- Building Construction: This will include foundation, framing, plumbing, electrical, HVAC, insulation, drywalling, painting etc.

Phase IV

- Cement work: Curb, gutter, sidewalk
- Asphalt
- Landscaping
- Final SWPPP stabilization and storm water management

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2.4 Landscaping

Landscaping will be done in the development of individual homes.

2.5 Maps

The SWPPP and site map(s) are filed in Appendix A

SECTION 3: WATER QUALITY

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3.1 Discharge Information

Does your project/site discharge storm water into a Municipal Separate Storm Sewer System (MS4)? Yes Weber County

3.2 Receiving Waters

Storm drain system is private, but below are the receiving waters in a 1-mile radius.

Name of Receiving Waters	Is the water impaired or high quality?	If high quality: Category 1 or 2? If impaired: List pollutants (TMDL)
Weber River - 1	<input type="checkbox"/> Not high quality/impaired <input type="checkbox"/> Impaired, has approved TMDL <input checked="" type="checkbox"/> Impaired, no TMDL <input type="checkbox"/> High quality	Refence Utah Environmental Interactive Map in Appendix A
Undefined	<input type="checkbox"/> Not high quality/impaired <input type="checkbox"/> Impaired, has approved TMDL <input checked="" type="checkbox"/> Impaired, no TMDL <input type="checkbox"/> High quality	Refence Utah Environmental Interactive Map in Appendix A

3.3 Impaired Waters

No additional measures should be needed on this site. If it become necessary to add additional measures, the situation will be evaluated, installed, and added to this SWPPP plan.



SECTION 4: POLLUTION PREVENTION STANDARDS

4.1 Potential Sources of Pollution

Pollutant-Generating Activity	Pollutants or Pollutant Constituents	Location on Site or reference Map
Excavation, Grading	Sediment Dust	Entire Site
Sanitary Waste	Bacteria, heavy metal, PH	Portable toilet
Dumpsters/Waste Disposal	Trash, debris, fertilizer, sediment	Dumpsters
Concrete Washout	Heavy metals, PH	See SWPPP Map in Appendix A
Paving	Oil, PH	See Engineered Plans
Fueling Vehicles	Heavy Metals, MTBE, benzene	As needed onsite
Stockpiles (if needed)	Sediment, dust	See SWPPP Map in Appendix A
Line Flushing	Chlorine, Sediment	Drinking Water Lines
Structure construction/ painting/cleaning	Trash, debris, volatile organic compounds (VOC), heavy metals,	Building

4.2 Non-Storm Water Discharges

Authorized Non-Storm Water Discharges	Present	Comments/Controls
Discharges from emergency fire-fighting activities	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Fire hydrant flushing	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Slow flow, evaporation, small dams, wattles, filter bags, or redirect of water to a settling point, that does not cause erosion of water to leave site, as needed
Properly managed landscape irrigation (excludes fertilizer injector systems)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Properly managed vehicle and equipment wash water with no soaps, solvents, or detergents	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Not done on site
Water used to control dust	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Do not excessively over water in a manner that would cause water to discharge from site
Drinking water, includes uncontaminated water line flushing	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Use uncontaminated water. Slow flow, evaporation, small dams, wattles, filter bags, or redirect of water to a settling point, that does not cause erosion of water to leave site, as needed

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External building washdown with no soaps, solvents, detergents, or hazardous substances	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Pavement wash waters with no detergents or toxic or hazardous materials. Must have a sediment basin, sediment trap, or similarly effective control prior to discharge.	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Uncontaminated air conditioning or compressor condensate	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Uncontaminated, non-turbid discharges of ground water (from natural sources) or spring water	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Uncontaminated foundation or footing drains	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

4.3 Dewatering Practices

Check box if section not applicable to this site

4.4 Natural Buffers or Equivalent Sediment Controls

Are there any surface waters within 50 feet of your project's earth disturbances?

YES NO

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SECTION 5: EROSION AND SEDIMENT CONTROLS – BMPS

5.1 List of Erosion and Sediment BMPs on Site

CGP Requirement & Location EPA SWPPP Guide Location	Example BMPs	BMPs Selected
Preserve vegetation where possible and direct storm water to vegetated areas when feasible. (CGP 2.2.2.) (EPA Ch 4, Principle 1)	Phasing to minimize disturbance, signs/fences to protect areas not being disturbed.	N/A
Install sediment controls along perimeter areas that receive pollutant discharges. (CGP 2.2.3.) (EPA Ch. 4, Principle 7)	Silt fence, fiber rolls, earth berms, diversion	Silt fence, wattles, filter fabric or sandbag, Additional BMPs as needed
Minimize sediment track-out. (CGP 2.2.4.) (EPA Ch 4, Principle 9)	Restrict access, stabilize exits, track-out pads, tire washing station, clean-up sediments	Restricted access, track out pads, clean-up sediments, street sweeping
Manage stockpiles with perimeter controls and locate away from storm water conveyances. (CGP 2.2.5.) (EPA Ch 4, Principle 4)	Sediment barriers downgradient, proper location, covered stockpiles, diverting storm water from stockpiles	Remove stockpile from drainage path or flow line, protect with a berm, water application to suppress dust
Minimize dust. (CGP 2.2.6.)	Water application, mulching, chemical dust suppression	Water application, restricted access, track out pads
Minimize steep slope disturbance. (CGP 2.2.7.) (EPA Ch 4, Principle 5)	Erosion control blankets, protect slopes from disturbance	N/A
Preserve topsoil. (CGP 2.2.8.) (EPA Ch 4, Principle 1)	Stockpile topsoil	N/A
Minimize soil compaction where final cover is vegetation. (CGP 2.2.9.)	Restrict vehicle access, recondition soils before seeding	Restrict vehicle access, final grading
Protect storm drain inlets. (CGP 2.2.10.) (EPA Ch 4, Principle 6)	Inserts, rock-filled bags, covers	Wattles, filter fabric wrap or sandbag,
Slow down runoff with erosion controls and velocity dissipation devices. (CGP 2.2.11.) (EPA Ch 4, Principle 3)	Check dams, riprap	Direct flow to settle where erosion/run off is not caused evaporate, small dams, filter bags
Appropriately design any sediment basins or impoundments. (CGP 2.2.12.) (EPA Ch 4, Principle 8)	Design to 2-year 24-hour storm or 3,600 cubic feet per acre drained, include design specifications	N/A

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Follow requirements for any treatment chemicals (polymers, flocculants, coagulants, etc.)	Store in leak proof containers and cover, proper training, minimize use	N/A
Stabilize exposed portions of site with 14 days of inactivity (CGP 2.2.14.) (EPA Chapter 9)	Seeding, erosion control blankets, gravel, hydro mulch	Surface roughing, restrict access

BMPs will be installed prior to construction, and/or as needed. They will be inspected weekly by **Cearley SWPPP**. Maintenance will be done by **Lync Construction**. Instructions located in Appendix G.

BMPs are as follows and as needed:

1. Silt Fence
2. Construction Entrance/Track Out Pad
3. Street Sweeping
4. Water Diversion
5. Stockpile
6. Restricted Access
7. Water Application
8. Wattles, filter fabric or sandbags
9. Surface Roughing

5.2 Final Stabilization

Final stabilization timeline is TBD.

Types of stabilization will be as follows:

1. Building Structure
2. Asphalt
3. Curb, Gutter, Sidewalk
4. Landscape



SECTION 6: BMPS - POLLUTION PREVENTION/OPERATIONAL CONTROLS

6.1 Spill Prevention and Response

Rags and/or absorbent material will be kept on-site for immediate cleanup and remediation. Contaminated soil will not hose down or buried. A landfill or transfer station that is licensed to handle hazardous waste for disposal will be used.

An inspection will be done weekly to detect any spills. The Owner and/or Operator, and company or individual responsible for spill will be responsible for Cleanup.

Any discharges in 24 hours equal to or in excess of the reportable quantities listed in 40 CFR 117, 40 CFR 110, and 40 CFR 302 will be reported to the National Response Center and the Division of Water Quality (DWQ) as soon as practical after knowledge of the spill is known to the permittees. 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, and measures taken and/or planned to be taken to the Division of Water Quality (DWQ), 288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870. The Storm Water Pollution Prevention Plan 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 plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

Agency	Phone Number
National Response Center	(800) 424-8802
Division of Water Quality (DWQ) 24-Hr Reporting	(801)-231-1769 (801) 536-4123
Utah Department of Health Emergency Response	(801) 580-6681

Material	Media Released To	Reportable Quantity
Engine oil, fuel, hydraulic & brake fluid	Land	25 gallons
Paints, solvents, thinners	Land	100 lbs (13 gallons)
Engine oil, fuel, hydraulic & brake fluid	Water	Visible Sheen

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Antifreeze, battery acid, gasoline, engine degreasers	Air, Land, Water	100 lbs (13 gallons)
Refrigerant	Air	1 lb

6.2 Pollution Prevention Controls

CGP Requirement & Location EPA SWPPP Guide Location	Example BMPs	BMPs Selected
Equipment and vehicle fueling (CGP 2.3.1) (EPA Ch 5 P2 Principle 4)	Spill kits, SPCCP, drip pans, locate activities away from conveyances, use secondary containment	Spill kits, drip pans
Equipment and vehicle washing (CGP 2.3.2.) (EPA Ch 5 P2 Principle 4)	Locating away from surface waters and storm water conveyances, directing wash waters to a sediment basin or sediment trap, using filtration devices	Will not be done on site
Storage, handling, and disposal of building products and waste (CGP 2.3.3.) (EPA Ch 5 P2 Principle 4)	Cover (plastic sheeting / temporary roofs), secondary containment, leakproof containers, proper dumpsters, secured portable toilets, locate away from storm water conveyances	Dumpsters, portable toilet, Material staging areas,
Washing of stucco, paint, concrete, form release oils, curing compounds, etc. (CGP 2.3.4.) (EPA Ch 5 P2 Principle 4)	Leak proof containers, lined pits, locate away from storm water conveyances	Wash out pit
Properly apply fertilizer (CGP 2.3.5) (EPA Ch 5 P2 Principle 4)	Follow manufacture specifications, document deviations in applications, avoid applications to frozen ground, before heavy rains, or to storm water conveyances	If fertilizer is needed for landscape manufacture instructions will be followed

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Pollution Prevention Control BMPs will be installed prior to construction, and/or as needed. BMPS will be inspected weekly by *Cearley SWPPP*. Maintenance will be performed by *Lync Construction*. Instructions located in Appendix G.

Pollution Prevention BMPs are as follows:

1. Spill kits and/or drip pans
2. Dumpsters
3. Portable Toilet
4. Material Staging Area(s)
5. Washout Pit
6. Proper Application of Fertilizer (If

SECTION 7: SPECIAL CONDITIONS

7.1 *Emergency Related Projects*

Emergency-Related Project? Yes No

7.2 *UIC Class 5 Injection Wells*

Check box if section not applicable to this site

7.3 *Chemical Treatment*

Check box if section not applicable to this site

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SECTION 8: INSPECTIONS, CORRECTIVE ACTIONS, RECORD KEEPING & CERTIFICATIONS

Minimum Inspection Schedule Requirements:

Standard Frequency:
<input checked="" type="checkbox"/> Once every 7 calendar days.

Inspections will be done once every 7 calendar days.

All Records are to be kept for 3 years from final stabilization date.

The following records must be kept and included in the appropriate Appendices: (Samples are included)

- | | |
|------------------------------------------------------|------------|
| 1. Delegation of Authority/Certifications/Agreements | Appendix C |
| 2. Inspection | Appendix D |
| Corrective Action Reports | |
| 3. Log of Changes | Appendix E |
| 4. Training Logs | Appendix F |
| 5. Additional information | Appendix G |

All Documents Available at Compliance Go

<https://app.compliancego.com/site/28659493-acc3-4d7c-a949-dc5a8b3c8479>



Construction General Permit: <http://construction.stormwater.utah.gov>

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APPENDICES

Appendix A – Site Maps

Appendix B – NOI

**Appendix C – Subcontractor Certifications
Delegation of Authority
Agreements**

**Appendix D – Inspections
Corrective Action Report**

**Appendix E – Log of Changes
Training Log**

**Appendix F – Additional Information
(Other permits such as dewatering, stream alteration,
wetland; and out of date SWPPP documents)**

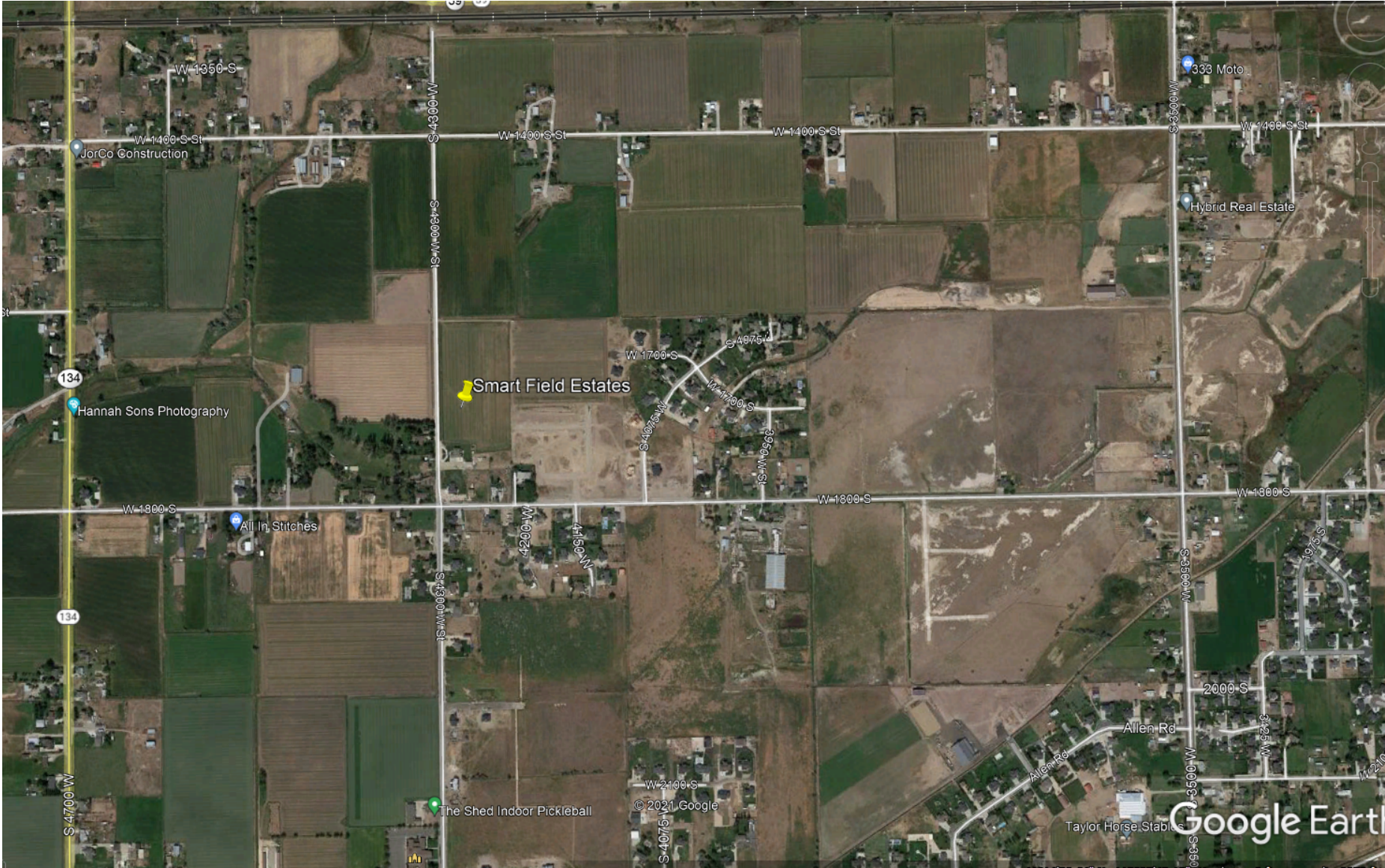
Appendix G – BMP Instruction and Detail Specifications

Appendix H – Construction General Permit (if no access to internet)



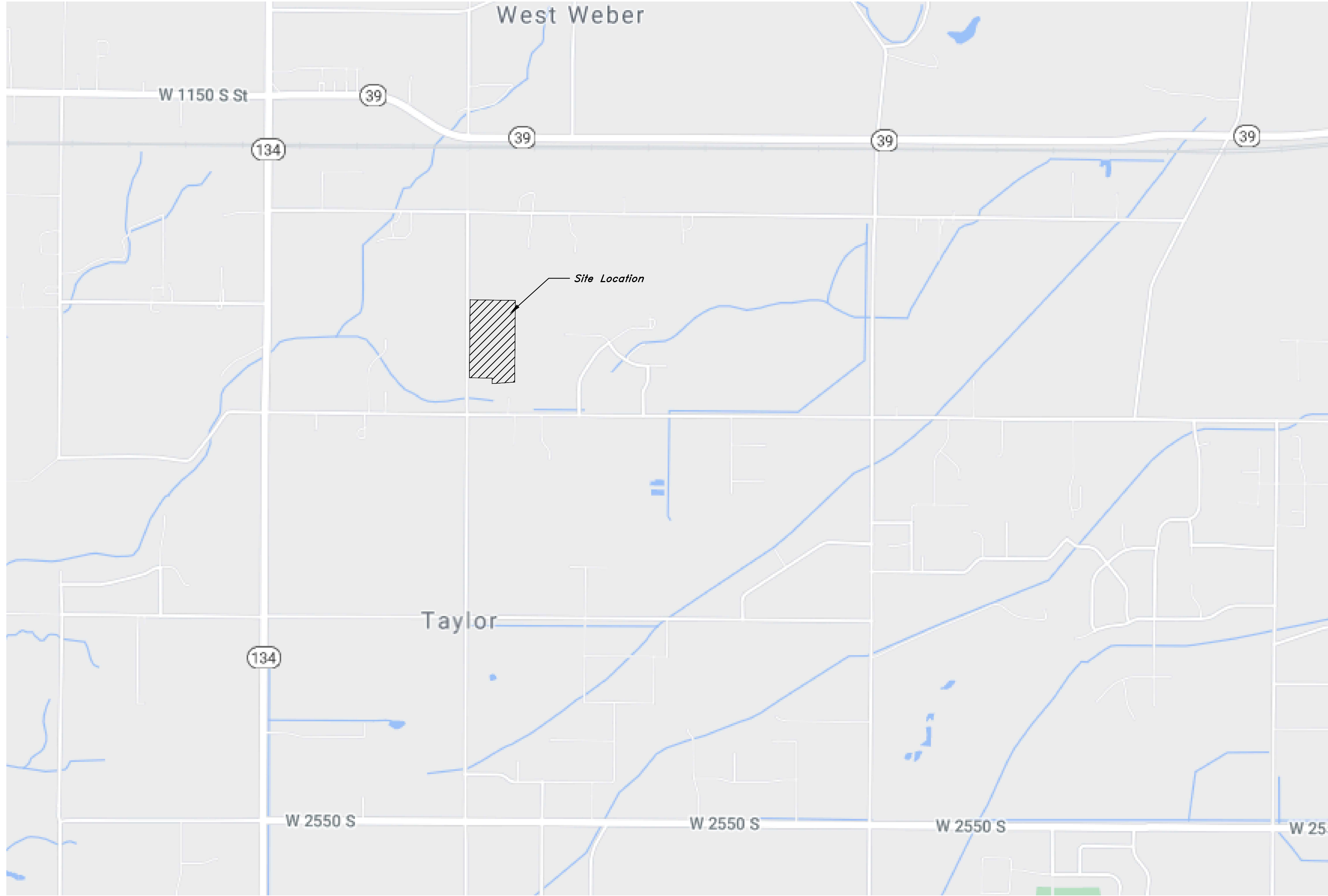
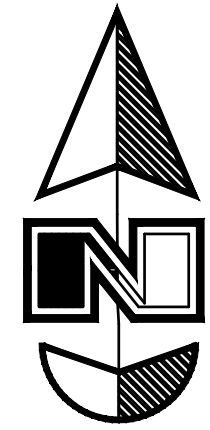
Appendix A: Site Maps

VICINITY MAP



General Location Map

Smart Fields



General Location Map
Scale: NTS

REV	DATE	DESCRIPTION

GREAT BASIN ENGINEERING, INC.
5746 SOUTH 1475 EAST, OGDEN, UTAH 84403
PHONE: (435) 792-3222 FAX: (435) 792-7444
WWW.GREATBASINENGINEERING.COM

