

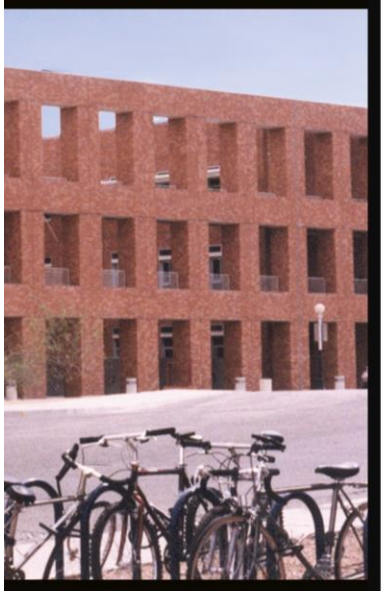

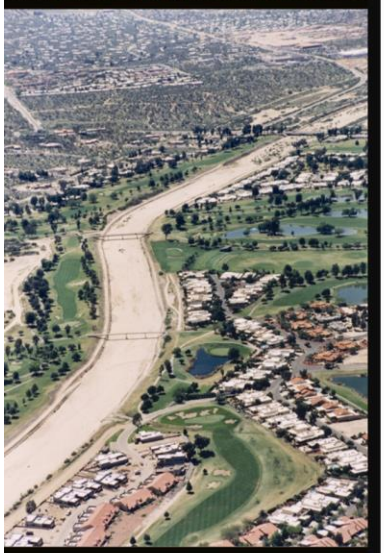
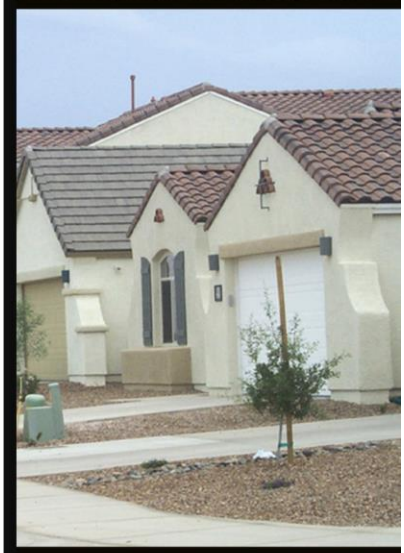

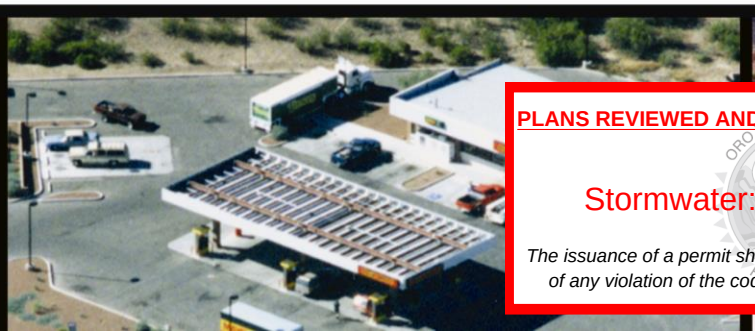


Stormwater Pollution Prevention Plan

For the

NARANJA TRAILS

TOWN OF ORO VALLEY, ARIZONA

GRADING PERMIT #2202968

PROJECT NUMBER:
7MHO240101

June 2024

Submitted by:

PSOMAS

PLANS REVIEWED AND ACCEPTED FOR CODE COMPLIANCE

Stormwater: droberts 10/25/2024

The issuance of a permit shall not be construed to be a permit or approval of any violation of the codes or ordinances of the Town of Oro Valley

STORMWATER POLLUTION PREVENTION PLAN
FOR:
NARANJA TRAILS

Psomas Project No. 7MHO240101

Located in a Portion of the east half of the Northwest quarter of Section 12, Township 12, South, Range 13 east, of the Gila and Salt River base and Meridian Town of Oro Valley, Pima County, Arizona

Operator(s):

Meritage Homes
Scott Kolt
5326 N. La Cholla Blvd
Tucson, AZ 85741
Main: (520) 225-6845

Contractor(s):

_____
_____
_____
_____
_____

SWPPP Contact(s):

Meritage Homes
Scott Kolt
5326 N. La Cholla Blvd
Tucson, AZ 85741
Main: (520) 225-6845

SWPPP Preparation Date:

June 2024

Estimated Project Dates:

Project Start Date: June 10, 2024
Project Completion Date: June 10, 2025

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ADEQ Arizona Department of Environmental Quality

2020 Construction General Permit Stormwater Pollution Prevention Plan (SWPPP) Checklist

In accordance with Arizona's Stormwater Construction General Permit (CGP-2020), Part 6.1, an operator is to develop a Stormwater Pollution Prevention Plan (SWPPP) before submitting the Notice of Intent (NOI) for permit coverage and prior to conducting any construction activity. For construction projects initiated under CGP-2013, this checklist may also be used to update an existing SWPPP for an ongoing construction project to meet the requirements of CGP-2020.

Although the use of this SWPPP checklist is not required, operators are encouraged to use this checklist to help ensure the site SWPPP meets the requirements of Arizona's CGP-2020 (AZG2020-001). The "Descriptions" provided below do not necessarily reflect the exact wording used in the permit; rather these are stated in simplified language to provide additional guidance. (Note: If any inadvertent conflict exists between this document and the permit, the permit language prevails). The "Permit Citation" column shows you where each particular requirement is found in the CGP-2020. Use the "Location in the SWPPP" column to note the page where the requirement is addressed in your SWPPP or use "N/A" (not applicable) if your project does not include the activity or information described. Please leave the "For ADEQ Use Only" column blank. Using this SWPPP checklist will help you ensure that all the permit requirements are addressed in your SWPPP and will assist the Department in conducting a more efficient review of your SWPPP if it is required to be submitted.

Please note that your SWPPP does not have to follow the format of this checklist; the purpose of this checklist is to help ensure that your SWPPP contains all required components. This checklist includes information and guidance for preparing your initial SWPPP, as well as information to include throughout the duration of your construction project, including control measures, inspections, corrective actions, and other pertinent information.

Stormwater Pollution Prevention Plan Checklist **SWPPP Contents**	**Permit Citation**	**Location in SWPPP**	**For ADEQ Use Only**
All operator(s) shall sign and certify the SWPPP.	6.1(3)		
Identify the name, title, contact information and a description of the qualifications and a copy of any training certificates of each operator, or group of operators, including inspector(s), as well as the areas and phases over which each operator has control.	6.3(1); 6.3(2)		
Describe the nature of construction activities, including the size of the property, the total area expected to be disturbed by the construction activities, the construction support activity areas covered by this permit and the maximum area expected to be disturbed at any one time.	6.3(4)		
Sequence and Estimated Dates of Construction Activities			
Installation of stormwater control measures.	6.3(3)(a)		
Commencement and duration of construction activities.	6.3(3)(b)		
Cessation, temporarily or permanently, of construction activities on the site, or in designated portions of the site including the beginning and ending dates of inactive/unstaffed status, when applicable.	6.3(3)(c)		
Final or temporary stabilization of areas of exposed soil. The dates for stabilization must reflect the applicable deadlines.	6.3(3)(d)		
Removal of temporary stormwater conveyances / channels and other stormwater control measures, removal of construction equipment and vehicles, and cessation of any pollutant-generating activities.	6.3(3)(e)		

A description of the intended sequence of construction activities, including a schedule of the estimated start dates and the duration of the activity.	6.3(3)	1.6	
Site Description			
Construction site description.	6.3(4)(a)	1.1	
Describe the site and its intended use after the Notice of Termination is filed (e.g. low density residential, shopping mall, highway, etc.).	6.3(4)(a)	1.6	
The total area of the site and an estimate of the total area of the site expected to be disturbed by construction activities.	6.3(4)(b)	1.5	
The percentage of the site that is impervious (e.g., paved, roofed, etc.) before and after construction.	6.3(4)(c)	1.5	
A description of site soils including potential for erosion.	6.3(4)(d)	1.7	
For areas where it is infeasible to maintain a 50-foot buffer describe selected alternative(s).	6.3(4)(e)	1.8	
Identify and describe all material storage areas (including on-site and offsite overburden and stockpiles of dirt, borrow areas, etc.).	6.3(4)(f)	1.10	
Provide general location map (e.g., a portion of an USGS quadrangle map, a city or county map or other map) – with enough detail to identify the location of the construction site and one mile radius and the waters of the U.S. including tributaries within a one mile radius of the site.	6.3(4)(g)	App A	
Site Maps			
Provide a site map or series of maps completed to scale showing the entire site that identifies:	6.3(5)	App B	
• Topography of the site, existing types of cover (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of flow onto, over, and from the site property before and after major grading activities.	6.3(5)(a)	App B	
• Drainage divides and direction of stormwater flow (i.e., use arrows to show which way stormwater will flow).	6.3(5)(b)	App B	
• Areas of soil disturbance and areas that will not be disturbed. Boundaries of the property and of the locations where construction activities will occur, noting any phasing of construction activities; locations where sediment or soil will be stockpiled; locations of any crossings of surface waters; designated points on the site where vehicles will exit onto paved roads and locations of construction support activity areas covered by this permit.	6.3(5)(c) (i – v)	App B	
• Locations of temporary and permanent stormwater control measures identified in the SWPPP.	6.3(5)(d)	App B	
• Locations where stabilization control measures are expected to be implemented.	6.3(5)(e)	App B	
• Areas protected by buffers (i.e., either the 50-foot buffer or other buffer areas retained on site when within 50 feet of a perennial water), including the boundary line of all such buffers.	6.3(5)(f)	App B	
• Locations of on-site material, waste, borrow areas, or equipment storage areas, and other supporting activities.	6.3(5)(g)	App B	
• Locations of all potential pollutant-generating activities	6.3(5)(h)	App B	

• Locations of all surface waters and any impaired waters or OAWs within 1/4 mile of the facility.	6.3(5)(i)	App B	
• Stormwater outfall(s), using arrows to indicate discharge direction. Include location(s) where stormwater and/or allowable non-stormwater discharges are discharged to surface waters, and location(s) of any discharges to municipal separate storm sewer systems (MS4s) from the construction site. Note: Where surface waters and/or MS4s receiving stormwater will not fit on the plan sheet, they shall be identified with an arrow indicating the direction and distance to the surface water and/or MS4.	6.3(5)(j) (i & ii)	App B	
• Locations and registration numbers of on-site drywells and drywells on adjacent properties that have the potential to receive stormwater from the site, if available.	6.3(5)(k)	App B	
• Areas where final stabilization has been established and no further construction permit requirements apply.	6.3(5)(l)	App B	
• Location and boundaries of buffer zones to be preserved.	6.3(5)(m)	App B	
Receiving Waters			
• identify the nearest surface water that may receive stormwater discharges, including ephemeral and intermittent streams, dry washes, and arroyos. If applicable, the SWPPP shall also identify and describe any wetlands near the site that could be disturbed or that could potentially receive discharges from disturbed areas of the site. Indicate if the receiving surface water is listed as impaired, not-attaining or an OAW.	6.3(6)	App B	
Stormwater Control Measures			
Describe all control measures that will be implemented and maintained as part of the construction project to control pollutants in stormwater and allowable non-stormwater discharges.	3.1 – 3.8 and 6.3(7)	1.6	
Erosion and sediment controls for the following: • Volume and velocity • Peak flow rates and total discharge • To minimize exposed soils and disturbance on steep slopes • To minimize sediment discharges from the site • Maintain natural buffers • Minimize soil compaction	3.3	2.1 2.2 2.4 2.3, 2.6, 2.7 2.1 3.8	
Site stabilization • Temporary stabilization • Final stabilization • Alternative stabilization	3.4	1.6 7.0, App I	
Pollution prevention • Minimize the discharge of pollutants • Construction site egress • Good housekeeping • Spill prevention and response	3.5	3.1- 3.7	

For each major activity identified at Part 6.3 in the project sequence of activities a description of: the control measures, including controls to minimize or eliminate non-stormwater discharges; the general sequence during the construction process or schedule that the control measures will be implemented; and which operator is responsible for the implementation of which control measures.	6.3(7)(a) (i – iii)	1.4, 1.6	
Provide drawings and/or specifications for the structural control measures.	6.3(7)(b)	App B Dtls	
Describe how sediment controls will be installed and made operational prior to conducting earth-disturbing activities.	6.3(7)(c)	1.6, 1.9, 2.1	
For site egress points, document the control measures that are intended to minimize tracking of pollutants from vehicles leaving the site.	6.3(7)(d)	2.7, 3.7	
Summary of Potential Pollutant Sources			
Identify the location and describe any pollutant sources, including any non-stormwater discharges expected to be associated with the project, from areas other than construction (i.e., support activities including stormwater discharges from dedicated asphalt or concrete plants and any other non-construction pollutant sources such as fueling and maintenance operations, materials stored on-site, waste piles, equipment staging yards, etc.).	6.3(8)	1.11, 1.16, App B	
Describe control measures to minimize pollutant discharges.	6.3(8)	3.1- 3.7	
If within 1/4 mile of an impaired water, identify sources of the pollutants of concern listed on the 303(d) list that may potentially be discharged from the construction site and describe additional or enhanced control measures to minimize discharges of these pollutants.	6.3(8)	1.8	
Use of Treatment Chemicals			
If polymers, flocculants, or other cationic treatment chemicals will be used at the site, the SWPPP shall include:	6.3(9)	1.11	
• Justification for the need for such chemicals and an assessment of potential water quality impacts.	6.3(9)(a)	1.11	
• Description of the training specific personnel have or will receive on the use and storage of any cationic treatment chemicals and/or chemical treatment systems at the construction site.	6.3(9)(b)	1.11	
• Listing of all treatment chemicals to be used at the site, a description of how the chemicals will be stored, and why the selection of these chemicals is suited to the soil characteristics of the site.	6.3(9)(c)	1.11	
• Dosage of all treatment chemicals that will be used at the site or the methodology that will be used to determine dosage.	6.3(9)(d)	1.11	
• Copy(ies) of any applicable Safety Data Sheets (SDS).	6.3(9)(e)	1.11	
• Schematic drawings of any chemically enhanced stormwater controls or chemical treatment systems to be used for application of the treatment chemicals.	6.3(9)(f)	1.11	

• Copies of applicable manufacturers specifications regarding the use of specific treatment chemicals and/or chemical treatment systems and references to state or local requirements affecting the use of these chemicals.	6.3(9)(g)	1.11	
Pollution Prevention Procedures			
Describe procedures to prevent and respond to spills, leaks, and other releases including procedures for plainly labeling containers; preventative measures between material storage and traffic areas; secondary containment provisions; procedures for material storage and handling; procedures for responding to releases - include the name or position of the employee(s) responsible for detection and response and procedures for notification of appropriate parties when a release occurs.	6.3(10)(a) (i – iv)	3.6, App B Dtls, App M	
Describe procedures for handling and disposing of wastes generated at the site.	6.3(10)(b)	3.6, App B Dtls, App M	
Documentation and Reporting Requirements (as applicable - either include in SWPPP or include a placeholder for if/when these documents are generated.)			
• A copy of CGP-2020 (**AZG2020-001**).	6.4(1)	App C	
• A copy of the NOI submitted to ADEQ, including any correspondence related to coverage under this permit.	6.4(2)	App D	
• A copy of the authorization certificate from ADEQ.	6.4(3)	App D	
• Identification of any municipality that received a copy of the authorization certificate.	6.4(4)	App D	
• Copies of any other environmental agreements (such as 404 permits, local grading permits, etc.) with any state, local, or federal agencies.	6.4(5)	App L	
• Descriptions and dates of any incidences of significant spills, leaks, or other releases.	6.4(6)	App M	
• Provide a written account or other documentation of repairs of structural control measures, including date(s) of discovery and when repairs were made.	6.4(7)	App F, App G	
• Describe which buffer alternative was selected for the site for activities located within 50 feet of a perennial water.	6.4(10)	App B	
• Provide documentation to support the change of active to inactive and unstaffed (for inspection purposes)	6.4(11)	App E	
• Provide a listing and description of permanent, post-construction stormwater management control measures that will be installed during the construction process to control pollutants in stormwater discharges after construction activities are complete.	6.4(13)	App B	
Inspections, Maintenance and Corrective Action			
Identify the Qualified Personnel responsible for conducting inspections.	6.8(1)	1.2, App P	
Identify the schedule the site will be inspected (routine, reduced, impaired/OAW schedule, inactive/unstaffed schedule, etc).	6.8(2)	5.1, App E	
If reducing the inspection frequency, the beginning and ending dates of the reduced inspection period.	6.8(3)	5.1	
Include copies of inspection or maintenance checklists	6.8(4)	App E	
Include copies of EACH completed inspection form.	6.4(8)	App E	

Provide a description of any corrective action taken at the site, including triggering event and dates when problems were discovered and revisions occurred.	6.4(9)	App E, App F	
Include copies of corrective action report(s) with the SWPPP.	5.3	App E	
Monitoring (for sites with outfalls located within 1/4 mile upstream of an impaired water or Outstanding Arizona Water)	1.5(3), 1.5(4), 7.0		
Provide justification / rationale as to why analytical monitoring is not necessary, if appropriate.	7.0, 7.1	N/A	
Sampling and Analysis Plan (as Appendix to SWPPP or separate document) if required	7.2		
• Location of outfalls	7.2(1)	N/A	
• Name of personnel who will perform monitoring	7.2(2)	N/A	
• Map showing areas with possibility of pollutant discharges	7.2(3)	N/A	
• Water quality parameters to be sampled	7.2(4)	N/A	
• Citation and description of sampling protocols to be used	7.2(5)	N/A	
• Identification of analytical methods and method detection limits, if applicable	7.2(6)	N/A	
• For impaired or OAW Lakes: site specific sampling proposal	7.3(4)(d)	N/A	
• Written procedures for sample collection, preservation; tracking, handling.	7.3(5)(b)	N/A	
• Identify the ADHS Licensed Laboratory used for analysis	7.3(5)(c)	N/A	
• DMR reports	7.3(5)(d)	N/A	

The following items and information will need to be provided by the contractor at the pre-con meeting for the SWPPP book. The owner will supply the official SWPPP book to be used for the project:

- Section 1.2 - Names of contractor's staff for Stormwater Team
- Section 1.10 - On-Site and Offsite Material Storage – describe areas of site to be used
- Section 1.11 - Potential Sources of Pollution –review and fill out this section in SWPPP book
- Section 1.16 - Review and edit non-Stormwater discharges. Add additional ones if necessary
- Section 5.2 - Assign Duly Authorized Representative
- Section 6.3- List individuals responsible for SWPPP training and SWPPP Implementation Plan. The implementation plan shall also include the contractor's training plan for their own Stormwater Team, as well as for remaining staff and sub-contractors.
- App. A - Identify location of trailer/staging area for site maps (if applicable)
- App. B - Identify location of trailer/staging area for site maps (if applicable)
- App. D - Copy of Completed, Signed and Submitted NOI Application (follow lat/long and acres disturbed on the owner's NOI – see Special Provisions)
- App. D - Copy of SWPPP Permit Authorization
- App. H - Completed Contractor/Subcontractor Certifications (One completed form for Con and each Sub)
- App. K - Completed and Signed Delegation of Authority Form – Contractor's info only, signed by signatory on NOI
- App. L - Copies of any ROW Permits, Air Quality Activity Permits, sub contractor signed concrete wash out conditions, etc.
- App. M - Contractor's Spill Prevention and Countermeasures Plan
- App. N - Construction Schedule
- App. O - Field Contacts/Subcontractor List
- App. P - Inspector Qualifications for all members of the Contractor's Stormwater Team (can include training certificate(s), description of SWPPP experience, and proof Inspector has received training requirements per Section 6.3)

All SWPPP items will be handed over to the representative from the owner at this Pre-Con. Immediately following the Pre-con meeting, the contractor and the owner may sit down to review expectations and processes. The SWPPP will be handed over to the Contractor at Pre-Con, if all information requested is adequately provided by the contractor. The SWPPP book will not be handed to the Contractor and a Notice to Proceed will not be issued without submittal of items listed above.

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Project/Site Name: Naranja Trails

Project Street/Location: Pima County, Section 12, Township 12 South, Range 13 East

City: Town of Oro Valley State: AZ ZIP Code: 85737

County or Similar Subdivision: Pima

Provide brief description of project area:

The project is located North of Naranja Drive and to the east by Pusch Ridge Vistas, to the south by the highlands and to the west of Naranja Ridge Estates

Latitude: 32.4056 36 N Longitude: -110.972666 W

Method for determining latitude/longitude:

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

☒ Other (please specify): PimaMaps

Is the project located in Indian country? ☐ Yes ☒ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable."
NOT APPLICABLE

Is this project considered a federal facility? ☐ Yes ☒ No

If you are conducting earth-disturbing activities in response to a public emergency, document the cause of the public emergency *(e.g., natural disaster, extreme flooding conditions)*, information substantiating its occurrence *(e.g., state disaster declaration)*, and a description of the construction necessary to reestablish effective public services: NOT APPLICABLE

Owner AZPDES permit tracking number:_____

Operator AZPDES permit tracking number:_____

This SWPPP has been prepared in accordance with the ADEQ Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit No. AZG2020-001 (CGP)

1.2 Stormwater Team

The Stormwater Team includes representatives from the contractor, the owner's Construction Management, and Project Manager. Each member of the stormwater team must have ready access to either an electronic or paper copy of applicable portions of the 2020 CGP and your SWPPP. All members of the Stormwater Team are responsible for compliance with this permit.

Contractor has control over day-to-day operations. Contractor implements and maintains site control measures (Sections 2, 3, 4 and 7), conducts inspections (Section 5), implements corrective actions (Section 5), maintains records including corrective actions (Section 5) and SWPPP modifications (Section 6) and conducts training (Section 6). Contractor is responsible for sub-contractor activities.

The owner has general oversight for construction work within the right-of-way and easements, reviews and approves inspections, and has operational control over field changes to construction plans and specifications. As the Primary SWPPP Inspector, this position is responsible for ensuring SWPPP activities are completed per the plan. Utilities are required to obtain their own SWPPP authorizations since the owner does not have operational control over their activities. Any issues with utility compliance with SWPPP shall be brought to the owner's attention.

The owner is responsible for project design coordination, including SWPPP development.

Stormwater Team:

General Contractor
(To be completed by Contractor once project is awarded)

Name	Title and Responsibility	Cell Phone	Email

Town of Oro Valley Staff

Name	Title and Responsibility	Cell Phone	Email

Team member qualifications and training certificates are in Appendix P.

1.3 Identification of Operators/Contact Information

General Contractor/Operator(s):

_____
_____
_____
_____
_____
_____

Project Owner/Operator:
Meritage Homes
Scott Kolt
5326 N. La Cholla Blvd
Tucson, AZ 85741
Main: (520) 225-6845

SWPPP Contact(s):
Meritage Homes
Scott Kolt
5326 N. La Cholla Blvd
Tucson, AZ 85741
Main: (520) 225-6845

Emergency 24-Hour Contact:
Meritage Homes
Scott Kolt
5326 N. La Cholla Blvd
Tucson, AZ 85741
Main: (520) 225-6845

Utility work is considered part of the "larger common plan of development" of this project. However, all utilities are responsible for day-to-day operations, utility relocation plans and specifications. Each utility must obtain an AZPDES authorization separate from the larger road project. Utilities working concurrently with the owner's general contractor are responsible for monitoring their own SWPPP compliance.

If contractors working for utility companies interrupt work on this project or are working in separate areas on the same project, the areas where they are working shall be noted in the SWPPP, and shall include dates and areas of work.

If contractors working for utility companies are not in compliance with the AZPDES SWPPP CGP and it is adversely impacting the project, the owner shall be contacted.

This SWPPP was Prepared by:
Psomas
Michelle Bever, PE
333 E Wetmore Rd, Suite 450
Tucson, AZ 85705
Phone: 520-292-2300
Fax: 520-292-1290

1.4 General SWPPP Responsibilities

This SWPPP shall be implemented prior to the commencement of soil disturbing activities associated with new construction and shall be in compliance with all conditions of the Construction General Permit (CGP). A copy of the CGP is included in this SWPPP (Appendix C). The SWPPP shall be kept at the construction site at all times during construction and is considered a document to be made available upon request by representatives of USEPA or ADEQ. As the project falls within the geographic boundaries Pima County's Municipal Separate Storm Sewer System (MS4), the respective agencies of those municipalities may also inspect the site and SWPPP.

This SWPPP shall be amended if any or all of the following occur:

1. There is a change in design, construction, operation or maintenance that may have a significant effect on the discharge of pollutants to waters of the U.S. that has not been previously addressed in the SWPPP; or

2. It is determined by the operator, or ADEQ, or USEPA that discharges are causing or contributing to water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the construction site; or

3. There is a change in the stormwater team.

Amendments to the SWPPP, as described above, shall occur within 7 calendar days.

Operators shall maintain records of all required SWPPP amendments. See SWPPP Amendment Log (Appendix G).

All SWPPP amendments shall be signed and dated by a delegated representative. See Appendix K (Delegation of Authority).

SWPPP authorization number(s) (AZCN #) as well as the NOI Authorizations of all parties, shall be posted near the entrance(s) where most of the construction activity occurs and must be conspicuous and accessible.

This SWPPP, together with all inspection and maintenance reports and data records for the construction activity shall be retained at the construction site during all phases of construction. SWPPP will be located in the owner's Construction Management Office once construction is complete.

The contractor shall maintain the SWPPP along with completed inspection forms and other AZPDES records. The contractor will maintain a current copy of the SWPPP, including all associated records and forms, at the job site from the time construction begins until completion of the project. The SWPPP will be available for public inspection and copies of any or all of such documents will be provided upon request.

1.5 Construction Site Estimates

The following are estimates of the construction site:

Total project area :	58	acres
Estimate of total acres to be disturbed (Current phase):	28.46	acres
Offsite staging area:	0.00	acres
Percentage Impervious area before construction:	10%	
Runoff coefficient before construction:	0.45	
Percentage Impervious area after construction:	45%	
Runoff coefficient after construction:	0.65	

1.6 Nature and Sequence of Construction Activity

What is the proposed use after construction? (Check others if applicable)
☒ Residential ☐ Commercial ☐ Industrial ☐ Road Construction ☐ Linear Utility

The following describes the general scope of the work for the project including installation of stormwater control measures, construction activities, final or temporary stabilization of areas of exposed soil and removal of temporary stormwater conveyances and other control measures. Phase construction activities to minimize disturbances. A general outline can be found in Section 2.1.

Estimated Project Start Date: June 10, 2024
Estimated Project Completion Date: June 10, 2025
Date(s) when major grading activities occur: See Appendix I.

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

Date(s) when an area is either temporarily or permanently stabilized: See Appendix I.

Construction Activity	Control Measures (SWPPP Reference)
Establish storage yard, install sanitary facilities	Material staging areas (Section 3.2), Material handling and waste management (3.1)
Stabilize construction entrances	Section 2.7
Preserve existing vegetation	Minimize disturbed area and protect natural features (2.1)
Install erosion, sediment controls	Control stormwater flow onto and through project (2.2), stabilize soils (2.3), protect slopes (2.4), protect storm drain inlets (2.5), install perimeter controls and sediment barriers (2.6), retain sediment on-site (2.7)
Clearing, grubbing	Erosion/sediment controls (2.1- 2.7), wind erosion control (2.8), material handling and waste management (3.1)
Grading, excavation, soils import/export	Erosion/sediment controls (2.1 – 2.8), material handling and waste management (3.1), equipment/vehicle fueling/maintenance (3.4), equipment/vehicle washing (3.5)

Utility relocation/installation	Erosion/sediment controls (2.1 – 2.8), pollution prevention (3.1 - 3.7)
Construct cross drainages	Erosion/sediment controls (2.1 – 2.8), pollution prevention (3.1 - 3.7)
Paving	Erosion/sediment controls (2.1 – 2.8), pollution prevention (3.1-3.7)
Install permanent stabilization	Post construction controls (4.0)
Final stabilization	Pollution prevention (3.1 – 3.7), stabilization controls (7.0)
Remove temporary control measures	Remove sediment wattles/logs, berms, check dams, sand bags, drain inlet protection, barriers

Specific locations and installation/removal dates of stormwater control measures shall be noted on the Erosion Control Plan (Appendix B). Commencement and duration of the activities shall be noted on the Grading and Stabilization Activities Log (Appendix I). Locations of all material storage areas (including overburden and stockpiles of dirt, borrow areas, etc.) used for the permitted project shall be identified on the Erosion Control Plan.

See Construction Schedule and Implementation (Appendix N) for additional activities and dates.

1.7 Soils, Slopes, Vegetation, and Current Drainage Patterns

Soil type(s): 70.7% Soil Type A, 29.3% Soil Type C
According to the United States Department of Agriculture Natural Resources Conservation Service's (USDA-NRCS) website (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvet.aspx) and Pima County Mapguide, the main soils within the Study Area are mapped as:
Arizo-Riverwash complex (Map Unit Symbol 3)
Pinaleno-Stagecoach-Palos-Verdes complex (Map Unit Symbol 61)

Provide a discussion of the soil's potential for erosion and erosion co-efficient, and narrative on erosivity characteristics: The runoff potential for Naranja Trails will increase due to the amount of impervious area increasing. The existing impervious area was calculated to be **10%** of the total project area and upon completion the impervious area will be **45%.** The soil erosion factor K, which indicates the susceptibility of a soil to sheet and rill erosion by water, is on a scale of 0.02 to 0.69. The weighted erosion factor K for this project is 0.09, which is a low amount of sheet and rill erosion potential. The soils on-site are moderately erodible by wind.

The current drainage pattern for the site conveys flow to the north towards W Naranja Drive. Proposed conditions maintain similar patterns with drainage exiting roadways through constructed scuppers continuing into the natural drainageways. Additionally, culverts will be

installed to transport interior drainage under the roads and into the proposed channels or natural drainageways.

Flows for the site are conveyed via unnamed tributaries, highlands wash, to the receiving water, approximately 100 feet to the west.

Vegetation:
Biotic Community - Arizona Upland Sonoran Desert Scrub
Dominant species – Misc. Desert Brush, Cottonwoods, Willows, Saguaros
Invasive species – If noxious and invasive plants are present onsite, including buffelgrass, they should be removed as part of this project.
Groundcover vegetation within the Project Area is approximately 25 percent.

1.8 Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☒ Yes ☐ No

Municipality receiving a copy of the authorization certificate: Pima County

Are there any perennial surface waters located within 50 feet of your construction disturbances? If yes, please provide additional discussion in Section 2.1
☐ Yes ☒ No

Are there any perennial or intermittent surface waters located within 2.5 miles of your construction disturbances?
☐ Yes ☒ No

This project is not located within ¼ mile of a Non-attaining, Impaired (as listed under section 303(d) of the Clean Water Act) or Outstanding Arizona Water (OAW) as listed under AAC R18-11-112.

Names of Nearest Receiving Waters
Highlands wash, an ephemeral wash, is located approximately 100 feet west of the project.

The onsite drainage does not incorporate minor storm sewer systems that connect to the existing regional channels adjacent to the site.

Description of unique features (include wetlands) that are to be preserved: 404s preserved by a restricted covenant.

Description, location and registration numbers of drywells located on the site or on adjacent properties: Per the ADEQ Drywell Database, there are no drywells located on the site or adjacent to the project that have the potential to receive stormwater runoff from the site.

1.9 Site Features and Sensitive Areas to be Protected

Fencing provided for protection will be shown on the demolition plans or discussed within the Standard Specifications. The contractor is not to use these areas for material storage or drive through these areas. The fencing will remain for the duration of the project, including landscape installation, except in areas as determined by the Engineer to have an unlikely risk of damage. Any fencing will be installed per the SWPPP Plans or Standard Specifications prior to the start of construction to establish the limits of disturbance.

Vehicles and equipment will be restricted from within the drip lines of preserve in place trees to reduce soil compaction.

Riparian areas protected under Pima County Riparian Ordinance will be mitigated according to requirements outlined in Title 16.16.54 of the Watercourse and Riparian Habitat Protection and Mitigation Requirements.

1.10 On-Site and Offsite Material Storage

Describe all material storage areas (including overburden and stockpiles of dirt, borrow areas, etc.) used for the permitted project:

Material Staging areas are proposed south of W Naranja Drive and North of N Shore Cliff Drive (the proposed roadways).

Offsite staging is not allowed under NEPA level project unless a separate Environmental Clearance is obtained by the contractor from ADOT/FHWA and all costs and delays associated with this clearance are the responsibility of the contractor.

Stockpiles will be maintained and protected from contact with stormwater at the end of every shift and over weekends. Contact with stormwater will be prevented by using temporary sediment barriers such as berms, or fiber rolls. Dust will be controlled using approved dust control measures.

The following apply to all on-site material storage areas:

- Stockpiles shall not be placed in washes.
- Stockpiles shall not be placed in stormwater conveyances such as curb and gutter systems or in roadways leading to such conveyances
- Stockpiles or other materials shall not be placed on top of or encroaching into areas of preserved vegetation. No stockpiles shall be placed within the drip line of trees to be preserved.

- Record location of stockpile on map and date placed, date removed, and planned use (i.e. waste, re-use in project, etc.) and contractor who placed material.

1.11 Potential Sources of Pollution

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

Asphalt/concrete plants, material delivery and storage areas, equipment storage yard, paving operations, concrete washout area, vehicle fueling/maintenance locations, waste storage locations, sanitary facilities, and use of re-claimed or wastewater.

Trade Name Material	Stormwater Pollutants	Location
Concrete	Limestone, sand, pH, chromium	Curb return construction, concrete wash out
Paints	Metal oxides, Stoddard solvent, talc, calcium carbonate, arsenic	Roadway during stripping, storage in staging area
Solid Waste	Bacteria, parasites, viruses, debris	Portable toilets, trash bins
Asphalt	Oil, petroleum distillates	Roadway during paving operations
Fuels	Benzene, ethyl benzene, toluene, xylene	Fueling areas
Hydraulic Oils/Fluids	Mineral oil	Vehicle fueling/maintenance area
Antifreeze/coolant	Ethylene glycol, propylene, glycol, heavy metals	Vehicle fueling/maintenance area
Curing Compounds	Naphtha	Curb, sidewalk, walls,
Pesticide		Grubbed areas
Fertilizer		Hydroseeded, landscaped areas
Lubricants	Ethylene glycol	Pipe lubricant
Paint	Aerosol marking paint includes liquefied petroleum gas, acetone, toluene, xylene, ethylbenzene	Throughout site, used for survey marking

Will water treatment chemicals (anionic or cationic polymers or flocculants, or other cationic treatment chemicals be used at the site? ☐ Yes ☒ No

Describe the need to use these chemicals: NOT APPLICABLE

Describe potential water quality impacts: NOT APPLICABLE

Describe specific treatment chemical use and storage training those personnel will have: NOT APPLICABLE

List treatment chemicals to be stored at the site, how the chemicals will be stored and why these chemicals are best suited for site soil characteristics: NOT APPLICABLE

Describe dosage to be used and method used to determine dosage: NOT APPLICABLE

See Erosion Control Plan (Appendix B) for treatment chemical site locations. Contractor shall have Material Safety Data Sheets (MSDS) and manufacturer's specifications available on-site.

1.12 Endangered Species Evaluation

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

☐ Yes ☒ No

Describe how this determination was made, and include date of any documentation:

Evaluated as a part of the overall Rocking K Project and the original Specific Plan.

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

If yes, describe or refer to documentation that determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. N/A

See Additional Information (Appendix L).

1.13 Historic Preservation

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

☐ Yes ☒ No

Describe how this determination was made, and include date of any documentation:

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

There are two sites designated on Naranja Trails. Both sites have been registered with the state and are significantly outside of any proposed grading activity.

See Additional Information (Appendix L).

1.14 Applicable Federal, Tribal, State or Local Programs

ADOT

- Sonoran Desert Tortoise Awareness Program Handout

County:

- Sonoran Desert Tortoise Handling Guidelines
- Biological Clearance
- Cultural Clearance - Historic Preservation
- Clean Water Act 401/404 – Permits, Conditions & PJD-NWP #14
- APP Type 1 General Permit for Concrete Washouts
- ADA NOI Intent to Clear Land (if applicable)
- Hazardous Materials Clearance
- NEPA Clearance (Categorical Exclusion Environmental Clearance Memo)
- NRCS Soil Map

Contractor:

- Add ROW Permit(s) – County
- Add Air Quality Activity Permit - Fugitive Dust Control - County

See Appendix L.

1.15 Maps

The Erosion Control Maps include the following:

- √ Location Map shall consist of an area map with 1 mile radius, outline project boundaries, north arrow, scale, legend, Name and location of nearest Receiving Water(s) with staging area included.
- √ The SWPPP maps shall match the layout of the other engineering plans for consistency and shall be at a scale of 1" = 40" or larger;
- √ Cultural areas to protect (if applicable);
- √ Labels for all streets and major features;
- ~~Locations of all surface waters and any impaired waters or OAWs within ¼ mile of the project area;~~ **N/A**
- √ Stationing, match lines and topography;
- ~~Aerial photos are encouraged to be included as base information~~.
- √ Maps shall be able to be reproduced legibly in black and white (no color).
- ~~Key map on each sheet showing the entire project layout with the areas covered by each sheet;~~ **N/A**
- √ Direction(s) of stormwater flow (small arrows) and approximate slopes before and after major grading activities;
- √ Locations where stormwater and/or allowable non-stormwater discharge (CGP Part 1.3) to waters of the U.S. or to storm sewer systems (MS4). Use LARGE arrows to indicate discharge direction. If receiving surface waters or MS4 will not fit on the plan sheet, identify with an arrow indicating direction and distance to the surface water or MS4;
- √ New Storm sewer system and all drain inlets;
- √ Locations of temporary and permanent stormwater control measures identified in the SWPPP;
- ~~Locations of existing storm drain inlets and locations of drywells; and~~ **N/A**
- √ Locations where sediment or soil will be stockpiled;
- √ Areas to be seeded and seed mix list.
- **By Contractor** Areas and timing of soil disturbance;
- **By Contractor** Locations of on-site material, waste, borrow, or equipment storage areas;
- **By Contractor** Locations of all pollutant-generating activities identified in Part 1.11;
- **By Contractor** Locations on the site where vehicles will exit onto paved roads;
- **By Contractor** Locations of construction support activity areas covered by this permit;
- **By Contractor** Locations and timing of all stabilization measures including areas where final stabilization has been accomplished.
- For more information, see CGP Part 6.3.6.

The Location Map illustrating the project area and a 1-mile vicinity surrounding the site is included as Appendix A. The Location Map illustrates the nearest Receiving Water(s).

The Site Maps and stormwater control measures are included as Appendix B.

1.16 Allowable Non-Storm Water Discharges

The following non-regulated, non-storm water discharges are anticipated to occur on site during construction activities:

Non-Storm Water Discharge: **Dust Control (WE1 CalTrans)**	
Location of Discharge:	Project Wide
Duration of Discharge:	During soil disturbing activities

Non-Storm Water Discharge: **Potable water line flushing (NS7 CalTrans)**	
Location of Discharge:	Project Wide
Duration of Discharge:	Testing and flushing of water lines

Non-Storm Water Discharge: **Soil Compaction (WE1 CalTrans)**	
Location of Discharge:	Grading Limits
Duration of Discharge:	Minimal, use as needed

Non-Storm Water Discharge: **Dewatering Operations (NS2)**	
Location of Discharge:	Project Wide
Duration of Discharge:	To Be Determined – as needed. Water must be pollutant free.
Non-Storm Water Discharge: **Pavement Wash Waters**	
Location of Discharge:	Paving Limits
Duration of Discharge:	Minimal, use as needed

Although these flows may occur onsite, efforts will be made to control these flows to the maximum extent practicable. Note that the Construction General Permit does not authorize discharges that have been covered or are eligible to be covered under another AZPDES permit.

Reclaimed or other wastewaters used for dust control, soil compaction or landscape irrigation are not permissible non-stormwater discharges. These discharges must be kept on-site and not used during rain events.

Super chlorinated waters will not be discharged before chlorination is removed.

See Erosion Control Plan (Appendix B) for non-stormwater discharge locations.

SECTION 2: EROSION AND SEDIMENT CONTROLS

Events occur throughout the construction project that may alter the locations of control measures. Therefore, the Erosion Control Plan in Appendix B shall be revised/amended by the general contractor when appropriate.
Amendments to the SWPPP shall be noted in the SWPPP Amendment Log (Appendix G).

If existing control measures need to be repaired or modified or if additional control measures are needed, implementation shall be completed within 7 calendar days or before the next rain event (whichever is sooner). Actions shall be documented in an inspection report.

Routine inspection of the ECM measures shown on the plans will be performed in accordance with requirements set forth by the 2020 Arizona Construction General Permit Part 4.0.

Maintenance for erosion and sediment control measures includes repairing or replacing failing sections, removal of the accumulation of sediment, and relocation of obsolete measures. Sediment removal should be performed on an as needed basis. Remove accumulated sediment when it reaches a maximum of one-third of the height of sediment wattles/logs or gravel bags. Sediment should be removed from temporary and permanent sedimentation basins, ponds and traps when the depth of the sediment reduces the storage capacity of the ECM by 50%. There are currently no sediment basins on-site. In lieu of sediment basins, erosion/sediment controls will be placed on all side slope boundaries.

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Construction work will be limited to areas within right-of-way, staging dedicated area and slope and construction easements. Excess material will be hauled off daily during excavation due to limited workspace area.

Fencing provided for protection will be shown on the SWPPP plans or discussed within the Standard Specifications. The contractor is not to use these areas for material storage or drive through these areas. The fencing will remain for the duration of the project, including landscape installation, except in areas as determined by the Engineer to have an unlikely risk of damage. Any fencing will be installed per the SWPPP Plans or Standard Specifications prior to the start of construction to establish the limits of disturbance.

There are no perennial surface waters within 50 feet of the project's disturbances; therefore, installing natural buffers is not required.

Grading will be limited to areas within the project site. Project limits are shown on the Site Maps and will be established prior to the start of construction to establish the extents of the project. Stockpiles will be maintained and protected at the end of every shift and over weekends. Stockpiles will not be placed in paved areas or in areas where concentrated stormwater flows.

Phasing will be an important aspect in minimizing the area of disturbance. To assist in the recordkeeping of the construction activities, a Schedule of Major Activities has been included in Appendix N and is to be completed by the Operator.

The following is a list of the activities that are anticipated during this project:

- Designate containment area and install appropriate good housekeeping ECMs in containment area
- Site Preparation- Install perimeter erosion controls (sediment wattle, sediment berm, stabilized construction entrance)
- Removal of incipient vegetation and staking of vegetation to be preserved
- Clearing and grubbing of deleterious materials: scarification of existing ground within roadway right-of-way, demolition/removal of existing pavement and sidewalk
- Onsite earthwork procedures: rough grading, excavation for road alignment, utility relocation/installation Construct cross drainages;
- Install storm drain inlet protection;
- Soils import and export
- Where applicable, stabilize disturbed areas and stockpiles within 14 days of last construction
- Final Grading of Right-of-Way for paved improvements
- Hydroseed/stabilize fill slopes, as needed
- Fine Grading and Paving
- Install permanent stabilization
- Project Complete, Remove temporary structural erosion control measures and inlet protection once soil has been stabilized

2.2 Control Stormwater Flowing onto and through the Project

***ECM Description*: Sediment Wattle (SC5) (ES3)**	
Installation Schedule:	Initiation of construction/disturbance
Maintenance and Inspection:	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Log (SC6) (ES1)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater. Logs are temporarily allowed across bottom of channels as a sediment control during the construction of the culverts. Per the SWPPP, once

	culverts are functional, all logs will be removed from the perpendicular position so as not to impede or obstruct flow. Final placement shall run parallel to wash banks/flow and should be placed in a manner that filters all run-off from project area through logs before entry into drainage. All sediment logs shall be removed prior to filing an NOT, unless approved by County SWPPP Inspector for slope stabilization.

***ECM Description*: Earth dikes/Drainage Swales and Lined Ditches (RC1)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from stabilized outlets routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Rock Berms on Cut to Fill Transitions (RC2) (Landscape Plans)**	
***Installation Schedule*:**	Stabilization Phase
***Maintenance and Inspection*:**	If washout occurs, reinstall material. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Control Berm (SC1) (SC6)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from dams routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Gravel Bag Protection (SC7)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Storm Drain Inlet Protection (SC8)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Inspect for displacement of rock or fabric. Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Curb Inlet Protection (SC9)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

2.3 Stabilize Soils

The operator must initiate stabilization measures on disturbed areas as soon as practicable, but no more than 14 days after construction activity has temporarily or permanently ceased, except where earth disturbing activity will resume within fourteen days from cessation. When vegetative measures are used and it is during seasonally arid conditions, stabilization measures shall be initiated as soon as practicable.

***ECM Description*: Scheduling & Construction Sequencing (CP1)**	
***Installation Schedule*:**	Construction Meeting
***Maintenance and Inspection*:**	Schedule should be updated at monthly update meetings.

***ECM Description*: ECM Inspection and Maintenance (CP2)**	
***Installation Schedule*:**	Groundbreaking
***Maintenance and Inspection*:**	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Preservation of Existing Vegetation (EC1) (DEMO Plan)**	
***Installation Schedule*:**	Prior to salvage and clearing and grubbing operations
***Maintenance and Inspection*:**	Ensure protection of existing vegetation conforms to requirements of landscape plans. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Hydroseeding and Mulch (EC3) (Landscape Plan)**	
***Installation Schedule*:**	Landscape Establishment
***Maintenance and Inspection*:**	Re-seed failed areas within 6 months. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Decomposed/Crushed Granite/Rock Mulch Protection for cut/fill transitions (RC2) (Landscape Plans)**	
***Installation Schedule*:**	Stabilization Phase

***Maintenance and Inspection*:**	If washout occurs, reinstall material. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

2.4 Protect Slopes

***ECM Description:* Crown ditch (EC7)**	
Installation Schedule:	Final grading of slope
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Cut to fill slope transitions (RC2) (Landscape Plans)**	
***Installation Schedule*:**	Stabilization Phase
***Maintenance and Inspection*:**	If washout occurs, reinstall material. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Hydroseeding and Mulch (EC3, EC4) (Landscape Plan)**	
***Installation Schedule*:**	Landscape Establishment/Stabilization
***Maintenance and Inspection*:**	Re-seed failed areas within 6 months. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

2.5 Protect Storm Drain Inlets

***ECM Description:* Storm Drain Inlet Protection (SC8)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Curb Inlet Protection (SC9)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Gravel Bag Protection (SC7)**	
Installation Schedule:	Once installed or as soon as area around existing inlet is disturbed
Maintenance and Inspection:	Remove debris when clogged. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Sediment Wattle/Log (SC5, SC6)**	
Installation Schedule:	Initiation of construction/disturbance
Maintenance and Inspection:	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Sediment Trap (SC3)**	
Installation Schedule:	Initiation of construction/disturbance
Maintenance and Inspection:	Remove accumulated sediment when 50% full. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Concrete Apron (Drainage plans)**	
Installation Schedule:	Initiation of construction/disturbance
Maintenance and Inspection:	Remove accumulated debris. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

2.6 Establish Perimeter Controls and Sediment Barriers

ECM Description: **Sediment Wattle (SC5) (ES3)**	
Installation Schedule:	Initiation of construction/disturbance
Maintenance and Inspection:	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Log (SC6) (ES1)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Control Berm (SC1) (ES6)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from dams routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Earth dikes/Drainage Swales and Lined Ditches (RC1)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from stabilized outlets routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Check Dams (RC6)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from dams routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

2.7 Retain Sediment On-Site

There are currently no sediment basins on-site. In lieu of sediment basins, erosion/sediment controls will be placed on all side slope boundaries.

***ECM Description*: Sediment Wattle (SC5) (ES3)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Log (SC6) (ES1)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Sediment Control Berm (SC1) (ES6)**	
***Installation Schedule*:**	Initiation of construction/disturbance
***Maintenance and Inspection*:**	Remove accumulated sediment from dams routinely and before and after rain events. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Street Sweeping (GH4)**	
Installation Schedule:	Street sweeping shall occur weekly on every Friday at a minimum, starting on first day of grading and increasing during hauling activities, until the project is temporarily or permanently stabilized.
Maintenance and Inspection:	Every week. During hauling activities, if streets are observed to have track-out from unpaved areas, additional sweeping shall be required.

***ECM Description:* Stabilized Construction Entrances – heavy equipment (SC10)**	
Installation Schedule:	Construction initiates
Maintenance and Inspection:	Hand sweep and remove sediment when track out occurs and every Friday at a minimum during hauling activities. Then every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Stabilized Construction Roadway (SC11)**	
Installation Schedule:	When separate construction access required
Maintenance and Inspection:	Hand sweep and remove sediment when track out occurs and every Friday at a minimum during hauling activities. Then every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Stockpile Management (GH7)**	
Installation Schedule:	Protection for stockpiles will be placed as soon as stockpiles are inactive for 14 days. During the rainy season, all stockpiles will be protected daily regardless of activity. Place stockpiles outside surface waters or stormwater conveyances and protect material using sediment wattles. Describe protection (i.e. v-ditch with dirt berm, plastic covers, other). Record location of stockpile and date placed, date removed, and planned use (i.e. waste, re-use in project, etc.) and contractor who placed material.

Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater and daily during rainy season.

See Erosion Control Plan (Appendix B) for design and installation details.

2.8 Additional Control Measures

Description: **Wind Erosion Control (WE1 Cal Trans)**	
Installation Schedule:	Soil disturbing activities
Maintenance and Inspection:	Daily during hauling activities

Description: **Rain Gauge**	
Installation Schedule:	Project Start
Maintenance and Inspection:	After every rain event.

Description: **Water Conservation Practices (NS1)**	
Installation Schedule:	Project Wide
Maintenance and Inspection:	Ensure excessive water use causing erosion and sediment transport does not occur. Do not allow run-off from irrigation to enter drainageways. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

Description: **Paving and Milling Operations (NS3)**	
Installation Schedule:	Road demolition and paving operations
Maintenance and Inspection:	Do not allow asphalt products or slurries to enter drainageways. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

SECTION 3: POLLUTION PREVENTION MEASURES

3.1 Material Handling and Waste Management

Discharges of fertilizers containing nitrogen or phosphorus shall be minimized by applying these products consistent with manufacturer's specifications.

***ECM Description:* Material Delivery and Storage (GH5)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Material Use (GH6)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Solid Waste Management (WM1)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Hazardous Waste Management (WM2)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Contaminated Soil Management (WM3)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Sanitary/Septic Waste Management (GH9)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Liquid Waste Management (WM5)**	
Installation Schedule:	Construction Initiation

Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Dewatering Operations (NS2)**	
Installation Schedule:	Initiation of dewatering operation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Pile Driving Operations (NS-11 Cal Trans)**	
Installation Schedule:	Initiation of pile driving operation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Spill Prevention and Control (GH8)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for ECM details.

3.2 Establish Proper Building Material Staging Areas

ECM Description: **Material Delivery and Storage (GH5)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Material Use (GH6)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Spill Prevention and Control (GH8)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for ECM details.

In the event of any accidental spill of chemicals or hazardous materials, contact the **Golder Ranch Fire District at** (520) 825-9001, or, in an emergency, dial 911. The operator shall report oil or hazardous materials releases in excess of reportable quantities, or that may endanger human health or the environment, within 24 hours to ADEQ (602) 771-4466 and to the local jurisdictions. Pima County will be contacted within 24 hours of a release or spill of hazardous materials in reportable quantities at (520) 382-2600. The operator will also be required to submit written notification within five calendar days to Pima County documenting the type, volume, cause of the discharge, corrective actions taken, and measures to prevent future occurrences. The SWPPP must be modified within 14 days to describe the release, including date, the apparent cause, and measures to prevent re-occurrence of releases. A Spill Report form is located behind Appendix M to aide in record keeping. Additional jurisdictional agencies may be contacted as deemed appropriate by operator and per local jurisdiction requirements. The contractor's Spill Prevention Plan will be inserted into Appendix M once the contract is awarded.

3.3 Designate Washout Areas

The concrete washout must be designed, operated to maintain adequate freeboard to prevent the overflow and discharge of wastewater. The average daily discharge to of concrete waste to the impoundment area shall be less than 3,000 gallons per day. The conditions listed in the ADEQ Aquifer Protection Plan Type 1 General Permit must be followed for Concrete Washouts (Appendix L). All concrete washout locations shall be shown on the SWPPP plans with notations on start and end dates.

Subgrade concrete washouts shall be cleared, grubbed and compacted to a uniform density not less than 95%. If the impoundment is above grade, any berms or dikes must be compacted to a uniform density not less than 95%. Specially designed concrete washout bins of volume sufficient to contain all liquid and concrete waste during washing activities are also acceptable. The washout areas shall be located at least 50 feet from storm drain inlets, watercourses, or drainage facilities, and 100 feet from any water supply well, and shall be cleaned as needed.

If the depth to groundwater is less than 20 feet below the surface, then the concrete washout impoundment must be lined with a synthetic liner at least 30 mils thick.

Depth to groundwater: Depth to groundwater is greater than 150-200 feet below the surface.

ECM Description: **Concrete Wash Out (WM4) (APP Type 1 Permit – App. L)**	
Installation Schedule:	Concrete work initiated
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Liquid Waste Management (WM5)**	
Installation Schedule:	Wash out activities initiated
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for ECM details.

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

ECM Description: **Vehicle and Equipment Fueling (GH2)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Vehicle and Equipment Maintenance (GH3)**	
Installation Schedule:	Construction Initiation
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for ECM details.

3.5 Control Equipment/Vehicle Washing

Under the 2020 ADEQ CGP, vehicle washing with rinsate containing pollutants is not an allowable non-stormwater discharge, and must be covered under a Type 3.03 General Aquifer Protection Permit.

Vehicle and equipment washing will not occur on this site.

3.6 Spill Prevention and Control Plan

In the event of a reportable spill (per 40 CFR, Parts 110, 117 or 302), the operator shall report incident to Rincon Valley Fire District, Pima County, and ADEQ as well as any noncompliance

which may endanger human health or the environment. The Operator shall notify ADEQ within 24 hours by calling their spill report line at (602) 771-2330. Toll Free at 1-800-234-5677.

A written submission shall also be provided to ADEQ within five days of the time the operator becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Submissions shall be sent to: Arizona Department of Environmental Quality
1110 W. Washington, 5th Floor (5515B-1)
Phoenix, AZ 85007

The operator shall notify the owner immediately and complete a Spill Report Form for every incident, regardless if reportable, within 7 calendar days of knowledge of a spill.

***ECM Description:* Spill Prevention and Control (GH8)**	
Installation Schedule:	Construction Initiation; Secondary Containment – 1.5 times the capacity of the largest drum stored.
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

A copy of the Contractor's Spill Prevention Plan and a Spill Report Form are included in Appendix M.

See Erosion Control Plan (Appendix B) for ECM details.

3.7 Additional Control Measures

***ECM Description:* Water Conservation Practices (NS1)**	
Installation Schedule:	Construction and Landscape Establishment
Maintenance and Inspection:	Ensure excessive water use causing erosion and sediment transport does not occur. Do not allow run-off from irrigation to enter drainageways. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Paving and Milling Operations (NS3)**	
Installation Schedule:	Road demolition and paving operations
Maintenance and Inspection:	Do not allow asphalt products or slurries to enter drainageways. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Illicit Connection/Illegal Discharge Detection and Reporting (NS6 Cal Trans)**	
Installation Schedule:	Project Wide at all times
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description: **Stabilized Construction Entrance (SC10)**	
Installation Schedule:	Project Wide at all times
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for ECM details

SECTION 4: SELECTING POST-CONSTRUCTION ECMs

Postconstruction stormwater management measures are permanent measures installed during construction that are designed to reduce or eliminate pollutants from the site after construction is complete. The following postconstruction stormwater management measures will be installed at the site for use after construction is complete.

***ECM Description:* Outlet Protection/Velocity Dissipation Devices (RC4)**	
Installation Schedule:	As soon as drainage features installed
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Earth Dikes/Drainage Swales/Lined Ditches (RC1)**	
Installation Schedule:	To Be Determined
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Rock Riprap/Berms (SC13) (ES2) (Drainage Plans)**	
Installation Schedule:	As soon as drainage features installed
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Wingwalls (Drainage Plans)**	
Installation Schedule:	As soon as drainage features installed
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description:* Concrete Header and Cut-off walls (Roadway Plans)**	
Installation Schedule:	Prior to paving
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

***ECM Description*: Hydroseeding and Mulch (EC3, EC4) (Landscape Plan)**	
***Installation Schedule*:**	Landscape Establishment/Stabilization
***Maintenance and Inspection*:**	Re-seed failed areas within 6 months. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

See Erosion Control Plan (Appendix B) for design and installation details.

SECTION 5: INSPECTIONS

5.1 Inspections

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

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

The **first inspection shall occur the day construction is initiated** and after the AZCN number has been posted. See Appendix E for Inspection Form. SWPPP authorization number(s) shall be posted near the entrance(s) where most of the construction activity occurs and must be conspicuous and accessible.

During construction activities, inspections shall occur: **At least once every fourteen calendar days, and within twenty-four hours following any storm event which generates greater than 0.50 inches of rainfall.** The contractor will monitor precipitation on the site with a commercially manufactured rain gauge with a minimum gradation increment of 0.01 inches. The rain gauge shall be installed within the project limits. Inspections for areas within ¼ mile of any non-attaining, impaired, or outstanding waters are required every 7 days.

Inspections shall include but not be limited to all disturbed areas that have not achieved final stabilization, installed control measures, discharge locations, storage yards and locations where vehicles enter and exit the site. **The completed and signed inspection form should be placed in the SWPPP within 24-48 hours after inspection initiation.**

If corrective actions and/or general maintenance are required, they must be identified in the inspection report and submitted to the Operator.

Corrective actions include modifications and/or replacements of any control measures that failed to meet conditions of Part 3 of the permit. ADEQ does not consider routine maintenance or repairs as corrective actions. Controls measures never installed or installed incorrectly are considered corrective actions. Any control measures or repairs required must be made operational, or completed, by no later than 7 calendar days from time of discovery.

General Maintenance shall ensure all control measures required remain in effective operating condition during permit coverage. When controls need to be replaced, repaired, or maintained, the operator will initiate work or fix the problem immediately after discovery and complete such work by the close of the next work day. If the installation of new control measures is not in response to a corrective action or a significant repair of the existing control is needed, install the new or modified control and make it operational by no later than 7 calendar from the time of discovery, or before the next rain event (whichever is sooner). If this is infeasible, the SWPPP records must document why it is infeasible and

must also document the schedule for installing and making it operational as soon as practicable.

All completed inspection reports and corrective action forms for the project shall be three-hole punched and kept in the SWPPP, with the most recent dated materials on top.

Contractor/Operator has 7 calendar days to correct a deficient field condition from the date identified or prior to next rain event, and must document in the SWPPP within 7 calendar days of completing the corrective action work.

Inspection reports shall be completed by the inspector and kept on file for at least 3 years by the owner.

Construction Complete:
In the event that final stabilization is contingent on growth of vegetation, a reduced inspection schedule can be followed upon completion of construction until final stabilization has been achieved. The reduced inspections shall be conducted at least once every 28 days, and anytime rain is predicted (30% chance), and within twenty-four hours of the end of any storm event of 0.50 inches or greater in 24 hours.

Final Stabilization is achieved when uniform ground cover, without large bare areas, reaches a density of 70% of the native background vegetation cover. See Section 7.

The background vegetation cover for this project is 25%; therefore, stabilization is reached when cover approaches 18% for Total uniform coverage.

5.2 Delegation of Authority

If a Delegate of Authority is replaced, then an end date must be recorded that matches the start date of the new Delegate of Authority. A secondary delegate may be assigned by each agency to cover for the Primary delegate, but the delegate form must state they are the Secondary delegate and they must be listed as part of the Stormwater Team in Section 1.2 Copies of all the signed and dated Delegation of Authority form are in Appendix K.

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

Primary Delegate for General Contractor:
Name: _____
Address: _____
City, State, Zip Code: _____
Telephone Number: _____

Fax/Email: _____
Start Date: _____
End Date: _____

Primary Delegate for Naranja Trails
Name: Scott Kolt
Address: 5326 N. La Cholla Blvd
City, State, Zip Code: Tucson, AZ 85741
Telephone Number: (520) 225-6845
Fax/Email: skolt@orovalleyaz.gov
Start Date: June 10, 2024
End Date: June 10, 2025

5.3 Corrective Action Log

Based on inspection results, the site description and pollution prevention measures shall be revised within this SWPPP if inadequacies are discovered. Corrective actions include modification or replacement of control measures. Routine maintenance or repairs are not corrective actions. The inspection and plan review process shall include timely implementation of any changes to the SWPPP. Field changes shall occur within seven calendar days following the inspection. Amendments to the SWPPP shall occur within 7 calendar days. If existing ECM's need to be modified or if additional ECM's are necessary, implementation shall be completed before the next anticipated storm event. If implementation before the next anticipated storm event is not practical, they shall be implemented as soon as practical and the reason for delay shall be documented in the SWPPP. This documentation shall include a schedule for implementation.

See Corrective Action Log in Appendix F.

SECTION 6: RECORDKEEPING AND TRAINING

6.1 Recordkeeping

A copy of this SWPPP, all reports and records required by the AZPDES Permit, and all data used to complete the NOI, shall be retained by the operator for a period of at least three years from the date that the site has been finally stabilized and the NOT completed.

A copy of this SWPPP shall be retained at the construction site at all times, from the date of project initiation to the date of final construction. The SWPPP will be kept by the owner for three years after stabilization of the site.

6.2 Log of Changes to the SWPPP

Disturbed areas and storage areas that are exposed to rainfall or run-on must be inspected for evidence of, or the potential for, pollutants entering site runoff.

Based on inspection results, the site description and pollution prevention measures shall be revised within this SWPPP if inadequacies are discovered. The inspection and plan review process shall include timely implementation of any changes to the SWPPP. These changes to the field conditions shall occur within seven calendar days following the inspection. If existing ECM's need to be modified or if additional ECM's are necessary, implementation shall be completed before the next anticipated storm event. If implementation before the next anticipated storm event is not practical, they shall be implemented as soon as practical. Inspection records are included in Appendix E of this SWPPP. These records shall be retained as part of the SWPPP for at least three years after the date the NOT is filed.

This SWPPP shall be amended whenever there is a change in design, construction, operation, or maintenance which has a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the plan, or if the SWPPP proves to be ineffective in eliminating or significantly minimizing pollutants, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges. Where such an Amendment occurs, the Operator shall update the SWPPP within 7 calendar days of completing the ECM implementation/modification.

See SWPPP Amendment Log (Appendix G).

6.3 Training

Contractor Responsible for providing:

- General stormwater and ECM awareness training for staff and subcontractors.
- Detailed training for staff and subcontractors with specific stormwater responsibilities.
- Implementation Plan

The contractor will provide an implementation plan describing the SWPPP activities associated with the construction sequencing of the project and how all requirements of the SWPPP will be accomplished during all phases of construction, including housekeeping requirements. All disturbed slopes that will not be stabilized within the SWPPP mandated 14 days must have temporary stabilization installed.

The implementation plan shall also include the contractor's training plan for their own Stormwater Team, as well as for remaining staff and sub-contractors. The contractor shall provide new employee training at least one (1) time per year and shall provide refresher training for existing employees directly involved in SWPPP activities at least once every two (2)

years. The contractor's training plan shall cover all requirements included in the most current version of the AZPDES Construction General Permit and shall include at minimum:

- County ordinances related to stormwater and construction
- Requirements for structural and non-structural control measures on construction sites, such as erosion and sediment controls
- Construction control measures maintenance requirements
- Inspection procedures
- Enforcement procedures
- Requirements and restrictions related to other permits included in the SWPPP, including the 404 Permit or Local County Ordinances, which prohibit stockpiling in drainage conveyances and washes
- Concrete Waste Management
- Hazardous waste management, including spill reporting and mitigation
- Proper storage of construction materials
- Proper storage of construction waste
- Litter control
- Management of stockpiles, excavations, and spoils
- Management of portable toilets
- Respect for project work boundaries and preservation of existing vegetation
- Installation of sediment wattles and logs

Individual(s) Responsible for Training: _____

See Training Log (Appendix J).

SECTION 7: FINAL STABILIZATION

Final Stabilization is achieved when uniform ground cover, without large bare areas, reaches a density of 70% of the native background vegetation cover. **The background vegetation cover for this project is 25%; therefore, stabilization is reached when cover approaches 18%.**

ECM Description: **Landscaping (Landscape Plans)**	
Installation Schedule:	Landscape Establishment
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater. If final stabilization is contingent on growth of vegetation, a reduced inspection schedule can be followed: Inspections shall be conducted at least once every 28 days, and anytime rain is predicted (30% chance), and within twenty-four hours of the end of any storm event of 0.50 inches or greater in 24 hours.

ECM Description: **Hydroseeding and Mulch (EC 3, EC4) (Landscape Plans)**

Installation Schedule:	Landscape Establishment
Maintenance and Inspection:	Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater. If final stabilization is contingent on growth of vegetation, a reduced inspection schedule can be followed: Inspections shall be conducted at least once every 28 days, and anytime rain is predicted (30% chance), and within twenty-four hours of the end of any storm event of 0.50 inches or greater in 24 hours.

ECM Description: **Potable Water/Irrigation Practices (NS7 Cal Trans)**	
Installation Schedule:	Landscape Establishment
Maintenance and Inspection:	Do not allow run-off from irrigation to enter drainageways. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description**: Sediment Log (SC6) (ES1)**	
Installation Schedule**:**	Initiation of construction/disturbance
Maintenance and Inspection**:**	Remove accumulated sediment when it reaches 1/2 height of the fiber roll. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description**: Rock Berm and Mulch Protection of cut/fill transitions (RC2, SC13) (Landscape Plans)**	
Installation Schedule**:**	Stabilization Phase
Maintenance and Inspection**:**	If washout occurs, reinstall material. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

ECM Description**: Pavement**	
Installation Schedule**:**	Stabilization Phase
Maintenance and Inspection**:**	If washout occurs, reinstall material. Every 14 days and also within 24 hours of the end of each rain event of 0.5 inches or greater.

SECTION 8: CERTIFICATION AND NOTIFICATION

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: _____ Title: _____

Signature: _____ Date: _____

REFERENCES:

The following sources can be used to help develop ECMs for this project and cited as references:

- *ADOT Erosion and Pollution Control Manual for Highway Design and Construction, Chapter 5,* ADOT, December 2012
- AZPDES General Permit, Section 3.0
- *California Department of Transportation Construction Site ECM Manual*, CA Dept. of Transportation, March 2003
- EPA National Menu of ECMs http://water.epa.gov/polwaste/npdes/swECM/index.cfm
- Standard Specifications for Public Improvements, Section 810, City of Tucson/Pima County, 2015 Edition

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – General Location Map

Appendix B – Erosion Control Plans (Site Maps/ECM Details)

Appendix C – Construction General Permit

Appendix D – NOI and Acknowledgement Letter from State

Appendix E – Inspection Reports

Appendix F – Corrective Action Log

Appendix G – SWPPP Amendment Log

Appendix H – Contractor/Subcontractor Certifications

Appendix I – Grading and Stabilization Activities Log

Appendix J – Training Log

Appendix K – Delegation of Authority

Appendix L – Additional Information (i.e., Endangered Species and Historic Preservation Documentation, 401/404, APP Type 1, APP Type 3, Temporary Use Permit)

Appendix M – Contractor's Spill Prevention Plan

Appendix N – Construction Schedule and Implementation

Appendix O – Field Contacts/ Subcontractor List

Appendix P – Inspector, Stormwater Team Qualifications

Appendix Q – NOT and Acknowledgement from ADEQ

Appendix R – Rainfall Log

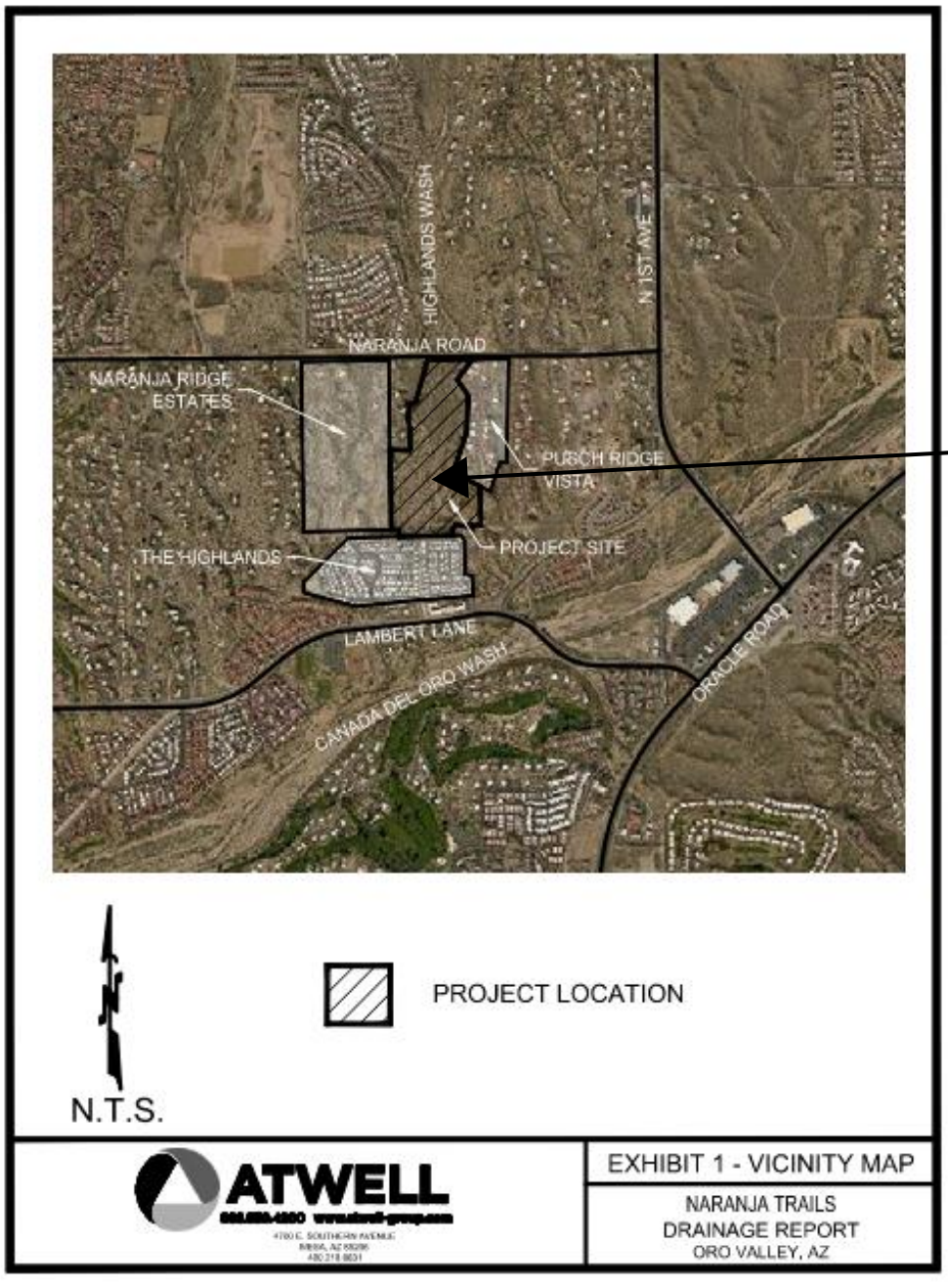
DESCRIPTION AND INSTRUCTIONS FOR FORMS AND LOGS

Appendix A	Maps showing projects limits and one-mile radius. Identify drainages, locations on-site and off-site staging/material management areas, and drywells within ¼ mile and amend as needed.
Appendix B	Map and details of erosion control measures for the installation and maintenance of wattles, logs, sand bag berms, etc.
Appendix C	A copy of the General Permit AZG2020-001 is included.
Appendix D	A copy of the completed Notice of Intent (NOI) and Letter of Acknowledgement is included in this Appendix for both the owner and Contractor.
Appendix E	Inspection dates and all observations made during inspections should be recorded on these forms. Suggested maintenance/corrective actions measures are included. Use the checklists and guidelines to document each inspection. Refer to Construction General Permit for further direction.
Appendix F	This log is in addition to the CAL on the Inspection Reports and can be used at the discretion of the Inspector/Delegate as a summary tool for the inspection reports.
Appendix G	All amendments to the SWPPP shall be recorded on this form. Amendments may be required when activities change which affect ECM and pollutant discharges. Refer to the Construction General Permit for further amendment requirements.
Appendix H	The Contractor and every Subcontractor is required to certify the SWPPP by signing this form as soon as they enter the project limits to initiate work.
Appendix I	Grading and Stabilization Activities Logs are completed from start to finish of the project. It is a historical record of the grading activity and the subsequent stabilization measure (i.e. hauling activities should trigger the need for additional sweeping activities).
Appendix J	The Contractor is required to provide SWPPP training to all staff and subcontractors. This is a record of the training the Contractor provided.

Appendix K	The Contractor and the Owner must each identify a Delegate of Authority who is responsible for performing the SWPPP Inspections and completing and signing the Inspection Form, including the call out of any required maintenance or corrective actions.
Appendix L	This appendix holds information on additional permit requirements (i.e., ROW Use Permit, Air Quality Permit, Endangered Species and Historic Preservation Documentation, 401/404, APP Type 1 and Type 3, Temporary Use Permit, ADA Notification, NEPA mitigation, etc.)
Appendix M	Contractor Spill Prevention Control and Countermeasures Plan
Appendix N	The construction schedule should be revised as necessary throughout construction. Start/finish dates for construction activities, such as grading and implementation of stabilization measures shall be logged on the forms in this appendix or update schedule provided.
Appendix O	Upon receipt of this SWPPP, the name(s) and telephone number(s) of the appropriate field personnel from the Contractor and the Owner shall be provided on this form or in a similar format. This form should be amended and/or revised as necessary throughout the construction period. Upon receipt of this SWPPP the names, addresses and telephone numbers of the project contractor and subcontractors must be provided. This list must be amended and/or revised as necessary throughout the construction period. The name and title of the contractors/subcontractors, the name, address and phone numbers of the sub-contracting firms are to be included.
Appendix P	All members/operators identified on the SWPPP Team will provide a summary of their qualifications for this appendix. Generally this includes the Project Managers, Superintendents, ROW Permit Staff, and the Delegate of Authorities for both Contractor and the Owner.
Appendix Q	A Notice of Termination (NOT) is to be completed by the Contractor at Final Acceptance. The Owner will complete the NOT at Final Stabilization.
Appendix R	Rainfall log, use the checklists and guidelines to document each inspection

Appendix A – General Location Map

- Map radius must be minimum 1 mile around project limits
- Include waters of the U.S.



HIGHLANDS WASH RECIEVING WATER (APPROX. 100 FT TO THE WEST)

Appendix B – Erosion Control Plans(Site Map and Control Measures)

Provide Project ECM Site Map.

INDEX OF PLANS, DETAILS, AND ECMs

Provide ADOT Erosion and Pollution Control Manual (2012) Details or equivalent (add or remove as necessary): http://www.azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development/erosion-and-pollution-control-manual

CP1	CONSTRUCTION SEQUENCING
CP2	ECM INSPECTION AND MAINTENANCE
EC1	PRESERVE EXISTING VEGETATION
EC3	MULCH COVER
EC4	SEEDING
EC7	CROWN DITCH
RC1	EARTH DIKES/DRAINAGE SWALES AND LINED DITCHES
RC2	CUT FILL SLOPE TRANSITIONS
RC4	ROCK OUTLET PROTECTION/VELOCITY DISSAPATION DEVICES
RC5	SLOPES DRAINS
RC6	CHECK DAM
SC1	SEDIMENT CONTROL BERM
SC3	SEDIMENT TRAP
SC5	SEDIMENT WATTLE
SC6	SEDIMENT LOG
SC7	GRAVEL BAG PROTECTION
SC8	STORM DRAIN INLET PROTECTION
SC9	CURB INLET PROTECTION
SC10	STABILIZED CONSRUCTION ENTRANCE/EXIT
SC11	STABILIZED CONSTRUCTION ROADWAY
SC13	ROCK BERM
GH2	VEHICLE AND EQUIPMENT FUELING
GH3	VEHICLE AND EQUIPMENT MAINTENANCE
GH4	STREET SWEEPING AND VACUUMING
GH5	MATERIAL DELIVERY AND STORAGE
GH6	MATERIAL USE
GH7	STOCKPILE MANAGEMENT
GH8	SPILL PREVENTION AND CONTROL
GH9	PORTABLE TOILET
NS1	WATER CONSERVATION PRACTICES
NS2	DEWATERING OPERATIONS
NS3	PAVING AND MILLING OPERATIONS
NS7	MATERIAL AND EQUIPMENT USE IN/OVER WATERCOURSE
WM1	SOLID WASTE MANAGEMENT
WM2	HAZARDOUS WASTE MANAGEMENT
WM3	CONTAMINATED SOIL MANAGEMENT
WM4	CONCRETE WASTE MANAGAMENT
WM5	LIQUID WASTE MANAGEMENT

Caltrans ECM Manual (March 2003) details may be utilized if ADOT equivalent not available (add or remove as necessary): http://www.dot.ca.gov/hq/construc/stormwater/CSECMM_303_Final.pdf

WE-1 WIND EROSION
NS-6 ILLICIT CONNECTIONS/ILLEGAL DISCHARGE DETECTION AND REPORTING
NS-7 POTABLE WATER/IRRIGATION
NS-11 PILE DRIVING OPERATIONS

ADOT sheets for:
ES1 Sediment Log
ES2 Rock Protection for Inlets, Outlets & Headwall Transition
ES3 Sediment Wattle
ES6 Sediment Control Berm
ES7 Temporary Silt Fence
ES8 Slope Minibenching
ES9 Gravelbag Protection
ES10 Rock Check Dam
ES11 Stabilized Construction Entrance (SCE)/Exit Gravel Pad
ES13 Inlet Protection Combined BMPs
ES14 Median Inlet Protection

STORM WATER POLLUTION PREVENTION PLANS FOR NARANJA TRAILS

A PORTION OF THE NORTHWEST QUARTER OF SECTION 12, TOWNSHIP 12 SOUTH, RANGE 13 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PIMA COUNTY, ARIZONA
LOTS 1 THROUGH 64 & COMMON AREAS A THROUGH B
CASE# 2202968

BASIS OF BEARING

BASIS OF BEARING IS ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 12, T.12S., R.13E. BEING S00°32'11"E WITH A DISTANCE OF 2640.20' FEET.

BASIS OF ELEVATIONS:

THE BASIS OF ELEVATION:
BENCHMARK IS THE NORTHWEST CORNER OF SECTION 12, T.12S., R.13E
ELEVATION=2693.89 FEET

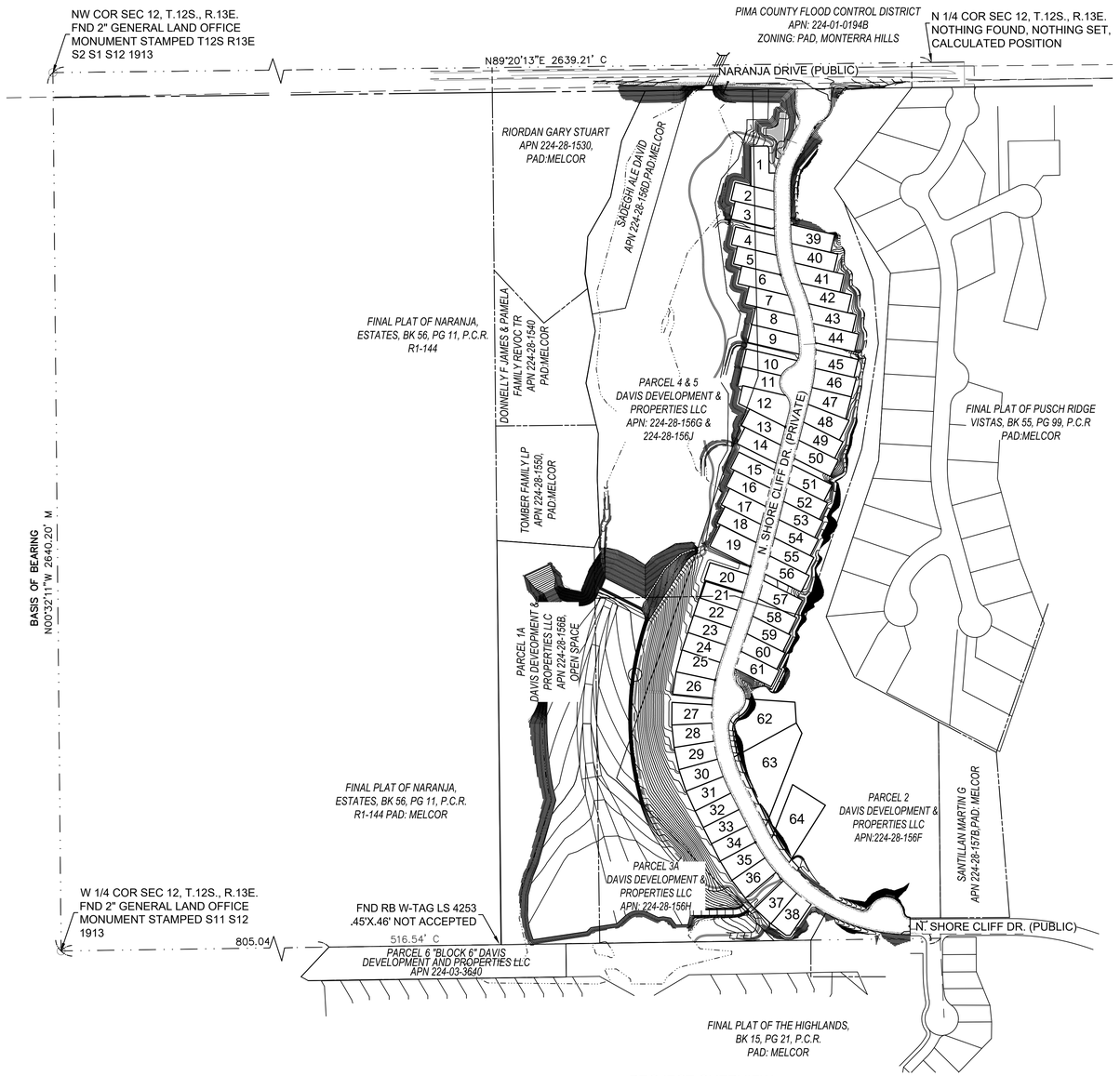
SECONDARY BENCHMARK IS THE WEST QUARTER CORNER OF SECTION 12, T.12S., R.13E
ELEVATION=2581.39 FEET

SWPPP CERTIFICATION

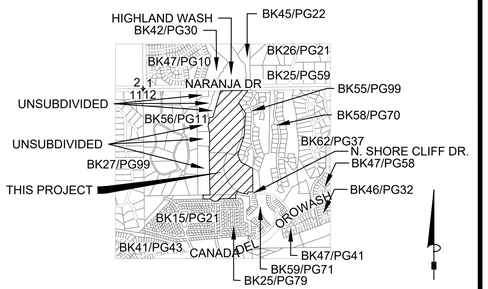
I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THIS SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, I BELIEVE THE INFORMATION SUBMITTED IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. IN ADDITION I CERTIFY THAT THE PERMITTEE WILL COMPLY WITH ALL TERMS AND CONDITIONS STIPULATED IN GENERAL PERMIT NO. AZG2008-001 ISSUED BY THE DIRECTOR.

PRINTED NAME _____ JOB TITLE

SIGNATURE _____ COMPANY NAME



PROJECT OVERVIEW
SCALE 1"=200'



SECTION 12 TOWNSHIP 12 SOUTH
RANGE 13 EAST
VICINITY MAP
NTS

OWNER
PREMIER BUILDING GROUP
3191 E. 44TH STREET
TUCSON, AZ 85713
CONTACT: ROD DAVIS
PHONE: 520.293.0300

DEVELOPER
MERITAGE HOMES
5326 N. LA CHOLLA BLVD.
TUCSON, AZ 85741
CONTACT: SCOTT KOLT
PHONE: 520.225.6845

CIVIL ENGINEER
ATWELL
4700 E SOUTHERN AVE
MESA, AZ 85206
CONTACT: MICHAEL PARK, PE
PHONE: (602) 350-0311
MIKEPARK@ATWELL-GROUP.COM

SHEET INDEX		
CS01	1	COVER SHEET
SWP01 - SWP05	2 - 6	STORM WATER POLLUTION PREVENTION PLANS

ATWELL
866.850.4200 www.atwell-group.com
4700 E. SOUTHERN AVENUE
MESA, AZ 85206
520.268.6322

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
64583
MICHAEL J. PARK
DATE SIGNED/REVISED
12/31/24

Know what's below. Call before you dig.

LOCATION DESCRIPTION
A PORTION OF THE EAST HALF OF THE NORTHWEST QUARTER OF SECTION 12, TOWNSHIP 12 SOUTH, RANGE 13 EAST,OF THE GILA AND SALT RIVER BASE AND MERIDIAN TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA

EROSION AND SEDIMENT CONTROL PLAN
NARANJA TRAILS
LOTS 1 THROUGH 64 & COMMON AREAS A THROUGH B
TOWN OF ORO VALLEY, PIMA COUNTRY, ARIZONA

PM.	M. PARK
DR.	J.TURPIN
JOB NO.	20000103
DATE.	4-1-2024

ORO VALLEY CASE No: 2000939, 2002761, 2202968
2202969, 2202970, 2301593

SHEET NO.
1 OF 6

CS01

GRAPHIC SCALE
200 100 0 200 400
1" = 200'

NARANJA DRIVE (PUBLIC)

1+00

42.4'± EX PVMT

75'± EX R/W

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

STABILIZED CONSTRUCTION ENTRANCE PER ADOT DETAIL ES11

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

EX. 50' INGRESS/EGRESS & UTILITY DKT 13181, PG. 3510, P.C.R.

WSE = 2640

EX 65' PUBLIC VARIABLE WIDTH SLOPE, DRAINAGE, AND MAINTENANCE ESMT PER DKT 3960, PG 1901, P.C.R.

3+00

4+00

PROJECT BOUNDARY

CRITICAL RESOURCE AREA

HIGHLANDS WASH

PROJECT BOUNDARY

SEDIMENT WATTLE PER ADOT DETAIL ES3

WSE = 2635

SADEGHI ALE DAVID APN 224-28-158D PAD/MELCOR

1

2

5+00

INLET GRAVELBAG PROTECTION PER ADOT DETAIL ES9

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

INLET GRAVELBAG PROTECTION PER ADOT DETAIL ES9

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

3

PROP 8" W

EX 12" W

6+00

7+00

8+00

9+00

4

5

6

7

8

39

40

41

42

43

44

9

NOT A PART FINAL PLAT OF PUSCH RIDGE VISTAS, BK 55, PG 99, P.C.R.

WSE = 2630

EXISTING FLOODPLAIN

PROPOSED FLOODPLAIN

CRITICAL RESOURCE AREA

WSE = 2625

SEE SHEET 3

SEE SHEET 3

KEYMAP
NTS

N

40 20 0 40 80
GRAPHIC SCALE
1" = 40'

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520.268.6322

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
64583
MICHAEL J. PARK
DATE EXPIRES 09/30/2024
ARIZONA U.S.A.