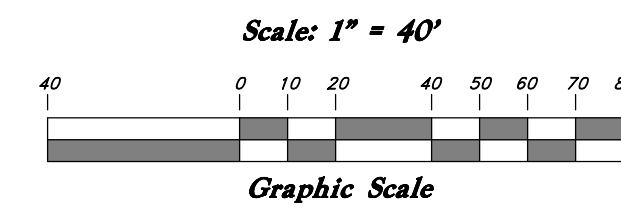
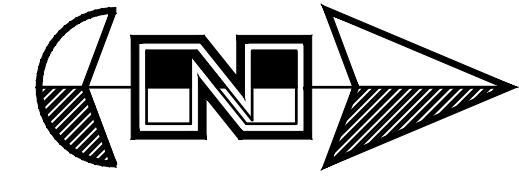
*Sediment and Erosion Control Plan
Proposed Conditions*
Smart Fields
Approx. 1800 South 4300 West Street
Ogden City, Weber County, Utah
A part of Section 20, T6N, R21W, SLB&M, U.S. Survey

August 2021

SHEET NO.
MAP

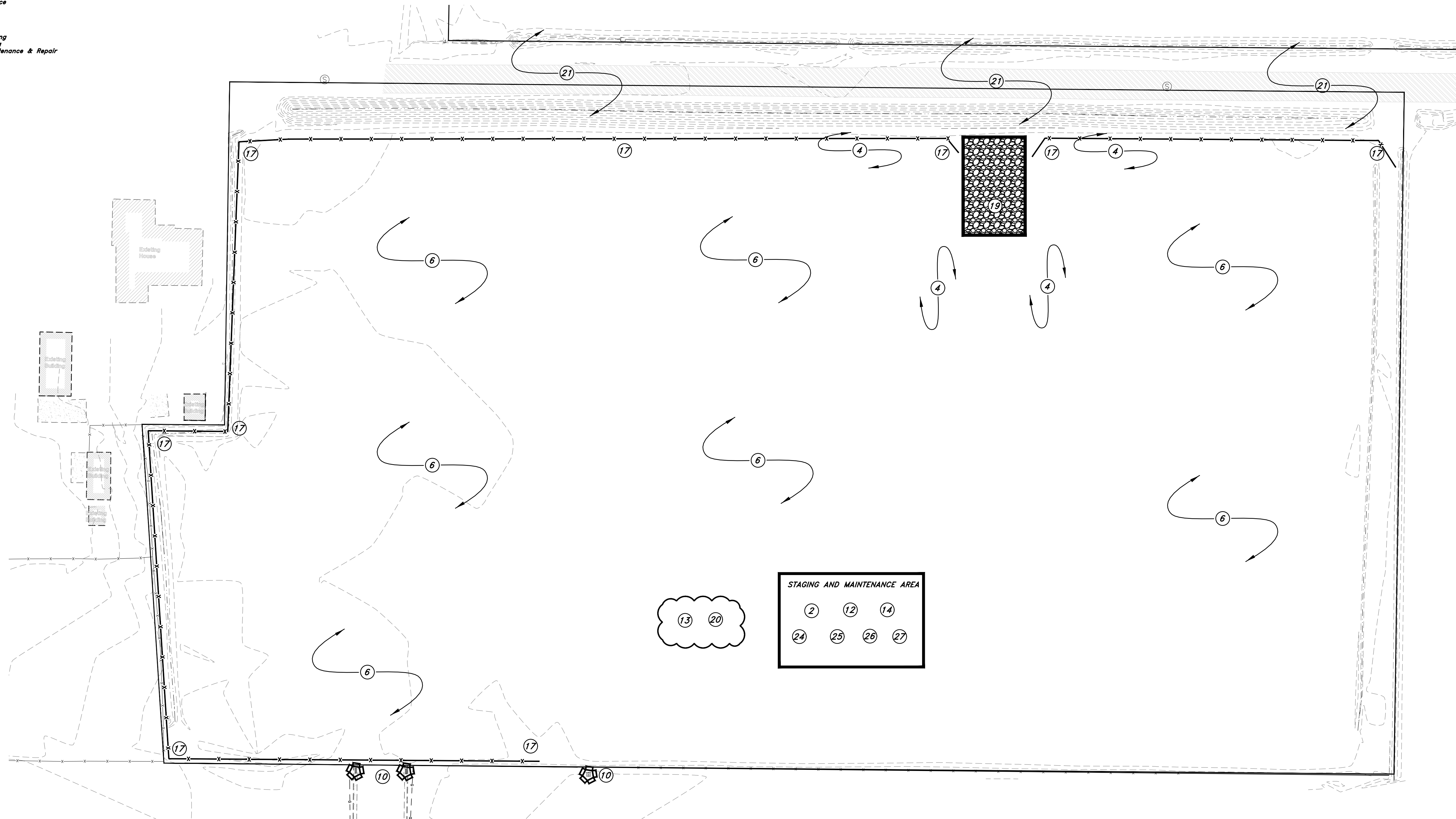
Sediment and Erosion Control Plan
Existing Conditions

Smart Fields



SELECTED BMPS

1. Utilize BMP CBC Catch Basin Cleaning
2. Utilize BMP CWM Concrete Waste Management
3. Utilize BMP CS Construction Sequencing
4. Utilize BMP DIDM Detention/Infiltration Device Maintenance
5. Utilize BMP DW Dewatering Operations
6. Utilize BMP DC Dust Controls
7. Utilize BMP ET Employee Training
8. Utilize BMP HWM Hazardous Waste Management
9. Const. BMP IDC Illegal Dumping Controls
10. Const. BMP IP Inlet Protection (Gravel Bags or Silt Bags are the recommended choices)
11. Utilize BMP MU Material Use
12. Utilize BMP MS Material Storage
13. Const. BMP PC Plastic Covering
14. Const. BMP PT Portable Toilets
15. Utilize BMP PEV Preservation of Existing Vegetation
16. Const. BMP SP Seeding and Planting
17. Const. BMP SF Silt Fence and/or SBB Sand Bag Barrier
18. Utilize BMP SCU Spill Clean-Up
19. Const. BMP SCE Stabilized Construction Entrance
20. Const. BMP SM Stockpile Management
21. Utilize BMP SS Street Sweeping
22. Utilize BMP SDF Storm Drain Flushing
23. Utilize BMP UOR Used Oil Recycling
24. Utilize BMP VEC Vehicle and Equipment Cleaning
25. Utilize BMP VEF Vehicle and Equipment Fueling
26. Utilize BMP VEMR Vehicle And Equipment Maintenance & Repair
27. Utilize BMP WHD Waste Handling and Disposal



NOTES:

This sheet constitutes only one part of the Sediment and Erosion Control Plan (SECP). There are a total of 2 sheets which make up the entire SECP for this project. These sheets may be included in the improvement drawing plan set, but only as a courtesy. These sheets are most importantly included in the Storm Water Pollution Prevention Plan (SWPPP) for this project. They are located in Appendix A of the SWPPP.

Also note that although the BMP details for the BMPS listed in the SECP may also be included in the improvement drawing plan set as a courtesy, they are most importantly included Appendix H of the SWPPP.

Neither the SECP nor the combination of the SECP along with the BMP details constitutes a SWPPP. Those are only appendices to the SWPPP. The SWPPP for this project was developed using the State Template. A copy of the SWPPP needs to be available while the NOI is active in accordance with Section 7.4.1 (Page 33) of the Utah Construction General Permit (UPDES Permit No. UTRC00000)

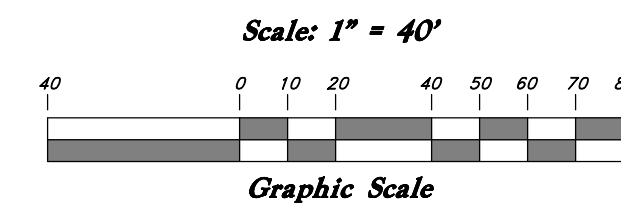
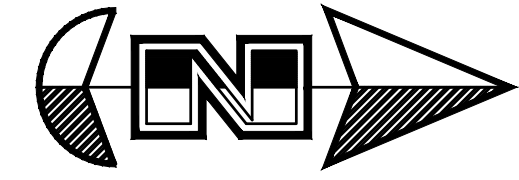
REV	DATE	DESCRIPTION

GREAT BASIN ENGINEERING
 5746 SOUTH 1475 EAST, OGDEN, UTAH 84403
 WWW.GREATBASINENGINEERING.COM

Sediment and Erosion Control Plan
Existing Conditions
Smart Fields
 Approx. 1800 South 4300 West Street
 Ogden City, Weber County, Utah
 A part of Section 20, T6N, R2W, S1B&M, U.S. Survey

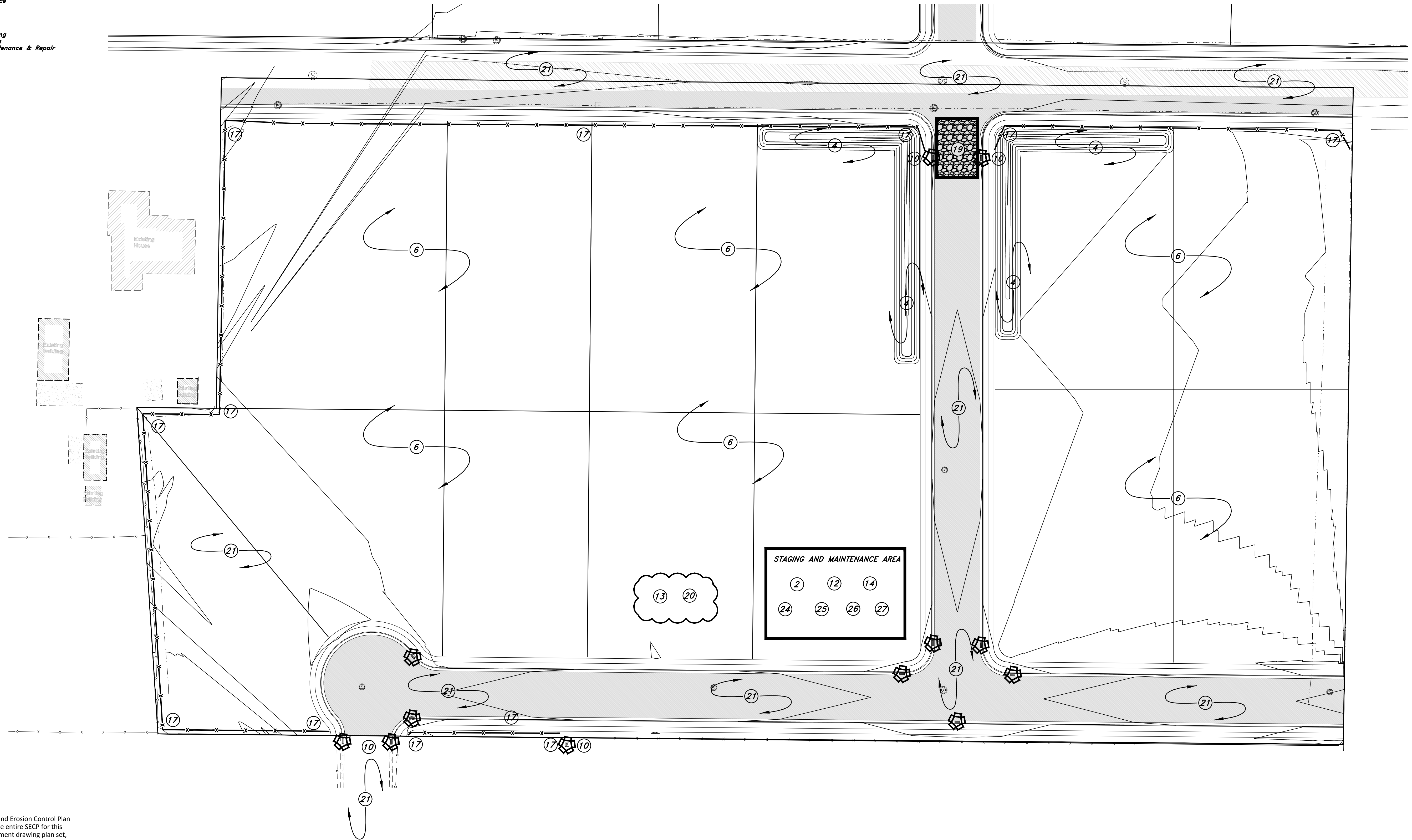
August 2021
 SHEET NO.
SECP-E

Sediment and Erosion Control Plan
Proposed Conditions
Smart Fields



SELECTED BMPS

1. Utilize BMP CBC Catch Basin Cleaning
2. Utilize BMP CWM Concrete Waste Management
3. Utilize BMP CS Construction Sequencing
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14. Const. BMP PT Portable Toilets
15. Utilize BMP PEV Preservation of Existing Vegetation
16. Const. BMP SP Seeding and Planting
17. Const. BMP SF Silt Fence and/or SBB Sand Bag Barrier
18. Utilize BMP SCU Spill Clean-Up
19. Const. BMP SCE Stabilized Construction Entrance
20. Const. BMP SM Stockpile Management
21. Utilize BMP SS Street Sweeping
22. Utilize BMP SDF Storm Drain Flushing
23. Utilize BMP UOR Used Oil Recycling
24. Utilize BMP VEC Vehicle and Equipment Cleaning
25. Utilize BMP VEF Vehicle and Equipment Fueling
26. Utilize BMP VEMR Vehicle And Equipment Maintenance & Repair
27. Utilize BMP WHD Waste Handling and Disposal



NOTES:

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Also note that although the BMP details for the BMPs listed in the SECP may also be included in the improvement drawing plan set as a courtesy, they are most importantly included Appendix H of the SWPPP.

Neither the SECP nor the combination of the SECP along with the BMP details constitutes a SWPPP. Those are only appendices to the SWPPP. The SWPPP for this project was developed using the State Template. A copy of the SWPPP needs to be available while the NOI is active in accordance with Section 7.4.1 (Page 33) of the Utah Construction General Permit (UPDES Permit No. UTRC00000)

REV	DESCRIPTION

GREAT BASIN ENGINEERING

5746 SOUTH 1475 EAST, OGDEN, UTAH 84403
 801-464-4242 FAX: 801-462-3222
 WWW.GREATBASINENGINEERING.COM

Sediment and Erosion Control Plan
Proposed Conditions
Smart Fields
Approx. 1800 South 4300 West Street
Ogden City, Weber County, Utah
A part of Section 20, T6N, R2W, SL&M, U.S. Survey

August 2021

SHEET NO.
SECP-P



Beneficial Uses and Water Quality Assessment Map



Assessment Unit Name: Weber River-1

Unit ID: UT16020102-001_00

Unit Description: Weber River and tributaries from Great Salt Lake to Slaterville Diversion

Beneficial Uses: Use Class 2B = Infrequent primary contact recreation (e.g. wading, fishing); Use Class 3C = Nongame fishery/aquatic life; Use Class 3D = Waterfowl, shore birds and associated aquatic life; Use Class 4 = Agricultural uses (crop irrigation and stock watering)

RIVER_MILE: 109.081

Watershed Management Unit: Weber River

Protected: Secondary Contact Recreation, Non-Game Aquatic Life, Waterfowl and Shore Birds, Agricultural Uses

Blue Ribbon Fishery: none

TMDL Information:

Anti-Degradation Category: Category 3 = Water quality degradation may be allowed outside USFS boundary pursuant to antidegradation review

Perimeter: 112312.061216

Area_m2: 179509003.969

GIS_Acres: 44357.640903

New_AUID: UT16020102-001_00

Shape_Length: 149401.407311

Shape_Area: 317733325.854739

Watershed Scientist: Christine Osborne

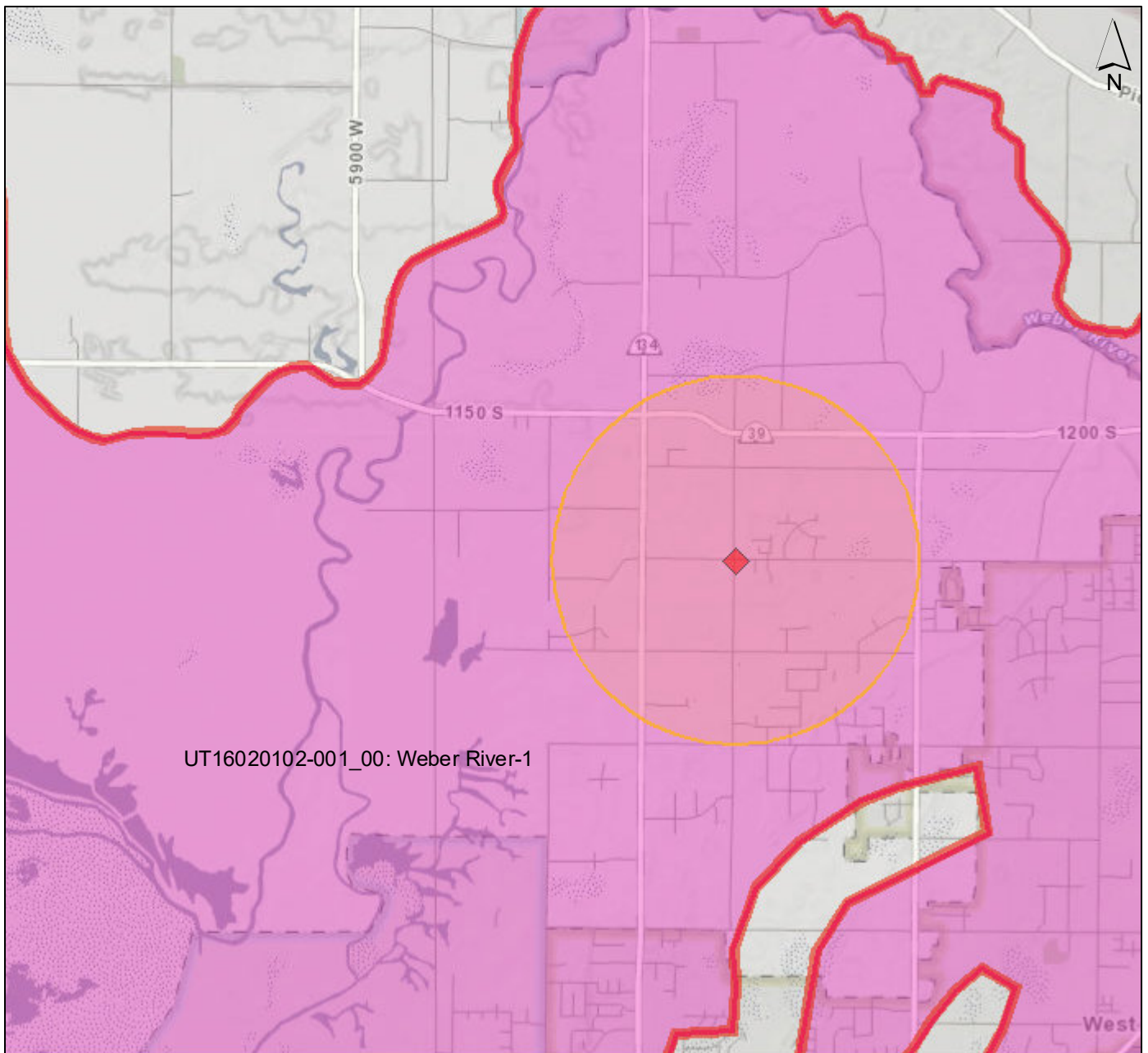
Email: cosborne@utah.gov

Phone: 801-536-4365

Address: P.O. Box 144871

City: Salt Lake City


Printed from the Utah DEQ Interactive Map

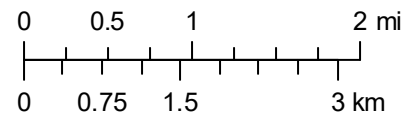


10/4/2021

1:72,224

Assessed Waters

 5:TMDL required. 303d impaired



Assessment Unit Name	Weber River-1
Assess Unit Description	Weber River and tributaries from Great Salt Lake to Slaterville Diversion
Assessment Unit ID	UT16020102-001_00
Assessment Category	5:TMDL required. 303d impaired
2016 Impairment	Use Class 3C: OE Bioassessment, Ammonia; Use Class 3D: OE Bioassessment, Ammonia
Beneficial Uses	2B, 3C, 3D, 4
Protected Uses	Secondary Contact Recreation, Non-Game Aquatic Life, Waterfowl and Shore Birds, Agricultural Uses
Blue Ribbon Fishery	none
Anti-Degradation Category	3



Appendix B: NOI

Structural Controls (Berms, Ditches, etc.)

Proposed Good Housekeeping Practices

Sanitary/Portable Toilet

Washout Areas

Garbage/Waste Disposal

Non-Storm Water

Track Out Controls

Spill Control Measures

Site Construction Types

Residential

Site Activity Information

Municipal Separate Storm Sewer System (MS4) Operator Name: Not Applicable

Receiving Water Body: Weber River -1

➤ This is known

What is the estimated distance to the nearest water body? 0.1

Unit: Miles

Is the receiving water designated as impaired? No

Will any part of the project area be located within 50 feet of any Water of the State? No

Does this project site have any other UPDES permits? No

Subdivision Information

Is this project involved in the development of a subdivision? Yes

Lot Number	Status
101	Active
102	Active
103	Active
104	Active
105	Active
106	Active
107	Active
108	Active
109	Active
110	Active
111	Active
112	Active
113	Active

Certification Information

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 have no personal knowledge that the information submitted is other than 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. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other lawful action.