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DR.	J.TURPIN
JOB NO.	20000103
DATE.	4-1-2024

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2202969, 2202970, 2301593

SWP01

SHEET NO.
2 OF 6

x:\20000103 - naranja trails\dwg\plan sets\swppp\20000103-12-swp01.dwg Plotdate:4/1/2024

SEE SHEET 2

PROJECT BOUNDARY

WSE = 2620

PARCEL 4 & 5
DAVIS DEVELOPMENT & PROPERTIES LLC
APN: 224-28-156G & 224-28-156J

WSE = 2615

EXISTING FLOODPLAIN LIMITS

PROPOSED FLOODPLAIN LIMITS

WSE = 2610

SEDIMENT WATTLE PER ADOT DETAIL ES3

SEE SHEET 4

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

INLET GRAVELBAG PROTECTION PER ADOT DETAIL ES9

PROP 8" W

N. SHORE CLIFF DR. (PRIVATE)

NOT A PART
FINAL PLAT OF PUSCH RIDGE VISTAS, BK 55, PG 99, P.C.R.

KEYMAP
NTS

N

GRAPHIC SCALE
40 20 0 40 80
1" = 40'

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MESA, AZ 85206
520.268.6322

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
64583
MICHAEL J. PARK
Date Signed 04/17/2024
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PM.	M. PARK
DR.	J.TURPIN
JOB NO.	20000103
DATE.	4-1-2024

ORO VALLEY CASE No: 2000939, 2002761, 2202968
2202969, 2202970, 2301593

SHEET NO.
3 OF 6

SWP02

PROJECT BOUNDARY

SEE SHEET 3

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

WSE = 2605

17

18

19

53

54

55

56

SEE SHEET 3

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

20

INLET GRAVELBAG PROTECTION PER ADOT DETAIL ES9

21

57

INLET GRAVELBAG PROTECTION PER ADOT DETAIL ES9

22

58

23

59

24

60

PARCEL 1A
DAVIS DEVEOPMENT & PROPERTIES LLC
APN 224-28-156B
OPEN SPACE

WSE = 2575

25

61

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

26

SEDIMENT WATTLE PER ADOT DETAIL ES3

PROPOSED FLOODPLAIN LIMITS

INLET/OUTLET ROCK PROTECTION PER ADOT DETAIL ES2

SEE SHEET 6

27

62

EXISTING FLOODPLAIN LIMITS

28

SEE SHEET 6

29

SEE SHEET 5

N

40 20 0 40 80

GRAPHIC SCALE
1" = 40'

KEYMAP
NTS

ATWELL
866.850.4200 www.atwell-group.com
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MESA, AZ 85206
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REGISTERED PROFESSIONAL ENGINEER (CERTIFICATE NOT VALID WITHOUT SIGNATURE)
64583
MICHAEL J. PARK
Date Signed 04/11/2024
ARIZONA U.S.A.

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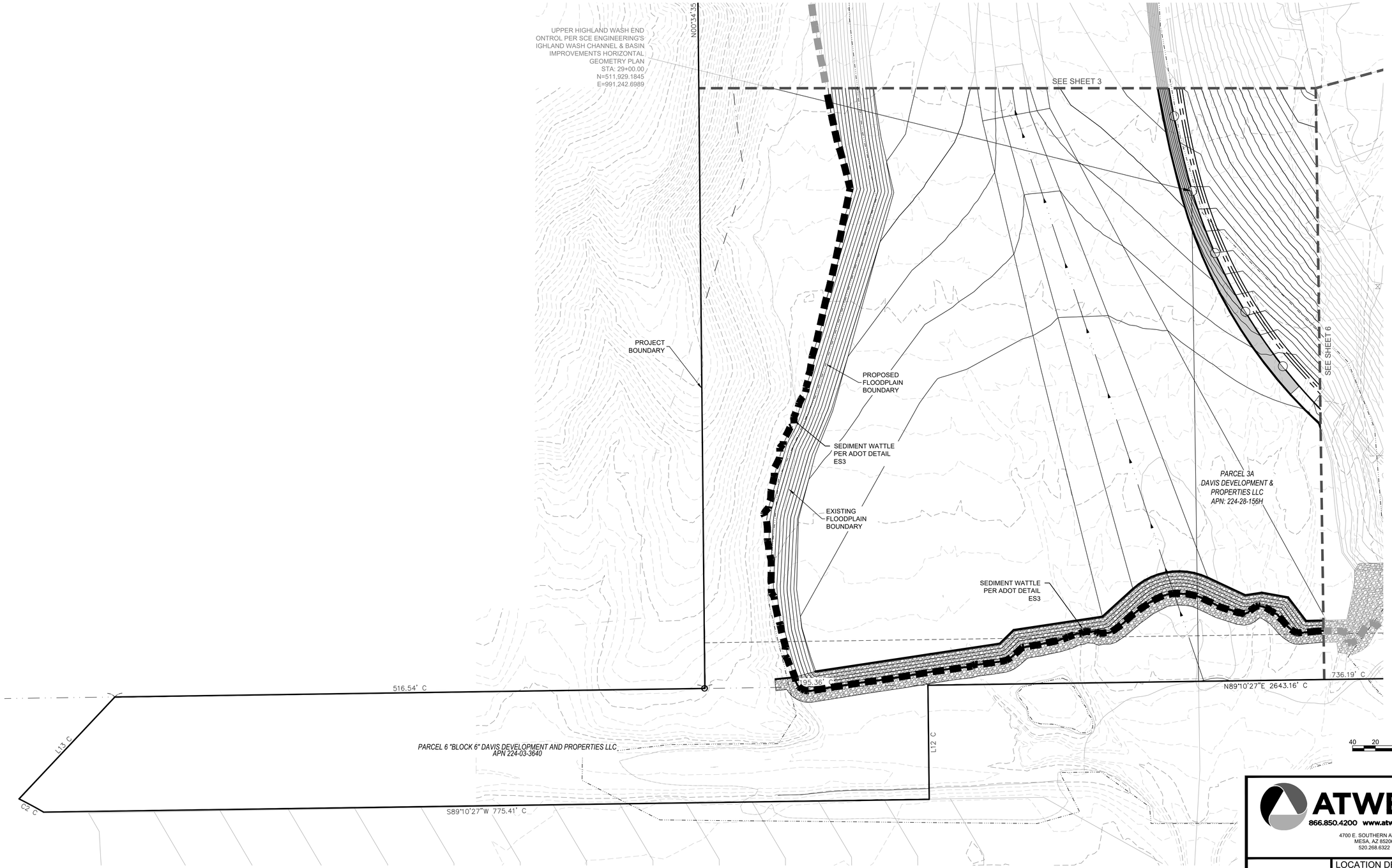
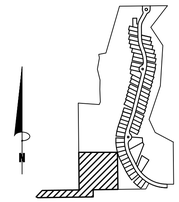
DATE.	4-1-2024

ORO VALLEY CASE No: 2000939, 2002761, 2202968 2202969, 2202970, 2301593

SWP03

SHEET NO.
4 OF 6





KEYMAP
NTS

N

40 20 0 40 80
GRAPHIC SCALE
1" = 40'

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DATE.	4-1-2024

ORO VALLEY CASE No: 2000939, 2002761, 2202968
2202969, 2202970, 2301593

SWP04

SHEET NO.
5 OF 6

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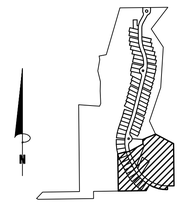

KEYMAP
NTS

GRAPHIC SCALE
1" = 40'

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MESA, AZ 85206
520.268.6322

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EROSION AND SEDIMENT CONTROL PLAN
NARANJA TRAILS

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TOWN OF ORO VALLEY, PIMA COUNTRY, ARIZONA

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DR.	J.TURPIN
JOB NO.	20000103
DATE.	4-1-2024

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2202969, 2202970, 2301593

SHEET NO.
6 OF 6

SWP05

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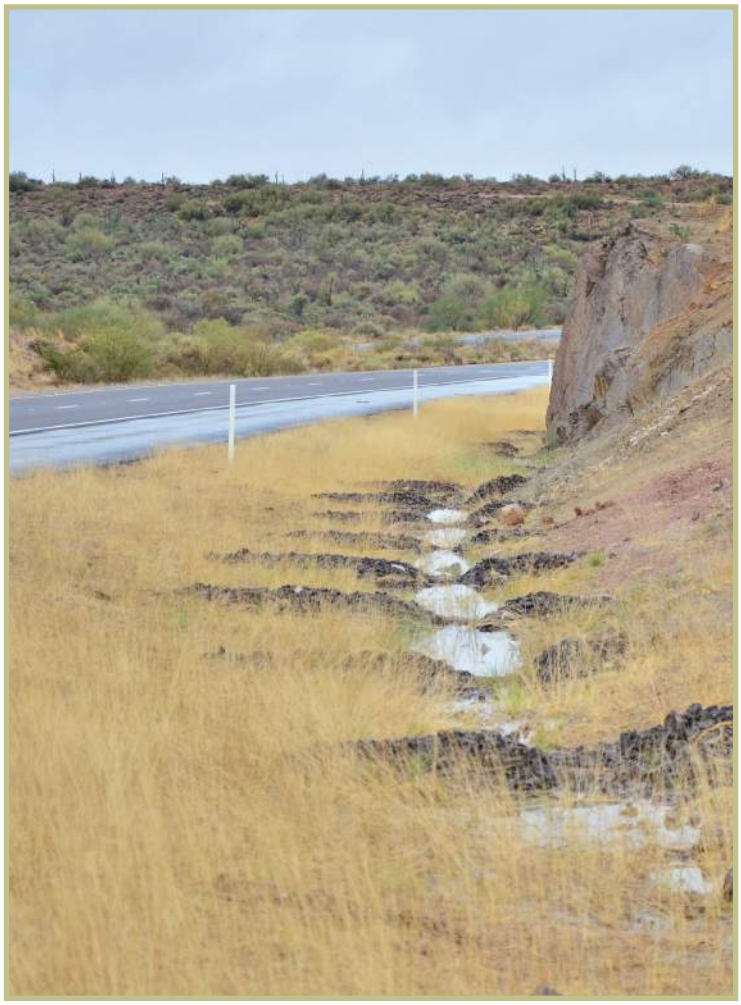
ADOT

Arizona Department of Transportation

Erosion and Pollution Control Manual

For Highway Design and Construction

http://www.azdot.gov/docs/default-source/water-quality/2012-epcm-complete.pdf?sfvrsn=2



Erosion and Pollution Control Manual

For Highway Design and Construction

Written and Edited by
Wheat Scharf Associates

under the Direction of
ADOT Erosion and Pollution Control Review Committee

LeRoy Brady
Roadside Development Section

Wendy Terlizzi
Water Quality Group

Tao Zi Fong
Roadside Development Section

for the
Arizona Department of Transportation,
Intermodal Transportation Division

DECEMBER 2012

Produced and Published by
Arizona Department of Transportation,
Intermodal Transportation Division
Roadside Development Section
1611 W. Jackson St., MD EM03
Phoenix, Arizona 85007

CHAPTER 5

BEST MANAGEMENT PRACTICES

5.1 INTRODUCTION

Best Management Practices (BMPs) are operational activities or physical controls that reduce the discharge of pollutants and minimize potential impacts upon receiving waters. In order to complete the *Stormwater Pollution Prevention Plan* (SWPPP) for ADOT approval, the contractor is required to select those BMPs which will best control stormwater pollution. Chapter 2 Project Planning and Design Guide of this manual offers one approach for selecting construction BMPs.

This chapter discusses BMP implementation factors and provides a toolbox of BMPs. Each highway construction project has unique conditions that may require new or custom BMPs to be designed or developed to meet water quality goals. Refer to the *ADOT Post-Construction Best Management Practices Manual* for a list of permanent BMPs for use in highway design and construction.

The design standards, details and material specifications for BMPs in this manual are subject to change. Stormwater erosion and pollution control BMPs are rapidly evolving and should be periodically checked for updates in design methods, specifications or materials.

5.2 IMPLEMENTING CONSTRUCTION SITE BMPS

Throughout the highway project development process each responsible participant will have identified BMPs to be used to prevent stormwater pollution. Successful implementation of these BMPs depends on many factors including:

- Thorough project site assessment prior to BMP installation and start of construction
- Comprehensive review of plans, details and specifications
- Development of the SWPPP including accurate maps of BMP locations
- Identification of strategies to limit the extent of disturbance throughout the entire project timeline
- Properly sized BMPs (flows typically increase down the watershed)
- Use of combinations of BMPs for most effective erosion and pollution control
- Inspection, maintenance and repair or replacement of BMPs
- Use of alternative BMPs
- Proper employee training
- Diligent record keeping to document BMP inspection, performance and maintenance

The contractor is advised to consider these factors as he or she prepares to implement project BMPs, both those specified in plans and details, and those he has included in the SWPPP.

Stormwater erosion and pollution control is a dynamic process that requires continuing effort to meet water quality goals.

Construction sites that disturb less than one acre are exempt from permit coverage, **however, operators are required to apply stormwater quality and erosion/sediment control BMPs as part of ADOT's compliance practices and pollution prevention measures.** The exemption of NPDES or AZPDES permit coverage for sites under one acre of soil disturbance could be canceled if the operator violates water quality standards by not correctly implementing BMPs.

CP	Construction Site Planning and Management
CP-1	Construction Sequencing
CP-2	BMP Inspection and Maintenance
EC	**Erosion Control**
EC-1	Preserve Existing Vegetation
EC-2	Minibenches/Slope Roughening
EC-3	Mulch Cover
EC-4	Seeding
EC-5	Geotextiles/Erosion Control Blankets
EC-6	Soil Binders
EC-7	Crown Ditch
RC	**Runoff Control**
RC-1	Earth Dikes/Drainage Swales and Lined Ditches
RC-2	Cut to Fill Slope Transitions
RC-3	Erosion Protection at Structures
RC-4	Rock Outlet Protection/ Velocity Dissipation Devices
RC-5	Slope Drains
RC-6	Check Dam
SC	**Sediment Control**
SC-1	Sediment Control Berm
SC-2	Silt Fence
SC-3	Sediment Trap
SC-4	Sediment Basin
SC-5	Sediment Wattle
SC-6	Sediment Log
SC-7	Gravel Bag Protection
SC-8	Storm Drain Inlet Protection
SC-9	Curb Inlet Protection
SC-10	Stabilized Construction Entrance/Exit
SC-11	Stabilized Construction Roadway

SC	Sediment Control, continued
SC-12	Compost Sock
SC-13	Rock Berm
GH	**Good Housekeeping**
GH-1	Vehicle and Equipment Cleaning
GH-2	Vehicle and Equipment Fueling
GH-3	Vehicle and Equipment Maintenance
GH-4	Street Sweeping and Vacuuming
GH-5	Material Delivery and Storage
GH-6	Material Use
GH-7	Stockpile Management
GH-8	Spill Prevention and Control
GH-9	Portable Toilet
NS	**Non-Stormwater**
NS-1	Water Conservation Practices
NS-2	Dewatering Operations
NS-3	Paving and Milling Operations
NS-4	Temporary Watercourse Crossing
NS-5	Water Diversion
NS-6	Structure Demolition/Removal Over or Adjacent to Water
NS-7	Material and Equipment Use In/Over Watercourses
WM	**Waste Management**
WM-1	Solid Waste Management
WM-2	Hazardous Waste Management
WM-3	Contaminated Soil Management
WM-4	Concrete Waste Management
WM-5	Liquid Waste Management

Table 5.1: Construction BMPs

5.3 CONSTRUCTION BEST MANAGEMENT PRACTICES

Table 5.1 Construction BMPs lists the BMP categories and the BMPs included in this manual. Post-Construction BMPs are discussed in the *ADOT Post-Construction Best Management Practices Manual For Highway Design and Construction (July 2009)*. Use both manuals to assist in developing effective erosion and pollution controls for highway projects.

BMP Categories and Sheets

The BMP sheets that follow are organized by category. Each BMP sheet includes a definition, purpose, and the AT A GLANCE section which provides brief information to assist in the selection of BMPs applicable to your project. Photographs and specific information on appropriate applications, limitations, planning/design considerations, material specifications, design standards and inspection and maintenance requirements complete each sheet. ADOT Erosion/Sediment Control and Water Quality Protection Details listed on individual BMP sheets are available at the ADOT Roadside Development Section website: http://www.azdot.gov/Highways/Roadway_Engineering/Roadside_Development/Resources.asp.

References and Resources

- *Arizona Department of Environmental Quality – Aquifer Protection Permit.*
- *Arizona Department of Environmental Quality Arizona Department of Transportation Statewide Permit for Discharges to Waters of the United States under the Arizona Pollutant Discharge Elimination System Program, February 2008*.
- *Arizona Department of Environmental Quality Arizona Pollutant Discharge Elimination System General Permit for Discharge from Construction Activities to Waters of the United States, February 2008*.
- *Environmental Protection Agency National Pollutant Discharge Elimination System General Permit for Discharge from Construction Activities to Waters, February, 2012*.
- *ADOT Erosion and Pollution Control Manual: for Highway Design and Construction, January 25, 2005.*
- *ADOT Maintenance and Facilities Best Management Practices Manual, 2010.*
- *ADOT Post-Construction Best Management Practices Manual June 2009.*
- *ADOT Statewide Storm Water Management Plan, February 2005 (3rd revision).*
- *ADOT SWPPP Template, June 10, 2010.*
- *Environmental Protection Agency Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites, May, 2007.*

Additional references and sources are listed on each BMP sheet as applicable.

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Construction Site Planning & Management (CP) BMPs

Construction site planning and management can reduce erosion and sediment loss by limiting the amount of disturbed area on the site at any one time, through proper implementation, inspection and maintenance of BMPs, through achievement of final stabilization of disturbed areas as the project progresses and by implementation of other considerations described in the Construction Sequencing BMP.

- CP-1 Construction Sequencing
- CP-2 BMP Inspection and Maintenance

Section 104.09 of the ADOT Stored Specifications states:

"Unless otherwise approved by the Engineer, the contractor shall not expose a surface area of greater than 750,000 square feet (17.22 acres) to erosion through clearing and grubbing, or excavation and filling operations within the project limits until temporary or permanent erosion control devices for that portion of the project have been installed and accepted by the Engineer.

The contractor shall indicate each 750,000 square-foot (17.22 acres) sub-area in the draft SWPPP, along with proposed erosion control measures for each sub-area. The draft SWPPP shall also include the sequence of construction for each sub-area, and installation of the required temporary or permanent erosion control measures."

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Construction Site Planning & Management
Construction Sequencing CP-1

DEFINITION

The development of a work schedule for every project that includes sequencing of construction and land disturbing activities in conjunction with the implementation of construction site BMPs.

PURPOSE

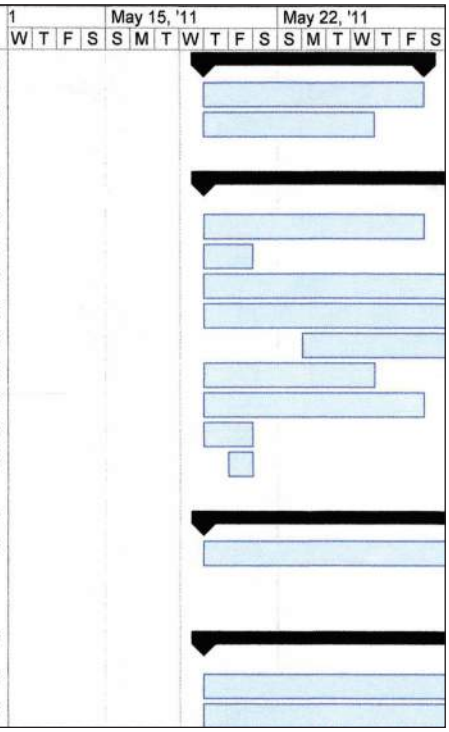
- Reduce the amount and duration of soil exposed to erosion by construction activities.
- Ensure installation of erosion and sediment control BMPs per a planned schedule.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Plan and schedule to disturb only portions of a site at any one time • Coordinate cut and fill to minimize movement and storage of soils
Alternate BMPs to consider: • N/A
Use in combination with: • Project specific BMPs
Maintenance Needs: • Evaluate and update construction progress and schedule

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping		X	
Non-Stormwater			X
Waste Management			X

ID	Task Name	Duration	Start	Finish
1	**DARK STAR/ SR-90**	**7 days**	**Thu 5/19/11**	**Fri 5/27/11**
2	QWEST	7 days	Thu 5/19/11	Fri 5/27/11
3	FENCE/GATES	5 days	Thu 5/19/11	Wed 5/25/11
4				
5	**I-10 NEW WEST BOUND AND EAST BOUND**	**16 days?**	**Thu 5/19/11**	**Thu 6/9/11**
6	SWPPP	7 days	Thu 5/19/11	Fri 5/27/11
7	SUBGRADE PREP	2 days	Thu 5/19/11	Fri 5/20/11
8	TRUCK HAUL	14 days	Thu 5/19/11	Tue 6/7/11
9	STORMDRAIN	14 days	Thu 5/19/11	Tue 6/7/11
10	ELECTRICAL	14 days	Mon 5/23/11	Thu 6/9/11
11	BC5	5 days	Thu 5/19/11	Wed 5/25/11
12	FENCE	7 days	Thu 5/19/11	Fri 5/27/11
13	ABC	2 days	Thu 5/19/11	Fri 5/20/11
14	PAVE (W/B MAINLINE)	1 day?	Fri 5/20/11	Fri 5/20/11
15				
16	**SR-90**	**12 days**	**Thu 5/19/11**	**Fri 6/3/11**
17	SOIL NAIL (PERMANENT WEST/EAST)	12 days	Thu 5/19/11	Fri 6/3/11
18				
19	**GRAVES BORROW SITE**	**14 days**	**Thu 5/19/11**	**Tue 6/7/11**
20	EARTH WORK	14 days	Thu 5/19/11	Tue 6/7/11
21	TRUCK HAUL	14 days	Thu 5/19/11	Tue 6/7/11



2-Week Look Ahead Schedule Example.

Construction Sequencing CP-1

APPROPRIATE APPLICATIONS

- All construction projects.

LIMITATIONS

- Weather and other variables might affect construction schedules. The schedule should be updated to reflect changes due to these variables.

PLANNING/DESIGN CONSIDERATIONS

- Plan and schedule construction activities to minimize the amount of disturbed land exposed to erosive conditions.
- Install and maintain stabilization measures as work progresses, not just at the completion of construction.
- Schedule the installation of construction (temporary) and post-construction (permanent) controls as specified in the applicable stormwater discharge permit (FCGP, AZCGP, ADOT Statewide).
- The schedule of construction activities and concurrent application of construction and post-construction BMPs is developed as part of the SWPPP.
- Schedule clearing and grubbing activity to allow existing vegetation to remain in place as long as possible.
- For larger projects, the contractor shall not expose more than 750,000 square feet in any location until construction or post-construction BMPs have been installed and accepted by the Engineer.
- Stabilize non-active or construction-delayed areas as specified in the CGP.
- Monitor weather forecast and adjust the construction schedule to allow for the implementation of soil stabilization and sediment controls on all disturbed areas prior to the onset of rain.

DESIGN STANDARDS

- Develop the project construction schedule per the applicable permit requirements and ADOT specifications.
- The schedule should:
  - clearly define where and when BMPs will be installed.
  - include dates for installation of permanent drainage systems and runoff diversion devices. Install these devices as early as possible in the construction process.
  - include good housekeeping, non-stormwater and waste management BMPs.
  - include dates for significant long-term operations or activities that may have planned non-stormwater discharges such as dewatering, saw-cutting, grinding, drilling, boring, crushing, blasting, painting, hydro-demolition, mortar mixing, bridge cleaning, etc.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow the schedule as written; monitor and modify as needed prior to implementing changes in construction activities.

Construction Site Planning & Management
BMP Inspection and Maintenance CP-2

DEFINITION

BMP inspection and maintenance are critical to successful construction site stormwater management. Routine (planned) and non-routine (repair) inspection and maintenance help identify potential problems and can reduce the need for BMP replacement or major repair.

PURPOSE

- Ensure proper BMP installation and functionality.
- Minimize potential impacts of stormwater erosion and pollution through early detection, repair and replacement of ineffective BMPs.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Frequency of inspection and type of maintenance may vary for each BMP
Alternate BMPs to consider: • N/A
Use in combination with: • CP-1 Construction Sequencing • All BMPs
Maintenance Needs: • Refer to the applicable stormwater discharge permit and individual BMPs for requirements

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

ARIZONA DEPARTMENT OF TRANSPORTATION - INTERMODAL DIVISION
Construction Inspection Quantlist
Roadside Development - Division VIII Storm Water: BMP Inspection

Tracs Number:		Location:	
Reviewer:		Normal / Rain Event:	
Author:	Leroy Brady	ECC Name:	
Version:	02222007		
Subcontractor:		Supervisor:	
Type:	Inspection	Date:	

Conforming Y N N/A	Attributes	
	1. The contractor is monitoring rainfall with a commercially manufactured rain gauge accurate to within 0.10 inches of rain, with results filed in the SWPPP, and copies submitted the Engineer on a weekly basis.	Stored Spec.
4	Comments:	104.09-F
	2. No clearing, grubbing, earthwork or other work elements affected by the requirements in the Storm Water Pollution Prevention Plan (SWPPP)are started until areas of environmental importance are clearly marked.	ADOT-EPCM
4	Comments:	5.1.2
	3. Joint inspections (ECC and ADOT)are conducted every 14-calendar days or at the frequency specified in the approved SWPPP, by the contractor's ECC.	Stored Spec.
4	Comments:	104.09-F
	4. Joint inspections (ECC and ADOT) are conducted within 24 hours after any storm event of 0.50 inch or more.	Stored Spec.
4	Comments:	104.09-F
	5. Complete and accurate Compliance Evaluation Reports are prepared and signed by the ECC for each inspection, filed in the contractor's SWPPP, with a copy to the Engineer.	Stored Spec.
4	Comments:	104.09-F
	6. BMPs designated by the SWPPP to intercept upslope run -on water or protect fill slopes such as wattles, sediment logs, silt fence and sediment control berms are properly installed prior to excavation and embankment activities .	ADOT-EPCM
4	Comments:	5.2 to 5.3

Page 1 of 6

Typical Construction Inspection Checklist.

Sediment wattle inspection.

BMP Inspection and Maintenance CP-2

APPROPRIATE APPLICATIONS

- All construction site BMPs.
- Inspection and maintenance must be performed at a minimum per the applicable stormwater discharge permit requirements on all highway construction and/or maintenance projects.

LIMITATIONS

- Stockpiles of materials for timely BMP repair and/or replacement may be necessary.

PLANNING/DESIGN CONSIDERATIONS

- Develop and adhere to a routine inspection schedule per the applicable stormwater discharge permit requirements.
- Erosion Control Coordinators must conduct inspections and identify BMPs in need of repair or replacement.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Maintain BMPs per individual BMP sheet design and maintenance sections, ADOT Erosion/Sediment Control and Water Quality Protection Details and project Special Provisions.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Refer to the applicable stormwater discharge permit and individual BMP sheets for requirements.

Erosion Control (EC) BMPs

Erosion control (soil stabilization) consists of preparing the soil surface and applying BMPs or combinations thereof to disturbed soil areas. Temporary soil stabilization shall be applied to disturbed soil areas of construction projects per plans, details, specifications, and applicable Construction General and/or ADOT permits.

Erosion control BMPs are the first line of defense, rely on them to retain soil in place.

- EC-1 Preserve Existing Vegetation
- EC-2 Minibenches/Slope Roughening
- EC-3 Mulch Cover
- EC-4 Seeding
- EC-5 Geotextiles/Erosion Control Blankets
- EC-6 Soil Binders
- EC-7 Crown Ditch

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Erosion Control
Preserve Existing Vegetation EC-1

DEFINITION

The carefully planned protection of in-place, undisturbed trees and natural vegetated areas within the construction site right-of-way.

PURPOSE

- Minimize the amount of bare soil exposed to erosive factors.
- Reduce soil erosion, sediment transport and tracking.
- Reduce maintenance.
- Provide buffers, screens and aesthetic values.
- Provide stormwater detention, biofiltration and fully developed habitat for wildlife.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Implement landform grading practices required for slope rounding per plans • Identify and clearly mark vegetation to preserve • Fence preservation areas • Locate temporary roads and staging areas to avoid vegetation • Maintain pre-construction drainage patterns
Alternate BMPs to consider: • N/A
Use in combination with: • Slope Rounding Standard Drawing C-02 Series • RC-2 Cut to Fill Slope Transitions
Maintenance Needs: • Maintain fencing • Evaluate vegetation for signs of stress and address as necessary • Repair or replace damaged vegetation immediately

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Adjacent vegetation preserved-in-place.

Specimen Saguaro preserved-in-place.

Preserve Existing Vegetation EC-1

APPROPRIATE APPLICATIONS

- Protect trees and natural areas not in direct conflict with construction zones and activities.
- Stage clearing and grubbing and grading operations to maximize preservation of existing of vegetation.
- Especially beneficial for floodplains, wetlands, stream banks, steep slopes and areas where other erosion controls may be difficult to establish, install or maintain.

LIMITATIONS

- Difficult on sites with restricted access.
- May limit area available for construction activity.

PLANNING/DESIGN CONSIDERATIONS

TIMING

- Evaluate existing vegetation early in the planning process and adjust grading limits around high quality natural areas.
- Identify areas to be preserved in place on the project plans; clearly mark and fence these on site.
- Conform to scheduling requirements set forth in the Special Provisions.
- Do not begin clearing and grubbing, grading and other soil-disturbing construction activities prior to marking and fencing of existing vegetation.
- Specify a regular watering schedule or install a temporary irrigation system.

DESIGN AND LAYOUT

- Mark areas to be preserved with highly visible, non-metallic, temporary fencing as described in the project Special Provisions.
- Place temporary fencing beyond the canopy of vegetative cover by a distance that is 1½ times the radius.
- Construct temporary roads within limits of disturbance of permanent road to minimize disturbance to existing vegetation.
- Do not locate construction materials, parking areas and/or store equipment within fenced preservation areas.
- Do not store waste materials or vegetation to be removed within the fenced preservation areas.

CONSTRUCTION ACTIVITIES

- Cover disturbed tree roots with soil as soon as possible and consult a certified arborist.
- Cleanly cut damaged roots and limbs.
- Consult a certified arborist to examine seriously damaged trees.
- Remove and replace trees if they are damaged seriously enough to affect their survival.
- Aerate soil compacted by construction activity.
- Immediately repair damage to irrigation systems and flush soil from lines.
- Remove fencing from around preserved areas and trees during final site cleanup.

MATERIAL SPECIFICATIONS

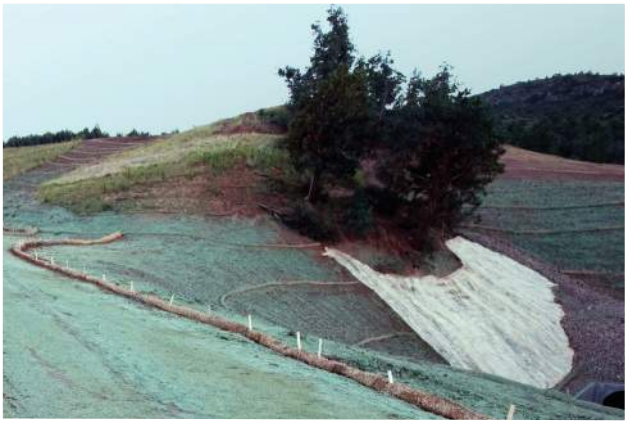
- Refer to project Special Provisions for fencing material requirements or other preservation material requirements.

DESIGN STANDARDS

- Conform with Arizona Native Plant Law and local jurisdiction requirements.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect the preservation fencing to ensure that it is intact and that there has been no encroachment into the preservation area.
- Evaluate preserve-in-place vegetation for signs of stress.
- Address unhealthy and declining vegetation as described in project Special Provisions.
- Maintain preservation fencing as needed



Mature trees preserved in place. Notice sediment wattles, erosion control blanket, seeding and mulch cover BMPs used in combination to achieve the most effective erosion control for these site conditions.

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Erosion Control
Minibenches/Slope Roughening EC-2

DEFINITION

Increasing the relief of a bare soil surface by creating horizontal grooves, parallel contours, furrows, terraces, serrations or stair-steps on the soil surface.

PURPOSE

- Reduce the speed of runoff, trap sediment and improve water infiltration.
- Improve seed retention, germination and thus revegetation.
- Increase effectiveness of construction and post-construction soil stabilization practices.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Apply to all constructed slopes • Evaluate slope type and equipment availability to determine method of roughening • Seed roughened areas as soon as possible
Alternate BMPs to consider: • SC-5 Sediment Wattle
Use in combination with: • EC-3 Hydraulic Mulch • EC-4 Seeding • EC-7 Crown Ditch • Slope Rounding, ADOT Standard Drawing C-02 series
Maintenance Needs: • Monitor vegetation establishment • Inspect and repair after storm events

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Compare slope treatment effectiveness.

Minibenched slope with vegetation.

Minibenches/Slope Roughening EC-2

APPROPRIATE APPLICATIONS

- All constructed slopes.
- Soils prone to erosion.
- Where there is a large area of undisturbed slope above a constructed slope.
- Prior to application of permanent seeding.

LIMITATIONS

- Not appropriate on rocky slopes.

PLANNING/DESIGN CONSIDERATIONS

- Construct minibenches from the top of a cut slope down **DURING** slope construction.
- Construct minibenches, terraces, furrows and other horizontal roughening techniques parallel to the contours along the entire length.
- Apply seeding for revegetation and permanent erosion control as the slope is being constructed to conform to the application limits of the seeding/mulching equipment.
- Where horizontal roughening falls away from the contour, additional BMPs may be required to protect the slope.
- Use with other BMPs and run-on diversion measures to prevent scour.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Slope Minibenching.
- ADOT Standard Specifications for Road and Bridge Construction Section 805-3.02(B).
- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Slope Rounding.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.

Erosion Control
Mulch Cover EC-3

DEFINITION

The placement of a layer of organic material on slopes and other disturbed roadside areas by either incorporating it into the soil through mechanical means (e.g., a drill or studded roller) or by a tackifier that adheres the material to the soil surface. Types of mulch cover include hydraulic mulch, straw mulch, compost mulch and bonded fiber matrix.

PURPOSE

- Reduce soil erosion through temporary stabilization.
- Improve infiltration.
- Protect exposed soil from erosion by raindrop impact or wind.
- Aid in plant and seeding establishment.
- Prevent surface compaction or crusting.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Select type of mulch material based on soil type
Alternate BMPs to consider: • EC-6 Soil Binders
Use in combination with: • CP-1 Construction Sequencing • EC-2 Minibenches/Slope Roughening • EC-7 Crown Ditch
Maintenance Needs: • Inspect for firm continuous contact of material with soil • Inspect and repair until vegetation is established

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Straw mulch cover over a seeded slope.

Mulch cover used in combination with sediment wattles, erosion control blankets and vegetation preserved in place.

Mulch Cover EC-3

APPROPRIATE APPLICATIONS

- Disturbed areas to temporarily stabilize soils until permanent measures are installed and final stabilization is achieved.
- Sensitive areas can be mulched if rain is predicted at the end of a day's operations.

LIMITATIONS

HYDRAULIC MULCH

- Wood fiber hydraulic mulches are typically short-lived (less than a growing season).
- Hydraulic tackifiers typically require 24 hours of cure time to be effective; therefore, they should not be applied immediately prior to a storm event.
- Subject to wind and erosion during large storm events.
- May delay seed germination due to changes in soil surface temperature.

STRAW MULCH

- Where mechanical straw blowers are used, application areas are typically limited to within approximately 150 feet of equipment. Therefore, for large slopes frequent mobilizations and applications are necessary.
- Application of straw mulch by hand is typically expensive.
- Potential for accidental introduction of undesirable weed species.
- Blown straw becomes an air quality issue when applied in urban areas, if not prewetted.

COMPOST/WOOD MULCH

- Susceptible to wind disturbance; therefore must be anchored to the soil by:
  - crimping, tracking, disking or punching.
  - hydraulic bonding using organic or acrylic tackifiers.
  - covering with netting and stapled.
- Potential for accidental introduction of undesirable weed species and/or insects.
- Must be accessible to equipment used for application of mulch.
- Will not withstand significant concentrated flows and is prone to sheet erosion.
- Wood is **not** acceptable as final cover over seeding.

BONDED FIBER MATRIX

- Higher application rates required for steeper slopes may inhibit germination of seed and establishment of long-term vegetation.
- Surface treatment only - unlikely to improve compacted, nutrient depleted, or poorly draining soils necessary to ensure vigorous long term vegetative cover.
- Inefficient technique to treat disturbed areas less than 0.5 acres.

PLANNING/DESIGN CONSIDERATIONS

- Required as grading proceeds.
- Mulch cover may or may not require a binder, netting or tacking.
- Hydraulic matrices are typically effective for longer periods of time.

MATERIAL SPECIFICATIONS

- Natural mulches should be used when possible.
- All mulch material should be free of seed.
- Organic soluble powder adhesive, derivative of plant material psyllium or Guar should be used as tackifier.
- Thermally refined wood fiber.
- Compost must meet the requirements Section 810-2.02 of the ADOT Standard Specifications.
- Refer to Standard Specification Section 805-2.03 for types of mulching materials.
- Comply with applicable jurisdictions' regulations and guidelines.

Mulch Cover EC-3

DESIGN STANDARDS

- Crimp or tack mulch material.
- Requires adequate coverage to prevent erosion, washout and poor plant establishment.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Maintain an unbroken ground cover throughout the period of construction if the soils are not being reworked.
- Repair, reseed and/or remulch surfaces if washout, breakage or erosion occurs.
- Install anchors if needed.
- Reapply mulch when more than 20% bare ground is exposed in application areas.

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Erosion Control
Seeding EC-4

DEFINITION

The ADOT seeding process includes tillage and amending the soil prior to seed application and straw mulching after seed application to protect exposed soils from erosion by water and wind.

PURPOSE

- Reduce erosion through establishing perennial vegetative cover and/or soil stabilization
- Meet Final Stabilization as required by Section 402 of the Clean Water Act.
- Minimize long-term maintenance costs.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Determine appropriate seed species and rate of application based on project conditions, including soils and climate
- Protect adjacent areas from over-spray
- Adherence to Section 805 of the ADOT Standard Specifications

Alternate BMPs to consider:

- EC-3 Mulch Cover
- EC-5 Geotextiles/Erosion Control Blankets
- EC-6 Soil Binders

Use in combination with:

- EC-2 Minibenches/Slope Roughening
- EC-3 Mulch Cover
- SC-5 Sediment Wattles

Maintenance Needs:

- Repair and reseed areas if damaged from flooding or erosion

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Hydraulically applied compost may be used on slopes steeper than 3:1 or where broadcast application is not feasible.

Successful wildflower seed germination on properly prepared slope.

Seeding EC-4

APPROPRIATE APPLICATIONS

- Where permanent, long-lived vegetation cover is the most economical or practical.

LIMITATIONS

- Vegetative establishment is affected by dry or cold weather.
- Application cannot occur during windy conditions.
- Seeded areas cannot be driven over by mechanical equipment.
- Requires time for seed to establish; immediate results are not seen.

PLANNING/DESIGN CONSIDERATIONS

- Site conditions must be evaluated prior to determining suitable species selection and application rates. Attributes such as soil types, topography, local climate and season, maintenance requirements, proximity of sensitive areas (e.g., live streams), and existing native vegetation types are factors.
- Follow the seeding steps to achieve the most successful vegetative cover:
  - Tillage: till areas to be seeded per the project specifications; soil shall be loose and friable prior to application.
  - Amending the Soil: apply low solubility/slow release fertilizers, sulfur and compost over rough, ripped soils prior to final tillage per the specifications.
  - Seed Application: apply seed by drilling, hydroseeding or broadcasting as soon as possible after grading is completed.
  - Straw Mulching: mulch with certified, weed-free straw that is crimped and tacked or hydraulically applied.
  - Rain and Time: with rain and time, vegetation will establish if steps 1-4 are implemented properly and in the correct sequence.
- Prior to use, ADOT shall approve application rates for mulches, tackifier, soil amendments and seed mixtures per specifications.

MATERIAL SPECIFICATIONS

- All seed shall be in conformance with requirements of the project specifications.
- ADOT Standard Specifications for Road and Bridge Construction Section 805-2.

DESIGN STANDARDS

- ADOT Standard Specifications for Road and Bridge Construction Section 805-3

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Identify areas that need to be reseeded or where additional BMPs are necessary.
- The contractor is responsible for maintaining all slopes to prevent erosion and reduce sediment loss.

REFERENCES AND SOURCES

- ADOT Standard Specifications for Road and Bridge Construction Section 805

Erosion Control
Geotextiles/Erosion Control Blankets EC-5

DEFINITION

A natural (excelsior, straw, coconut, etc.) or synthetic (usually polyethylene) material manufactured by weaving or bonding fibers, installed to reduce soil erosion by wind or water.

PURPOSE

- Reduce rainfall impact and improve infiltration.
- Provide a microclimate to promote seed establishment.
- Protect exposed soil from wind and rain.
- Reduce erosiveness of concentrated flows.
- Hold mulch, seed, fertilizer and topsoil in place.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Obtain prior approval from ADOT Roadside Development Section
- Select appropriate geotextile material for site conditions
- Properly prepare site
- Must be properly anchored

Alternate BMPs to consider:

- Erosion Control BMPs: EC-1-EC-4, EC-6-EC-7

Use in combination with:

- EC-4 Seeding
- EC-7 Crown Ditch
- SC-2 Silt Fence

Maintenance Needs:

- Inspect to ensure blanket maintains continuous contact with the ground
- Repair or replace if rilling under blanket occurs
- Remove trapped sediment after each storm event

RATINGS	H	M	L
Associated Costs			
Design			X
Construction	X		
Maintenance	X		
BMP Objectives			
Erosion Control		X	
Runoff Control		X	
Sediment Control		X	
Good Housekeeping			
Non-Stormwater			
Waste Management			

Blanket used in combination with mulch cover, sediment wattles and rock mulch.

Erosion control blanket installation.

Geotextiles/Erosion Control Blankets EC-5

APPROPRIATE APPLICATIONS

- Concentrated flow areas such as ditches and channels with flows exceeding 3.3 ft./sec. (refer to ADOT Hydraulic Manual for channel lining criteria).
- Stockpiles.
- Slopes with highly erosive soils and slopes adjacent to bodies of water, when recommended by ADOT.

LIMITATIONS

- Material, installation and maintenance costs are typically high.
- Not suitable for excessively rocky sites or rough slopes.
- Not suitable for all soil types. May not perform well on clay soils.
- Not suitable for areas where vegetation will be mowed.
- Some geotextiles disintegrate when exposed to light.
- Must be properly anchored; some geotextiles may increase runoff or blow away.
- May trap wildlife.
- Effectiveness depends on strength of fabric and proper installation.

PLANNING/DESIGN CONSIDERATIONS

- Proper selection, design and installation of the appropriate geotextile is critical to its effectiveness.
- Must be properly anchored to reduce undermining.
- Proper site preparation is essential for adequate contact with soil.
- Use only in limited areas to address a specific site condition.

MATERIAL SPECIFICATIONS

- Select geotextile material based on soil conditions.
- Many geotextiles are available; select the geotextile fabric to match specific project needs.
- Erosion control blanket materials include:
  - Straw
  - Jute fiber
  - Wood fiber (Excelsior)
  - Coconut fiber (Coir)
- Refer to Standard Specifications and the project Special Provisions.