Certified By: Michelle Cearley

Certifier Title: Owner

Certifier Email: michelle@cearleyinc.com

Certified On: 10/04/2021 4:51 PM ET

Non-Attainment Fugitive Dust Tutorial

What is Fugitive Dust?

Fugitive dust is dust that is stirred up, creating an air quality problem. It is made up of fine particles called particulate matter. It is a health concern because it irritates eyes and nasal tissue and seriously impacts the respiratory system.



Fugitive dust may come from gravel operations, construction or demolition activities, land clearing and exposed surfaces, roadways, and mining activities. Trackout from muddy work areas also create fugitive dust when the mud dries.

How We Measure Compliance-Opacity

Opacity is the amount of light that is blocked by something else such as smoke or a tinted window. The percentage of opacity can provide a measure of the particulate matter in the air.



Opacity is measured as a percentage - 0% means that all light passes through; 100% means that no light can pass through. The more particles present, the higher the opacity percentage.



Utah Fugitive Dust Rule R307-309-5

Non-attainment Dust Rule

- ✓ I acknowledge that Utah regulation R307-309-5(1)(a) prohibits fugitive dust to exceed 10% opacity at the property boundary; *
- ✓ I acknowledge that Utah regulation R307-309-5(1)(b) prohibits fugitive dust to exceed 20% opacity on site; *
- ✓ I acknowledge that Utah regulation R307-309-5(2) exempts the opacity requirements above, ONLY when wind speed exceeds 25 miles per hour AND fugitive dust controls are maintained. The online fugitive dust control plan requires selection of appropriate control measures that must be implemented for this exemption to apply; and *
- ✓ I acknowledge that failure to comply with fugitive dust rules may result in compliance action and penalties up to \$10,000 per violation/day. *

<

GO BACK

CONTINUE

>

Review Plan

Applicant Information

EDIT

Applicant Type	Property Owner
Name	Lync Construction
Mailing Address	1407 N Mountain Road
City	Ogden
State	Utah
Zip	84404
Phone	801-808-6906
Email	joshuajwiscombe@gmail.com

Project Information

EDIT

Project Name	Smart Field Subdivision Ph 1
Address	1800 S 430
City	Ogden
State	Utah

Zip 84404

County Weber

Acreage 11.03

Point of Contact

EDIT

Name Joshua Wiscombe

Company g Lync Construction

Address 1407 N Mountain Rd

City Ogden

State Utah

Zip 84404

Phone 801-808-6906

BMP 01 Selections

EDIT

01-01. Water backfill material to maintain moisture or to form crust. 01-01. Water backfill material to maintain moisture or to form crust.

01-02. Apply and maintain a chemical stabilizer to backfill material to form crust. false

01-03. Cover (natural or synthetic) or enclose backfill material when not actively handling.	false
01-04. Empty loader bucket slowly and minimize drop height from loader bucket.	01-04. Empty loader bucket slowly and minimize drop height from loader bucket.
01-05. Dedicate water truck or large hose to backfilling equipment and apply water as needed.	01-05. Dedicate water truck or large hose to backfilling equipment and apply water as needed.
01-06. Mix moist soil with dry soil until the optimum moisture is reached.	false
01-07. Apply and mix water into the backfill material until optimum moisture is reached.	false
01-08. Apply and mix water and chemical solution into the backfill material until optimum moisture is reached.	false
01-09. Apply water and maintain disturbed soils in a stable condition.	01-09. Apply water and maintain disturbed soils in a stable condition.
01-10. Apply and maintain a chemical stabilizer on disturbed soils to form a crust.	false

01-11. Mix moist soil with dry soil until the optimum moisture is reached. false

01-12. Dedicate water truck or large hose to equipment and apply water as needed. 01-12. Dedicate water truck or large hose to equipment and apply water as needed.

01-13. Not applicable false

BMP 03 Selections

EDIT

03-01. Pre-water and maintain surface soils in a stabilized condition. 03-01. Pre-water and maintain surface soils in a stabilized condition.

03-02. Apply and maintain a chemical stabilizer on surface soils. false

03-03. Water disturbed soils to form crust. 03-03. Water disturbed soils to form crust.

03-04. Apply and maintain a chemical stabilizer on disturbed soils to form crust. false

03-05. Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slope. false

03-06. Apply water and maintain sloping surfaces/wind breaks in a crusted condition.

03-06. Apply water and maintain sloping surfaces/wind breaks in a crusted condition.

BMP 06 Selections

EDIT

06-01. Pre-water and maintain surface soils in a stabilized condition.

06-01. Pre-water and maintain surface soils in a stabilized condition.

06-02. Apply and maintain a chemical stabilizer to surface soils.

false

06-03. Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut.

06-03. Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut. *

06-04. Apply water to depth of cut prior to subsequent cuts.

06-04. Apply water to depth of cut prior to subsequent cuts. *

06-05. Water disturbed soils to maintain moisture.

06-05. Water disturbed soils to maintain moisture.

06-06. Apply and maintain a chemical stabilizer on disturbed

false

soils to form crust following fill and compaction.

06-07. Apply cover (natural or synthetic). false

BMP 09 Selections

EDIT

09-01. Limit disturbance of soils with the use of fencing, barriers, barricades, and/or wind barriers. false

09-02. Limit vehicle mileage and reduce speed. 09-02. Limit vehicle mileage and reduce speed.

09-03. Apply water to stabilize disturbed soils. Soil moisture must be maintained such that soils can be worked without generating fugitive dust. 09-03. Apply water to stabilize disturbed soils. Soil moisture must be maintained such that soils can be worked without generating fugitive dust.

09-04. Apply and maintain a chemical stabilizer. false

09-05. Use wind breaks. false

09-06. Apply cover (natural or synthetic). false

BMP 11 Selections

EDIT

11-01. Apply and maintain water/chemical suppressant to operational areas and haul routes.

11-01. Apply and maintain water/chemical suppressant to operational areas and haul routes.

11-02. Limit vehicle mileage and speed.

11-02. Limit vehicle mileage and speed.

11-03. Use tarps or other suitable enclosures on haul trucks.

11-03. Use tarps or other suitable enclosures on haul trucks.

11-04. Apply water prior to transport

11-04. Apply water prior to transport

11-05. Clean wheels.

false

11-06. Sweep or water haul road.

11-06. Sweep or water haul road.

BMP 12 Selections

EDIT

12-01. Apply and maintain water on disturbed soils.

12-01. Apply and maintain water on disturbed soils.

12-02. Apply and maintain chemical stabilizer on disturbed soils.

false

12-03. Stabilize disturbed soils with vegetation or hydroseeding. false

12-04. Apply synthetic cover to disturbed soils. false

12-05. There are no soils adjacent to paving activities. false

BMP 13 Selections

EDIT

13-01. Use water control to dust. 13-01. Use water control to dust.

13-02. Use a vacuum to collect dust. false

BMP 15 Selections

EDIT

15-01. Limit vehicle mileage and speed limit. 15-01. Limit vehicle mileage and speed limit.

15-02. Apply water on all vehicle traffic areas in the staging areas and unpaved access routes. 15-02. Apply water on all vehicle traffic areas in the staging areas and unpaved access routes.

15-03. Pre-water and maintain surface soils in a stabilized condition.

15-03. Pre-water and maintain surface soils in a stabilized condition.

15-04. Apply and maintain a chemical stabilizer to surface soils.

false

15-05. Apply a chemical stabilizer.

false

15-06. Apply screened or washed aggregate.

false

15-07. Use wind breaks.

false

15-08. Pave.

false

15-09. Completed project will cover staging area with buildings, paving, and/or landscaping.

15-09. Completed project will cover staging area with buildings, paving, and/or landscaping.

15-10. Apply water to form adequate crust and prevent access.

false

BMP 16 Selections

EDIT

16-01. Pre-water and maintain surface soils in a stabilized condition.

16-01. Pre-water and maintain surface soils in a stabilized condition.

16-02. Apply and maintain a chemical stabilizer on surface soils.	false
16-03. Pave area.	false
16-04. Remove material from the downwind side of the stockpile, when safe to do so.	16-04. Remove material from the downwind side of the stockpile, when safe to do so.
16-05. Reduce height.	16-05. Reduce height.
16-06. Create wind screen	false
16-07. Water stockpiles to form a crust immediately.	false
16-08. Apply and maintain a chemical stabilizer to all outer surfaces of the stockpiles.	false
16-09. Provide and maintain wind barriers on 3 sides of the pile.	false
16-10. Apply a cover (natural or synthetic)	false
16-11. Wind screen.	false
16-12. Avoid steep sides to prevent material sloughing.	16-12. Avoid steep sides to prevent material sloughing.
16-13. Reduce height.	16-13. Reduce height.

18-01. Clean trackout at the end of the work shift from paved surfaces to maintain dust control

false

18-02. Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day.

18-02. Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day.

18-03. Install gravel pad(s), clean, well-graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.

18-03. Install gravel pad(s), clean, well-graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.

18-04. Install wheel shakers. Clean wheel shakers on a regular basis to maintain effectiveness.

false

18-05. Install wheel washers. Maintain wheel washers on a regular basis to maintain effectiveness.

false

18-06. Motorized vehicles will only operate on paved surfaces.

false

18-07. Install cattle guard before paved road entrance.

false

18-08. Clearly establish and enforce traffic patterns to route traffic over selected trackout control device(s).

18-08. Clearly establish and enforce traffic patterns to route traffic over selected trackout control device(s).

18-09. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.

18-09. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.

BMP 19 Selections

EDIT

19-01. Limit vehicle mileage and speeds.

19-01. Limit vehicle mileage and speeds.

19-02. Apply and maintain water on surface soils.

19-02. Apply and maintain water on surface soils.

19-03. Apply and maintain chemical stabilizers on surface soils. false

19-04. Apply and maintain gravel on surface soils. false

19-05. Supplement chemical stabilizers, water or aggregate applications as necessary. false

19-06. Apply recycled asphalt (RAP) to surface soils. false

BMP 20 Selections

EDIT

20-01. Pre-water surface. 20-01. Pre-water surface. *

20-02. Pre-water and maintain surface soils in a stabilized condition. 20-02. Pre-water and maintain surface soils in a stabilized condition.

20-03. Apply and maintain a chemical stabilizer to surface soils. false

20-04. Limit mileage and speed. 20-04. Limit mileage and speed.

20-05. Apply and maintain water on excavated soil.

20-05. Apply and maintain water on excavated soil.

20-06. Apply and maintain chemical stabilizer on excavated soil.

false

BMP 21 Selections

EDIT

21-01. Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.

21-01. Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.

21-02. Apply and maintain a chemical stabilizer on surface soils where loaders, support equipment and vehicles will operate.

false

21-03. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

21-03. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Print this page for your records or save it as a PDF as specified by your browser or operating system.

By submitting this plan I agree to the following terms:

A. I am authorized, on behalf of the individual or company listed in Section 1, as Applicant, to apply for a Fugitive Dust Control Plan and to commit to all of the terms and conditions of the requested plan.

B. Construction activities will be limited to lands that the applicant either owns or is authorized to use for construction activities.

C. The applicant accepts responsibility for assuring that all contractors, subcontractors, and all other persons on the construction site covered by this plan, comply with the terms and conditions of the Fugitive Dust Control Plan.

D. I understand that any false material statement, representation or certification made in this application may invalidate the plan or cause me to be subject to enforcement action pursuant to Utah Code Ann. 19-2-115. E. Failure to comply with fugitive dust rules may result in compliance action and penalties up to \$10,000 per violation/day.

My plan is ready to be submitted. *



PREVIOUS

SUBMIT PLAN





Appendix C: Subcontractor Certifications, Delegation of Authority & Agreements

Delegation of Authority Form

This form is for use by permittees under the MPDES "General Permit for Storm Water Discharges Associated with Construction Activity". The owner/operator information and "site name" provided below must be the same as the information provided on the NOI and SWPPP Form. This form can be used for an additional and/or new SWPPP Administrator person/position not identified on the NOI Form.

Delegation of Authority

I, Pat Burns (name), 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 MPDES "General Permit for Storm Water Discharges Associated with Construction Activity" (General Permit), at the Smart View Subdivision Ph 1 construction site. The designee is authorized to sign any reports, Storm Water Pollution Prevention Plan, and all other documents required by the General Permit.

Name of Person or Position: Michelle Cearley -SWPPP Managment

Owner/Operator: Michelle Cearley

Mailing Address: 3102 S 885 W

City, State, Zip Code: Syracuse, Ut 84075

Phone Number: 801-589-9806

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Part 4.15. of the General Permit, and that the designee above meets the definition of a "duly authorized representative" as set forth in Part 4.15.

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

Name: Pat Burns

Title: Owner/Operator

Signature:  _____

Date: 10/1/21

Owner/Operator 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.

Name: Pat Burns

Title: Owner

Signature:



Date: 10/1/2021

Company Lync Construction LLC.

Job Smart View Subdivision Ph 1

Certified

under the direction of
The Utah Chapter of the American Public Works Association
and the
Utah Storm Water Committee
in coordination with the
State of Utah Department of Environmental Quality, Division of Water Quality

Michelle Cearley

has passed the competency examination, and met all further requirements,
to qualify as a

Registered Storm Water Inspector



M. Scott Bird, USWAC Chair

Feb 21, 2023

Expires

Certified

under the direction of
The Utah Chapter of the American Public Works Association
and the
Utah Storm Water Committee
in coordination with the
State of Utah Department of Environmental Quality, Division of Water Quality

Michelle Cearley

has passed the competency examination, and met all further requirements,
to qualify as a

Registered SWPPP Writer



M. Scott Bird, USWAC Chair

Jul 21, 2023


Expires



Appendix D: Inspection & Corrective Action Report



Sample

			
Cearley SWPPP Inspection Report			
Site Name:		Inspector:	Riley Cearley
Permit #:	UTRC01845	Inspection Frequency:	
Date of Visit:	Jun 9, 2021, 12:10:14 PM	Last Rain Event	Last Precipitation 48h Forecast
		--	Tuesday, May 25, 2021, 0.07* --

1. Has an NOI Permit been filed for construction activities specific to this project and is the permit current and signed/certified in the SWPPP? Yes No

 2. Is the SWPPP on site and accessible, or is the SWPPP location posted in an obvious place and reasonably accessible? Yes No

 3. Does the inspector of this site have the required qualifications? (RSI, CPESC, CPSWQ, CESSWI, CISEC, NICET Level 3, ECS) Yes No

 4. Has the SWPPP been updated to reflect the current site conditions (modifications dated & initialed on site map, new BMPs on site map, discontinued BMPs crossed off site map, new BMP details & spec's in SWPPP, SWPPP amendment Log, etc.)? Yes No
-
5. Have the required erosion/sediment/pollutant controls (BMPs) been installed; Are the required erosion/sediment/pollutant controls (BMPs) correctly installed; Are the erosion/sediment/pollutant controls (BMPs) functioning properly to prevent erosion from occurring or from allowing sediment/pollutants to leave the site boundaries or perimeters (Perimeter controls must be installed for all areas that may receive storm water flows; may also be at the back of lots)? Yes No


 6. Are the proper pollution prevention measures in place and functioning properly in order to control construction debris, blowable trash, portable toilets (10 feet back and secured), fertilizers, herbicides, pesticides, landscaping materials, and any other site storage? Yes No N/A

 7. Are all construction traffic access/exit points, including individual lots, stabilized properly or are controls in place to prevent tracking from the site? Yes No N/A

 8. Are impervious surfaces free from tracking, sediment, pollutants, soil, construction material, landscaping items, stockpiles, or other debris piled including, individual lots, and stabilized properly? Yes No N/A

 9. Are concrete/stucco washouts and paint washouts on site, clearly marked, properly contained, and FREE from any washout or spillage outside of the contained areas? Yes No N/A



			
Cearley SWPPP Inspection Report			
Site Name:		Inspector:	Riley Cearley
Permit #:	UTRC01845	Inspection Frequency:	
Date of Visit:	Jun 9, 2021, 12:10:14 PM	Last Rain Event --	Last Precipitation Tuesday, May 25, 2021, 0.07* 48h Forecast --

10. Is the site FREE from any discharges of sediments or pollutants leaving site boundaries or perimeters (i.e. lot boundaries, inlets, gutters, streets, parking areas, site perimeter boundary, or dust)?

Yes No

11. Is there evidence of sediment discharge, buildup, pollutants, or erosion at discharge points and outfalls and , and are all surface waters FREE from visible pollutants coming from the construction site? (e.g. outfalls into a waterbody, retention basin outfalls, detention basin outfalls)

Yes No N/A

12. Are the site Run-On flows properly controlled (i.e. waters entering the site from upslope) with BMPs to prevent contact with pollutants and to prevent erosion, and are all storm water flow structures (drainage channels, diversions, conveyance, sediment basins) FREE of erosion, sediment buildup of over 50%, or needing additional BMPs?

Yes No NA

13. If the site is within 50 feet of a surface water (Area of water that is in place more than two months out of the year) is the natural buffer or natural buffer equivalent in place on site?

Yes No NA

14. Is dust being properly controlled on site, and is the site FREE from additional dust control BMPs being needed?

Yes No NA

15. Are all materials on site properly stored on site (i.e. undercover, plastic cover, secondary containment, out of the street and off of impervious surfaces)?

Yes No NA

18. Is the site FREE from any signs of spills or leaks from equipment, vehicle maintenance, or storage (e.g. liquid storage tanks)?

Yes No N/A

19. Is the site FREE from de-watering off site perimeter boundaries, or has a de-watering permit been obtained from the state, and is proper sampling occurring?

Yes No NA

20. If Post Construction BMPs are required, are they being installed according to the phase of construction, or have they been completed?

Yes No NA

20. Have all slopes and disturbed areas not actively being worked for over 14 to 21 days had stabilization initiated? (except snow or frozen ground)

Yes No N/A



Cearley SWPPP Inspection Report			
Site Name:		Inspector:	Riley Cearley
Permit #:	UTRC01845	Inspection Frequency:	
Date of Visit:	Jun 9, 2021, 12:10:14 PM	Last Rain Event	Last Precipitation 48h Forecast
		--	Tuesday, May 25, 2021, 0.07" --

. Areas that were unsafe/inaccessible during this inspection:

COMMENTS AND NOTES

Certification & Signatures

Inspector Certification Statement:
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly 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.


Electronic Signature

X Riley Cearley

Date
June 9, 2021 at 12:10:30 PM MDT

Title
Inspector



			
Cearley SWPPP Inspection Report			
Site Name:		Inspector:	Riley Cearley
Permit #:	UTRC01845	Inspection Frequency:	
Date of Visit:	Jun 9, 2021, 12:10:14 PM	Last Rain Event	Last Precipitation 48h Forecast
		--	Tuesday, May 25, 2021, 0.07* --


Weather History

Precipitation Recorded
 No Precipitation
 Missed or data unavailable

June



All precipitation totals are obtained from the National Oceanic and Atmospheric Administration (NOAA). Precipitation readings are based on the latitude and longitude for each site as entered into complianceGO. Occasionally NOAA fails to return/record data. Days where this occurs are so indicated.