DESIGN STANDARDS

- Woven geotextiles are used for filter and separation applications.
- Non-woven geotextiles are used for stabilization, reinforcement and filtration, and separation applications.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect regularly for cracks or tears in the fabric.
- Repair or replace damaged fabric immediately.
- Maintain contact between geotextile and the ground at all times.
- Remove trapped sediment after storm events.

Erosion Control
Soil Binders EC-6

DEFINITION

The application of dust palliatives (water, polymeric, psyllium or Guar stabilizers or emulsions) to temporarily prevent wind-induced erosion of exposed soils on construction sites.

PURPOSE

- Reduce the movement of soil particles through temporary soil stabilization.
- Reduce the movement of soil particles by the wind, which causes air pollution and eventual sediment release into waters of the U.S.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Ensure measures are in place before large earth moving occurs
- Select appropriate soil binder type based on soil type, slope ratio, topography and wind velocity
- Protect adjacent vegetation, vehicular ways and structures from overspray

Alternate BMPs to consider:

- EC-3 Mulch Cover

Use in combination with:

- CP-1 Construction Sequencing
- EC-1 Preserve Existing Vegetation
- EC-2 Minibenches/Slope Roughening
- EC-4 Seeding
- SC-5 Sediment Wattles

Maintenance Needs:

- Inspect prior to forecast of rain, after rain events and per the applicable permit
- Reapply if erosion occurs

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Wind erosion is common and increases with disturbed or exposed soil areas.

Application of soil binder.

APPROPRIATE APPLICATIONS

- All soil surfaces exposed to wind.
- Temporary protection of disturbed areas until permanent measures are installed.
- Temporary protection of disturbed areas that must be re-disturbed following a period of inactivity.
- In areas where grading activities will soon resume because binders can often be incorporated back into the soil.
- Where vegetation is not appropriate.
- Material stockpiles.

LIMITATIONS

- Temporary in nature and may require reapplication, especially after heavy or prolonged rainfall.
- Chemical palliatives typically require a cure time of approximately 24 hours.
- Easily disturbed by vehicular or pedestrian traffic.
- Do not adhere well to compacted or dense (clay) soils.
- May not perform well under conditions of low relative humidity or low temperatures.
- May be slippery if oversprayed onto vehicular travelways.
- If not properly applied, can create impervious surfaces where water cannot infiltrate.

PLANNING/DESIGN CONSIDERATIONS

- Contact ADOT Transportation Planning Division, Air Quality Policy Section for the most up to date information about air quality control on construction projects.
- Use dust control treatments that conserve water wherever feasible.
- Site conditions (soil type, temperature, humidity) must be evaluated prior to determining appropriate soil binder type.
- Consider where soil binder will be applied and length of time stabilization will be needed.
- Frequency of application.
- Must be non-toxic to plants and wildlife.
- Investigate products other than those lists below; new products are being continuously developed.

MATERIAL SPECIFICATIONS

POLYMERIC EMULSION BLEND

- Acrylic Copolymers and polymers.
- Liquid polymers of methacrylates and acrylates.
- Poly-acrylamide and copolymer of acrylamide.
- Hydro-colloid polymers.

PLANT-MATERIAL BASED (short-lived)

- Guar.
- Psyllium.
- Starch.

PLANT-MATERIAL BASED (long-lived)

- Pitch and rosin emulsion.

DESIGN STANDARDS

- Comply with federal, state and local air quality regulations and guidelines.
- ADOT Standard Specifications for Road and Bridge Construction.
- Follow manufacturer's recommendations for application rates, pre-wetting of area and cleaning of equipment after use.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Check areas that have been protected to ensure coverage.
- Daily inspection of high traffic areas and weekly inspection of lower traffic areas.
- Reapplication of binder may be required.

Properties of Soil Binders Used for Erosion Control

Chemicals	Copolymer	Psyllium	Guar
Comments	forms semi-permeable transparent crust	effective on dry, hard soils	effective on dry, hard soils
	resists ultraviolet radiation and moisture-induced breakdown	forms a crust	forms a crust
Penetration	Moderate	High	High
Longevity	1 to 2 years	3 to 6 months	3 to 6 months
Minimum curing time before rain	24 hours	24 hours	24 hours
Compatibility with Existing vegetation	Good	Poor	Poor
Mode of degradation	Chemically degradable	Biologically degradable	Biologically degradable
Liquid/Powder	Liquid	Powder	Powder

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Erosion Control
Crown Ditch EC-7

DEFINITION

Structures that intercept, divert and convey surface run-on, usually sheet flow over slopes, to prevent erosion.

PURPOSE

- Intercept and divert direct runoff to minimize sheet flow on to a slope.
- Direct runoff to a channel or stabilized watercourse.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Determine stormwater flow, velocity and volume when designing crown ditch
- Evaluate top of slope vegetation and soil infiltration rates to properly design crown ditch
- Periodically divert water by warping ditch into undisturbed slopes

Alternate BMPs to consider:

- RC-1 Earth Dikes/Drainage Swales and Lined Ditches

Use in combination with:

- EC-1 Preserve Existing Vegetation
- EC-2 Minibenches/Slope Roughening
- SC-5 Sediment Wattles
- Slope Minibenching Detail
- Slope Rounding, ADOT Standard Drawing C-02 series

Maintenance Needs:

- Inspect for erosion, deterioration or breaches
- Repair as necessary

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Crown ditch blends with adjacent landscape and materials.

Gabion-style crown ditch used for extreme drainage conditions.

Crown Ditch EC-7

APPROPRIATE APPLICATIONS

- At the top of cut and fill slopes, but primarily cut slopes.

LIMITATIONS

- Not suitable as sediment trapping structures.
- Provide potential for disturbing existing vegetation and soil.

PLANNING/DESIGN CONSIDERATIONS

- Consider stormwater flow, velocity, volume and slope of the proposed ditch.
- Provide stabilized outlets.
- Requires warping of ditch periodically into undisturbed areas.
- Consider ditch alignment and outlets carefully.
- Stake ditch layout in the field prior to construction to evaluate visibility and avoid existing vegetation where possible.
- Consider maintenance access.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Warp crown ditch into undisturbed slopes where ditch slope exceeds 5%.
- Design ditches to daylight into existing drainages.
- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Slope Minibenching.
- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Slope Rounding.
- ADOT Roadway Standard Drawing C-03.10.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.

Runoff Control (RC) BMPs

Runoff controls (also called temporary concentrated flow conveyance controls) consist of BMPs used alone or in combination to intercept, direct, divert, convey, and discharge concentrated flows with a minimum of soil erosion, both on-site and offsite. Runoff controls may be required to direct run-on around or through the project in a non-erosive fashion.

- RC-1 Earth Dikes/Drainage Swales and Lined Ditches
- RC-2 Cut to Fill Slope Transitions
- RC-3 Erosion Protection at Structures
- RC-4 Rock Outlet Protection/Velocity Dissipation Devices
- RC-5 Slope Drains
- RC-6 Check Dam

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Runoff Control
Earth Dikes/Drainage Swales/Lined Ditches RC-1

DEFINITION

Structures and grading techniques that intercept, divert, and convey surface runoff, usually sheet flow, to a desired location.

PURPOSE

- Divert runoff away from erodible surfaces and toward sediment trapping devices.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Construct and fully stabilize before any major land disturbance • Consider volume and velocity of runoff to be diverted • Consider erodibility of soils
Alternate BMPs to consider: • EC-7 Crown Ditch
Use in combination with: • CP-1 Construction Sequencing
Maintenance Needs: • Maintain height of dikes for effectiveness • Inspect for erosion or deterioration

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Gabion mattress designed for anticipated high-velocity flows.

Rock lined ditch.

Earth Dikes/Drainage Swales/Lined Ditches RC-1

APPROPRIATE APPLICATIONS

- Base of fill slopes where runoff begins to concentrate.
- Top of slopes to control rill and gully erosion. Refer to BMP *EC-7 Crown Ditch*.
- Bottom and mid-slope locations to intercept sheet flow and convey concentrated flows.
- Divert runoff toward a stabilized watercourse or drainage structure.
- Divert sediment laden water to sediment trapping device.
- Divert stormwater around construction staging areas.

LIMITATIONS

- Runoff must be diverted into existing or stabilized drainages or sediment basins.
- High runoff velocities may scour and erode dikes and swales. May be necessary to combine with other BMPs such as *EC-5 Geotextiles/Erosion Control Blankets, RC-6 Check Dam* and/or *SC-6 Sediment Log*.
- Does not control erosion or remove sediment.

PLANNING/DESIGN CONSIDERATIONS

- Size correctly for expected flows.
- Line ditches where high runoff velocities are expected.
- Stabilize dikes by compaction or other means such as erosion control blankets or riprap.
- Provide stabilized outlets to divert sediment-laden flow into sediment traps.
- Where installed at construction traffic crossings, the top width may be wider and side slopes may be flatter compared to other applications.
- Install early in the construction process, when possible.
- Must conform to local floodplain management regulations and not adversely impact adjacent properties.
- Seed earthen dike and ditch immediately after construction if diversion measure will be used longer than 15 days.

MATERIAL SPECIFICATIONS

- ADOT Standard Specifications for Road and Bridge Construction Section 810-2.03 and Section 913.
- Project plans, details and Special Provisions.

DESIGN STANDARDS

- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Sediment Control Berm.
- ADOT Erosion/Sediment Control and Water Quality Protection Detail: Rock Protection for Cut & Fill Transition and Channel Lining.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for washouts and erosion.
- Check outlet stabilization for signs of erosion.
- Repair where damaged by construction equipment.
- Properly re-compact material added to repair the dike.
- Maintain as described in BMP *SC-3 Sediment Trap* where flows are directed into sediment traps.

Runoff Control
Cut to Fill Slope Transitions RC-2

DEFINITION

- Rock riprap/rock mulch placed along cut-fill slope transitions.

PURPOSE

- Stabilize and reduce erosion at cut-fill transitions.
- Convey concentrated flows to stabilized drainage.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Properly prepare subgrade • Size rock riprap based on flow velocity • Rock riprap must be 1-2 inches below adjacent finish grade
Alternate BMPs to consider: • N/A
Use in combination with: • RC-1 Earth Dikes/Drainage Swales and Lined Ditches • RC-4 Rock Outlet Protection/Velocity Dissipation Devices
Maintenance Needs: • Inspect for erosion and sedimentation in rock riprap

RATINGS	H	M	L
Associated Costs			
Design			X
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Cut to fill transition leads to stable drainage.

Riprap should blend with landscape.

Cut to Fill Slope Transitions RC-2

APPROPRIATE APPLICATIONS

- Where concentrated surface flows must be conveyed from a cut ditch, down to the toe of the adjoining downstream fill slope.

LIMITATIONS

- Reduce erosion only when they have been sized and constructed properly.

PLANNING/DESIGN CONSIDERATIONS

- Proper subgrade preparation.
- Embed rock riprap into grade.
- Field adjust to meet existing roadside ditch.

MATERIAL SPECIFICATIONS

- Rock riprap should conform to Gradations A or B, as defined by Section 810 of the ADOT Standard Specifications for Road and Bridge Construction.
- Rock mulch should conform to Gradations C, as defined by Section 810 of the ADOT Standard Specifications for Road and Bridge Construction.
- River run materials are not allowed.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Detail: Rock Protection for Cut & Fill Transition and Rock Riprap/Mulch Channel Lining.
- Cut-to-fill transition shall terminate at a planned or existing stabilized drainage.
- Size of rock used must be large enough to withstand expected design flow through the transition.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for signs of slope erosion under and around the rock protection, check for erosion and displacement of rock at the outlet. Replace rock and repair as needed.

Runoff Control
Erosion Protection at Structures RC-3

DEFINITION

Rock riprap placed along the soil interface of concrete and metal structures such as spillways, pipes or drainage structures.

PURPOSE

- Reduce or eliminate the potential for undercutting and erosion at structures.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Size rock riprap based on volume of runoff expected and slope characteristics • Consider wire-tieing riprap if installed on steep slopes
Alternate BMPs to consider: • SC-7 Gravel Bag Protection
Use in combination with: • SC-2 Silt Fence • SC-5 Sediment Wattle
Maintenance Needs: • Inspect after storm events; repair if damaged or eroded

RATINGS	H	M	L
Associated Costs			
Design			X
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Rock at interface of soil and drainage pipe.

Excavation prior to rock placement at drainage structure (use gravel bags to anchor logs/wattles).

Erosion Protection at Structures RC-3

APPROPRIATE APPLICATIONS

- At structures that abut a soil surface and where concentration and/or velocity of stormwater is great enough to cause erosive flows.
- At pipe headwalls.

LIMITATIONS

- Riprap loss may occur due to erosion and sliding if rock riprap is placed on slopes greater than 2:1.
- Can increase erosion if installed improperly.

PLANNING/DESIGN CONSIDERATIONS

- Rock interface protection is very effective only when the rock is sized and placed properly.
- Embed rock riprap so that the top is 1 to 2 inches below adjacent finish grade.

MATERIAL SPECIFICATIONS

- Use angular, crushed rock material.
- River run materials are not allowed.

DESIGN STANDARDS

- Size as specified in the contract documents or as directed by the Engineer.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for signs of erosion and undercutting around the structure.
- Replace rock and repair erosion damage as needed.

Runoff Control
Rock Outlet Protection/Velocity Dissipation Devices RC-4

DEFINITION

Rock riprap, grouted or wire-tied riprap placed at outlet ends of culverts, conduits, or channels. *NOTE: By definition this is a post-construction BMP. Refer to the ADOT Post-Construction Best Management Practices Manual, Outlet Protection BMP for additional information.*

PURPOSE

- Prevent scour and reduce velocity of concentrated stormwater flows.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Use only angular rock • Size rock based on velocity of flows and per drainage design
Alternate BMPs to consider: • N/A
Use in combination with: • RC-3 Erosion Protection at Structures • RC-5 Slope Drains
Maintenance Needs: • Inspect after storm events and repair promptly to prevent a progressive failure • May need to control weed growth

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Protection around drainage pipe needs to be addressed.

Proper sizing of rock riprap is essential to design effectiveness.

Rock Outlet Protection/Velocity Dissipation Devices RC-4

APPROPRIATE APPLICATIONS

- Where discharge velocities and energies at the outlets of culverts, pipes or channels are sufficient to erode the downstream channel and/or undermine and create turbulence at the outfall area.
- At discharge outlets that carry continuous flows of water.
- At points where lined conveyances discharge to unlined conveyances.
- Wherever ADOT discharges offsite.

LIMITATIONS

- Loose rock may be washed away during high flows.
- Freeze/thaw cycles may break up grouted riprap.

PLANNING/DESIGN CONSIDERATIONS

- Grouted or wire-tied rock riprap can minimize maintenance requirements.
- Rock must be sized and installed properly to be effective. Refer to ADOT Drainage Manual and project drainage plans.
- A sediment trap below the outlet may be required.

MATERIAL SPECIFICATIONS

- Section 810 of the ADOT Standard Specifications.
- Use sound, durable, angular rock.
- River run material is not allowed.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Detail: Rock Protection for Inlets, Outlets and Headwall Transition.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for displacement of riprap or damage to underlying fabric
- Inspect for signs of scour beneath the riprap or around the outlet.
- Replace rock and repair apron and slopes as needed.

Runoff Control
Slope Drains RC-5

DEFINITION

A temporary rigid pipe or flexible conduit drain used to intercept and convey runoff into a stabilized drainage.

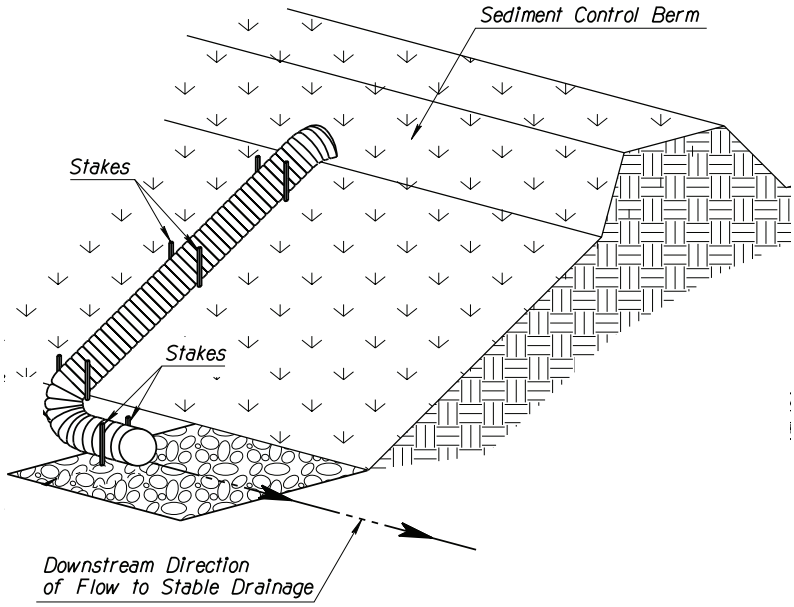
PURPOSE

- Prevent sheet flow erosion over fill slopes.
- Prevent channelized flows from eroding slopes.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Pipe size depends on velocity and volume of flow • Pipe must daylight at a stable drainage
Alternate BMPs to consider: • RC-4 Rock Outlet Protection/Velocity Dissipation Devices
Use in combination with: • RC-1 Earth Dikes/Drainage Swales and Lined Ditches • RC-3 Erosion Protection at Structures • RC-4 Rock Outlet Protection/Velocity Dissipation Devices • SC-3 Sediment Trap
Maintenance Needs: • Inspect after storm event; repair as needed

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			



Slope Drain detail.

Slope Drains RC-5

APPROPRIATE APPLICATIONS

- Install where slopes may be eroded by surface runoff.
- Where final road grades are completed but remain unpaved.
- May be used as emergency spillway for sediment basin.

LIMITATIONS

- Volume of runoff to be conveyed must not exceed capacity of structure.
- Larger areas require a paved spillway, rock lined channel or additional pipes.
- May become clogged or overcharged during large storms forcing water around pipe.
- Failure causes extreme slope erosion.

PLANNING/DESIGN CONSIDERATIONS

- Most effective when used in combination with temporary embankment curb

MATERIAL SPECIFICATIONS

- Slope drain types:
  - Rigid pipe.
  - Flexible pipe.

DESIGN STANDARDS

- Pipe inlet may need additional stabilization to prevent undercutting.
- Refer to Erosion/Sediment Control and Water Quality Protection Detail: Downslope Drain.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for structural integrity, blockage and stability at the inlet and outlet.
- Inspect for downstream scour.
- Repair if scour occurs.
- Reinforce inlet with compacted soil or sandbags if undercutting occurs.
- If outlet flow is directed to a sediment-trapping device, sediment should be removed as required for that device.

Runoff Control
Check Dam RC-6

DEFINITION

A small dam constructed across a roadside ditch or channel.

PURPOSE

- Reduce the velocity of concentrated water flows.
- Reduce channel erosion.
- Allow sediment to settle.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Calculate acreage that channel is draining • Base of upstream dam to be at same elevation as top of next downstream dam • Rock material must be placed, not dumped into the channel • Remove dams only after contributing drainage area is stabilized and at the direction of the Engineer
Alternate BMPs to consider: • SC-6 Sediment Log • Sediment Control • SC-12 Compost Sock
Use in combination with: • EC-5 Geotextiles/Erosion Control Blankets • RC-4 Rock Outlet Protection/Velocity Dissipation Devices • SC-6 Sediment Log
Maintenance Needs: • Remove large debris, trash and leaves that have built up behind dam • Remove sediment that has built up to 1/2 the height of the dam

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction	X		
Maintenance		X	
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Weir in check dam.

Series of check dams in roadside ditch.

Check Dam RC-6

APPROPRIATE APPLICATIONS

- Small channels which drain 10 acres or less.
- Channels constructed in erosive soils.
- Channels constructed with steep profile grades (greater than 5%).
- In temporary ditches or swales that, because of their short length of service, will not receive permanent protection.
- In permanent ditches or swales that will not receive permanent non-erodible linings.
- In ditches that need protection during the establishment of vegetative cover.

LIMITATIONS

- Not for use in live streams.
- Do not use in channels that have already been lined or vegetated unless erosion is expected.
- Promotes sediment trapping, which can be re-suspended during subsequent storms or removal of check dam.
- Installation may be affected if installed within Clear Zone.

PLANNING/DESIGN CONSIDERATIONS

- Must be designed and constructed with adequate spillways, dissipater aprons and tie-ins to the channel banks and/or bed to protect the channel and structure during times of peak flow.
- In locating the check dam, consideration shall be given to the effects and the reach of the impounded water and sediment.
- If installation is to be permanent, the final depth of the silted ditch must be considered in the original design of the ditch.
- Rock shall be large enough to stay in place given the expected design flow through the channel.

MATERIAL SPECIFICATIONS

- Check dams shall be constructed of angular rock.
- River run material is not allowed.
- Rock shall be sized as specified in the contract documents or as stated in the ADOT Hydraulics Manual.
- Refer to the ADOT Erosion/Sediment and Water Quality Protection BMP Detail: Rock Check Dam.

DESIGN STANDARDS

- Rock shall be placed to achieve complete coverage of the channel or swale.
- The center of the dam shall be lower than the edges.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Remove sediments when depth reaches one-third of check dam height. Removed sediment shall be incorporated into the project at locations approved by the Engineer or removed from the right-of-way.
- Erosion caused by high flows around the edges of the dam should be corrected immediately.

Sediment Control (SC) BMPs

Sediment control BMPs are back-up control measures to erosion control BMPs to keep sediment from leaving the construction site. Construction (temporary) sediment control practices include those measures that intercept and slow or detain the flow of stormwater to allow sediment to be trapped and settle.

Sediment control BMPs are the second line of defense, rely on them to capture sediment on site.

- SC-1 Sediment Control Berm
- SC-2 Silt Fence
- SC-3 Sediment Trap
- SC-4 Sediment Basin
- SC-5 Sediment Wattle
- SC-6 Sediment Log
- SC-7 Gravel Bag Barrier
- SC-8 Storm Drain Inlet Protection
- SC-9 Curb Inlet Protection
- SC-10 Stabilized Construction Entrance/Exit
- SC-11 Stabilized Construction Roadway
- SC-12 Compost Sock
- SC-13 Rock Berm

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Sediment Control Berm SC-1

DEFINITION

A temporary sediment barrier consisting of compacted salvaged topsoil, surface soils and/or vegetation pushed into a small berm at top or toe of fill slopes.

PURPOSE

- Intercept sediment-laden sheet flow runoff, allowing runoff to infiltrate and sediment to drop out of suspension.
- Stockpiling of surface soil for future plating on slopes.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Construct using topsoil prior to placement of roadway embankment
- Construct along contour and allow for a minimum 2' sediment loading zone
- Place outside of vehicle recovery area

Alternate BMPs to consider:

- SC-2 Silt Fence
- SC-5 Sediment Wattle
- SC-6 Sediment Log
- SC-12 Compost Sock

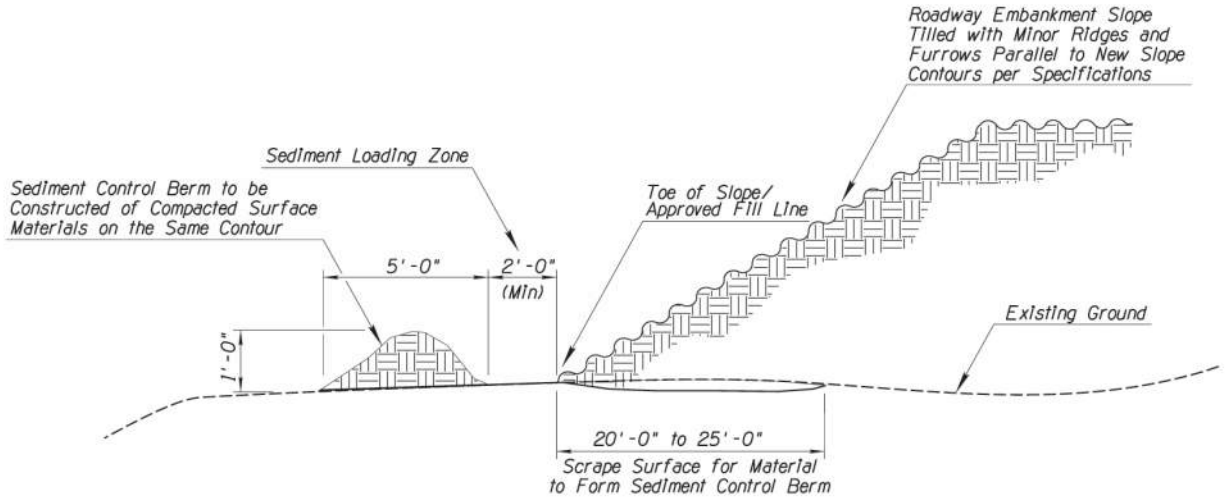
Use in combination with:

- EC-2 Minibenches/Slope Roughening
- RC-6 Check Dam

Maintenance Needs:

- Inspect berm for signs of erosion, particularly after storm events
- Remove sediment when 50% capacity is reached

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			



Sediment Berm detail.

Sediment Control Berm SC-1

APPROPRIATE APPLICATIONS

- Below the toe or at top of exposed and erodible slopes or soil stockpiles.
- May be utilized in place of silt fence or sediment wattles or logs.
- May be constructed in conjunction with topsoil salvage operations. Soil may be reincorporated into adjacent slopes upon completion of final slope geometry.

LIMITATIONS

- Can create a temporary sedimentation pond on the upstream side of the berm.
- Must be graded out prior to application of BMPs and seeding of final slopes.
- Additional BMPs are required where profile slopes exceed 3% and/or where concentrated flows occur.

PLANNING/DESIGN CONSIDERATIONS

- Berm shall be stabilized to prevent erosion.
- Salvage topsoil as directed in the project plans or by the Engineer.
- Create a stabilized weir for runoff to pond and control water overtopping the berm.

MATERIAL SPECIFICATIONS

- Surface materials i.e. soil, rock, branches, leaves, slash and chips.

DESIGN STANDARDS

- Construct a minimum 2’-0” sediment loading zone between toe of slope and sediment berm.
- Compact sediment control berms per ADOT Erosion/Sediment Control and Water Quality Protection Detail: Sediment Control Berm.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for breaks and erosion in berms.
- Repair as necessary.
- Remove berm when adjacent slope area has been permanently stabilized. Grade area to blend in with existing ground.

Sediment Control
Silt Fence SC-2

DEFINITION

A temporary sediment barrier consisting of a filter fabric that is entrenched into the soil, stretched between and attached to posts and wire fence for support.

PURPOSE

- Intercept and slow sediment-laden sheet flow runoff, allowing sediment to drop out of suspension.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Locate at low or down-slope areas of relatively small disturbance/construction sites
- Properly trench bottom of silt fence for maximum functionality
- Overlap ends of silt fence where a continuous length of fence is not possible

Alternate BMPs to consider:

- SC-1 Sediment Control Berm
- SC-5 Sediment Wattle
- SC-12 Compost Sock

Use in combination with:

- EC-2 Minibenches/Slope Roughening
- SC-5 Slope Drains

Maintenance Needs:

- Inspect for sediment build-up behind silt fence or for breaks in fence; repair immediately
- Remove accumulated sediment when 1/3 fence height is reached

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance	X		
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Proper wire mesh support for fabric.

*Do **not** use silt fence across ditches or drainage channels.*

Silt Fence SC-2

APPROPRIATE APPLICATIONS

- At downstream perimeter of disturbed site.
- Below the toe of exposed slopes and soil stockpiles.
- Above active riparian areas as a **last** line of defense.

LIMITATIONS

- Not for use in live streams.
- Do not use in channels that have already been lined or vegetated unless erosion is expected.
- Not practical where large flows or large areas of disturbance are involved.
- Not suitable for areas where large amounts of concentrated runoff are likely.
- Can create a temporary sedimentation pond on the upstream side of the fence and cause temporary flooding.
- Typical fabric lifespan is between five and eight months.
- Only effective if used in combination with upstream BMPs.
- Limited sediment capture area.

PLANNING/DESIGN CONSIDERATIONS

- Use in areas where flows do not exceed .5 cfs and drainage area for the fence does not exceed .25 acre per 100 feet of fence length.
- Do not install silt fence across streams, ditches or waterways.
- Do not use where rocky or hard areas will prevent uniform installation of posts and entrenching of the fabric.
- Must be removed following final approved stabilization of disturbed area.

MATERIAL SPECIFICATIONS

- Refer to Standard Specification Section 1014-8 for fabric requirements.
- Refer to Standard Drawing C-12.10 for additional requirements.

DESIGN STANDARDS

- Install per ADOT Erosion/Sediment Control Water Quality Protection Detail: Silt Fence.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for
  - depth of accumulated sediment
  - splits or tears in fabric
  - fabric attachment to fence posts
  - post stability
  - undercutting
- Remove sediment when it reaches one-third the height of the fence. Removed sediment shall be incorporated into the project at locations approved by the engineer or removed from site.
- Remove fence when up-slope area has been permanently stabilized. Fill and compact post holes and fabric trench, remove accumulated sediment, grade area to blend in with adjacent ground and stabilize area disturbed due to fence removal.

Sediment Trap SC-3

DEFINITION

A small impoundment formed by excavation and/or constructing an embankment so that sediment-laden runoff is temporarily detained.

PURPOSE

- Allow sediment to settle out of construction runoff before the water is discharged.
- Simplify stormwater management on a construction site by trapping small amounts of sediment at multiple spots.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Soils need to be appropriate for infiltration
- Locate to minimize potential for groundwater contamination
- Use for drainage areas of 5 acres or less

Alternate BMPs to consider:

- SC-1 Sediment Control Berm

Use in combination with:

- RC-1 Earth Dikes/Drainage Swales and Lined Ditches
- RC-4 Rock Outlet Protection/Velocity Dissipation Devices
- RC-5 Slope Drain
- SC-5 Sediment Wattle
- SC-7 Gravel Bag Protection

Maintenance Needs:

- Inspect after storm events to ensure functionality
- Repair eroded areas or re-evaluate placement if erosion occurs frequently or install additional BMPs.
- Remove accumulated sediment when 50% capacity is reached

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction			X
Maintenance		X	
BMP Objectives			
Erosion Control		X	
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Small sediment trap.

Sediment trap with rock protection.

Sediment Trap SC-3

APPROPRIATE APPLICATIONS

- Projects under construction during the rainy season.
- At the outlets of stormwater diversion structures, channels, slope drains, construction site entrance/exit wash racks or any other runoff conveyance that discharges waters containing sediment and debris.
- At outlets of disturbed soil areas less than 5 acres in size.

LIMITATIONS

- Life span is usually 24 months.
- Detention period is too short for removing fine silt and clay particles.

PLANNING/DESIGN CONSIDERATIONS

- Use for drainage areas of 5 acres or less.
- Note natural drainage patterns and place traps in areas of highest erosion potential.
- Locate for ease of maintenance and inspection.
- Traps are formed by excavating an area and placing an earthen embankment across a low area or drainage swale.
- Most effective when used in combination with other BMPs that stabilize upland soils.

MATERIAL SPECIFICATIONS

- Use Gravel Bags to construct small sediment traps.

DESIGN STANDARDS

- Design to minimize surface area for infiltration and sediment settling.
- Bottom of sediment trap should be flat.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect after each rainfall to ensure trap is draining properly.
- Inspect for damage from erosion.
- Verify that depth of spillway is maintained at a minimum of 1.5 feet below the low point of the trap embankment.
- Remove accumulated sediment when 50 percent sediment capacity is reached.

Sediment Control
Sediment Basin SC-4

DEFINITION

A temporary basin formed by excavation and/or constructing an embankment so that sediment-laden runoff is temporarily detained.

PURPOSE

- Capture sediment from stormwater runoff before it leaves the construction site
- Slow the velocity of runoff through detention.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Soils must be appropriate for infiltration
- Use for drainage areas of 5-100 acres
- Locate to minimize groundwater contamination potential

Alternate BMPs to consider:

- SC-3 Sediment Trap

Use in combination with:

- RC-1 Earth Dikes/Drainage Swales and Lined Ditches
- RC-4 Rock Outlet Protection/Velocity Dissipation Devices
- RC-5 Slope Drain
- SC-2 Silt Fence
- SC-5 Sediment Wattle

Maintenance Needs:

- Inspect after storm events to ensure functionality.
- Repair eroded areas or re-evaluate placement if erosion occurs frequently or install additional BMPs.
- Remove accumulated sediment when 50% capacity is reached.

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction		X	
Maintenance		X	
BMP Objectives			
Erosion Control		X	
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

A large area allows sediment to settle out.

Soil may not be providing adequate infiltration.

Sediment Basin SC-4

APPROPRIATE APPLICATIONS

- Where sediment-laden water may enter the drainage system or watercourses.
- At outlets of disturbed soil areas measuring between 5 and 100 acres.

LIMITATIONS

- Require large surface areas to permit settling of sediment.
- Not appropriate in live streams.
- If safety is a concern, basins may require protective fencing around the perimeter.
- Size may be limited by availability of right-of-way.
- Ground water contamination, soils and obstructions are concerns.
- Could pose a mosquito problem if basin becomes blocked and there is standing water.

PLANNING/DESIGN CONSIDERATIONS

- Require a large area to be effective.
- Soils must be adequate for infiltration.
- Use in combination with other BMPs for best effectiveness.

MATERIAL SPECIFICATIONS

- Dependent on material chosen to construct the basin. Refer to applicable material spec, i.e. rock mulch.

DESIGN STANDARDS

- Bottom of sediment basin should be flat.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect after each rainfall to ensure trap is draining properly.
- Inspect for damage from erosion.
- Verify that depth of spillway is maintained at a minimum of 1.5 feet below the low point of the trap embankment.
- Remove accumulated sediment when 50 percent sediment capacity is reached.

Sediment Wattle SC-5

DEFINITION

Weed-free wheat or rice straw or excelsior wood fiber bound into tight tubular rolls encased in biodegradable natural fiber netting or UV-degradable polypropylene netting used primarily in slope stabilization and in unlined ditches.

PURPOSE

- Intercept runoff, reduce flow velocities, and promote infiltration.
- Release runoff as sheet flow.
- Reduce sediment transport from runoff.
- Promote (improve) seed germination.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Spacing and wattle diameter depend on slope ratio • Adjacent wattles to be tightly abutted • Must maintain continuous contact with ground • Place along contours perpendicular to slope
Alternate BMPs to consider: • EC-2 Minibenches/Slope Roughening • SC-12 Compost Sock
Use in combination with: • Erosion Control BMPs: EC-3 through EC-7
Maintenance Needs: • Inspect for rilling or erosion underneath wattles; repair as necessary • Inspect to ensure wattles are properly anchored and have not been damaged

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Proper staking of wattles.

Sediment wattles spaced on a slope.

Sediment Wattle SC-5

APPROPRIATE APPLICATIONS

- At the top, face and at grade breaks of exposed slopes.

LIMITATIONS

- Not for use in live streams.
- Do not use in channels that have already been lined or vegetated unless erosion is expected.
- Have a limited sediment capture area.
- Proper staking and entrenchment are critical to wattle effectiveness and to reduce potential movement by high velocity flows.

PLANNING/DESIGN CONSIDERATIONS

- Not for use at toe of slope; use 20” diameter sediment logs instead.
- Do not use where creeping, slumping or sliding of the slope may occur.
- Readily shaped to fit slope contours.
- Must be trenched per project plans, specifications and details to be effective.
- Turn terminal ends of wattles upslope 45% to prevent channeling.
- Typically left in place on slopes after Final Stabilization.

MATERIAL SPECIFICATIONS

- Refer to ADOT Standard Specifications for Road and Bridge Construction section 810-2.06 for requirements.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Detail: Sediment Wattle.
- Adjust wattle spacing based on soil erosivity; decrease spacing on more erosive soils, increase spacing on less erosive soils.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect to ensure that wattles remain firmly anchored and have not been damaged by traffic.
- Inspect for tears and splits in wattles and evidence of erosion.
- Repair rills or gullies promptly, re-stake wattle as necessary.
- Remove accumulated sediment when 50 percent sediment capacity is reached prior to seeding and mulching operations. **DO NOT REMOVE SEDIMENT AFTER SEEDING AND MULCHING HAS BEEN COMPLETED.**

Sediment Log SC-6

DEFINITION

Excelsior wood fiber that has been bound into a tight tubular roll secured with long-term biodegradable natural fiber netting or UV-degradable polypropylene netting.

PURPOSE

- Intercept runoff and reduce flow velocities.
- Reduce sediment transport from runoff.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Trenching or burial is not necessary except when used at toe of slope • Must maintain continuous contact with ground
Alternate BMPs to consider: • RC-6 Check Dam • SC-2 Silt Fence (for perimeter applications) • SC-12 Compost Sock
Use in combination with: • RC-6 Check Dam • SC-8 Storm Drain Inlet Protection
Maintenance Needs: • Inspect for rilling or erosion around sediment logs • Inspect to ensure logs are properly anchored and have not been damaged

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Sediment logs stored on site are immediately available for replacing damaged/displaced logs.

Sediment logs used as check dams.

Sediment Log SC-6

APPROPRIATE APPLICATIONS

- As check dams for small runoff volumes in roadway ditches and channels downstream of disturbed soils.
- At toe of exposed slopes.
- Along the perimeter of a project.
- Around temporary stockpiles.
- Around storm drain inlets associated with disturbed areas.
- Outfall of small drainage channels or structures.

LIMITATIONS

- Not for use in live streams.
- Do not use in channels that have already been lined or vegetated unless erosion is expected.
- Should not be used in place of linear sediment barrier such as silt fence.
- Not practicable where large flows are involved.
- Not suitable for rock sub-grades where stakes cannot be securely installed.

PLANNING/DESIGN CONSIDERATIONS

- Trenching or burial is not necessary except when used at toe of slope.

MATERIAL SPECIFICATIONS

- Refer to ADOT Standard Specifications for Road and Bridge Construction section 810-2.06 for requirements.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Detail: Sediment Log.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect to ensure that logs remain firmly anchored and have not been damaged by traffic.
- If used as check dam, remove sediment,prior to seeding, when it reaches one-third the height of the log.
- Inspect for tears and splits in logs and evidence of erosion.
- Remove sediment when it reaches 1/2 the height of the log.
- Repair rills or gullies promptly, reposition and/or re-stake log as necessary.
- Remove after Final Stabilization.

Gravel Bag Protection SC-7

DEFINITION

Bags made of a woven geotextile material, filled with angular gravel.

PURPOSE

- To slow the velocity of concentrated flow and allow sediment to settle before entering drainage structures or leaving a construction site.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Adjacent construction traffic may limit use • Ponding may occur for a short time around bags • Stack bags in an overlapping, pyramid configuration
Alternate BMPs to consider: • SC-8 Storm Drain Inlet Protection
Use in combination with: • SC-2 Silt Fence • SC-5 Sediment Wattle • SC-6 Sediment Log • GH-4 Street Sweeping and Vacuuming
Maintenance Needs: • Follow schedule specified in the applicable stormwater permit • Replace bags if deteriorated due to extended sunlight exposure • Replace damaged bags

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Gravel bags used to anchor sediment wattle.

Sediment wattles held in place with gravel bags can be used to provide protection for curb inlets.

Gravel Bag Protection SC-7

APPROPRIATE APPLICATIONS

- Drainage structures or at downslope perimeter of construction areas where staking Sediment Wattles is not possible due to soil or ground conditions.
- Where flows are moderately concentrated to divert and/or detain flows.

LIMITATIONS

- Tendency of bag material to tear if subjected to heavy traffic.
- Water can pond at gravel bag barrier until enough time has passed to allow water to filter through.
- Not for use in ditches or as check dams.

PLANNING/DESIGN CONSIDERATIONS

- Adjacent construction traffic may prohibit the use of gravel bags.
- Amount of time gravel bags are needed, as bags exposed to sunlight will need to be replaced every two to three months.

MATERIAL SPECIFICATIONS

- Bags should be woven polypropylene, polyethylene or polyamide fabric. Refer to standard Specification Section 810-1017 for characteristics of fabric material.
- Bag dimensions approximately 24 inches long by 16 inches wide and 4 inches thick.
- Fill material to be clean and washed decomposed granite (DG) free of silt/dust, or other equivalent clean and washed angular shape aggregate/gravel material as approved by the Engineer. All gravel/aggregate materials shall be cleaned and washed by the manufacturer/producer prior to final delivery to the project site. Refer to Standard Specification Section 810-1017 for gradation requirements.

DESIGN STANDARDS

- Use in conjunction with other soil stabilization controls up-slope to provide the most effective erosion and sediment control.
- Stack gravel bags using an overlapping, stair-stepped approach where the upper rows overlap the joints of the lower rows. Ends of adjoining gravel bags to abut tightly.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Gravel bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.
- Reshape or replace gravel bags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches 1/2 of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove gravel bag barriers when no longer needed. Remove sediment accumulation and clean, re-grade, and stabilize the area. Removed sediment should be disposed of properly or incorporated into the project.

Storm Drain Inlet Protection SC-8

DEFINITION

Fabric filter, rock mulch and/or riprap surrounding or placed in a storm drain inlet.

PURPOSE

- Serve as a final protection measure to filter sediment and debris from entering the storm drain.
- Reduce erosion along the soil interface at the entrance to the drainage structure
- Reduce flow velocity before entering the storm drain system.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Identify inlets to be protected and implement before disturbance occurs • Select type of protection based on site conditions and construction sequencing • Typically used for areas draining 1 acre or less
Alternate BMPs to consider: • SC-7 Gravel Bag Protection
Use in combination with: • SC-3 Sediment Trap • SC-4 Sediment Basin • SC-6 Sediment Log • SC-12 Compost Sock
Maintenance Needs: • Check all storm drain inlets after each storm event; remove sediment or debris clogging inlet protection

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control		X	
Good Housekeeping			
Non-Stormwater			
Waste Management			

Rock mulch and sediment logs used to protect storm drain inlet.

Storm Drain Inlet Protection SC-8

APPROPRIATE APPLICATIONS

- Disturbed drainage areas that have not yet been permanently stabilized.
- Where stormwater surface runoff can enter a drain inlet.

LIMITATIONS

- Ponding can occur at the inlet with possible short term flooding.
- Frequent maintenance may be required in areas susceptible to high flow.
- Effectiveness decreases rapidly if not properly maintained.

PLANNING/DESIGN CONSIDERATIONS

- Identify existing and/or proposed storm drain inlets that must be protected and determine which method of protection to use.
- Use for areas of less than 1 acre; route stormwater to other sediment trapping devices for areas larger than 1 acre.
- Ensure that ponding will not encroach into highway traffic.
- Verify applicable Municipal Separate Storm Sewer System (MS4) ordinances and product requirements.

MATERIAL SPECIFICATIONS

- Refer to Section 810 of the ADOT Standard Specifications for Road and Bridge Construction for material specifications of inlet protection.

DESIGN STANDARDS

- Calculate anticipated flow volumes and velocities to determine the size of rock to use.
- Use geotextile as a separator between the soil and graded rock.
- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Details: Inlet Protection Combined BMPs, Median Inlet Protection and Gravelbag Protection.
- Refer to ADOT construction standard drawings C-13.60 and C-13.65 for slotted drain details.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for
  - damage
  - failure to filter sediment
  - accumulation of sediment or debris
  - damage from temporary flooding after a storm event
- Repair as necessary
- Replace filter fabric if it becomes clogged
- Remove sediment
  - after each rainfall event
  - as specified in the contract documents
  - as directed by the Engineer
- Remove all inlet protection devices within 30 days after the site is stabilized or when inlet protection is no longer needed.
- If necessary, regrade and stabilize disturbed areas after inlet protection is removed.

Curb Inlet Protection SC-9

DEFINITION

A temporary filtering device placed in the flow line of completed curb inlets before final stabilization has been achieved.

PURPOSE

- Prevent sediment and debris from entering the stormwater system by filtering runoff.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Identify inlets to be protected and install before disturbance occurs • Select type of protection based on site conditions and construction sequencing • Typically used for areas draining 1 acre or less
Alternate BMPs to consider: • SC-7 Gravel Bag Protection
Use in combination with: • SC-3 Sediment Trap • SC-4 Sediment Basin • SC-6 Sediment Log • SC-12 Compost Sock
Maintenance Needs: • Check all storm drain inlets after each storm event; remove sediment or debris clogging inlet protection

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping			
Non-Stormwater			
Waste Management			

A variety of inlet protection products are available.

This inlet protection device is doing a good job of capturing fine sediment. Proper maintenance will help ensure continued performance.

Curb Inlet Protection SC-9

APPROPRIATE APPLICATIONS

- Where completed curb inlets are exposed to sediment-laden runoff from adjacent areas that have not been permanently stabilized.

LIMITATIONS

- Requires consistent maintenance to keep accumulated sediment and debris out of vehicular travel lanes and storm sewer system.
- Are easily damaged on roads open to the public.
- Typically ineffective on slopes steeper than 5%: runoff bypasses the inlet and continues downhill.

PLANNING/DESIGN CONSIDERATIONS

- Consider traffic conditions when designing curb inlet protection; roadways open to public traffic may require different protection than construction sites with limited access.
- Must be used in combination with upslope BMPs.
- Verify applicable Municipal Separate Storm Sewer System (MS4) ordinances and product requirements.

MATERIAL SPECIFICATIONS

- Many materials are available depending on site conditions. All should be UV resistant.
  - Non-woven polyester filter fabric.
  - Natural fiber matting or roll.
  - Woven polypropylene.
  - High density polyethylene fabric.
  - Tightly rolled wood excelsior encased in polyethylene netting.

DESIGN STANDARDS

- Avoid ponding in travel lanes.
- Firmly anchor in place.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for:
  - damage.
  - failure to filter sediment.
  - accumulation of sediment.
  - damage from temporary flooding after a storm event.
- Repair as necessary.

Sediment Control
Stabilized Construction Entrance/Exit SC-10

DEFINITION

Temporary placement of gravel or gravel in combination with shaker plates or rumble strips where traffic will enter and exit a construction site.

PURPOSE

- Remove mud and sediment from construction vehicle tires.
- Minimize amount of mud and sediment leaving the area on vehicle tires.
- Stabilize entry/exit area to prevent tire rutting.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Stabilize all entrances prior to construction disturbance
- Size the gravel pad to accommodate all vehicles
- Install filter fabric between gravel and soil
- Multiple stabilized entrances/exits may be needed

Alternate BMPs to consider:

- GH-1 Vehicle and Equipment Cleaning

Use in combination with:

- GH-1 Vehicle and Equipment Cleaning
- GH-4 Street Sweeping and Vacuuming

Maintenance Needs:

- Add gravel or stone as needed
- Remove sediment regularly from shaker plates, rumble strips and corrugated steel
- Sweep soil tracked onto paved surfaces
- Construct new stabilized entrances/ exits as construction progresses and as necessary
- Equipment on-site to maintain entrance/ exit

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			
Sediment Control			X
Good Housekeeping		X	
Non-Stormwater			
Waste Management			

Rumble strips and gravel provide more effective track-out control than gravel alone.

Fencing ensures vehicles enter / exit at trackout.

Stabilized Construction Entrance/Exit SC-10

APPROPRIATE APPLICATIONS

- Whenever traffic will be leaving a construction site and moving directly onto a public road or paved area.
- Entrance/exit should be constructed on level ground.
- Site specific, conditions will dictate need.

LIMITATIONS

- Entrance/exit must be planned and reviewed as part of the project traffic control plan.
- Does not remove all soil from vehicle tires; washing and street sweeping my be necessary.

PLANNING/DESIGN CONSIDERATIONS

- Consider soil type, rain conditions and type of construction traffic.
- Entrances are more effective if designed in conjunction with a tire wash area (prior approval is required and a water source must be provided).
- Dimensions of stabilized entrance/exit must be adequate and appropriate for all types of construction vehicles using it, and long enough for the largest vehicle tires to complete 4 revolutions.
- Make entrance wide enough for two vehicles to pass, if anticipated amount of traffic is heavy.
- Provide a bridge or culvert if entrance/exit crosses a depression, swale or stream. Refer to BMP *NS-4 Temporary Watercourse Crossing*.
- Install section of shaker plates or rumble strips or corrugated steel strips between gravel areas to increase effectiveness, particularly if exists/entrances need to be moved several times during construction. Shaker plates, rumble strips or corrugated steel strips may be used solely instead of gravel.

MATERIAL SPECIFICATIONS

- Adequately sized gravel placed at least 6” in thickness.
- Nonwoven, high survivability filter fabric.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment and Water Quality Protection Detail: Stabilized Construction Entrance/Exit Gravel Pad.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for sediment tracked onto roadway.
- Verify that gravel is clean and not filled with sediment.
- Add gravel over time to maintain effectiveness.
- Sweep soil, gravel, and other debris that is tracked onto paved surfaces. Refer to BMP *GH-4 Street Sweeping and Vacuuming*.
- Remove sediment from shaker plates, rumble stripes and corrugated steel strips to maintain maximum effectivity.
- Remove stabilized construction entrance/exit upon completion of construction and stabilize disturbed areas.

Stabilized Construction Roadway SC-11

DEFINITION

A temporary access road connecting existing public roads to a construction area.

PURPOSE

- Control dust, erosion and sediment transport created by vehicular tracking.
- Stabilize access roadways to prevent tire rutting.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Design to support heaviest vehicles and equipment • Use of this BMP may not be applicable to very short duration projects
Alternate BMPs to consider: • N/A
Use in combination with: • GH-4 Street Sweeping and Vacuuming
Maintenance Needs: • Keep all temporary roadway ditches clear • Periodically apply aggregate on gravel roads

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction		X	
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			
Sediment Control		X	
Good Housekeeping			X
Non-Stormwater			
Waste Management			

Aggregate-stabilized roadway.

Stabilized Construction Roadway SC-11

APPROPRIATE APPLICATIONS

- Construction roadways and short-term detour roads:
  - Where mud tracking is a problem during wet weather.
  - Where dust is a problem during dry weather.
  - Adjacent to watercourses.
  - Where poor soils are encountered.

LIMITATIONS

- Remove prior to final project grading and stabilization.
- Site conditions will dictate design and need.
- May not be applicable to very short duration projects.

PLANNING/DESIGN CONSIDERATIONS

- Limit speed of vehicles to control dust.
- Properly grade roadway to prevent runoff from leaving the construction site.
- Design stabilized access to support heaviest vehicles and equipment that will use it.
- Stabilize roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions.

MATERIAL SPECIFICATIONS

- The use of cold mix asphalt or asphalt concrete (AC) millings for stabilized construction roadway is not allowed.
- If aggregate is the chosen material, use crushed aggregate greater than 3 inches, but smaller than 6 inches.

DESIGN STANDARDS

- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 inches depth, or place aggregate to a depth recommended by a geotechnical engineer.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for damage and repair as needed.
- Remove when no longer needed and regrade and repair disturbed areas.

Sediment Control
Compost Sock SC-12

DEFINITION

Tubular netting filled with composted material that is placed perpendicular to sheet-flow runoff to control erosion and retain sediment in disturbed areas.

PURPOSE

- Intercept runoff, reduce flow velocities, and promote infiltration.
- Release runoff as sheet flow.
- Reduce sediment transport from runoff.
- Improve soil quality from nutrients in compost.
- Prevent sediment and debris from entering the stormwater system by filtering runoff.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Manufacturer's specifications for anchoring are minimum requirements - site conditions may mandate additional staking / securing of socks
- Place along contours of slope and/or perpendicular to stormwater runoff
- Compost must meet ADOT Project Specifications for compost material
- Trenching is not necessary
- Must maintain continuous contact with ground surface

Alternate BMPs to consider:

- Perimeter Applications:
  - SC-1 Sediment Control Berm
  - SC-2 Silt Fence
- Slope Protection:
  - SC-5 Sediment Wattle
  - SC-6 Sediment Log
- Check Dam:
  - RC-6 Check Dam
  - SC-6 Sediment Log
- Inlet Protection:
  - SC-8 Storm Drain Inlet Protection
  - SC-9 Curb Inlet Protection

Use in combination with:

- Refer to appropriate BMPs, above

Maintenance Needs:

- Inspect for rilling or erosion underneath and/or around socks
- Inspect to ensure socks are properly anchored
- Ensure there is adequate sediment capture area

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Compost socks used on slope face and as check dams (top), and as inlet protection (bottom).

Compost Sock SC-12

NOTE: Compost Socks can be used effectively as perimeter controls, slope protection, check dams, and inlet protection. As each use requires different design standards, these have been identified in the following sections where required for clarity.

APPROPRIATE APPLICATIONS

PERIMETER CONTROL

- In place of silt fence at downslope perimeter of disturbed site.
- At toe of exposed slopes.
- Around temporary stockpiles.

SLOPE PROTECTION

- Place at regular intervals at the top, face and at grade breaks of exposed slopes.

CHECK DAMS

- For small runoff volumes in roadway ditches and channels downstream of disturbed soils.

INLET PROTECTION

- Drain Inlet /Curb Inlet Protection with proper anchoring and upslope BMPs.

LIMITATIONS

- Socks must have uniform contact with the ground.
- Proper staking/anchoring is critical to sock effectiveness and to reduce potential movement of sock by high velocity flows.
- Limited sediment capture area.
- Not for use in live streams.

PLANNING/DESIGN CONSIDERATIONS

- Greater surface area in contact with the ground than for silt fence and sediment logs, reducing the potential for rilling downslope of the sock.
- Can be used where other erosion control BMPs are not feasible, such as laid directly on pavement (no staking is required on pavement, although anchoring may be necessary).
- Anchoring method is dependent upon slope gradient and surface conditions. Refer to manufacturer specifications for minimum requirements. Additional anchoring may be necessary contingent on site conditions.
- Installation does not require trenching, thereby reducing soil surface disturbance.
- Soil surface to receive sock must be uniform to ensure continuous contact between the ground and compost sock.
- Consider using instead of silt fence where fencing may impede wildlife movement.

MATERIAL SPECIFICATIONS

- Compost must meet the requirements for compost contained in the seeding section of the Project Specifications.
- All compost material shall be free of seed.
- Particle size of compost material shall conform to the following:
  - 2 in. (51 mm) Screen, 100% passing
  - 0.375 in. (10 mm) Screen, 10% to 30% passing
- The material and color of the filter sock shall be selected based on required longevity and site conditions. Filter sock material shall be photodegradable or biodegradable and sock material must be of a thickness, strength, and material appropriate to selected use and project duration.

DESIGN STANDARDS

- Compost socks should be sized appropriately depending on use. Factors influencing diameter of sock to be used include slope ratio, anticipated flow volumes, and soil characteristics. Refer to manufacturer specifications for appropriate design diameter.

PERIMETER CONTROL

- When used in place of silt fence, place sock 5' or greater from toe of slope to maximize space available for sediment deposition between the toe of slope and the compost sock.

SLOPE PROTECTION

- Do not use where creeping, slumping, or sliding of the slope may occur.
- Spacing is dependent on the gradient of the slope, anticipated flow volumes, soil characteristics, and diameter of sock. Refer to manufacturer specifications for appropriate spacing.
- Place socks perpendicular to flow, aligned with slope contours.
- Turn terminal ends of sock upslope 45 degrees to prevent flow around ends of sock.
- Compost socks must be staked per manufacturer specifications.

DRAIN INLETS

- Compost sock should completely enclose drain inlet being protected.
- Always use in conjunction with upslope BMPs.
- Anchoring of compost sock may be necessary. Refer to manufacturer specifications.

CHECK DAMS

- Compost sock should extend sufficiently from either side of the flow line to ensure that water flows through the sock rather than around it.
- Diameter and spacing of compost socks to be per manufacturer specifications.
- Compost socks must be staked per manufacturer specifications.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect to ensure socks remain firmly anchored and have not been damaged by traffic.
- Inspect for tears and splits in socks.
- Repair rills or gullies promptly, reposition and/or re-anchor socks as necessary.
- For all applications EXCEPT slope protection, remove sediment from the upslope side of the compost sock when accumulation reaches one-third of the effective height of the sock.
- For inlet protection, check all storm drain inlets after each storm event; remove sediment or debris clogging inlet protection.
- When used as slope protection, compost socks shall be left in place as a post-construction BMP. Following final stabilization, the netting on the compost sock may be cut the length of the sock, allowing the compost material to spread. Care shall be taken not to disturb the adjacent soil.
- For all applications EXCEPT slope protection, remove socks after Final Stabilization.

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Sediment Control
Rock Berm SC-13

DEFINITION

A stabilization method intended as a corrective measure on existing slopes exhibiting severe erosion, as well as new slopes with highly erosive soils. Rock berm consists of angular riprap trenched into the slope face parallel to slope contours.

PURPOSE

- Stabilization for slopes that are unlikely to respond to other sediment control methods.
- Can be used as a corrective measure on existing slopes to stabilize slope while limiting disturbance of established vegetation (as compared to re-grading / minibenching).
- Intercept runoff, reduce flow velocities, promote infiltration and vegetative cover.
- Release runoff as sheet flow, and reduce sediment transport from runoff.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Use for steep slope/high flow volume situations where alternate BMPs are inadequate
- Use of rock berms must be approved by ADOT
- Spacing and size of berm depend on slope ratio and soil conditions
- Construct along contours of slope
- Riprap must be trenched into slope
- Use outside of clear zone

Alternate BMPs to consider:

- SC-5 Sediment Wattle
- EC-2 Minibenches/Slope Roughening

Use in combination with:

- Erosion Control BMPs: EC-1 through EC-7

Maintenance Needs:

- Inspect for rilling or erosion downslope of berm; repair as necessary

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater			
Waste Management			

Rock berms used as a corrective measure on an eroded slope. Due to vegetation establishment, areas with rilling were not regraded.

Berms run parallel to slope contours and are trenched into slope face.

Rock Berm SC-13

APPROPRIATE APPLICATIONS

- Slopes with highly erosive (granitic, low plasticity) soils that cannot be adequately stabilized with alternate BMPs or methods. Rock berms could be used at the top, face and at grade breaks of exposed slopes.

LIMITATIONS

- Less effective for fine-particle sediment removal than sediment wattles, but able to withstand higher flows than wattles.
- Trenching-in of rock berm essential to effectiveness.

PLANNING/DESIGN CONSIDERATIONS

- Use of rock berms must be approved by ADOT prior to installation.
- Geotechnical report must be available for areas where rock berm use is proposed – use of rock berms is dependent on soil type.
- Not for use at toe of slope or within vehicle clear zone.
- Care should be taken to preserve existing vegetation in place on existing slopes.
- Especially suitable for slopes with granitic, or other highly erosive, soils due to the difficulty / length of time required for vegetation establishment.
- Color of riprap used for rock berms should be selected to blend in with adjacent landscape.
- Remain in place on slopes after Final Stabilization.
- Typically a less expensive treatment than re-grading an existing slope.

MATERIAL SPECIFICATIONS

- Rock berms shall be constructed of angular rock; river run material is not allowed.
- Rock size will vary based on height of slope and anticipated velocity and amount of water on slope face. Rock shall be sized as specified in the Project Plans or as stated in the Special Provisions.

DESIGN STANDARDS

- Refer to ADOT Erosion/Sediment Control and Water Quality Protection Detail: Rock Berm.
- Adjust berm spacing based on soil erosivity: decrease spacing if soils are more erosive, increase spacing if soils are less erosive.
- Slope preparation prior to installation of rock berms:
  - On existing slopes with established vegetation, vegetation should be preserved in place to mitigate erosion and slope treatments that would disturb the vegetation (such as minibenching / slope roughening) should not be used.
  - On new slopes, minibenching / slope roughening may be incorporated if appropriate for soil type. ADOT shall provide direction on compatible BMPs to be used with rock berms on a case-by-case basis.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for rilling or erosion downslope of berms; repair rills or gullies promptly.
- Erosion caused by high flows around the edges of the berm should be corrected immediately.

Good Housekeeping (GH) BMPs

Good Housekeeping and Material Management BMPs are procedural and structural pollution prevention measures designed to prevent contamination of stormwater from a broad range of materials. Proper handling, storage and use of materials will ensure that construction site operations do not contribute to the degradation of stormwater runoff through added jobsite-related pollutants. These controls must be implemented for all applicable activities, material usage and site conditions.

- GH-1 Vehicle and Equipment Cleaning
- GH-2 Vehicle and Equipment Fueling
- GH-3 Vehicle and Equipment Maintenance
- GH-4 Street Sweeping and Vacuuming
- GH-5 Material Delivery and Storage
- GH-6 Material Use
- GH-7 Stockpile Management
- GH-8 Spill Prevention and Control
- GH-9 Portable Toilet

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Good Housekeeping
Vehicle and Equipment Cleaning GH-1

DEFINITION

Procedures and practices used to clean vehicles and equipment prior to or during use on project site.

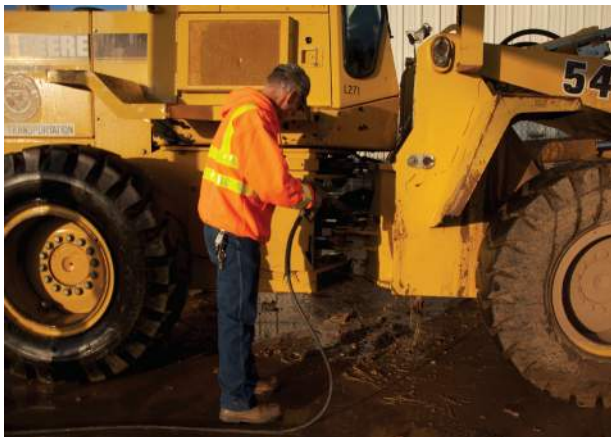
PURPOSE

- Minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning operations to storm drain or to watercourses.
- Reduce or eliminate spread of noxious weeds and invasive plant species from project site.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Location of cleaning pit • Capacity of cleaning pit
Alternate BMPs to consider: • N/A
Use in combination with: • Applicable Waste Management BMPs (WM-1 through WM-5)
Maintenance Needs: • Inspect designated cleaning areas for compliance • Verify that personnel are following proper procedures and practices

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		



Cleaning prior to use on construction site.

Contained equipment cleaning.

Vehicle and Equipment Cleaning GH-1

APPROPRIATE APPLICATIONS

- All construction sites where vehicle and equipment cleaning is performed.

LIMITATIONS

- Cleaning vehicles and equipment generates liquid, semi-solid and solid wastes which must be contained on-site and/or treated to prevent pollution.

PLANNING/DESIGN CONSIDERATIONS

- On-site vehicle and equipment washing with detergent or steam is **not** allowed.
- Cleaning area shall be an excavated pit to contain wash waters and waste for proper disposal.
- Cleaning water shall not be discharged to storm drains or watercourses.
- Locate cleaning areas close to the active construction site, but away from storm drain inlets, drainage facilities, open ditches and/or watercourses.
- On-site vehicle and equipment cleaning must be consistent with the applicable Arizona Aquifer Protection Permit requirements.

MATERIAL SPECIFICATIONS

- Vehicle and equipment washing with soap, solvents or steam is **not** allowed on the project site unless the Engineer has approved in advance and the resulting wastes are fully contained and disposed of outside of the highway right-of-way in conformance with the Standard Specifications. Resulting wastes shall not be discharged or buried within the highway right-of-way. Obtain required applicable permits.

DESIGN STANDARDS

- The washout pit shall be sized to retain all cleaning and rinse water from vehicle cleaning operations.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Ensure appropriate practices are being implemented by personnel.

Good Housekeeping
Vehicle and Equipment Fueling GH-2

DEFINITION

Procedures and practices to minimize or eliminate fuel spills and leaks during fueling.

PURPOSE

- To prevent the pollution of storm drain systems or watercourses from fuel spills and leaks.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Location of fueling area • Design and size of fueling and containment area • Compliance with federal, state and local requirements
Alternate BMPs to consider: • N/A
Use in combination with: • GH-8 Spill Prevention and Control
Maintenance Needs: • Inspect vehicles and equipment daily for leaks • Spill clean up • Proper disposal of contaminated soil and clean up materials

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Fueling site.

Is this containment area the correct size?

Vehicle and Equipment Fueling GH-2

APPROPRIATE APPLICATIONS

- These procedures are implemented on all construction sites where vehicle and equipment fueling takes place.

LIMITATIONS

- Only use on-site vehicle and equipment fueling when it is impractical to send vehicles and equipment off-site to be refueled.

PLANNING/DESIGN CONSIDERATIONS

- When fueling must occur on-site, the contractor shall select and designate an area to be used, subject to approval by the Engineer.
- Minimize mobile fueling of construction equipment throughout the site and use spill prevention containment methods wherever fueling occurs.

MATERIAL SPECIFICATIONS

- Absorbent spill clean-up materials and spill kits shall be available in fueling areas and on fueling trucks and shall be disposed of properly after use.

DESIGN STANDARDS

- Federal, state and local requirements shall be observed for any stationary above-ground storage tanks.
- Spill prevention, containment and countermeasures (SPCC) shall be included in the SWPPP if the volume of project-site fuel in a single container exceeds 660 gallons, or if the total fuel storage volume at any one site exceeds 1,320 gallons.
- Containment area must be sized to provide sufficient freeboard.
- Designated fueling areas shall be protected from stormwater runoff and shall be located at least 50 feet from downstream drainage facilities or watercourses. Fueling must be performed on level-grade areas.
- Protect fueling areas with berms and/or dikes to prevent runon, runoff and to contain spills.
- Drip pans or absorbent pads shall be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut-off to control drips. Fueling operations shall not be left unattended. Fuel tanks shall not be “topped off.”

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect vehicles and equipment daily for leaks.
- Repair vehicle and equipment leaks immediately or remove problem vehicle or equipment from the project site.
- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.
- Immediately put small quantities of fuel-contaminated soils in an on-site container, i.e a bucket, and dispose of properly.
- Keep an ample supply of spill cleanup material on the site.

Good Housekeeping
Vehicle and Equipment Maintenance GH-3

DEFINITION

A program of equipment maintenance procedures and practices for the construction site.

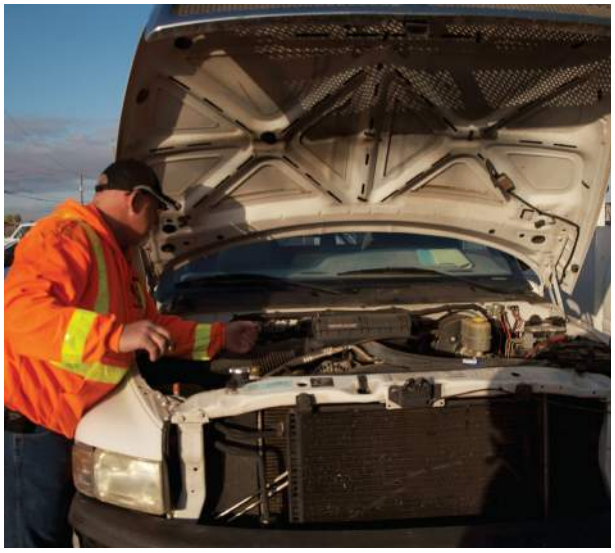
PURPOSE

- To prevent the contamination of on-site soils and stormwater.
- To insure the proper disposal of equipment fluids, and other vehicle maintenance waste or debris.

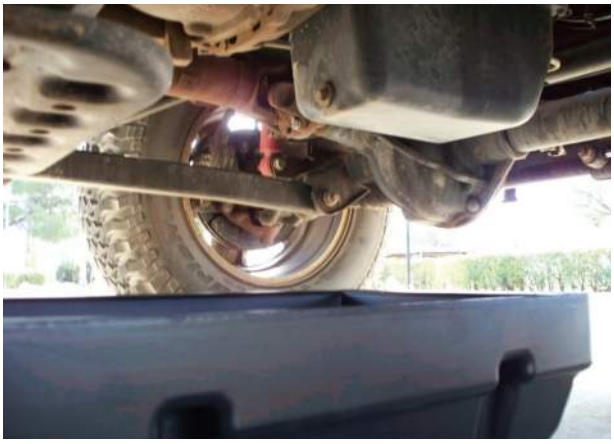
AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Location of maintenance area • Design of maintenance area • Compliance with federal, state and local requirements
Alternate BMPs to consider: • N/A
Use in combination with: • GH-8 Spill Prevention and Control
Maintenance Needs: • Inspect vehicles and equipment for leaks • Spill clean up • Proper disposal of contaminated soil, waste and clean up materials

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		



Practice routine maintenance.



Use drip pans or absorbent pads under equipment during maintenance that involves fluids.

Vehicle and Equipment Maintenance GH-3

APPROPRIATE APPLICATIONS

- On any construction site where heavy equipment and truck storage and maintenance yards are located on-site when approved by the Engineer.

LIMITATIONS

- Comply with local codes and ordinances regarding the disposal of fluids and consumable goods, and the on-site maintenance of equipment.

PLANNING/DESIGN CONSIDERATIONS

- Plan for the proper recycling or disposal of used oils, hydraulic fluids, gear lubricants, batteries, and tires.
- Equipment maintenance and wash-out areas should be located at least 50 feet away from watercourses.
- Provide a contained wash-out area to wash down heavy equipment. Refer to BMP *GH-1 Vehicle and Equipment Cleaning*.

MATERIAL SPECIFICATIONS

- Maintain Material Safety Data Sheets (MSDS) sheets for all oils, hydraulic fluids, lubricants and other substances kept on-site.

DESIGN STANDARDS

- Use appropriate, leak-proof containers for fuels, oils and lubricants to provide for proper disposal.
- Use high-pressure water instead of thinners and solvents to wash down equipment. Wash water and detergents can be disposed of in the sanitary sewer system after grit is removed, after checking with local authorities.
- Use drip pans or absorbent pads under equipment during maintenance that involves fluids.
- Provide spill containment areas around stored oil and chemical drums.
- Never clean or maintain vehicles over bare soil.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect for:
  - Damaged hoses.
  - Leaky gaskets.
  - Container leaks.
- Repair all damages and leaks immediately.

Good Housekeeping
Street Sweeping and Vacuuming GH-4

DEFINITION

Practices to remove sediment tracked from the project site onto public or private paved roads.

PURPOSE

- To prevent tracking of sediment outside the project limits.
- To prevent sediment from entering a storm drain or watercourse.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Consider incorporating removed sediment that is debris-free back into the project
Alternate BMPs to consider: • N/A
Use in combination with: • SC-10 Stabilized Construction Entrance/ Exit • SC-11 Stabilized Construction Roadway
Maintenance Needs: • Proper disposal of sweeper waste

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control	X		
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Plan for proper disposal of waste collected.

Water minimizes dust generated by sweeping.

Street Sweeping and Vacuuming GH-4

APPROPRIATE APPLICATIONS

- Use where sediment is tracked from a project site onto paved public or private roads.

LIMITATIONS

- May be ineffective if soil is wet, sticky or compacted.

PLANNING/DESIGN CONSIDERATIONS

- If not mixed with debris or trash, consider incorporating removed sediment back into project.
- Sweepers must meet all federal, state and local air quality regulations.
- Some jurisdictions require vacuum sweepers.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Operate at speeds and water application rates per manufacturer's recommendations.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable permit(s).
- Inspect construction entrances, exits and other paved areas daily for sediment accumulation.
- Sweep and vacuum as necessary or as required by the Engineer.
- Dispose of sweeper waste properly and provide documentation of proper disposal.

Good Housekeeping
Material Delivery and Storage GH-5

DEFINITION

Procedures and practices for the proper handling, delivery, and storage of construction materials at the construction site.

PURPOSE

- To minimize the risk of discharge from leaks and spills of construction site materials into storm drain system or watercourses.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Covered storage for materials that are potential stormwater contaminants • Location of storage areas • Compliance with federal, state and local requirements including building and fire codes for storage shed • Personnel training is important to successful material handling
Alternate BMPs to consider: • N/A
Use in combination with: • GH-6 Material Use • GH-8 Spill Prevention and Control
Maintenance Needs: • Inspect containers and storage areas for spills and damage • Up-to-date inventory of on-site materials

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Covered materials.

Material delivery.

Material Delivery and Storage GH-5

APPROPRIATE APPLICATIONS

- Every construction site shall implement material delivery and storage methods (practices) to properly receive, store and handle construction site material at the project site.
- Materials stored on the construction site include:
  - Soil.
  - Pesticides.
  - Fertilizers.
  - Detergents.
  - Plaster.
  - Petroleum products such as fuel, oil and grease.
  - Asphalt and bitumens.
  - Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds.
  - Concrete compounds.
  - Other materials that may be detrimental if released to the environment.

LIMITATIONS

- Project site space limitations may preclude indoor storage.

PLANNING/DESIGN CONSIDERATIONS

- Train employees and subcontractors on the proper material delivery and storage practices.
- Temporary storage areas shall be located away from vehicular traffic.
- Storage sheds must meet building and fire code requirements.

MATERIAL SPECIFICATIONS

- Material Safety Data Sheets (MSDS) shall be supplied to the Engineer for all materials stored.

MATERIAL DELIVERY STANDARDS

- Employees trained in emergency spill clean-up procedures shall be present when hazardous materials or liquid chemicals are unloaded.
- Keep an accurate, up-to-date inventory of material delivered and stored on-site.
- Chemical and material storage areas shall be located away from low areas, drainages and stream banks, and outside the 100-year flood level.

MATERIAL STORAGE AREAS AND PRACTICES

- MSDS should be centrally located, accessible at all times and all personnel informed of that location.
- Liquids and petroleum products shall be stored in approved containers and drums and placed in temporary containment areas for storage.
- Storage, preparation, and mixing shall be accomplished in temporary containment facilities. Each temporary containment facility shall provide a spill containment volume equal to 1.5 times the volume of all containers therein and shall be impervious to the materials contained therein for a minimum contact time of 72 hours.
- Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, shall not be stored in the same temporary containment facility.

- To provide protection from wind and rain, temporary containment facilities shall be covered during non-working days and prior to rain events.
- Temporary containment facilities shall be maintained free of accumulated rainwater and spills.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground.
- Stockpiles shall be protected in accordance with BMP *GH-7 Stockpile Management*.
- Minimize the material inventory stored on-site (e.g., only a few days supply).
- Have proper storage instructions posted at all times in an open and conspicuous location.
- Keep hazardous chemicals well labeled and in their original containers.
- Keep ample supply of appropriate spill clean up material near storage areas.
- Use proper devices to transfer chemicals from one container to another.
- Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.

SPILL CLEAN-UP

- Contain and clean up any spill immediately.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose any hazardous material or contaminated soil.
- Refer to BMP *GH-8 Spill Prevention and Control.*

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Containers and storage areas shall be inspected weekly for spills and damage.
- Storage areas shall be maintained to prevent rainfall and runoff from coming in contact with chemicals or materials.
- Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Clean areas where materials have been removed to insure that no dust or spillage remains to be washed into stormwater.

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Good Housekeeping
Material Use GH-6

DEFINITION

Procedures and practices for use of construction material in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or watercourse.

PURPOSE

- To minimize or prevent the discharge of construction material from the project site.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Personnel training is critical to ensure proper material handling • Compliance with federal, state and local material use requirements
Alternate BMPs to consider: • N/A
Use in combination with: • GH-5 Material Delivery and Storage • GH-8 Spill Prevention and Control
Maintenance Needs: • Verify use of proper practices by all employees

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Material Safety Data Sheets should be available at the project site.

Pesticide Use Log Sheet

Date	Time of Application	Pesticide name	EPA Registration Number	Application method	Concentration and Quantity used	Specific area treated	Target pest

Pesticide logs must be maintained.

APPROPRIATE APPLICATIONS

- All construction sites.
- Procedures apply when the following materials are used or prepared on site:
  - Pesticides.
  - Fertilizers.
  - Detergents.
  - Plaster.
  - Petroleum products such as fuel, oil, and grease.
  - Asphalt and other concrete components.
  - Hazardous chemical such as acids, lime, glues, adhesives, paints, solvents, and curing compounds.
  - Concrete compounds.
  - Other materials that may be detrimental if released to the environment.

LIMITATIONS

- N/A

PLANNING/DESIGN CONSIDERATIONS

- Use recycled and safer alternative products when practical.

MATERIAL SPECIFICATIONS

- Material Safety Data Sheets (MSDS) shall be supplied to the Engineer for all materials used or stored on the project site.

MATERIAL USE PRACTICES

- MSDS should be centrally located, accessible at all times and all personnel informed of that location.
- Latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and no longer hazardous, may be disposed of with other construction debris.
- Do not remove the original product label, it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain or watercourse. Dispose of any paint thinners, residue and sludge(s), that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practical, and rinse to a drain leading to a sanitary sewer where permitted, or into a concrete washout pit or temporary sediment trap. For oil-based paints, clean brushes to the extent practical and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity.
- Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials on-site when practical.
- Do not over-apply fertilizers and pesticides. Prepare only the amount needed.
- Strictly follow the recommended usage instructions. Apply surface dressings in smaller applications, as opposed to large applications, to allow time for it to work in and to avoid excess materials being carried off-site by runoff.
- Application of pesticides shall be performed by a licensed applicator.
- Maintain logs for all pesticides applied, including brand name, formulation, EPA

registration number, amount and date applied, exact location of application, vehicle calibration, and name, address, and certification number of applicator.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Comply with all pertinent Federal Regulations.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Spot check employees and subcontractors monthly throughout the job to ensure appropriate practices are being employed.

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Good Housekeeping
Stockpile Management GH-7

DEFINITION

Procedures and practices to reduce or eliminate stormwater contact with all piled construction site material including: soil, sand and paving materials such as concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate subbase or premixed aggregate, and asphalt minder ("cold mix" asphalt).

PURPOSE

- To reduce or eliminate stormwater pollution from construction site stockpiles.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Location of stockpiles • Additional protection measures required if rain is predicted
Alternate BMPs to consider: • N/A
Use in combination with: • EC-6 Soil Binders • SC-1 Sediment Control Berm • SC-2 Silt Fence • SC-5 Sediment Wattles • SC-6 Sediment Log • WM-3 Contaminated Soil Management
Maintenance Needs: • Repair and/or replace stockpile controls as needed

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control	X		
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Small stockpiles in an urban area.

Larger stockpiles in storage yard.

Stockpile Management GH-7

APPROPRIATE APPLICATIONS

- All projects that stockpile soil, paving and other materials.

LIMITATIONS

- None identified.

PLANNING/DESIGN CONSIDERATIONS

- Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, drainage courses and inlets.

MATERIAL SPECIFICATIONS

- Bagged materials shall be placed on palettes and under cover.

DESIGN STANDARDS

- Protect all stockpiles from stormwater run-on using a temporary perimeter sediment barrier such as berms, dikes, silt fences, or gravel bags, compost logs.
- Cover or protect with soil stabilization measures if rain is predicted.
- Implement wind erosion control practices as appropriate; refer to BMP *EC-6 Soil Binders.*
- “Cold mix” stockpiles shall be placed and stored per the project Special Provisions.
- Comply with local jurisdiction air quality requirements.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Repair and/or replace perimeter controls and covers as needed or as directed by the Engineer.

Good Housekeeping
Spill Prevention and Control GH-8

DEFINITION

Procedures and practices implemented to prevent and control spills.

PURPOSE

- To minimize or prevent discharges of spilled materials to the drainage system or watercourse.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Spill prevention and control is required whenever chemical and hazardous materials are stored • Contractor must prepare and implement a spill prevention and control plan • Employee education programs are key
Alternate BMPs to consider: • N/A
Use in combination with: • Waste Management BMPs (WM-1 through WM-5)
Maintenance Needs: • Verify weekly that spill control clean up materials are located properly • Update spill prevention and control plan as necessary.

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Spills onto soil require clean-up.

Spill containment.

Spill Prevention and Control GH-8

APPROPRIATE APPLICATIONS

- Required for all construction activities.
- Spill control procedures are implemented wherever chemicals and/or hazardous substances are used and/or stored.

LIMITATIONS

- This BMP description is very general. The contractor must identify additional appropriate practices for the specific materials used or stored on-site.

PLANNING/DESIGN CONSIDERATIONS

- The contractor shall prepare and implement a spill prevention and control plan. The plan should include procedures for :
  - Storage and use that will prevent spills.
  - Spill clean up including minor and significant/hazardous spills.
  - The containment of spills.
  - The disposal of spilled materials and the material used for clean up.
  - Employee education programs.

MATERIAL SPECIFICATIONS

- Chemical and hazardous substances include, but are not limited to:
  - Soil stabilizers/binders.
  - Dust Palliatives.
  - Pesticides.
  - Fertilizers.
  - Deicing/anti-icing chemicals.
  - Fuels.
  - Lubricants.
  - Other petroleum distillates.
  - Blasting materials
  - Portable toilets.

DESIGN STANDARDS

- Water used for cleaning and decontamination shall not be allowed to enter storm drains nor watercourses and shall be collected and disposed of as described in BMP *WM-5 Liquid Waste Management*.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Verify weekly that spill control clean up materials are located near material storage, unloading and use areas.
- Perform regular preventive maintenance on tanks and fuel lines.
- Update spill prevention and control plan if changes occur in the types of chemicals on site.
- Notify applicable agencies of spills per the permit and all federal, state, and local requirements.

ADDITIONAL INFORMATION AND RESOURCES

- ADEQ Emergency Response Duty Office, (602)-771-2330 or (800)-234-5677.
- ADEQ Waste Management Programs Division, http://www.azdeq.gov/environ/waste/index.html

Good Housekeeping
Portable Toilet GH-9

DEFINITION AND PURPOSE

Procedures and practices to minimize or prevent the discharge of construction site sanitary/septic waste to the storm drain system or to receiving waters.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Place on a level surface • Stake or weight into place
Alternate BMPs to consider: • N/A
Use in combination with: • WM-1 Solid Waste Management • WM-5 Liquid Waste Management
Maintenance Needs: • Regular inspection for leaks and spills • Periodic service to ensure proper function • Regular waste collection by a licensed service

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater			
Waste Management	X		

Location, location, location.

Staking is the preferred method for securing portable toilets.

Portable Toilet GH-9

APPROPRIATE APPLICATIONS

- All construction sites that use temporary and/or portable sanitary/septic systems.

LIMITATIONS

- None identified

PLANNING/DESIGN CONSIDERATIONS

- Locate sanitary facilities in a convenient location.
- Educate employees, subcontractors and other users on sanitary/septic waste storage and disposal systems.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Locate temporary sanitary facilities away from drainage facilities, watercourses, and from traffic circulation.
- Do not locate temporary sanitary facilities in areas that will collect water.
- Prepare level, gravel surface or place on concrete, and provide clear access for servicing and on-site personnel.
- Provide containment for spill or leak protection.
- Ensure that temporary septic systems treat wastes to appropriate levels before discharging.
- If using an on-site disposal system (OSDS) such as a septic system, comply with local health agency requirements.
- Properly connect temporary sanitary facilities that discharge to the sanitary sewer system.
- If discharging to the sanitary sewer, contact the local wastewater treatment plant for their requirements.
- Ensure that a licensed service maintains sanitary/septic facilities in good working order.
- Stake portable toilets or secure to a sturdy object (such as a fence or post) to create a stable environment and prevent overturning.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect regularly for leaks or spills.
- Repair leaks or replace facility immediately.
- Arrange for regular waste collection.

Non-Stormwater (NS) BMPs

Non-stormwater management BMPs are source control measures intended to prevent pollution by limiting or reducing potential pollutants at the source before they come in contract with stormwater. These practices involve day-to-day operations of the construction site and are usually under the control of the contractor.

- NS-1 Water Conservation Practices
- NS-2 Dewatering Operations
- NS-3 Paving and Milling Operations
- NS-4 Temporary Watercourse Crossing
- NS-5 Water Diversion
- NS-6 Structure Demolition/Removal Over or Adjacent to Water
- NS-7 Material and Equipment Use Over Watercourses

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Non-Stormwater
Water Conservation Practices NS-1

DEFINITION

Procedures and practices that use water during construction in a manner to minimize erosion and the transport of pollutants.

PURPOSE

- To conserve water and reduce or eliminate non-stormwater discharges.
- To conserve a critical resource.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Avoid using water to clean construction areas
Alternate BMPs to consider: • N/A
Use in combination with: • Many Erosion, Sediment and Run-off Control are appropriate for use with this BMP
Maintenance Needs: • Regularly inspect and repair water delivery equipment and systems for leaks

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control			
Good Housekeeping			
Non-Stormwater	X		
Waste Management			

Check dams slow the flow, allowing water to percolate into the ground, and enhancing seed germination.

Don't let this happen!

Water Conservation Practices NS-1

APPROPRIATE APPLICATIONS

- Water conservation practices are implemented on all construction sites where water is used.
- Applies to all construction projects and use of water including piped, metered and trucked water.

LIMITATIONS

- None identified.

PLANNING/DESIGN CONSIDERATIONS

- Avoid using water to clean construction areas.
- Direct construction water to areas where it can infiltrate into the ground or be collected or reused.
- Use water harvesting techniques to water areas that are being revegetated.
- Authorized non-stormwater discharges to storm drain systems, channels or receiving waters are acceptable with the implementation of appropriate BMPs.
- Verify allowable non-stormwater discharges applicable in each permit.
- Comply with Arizona Aquifer Protection Permit requirements.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- N/A

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect and repair water delivery equipment and systems regularly.
- Verify that appropriate BMPs are in place to assist with water conservation.

Non-Stormwater
Dewatering Operations NS-2

DEFINITION

Practices that manage the discharge of pollutants, in this case sediment, when accumulated precipitation (stormwater) and non-stormwater must be removed from a work location and or construction site.

PURPOSE

- Prevent discharge of sediment from the construction site during water removal.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Site conditions will dictate design and use of dewatering operations • Discharges must comply with regional and watershed-specific discharge requirements
Alternate BMPs to consider: • N/A
Use in combination with: • Several Erosion, Sediment and Run-off Control may be appropriate for use with this BMP
Maintenance Needs: • Inspect filtering device frequently and repair/replace to ensure proper operation

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance			X
BMP Objectives			
Erosion Control	X		
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater	X		
Waste Management			

Dewatering during bridge work.

Sediment is retained in the basin during this dewatering operation.

Dewatering Operations NS-2

APPROPRIATE APPLICATIONS

- Controlling sediment from dewatering operations is required on all projects that pump sediment-laden water from work areas and plan to discharge the pumped water into a conveyance system or watercourse. Dewatering discharges include but are not limited to:
  - Removal of uncontaminated groundwater.
  - Removal of accumulated rainwater from work areas.
  - Removing water from cofferdams or diversions.

LIMITATIONS

- Site conditions will dictate design and use of dewatering operations.
- The controls discussed in this BMP address sediment only. If the presence of polluted water is identified in the contract, the contractor shall implement dewatering pollution controls as required by the contract documents. If the quality of water to be removed by dewatering is not identified as polluted in the contract documents, but is later determined by observation or testing to be polluted, the contractor shall notify the Engineer and comply with Standards Specifications, “Differing Site Conditions.”
- The controls detailed in this BMP only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods.
- Dewatering operations will require and must comply with applicable federal, state and local permits.
- Avoid dewatering discharges where possible by infiltration in appropriate areas.