			
Cearley SWPPP Inspection Report			
Site Name:		Inspector:	Riley Cearley
Permit #:	UTRC01845	Inspection Frequency:	
Date of Visit:	Jun 9, 2021, 12:10:14 PM	Last Rain Event	Last Precipitation 48h Forecast
		--	Tuesday, May 25, 2021, 0.07* --

There Are No Action Items



Appendix E: Log of Changes & Training Log



Sample SWPPP Training Log

Storm Water Pollution Prevention Training Log

Project Name: _____

Project Location: _____

Instructor's Name(s): _____

Instructor's Title(s): _____

Course Location: _____ Date: _____

Course Length (hours): _____

Storm Water Training Topic: *(check as appropriate)*

- Erosion Control BMPs
- Sediment Control BMPs
- Non-Storm Water BMPs
- Emergency Procedures
- Good Housekeeping BMPs

Specific Training Objective: _____

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

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

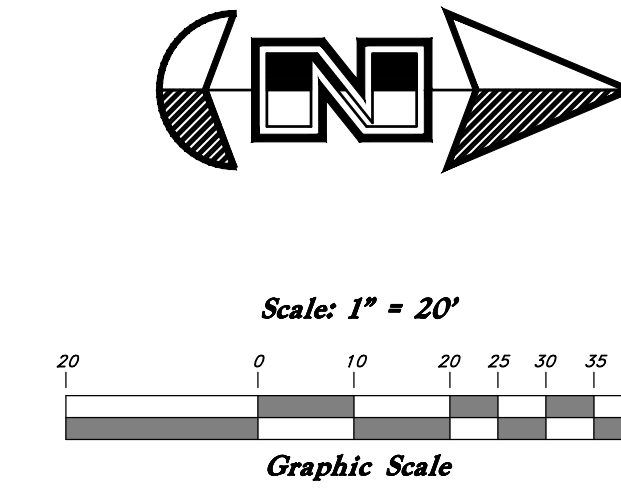
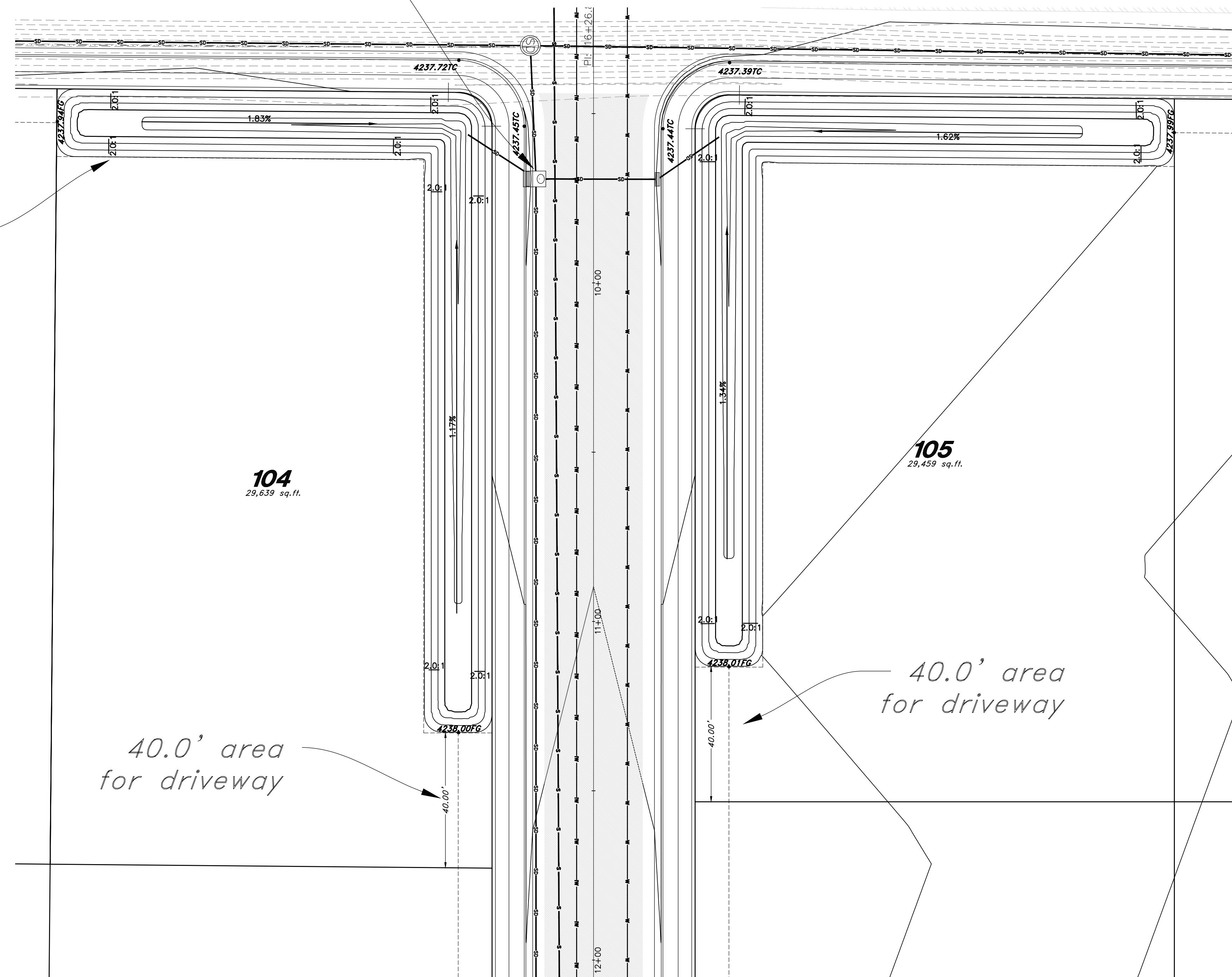


Appendix F: Additional Information

Detention Pond Exhibit for Smart Fields

Location of
water restricting
Orifice Plate

20.0'
Drainage
Easement



POND NOTES:

1. Pond Designed to accommodate the 100yr storm.
2. Detention Pond Volume Required: 21,965 cf
3. Detention Pond Volume Provided: 22,383 cf
4. Excess Volume: 418 cf
5. Free board: 0.5'
6. Maximum Pond Depth: 4.98'
7. Pond Side slopes not to exceed 2:1
8. Pond Sides to be rock.
9. Orifice in Orifice Plate to be 4.45" in Diameter, located on western outfall pipe of combo box

NOTES:

1. No access to Lot 104 & 105 from 4300 W.

40.0' area
for driveway

40.0' area
for driveway

ENGINEER:
Great Basin Engineering North
c/o Andy Hubbard, PLS.
Andy@greatbasineng.com
5746 South 1475 East Suite 200
Ogden, Utah 84405
(801) 394-4515

DEVELOPER:
Lync Construction, LLC
1407 North Mountain Road
Ogden Utah
(801)-710-2234

GREAT BASIN ENGINEERING
 5746 SOUTH 1475 EAST OGDEN, UTAH 84403
 WWW.GREATBASINENGINEERING.COM

Pond Exhibit
Smart Fields
 Approx. 1800 South 4300 West Street
 Ogden City, Weber County, Utah
 A part of Section 20, T6N, R21W, SLB&M, U.S. Survey

August 2021

SHEET NO.

C4

21N700

REV	DATE	DESCRIPTION



Appendix G: BMP Instructions and Detail Specs

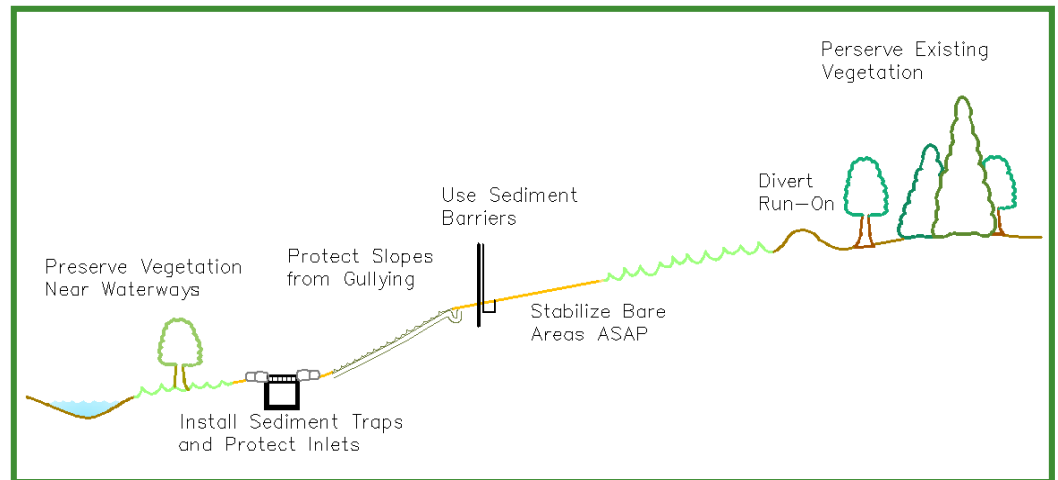
INTRODUCTION

Construction sites should be managed to minimize the pollution that can leave the site with storm water. Taking appropriate measures to reduce erosion, remove sediment, and manage construction materials and equipment will minimize storm water pollution.

Reducing soil erosion is a crucial aspect of storm water pollution prevention for construction sites. Reducing erosion is easier and less expensive than attempting to remove sediment from the storm water.

Contributions to an *increase* in erosion are:

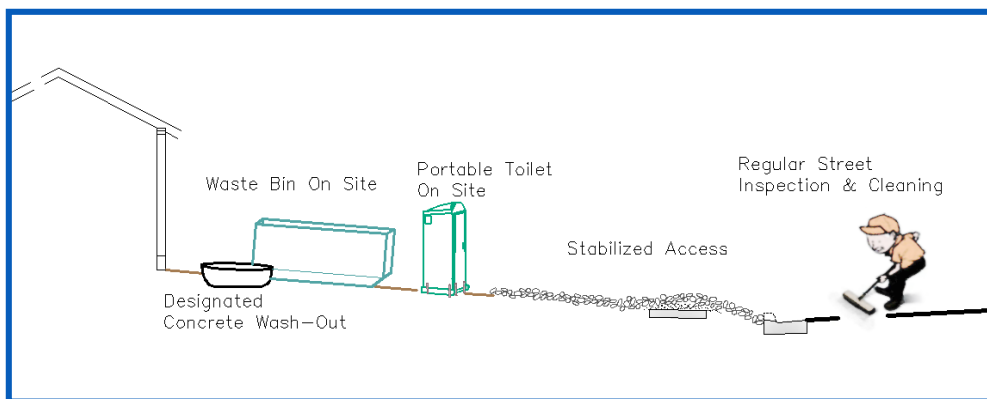
- Removing vegetation
- Exposing sub-soil to weathering
- Exposing sub-soil to vehicle traffic
- Re-shaping the land
- Allowing gullies to form and grow
- Longer/Steeper slopes



Steps must be taken to *minimize* these factors of erosion during and after construction.

Removing the sediment that does get into the storm water is also important to protect the storm drain system and waterways.

Managing construction material and equipment for pollution is important for any construction site, including building construction sites. There must be means for safe disposal of all types of waste. The tracking and washing of soil into the street must be prevented. Downstream storm water inlets should also be protected.



Regular inspection and proper maintenance of the site will help ensure the effectiveness of the BMPs in minimizing storm water pollution.

This manual includes Best Management Practices (BMPs) that are useful for reducing pollutants leaving construction sites, particularly those that may be discharged into the storm water systems. Implementing these measures is important because the water from the storm drain systems drains directly into the streams, usually untreated, then through the wetlands before entering the Great Salt Lake. Construction sites can be a significant source of pollution to the streams and wetlands, which can damage them and be detrimental to their role in our environment.

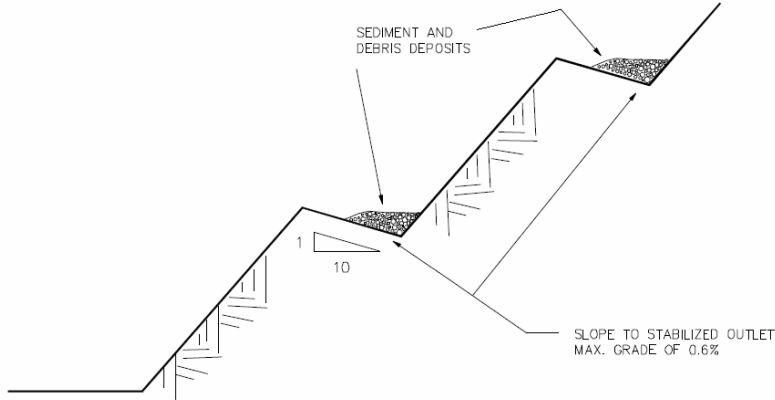
Not all possible BMPs are available from this menu. If you would like to use a BMP that is not included here, propose it to your local jurisdiction.

CONSTRUCTION

Best Management Practices

INDEX

		Waste and Material Management	Vehicle and Equipment Management	Stabilization	Runoff Diversion	Velocity Reduction	Sediment Removal
BE	Benching				✓		
BRF	Brush or Rock Filter						✓
BRRC	Building Repair, Remodeling, and Construction	✓					
CD	Check Dams				✓		
CESA	Contaminated or Erodible Surface Area			✓			
CM	Chemical Mulch			✓			
CP	Compaction			✓			
CR	Construction Road Stabilization			✓			
CST	Curb Sedimentation Trap						✓
CWM	Concrete Waste Management	✓					
DC	Dust Controls			✓			
DD	Diversion Dikes				✓		
DI	Drainage Isolation				✓		
EBB	Earth Berm Barrier	✓					
ECB	Erosion Control Blankets			✓			
EVWA	Equipment and Vehicle Washdown Area		✓				
FR	Fiber Rolls						✓
FS	Filter Strips			✓			
GM	Geotextiles and Mats			✓			
HM	Hydromulching			✓			
HWM	Hazardous Waste Management	✓					
IP-E	Inlet Protection - Excavated						✓
IP-GB	Inlet Protection - Gravel Bags						✓
IP-SB	Inlet Protection - Silt Bags						✓
IP-SF	Inlet Protection - Silt Fence or Straw Bale						✓
MS	Material Storage	✓					
MU	Mulching			✓			
OP	Outlet Protection					✓	
PEV	Preservation of Existing Vegetation			✓			
PT	Portable Toilet	✓					
SB	Sediment Basin						✓
SBB	Sand Bag Barrier						✓
SCE	Stabilized Construction Entrance			✓			
SCU	Spill Clean-Up	✓					
SD	Slope Drain				✓		
SF	Silt Fence						✓
SP	Seeding and Planting			✓			
SR	Surface Roughening					✓	
SS	Street Sweeping						✓
ST	Sediment Trap						✓
STB	Straw Bale Barrier						✓
TDS	Temporary Drains or Swales				✓		
TPS	Temporary and Permanent Seeding			✓			
TSC	Temporary Stream Crossing				✓		
VEC	Vehicle and Equipment Cleaning		✓				
VEF	Vehicle and Equipment Fueling		✓				
WD	Waste Disposal	✓					



DESCRIPTION:

Slope construction with benches spaced at regular intervals perpendicular to the slope which intercept and collect sheet flow and direct it to a stable outfall point.

APPLICATION:

- Unstabilized cut and fill slopes
- Large stockpiles
- Existing unstable slopes

INSTALLATION / APPLICATION CRITERIA:

- Benches should be formed as slope is constructed and graded to the outlet point
- Stabilized outlet with sediment controls should be in place prior to slope construction

LIMITATIONS:

- Construction slope design must accommodate benching
- Not appropriate for sandy or rocky soil
- Only effective if suitable outlet provided

MAINTENANCE:

- Inspect after major storm events and at least biannually; repair damaged areas
- Remove debris blocking water flow
- Inspect outlet, repair/replace sediment controls and remove sediment build up

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

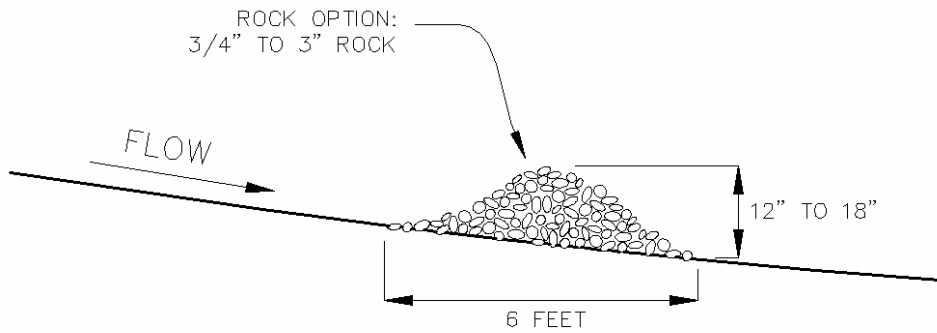
IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

1500 East 650 North
Fruit Heights, UT 84037



OBJECTIVES

- Housekeeping Practices
- Contain Waste
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DESCRIPTION:

A rock filter is made of rock 3/4" - 3" in diameter and placed along a level contour. A brush filter is composed of brush (usually obtained during the site clearing) wrapped in filter cloth and anchored to the toe of the slope. If properly anchored brush or rock filters may be used for sediment trapping and velocity reduction.

APPLICATION:

- As check dams across mildly sloped construction roads
- Below the toe of slopes
- Along the site perimeter
- In areas where sheet flow occurs
- Around temporary spoil areas
- At sediment traps or culvert/pipe outlets

INSTALLATION / APPLICATION CRITERIA:

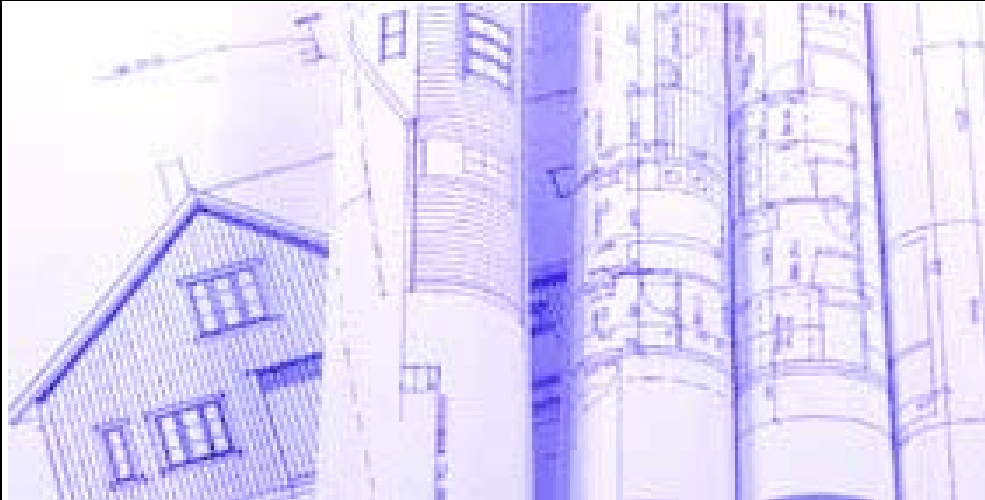
- For rock filter, use larger rock and place in a staked, woven wire sheathing if placed where concentrated flows occur
- Install along a level contour
- Leave area behind berm where runoff can pond and sediment can settle
- Drainage areas should not exceed 5 acres

LIMITATIONS:

- Rock berms may be difficult to remove
- Removal problems limit their usefulness in landscaped areas
- Runoff will pond upstream of the filter, possibly causing flooding if sufficient space does not exist

MAINTENANCE:

- Inspect after each rainfall and at a minimum of once every two weeks
- If berm is damaged, reshape and replace lost/dislodged rock
- Remove sediment when depth reaches 1/3 of berm height or 1 ft



OBJECTIVES

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IMPLEMENTATION REQUIREMENTS

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- Training
- Staffing
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DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from building repair, remodeling and construction by using soil erosion controls, enclosing or covering building material storage areas, using good housekeeping practices, using safer alternative products, and training employees.

APPLICATION:

- Use soil erosion control techniques if bare ground is temporarily exposed
- Use permanent soil erosion control techniques if the remodeling clears buildings from an area that are not to be replaced

INSTALLATION / APPLICATION CRITERIA:

- Enclose painting operations consistent with local air quality regulations and OSHA
- Properly store materials that are normally used in repair and remodeling such as paints and solvents
- Properly store and dispose waste materials generated from the activity
- Maintain good housekeeping practices while work is underway

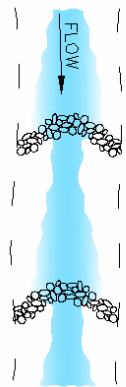
LIMITATIONS:

- This BMP is for minor construction only
- Hazardous waste that cannot be re-used or recycled must be disposed of by a licensed hazardous waste hauler
- Safer alternative products may not be available, suitable, or effective in every case
- Be certain that actions to help storm water quality are consistent with OSHA and air quality regulations

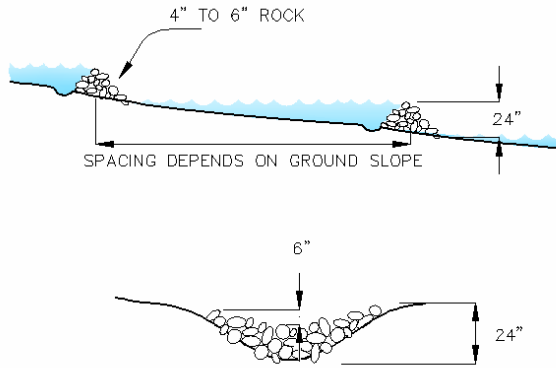
MAINTENANCE:

None

PLAN VIEW



CROSS SECTIONS



DESCRIPTION:

Small, temporary dams constructed across a drainage ditch to reduce velocity of concentrated storm water flows thereby reducing the erosion of the ditch.

APPLICATION:

- Temporary drainage paths
- Permanent drainage ways not yet stabilized
- Existing drainage paths receiving increased flows due to construction

INSTALLATION / APPLICATION CRITERIA:

- Prepare location of dam by removing any debris and rough grading any irregularities in channel bottom
- Place rocks by hand or with appropriate machinery; do not dump
- Space dams to make the base of the upstream dam the same elevation as the top of the next lower dam
- Construct dam with center lower to create a weir effect
- Construct 50% side slopes on dams

LIMITATIONS:

- Maximum recommended drainage area is 10 acres
- Maximum recommended height is 24"
- Do not use in running stream

MAINTENANCE:

- Inspect dams daily during prolonged rainfall after each major rain event and at a minimum of once every two weeks
- Remove any large debris and repair any damage to dam, channel or sideslopes
- Remove accumulated sediment when it reaches one half the height of the dam

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
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TARGETED POLLUTANTS

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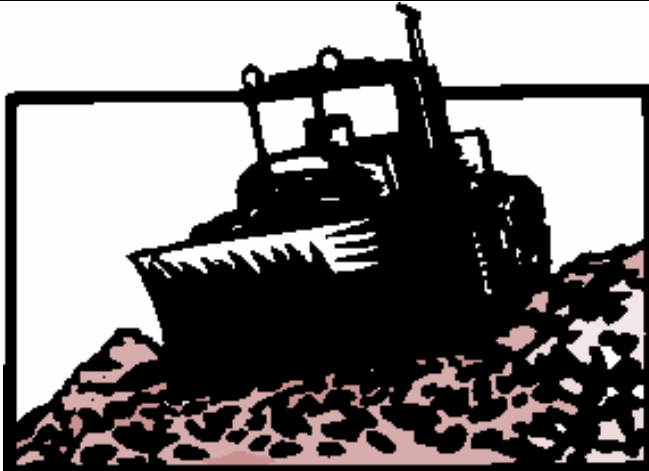
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IMPLEMENTATION REQUIREMENTS

H M L

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OBJECTIVES

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DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from contaminated or erodible surface areas by leaving as much vegetation on-site as possible, minimizing soil exposure time, stabilizing exposed soils, and preventing storm water runoff and runoff.

APPLICATION:

This BMP addresses soils which are not so contaminated as to exceed criteria but the soil is eroding and carrying pollutants off in the storm water.

INSTALLATION / APPLICATION CRITERIA:

Contaminated or erodible surface areas can be controlled by:

- Preservation of natural vegetation, revegetation, chemical stabilization, removal of contaminated soils or geosynthetics.

LIMITATIONS:

Disadvantages of preserving natural vegetation or re-vegetating include:

- Requires substantial planning to preserve and maintain the existing vegetation.
- May not be cost-effective with high land costs.
- Lack of rainfall and/or poor soils may limit the success of re-vegetated areas.

Disadvantages of chemical stabilization include:

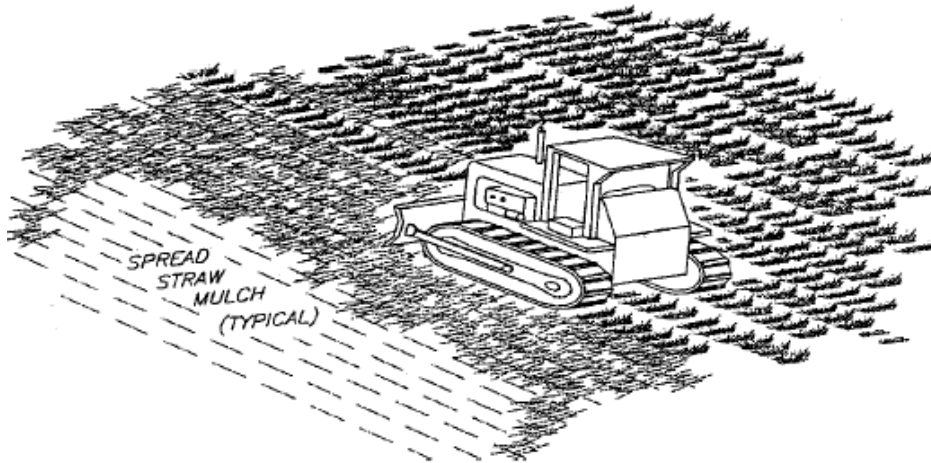
- Creation of impervious surfaces.
- May cause harmful effects on water quality.
- Is usually more expensive than vegetative cover.

MAINTENANCE:

Maintenance should be minimal, except possibly if irrigation of vegetation is necessary.

BMP: Chemical Mulch

CM



OBJECTIVES

- Housekeeping Practices
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- Minimize Disturbed Areas
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DESCRIPTION:

Applying materials such as vinyl, asphalt, plastics, or rubber on an unprotected slope to temporarily stabilize the slope.

APPLICATION:

- As a tacking agent to aid the stabilization of mulches (where matting is not used)
- As a short-term alternative in areas where temporary seeding practices cannot be used because of seasonal condition or climate
- On steep and rocky slopes where neither mechanical methods or mulches and protective netting can be effectively applied

INSTALLATION / APPLICATION CRITERIA:

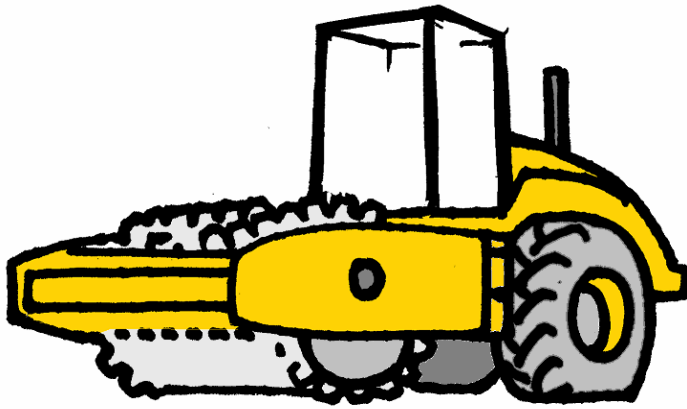
- The application rates and procedures recommended by the manufacturer of a chemical stabilization product should be followed to prevent the products from forming ponds and from creating large areas where moisture cannot get through.
- For permanent application, chemical mulches (when used with seed and mulch) should be applied over wood fiber or straw mulch

LIMITATIONS:

- Chemical mulches can create impervious surfaces and impact water quality if not properly applied
- Some products may not be suitable for use near live streams

MAINTENANCE:

- Inspect at regular intervals and after each runoff-producing storm event or at a minimum of once every two weeks
- Replace chemical mulch as needed to ensure adequate level of coverage



OBJECTIVES

- Housekeeping Practices
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DESCRIPTION:

Use of rolling, tamping, or vibration to stabilize fill materials and control erosion by increasing the soil density. Increasing the density of soil improves soil strength, reduces long-term soil settlement, and provides resistance to erosion.

APPLICATIONS:

- Stabilize fill material placed around various structures.
- Improve soil in place as foundation support for roads, parking lots, and buildings.

INSTALLATION / APPLICATION CRITERIA:

- Make sure soil moisture content is at optimum levels.
- Use proper compaction equipment.
- Install sediment control and storm water management devices below compacted areas and runoff interceptor devices above these areas. Drainage from compacted areas must be carefully planned to protect adjacent uncompacted soils.
- The surface of compacted areas should be scarified and seeded or mulched and seeded to increase the effectiveness of compaction.

LIMITATIONS:

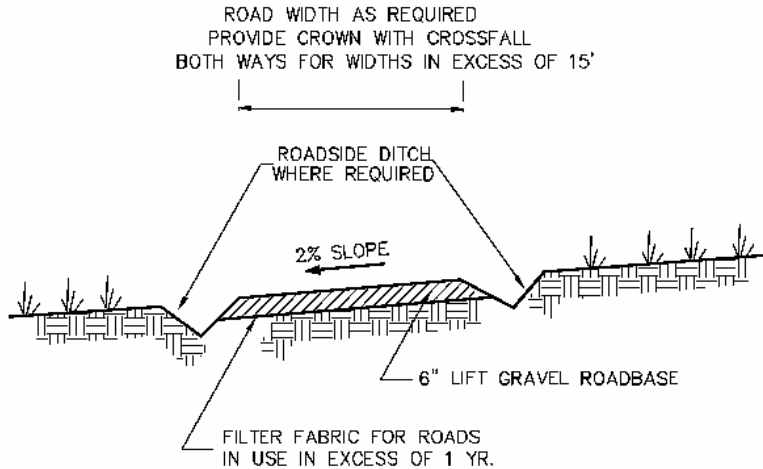
- Compaction tends to increase runoff.
- Over-compaction will hamper revegetation efforts.

MAINTENANCE:

No maintenance required.

BMP: Construction Road Stabilization

CR



OBJECTIVES

- Housekeeping Practices
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- Minimize Disturbed Areas
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TARGETED POLLUTANTS

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DESCRIPTION:

Temporary stabilization of on-site roadway by placement of gravel roadbase.

APPLICATION:

- On-site roadways used daily by construction traffic (may not apply to gravelly type soils)
- Parking or staging areas susceptible to erosion due to traffic use

INSTALLATION / APPLICATION CRITERIA:

- Grade temporary access road with 2% cross fall, for two-way width provide crown
- Provide roadside ditch and outlet controls where required
- Place 6 inches of 2-inch to 4-inch crushed rock on driving area

LIMITATIONS:

- May require removal of gravel roadbase at completion of activities if final cover is not impervious
- May require controls for surface storm water runoff

MAINTENANCE:

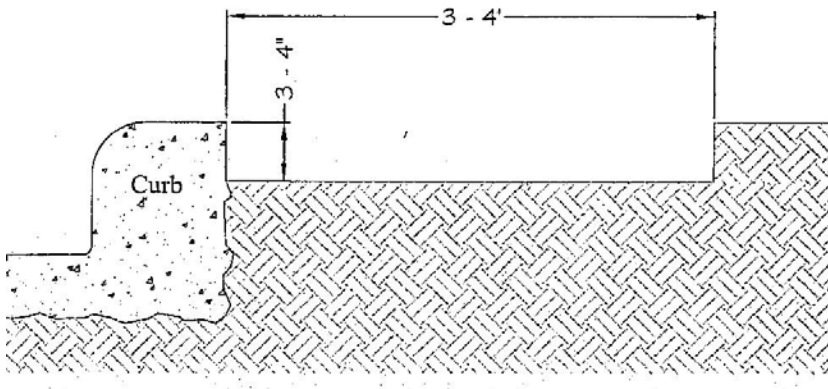
- Inspect after major rainfall events and at a minimum of once every two weeks
- Place additional gravel as needed and repair any damaged areas
- Maintain any roadside drainage controls

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low



DESCRIPTION:

A temporary sediment trap formed by excavation behind the curb.

APPLICATION:

- Interception of runoff containing sediment from the lot during construction
- Retain sediment on the lot during construction

INSTALLATION / APPLICATION CRITERIA:

- Excavate soil behind the curb to a depth of 3-4 inches
- Extend excavation 3-4 feet behind the curb to form sediment trap

LIMITATIONS:

No limitations

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of once every two weeks
- Remove accumulated sediment as it reaches 2/3 height of available storage
- May require additional excavation if dirt from construction fills in the trap

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
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TARGETED POLLUTANTS

H M L

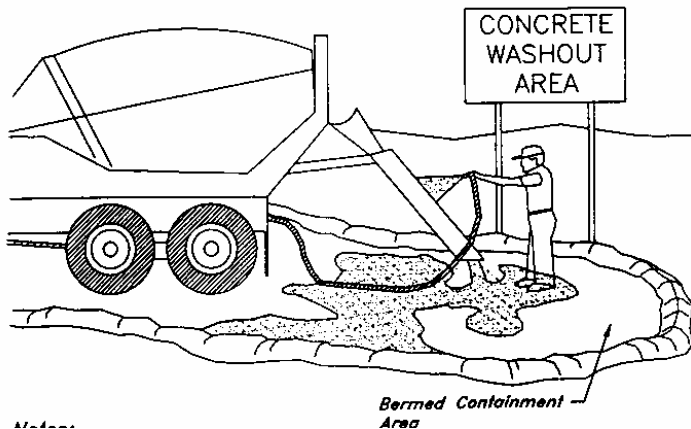
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IMPLEMENTATION REQUIREMENTS

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- Administrative

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DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout off-site, performing on-site washout in a designated area, and training employees and subcontractors.

APPLICATION:

This technique is applicable to all types of sites

INSTALLATION / APPLICATION CRITERIA:

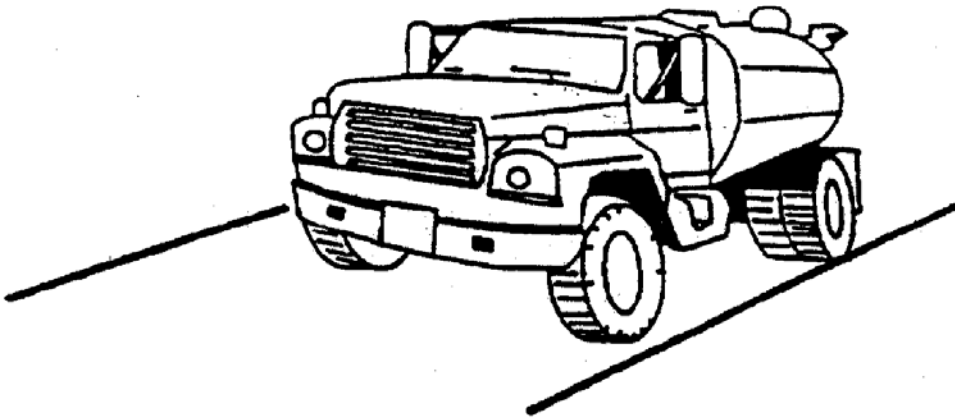
- Store dry materials under cover, away from drainage areas
- Minimize excess mixing of fresh concrete, mortar or cement on site
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams
- Do not allow excess concrete to be dumped on-site, except in designated areas
- When washing concrete to remove fine particles and expose the aggregate, avoid creating runoff by draining the water within a bermed or level area (6" tall X 6' wide)
- Train employees and subcontractors in proper concrete waste management

LIMITATIONS:

- Off-site washout or concrete wastes may not always be possible

MAINTENANCE:

- Inspect subcontractors to ensure that concrete wastes are being properly managed
- If using a temporary pit, dispose of hardened concrete on a regular basis



OBJECTIVES

- Housekeeping Practices
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DESCRIPTION:

Dust control measures are used to stabilize soil from wind erosion, and reduce dust by construction activities.

APPLICATION:

Dust control is useful in any process area, loading and unloading area, material handling areas, and transfer areas where dust is generated. Street sweepers are limited to areas that are paved.

INSTALLATION / APPLICATION CRITERIA:

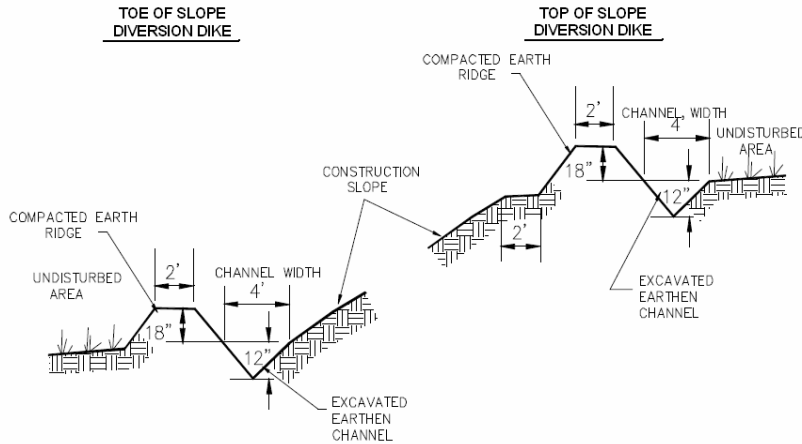
- Mechanical dust collection systems are designed according to the size of dust particles and the amount of air to be processed. Manufacturers' recommendations should be followed for installation (as well as the design of the equipment).
- Two kinds of street sweepers are common: brush and vacuum. Vacuum sweepers are more efficient and work best when the area is dry.
- Mechanical equipment should be operated according to the manufacturers' recommendations and should be inspected regularly.

LIMITATIONS:

- More elaborate equipment may be impossible to maintain by plant personnel
- Is labor and equipment intensive and may not be effective for all pollutants (street sweepers)

MAINTENANCE:

If water sprayers are used, dust-contaminated waters should be collected and taken for treatment. Areas will probably need to be resprayed to keep dust from spreading.



OBJECTIVES

- Housekeeping Practices
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IMPLEMENTATION REQUIREMENTS

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DESCRIPTION:

A temporary sediment barrier and storm runoff conveyance consisting of an excavation channel and compacted earth ridge.

APPLICATION:

- Construct along top of construction slope to intercept upgradient runoff and convey around construction site
- Construct along toe of construction to divert sediment laden runoff
- Construct along midpoint of construction slope to intercept runoff and channel to controlled discharge point
- Construct around base of soil stockpiles to capture sediment
- Construct around perimeter of disturbed areas to capture sediment

INSTALLATION / APPLICATION CRITERIA:

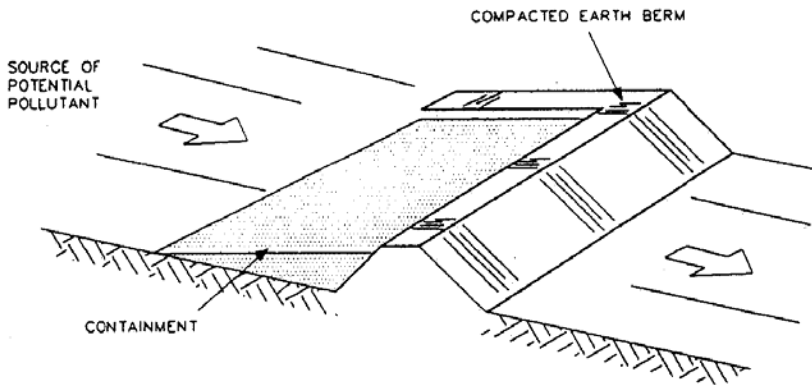
- Clear and grub area for dike construction
- Excavate channel and place soil on downgradient side
- Shape and machine compact excavated soil to form ridge
- Place erosion protection (riprap, mulch) at outlet
- Stabilize channel and ridge as required with mulch, gravel, or vegetative cover

LIMITATIONS:

- Recommended maximum drainage area of 5 acres
- Recommended maximum sideslopes of 2h:1v (50%)
- Recommended maximum slope of 1% on channel

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff breaching dike or eroding channel or sideslopes
- Check discharge point for erosion or bypassing of flows
- Repair and stabilize as necessary
- Inspect daily during vehicular activity on slope, check for and repair any traffic damage



OBJECTIVES

- Housekeeping Practices
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IMPLEMENTATION REQUIREMENTS

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DESCRIPTION:

A temporary containment control constructed of compacted soil.

APPLICATION:

- Construct around waste and materials storage area
- Construct around staging and maintenance areas
- Construct around vehicle parking and servicing areas

INSTALLATION / APPLICATION CRITERIA:

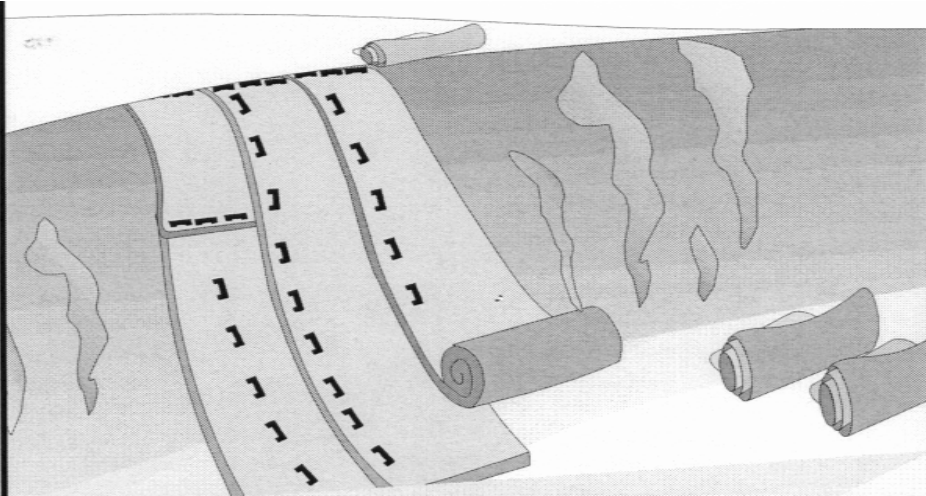
- Construct an earthen berm down hill of the area to be controlled. The berm should surround fueling facilities and maintenance areas on three sides to provide containment
- Berm needs to sized for application and be compacted by compactor equipment

LIMITATIONS:

- Not effective on steep slopes
- Limits access to controlled area
- Personnel need to quickly respond to spills with remedial actions

MAINTENANCE:

- Observe daily for any non-stormwater discharge
- Look for runoff bypassing ends of berms or undercutting berms
- Repair or replace damaged areas of the berm and remove accumulated sediment
- Recompact soil around berm as necessary to prevent piping



DESCRIPTION:

Erosion control blankets are used on areas of high velocity runoff and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

APPLICATION:

- Where vegetation is likely to grow too slowly to provide adequate stabilization
- In areas subject to high winds where mulch would not be effective

INSTALLATION / APPLICATION CRITERIA:

- Install erosion control blankets parallel to the direction of the slope
- In ditches, apply in direction of the flow
- Place erosion control blankets loosely on soil-do not stretch
- Ends of blankets should be buried no less than six inches deep
- Staple the edges of the blanket at least every three feet - per manufacturers' specifications

LIMITATIONS:

- Not recommended in areas which are still under construction

MAINTENANCE:

- Check for erosion and undermining periodically, particularly after rainstorms
- Repair dislocations or failures immediately
- If washouts occur, reinstall after repairing slope damage
- Monitor until permanently stabilized

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

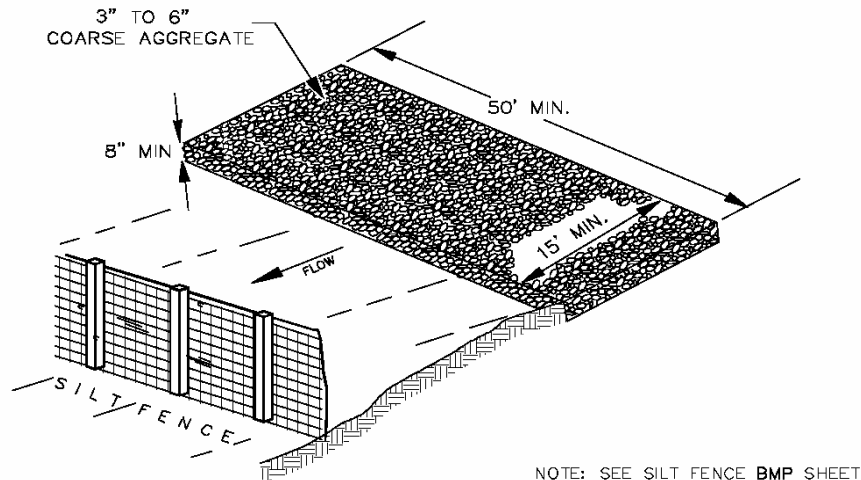
H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

BMP: Equipment and Vehicle Wash Down Area

EVWA



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

A stabilized pad of crushed stone for general washing of equipment and construction vehicles.