PLANNING/DESIGN CONSIDERATIONS

- Contractor shall notify the Engineer of planned discharges.
- The Engineer will coordinate monitoring and permit compliance.
- Discharges must comply with regional and watershed-specific discharge requirements.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Ensure that dewatering discharges do not cause erosion at the discharge point.
- Sediment Control Treatment: Dewatering effluent (groundwater and accumulated precipitation) that is laden with suspended solids shall be treated to remove soil particles. Sediment basins are an example of a temporary treatment device.
- Filter bags may be used for small-scale dewatering operations.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect filtering device frequently and repair or replace when sediment build-up prevents the structure from functioning as designed.
- If adequate freeboard is not present, monitor weather forecast and discharge prior to the next event.
- Accumulated suspended solids removed from a dewatering device shall be spread on the project site and stabilized at locations designated by the Engineer.

Non-Stormwater
Paving and Milling Operations NS-3

DEFINITION

Procedures implemented during paving surfacing, resurfacing, or saw-cutting to prevent pollutants from entering stormwater systems, drainage ways or watercourses.

PURPOSE

- Prevent water used during paving and milling operations from entering stormwater systems or drainage ways.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Cleaning of vehicles and equipment • Proper disposal of paving and milling debris
Alternate BMPs to consider: • N/A
Use in combination with: • GH-1 Vehicle and Equipment Cleaning • GH-8 Spill Prevention and Control • WM-1 Solid Waste Management • WM-5 Liquid Waste Management
Maintenance Needs: • Inspect and maintain machinery regularly to minimize leaks and drips. • Ensure that employees and subcontractors are implementing appropriate measures during paving operations.

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance		X	
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping			
Non-Stormwater	X		
Waste Management	X		

Saw-cutting.

Asphalt paving operation.

Paving and Milling Operations NS-3

APPROPRIATE APPLICATIONS

- Everywhere paving, surfacing, resurfacing, or saw-cutting operations may pollute stormwater runoff or discharge to the storm drain system or watercourses.

LIMITATIONS

- Finer solids are not effectively removed by filtration systems.
- Paving opportunities may be limited during wet weather to minimize discharge of pollutants.

PLANNING/DESIGN CONSIDERATIONS

- Clean equipment off-site whenever possible.
- If on-site cleaning is necessary follow BMP *GH-1 Vehicle and Equipment Cleaning*
- If on-site cleaning is necessary manage debris per BMP *WM-1 Solid Waste Management.*
- Disposal of Portland Concrete Cement and Asphaltic Concrete waste will be in conformance with the Standard Specifications.

MATERIAL SPECIFICATIONS

- Material used to coat asphalt transport trucks, asphalt trucks and asphalt spreading equipment shall not contain soap and be non-foaming and non-toxic.
- Reuse of saw-cutting water is permissible if settled and pH levels test in the normal range (6-9 pH) and water is not allowed to runoff the project site.

DESIGN STANDARDS

ASPHALTIC CONCRETE PAVING

- Place drip pans or absorbent materials under paving equipment while not in use to catch or contain drips and leaks.
- Minimize the washing of sand or gravel from new asphalt into storm drains, streets, and receiving waters by sweeping where practical.
- Cover drainage inlet structures and manholes with filter fabric during application of seal coat, tack coat, slurry seal and/or fog seal.
- Do not apply seal coat, tack coat, slurry seal, or fog seal if rainfall is predicted to occur during the application or curing period.
- Dispose old or spilled asphalt as approved by the Engineer. Do not allow AC millings, pieces or chunks used in embankments or shoulder backing to enter any storm drains or watercourses. Apply temporary BMP perimeter controls until structure is stabilized or permanent controls are in place.
- Collect and remove all broken asphalt and recycle when practical; otherwise, dispose in accordance with special provisions or as directed by the Engineer.
- Place any AC chunks and pieces used in embankments above the water table and cover by at least 1 foot of material.
- Use only non-toxic substances to coat asphalt transport trucks and asphalt spreading equipment.

PORTLAND CEMENT CONCRETE PAVING

- Do not wash sweepings from exposed aggregate concrete into storm drain systems. Collect and return to aggregate base stockpile or dispose of properly.
- Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in BMP *WM-4 Concrete Waste Management* or dispose of properly.
- Do not allow saw-cut Portland Concrete Cement (PCC) slurry to enter storm drains or watercourses.

- Residue from milling operations must not flow across pavement and nor be left on the surface of pavement. Refer to BMPs *WM-4 Concrete Waste Management and WM-5 Liquid Waste Management.*

THERMOPLASTIC STRIPING

- Inspect all thermoplastic striper and pre-heater equipment shutoff valves to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Fill the pre-heater carefully to prevent splashing or spilling of hot thermoplastic. Leave 6 inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move when the vehicle is deadheaded.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible recycle thermoplastic material. Thermoplastic waste shall be disposed of in accordance with project specifications.

RAISED/RECESSED PAVEMENT MARKER APPLICATION AND REMOVAL

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system or watercourses.
- Load melting tanks with care and do not fill beyond six inches from the top to leave room for splashing when vehicle is deadheaded.
- When servicing or filling melting tanks ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.
- Waste shall be disposed of in accordance with Standard Specifications.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect and maintain machinery regularly to minimize leaks and drips.
- Ensure that employees and subcontractors are implementing appropriate measures during paving operations.
- Keep ample supplies of drip pans and absorbent materials on-site.

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Non-Stormwater
Temporary Watercourse Crossing NS-4

DEFINITION

A structure placed across a watercourse allowing vehicles to cross during construction.

PURPOSE

- To provide a safe, stable way for construction vehicle traffic to cross a watercourse.
- To provide streambank stabilization.
- To reduce the risk of damage to the streambed or channel.
- To eliminate erosion and downstream sedimentation caused by vehicles moving through the streambed.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • May require additional permitting • Design and install under direction of registered Civil or Structural Engineer • Select a location where erosion potential is low • Construct at natural elevation of the streambed
Alternate BMPs to consider: • N/A
Use in combination with: • SC-3 Sediment Trap • NS-2 Dewatering Operations • NS-5 Water Diversion • NS-7 Material and Equipment Use Over Water
Maintenance Needs: • Inspect and maintain to ensure crossing, watercourse and banks are stable

RATINGS	H	M	L
Associated Costs			
Design			X
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping			
Non-Stormwater	X		
Waste Management			

Temporary bridge.

Design must consider the heaviest loads.

Temporary Watercourse Crossing NS-4

APPROPRIATE APPLICATIONS

- In all cases where construction equipment or vehicles need to cross a waterway or as specified in ADOT Stored Specification 104SWDEQ or 104SWEPA.
- When alternative access routes are not feasible.
- When crossing perennial streams or waterways causes significant erosion.

ADOT Specification Section 104SWEPA: Unless otherwise approved in writing by the Engineer, fording of running streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used whenever an appreciable number of crossings is necessary.

LIMITATIONS

- Installation and removal will disturb the waterway.
- May require additional permitting such as U.S. Army Corps of Engineers 404 permit and environmental clearance.
- Installation may require dewatering or temporary diversion of the stream. Refer to BMP *NS-2 Dewatering Operations*.
- Crossing structure may become a constriction in the waterway, which can obstruct flood flow and cause flow backups or washouts. If improperly designed, flow backups can increase the pollutant load through washouts and scouring.

PLANNING/DESIGN CONSIDERATIONS

- Consult with ADOT Office of Environmental Services, Water Quality Section, prior to installation of any temporary watercourse crossing.
- Select crossing site where erosion potential is low.
- Select areas where the runoff from highway side slopes will not spill into the crossing side slopes.
- All crossing designs must consider storm event-generated runoff.
- Design and installation require knowledge of stream flows and soil strength. Designs shall be under the direction of, and approved by, a registered civil and/or structural engineer. Both hydraulic and construction loading requirements shall be considered with the following:
  - Comply with the requirements for culvert and bridge crossings, as contained in the ADOT Highway Design Manual, particularly if the temporary stream crossing will remain through the rainy season.
  - Provide stability in the crossing and adjacent areas to withstand the design flow. The design flow and safety factor shall be selected based on careful evaluation of the risks due to over topping, flow backups, or washout.
  - Install sediment traps immediately downstream of crossings outside of the drainage in order to capture sediments. Refer to BMP *SC-3 Sediment Trap*.
  - Avoid oil or other potentially hazardous waste materials for surface treatment.
- Types of temporary crossings to consider:
  - Culverts
    - Use on perennial and intermittent streams
    - Relatively easy to construct
    - Able to support heavy loads
  - Fords
    - Use on dry streams washes and ephemeral stream and low flow perennial streams during the dry season in arid areas.
    - Least expensive of the crossing types with the maximum load limits.

    - Temporary fords are not appropriate if construction will continue through the rainy season, if thunderstorms are likely or if the stream is perennial.
  - Bridges
    - Use on streams with high flow velocities, steep gradients and/or where temporary restrictions in the channel are not allowed.
    - Generally more expensive to design and construct
    - Least disturbance to the stream bed
    - Least constrictive of waterway flows

MATERIAL SPECIFICATIONS

- N/A

DESIGN AND CONSTRUCTION STANDARDS

- Stabilize construction roadways, adjacent work area and stream bottom against erosion.
- Construct during dry periods to minimize stream disturbance and reduce costs.
- Construct at or near the natural elevation of the streambed to prevent potential flooding upstream of the crossing.
- Vehicles and equipment shall not be driven, operated, fueled, cleaned, maintained, or stored in the wet or dry portions of a water body where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as authorized by the Engineer as necessary to complete the work.
- Temporary water body crossings and encroachments shall be constructed to minimize scour. Cobbles used for temporary water body crossings or encroachments shall be clean, rounded river cobble.
- The exterior of vehicles and equipment that will encroach on the watercourse within the project shall be maintained free of grease, oil, fuel, and residues.
- Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. Precautions shall be taken to avoid damage to vegetation by people or equipment.
- Riparian vegetation, when removed pursuant to the provisions of the work, shall be cut off no lower than ground level to promote rapid re-growth. Access roads and work areas built over riparian vegetation shall be covered by a sufficient layer of clean river run cobble to prevent damage to the underlying soil and root structure. The cobble shall be removed upon completion of project activities.
- Any temporary artificial obstruction placed within flowing water shall only be built from material, such as clean gravel bags, which will cause little or no siltation.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect periodically to ensure that the bridge, streambed, and banks are maintained and not damaged.
- Maintenance shall be performed, as needed to ensure that the structure, streambed and banks are stable.

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Non-Stormwater
Water Diversion NS-5

DEFINITION

A system of structures and measures that intercept clear surface water runoff upstream of a project site, transport it around the site, and discharge it downstream with minimal water quality degradation for either the project construction operations or the construction of the diversion. Structures commonly used as part of this system include diversion ditches, berms, dikes, slope drains, drainage, and interceptor swales.

PURPOSE

- Reduce sediment pollution from construction work in or adjacent to the watercourse.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Requires additional permitting
- Design to accommodate fluctuations in water depth or flow
- Avoid damage to nearby vegetation
- Protect adjacent slopes from erosion
- Provide for velocity dissipation at transition areas

Alternate BMPs to consider:

- RC-1 Earth Dikes/Drainage Swales and Lined Ditches
- RC-4 Rock Outlet Protection/Velocity Dissipation Devices
- NS-4 Temporary Watercourse Crossing

Use in combination with:

- CP-1 Construction Sequencing
- NS-2 Dewatering Operations
- NS-4 Temporary Watercourse Crossing

Maintenance Needs:

- Inspect diversion structures before and after storms and at least once a week

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction	X		
Maintenance		X	
BMP Objectives			
Erosion Control			
Runoff Control	X		
Sediment Control	X		
Good Housekeeping			
Non-Stormwater	X		
Waste Management			

A flow bypass channel is used during placement of a multi-section culvert. Note the clear water in the diversion channel.

APPROPRIATE APPLICATIONS

- Implement where work must be performed in a running stream or watercourse after appropriate permits have been secured.

LIMITATIONS

- Diversion/encroachment activities will usually disturb the waterway during installation and removal of diversion structures.
- Diversion/encroachment activities may constrict the waterway, which can obstruct flood flows and cause flooding or washouts.
- Specific permit requirements or mitigation measures, such as Corps, Arizona Game and Fish Department, Federal Emergency Management Agency (FEMA), etc. may be included in contract documents because of clear water diversion/ encroachment activities.

PLANNING/DESIGN CONSIDERATIONS

GENERAL

- Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams. During construction of the barriers, muddying of streams shall be held to a minimum.
- Diversion structures must be adequately designed to accommodate fluctuations in water depth or flow volume due to storms, flash floods, etc.
- Heavy equipment driven in wet portions of a watercourse to accomplish work shall be completely clean of petroleum residue, and water levels are below the gear boxes of the equipment in use, or lubricants and fuels are sealed such that inundation by water shall not result in leaks.
- Mechanical equipment operated in the water shall not be submerged to a point above any axle of said mechanical equipment.
- Excavation equipment buckets may reach out into the water for the purpose of removing or placing fill materials. Only the bucket of an excavator/backhoe may operate in a water body. The main body of the crane/excavator/backhoe shall not enter water-covered portions of a water body, except as necessary to cross the stream to access the work site.
- Stationary equipment such as motors and pumps, located within or adjacent to a watercourse, shall be positioned over drip pans.
- When any artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall, at all times, be allowed to pass downstream to maintain aquatic life downstream.
- The exterior of vehicles and equipment that will encroach on a water body within the project shall be maintained free of grease, oil, fuel, and residues.
- Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. Precautions shall be taken to avoid damage to vegetation by people or equipment.
- Riparian vegetation, when removed pursuant to the provisions of the work, shall be cut off no lower than ground level to promote rapid re-growth. Access roads and work areas built over riparian vegetation shall be covered by a sufficient layer of clean river run cobble to prevent damage to the underlying soil and root structure. The cobble shall be removed upon completion of project activities. Drip pans shall be placed under all vehicles and equipment placed on structures over watercourses when the vehicle or

equipment is planned to be idle for more than one hour.
- Where possible, avoid or minimize diversion/encroachment impacts by scheduling construction during periods of low flow or when the stream is dry. Refer also to the project Special Provisions for scheduling requirements.
- Scheduling shall also consider seasonal releases of water from dams, wastewater treatment plants, seasonal riparian wildlife, and water demands due to crop irrigation.
- Construct diversion structures with materials free of potential pollutants such as soil, silt, sand, clay, grease, or oil. If gravel bags are used, they shall be filled with clean materials free of silt, clay, and organic substances.

TEMPORARY DIVERSIONS/ENCROACHMENTS
- Construct diversion channels in accordance with BMP *RC-1 Earth Dikes/Drainage Swales and Lined Ditches*.
- In high flow velocity areas, stabilize slopes of embankments and diversion ditches using an appropriate liner, in accordance with BMP *EC-5 Geotextiles/Erosion Control Blankets*, or, use rock slope protection, as described in the Standard Specifications Section.
- Where appropriate, use natural streambed materials such as large cobbles and boulders for temporary embankment/slope protection, or other temporary soil stabilization methods.
- Provide for velocity dissipation at transitions in the diversion, such as the point where the stream is diverted to the channel and the point where the diverted stream is returned to its natural channel. Refer also to BMP *RC-4 Rock Outlet Protection/Velocity Dissipation Devices*.

TEMPORARY DRY CONSTRUCTION AREAS
- When dewatering behind temporary structures to create a temporary dry construction area, such as coffer dams, pass pumped water through a sediment settling device, such as a portable tank or settling basin, before returning water to the water body. Refer also to BMP *NS-2 Dewatering Operations*.
- If the presence of polluted water or sediment is identified in the contract, the contractor shall implement dewatering pollution controls as required by the contract documents. If the quality of water or sediment to be removed while dewatering is not identified as polluted in the contract documents, but is later determined by observation or testing to be polluted, the contractor shall notify the Engineer and comply with the Standard Specifications.
- Any substance used to assemble or maintain diversion structures, such as form oil, shall be non-toxic and non-hazardous.
- Any material used to minimize seepage underneath diversion structures, such as grout, shall be non-toxic, non-hazardous, and as close to a neutral pH as possible.

MATERIAL SPECIFICATIONS
- N/A

DESIGN STANDARDS
- N/A

INSPECTION AND MAINTENANCE REQUIREMENTS
- Follow inspection schedule specified in the applicable stormwater discharge permit.
- At a minimum inspect diversion/encroachment structures before and after significant storms and at least once per week while in service.

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Non-Stormwater
Structure Demolition/Removal Over or Adjacent to Water NS-6

DEFINITION

Procedures to protect watercourses from debris and wastes associated with structure demolition or removal operations over or adjacent to them.

PURPOSE

- Ensure prevention of pollution to waterways beneath or adjacent to structures during all demolition or removal activities.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Acquire applicable permits prior to structure demolition or removal
Alternate BMPs to consider: • N/A
Use in combination with: • GH-7 Stockpile Management • NS-7 Material and Equipment Use Over Water
Maintenance Needs: • Inspect equipment and debris catching devices daily • Inspect stockpile protection measures and repair as needed

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping			X
Non-Stormwater	X		
Waste Management	X		

The demolition of the Guthrie Bridge over the Gila River presented multiple sediment and pollution control challenges.

Structure Demolition/Removal Over or Adjacent to Water NS-6

APPROPRIATE APPLICATIONS

- All construction projects with full or partial structure demolition or removal including, but not limited to bridge widening projects and concrete channel removal.

LIMITATIONS

- Specific permit requirements may be included in the contract documents.

PLANNING/DESIGN CONSIDERATIONS

- Refer to the BMP *NS-5 Clear Water Diversion* to direct water away from the work area.
- Plan for and ensure the safe passage of wildlife.
- Demolition triggers National Emission Standards for Hazardous Air Pollutants (NESHAPS).

STANDARDS

- Do not allow demolished material to enter the watercourse.
- Use attachments on construction equipment such as backhoes to catch debris from small demolition operations.
- Use covers or platforms approved by the Engineer to collect debris.
- Stockpile accumulated debris and waste generated during demolition away from watercourses and per the BMP *GH-7 Stockpile Management*.
- Report discharges to watercourses to the Engineer immediately upon discovery and a written discharge notification must follow within the time frame specified in the applicable permit.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect demolition areas over or near adjacent watercourses on a daily basis.
- Empty debris-catching devices regularly. Remove collected debris and store debris away from the watercourse and protect debris from run-on and runoff.

Non-Stormwater
Material & Equipment Use In/Over Watercourses NS-7

DEFINITION

Procedures for the proper use, storage, and disposal of materials and equipment on barges, boats, temporary construction pads, or similar locations.

PURPOSE

- Minimize or eliminate the discharge of potential pollutants to a watercourse.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Acquire and comply with all necessary permits
Alternate BMPs to consider: • N/A
Use in combination with: • GH-3 Vehicle and Equipment Maintenance • GH-5 Material Delivery and Storage • GH-8 Spill Prevention and Control • NS-6 Structure Demolition/Removal Over or Adjacent to Water
Maintenance Needs: • Inspect equipment for leaks and spills daily; repair as necessary • Inspect and maintain all associated BMPs

RATINGS	H	M	L
Associated Costs			
Design		X	
Construction	X		
Maintenance			X
BMP Objectives			
Erosion Control			
Runoff Control			
Sediment Control			
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

Bridge repair.

Material & Equipment Use In/Over Watercourses NS-7

APPROPRIATE APPLICATIONS

- Implement for construction materials and wastes (solid and liquid) and any other materials that may be detrimental if released.
- Applicable where materials and equipment are used on barges, boats, docks, and other platforms over or adjacent to a watercourse.

LIMITATIONS

- N/A

PLANNING/DESIGN CONSIDERATIONS

- Comply with all necessary permits required for construction within or near the watercourse.
- Secure all materials to prevent discharges to receiving waters via wind.
- Identify types of spill control measures to be employed, including the storage of such materials and equipment.
- Ensure that staff are trained regarding the deployment and access of control measures and that measures are being used.
- Prepare an Emergency Evacuation Plan that defines implementation procedures in the event of a sudden flood event.

STANDARDS

- Use drip pans and absorbent materials for equipment and vehicles and ensure that an adequate supply of spill cleanup materials is available.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over watercourses when the vehicle or equipment is expected to be idle for more than one hour.
- Discharges to waterways shall be reported to the Engineer immediately upon discovery. A written discharge notification must follow within the time frame specified in the applicable permit.
- Provide watertight curbs or toe boards to contain spills and prevent materials, tools, and debris from leaving the barge, platform, dock, etc.
- Ensure the timely and proper removal of accumulated wastes. Refer to BMPs *WM-1 Solid Waste Management* and *WM-2 Hazardous Waste Management*.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Inspect equipment for leaks and spills daily, repair as necessary.
- Ensure that employees and subcontractors implement appropriate measures for storage and use of materials and equipment.
- Inspect and maintain all associated BMPs and perimeter controls to ensure continuous protection of the watercourse.

Waste Management (WM) BMPs

Waste management BMPs are also source control measures to prevent pollution by limiting or reducing potential pollutants at the source before they come in contract with stormwater. These BMPs involve day-to-day operations of the construction site, are under the control of the contractor, and are additional “good housekeeping practices” that involve keeping a clean, orderly construction site.

- WM-1 Solid Waste Management
- WM-2 Hazardous Waste Management
- WM-3 Contaminated Soil Management
- WM-4 Concrete Waste Management
- WM-5 Liquid Waste Management

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Waste Management
Solid Waste Management WM-1

DEFINITION

Practices to use to minimize and prevent waste associated with construction activities from entering storm drains and watercourses.

PURPOSE

- Control a major cause of pollution on construction sites.
- Prevent the contamination of stormwater from stockpiled waste materials.
- Prevent the clogging of storm drain systems.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Clearly post guidelines on site • Plan the frequency of disposal • Properly store and cover in a convenient location • Separate green waste for use as compost or mulch • Recycle where possible
Alternate BMPs to consider: • N/A
Use in combination with: • GH-6 Material Use • GH-7 Stockpile Management • NS-6 Structure Demolition/Removal Over or Adjacent to Water • NS-7 Material and Equipment Use Over Water
Maintenance Needs: • Regularly check for and remove litter and debris from drainage grates and other drainage structures • Adhere to a regular, scheduled maintenance plan

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance			X
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

This waste container should be emptied soon.

Dumpsters must be watertight. If there is a drain, it must be plugged.

Waste Management
Solid Waste Management WM-1

APPROPRIATE APPLICATIONS

- Required for all construction projects that generate solid waste such as construction wastes (brick, pavement, timber), vegetative material and litter.

LIMITATIONS

- May require extra management time to ensure all workers are following proper procedures.

PLANNING/DESIGN CONSIDERATIONS

- Proper solid waste procedures and practices are overseen and enforced by the Contractor's Erosion Control Coordinator.
- Plan the frequency of disposal to remove solid waste before it accumulates beyond the capacity of the on-site facilities.
- Place on-site facilities in convenient locations for ease of maintenance.
- Prohibit littering by employees, subcontractors and visitors. Collect litter from work areas within the construction limits of the project and place in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public or others.
- Notify trash-hauling contractors that only watertight dumpsters are permitted for use on project site.
- Coordinate disposal of construction debris and all domestic garbage with the local jurisdiction.
- Consider using inert waste material as fill, as directed by the Engineer.
- Consider separating green waste for compost or mulch.

MATERIAL SPECIFICATIONS

- Material that is to be stockpiled or disposed of offsite shall be in accordance with ADOT Standard Specifications for Road and Bridge Construction Section 107.11.

DESIGN STANDARDS

- Locate solid waste storage areas at least 50 feet from drainages and do locate in areas prone to flooding or ponding.
- Divert stormwater away from stored solid waste with temporary berms or dikes or by other means.
- Provide watertight trash receptacles in the contractor's yard, field trailer areas and other locations where workers congregate for lunch and break periods.
- Provide cover for dumpsters and waste containers.
- Dumpster washout on the project site is not permitted.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Check for and remove litter and debris from drainage grates and other drainage structures.
- Provide regular on-site trash collection.
- Provide regular maintenance of trash containers and dumpsters.
- Provide cover for dumpsters and waste containers to prevent entry of rainwater and loss of contents by high winds.

Waste Management
Hazardous Waste Management WM-2

DEFINITION

The planning and practice to meet the requirements for handling hazardous waste materials on a construction site.

PURPOSE

- Control the release of hazardous materials.
- Prevent the contamination of stormwater.
- Prevent a delay in the project schedule and additional costs and fees due to environmental investigations/enforcement actions.

AT A GLANCE

GENERAL INFORMATION

Key Design Considerations

- Clearly post guidelines on site
- Comply with all federal, state and local laws
- Identify hazardous materials to be used on the construction site
- Maintain careful records of storage, handling and disposal of hazardous materials
- Locate away from storm drains or watercourses and away from moving vehicles and equipment; keep in appropriate containers

Alternate BMPs to consider:

- N/A

Use in combination with:

- GH-8 Spill Prevention and Control
- WM-1 Solid Waste Management
- WM-3 Contaminated Waste Management

Maintenance Needs:

- Inspect all perimeter controls, containment structures, covers and liners; immediately repair and replace
- Dispose of waste material as directed by the Engineer and as specified in the project specifications and the applicable permits

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

These waste containers are a good example of clear labeling and covered storage.

Hazardous Waste Management WM-2

APPROPRIATE APPLICATIONS

- Required for all construction activities that use hazardous materials and generate hazardous waste.

LIMITATIONS

- May require extra management time to ensure all workers are following proper procedures.
- Lifespan of the cover or structure.

PLANNING/DESIGN CONSIDERATIONS

- Contractor must comply with all federal, state and local laws regarding hazardous materials on a construction site.
- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Identify hazardous materials that will be needed on the construction site and plan for storage, use and disposal.
- Maintain careful records of the storage, handling and disposal of hazardous materials.

MATERIAL SPECIFICATIONS

- Hazardous wastes include waste generated from the use of:
  - Petroleum products.
  - Septic wastes.
  - Paints and stains.
  - Wood preservatives.
  - Asphalt products.
  - Pesticides.
  - Acids.
  - Solvents.
  - Roofing tar.
  - Any materials deemed hazardous waste in the state of Arizona.
- In the event of a spill of a hazardous material, the contractor shall follow the provisions of the ADOT Standard Specifications for Road and Bridge Construction Section 107.07.

DESIGN STANDARDS

- Designate hazardous waste storage areas on site away from storm drains or watercourses and away from moving vehicles and equipment.
- Segregate hazardous waste from non-hazardous construction site debris.
- Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drum or similar), under cover, and within secondary containment.
- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Never mix waste types or combine container contents.
- In the event of a hazardous material spill, the Erosion Control Coordinator shall modify the SWPPP as necessary within 14 calendar days to include a description of the release, the circumstances leading to the release, and the date of the release.
- Maintain a clean and orderly work environment.
- Dispose of waste within 90 days of being generated or as directed by the Engineer.
- The contractor shall assist in any efforts to clean up hazardous material spills, as directed by the Engineer or other authorities.
- Dispose of soil contaminated from spills according to applicable state and federal

regulations.
- Notify the National Response Center (800-424-8802) of spills of Federal reportable quantities.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- The contractor's Erosion Control Coordinator monitors on-site hazardous waste storage and disposal procedures.
- Inspect perimeter controls, containment structures, covers and liners on a weekly basis and immediately repair or replace as needed.

ADDITIONAL INFORMATION AND RESOURCES

- Information about the requirements for the handling of hazardous waste on construction sites is available from the Arizona Department of Environmental Quality (ADEQ) Waste Management Program, (602) 771-4153.
- 24-hour ADEQ Emergency Response Duty Office, (602)-771-2330 or (800)-234-5677.
- ADEQ Waste Management Programs Division: Hazardous Waste Management, http://www.azdeq.gov/environ/waste/hazwaste/index.html

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Waste Management
Contaminated Soil Management WM-3

DEFINITION AND PURPOSE

Procedures and practices to minimize or eliminate the discharges of pollutants to drainage systems or to watercourses from contaminated soil.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Clearly post guidelines on site • Follow appropriate agency practices and regulations • Identify contaminated soils in planning stages • Test suspected areas at a certified lab • Require employees and subcontractors complete a safety training program
Alternate BMPs to consider: • N/A
Use in combination with: • WM-2 Hazardous Waste Management
Maintenance Needs: • Monitor on-site contaminated soil storage and disposal procedures • Inspect hazardous waste receptacles and areas regularly

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

Evidence of contaminated soils.

Contaminated soils are not always readily apparent. Past site uses and activities should be researched early in the design process.

Contaminated Soil Management WM-3

APPROPRIATE APPLICATIONS

- Construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, and leaks from underground storage tanks.
- Highway widening projects in older areas where median and shoulder soils may have been contaminated by aerially deposited lead (ADL).

LIMITATIONS

- The procedures and practices presented in this BMP are general. The contractor needs to identify appropriate practices and procedures for the specific contaminants known to exist or discovered on site.
- May require extra management time to ensure all workers are following proper procedures.

PLANNING/DESIGN CONSIDERATIONS

- Contaminated soils are often identified during project planning and development with known locations identified in the plans and specifications. The contractor shall review applicable reports and investigate appropriate call-outs in the plans and specifications.
- The contractor may further identify contaminated soils by investigating:
  - Past site uses and activities.
  - Detected or undetected spills and leaks.
  - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris. Test suspected soils at a certified laboratory.
- Prior to performing any excavation work at the locations containing material classified as hazardous, employees and subcontractors shall complete a safety training program covering the potential hazards as identified.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

HANDLING PROCEDURES

MATERIAL AND AERIALLY DEPOSITED LEAD (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations shall result in no visible dust.
- Use caution to prevent spillage of lead containing material during transport.
- Monitor the air quality during excavation of soils contaminated with lead.

CONTAMINATED SOILS

- Test suspected soils at an approved certified laboratory.
- If the soil is contaminated, work with the local regulatory agencies to develop options for treatment and/or disposal.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- If temporary stockpiling is necessary:
  - Cover the stockpile with tarps.
  - Install a berm around the stockpile to prevent runoff from leaving the area.

  - Do not stockpile in or near storm drains or watercourses.
- Remove and place contaminated material and hazardous material on exteriors of transport vehicles either into the current transport vehicle or the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat and/or dispose of it at appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavation, transport, and disposal of contaminated material and hazardous material shall be in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
  - U.S. Department of Transportation (USDOT).
  - U.S. Environmental Protection Agency (USEPA).
  - Arizona Department of Environmental Quality (ADEQ).
  - Arizona Division of Occupation Safety and Health Administration.
  - Local regulatory agencies.

PROCEDURES FOR UNDERGROUND STORAGE TANK REMOVALS

- Obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies which have jurisdiction over such work prior to commencing tank removal operations.
- Arrange to have tested, as directed by the Engineer, any liquid or sludge found in the underground tank prior to its removal to determine if it contains hazardous substances.
- Take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s) following the tank removal.
- Transport the underground storage tank, any liquid and/or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal to disposal facilities permitted to accept such waste.

WATER CONTROL

- Take all necessary precautions and preventive measures to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to: berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- Discharge contaminated water to clean, closed top, watertight holding tanks; treat, and dispose of in accordance with federal, state, and local laws.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- The Contractor's Erosion Control Coordinator and/or construction supervisor shall monitor on-site contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing

hazardous material.

- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.
- Inspect hazardous waste receptacles and areas regularly.

Waste Management
Concrete Waste Management WM-4

DEFINITION

Methods and procedures for the management of concrete waste including concrete slurry, mortar mixing stations and on-site concrete washout facilities.

PURPOSE

- Prevent fresh concrete or cement-laden mortar from entering a storm drainage system and/or receiving water.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Clearly post guidelines on site • Locate for convenient truck access, near pour site; not within 50' of storm drains • Multiple washout facilities may be needed on sites with extensive concrete work
Alternate BMPs to consider: • SC-1 Sediment Control Berm • SC-7 Gravel Bag Protection
Use in combination with: • SC-4 Sediment Basin • SC-10 Stabilized Construction Entrance/ Exit • SC-11 Stabilized Construction Roadway • WM-1 Solid Waste Management • WM-5 Liquid Waste Management
Maintenance Needs: • Monitor on-site concrete waste per applicable permit requirements • Remove and dispose of hardened concrete in washout areas

RATINGS	H	M	L
Associated Costs			
Design			X
Construction		X	
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping	X		
Non-Stormwater	X		
Waste Management	X		

This simple containment system is appropriate for small jobs.

Slurry residue most be properly captured and contained.

Concrete Waste Management WM-4

APPROPRIATE APPLICATIONS

- Where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing Portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from saw-cutting, coring, grinding, milling, grooving, and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on site, when approved by the Engineer.
- Coring and saw-cutting operations/locations.
- Mortar mixing stations.

LIMITATIONS

- May require extra management time to ensure all workers follow proper procedures.

PLANNING/DESIGN CONSIDERATIONS

- Locate concrete washout facilities a minimum of 50 feet from storm drains, open ditches, or watercourses.
- Locate concrete washout facilities for convenient truck access, near the pour site if possible.
- Provide multiple washout facilities on sites with extensive concrete work.
- Designate and post signage for each washout area.
- Educate employees, subcontractors and suppliers on the concrete waste management techniques described herein.

MATERIAL SPECIFICATIONS

- N/A

DESIGN STANDARDS

- Temporary pit or bermed area or for washout of concrete trucks, tools, mortar mixers, etc.
- Concrete slurry waste.
    - Place berms or sandbags or other BMPs around coring and saw-cutting locations to capture and contain slurry.
    - Vacuum slurry waste or collect it in a temporary lined pit and allow to dry.
    - Properly dispose of slurry residue.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- The contractor's Erosion Control Coordinator shall monitor on-site concrete waste storage and disposal procedures at least weekly.
- Maintain temporary concrete washout facilities to provide adequate holding capacity with a minimum freeboard of 4 inches for above grade facilities and 12 inches for below grade facilities. Maintenance shall include removing and disposing of hardened concrete and returning the facilities to a functional condition.

Waste Management
Liquid Waste Management WM-5

DEFINITION AND PURPOSE

Procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

AT A GLANCE

GENERAL INFORMATION
Key Design Considerations • Clearly post guidelines on site • Verify allowable non-stormwater discharges in applicable PDES permit • Additional permits may apply
Alternate BMPs to consider: • N/A
Use in combination with: • SC-3 Sediment Trap • GH-1 Vehicle and Equipment Cleaning • GH-8 Spill Prevention and Control • WM-2 Hazardous Waste Management • WM-4 Concrete Waste Management
Maintenance Needs: • Check employees and subcontractors monthly to ensure appropriate practices are employed • Inspect containment areas and capturing devices frequently for damage and repair as needed

RATINGS	H	M	L
Associated Costs			
Design			X
Construction			X
Maintenance	X		
BMP Objectives			
Erosion Control			X
Runoff Control			X
Sediment Control			X
Good Housekeeping	X		
Non-Stormwater			X
Waste Management	X		

Clear and appropriate signage can help achieve project goals.

Training is a key part of ensuring compliance.

Liquid Waste Management WM-5

APPROPRIATE APPLICATIONS

- Construction projects that generate any of the following non-hazardous by-products, residuals or wastes:
  - Drilling slurries and drilling fluids.
  - Grease-free and oil-free wastewater and rinse water.
  - Dredgings.
  - Concrete or stucco.
  - Paint or release oils or agents.
  - Curing compounds.
  - Other non-stormwater liquid discharges not permitted by separate permits.

LIMITATIONS

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project.
- Does not apply to dewatering operations, solid wastes, hazardous wastes, or concrete slurry residue. Refer to BMPs *NS-2 Dewatering Operations*, *WM-1 Solid Waste Management*, *WM-2 Hazardous Waste Management* and *WM-4 Concrete Waste Management*.
- Does not apply to non-stormwater discharges permitted by any ADEQ permit held by the pertinent ADOT District, unless the discharge is determined by ADOT to be a source of pollutants. Typical permitted non-stormwater discharges can include: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; flows from riparian habitats and wetlands; and, discharges or flows from emergency fire fighting activities.
- May require extra management time to ensure all workers follow proper procedures.

PLANNING CONSIDERATIONS AND GENERAL PRACTICES

- The Contractor's Erosion Control Coordinator shall oversee and enforce proper liquid waste management procedures and practices.
- Instruct employees and subcontractors how to safely differentiate between nonhazardous liquid waste and potential or known hazardous liquid waste.
- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water.
- Educate employees and subcontractors on liquid waste generating activities, and liquid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Verify which non-stormwater discharges are permitted by the ADOT Statewide AZPDES permit; different regions might have different requirements not outlined in this permit. Some listed discharges may be prohibited if ADOT determines the discharge to be a source of pollutants.
- Apply BMP *GH-1 Vehicle and Equipment Cleaning* for managing wash and rinse water from vehicle and equipment cleaning operations.

CONTAINING LIQUID WASTES

- Drilling residue and drilling fluids are not allowed to enter storm drains and watercourses and shall be properly disposed of outside the highway right-of-way.
- Drilling residue and drilling fluids may be dried by infiltration and evaporation in a

containment facility constructed in conformance with the provisions concerning the Temporary Concrete Washout Facilities detailed in BMP *WM-4 Concrete Waste Management* if an appropriate location is available, as determined by the Engineer.
- Contain liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud; do not allow to flow into drainage channels or receiving waters prior to treatment.
- Contain liquid wastes in a controlled area, such as a holding pit, sediment basin, roll-off bin, or portable tank.
- Containment devices must be structurally sound and leak free.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated.
- Take precautions to avoid spills or accidental releases of contained liquid wastes. Apply the education measures and spill response procedures outlined in BMP *GH-8 Spill Prevention and Control*.
- Do not locate containment areas or devices where accidental release of the contained liquid can threaten health or safety, or discharge to watercourses, channels, or storm drains.

CAPTURING LIQUID WASTES

- Capture all liquid wastes running off a surface which has the potential to affect the storm drainage system such as wash water and rinse water from cleaning walls or pavement.
- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area or device for capture.
- If the liquid waste is sediment laden, use a sediment trap (refer to BMP *SC-3 Sediment Trap*) for capturing and treating the liquid waste stream, or capture in a containment device and allow sediment to settle.

DISPOSING OF LIQUID WASTES

- Dewater the contained liquid waste using procedures such as described in BMPs *NS-2 Dewatering Operations* and *SC-4 Sediment Basin* and dispose of resulting solids per BMP *WM-1 Solid Waste Management* or per Standard Specifications for off-site disposal.
- Method of disposal for some liquid wastes may be prescribed in Water Quality Reports, AZPDES permits, Environmental Impact Reports, 401 or 404 permits, local agency discharge permits, etc., and may be defined elsewhere in the Special Provisions.
- Liquid wastes, such as from dredged material, may require testing and certification whether it is hazardous or not before a disposal method can be determined. For disposal of hazardous waste, refer to BMP *WM-4 Hazardous Waste Management*.
- If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.

INSPECTION AND MAINTENANCE REQUIREMENTS

- Follow inspection schedule specified in the applicable stormwater discharge permit.
- Spot check employees and subcontractors at least monthly throughout the job to ensure appropriate practices are being employed.
- Remove deposited solids in containment areas and capturing devices as needed, and at the completion of the task. Dispose of any solids as described in the BMP *WM-1 Solid Waste Management*.
- Inspect containment areas and capturing devices frequently for damage, and repair as needed.

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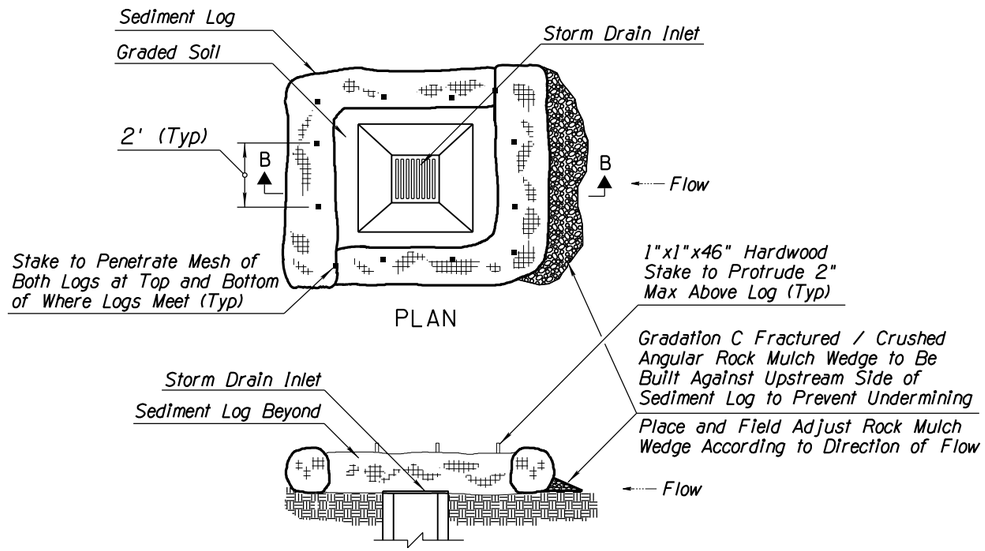
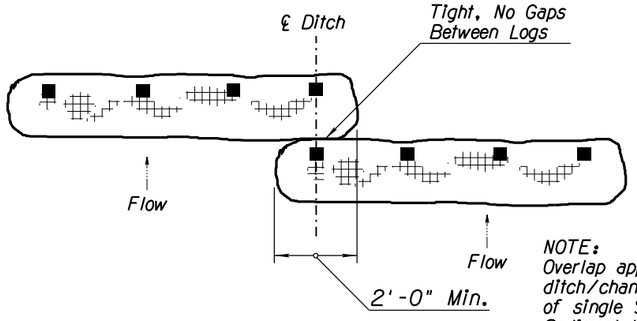
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

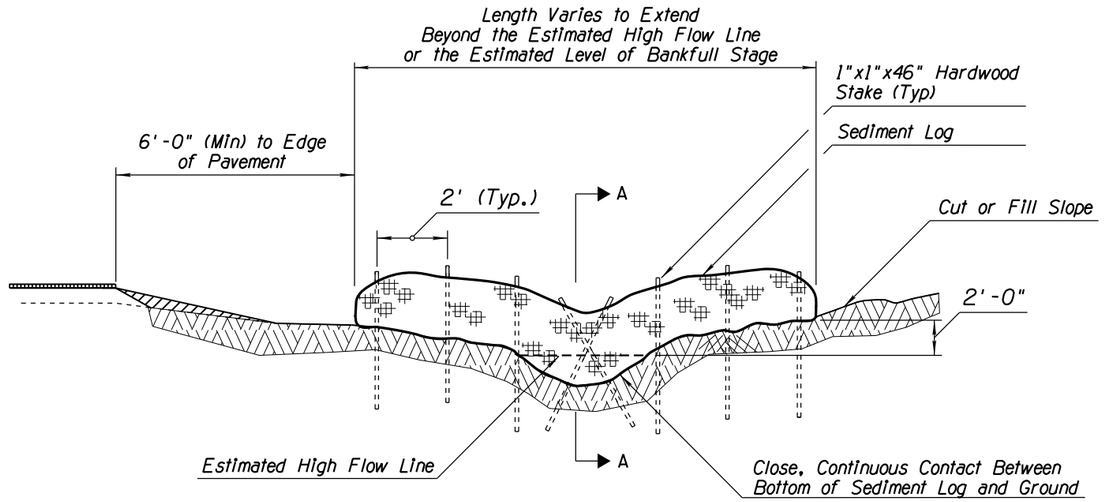


SEDIMENT LOG AT STORM DRAIN
SECTION B-B (NTS)

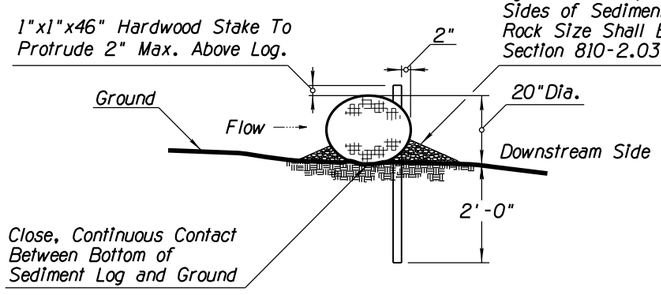


NOTE:
Overlap applies to situations where ditch/channel is wider than length of single Sediment Log. Two or multiple Sediment Logs may be necessary.

TYPICAL OVERLAP
PLAN (NTS)



SEDIMENT LOG IN DITCH/CHANNEL
SECTIONAL ELEVATION (NTS)



SECTION A-A (NTS)

NOTES:
1. Sediment Logs shall not be installed in the urban freeway medians, nor where cable barrier systems are employed.
2. Locate Sediment Logs as indicated in plans, SWPPP or as directed by the Engineer.
3. Select, install and maintain Logs per manufacturers' specifications and good engineering practices.
4. Lay Sediment Log across prepared roadside ditch or channel. Trenching or burial of Sediment Logs is not required. The close, continuous contact between the bottom of the Log and the ground is mandatory. The Logs shall be installed in the roadside ditch, swale or channel bottom perpendicular to the flow of water as shown on detail this sheet.
5. Stake Log as shown. Stakes shall be placed through downstream side only as shown.
6. DO NOT drive stakes through center of the Log. Stakes must be driven into the ground as shown.
7. Ensure that no gaps exist between soil and bottom of Sediment Log. Repair any rills or undercuts promptly.
8. Placement of Sediment Logs shall be evaluated by the Engineer in rocky soil conditions.
9. Remove Sediment Log CMs/BMPs within the ditches/channels and around the storm drain inlets as per the direction of the Engineer or as soon as practicable upon stabilization of the construction disturbed area.
10. Dispose of Sediment Logs and trapped sediment material and fill trench created by Sediment Log.
11. The installation and maintenance of Sediment Log CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. Sediment Logs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
12. Make field adjustments and corrections of Sediment Log CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
13. Rock mulch/riprap may be required for channel/ditch lining or rock check dams for longitudinal ditch slopes that exceed 5% and/or for soil conditions not suitable for Log installation.
14. The Sediment Log CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, final removal, and disposal, as well as returning the area to an acceptable condition as approved by the Engineer.
15. Refer to Specification Section 810-2.06(B) for Sediment Log material specifications.
16. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.
17. Construct Rock Wedge with angular-shaped Gradation C Rock Mulch as defined in Section 810-2.03 of the Specifications and project special provisions. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.

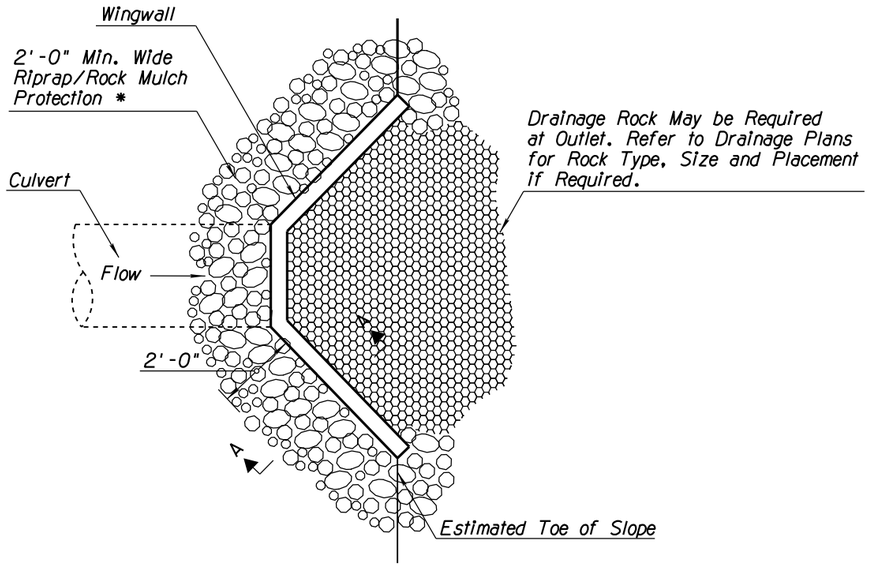
DETAIL ES1
SEDIMENT LOG

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION
DESIGN	TAO ZI FONG	6-2020	
DESIGN	HAN MENG	6-2020	
DRAWN	TAO ZI FONG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS
DRAWN	HAN MENG	6-2020	
CHECKED	JOHN R. HUCKO	6-2020	
TEAM LEADER	E LEROY BRADY	6-2020	
ROUTE	MP	LOCATION	SHEET OF
TRACS NO.			___ OF ___

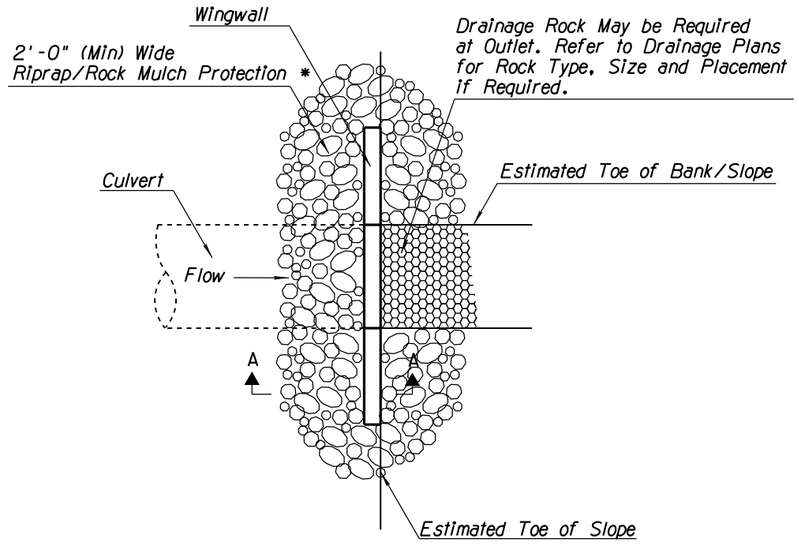
NO.1 | DESCRIPTION OF REVISION | DATE | MADE BY
NO.2 | DESCRIPTION OF REVISION | DATE | MADE BY

V:/Roadway\users\B1525\ 11:03:54 AM 6/10/2020 V:\Roadside\RdsdDev\999-BMPs_CMs-999\2020_Updated_CMs-BMPs\ES1_Sediment-Log_2020.dgn

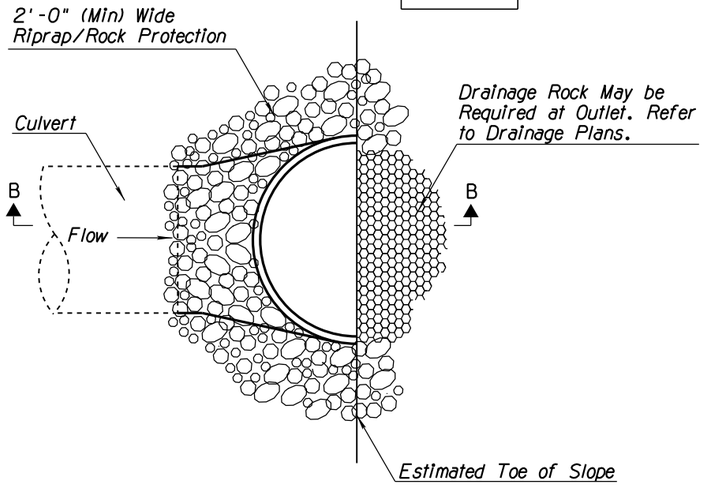
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				



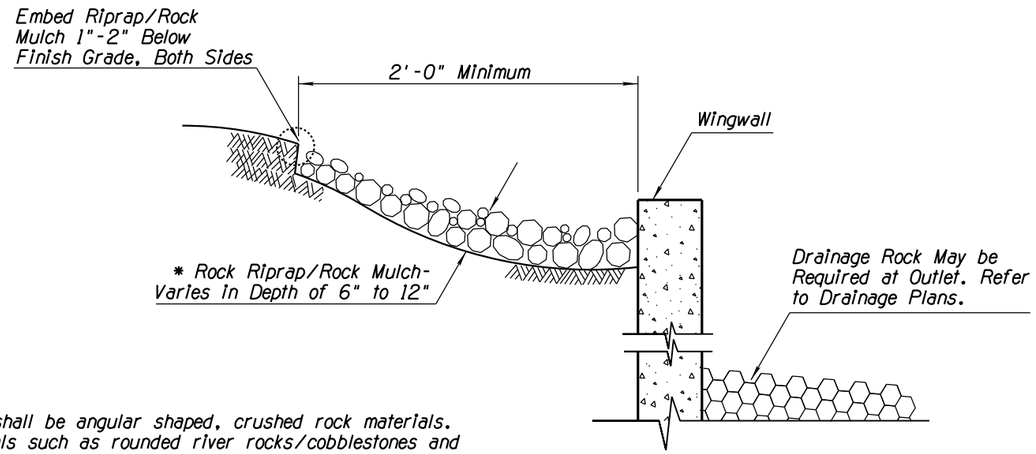
ANGLED HEADWALL
PLAN VIEW (NTS)



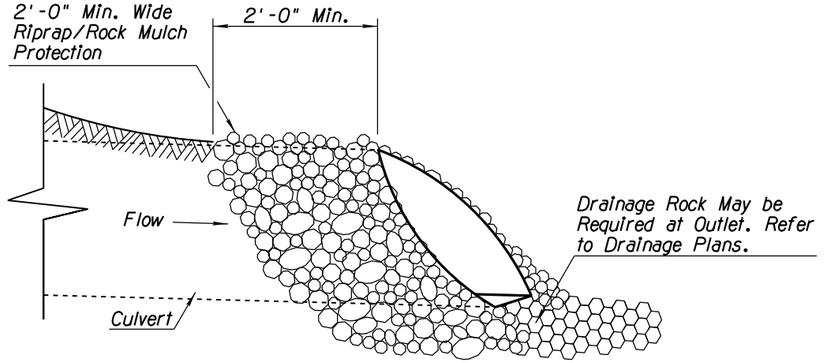
FLUSH HEADWALL
PLAN VIEW (NTS)



FLARED END
PLAN VIEW (NTS)



WINGWALL
SECTION A-A (NTS)



FLARED END
SECTION B-B (NTS)

NOTES:

1. Rock Riprap/Rock Much shall be angular shaped, crushed rock materials. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.
2. Rock Riprap/Rock Mulch within the traffic Clear Zone shall conform to the requirements of Section 810-2.03 Sieve Size Gradation A and/or Gradation C, and Section 913 of the Specifications.
3. Embed rock within traffic recovery area/clear zone into the finished grade so that any portion of the rock above the grade will be less than 4" in height.
4. The installation and maintenance of Rock Protection CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. Rock Protection CMs/BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
5. Make field adjustments and corrections of Rock Protection CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
6. The Rock Protection CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintaining as well as returning the area to an acceptable condition as approved by the Engineer.
7. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

* Rock protection shall be installed behind applicable box culvert headwall/wingwall where called out in the plans and approved by the Engineer.

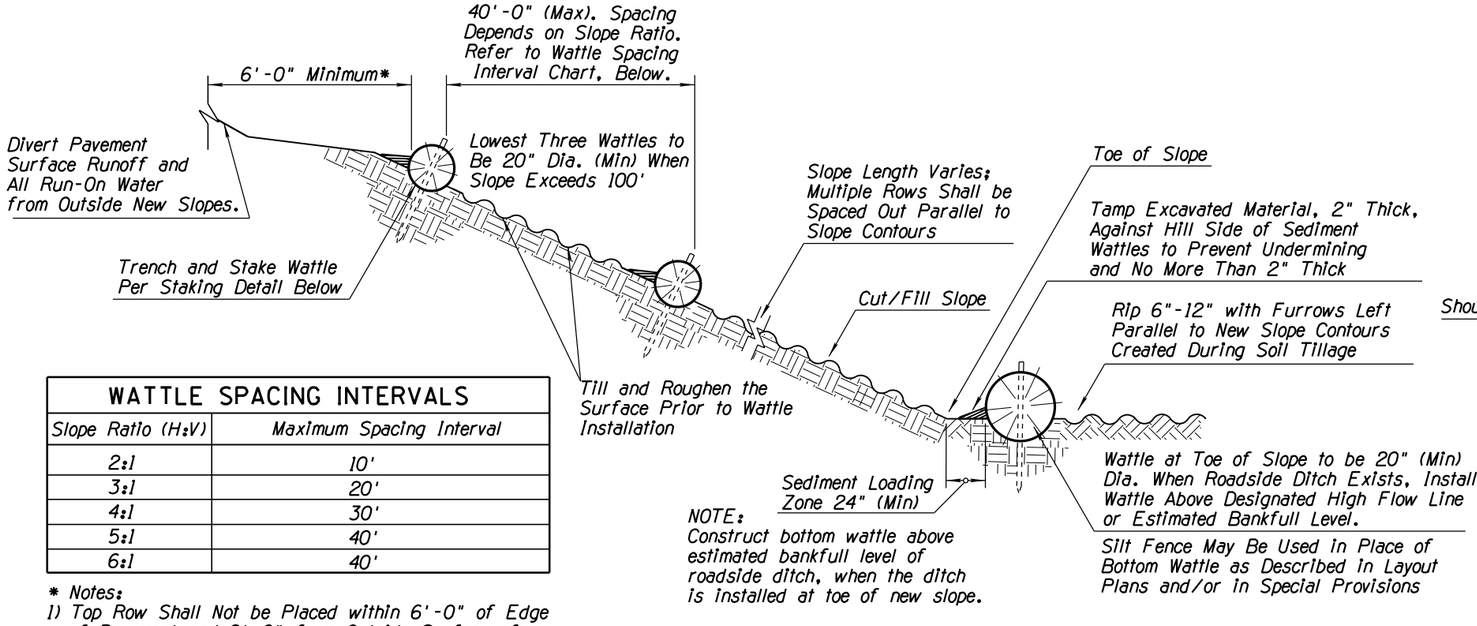
DETAIL ES2

ROCK PROTECTION FOR INLETS, OUTLETS AND HEADWALL TRANSITION

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION
DESIGN	TAO ZI FONG	6-2020	
DESIGN	HAN MENG	6-2020	
DRAWN	TAO ZI FONG	6-2020	
DRAWN	HAN MENG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS
CHECKED	JOHN R. HUCKO	6-2020	
TEAM LEADER	E LEROY BRADY	6-2020	
ROUTE	MP	LOCATION	SHEET OF
TRACS NO.			___ OF ___

NO.1 DESCRIPTION OF REVISION | DATE | MADE BY
NO.2 DESCRIPTION OF REVISION | DATE | MADE BY

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

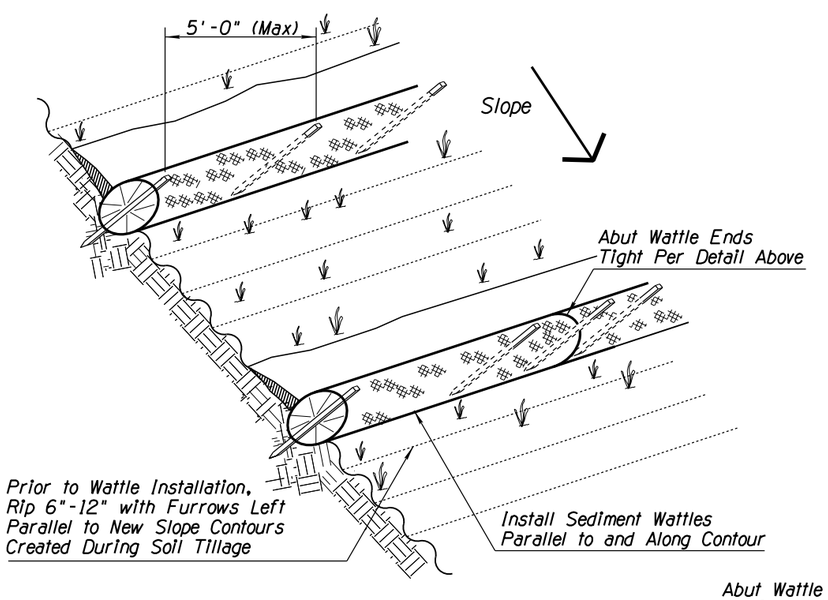


NOTE:
Construct bottom wattle above estimated bankfull level of roadside ditch, when the ditch is installed at toe of new slope.

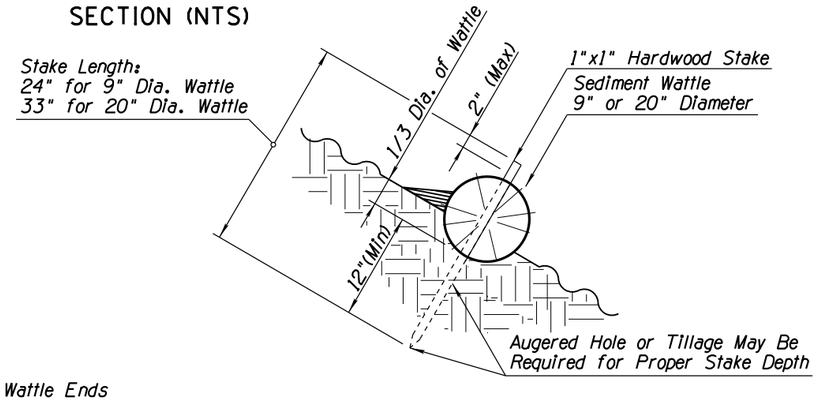
SECTION (NTS)

WATTLE SPACING INTERVALS	
Slope Ratio (H:V)	Maximum Spacing Interval
2:1	10'
3:1	20'
4:1	30'
5:1	40'
6:1	40'

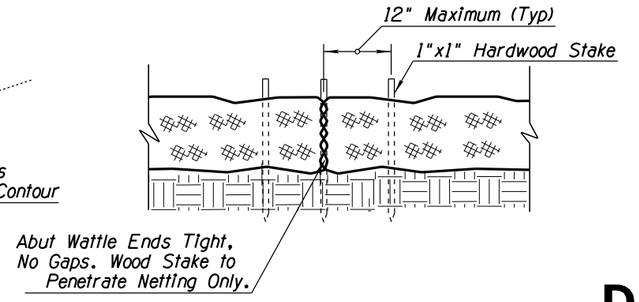
* Notes:
1) Top Row Shall Not be Placed within 6'-0" of Edge of Pavement and 9'-0" from Outside Surface of Barrier.
2) For erosive soils, place rows of wattles closer together.
3) For soils with low erosive potential, place rows of wattles further apart.



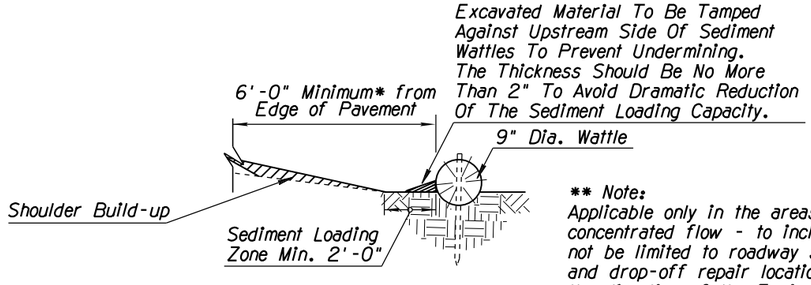
SEDIMENT WATTLE LAYOUT (NTS)



SEDIMENT WATTLE STAKING DETAIL (NTS)



SEDIMENT WATTLE OVERLAP (NTS)



** Note:
Applicable only in the areas of concentrated flow - to include but not be limited to roadway sag spots and drop-off repair locations as per the direction of the Engineer.

NEW SHOULDER BUILDUP ** PROTECTION SECTION (NTS)

NOTES:

1. Install Sediment Wattles as slopes are constructed to grade or as directed by the Engineer. Select, install and maintain in conformance with manufacturers' specifications to meet site conditions for slope protection and in accordance with good engineering practices. No Sediment Wattles shall be installed in urban freeway medians, nor where cable barrier systems are employed.
2. Sediment Wattles shall be in continuous contact with trench bottom and sides. Do not overlap wattle ends on top of each other. A 20" Dia. wattle may be made from 2-3 rolled excelsior or straw blankets.
3. Butt adjoining wattles tightly against each other. Drive the first end stake of the second wattle at an angle toward the first wattle to help abut them tightly.
4. Repair any rills or gullies promptly. Make field adjustments and corrections of Wattle CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
5. Construction of cut slopes 2:1 and steeper in soil and rock materials that can be ripped shall be constructed, whenever possible, by Minibenching. Refer to Slope Minibenching CM/BMP Detail.
6. Loosening surface soil is not required where Minibenches are used. For seeded areas, tillage shall be performed to form minor ridges and furrows parallel to new slope contours and as specified in Section 805 of the Specifications and project special provisions.
7. Divert and direct run-on water from outside of the slopes to the spillways and/or rock riprap/rock mulch. Diversion dikes and/or ditches are necessary on natural undisturbed slopes beyond the top limits of new slopes to divert run-on water.
8. Installation and maintenance of Sediment Wattle CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities.
9. Install and maintain Sediment Wattle CMs/BMPs to carry the stormwater of at least 2-year, 24-hour events.
10. The Sediment Wattle CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, final removal, and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
11. Refer to Specification Section 810-2.06(C) for Sediment Wattle material specifications.
12. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

	NAME	DATE
DESIGN	TAO ZI FONG	6-2020
DESIGN	HAN MENG	6-2020
DRAWN	TAO ZI FONG	6-2020
DRAWN	HAN MENG	6-2020
CHECKED	JOHN R. HUCKO	6-2020
TEAM LEADER	E LEROY BRADY	6-2020
ROUTE	MP	LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADSIDE DEVELOPMENT SECTION

STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS

SHEET OF ____ OF ____

TRACS NO.

DETAIL ES3
SEDIMENT WATTLE

NO.1 DESCRIPTION OF REVISION | MADE BY | DATE

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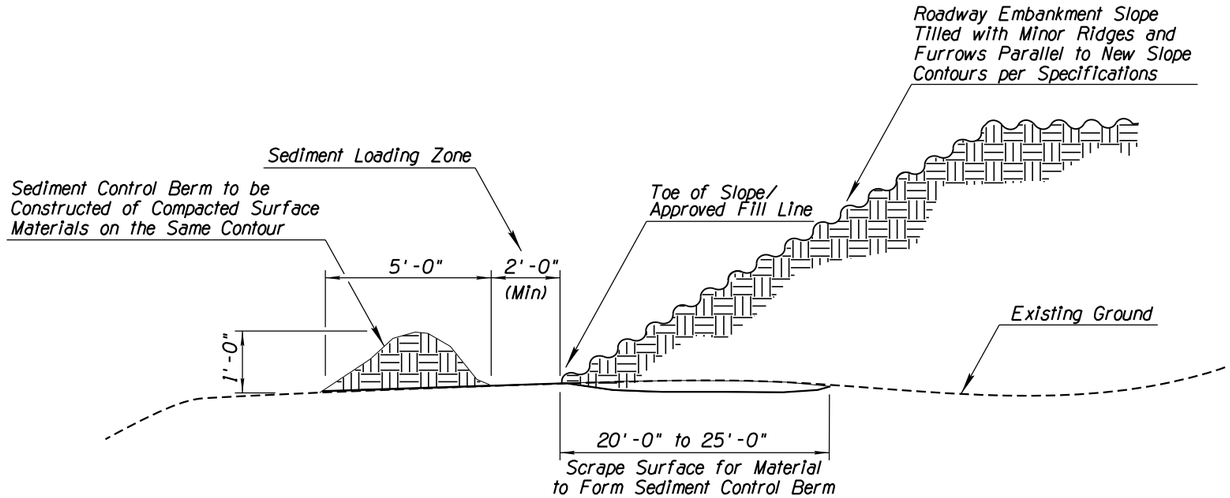
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

NO.	DESCRIPTION OF REVISION	MADE BY	DATE
NO.2			
NO.1			



SEDIMENT CONTROL BERM
SECTION (NTS)

NOTES:

1. Locate Sediment Control Berms as indicated on plans or as directed by the Engineer.
2. Surface materials i.e. soil, rock, branches, leaves, slash and chips shall be scraped from the existing grade as needed to construct the berm prior to placement of roadway embankment. After scraping material into berm, compact berm as shown. Rock and slash shall extend no more than 4" above the surface.
3. Construct Sediment Control Berm on the same contour as the toe of new slope and a minimum of 2'-0" beyond the toe of new slope. For the seeded areas, till to form minor ridges and furrows parallel to new slope contours and as specified in Section 805 of the Specifications and project special provisions.
4. The installation and maintenance of Sediment Control Berm CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. For erosion/sediment control purposes, Sediment Control Berm CMs/BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
5. Remove Sediment Control Berms per the direction of the Engineer or as soon as practicable upon stabilization of the construction disturbed area.
6. Make field adjustments and corrections of Sediment Control Berm CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
7. Sediment Control Berms may be paid as a part of slope construction/ roadway excavation. When paid separately, the Sediment Control Berm CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, final removal, and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
8. OPTION TO SEDIMENT CONTROL BERM: When shown on layout plans and/or called for in Special Provisions, for urban situations, or where surface materials are not available, use wattles. Wattles shall be selected, installed, and maintained in accordance with manufacturers' specifications and good engineering practices. Refer to Sediment Wattle CM/BMP detail.
9. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL ES6
SEDIMENT CONTROL BERM

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION	
DESIGN	TAO ZI FONG	6-2020		
DESIGN	HAN MENG	6-2020		
DRAWN	TAO ZI FONG	6-2020		
DRAWN	HAN MENG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS	
CHECKED	JOHN R. HUCKO	6-2020		
TEAM LEADER	E. LEROY BRADY	6-2020		
ROUTE	MP	LOCATION		SHEET OF
TRACS NO.				___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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NO.	DESCRIPTION OF REVISION	MADE BY	DATE
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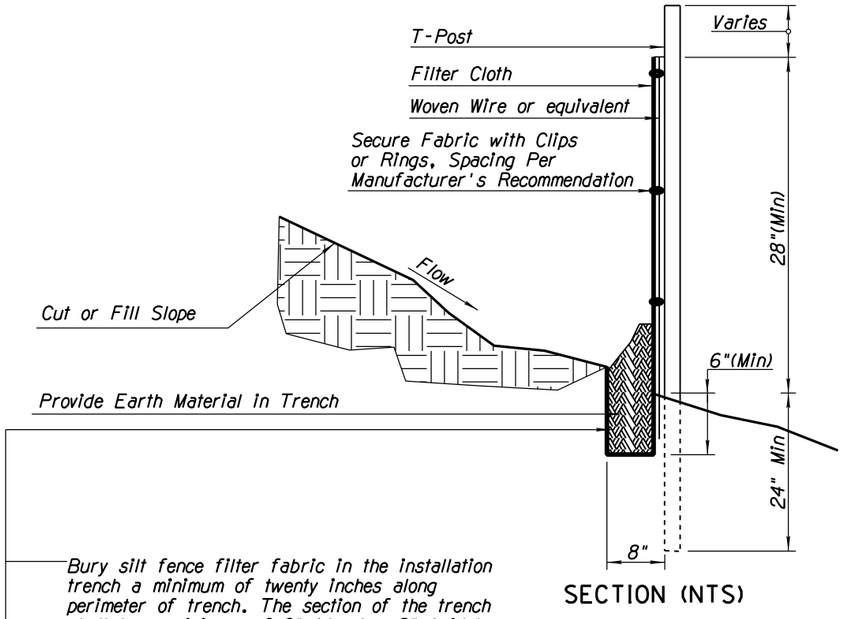
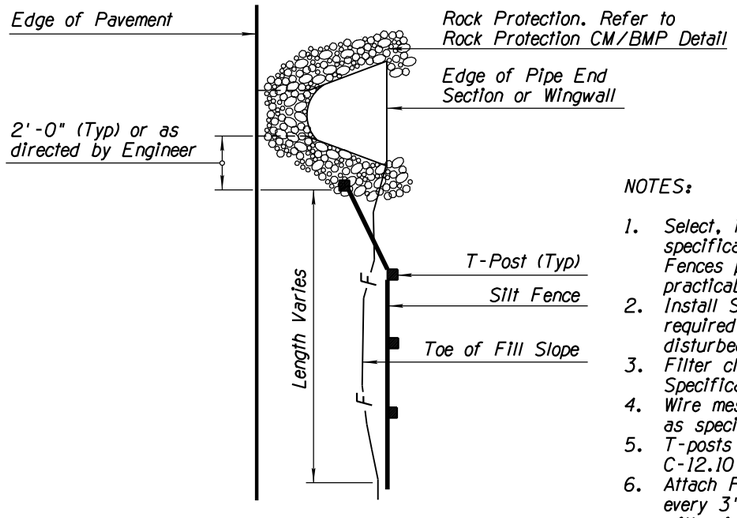
NO.1			

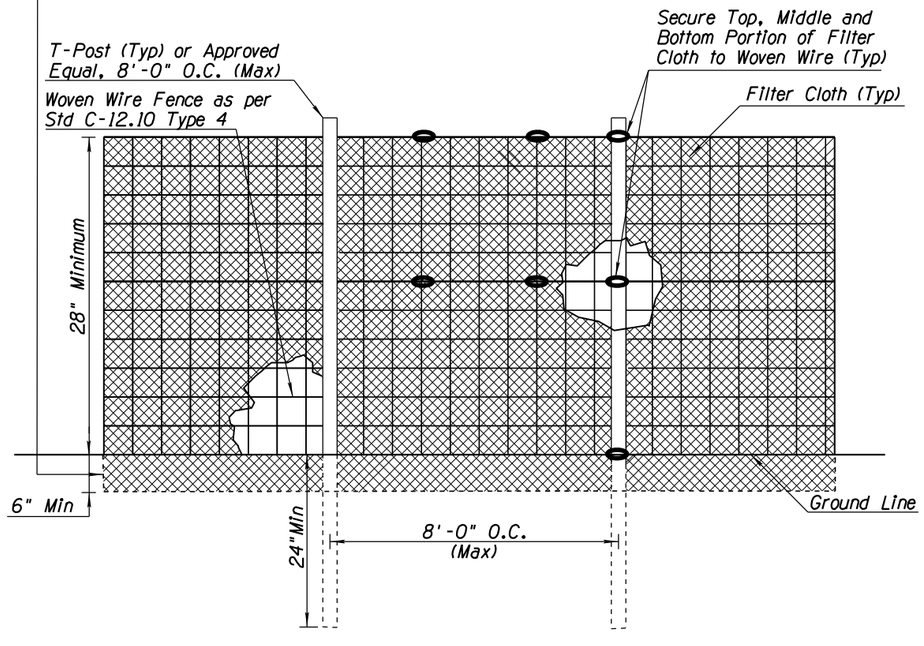


SECTION (NTS)

Bury silt fence filter fabric in the installation trench a minimum of twenty inches along perimeter of trench. The section of the trench shall be a minimum of 6" (deep) x 8" (wide). Bury filter fabric along the sides and bottom of the trench to form a "J".



TEMPORARY SILT FENCE PLACEMENT
AT PIPE INLET/OUTLET
PLAN VIEW (NTS)



ELEVATION (NTS)

NOTES:

1. Select, install, and maintain Silt Fence per the manufacturer's specifications and good engineering practices. Remove Silt Fences per the direction of the Engineer or as soon as practicable upon stabilization of the construction disturbed area.
2. Install Silt fences at areas of construction disturbance as required, especially the downslope perimeters of construction disturbed areas.
3. Filter cloth shall be a woven polypropylene fabric and shall conform to Specification Sub-section 1014-8.
4. Wire mesh fence fabric shall be standard woven wire fence fabric, as specified in Construction Standard C-12.10, Type 4.
5. T-posts shall be steel line posts as specified in Construction Standard C-12.10 with a minimum length of 6'-0".
6. Attach Filter Cloth to the top wire and midpoint of the fence fabric every 3'-0" and attach to each T-post at the top, middle, and bottom with wire ties.
7. Attach Silt Fence filter fabric on the upslope side of T-posts to withstand potential surface runoff and trap sediment.
8. Install Silt Fences on the contour line, unless otherwise specified.
9. Make field adjustments and corrections of Silt Fence CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
10. The installation and maintenance of Silt Fence CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities.
11. Silt Fence CMs/BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
12. The Silt Fence CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, final removal and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
13. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL ES7
TEMPORARY SILT FENCE

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION
DESIGN	TAO ZI FONG	6-2020	
DESIGN	HAN MENG	6-2020	
DRAWN	TAO ZI FONG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS
DRAWN	HAN MENG	6-2020	
CHECKED	JOHN R. HUCKO	6-2020	
TEAM LEADER	E LEROY BRADY	6-2020	
ROUTE	MP	LOCATION	SHEET OF
TRACS NO.			___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

NO.	DESCRIPTION OF REVISION	MADE BY	DATE
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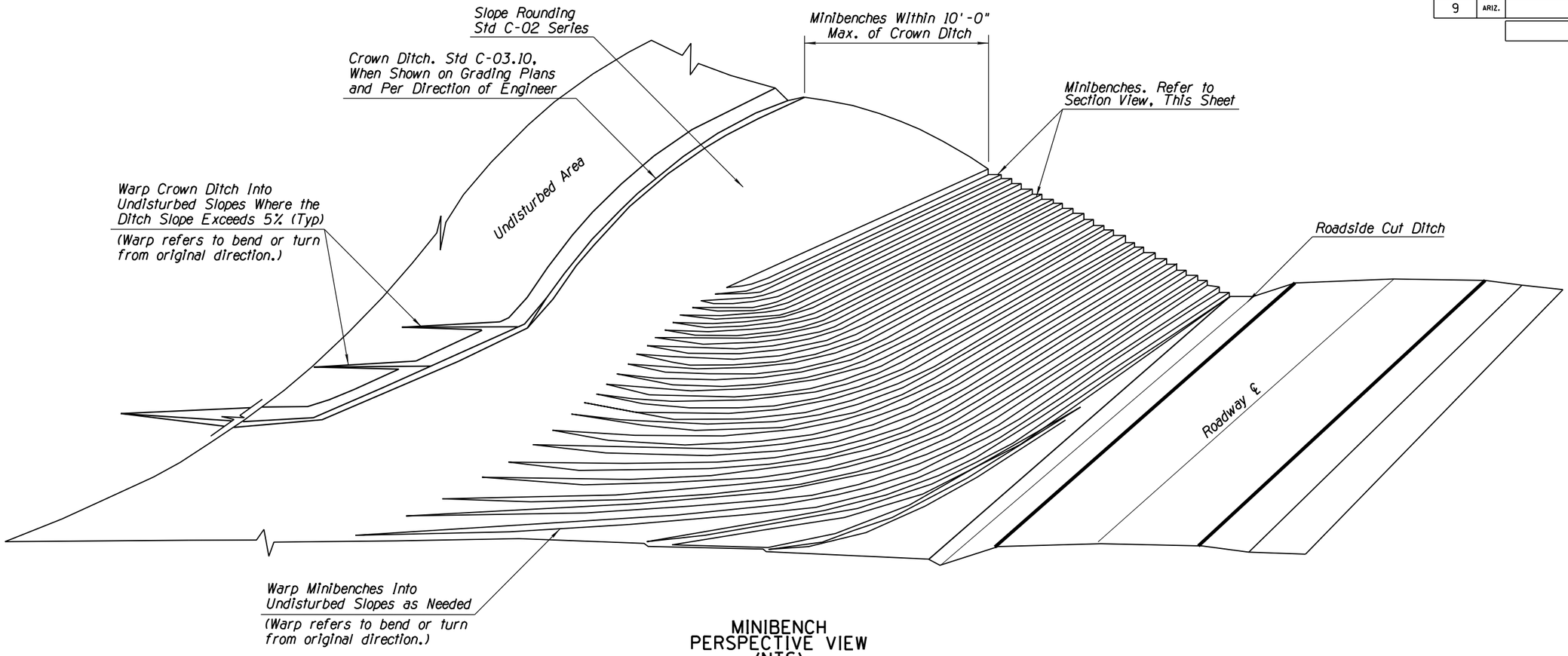
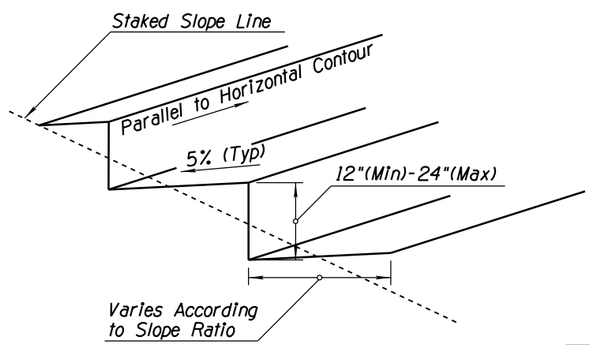


MINIBENCH
PERSPECTIVE VIEW
(NTS)

NOTES:

1. Construct Minibenches horizontally as the cut is being constructed. Apply slope rounding per Section 203, Subsection 3.03(B) of the Specifications.
2. The horizontal dimension of the bench is a function of the staked slope.
3. Apply seeding for revegetation and permanent erosion control as the slope is being constructed to conform to the application limits of the seeding/ mulching equipment. Refer to Specifications Section 805 and project special provisions.
4. Construct each Minibench parallel to horizontal contour lines along entire length.
5. Construct horizontal Minibenches on all suitable soil and soil/rock slopes.
6. Use earth diversion dike in lieu of crown ditch when suitable and per the direction of the Engineer. Refer to Earth Diversion Dike Detail.
7. Unless otherwise specified, Sediment Wattles and soil tillage are not required on top of Minibenches.
8. Supplemental CMs/BMPs may be necessary in conjunction with crown ditches, earthen dikes or other run-on diversion measures to prevent scour.
9. No direct payment for minibenching of new slopes; all such costs shall be considered included in the cost of excavation.
10. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.



MINIBENCH
SECTION VIEW
(NTS)

DETAIL ES8
SLOPE MINIBENCHING

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION
DESIGN	TAO ZI FONG	6-2020	
DESIGN	HAN MENG	6-2020	
DRAWN	TAO ZI FONG	6-2020	
DRAWN	HAN MENG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS
CHECKED	JOHN R. HUCKO	6-2020	
TEAM LEADER	E LEROY BRADY	6-2020	
ROUTE	MP	LOCATION	SHEET OF
TRACS NO.			___ OF ___

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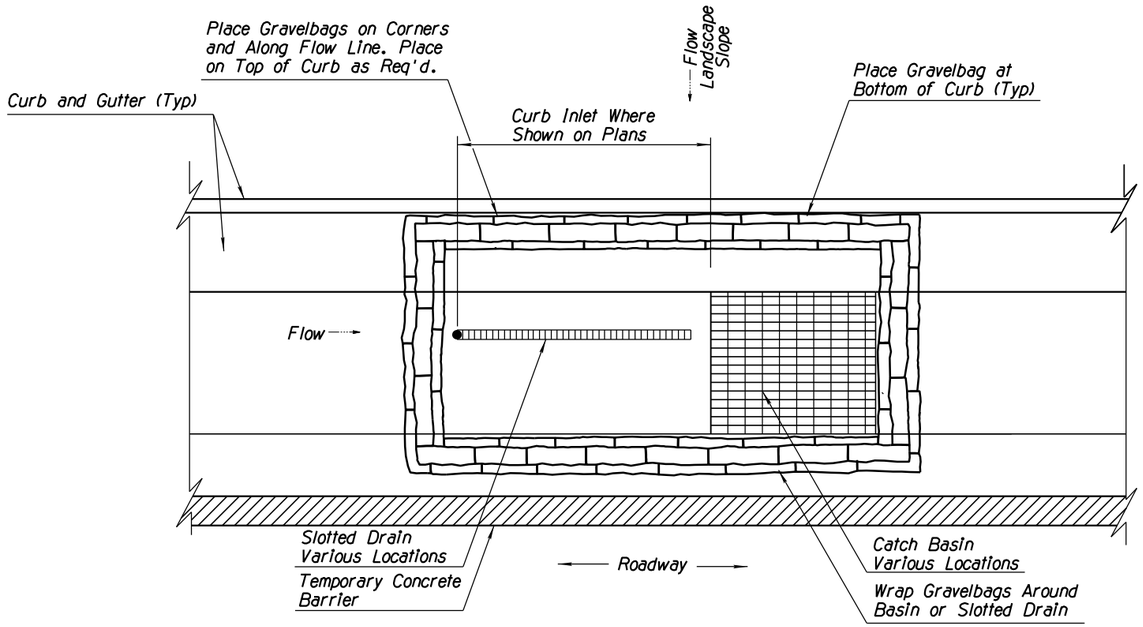
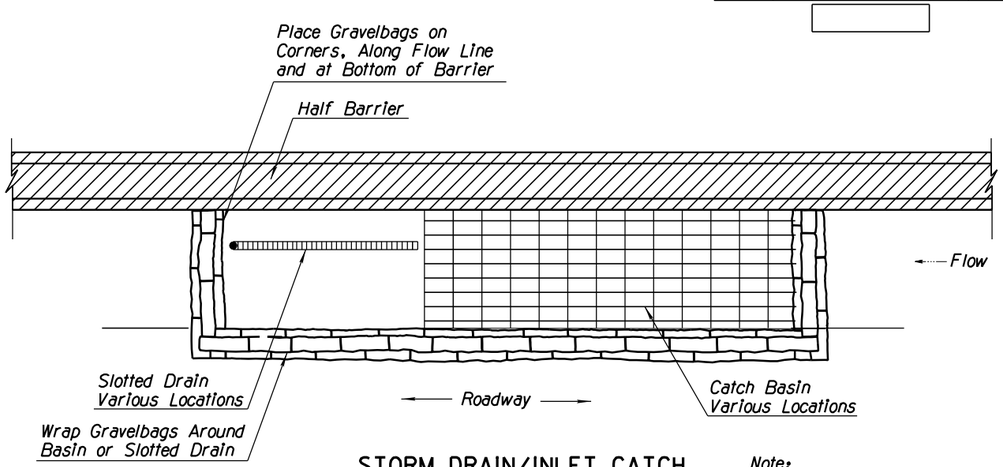
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

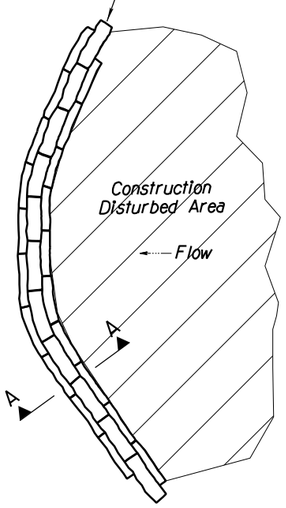


STORM DRAIN/INLET CATCH BASIN AT CURB PLAN VIEW (NTS)



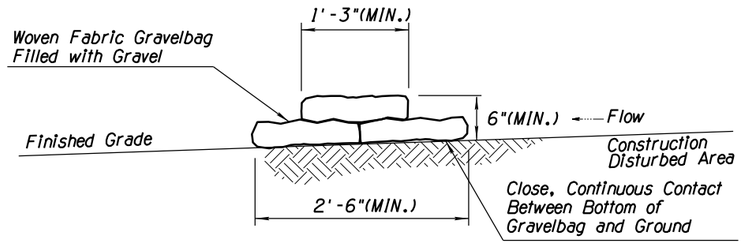
STORM DRAIN/INLET CATCH BASIN AT HALF BARRIER PLAN VIEW (NTS)

Note:
Apply Under Traffic Control.