APPLICATION:

At any site where regular washing of vehicles and equipment will occur. May also be used as a filling point for water trucks limiting erosion caused by overflow or spillage of water.

INSTALLATION / APPLICATION CRITERIA:

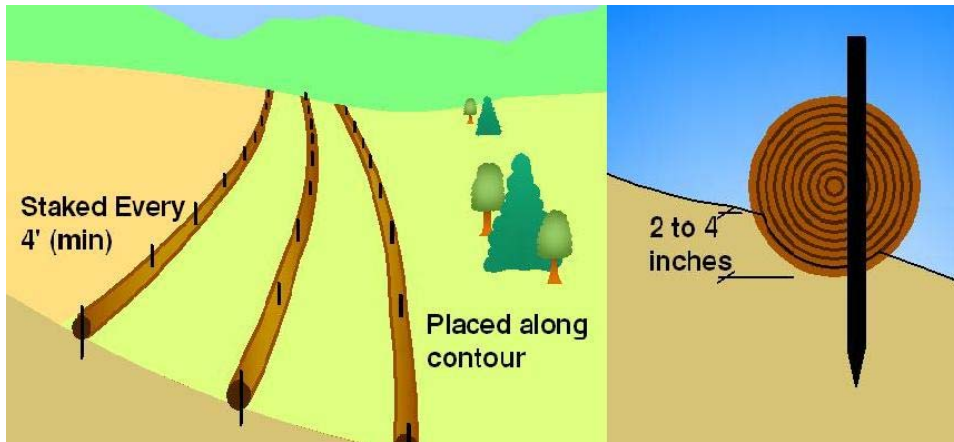
- Clear and grub area and grade to provide maximum slope of 1%
- Compact subgrade and place filter fabric if desired (recommended for wash areas to remain in use for more than 3 months)
- Place coarse aggregate, 1 to 2-1/2 inches in size, to a minimum depth of 8 inches
- Install silt fence downgradient (see silt fence BMP information sheet)

LIMITATIONS:

Cannot be utilized for washing equipment or vehicles that may cause contamination of runoff such as fertilizer equipment or concrete equipment. Solely used to control sediment in wash water.

MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent area for sediment deposit and install additional controls as necessary
- Repair area and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate activities
- Maintain silt fence as outlined in specific silt fence BMP information sheet



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
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- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

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- Toxic Materials
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- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Commercial products can be made from various types of fibers and shavings that are rolled up and used as sediment barriers.

APPLICATION:

- Good for sites with long slopes, generally flatter than 10:1

INSTALLATION / APPLICATION CRITERIA:

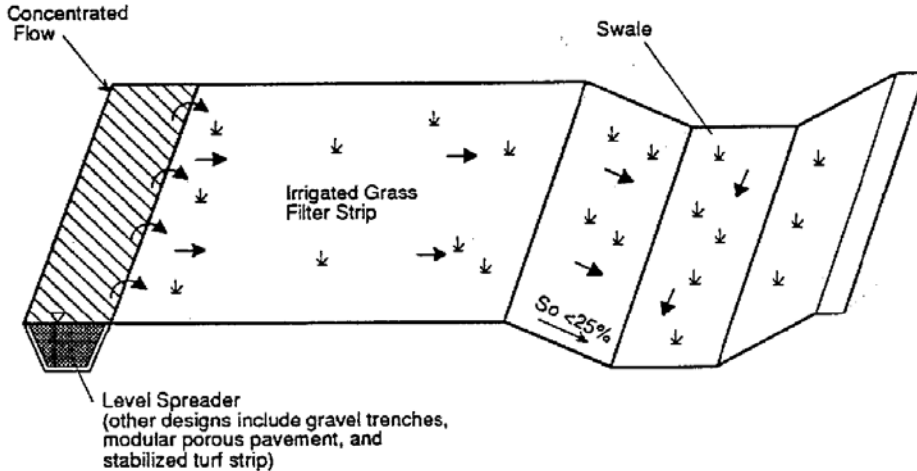
- Must be trenched into the ground 2 to 4 inches
- Must be staked every 4 feet (maximum)
- Manufacturer's instructions must be followed for installation of product

LIMITATIONS:

- Not applicable for high velocity flows
- Only use for a time period within the expected life-span of the product (check with manufacturer)

MAINTENANCE:

- Must be checked to ensure that runoff does not run under or bypass the fiber rolls
- Sediment buildup must also be checked and excess sediment must be removed



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

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- Other Waste

DESCRIPTION:

Filter strips are 20-foot-wide strips of natural or planted vegetation around a construction site. They are designed to cause deposition of sediments within the vegetation layer.

APPLICATION:

- Suited for areas where the soils are well drained or moderately well drained
- Areas where the bedrock and the water table are well below the surface

INSTALLATION / APPLICATION CRITERIA:

- Make sure the vegetative cover is dense enough to protect underlying soil while causing sediment to settle
- Filter strip must be approximately 20 feet wide to function well
- The length should be approximately 50 to 75 feet. Where slopes become steeper the length of the strip must be increased.

LIMITATIONS:

- Only applicable in areas where vegetation is previously established or where sod is added
- Vegetated filter strips will not function well on steep slopes, in hilly areas, or in highly paved areas
- Sites with slopes of 15 percent or more may not be suitable for filtering storm water flows

MAINTENANCE:

- Check for channels and repair
- Provide rock aprons to aid in slowing flow if necessary
- Maintain vegetation at optimal height and thickness

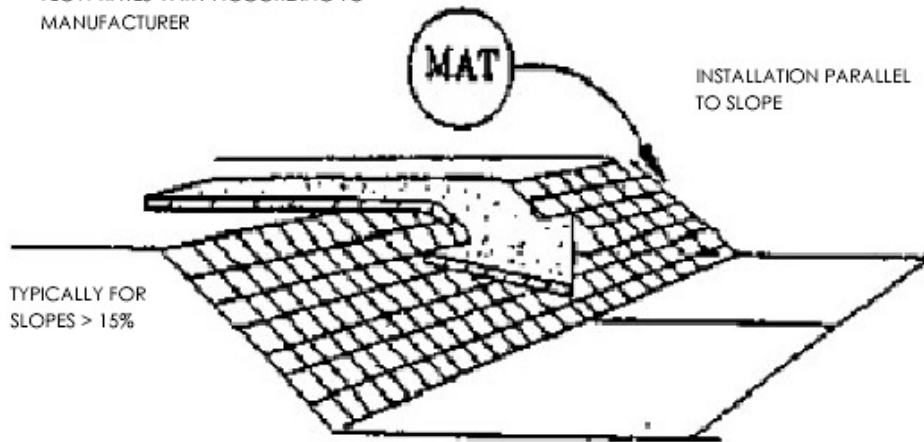
IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

FLOW RATES VARY ACCORDING TO MANUFACTURER



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
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- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

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- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Mattings made of natural or synthetic material which are used to temporarily or permanently stabilize soil.

APPLICATION:

- Typically suited for post-construction site stabilization, but may be used for stabilization of highly erosive soils.
- Channels and Streams.
- Steep slopes.

INSTALLATION / APPLICATION CRITERIA:

- Mattings may be applied to disturbed soils and where existing vegetation has been removed.
- The following organic matting materials provide temporary protection until permanent vegetation is established, or when seasonal circumstances dictate the need for temporary stabilization until weather or construction delays are resolved: Jute mattings and straw mattings.
- The following synthetic mattings may be used for either temporary or post-construction stabilization, both with and without vegetation: excelsior matting, glass fiber matting, mulch matting
- Staples are needed to anchor the matting.

LIMITATIONS:

- Mattings are more costly than other BMP practices, limiting their use to areas where other BMPs are ineffective (e.g., channels, steep slopes).
- May delay seed germination, due to reduction in soil temperature.
- Installation requires experienced contractor to ensure soil stabilization and erosion protection.

MAINTENANCE:

- Inspect twice monthly and after significant rainfall.
- Re-anchor loosened matting and replace missing matting and staples as required.



DESCRIPTION:

A combination of wood fiber mulch, processed grass, or hay or straw mulch and a tacking agent. It is made into a slurry, then applied to bare slopes or other bare areas to provide temporary stabilization.

APPLICATION:

- Small roadside slopes
- Large, relatively flat areas

INSTALLATION / APPLICATION CRITERIA:

- Legume seeds should be pellet inoculated with the appropriate bacteria.
- The seed should not remain in the hydromulcher tank for more than 30 minutes
- Wood fiber may be dyed to aid in uniform application
- Slurry should be uniformly applied until an adequate coverage is achieved
- The applicator should not be directed at on location for a long period of time; erosion will occur

LIMITATIONS:

- Will lose effectiveness after 1 year
- Can use only on physically stable slopes (at natural angle of repose, or less)

MAINTENANCE:

- Periodically inspect for damage caused by wind, water or human disturbance
- Promptly repair damaged areas

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
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- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
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TARGETED POLLUTANTS

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IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

APPLICATION:

Many of the chemicals used on-site can be hazardous materials which become hazardous waste upon disposal. These wastes may include:

- Paints and Solvents; petroleum products such as oils, fuels, and grease; herbicides and pesticides; Acids for cleaning masonry; and concrete curing compounds

In addition, sites with existing structures may contain wastes which must be disposed of in accordance with Federal, State, and local regulations, including:

- Sandblasting grit mixed with lead, cadmium, or chromium-based paints; Asbestos; and PCB's

INSTALLATION / APPLICATION CRITERIA:

The following steps will help reduce storm water pollution from hazardous wastes:

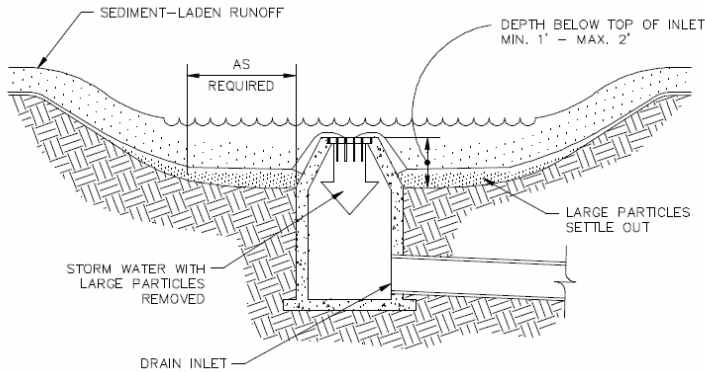
- Use all of the product before disposing of the container
- Do not remove the original product label, it contains important safety and disposal information
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with Federal and State regulations.

LIMITATIONS:

Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.

MAINTENANCE:

- Inspect hazardous waste receptacles and area regularly
- Arrange for regular hazardous waste collection



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
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- Toxic Materials
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- Floatable Materials
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- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

An area excavated around a storm drain inlet to impound water below the inlet.

APPLICATION:

- Construct at storm drainage inlets located downgradient of areas to be disturbed by construction (for inlets in paved areas see other information sheets for inlet protection)

INSTALLATION / APPLICATION CRITERIA:

- Provide upgradient sediment controls, such as silt fence during construction of inlet
- When construction of inlet is complete, excavate adjacent area 1 to 2 feet lower than the grate elevation. Size of excavated area should be based on soil type and contributing acreage

LIMITATIONS:

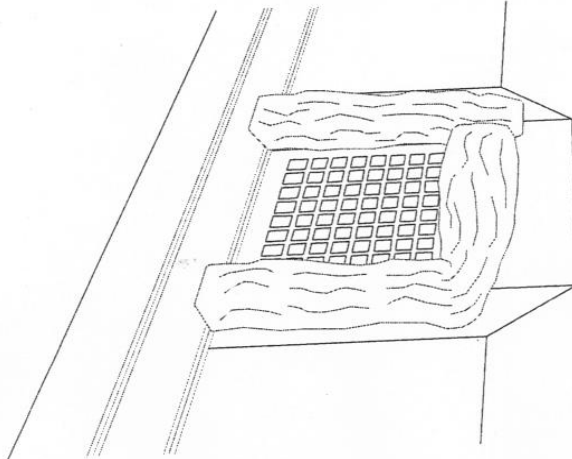
- Recommended maximum contributing drainage area of one acre
- Limited to inlets located in open unpaved areas
- Requires flat area adjacent to inlet

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once monthly
- Remove accumulated sediment when it reaches one half of the excavated sump below the grate
- Repair side slopes as required

BMP: Inlet Protection - Gravel Bags

IP-GB



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Sediment barrier erected around storm drain inlet.

APPLICATION:

Construct at storm drainage inlets located down-gradient of areas to be disturbed by construction

INSTALLATION / APPLICATION CRITERIA:

- Provide up-gradient sediment controls, such as silt fence during construction of inlet
- When construction of curb and gutter and roadway is complete, install gravel filled bags around perimeter of inlet
- Fill to recommended levels to reduce splitting of bags

LIMITATIONS:

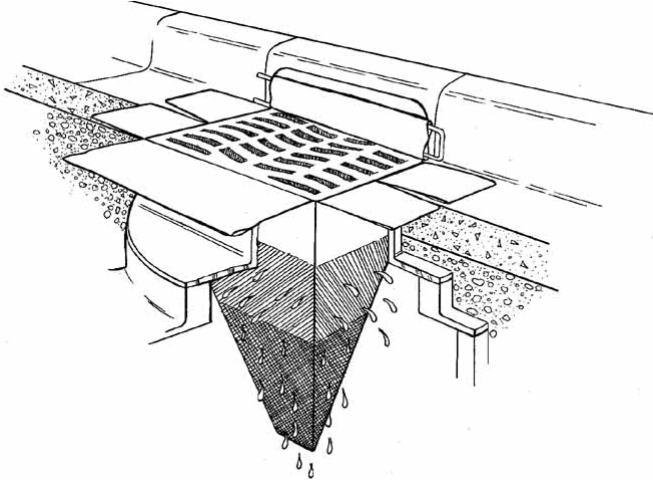
- Recommended maximum contributing drainage area of one acre
- Requires shallow sloped adjacent to inlet.

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once every 14 days.
- Remove accumulated sediment when it reaches half the height of the bag.
- Look for bypassing or undercutting and repair or realign as needed.
- Replace and clean up spilled gravel when bags split.

BMP: Inlet Protection- Silt Bags

IP-SB



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
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- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Collect and trap sediment and debris entering catch basins from either grated or curb inlets. Insert is made of fabric and is placed in the drain inlet around the perimeter of the grate. Runoff passes through the bag before discharging into the drain outlet pipe. Overflow holes are usually provided to pass larger flows without causing a backwater at the grate. Certain manufactured products include polymers intended to increase pollutant removal effectiveness.

APPLICATIONS:

- Storm drain inlet boxes

INSTALLATION / APPLICATION CRITERIA:

- Regular Maintenance is necessary
- Evaluation of the device chosen should be balanced with cost
- Hydraulic capacity controls effectiveness
- Most useful in small drainage areas (< 1 Acre)
- Ideal in combination with other BMP's

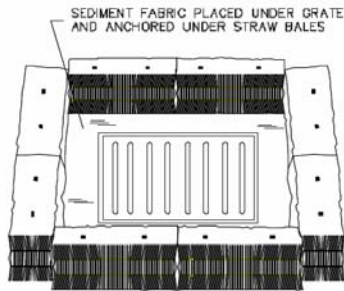
LIMITATIONS:

- Cost
- Maintenance required to prevent plugging and remain effective

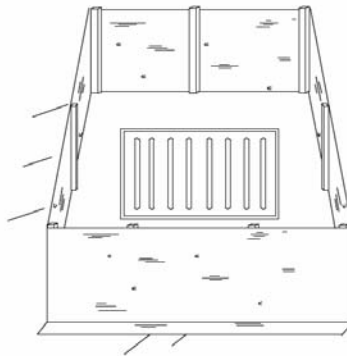
MAINTENANCE:

Inspection after all storm events and as required between events

STRAW BALE BARRIER



SILT FENCE



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
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- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Sediment barrier erected around storm drain inlet.

APPLICATION:

- Construct at storm drainage inlets located downgradient of areas to be disturbed by construction (for inlets in paved areas see other information sheets for inlet protection)

INSTALLATION / APPLICATION CRITERIA:

- Provide upgradient sediment controls, such as silt fence during construction of inlet
- When construction of inlet is complete, erect straw bale barrier or silt fence surrounding perimeter of inlet. Follow instructions and guidelines on individual BMP information sheets for straw bale barrier and silt fence construction

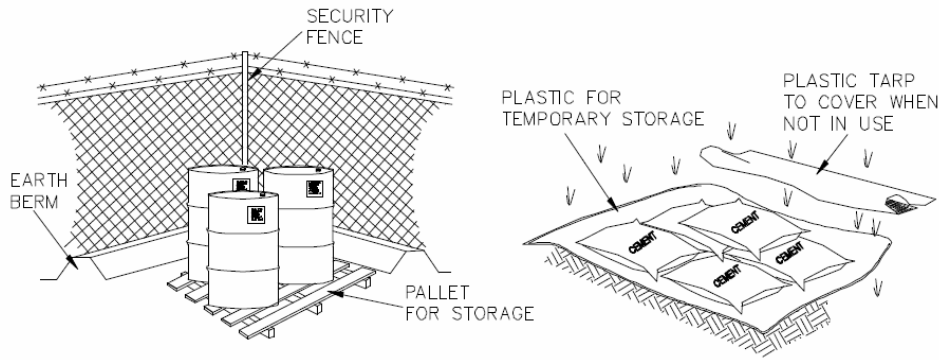
LIMITATIONS:

- Recommended maximum contributing drainage area of one acre
- Limited to inlets located in open unpaved areas
- Requires shallow slopes adjacent to inlet

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once every two weeks
- Remove accumulated sediment when it reaches 4" in depth
- Repair or realign barrier/fence as needed
- Look for bypassing or undercutting and recompact soil around barrier/fence as required

ghts,



- ▶ CONTROLLED STORAGE LOCATION
- ▶ BARRIER AROUND PERIMETER
- ▶ ELEVATE CONTAINERS OFF GROUND
- ▶ COVER WHEN NOT IN USE

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
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TARGETED POLLUTANTS

H M L

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IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
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- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Controlled storage of on-site materials.

APPLICATION:

- Storage of hazardous, toxic, and all chemical substances
- Any construction site with outside storage of materials

INSTALLATION / APPLICATION CRITERIA:

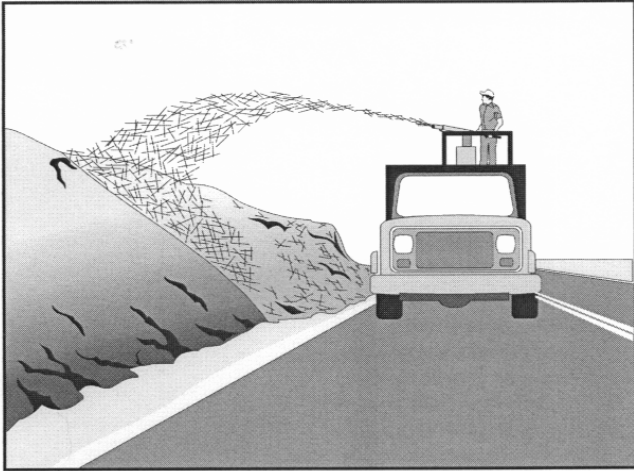
- Designate a secured area with limited access as the storage location. Ensure no waterways or drainage paths are nearby
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around storage location for impoundment in the case of spills
- Ensure all on-site personnel utilize designated storage area. Do not store excessive amounts of material that will not be utilized on site
- For active use of materials away from the storage area ensure materials are not set directly on the ground and are covered when not in use. Protect storm drainage during use

LIMITATIONS:

- Does not prevent contamination due to mishandling of products
- Spill Prevention and Response Plan still required
- Only effective if materials are actively stored in controlled location

MAINTENANCE:

- Inspect daily and repair any damage to perimeter impoundment or security fencing
- Check materials are being correctly stored (i.e. standing upright, in labeled containers, tightly capped) and that no materials are being stored away from the designated location



DESCRIPTION:

Placement of material such as straw, grass, woodchips, or wood fibers over open areas.

APPLICATION:

- Any exposed area to remain untouched longer than 14 days and that will be exposed less than 60 days (seed areas to be exposed in excess of 60 days)
- Areas that have been seeded
- Stockpiled soil materials

INSTALLATION / APPLICATION CRITERIA:

- Roughen area to receive mulch to create depressions that mulch material can settle into
- Apply mulch to required thickness and anchor as necessary
- Ensure material used is weed free and does not contain any constituents that will inhibit plant growth

LIMITATIONS:

- Anchoring may be required to prevent migration or mulch material
- Downgradient control may be required to prevent mulch material being transported to storm water system

MAINTENANCE:

- Inspect mulched areas after every rainfall event and at a minimum of monthly
- Replace mulch on any bare areas and reanchor as necessary
- Clean and replace downgradient controls as necessary

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

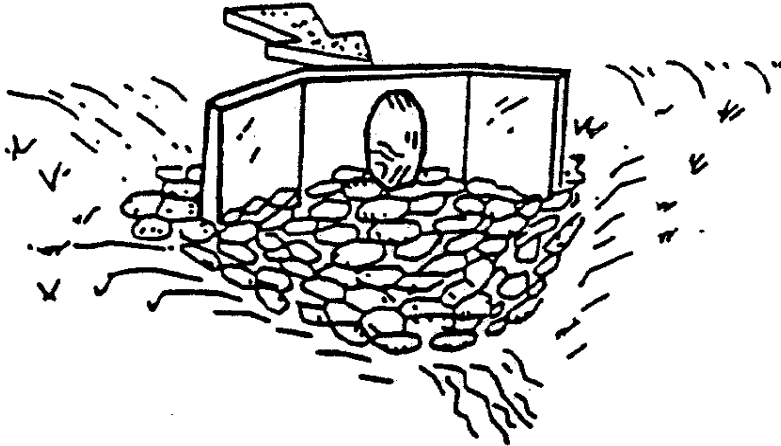
- Sediment
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- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
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H = High M = Medium L = Low



OBJECTIVES

- Housekeeping Practices
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IMPLEMENTATION REQUIREMENTS

H M L

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DESCRIPTION:

A rock outlet protection is a physical device composed of rock, or grouted riprap which is placed at the outlet of a pipe to prevent scour of the soil caused by high pipe flow velocities, and to absorb flow energy to produce nonerosive velocities.

APPLICATION:

- Wherever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach
- Rock outlet protection is best suited for temporary use during construction because it is usually less expensive and easier to install than concrete aprons or energy dissipators
- A sediment trap below the pipe outlet is recommended if runoff is sediment laden
- Permanent rock riprap protection should be designed and sized by the engineer as part of the culvert, conduit or channel design
- Grouted riprap should be avoided in areas of freeze and thaw because the grout will break up

INSTALLATION / APPLICATION CRITERIA:

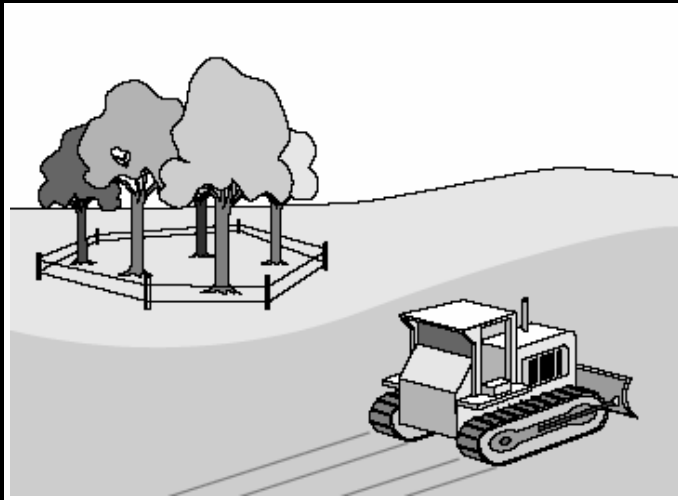
- Rock outlet protection is effective when the rock is sized and placed properly. When this is accomplished, rock outlets do much to limit erosion at pipe outlets. Rock size should be increased for high velocity flows. Best results are obtained when sound, durable, angular rock is used.

LIMITATIONS:

- Large storms often wash away the rock outlet protection and leave the area susceptible to erosion
- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock
- Outlet protection may negatively impact the channel habitat

MAINTENANCE:

- Inspect after each significant rain for erosion and/or disruption of the rock, and repair immediately
- Grouted or wire-tied rock riprap can minimize maintenance requirements



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
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TARGETED POLLUTANTS

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IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
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DESCRIPTION:

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs and/or grasses that serve as erosion controls.

APPLICATION:

This technique is applicable to all types of sites. Areas where preserving vegetation can be particularly beneficial are floodplains, wetlands, stream banks, steep slopes, and other areas where erosion controls would be difficult to establish, install, or maintain.

INSTALLATION / APPLICATION CRITERIA:

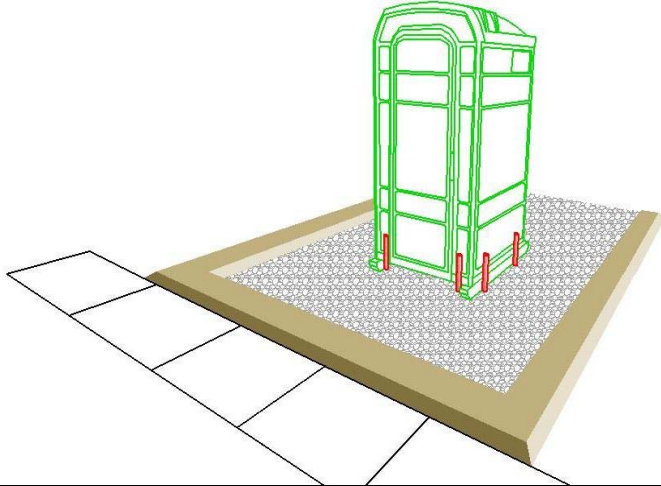
- Clearly mark, flag or fence vegetation or areas where vegetation should be preserved.
- Prepare landscaping plans which include as much existing vegetation as possible and state proper care during and after construction.
- Define and protect with berms, fencing, signs, etc. a setback area from vegetation to be preserved.
- Propose landscaping plans which do not include plant species that compete with the existing vegetation.
- Do not locate construction traffic routes, spoil piles, etc. where significant adverse impact on existing vegetation may occur.

LIMITATIONS:

- Requires forward planning by the owner/developer, contractor and design staff.
- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactorily for the planned development.
- May not be cost effective with high land costs.

MAINTENANCE:

- Inspection and maintenance requirements for protection of vegetation are low.
- Maintenance of native trees or vegetation should conform to landscape plan specifications.



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
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- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

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IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Temporary on-site sanitary facilities for construction personnel.

APPLICATION:

All sites with no permanent sanitary facilities or where permanent facility is too far from activities.

INSTALLATION / APPLICATION CRITERIA:

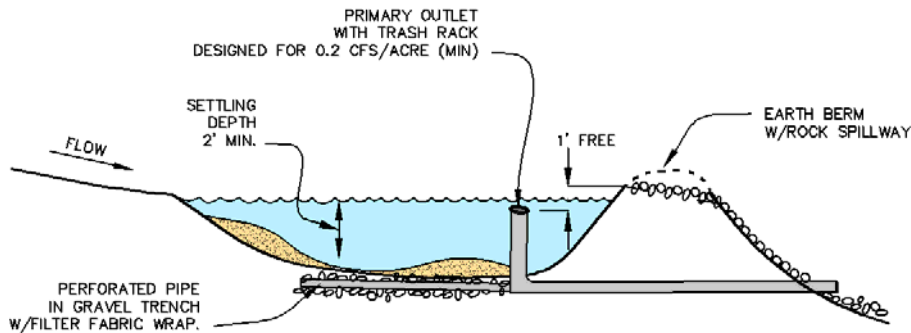
- Locate portable toilets in a convenient locations throughout the site
- Prepare level, gravel surface and provide clear access to the toilets for servicing and for on-site personnel
- Construct earth berm perimeter (see Earth Berm Barrier Sheet), control for spill / leak protection.
- Anchor the portable toilet to prevent tipping

LIMITATIONS:

No limitations

MAINTENANCE:

- Portable toilets should be maintained in good working order by licensed service with daily observation for leak detection
- Regular waste collection should be arranged with licensed service
- All waste should be deposited in sanitary sewer system for treatment with appropriate agency approval



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

A pond created by excavating or construction of an embankment, and designed to retain or detain runoff sufficiently to allow excessive sediment to settle.

APPLICATION:

- At the outlet of all disturbed watersheds 10 acres or larger
- At the outlet of smaller disturbed watersheds, as necessary
- Where post construction detention basins will be located

INSTALLATION / APPLICATION CRITERIA:

- Design basin for site specific location, maintain effective flow length 2 times width
- Excavate basin or construct compacted berm containment; ensure no downgradient hazard if failure should occur. (Provide minimum of 67 cy. per acre of drainage area.)
- Construct dewatering and outfall structure and emergency spillway with apron

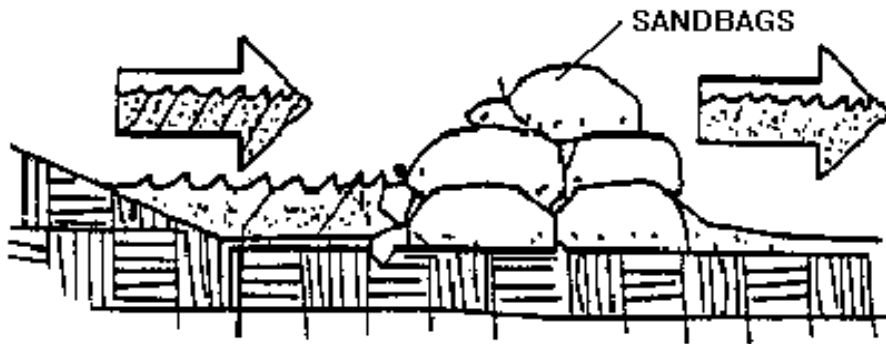
LIMITATIONS:

- Should be sized based on anticipated runoff, sediment loading and drainage area size
- May require silt fence at outlet for entrapment of very fine silts and clays
- May require safety fencing to prevent public access
- Height restrictions for embankment regulated by Utah Division of Dam Safety

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of once every two weeks
- Repair any damage to berm, spillway or sidewalls
- Remove accumulated sediment as it reaches 2/3 height of available storage
- Check outlet for sedimentation/erosion of downgradient area and remediate as necessary. Install silt fence if sedimentation apparent

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OBJECTIVES

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DESCRIPTION:

Stacking sand bags along a level contour creates a barrier which detains sediment - laden water, ponding water upstream of the barrier and promoting sedimentation

APPLICATION:

- Along the perimeter of the site
- May be used in drainage areas up to 5 acres
- Along streams and channels
- Across swales with small catchments
- Around temporary spoil areas
- Below the toe of a cleared slope

INSTALLATION / APPLICATION CRITERIA:

- Install along a level contour
- Base of sand bag barrier should be at least 48" wide
- Height of sand bag barrier should be at least 18" high
- 4" PVC pipe may be installed between the top layer of sand bags to drain large flood flows
- Provide area behind barrier for runoff to pond and sediment to settle
- Place below the toe of a slope
- UV resistant bags should be used

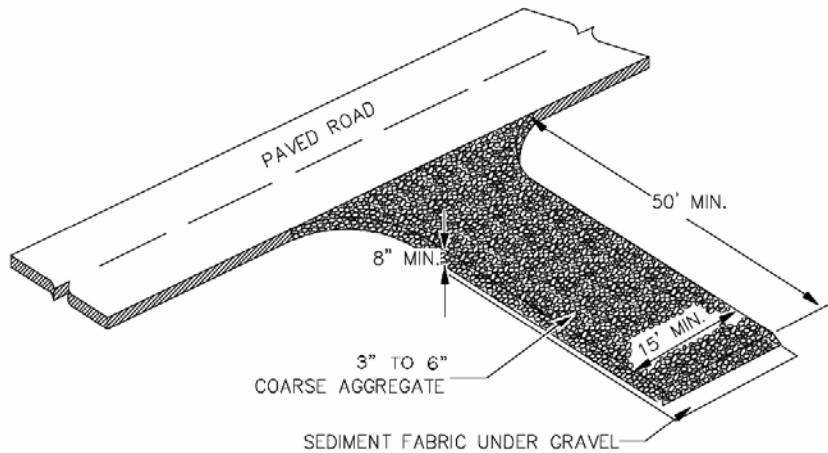
LIMITATIONS:

- Sand bags are more expensive than other barriers, but also more durable
- Burlap should not be used

MAINTENANCE:

- Inspect after each rain and a minimum of once every two weeks
- Reshape or replace damaged sand bags immediately
- Remove buildup of sediment

Fruit Heights, UT 8403



OBJECTIVES

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DESCRIPTION:

A stabilized pad of crushed stone located where construction traffic enters or leaves the site from or to paved surface.

APPLICATION:

At any point of ingress and egress at a construction site where adjacent traveled way is paved. Generally applies to sites over 2 acres unless special conditions exist.

INSTALLATION / APPLICATION CRITERIA:

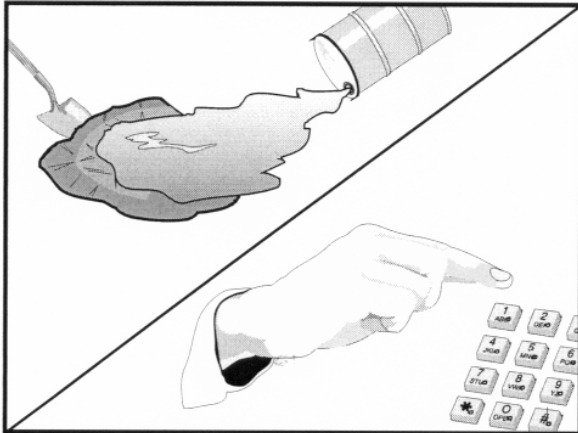
- Clear and grub area and grade to provide maximum slope of 2%
- Compact subgrade and place filter fabric if desired (recommended for entrances to remain for more than 3 months)
- Place coarse aggregate, 3-6 inches in size, to a minimum depth of 8 inches

LIMITATIONS:

- Requires periodic top dressing with additional stones
- Should be used in conjunction with street sweeping on adjacent public right-of-way

MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent roadway for sediment deposit and clean by sweeping or shoveling
- Repair entrance and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate traffic and prevent erosion at driveways



Standard Symbol

- BMP Objectives**
- Soil Stabilization
 - Sediment Control
 - Tracking Control
 - Wind Erosion Control
 - Non-Storm Water Management
 - Materials and Waste Management

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DESCRIPTION:

Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:

All sites

GENERAL:

- Store controlled materials within a storage area
- Educate personnel on prevention and clean-up
- Designate an Emergency Coordinator responsible practices and for providing spill response
- Maintain a supply of clean-up equipment on-site response agencies with phone numbers

METHODS:

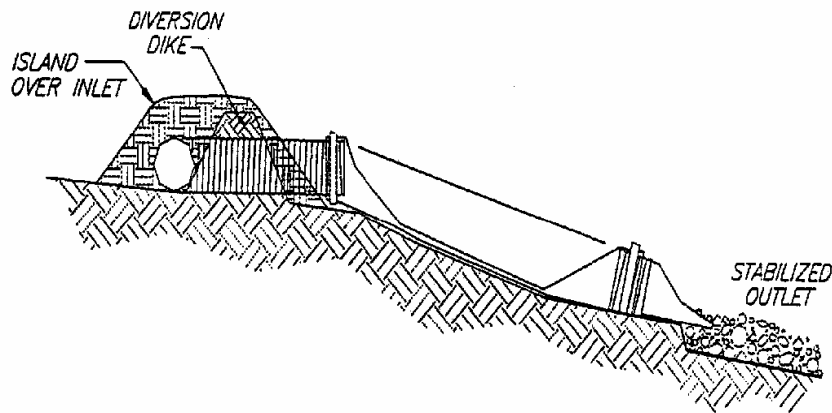
- Clean-up spills/leaks immediately and remediate cause
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity

IMPLEMENTATION REQUIREMENTS

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DESCRIPTION:

A temporary pipe or lined channel that drains the top of a slope to a stable discharge point at the bottom of a slope without causing erosion.

APPLICATION:

- Where concentrated flow of surface runoff must be conveyed down a slope in order to prevent erosion
- Emergency spillway for a sediment basin

INSTALLATION / APPLICATION CRITERIA:

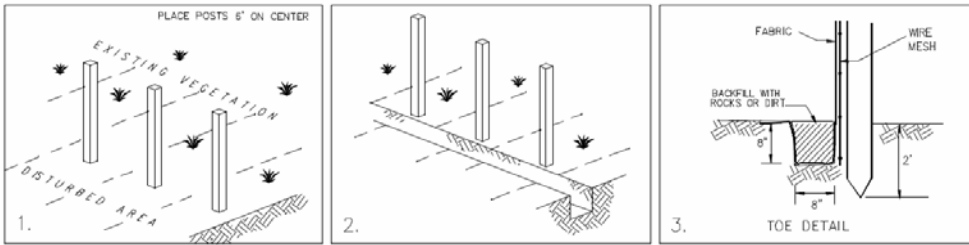
- Secure inlet and surround with dikes to prevent gully erosion, and anchor pipe to slope
- Size to convey at least the peak of a 10-year storm event
- Stabilize outlet (See Outlet Protection BMP.)

LIMITATIONS:

- Maximum drainage area per slope drain is 5 acres
- Clogged slope drains will force water around the pipe and cause slope erosion
- Dissipation of high flow velocities at the pipe outlet is required to avoid downstream erosion
- Failure can result in flooding and severe erosion

MAINTENANCE:

- Structure must be inspected weekly and after storms
- Inlet must be protected from undercutting and no water should circumvent the entry
- Outlet should not produce erosion; velocity dissipators must be maintained
- Pipe anchors must be checked to ensure that the pipe remains anchored to the slope



OBJECTIVES

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IMPLEMENTATION REQUIREMENTS

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DESCRIPTION:

A temporary sediment barrier consisting of entrenched filter fabric stretched across and secured to supporting posts.

APPLICATION:

- Perimeter control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet protection: place fence surrounding catch basins

INSTALLATION / APPLICATION CRITERIA:

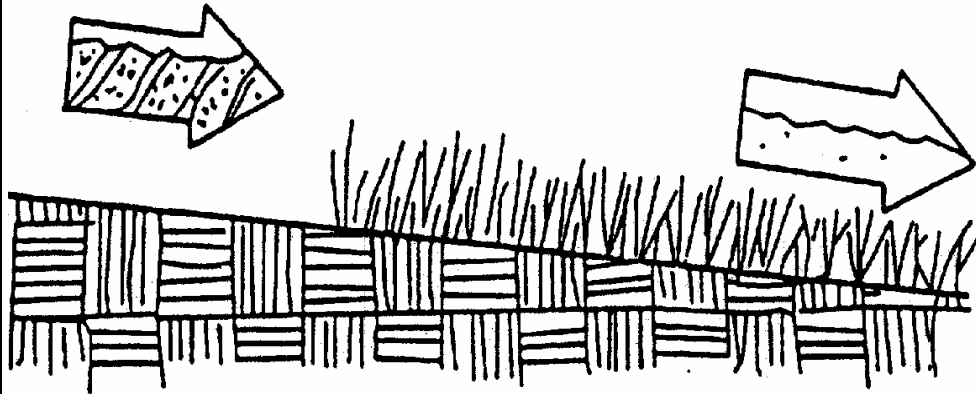
- Place posts 6' apart on center along contour (or use preassembled unit) and drive 2' minimum into ground. Excavate an anchor trench immediately up gradient of posts
- Cut fabric to require width, unroll along length of barrier and drape over barrier. Secure fabric to mesh with twine, staples, or similar, with trailing edge extending into anchor trench
- Backfill trench over fabric to anchor
- Fabric must have 85% minimum sediment removal efficiency

LIMITATIONS:

- Recommended maximum drainage area of 0.5 acre per 100 feet
- Recommended maximum upgradient slope length of 150'
- Recommended maximum uphill grade of 2:1 (50%)
- Recommended maximum flow rate of 0.5 cfs
- Ponding should not be allowed behind fence

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff bypassing ends of barriers or undercutting barriers
- Repair or replace damaged areas of the barrier and remove accumulated sediment
- Reanchor fence as necessary to prevent shortcutting
- Remove accumulated sediment when it reaches 1/2 the height of the fence



OBJECTIVES

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DESCRIPTION:

Seeding of grass and plantings of trees, shrubs, vines and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

APPLICATION:

- Appropriate for site stabilization both during construction and post-construction
- Any graded/cleared areas where construction activities have ceased
- Open space cut and fill areas
- Steep slopes, spoil piles, vegetated swales, landscape corridors, stream banks. Use in conjunction with matting, mulch or blanketing where appropriate.

INSTALLATION / APPLICATION CRITERIA:

Type of vegetation, site and seedbed preparation, planting time, fertilization and water requirements should be considered for each application.

Grasses:

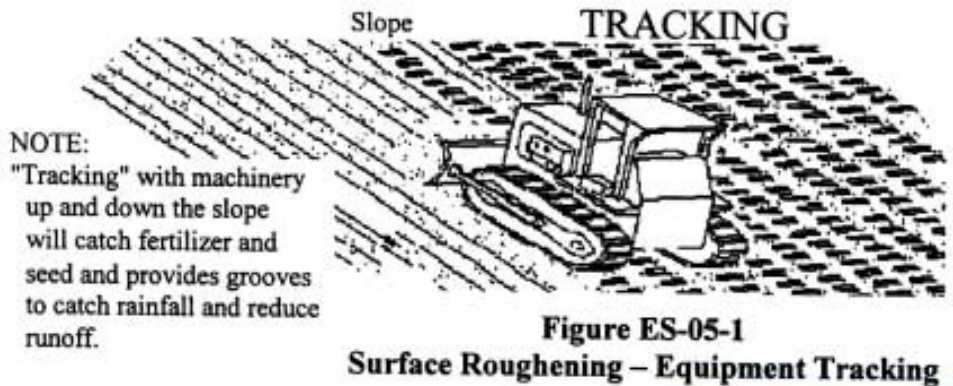
- Ground preparations: fertilize and mechanically stabilize the soil
- Tolerant of short-term temperature extremes and waterlogged soil composition
- Appropriate soil conditions: shallow soil base, good drainage, slope 2:1 or flatter
- Mowing, irrigating, and fertilizing are vital for promoting vigorous grass growth

Trees and Shrubs:

- Selection criteria: vigor, species, size, shape & wildlife food source
- Soil conditions: select species appropriate for soil, drainage & acidity
- Other factors: wind/exposure, temperature extremes, and irrigations needs

Vines and Ground Covers:

- Ground preparation: lime and fertilizer preparation
- Use proper seeding rates
- Appropriate soil conditions: drainage, acidity and slopes
- Generally avoid species requiring irrigation



OBJECTIVES

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DESCRIPTION:

Rough preparation of working areas leaving depressions and uneven surface. Depressions should be done parallel to contours.

APPLICATION:

- Surface roughening is appropriate for all construction that will not be receiving impervious cover within 14 days and that will be exposed less than 60 days (seed areas to be open in excess of 60 days)

INSTALLATION / APPLICATION CRITERIA:

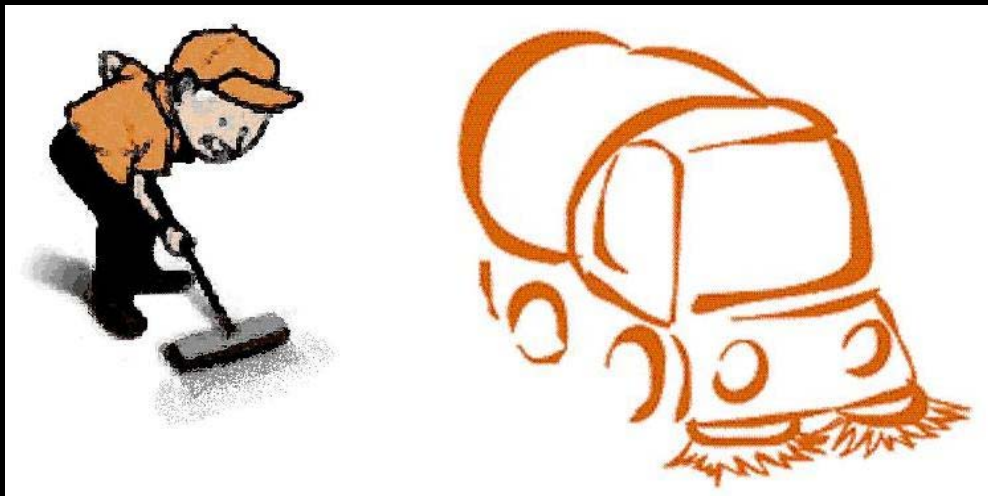
- Surface should be left in rough condition during initial earthwork activity
- Surfaces that have become smoothed or compacted due to equipment traffic should be roughened by use of disks, spring harrows, teeth on front end loader, or similar, operating along the contours of the slope. Tracking (by crawler tractor driving up and down slope) may also be used to provide depressions parallel to contours
- Avoid compaction of soils during roughening as this inhibits plant growth and promotes storm water runoff. Limit tracked machinery to sandy soil
- Seed or mulch areas to be exposed in excess of 60 days
- Employ dust controls (see Dust Control Detail Sheet if appropriate)

LIMITATIONS:

- Will not withstand heavy rainfall
- Slopes steeper than 2:1 (50%) should be benched (see Benching Detail Sheet)

MAINTENANCE:

- Inspect following any storm event and at a minimum of weekly
- If erosion in the form of rills (small waterways formed by runoff) is evident, perform machine roughening of area
- For vegetated slopes reseed areas that are bare or have been reworked



OBJECTIVES

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DESCRIPTION:

Prevent sediment from entering storm water by sweeping the streets near construction activities.

APPLICATION:

- Useful for any paved streets near construction sites where sediment is blown, tracked, or spilled onto the streets.

INSTALLATION / APPLICATION CRITERIA:

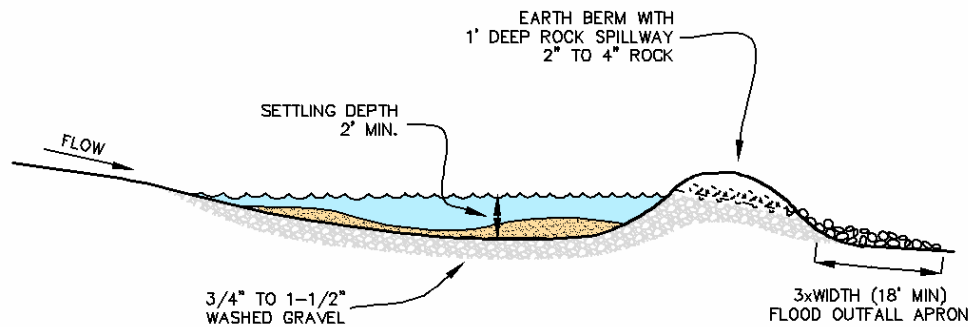
- The equipment used should be appropriate for the conditions. Vacuum sweepers work more effectively when the area is dry. Brush sweepers work better when the sediment is wet or stuck to the surface.
- Mechanical equipment should be operated and maintained according to the manufacturer's recommendations

LIMITATIONS:

- Is labor and equipment intensive
- May cause dust

MAINTENANCE:

- The street should be checked daily for any sediment deposits. Street sweeping should be implemented whenever sediment from construction activity is found on the streets



OBJECTIVES

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DESCRIPTION:

A sediment trap is a small excavated or bermed area where runoff from small drainage areas is detained and sediment can settle.

APPLICATION:

- Temporary control for runoff from disturbed areas of less than 3 acres
- Temporary control for discharge from diversion dike, surface benching, or other temporary drainage measures

INSTALLATION / APPLICATION CRITERIA:

- Design basin for site specific location
- Excavate basin or construct compacted berm containment
- Construct outfall spillway with apron
- Provide downstream silt fence if necessary

LIMITATIONS:

- Should be sized based on anticipated runoff, sediment loading and drainage area size
- May require silt fence at outlet for entrapment of very fine silts and calys

MAINTENANCE:

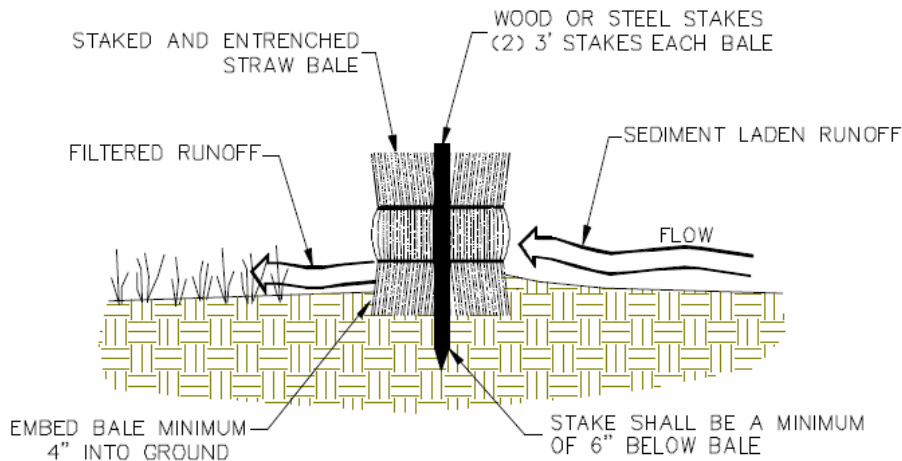
- Inspect after each rainfall event and at a minimum of once every two weeks
- Repair any damage to berm, spillway or sidewalls
- Remove accumulated sediment as it reaches 2/3 height of available storage
- Check outlet for sedimentation/erosion of downgradient area and remediate as necessary. Install silt fence if sedimentation apparent.

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
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IMPLEMENTATION REQUIREMENTS

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DESCRIPTION:

Temporary sediment barrier consisting of a row of entrenched and anchored straw bales.

APPLICATION:

- Perimeter Control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet Protection

INSTALLATION / APPLICATION CRITERIA:

- Excavate a 4" minimum deep trench along contour line, i.e., parallel to slope, removing all grass and other material that may allow underflow
- Place bales in trench with ends tightly abutting; fill any gaps by wedging loose straw into openings
- Anchor each bale and compact to prevent piping; backfill on uphill side to be built up 4" above ground at the barrier

LIMITATIONS:

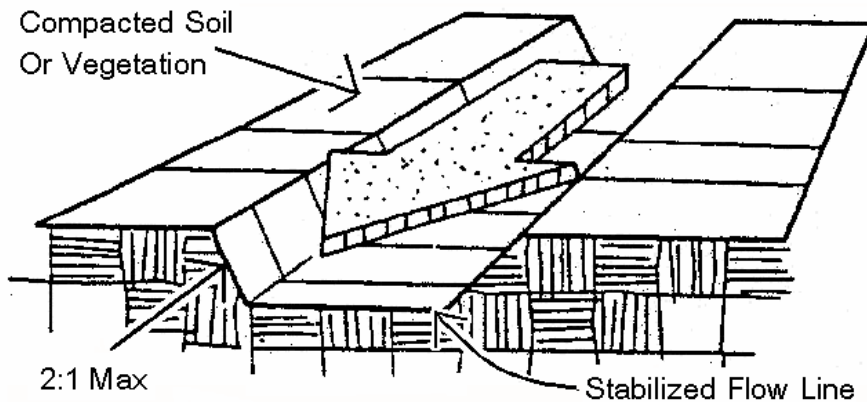
- Recommended maximum area of 0.5 acre per 100' of barrier
- Recommended maximum upgradient slope length of 150 feet
- Recommended maximum uphill grade of 2:1 (50%)
- Maximum duration of use is 6 months

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff bypassing ends of barriers or undercutting barriers
- Repair or replace damaged areas of the barrier and remove accumulated sediment
- Realign bales as necessary to provide continuous barrier and fill gaps
- Recompact soil around barrier as necessary to prevent piping



1500 East 650 North
Fruit Heights, UT 84037



OBJECTIVES

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DESCRIPTION:

Temporary drains and swales are used to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas.

APPLICATION:

- Temporary drains and swales are appropriate for diverting and upslope runoff around unstabilized or disturbed areas of the construction site
- Prevent slope failures. Prevent damage to adjacent property. Prevents erosion and transport of sediments into water ways. Increases the potential for infiltration. Diverts sediment-laden runoff into sediment basins or traps.

INSTALLATION / APPLICATION CRITERIA:

- Temporary drainage swales will effectively convey runoff and avoid erosion if built properly
- Size temporary drainage swales using local drainage design criteria. A permanent drainage channel must be designed by a professional engineer (see the local drainage design criteria for proper design)
- At a minimum, the drain/swale should conform to predevelopment drainage patterns and capacities
- Construct the drain/swale with an uninterrupted positive grade to a stabilized outlet. Provide erosion protection or energy dissipation measures if the flow out of the drain or swale can reach an erosive velocity

LIMITATIONS:

- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties
- Temporary drains and swales must conform to local floodplain management requirements

MAINTENANCE:

- Inspect weekly and after each rain
- Repair any erosion immediately
- Remove sediment which builds up in the swale and restricts its flow capacity



DESCRIPTION:

Temporary seeding-establishment of short term cover by application of rapidly germinating seed mix (alternatively hydroseeding may be utilized).
 Permanent seeding-establishment of final term cover by application of perennial seed mix (alternatively sod may be utilized).

APPLICATION:

Disturbed areas that are at final grade and which will not be disturbed by continuing activities on site. Also areas that are not at final grade but which will be left untouched in excess of one year.

RECOMMENDED SEED MIX:

The recommended seed mix will be dependent on site specific information such as elevation, exposure, soils, water available and topography. Check with the County Extension Service for recommended mixes for site specific conditions:

Utah State University Extension Service
 28 E. State Street (Room 20D)
 Farmington, Utah 84025
 Phone: (801) 451-3412

LIMITATIONS:

- Limited to areas that will not be subject to traffic or high usage
- May require irrigation and fertilizer which creates potential for impacting runoff quality
- May only be applied during appropriate planting season, temporary cover required until that time

INSTALLATION:

- Roughen soil to a depth of 2 inches. Add fertilizer, manure, topsoil as necessary
- Evenly distribute seed using a commonly accepted method such as; breast seeding, drilling, hydro-seeding
- Use a seed mix appropriate for soil and location that will provide rapid germination and growth. Check with County for recommended mix and application rate.
- Cover area with mulch if required due to steep slopes or unsuitable weather conditions

MAINTENANCE:

- Provide irrigation as required to establish growth and to maintain plant cover through duration of project
- Reseed as necessary to provide 75% coverage
- Remediate any areas damaged by erosion or traffic
- When 75% coverage is achieved inspect monthly for damage and remediate as necessary

OBJECTIVES

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TARGETED POLLUTANTS

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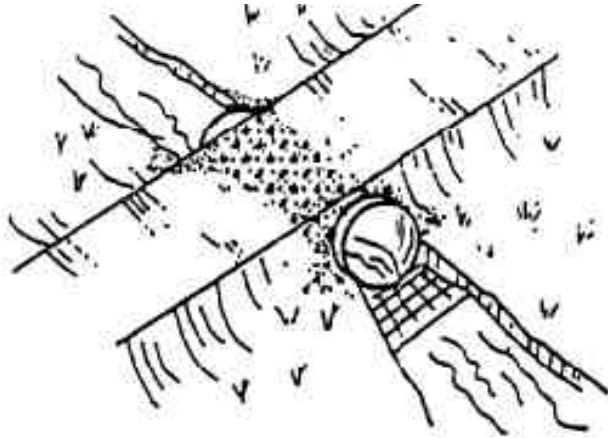
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DESCRIPTION:

A temporary access stream crossing is a temporary culvert, ford or bridge placed across a waterway to provide access for construction purposes for a period of less than one year. Temporary access crossings are not intended to be used to maintain traffic for the general public.

APPLICATION:

- Temporary stream crossings should be installed at all designated crossings of perennial and intermittent streams on the construction site, as well as for dry channels which may be significantly eroded by construction traffic.

INSTALLATION / APPLICATION CRITERIA:

- Requires knowledge of stream flows and soil strength and should be designed under the direction of a Utah registered engineer with knowledge of both hydraulics and construction loading requirements for structures.

LIMITATIONS:

- May be expensive for a temporary improvement
- Requires other BMP's to minimize soil disturbance during installation and removal
- Fords should only be used in dry weather
- A Stream Alteration Permit may be required, contact the Utah Division of Water Rights before implementation

MAINTENANCE:

- Inspect weekly and after each significant rainfall, including assessment of foundations
- Periodically remove silt from crossings
- Replace lost aggregate from inlets and outlets of culverts



OBJECTIVES

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DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning by using off-site facilities, washing in designated, contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees and subcontractors.

INSTALLATION / APPLICATION CRITERIA:

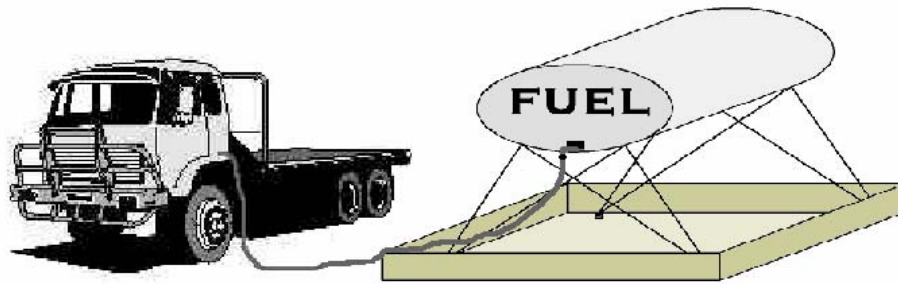
- Use off-site commercial washing businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water. If you wash large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated, bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area. Use phosphate-free biodegradable soaps. Educate employees and subcontractors on pollution prevention measures. Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations.

LIMITATIONS:

- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades
- Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

MAINTENANCE:

- Minimal, some berm repair may be necessary



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Prevent fuel spills and leaks, and reduce their impacts to storm water by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

INSTALLATION / APPLICATION CRITERIA:

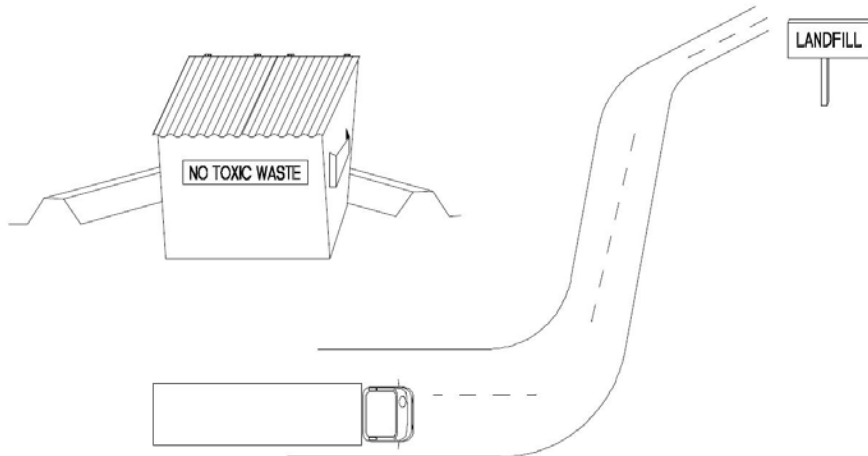
- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the run on of storm water and the runoff of spills. Discourage "topping-off" of fuel tanks.
- Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Place a stockpile of spill cleanup materials where it will be readily accessible. Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all Federal and State requirements regarding stationary above ground storage tanks.(40 CF Sub. J) Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps forklifts, most vehicles should be able to travel to a designated area with little lost time. Train employees and subcontractors in proper fueling and cleanup procedures.

LIMITATIONS:

Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

MAINTENANCE:

- Keep ample supplies of spill cleanup materials on-site
- Inspect fueling areas and storage tanks on a regular schedule



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

TARGETED POLLUTANTS

H M L

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

IMPLEMENTATION REQUIREMENTS

H M L

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

DESCRIPTION:

Controlled storage and disposal of solid waste generated by construction activities.

APPLICATION:

All construction sites

INSTALLATION / APPLICATION CRITERIA:

- Designate one or several waste collection areas with easy access for construction vehicles and personnel. Ensure no waterways or storm drainage inlets are located near the waste collection areas.
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around collection area for impoundment in the case of spills.
- Ensure all on site personnel are aware of and utilize designated waste collection area properly and for intended use only (e.g. all toxic, hazardous, or recyclable materials shall be properly disposed of separately from general construction waste).
- Arrange for periodic pickup, transfer and disposal of collected waste at an authorized disposal location. Include regular Porto-potty service in waste management activities.

LIMITATIONS:

- On-site personnel are responsible for correct disposal of waste

MAINTENANCE:

- Discuss waste management procedures at progress meetings
- Collect site trash daily and deposit in containers at designated collection areas
- Randomly check disposed materials for any unauthorized waste (e.g. toxic materials).



Appendix H: Construction General Permit

<http://construction.stormwater.utah.gov>