Note:
Apply Under Traffic Control or Outside of ClearZone/Recovery Area

GRAVELBAG SEDIMENT TRAP PLAN VIEW (NTS)



SECTION A-A (NTS)

NOTES:

1. *Gravelbag material shall be from polypropylene, polyethylene, or polyamide woven fabric. Refer to Special Provisions for Mullen burst strength and ultraviolet stability requirements.*
2. *When sediment depth reaches 3 inches, remove and properly dispose of accumulated material.*
3. *Do not apply Gravelbag CM/BMP in the area of open traffic.*
4. *When applied as a perimeter control CM/BMP, Gravelbags shall be used for surface areas where wattles and silt fences are not suitable.*
5. *Do not install Gravelbags as multiple ditch check dams.*
6. *The installation and maintenance of Gravelbag CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. Gravelbag CMs/BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.*
7. *Gravelbags are designed for temporary water quality protection only. Remove Gravelbags per the direction of the Engineer or as soon as practicable upon stabilization of the construction disturbed area.*
8. *Make field adjustments and corrections of Gravelbag CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.*
9. *Refer to Special Provisions for gradation of gravel material.*
10. *The Gravelbag CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, final removal, and disposal, as well as returning the area to an acceptable condition as approved by the Engineer.*
11. *Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.*

DETAIL ES9

GRAVELBAG PROTECTION

	NAME	DATE	
DESIGN	TAO ZI FONG	6-2020	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION ROADSIDE DEVELOPMENT SECTION
DESIGN	HAN MENG	6-2020	
DRAWN	TAO ZI FONG	6-2020	STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS
DRAWN	HAN MENG	6-2020	
CHECKED	JOHN R. HUCKO	6-2020	
TEAM LEADER	E LEROY BRADY	6-2020	
ROUTE	MP	LOCATION	SHEET OF
TRACS NO.			___ OF ___

NO.1 | NO.2 | DESCRIPTION OF REVISION | MADE BY | DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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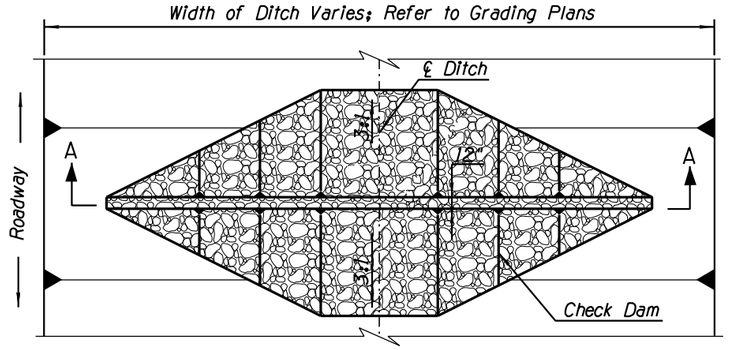
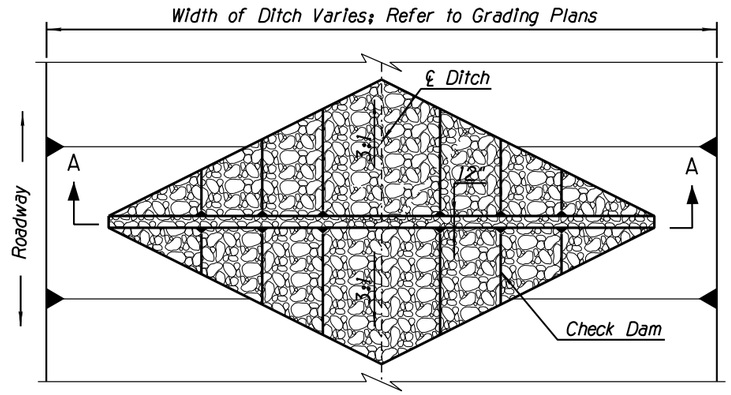
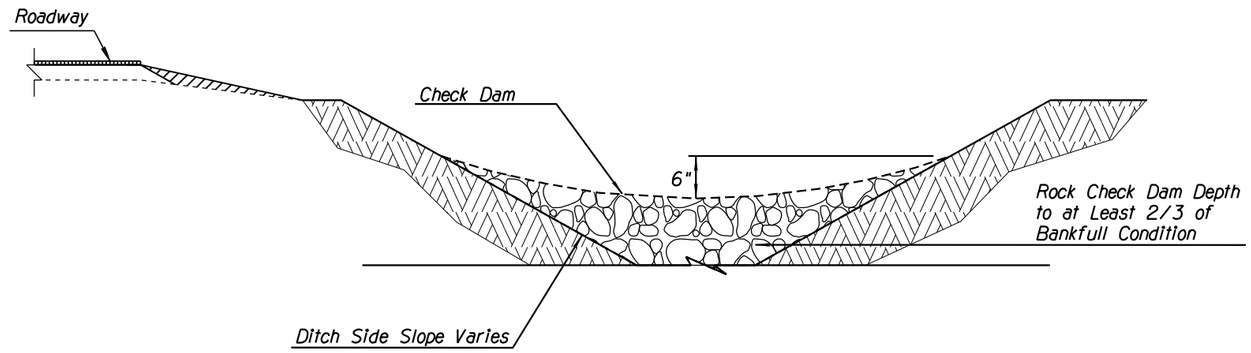


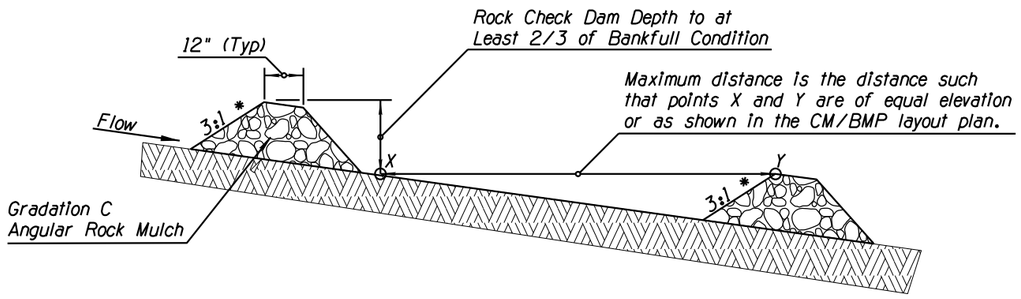
TRAPEZOIDAL DITCH PLAN (NTS)



V-DITCH PLAN (NTS)



SECTION A-A
TRAPEZOIDAL- OR V-DITCH
(NTS)



ELEVATION ALONG DITCH SLOPE
(NTS)

NOTES:

1. Construct Rock Check Dams with angular-shaped Gradation C Rock Mulch as defined in Section 810-2.03 of the Specifications and project special provisions. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.
2. * Slope shall be 1(V) : 6(H) or flatter if Check Dam is within the traffic clear zone/recovery areas as defined in ADOT Roadway Design Guidelines (303.2 to 303.3 Roadside Recovery Area).
3. Make field adjustments of sizing and spacing of Rock Check Dams as necessary for traffic safety as well as proper functioning of the drainage facilities.
4. Flatten and re-grade Rock Check Dams to the finished grade, level within the ditch, as soon as practicable for Final Stabilization.
5. Make field adjustments and corrections of Rock Check Dam CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
6. Make field adjustments to ensure the top of the Rock Check Dam is approximately 2/3 height of the estimated ditch bankfull level.
7. When paid separately, the Rock Check Dam CM/BMP pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, flattening/grading back to the finished grade, as well as returning the area to an acceptable condition as approved by the Engineer.
8. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL ES10
ROCK CHECK DAM

	NAME	DATE
DESIGN	TAO ZI FONG	6-2020
DESIGN	HAN MENG	6-2020
DRAWN	TAO ZI FONG	6-2020
DRAWN	HAN MENG	6-2020
CHECKED	JOHN R. HUCKO	6-2020
TEAM LEADER	E LEROY BRADY	6-2020
ROUTE	LOCATION	

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADSIDE DEVELOPMENT SECTION

STORMWATER QUALITY PROTECTION &
EROSION/SEDIMENT CONTROL DETAILS

SHEET OF

TRACS NO.

___ OF ___

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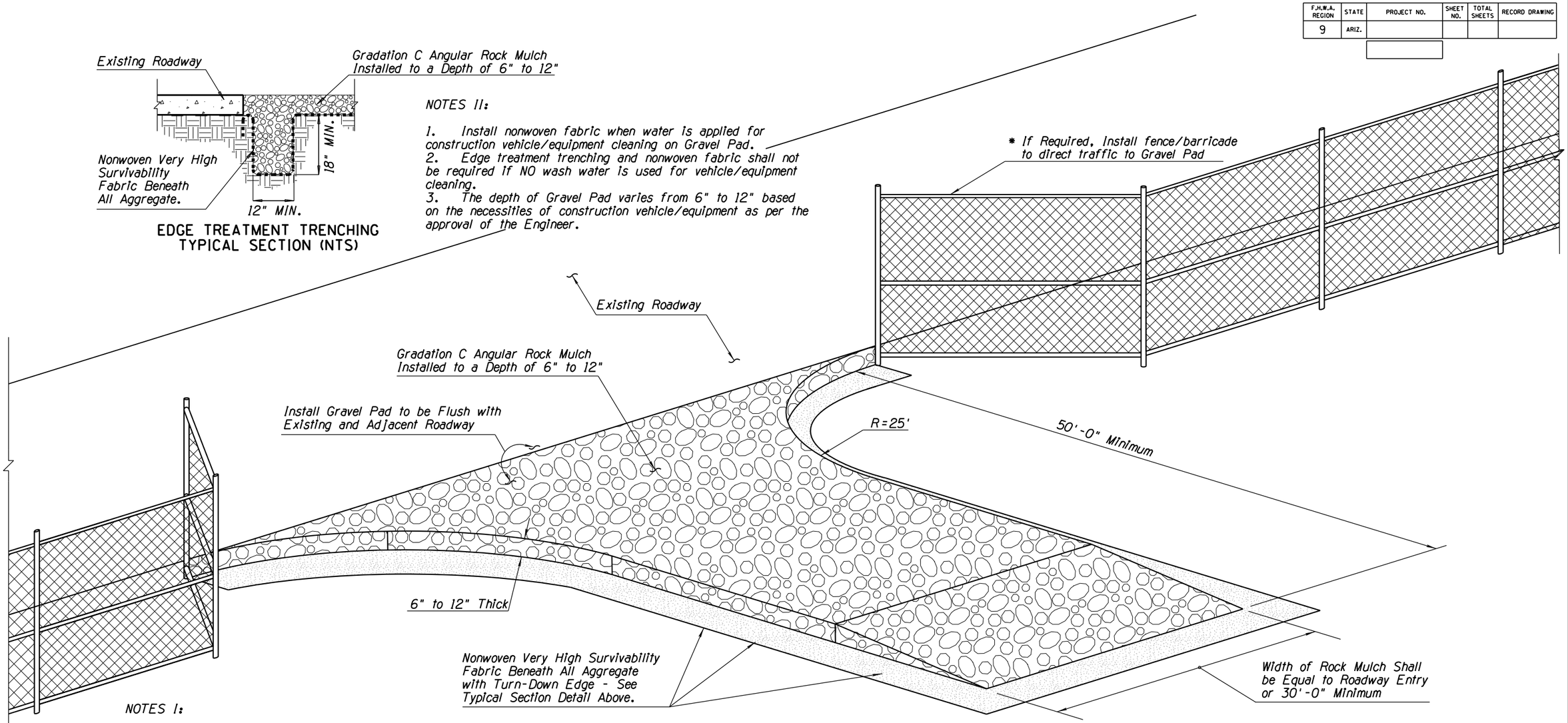
NO.2 | DESCRIPTION OF REVISION | DATE | MADE BY | DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.				

EDGE TREATMENT TRENCHING
TYPICAL SECTION (NTS)

NOTES II:

1. Install nonwoven fabric when water is applied for construction vehicle/equipment cleaning on Gravel Pad.
2. Edge treatment trenching and nonwoven fabric shall not be required if NO wash water is used for vehicle/equipment cleaning.
3. The depth of Gravel Pad varies from 6" to 12" based on the necessities of construction vehicle/equipment as per the approval of the Engineer.



BIRD'S EYE VIEW (NTS)

NOTES I:

1. Install Stabilized Construction Entrance/Exit Gravel Pad CM/BMP for traffic entering or exiting a construction site where sedimentation, clay, silt or other pollutants can be tracked onto public roads and/or adjacent water bodies, as approved by the Engineer. It may also be applied for construction entrance/exit wind erosion/dust control, as approved by the Engineer.
2. Locate new Construction Entrance(s)/Exit(s) at appropriate project entrance/exit points as determined in field with the approval of the Engineer. Relocate Stabilized Construction Entrance/Exit Gravel Pad CM/BMP as needed as project progresses. Replace Rock Mulch materials in drive paths when dirt or mud accumulates.
3. Nonwoven Very High Survivability Fabric shall conform to the standards of Sub-section 1014-4.04 of the Specifications.
4. Rock Mulch materials shall be fractured/crushed rocks in angular shape and as defined in the Sub-section 810-2.03 of the Specifications. Natural river-run materials, especially rounded natural river rocks are not acceptable.
5. Make field adjustments and corrections of Construction Entrance/Exit Gravel Pad CM/BMP immediately if it is causing flooding and/or affecting roadway safety.
6. When paid separately, the Stabilized Construction Entrance/Exit Gravel Pad CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, final removal, and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
7. * Fence/barricade pay/bid item shall not be included as a component of the Stabilized Construction Entrance/Exit Gravel Pad CM/BMP pay/bid item.
8. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL ES11

STABILIZED CONSTRUCTION ENTRANCE/EXIT GRAVEL PAD

	NAME	DATE
DESIGN	TAO ZI FONG	6-2020
DESIGN	HAN MENG	6-2020
DRAWN	TAO ZI FONG	6-2020
DRAWN	HAN MENG	6-2020
CHECKED	JOHN R. HUCKO	6-2020
TEAM LEADER	E LEROY BRADY	6-2020
ROUTE	MP	LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADSIDE DEVELOPMENT SECTION

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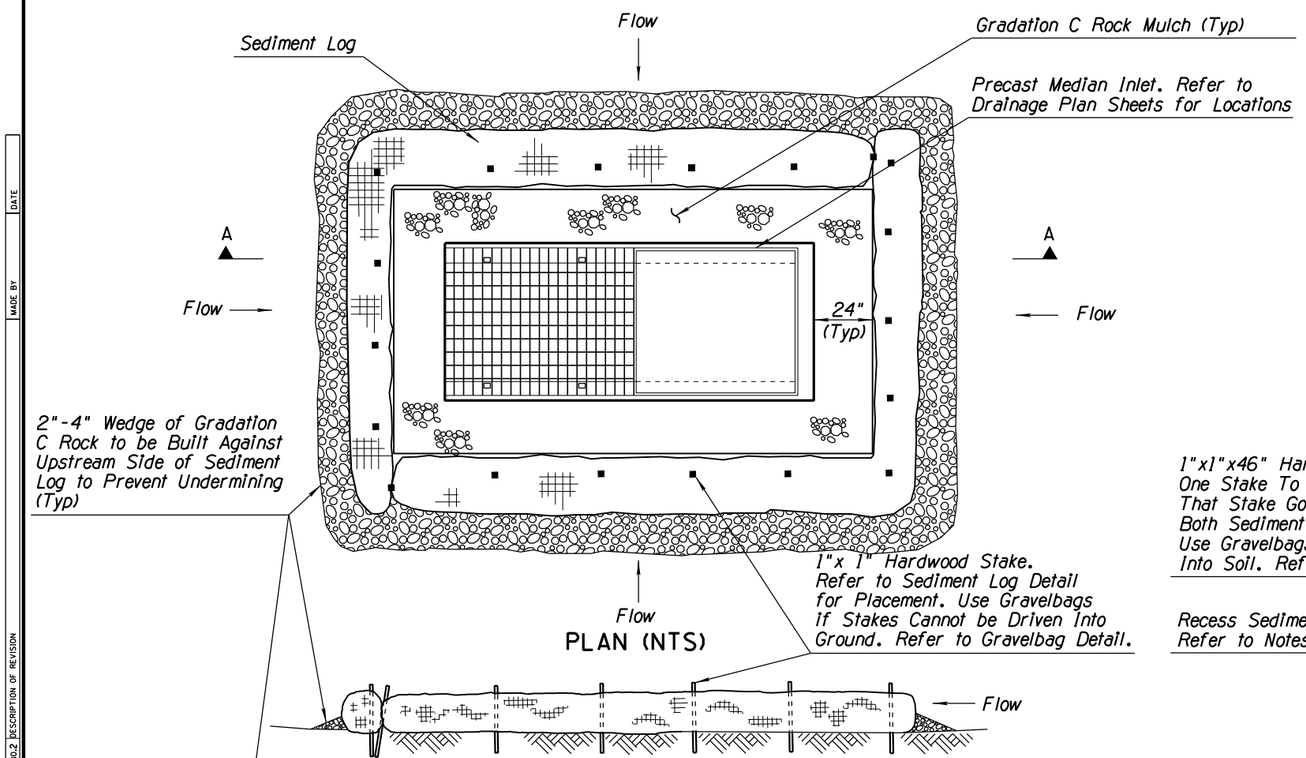

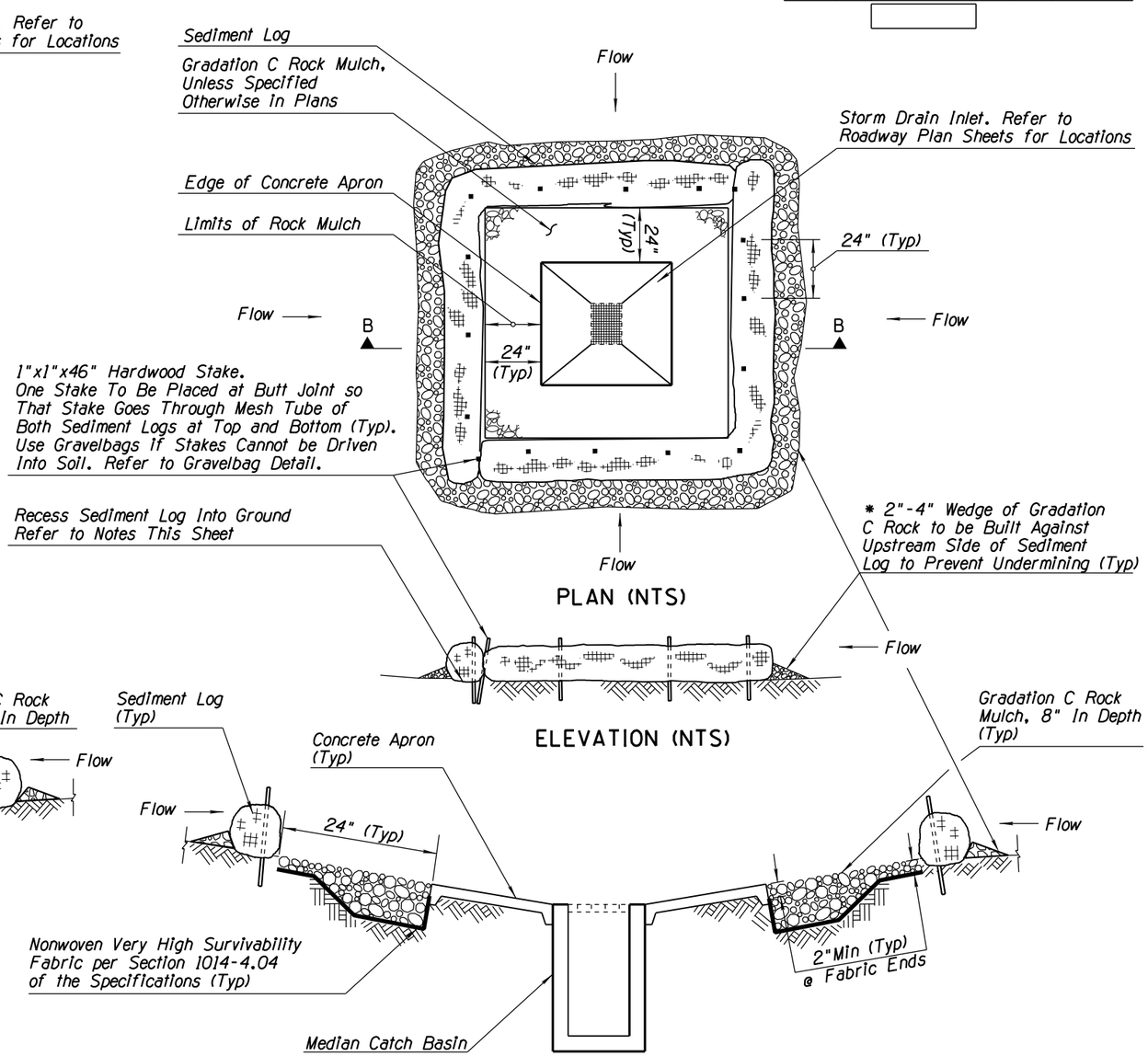

NOTES:

1. Sediment logs shall be located as indicated on plans or as directed by the Engineer. They shall be selected, installed, and maintained per manufacturer's specifications and good engineering practices.Log shall be installed perpendicular to the flow of water. Continuous contact between the bottom of the log and the ground is mandatory.
2. Stake log with 1"x1"x46" Min. hardwood stakes 24" on center. The stake shall be placed through the downstream side only. It is necessary for the stakes to grab one or two inches of netting. Do not drive stake through center of log. The stakes must be driven into the ground 24". Stakes at corners shall be placed in an "X" pattern.
3. Make sure no gaps exist between subgrade and sediment log. Runoff must not pass under sediment log. May require subgrade preparation as directed by Engineer.
4. Repair any rills or gullies promptly.
5. Remove Sediment Log and stakes once construction activities are complete. Dispose of sediment logs and trapped sediment material and fill trench created by sediment log.
6. Refer to Roadway and Drainage Plans and Details for Locations of Inlets and Catch Basins.
7. Make field adjustments and corrections of Inlet Protection CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
8. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.
9. * Construct Rock Wedge with angular-shaped Gradation C Rock Mulch as defined in Section 810-2.03 of the Specifications and project special provisions. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.

DETAIL ES13

INLET PROTECTION COMBINED BMPS

	NAME	DATE
DESIGN	TAO ZI FONG	6-2020
DESIGN	HAN MENG	6-2020
DRAWN	TAO ZI FONG	6-2020
DRAWN	HAN MENG	6-2020
CHECKED	JOHN R. HUCKO	6-2020
TEAM LEADER	E LEROY BRADY	6-2020
ROUTE	MP	LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADSIDE DEVELOPMENT SECTION

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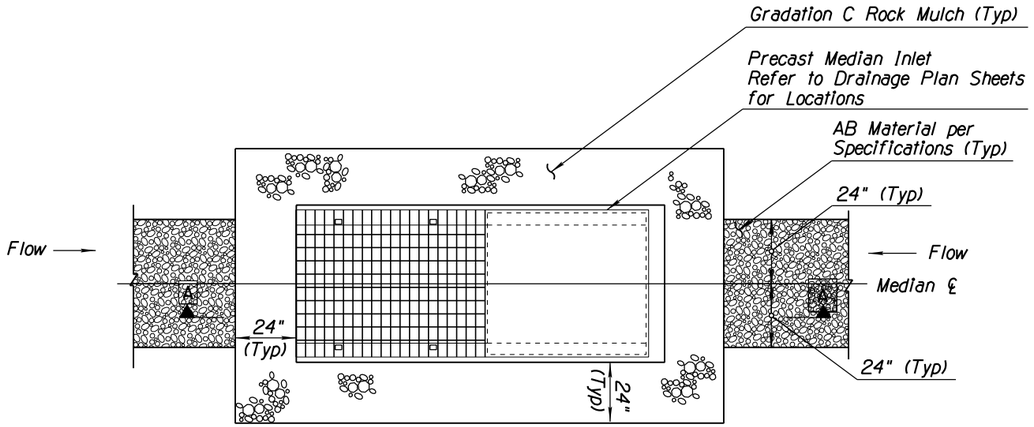
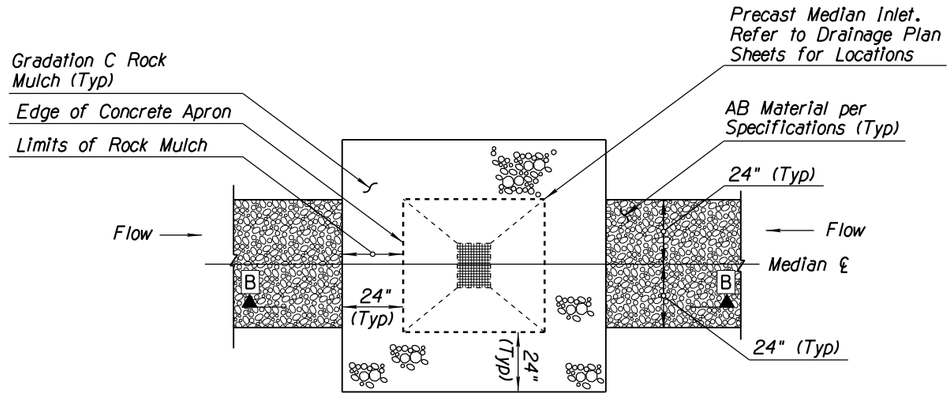
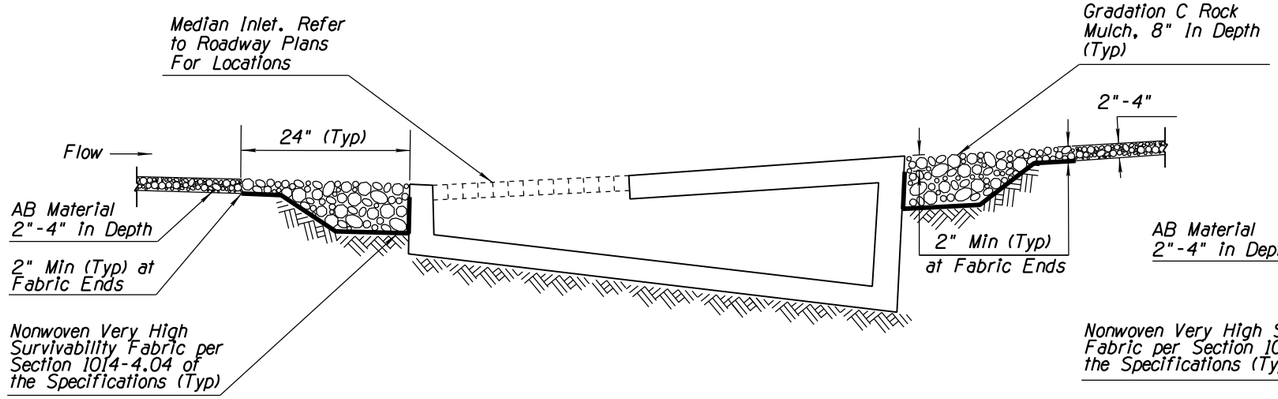


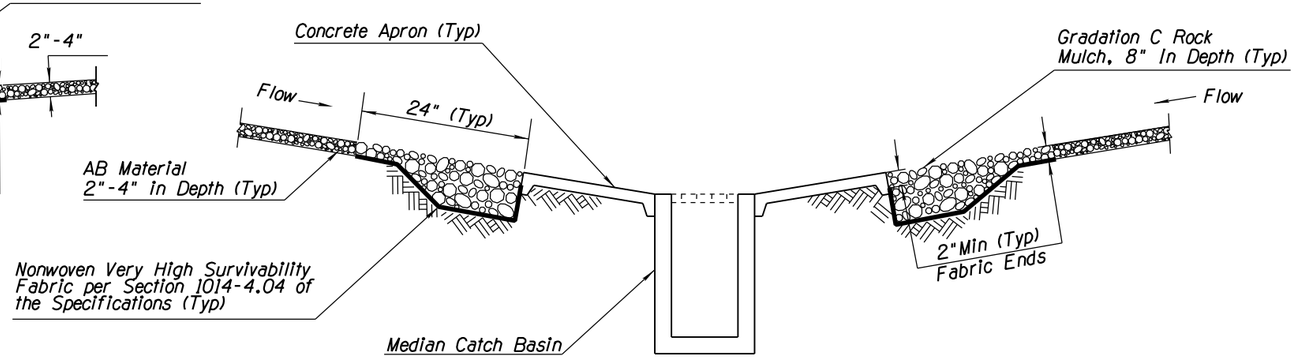
PLAN (NTS)



PLAN (NTS)



SECTION A-A (NTS)



SECTION B-B (NTS)

NOTES:

1. *The depth of AB may be adjusted at the direction of the Engineer.*
2. *Refer to Roadway and Drainage Plans and Details for locations of Inlets and Catch Basins.*
3. *Nonwoven Very High Survivability Fabric shall conform to the standards of Section 1014-4.04 of the Specifications.*
4. *Place Gradation C Rock Mulch and shape as shown on the Detail. Rock Mulch materials shall be fractured/crushed rocks in angular shape as defined in the sub-section 810-2.03 of Specifications and project special provisions. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.*
5. *Make field adjustments and corrections of Median Inlet Protection CM/BMP immediately if it is causing flooding erosion and/or affecting roadway safety.*
6. *Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.*

DETAIL ES14

MEDIAN INLET PROTECTION

	NAME	DATE
DESIGN	TAO ZI FONG	6-2020
DESIGN	HAN MENG	6-2020
DRAWN	TAO ZI FONG	6-2020
DRAWN	HAN MENG	6-2020
CHECKED	JOHN R. HUCKO	6-2020
TEAM LEADER	E LEROY BRADY	6-2020
ROUTE	MP	LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADSIDE DEVELOPMENT SECTION

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Appendix C – Construction General Permit

ADEQ Arizona Department of Environmental Quality

State of Arizona
Department of Environmental Quality
Water Quality Division
Phoenix, Arizona 85007

Arizona Pollutant Discharge Elimination System
General Permit for Stormwater Discharges Associated with Construction Activity to Surface Waters

This permit provides authorization to discharge under the Arizona Pollutant Discharge Elimination System (AZPDES) program, in compliance with the provisions of the Arizona Revised Statutes, Title 49, Chapter 2, Article 3.1; the Arizona Administrative Code (A.A.C.), Title 18, Chapter 9, Article 9, and Chapter 11, Article 1; and the Clean Water Act as amended (33 U.S.C. 1251 et seq.).

This general permit specifically authorizes stormwater discharges associated with construction activity in Arizona, pursuant to 40 CFR § 122.26(b)(14)(x) and 40 CFR § 122.26(b)(15). All discharges authorized by this general permit shall be consistent with the terms and conditions of this general permit. Permit coverage is required from the "commencement of construction activities" until "final stabilization", as these terms are defined in this permit.

This general permit becomes effective on July 1, 2020.

This general permit and the authorization to discharge expire at midnight June 30, 2025.

Signed this 27th day of March, 2020.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Trevor Baggiore, Director
Water Quality Division

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CONTENTS

1.0 COVERAGE UNDER THIS GENERAL PERMIT

1.1 Permit Area.

This general permit covers the state of Arizona. This permit is not authorized for use by operators with stormwater discharges associated with construction activities on any Indian country in Arizona. U.S. EPA Region 9 remains the permitting authority for Indian country in Arizona.

1.2 Eligibility.

This general permit authorizes stormwater discharges to surface waters, either directly or by way of a conveyance, associated with "construction activities," as defined in Appendix A, that will disturb one or more acres of land, or will disturb less than one acre, but is part of a common plan of development or sale that will ultimately disturb one acre or more (see 40 CFR 122.26(b)(15)(ii).

This general permit is also applicable to stormwater discharges associated with support activities from temporary plants or operations set up to produce concrete, asphalt, or other materials exclusively for the permitted construction activity. See 40 CFR 122.26(b)(14)(x) and (15) and Appendix A.

Operators of small construction sites (less than five (5) acres – see 40 CFR 122.26(b)(15) and Appendix A) may, if eligible, choose a waiver from coverage under this permit, provided that site remains in compliance with the applicable requirements of Part 1.6 during construction.

Coverage under this permit is not required for routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. See A.A.C. R18-9-A902(B)(8)(c)(iii).

Coverage under this permit may be required for any other discharges associated with construction activities that ADEQ determines are needed in accordance with A.A.C. R18-9-A902(B)(8)(d).

Any discharges that are not consistent with the eligibility conditions of this permit are not authorized by this permit. A person shall either apply for a separate Arizona Pollutant Discharge Elimination System (AZPDES) permit to cover such discharge(s), cease the discharge(s), or take necessary steps to make the discharge(s) eligible for coverage under this permit.

Individual Permit Requirements. An operator who chooses to obtain an individual stormwater permit (in accordance with the requirements of A.A.C. R18-9-C902(B), or is required by ADEQ to obtain an individual stormwater permit (in accordance with A.A.C. R18-9-C902(A)), shall comply with the requirements of Appendix B, Subsections 17 and 18(a)(i).

1.3 Authorized Discharges.

1. Allowable Stormwater Discharges.
    a. Stormwater runoff associated with construction activities provided the discharge is conducted in compliance with this permit;
    b. Discharges requiring a stormwater permit under 40 CFR 122.26(a)(1)(v); 40 CFR 122.26(b)(15)(ii); or under 40 CFR 122.26(a)(9);
    c. Stormwater discharges from construction support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

i. The support activity is directly related to a construction activity that is required to have AZPDES permit coverage for discharges of stormwater associated with construction activity;

ii. The support activity is not a commercial operation (serving multiple unrelated construction activities by different operators) and does not operate beyond the completion of the construction activity for which the support activity is directly associated;

iii. The support activity is not otherwise covered by a separate AZPDES permit; and

iv. Appropriate control measures for the discharges from the support activity areas are identified in the Stormwater Pollution Prevention Plan (SWPPP) and implemented.

2. Allowable Non-Stormwater Discharges.

a. The following are the only non-stormwater discharges allowed under this permit. These discharges are allowed provided they are minimized to the extent practicable. When allowable non-stormwater discharges cannot be practicably eliminated, the operator shall install appropriate control measures to reduce or eliminate pollutants in the discharge to ensure compliance with Part 3 of this permit:

i. Discharges from emergency fire-fighting activities

ii. Water used to control dust, provided reclaimed water or other process wastewaters are not used;

iii. Routine external building wash down provided detergents are not used;

iv. Water used to rinse vehicles and equipment, provided that reclaimed water or other wastewater is not used and no soaps, solvents, detergents, oils, grease or fuels are present in the rinsate;

v. Pavement rinse waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;

vi. Uncontaminated air conditioning or compressor condensate;

vii. Uncontaminated groundwater or spring water;

viii. Foundation or footing drains where flows are not contaminated with process materials such as solvents;

ix. Water from firefighting system testing and maintenance, including hydrant flushing;

x. Discharges related to installation and maintenance of potable water supply systems, including disinfection and flushing activities, discharges resulting from pressure releases or overflows, discharges due to potable water pipeline breaks and discharges from wells approved by ADEQ for drinking water use;

xi. Hydrostatic testing of new pipes, tanks or vessels using potable water, surface water, or uncontaminated groundwater;

xii. Water used for compacting soil, provided reclaimed water or other wastewaters are not used;

xiii. Water used for drilling and coring such as for evaluation of foundation materials, where flows are not contaminated with additives; and

xiv. Uncontaminated waters obtained from dewatering operations/ foundations in preparation for and during excavation and construction provided the discharge are managed as specified in Part 3.6 of this permit.

Note: Reclaimed water may be used for dust control, soil compaction, or landscape irrigation if a valid reuse permit is obtained and there are no discharges of reclaimed water off-site.

b. If the site is within 1/4 mile upstream of an Outstanding Arizona Water (OAW), the operator shall not discharge any non-stormwater under this permit, except for emergency fire-fighting activities, unless specifically authorized by the Department.

1.4 Prohibited Discharges.

The operator shall not allow any non-stormwater discharges from the site, except as provided in Part 1.3(2)(b). All other non-stormwater discharges (not listed above) shall be eliminated or authorized under a separate AZPDES permit as those discharges are not authorized under this permit. Stormwater discharges that are mixed with non-stormwater, other than the allowable non-stormwater discharges listed in Part 1.3(2) are not eligible for coverage under this permit.

The following discharges are prohibited:

1. Wastewater from washout of concrete, unless managed by an appropriate control as described in Part 3.5;
2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials, unless managed by an appropriate control as described in Part 3.5;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
4. Soaps or solvents used in vehicle and equipment washing; and
5. Toxic or hazardous substances from a spill or other release.

1.5 Limitations of Coverage.

1. Post-Construction Discharges. This general permit does not authorize stormwater discharges that originate from the site after construction activities have been completed and the site, including any temporary support activity site, has achieved final stabilization and a Notice of Termination (NOT) has been submitted to ADEQ. Post-construction stormwater discharges from sites may need to be covered by a separate AZPDES permit. See Part 6.4(13).
2. Discharges Covered by Another AZPDES Permit. This general permit does not authorize stormwater discharges associated with construction activities that are covered under an individual permit or another applicable general permit.
3. Impaired or Not-Attaining Waters. The following conditions apply if outfalls from construction sites are located within 1/4 mile upstream of a surface water listed as impaired or not-attaining:

    a. The operator must submit a copy of the SWPPP and associated review fee with the NOI to ADEQ;

    b. The SWPPP must include a Sampling and Analysis Plan (SAP - see Part 7.2) for analytical monitoring, if there are discharges from the site that include the pollutant(s) for which the surface water is impaired or not-attaining. However, if the operator can demonstrate there are no pollutants that will be an additional source

to the impairment, analytical monitoring may not be required. As part of this demonstration, the operator must consider all on-site activities, including the presence of pollutants (metals, nutrients, etc.) in site soils. The demonstration must be included in the SWPPP submitted for ADEQ's review;

c. If a discharge contains pollutants for which an approved Total Maximum Daily Load (TMDL) has been established, the SWPPP shall specifically identify control measures necessary to ensure the discharges will be consistent with the provisions of the TMDL.

4. Outstanding Arizona Waters (OAW). The following conditions and requirements apply if one or more outfalls from construction sites are located within 1/4 mile upstream of a surface water listed as an OAW in A.A.C. R18-11-112(G):

a. The operator must submit a copy of the SWPPP and associated review fee with the NOI to ADEQ;

b. The SWPPP must include a sampling and analysis plan for analytical monitoring (see Part 7.2) of pollutants expected to discharge from the site, including sediment.

1.6 Erosivity Waivers for Small Construction Activities.

A person performing construction activity which disturbs between one and five acres may be eligible for a waiver from coverage under this permit based on a low potential for soil erosion (i.e., the Erosivity Waiver). Construction activities that disturb five acres or greater, or less than five acres but are part of a common plan of development or sale, are not eligible for the erosivity waiver.

1. Calculating the Erosivity Waiver.

Low potential for erosion is defined as a rainfall erosivity (R) factor of less than five (5) and is calculated in myDEQ, which uses the EPA's methodology for determining if a site qualifies for the erosivity waiver, based on the *USDA Handbook 703-Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)*, dated January 1997. EPA has updated its Rainfall Erosivity Factor Calculator to correct known problems and to use updated data from the Natural Resources Conservation Service's (NRCS) Revised Universal Soil Loss Equation, Version 2 (RUSLE2) database. myDEQ is using the Version 2 for erosivity calculations for the 2020 CGP. The small construction site's rainfall erosivity calculation shall be less than five (5) during the entire period of construction activity.

If one or more outfalls from the construction site are located within 1/4 mile upstream of an impaired or not-attaining water or OAW, the site is not eligible for the erosivity waiver. The erosivity waiver is predicated on the above criteria being met and proper application procedures being followed.

2. Permit Waiver Certification.

The operator shall obtain an AZPDES Permit Waiver Certification before commencing construction activities. All waiver certifications require an AZPDES fee in accordance with A.A.C. R18-14-109, Table 6.

An operator of a construction activity that is eligible for an Erosivity Waiver shall provide the following information:

a. The name, address, and telephone number of the construction site operator(s);

b. The name (or other identifier), address, county, and parcel or lot number as recorded by the county, of the construction activity or site;

c. Latitude and longitude (in decimal degree format to 6 decimal places) of the construction site at the outfall nearest to the surface water;

d. The construction activity's start and completion (final stabilization) dates;

e. The total construction site acreage and the acreage to be disturbed by the operator submitting the NOI, to the nearest 0.5 acre;

f. If discharges may occur to a municipal separate storm sewer system (including municipal streets and other improvements that can convey stormwater), the name of the municipal operator of the storm sewer;

g. The name of the waterbody(s) that would be receiving stormwater discharges from the construction site; and

h. The waiver certification form shall be signed using the electronic signature feature in myDEQ and in accordance with the signatory requirements of Appendix B, Subsection 9.

3. Construction Activities That Extend Past Certified Period.

If the small construction activity continues beyond the calculated "end date" as shown on the Permit Waiver Certification, the operator shall prepare a SWPPP and submit an NOI as required under Parts 2.3 and 6.0.

2.0 AUTHORIZATION UNDER THIS GENERAL PERMIT

The operator shall review all the conditions and requirements of the permit before submitting any documentation described in Part 2.

2.1 Responsibilities of Operators.

1. All Operators. All operators are required to obtain coverage for stormwater discharges associated with construction activity under this permit or an alternative AZPDES permit. For the purposes of this permit, an "operator" is any person associated with a construction activity that meets either of the following two criteria:

   a. The person has operational control over construction plans and specifications, including the ability to make revisions to those plans and specifications; or

   b. The person has day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with the permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the permit).

   Subcontractors are generally not considered to be "operators" for the purposes of this permit.

2. Multiple Operators. Where there are multiple operators associated with the same construction activity, all operators are required to obtain permit coverage. The following applies in these situations:

   a. If one operator has control over plans and specifications and a different operator has control over activities at the construction site, they may divide responsibility for compliance with the terms of this permit as long as they jointly develop a common SWPPP (see Part 6.1(1)), which documents which operator has responsibility for each requirement of the permit.

   b. If an operator only has operational control over a portion of a larger construction site (e.g., one of four homebuilders in a subdivision), the operator is responsible for compliance with applicable effluent limits (see Part 3), terms, and conditions of this permit as it relates to their activities on their portion of the construction site and implementation of control measures described in the SWPPP in the areas under their control.

   c. Operators must ensure either directly or through coordination with other operators, that their activities do not render another person's pollutant discharge controls ineffective.

   d. If the operator of a construction support activity (Part 1.3(1)(c)) is different from the operator of the main construction site, that operator is also required to obtain permit coverage.

2.2 Prerequisites for Submitting a Notice of Intent (NOI).

A person may be authorized to discharge under this permit only if the stormwater discharge is associated with construction activities from a construction site. Prior to submission of an NOI, an applicant seeking authorization to discharge under this general permit shall:

1. Meet the eligibility requirements under Part 1.2; and

2. Develop a SWPPP that meets the requirements of Part 6 of this permit, and that covers either the entire site or all portions of the site for which the person is an operator.

a. The SWPPP shall be prepared by a qualified person, prior to submission of the NOI and shall be implemented prior to the start of construction.

b. The SWPPP is not required to be submitted to ADEQ unless the construction site has one or more outfalls within 1/4 mile upstream of an impaired or not-attaining water or OAW as described in Parts 1.5(3) and 1.5(4) but shall be retained and made available in accordance with Part 6.7.

2.3 Submitting an NOI.

1. Application Required.

   a. The operator shall submit a separate, accurate, and complete NOI to ADEQ for each construction activity that disturbs one or more acres of land, or for each activity that is part of a common plan of development or sale that will ultimately disturb one or more acres of land. NOIs must be submitted in myDEQ.

   b. Submission of the NOI demonstrates the operator's intent to be covered by this permit; it is not a determination by ADEQ that the operator has met the eligibility requirements for the permit. Discharges are not authorized if ADEQ notifies the operator that further evaluation is necessary, or that the discharges are not eligible for coverage under this permit.

   c. If the operator changes or another operator is added before construction activities are complete, the new operator shall also submit an NOI to be authorized under this permit before taking over operational control or commencing construction activities at the site.

2. NOI Requirements. Construction site operators seeking authorization for stormwater discharges under this general permit shall submit a complete and accurate AZPDES NOI in myDEQ. The NOI in myDEQ requires, at a minimum, the following information:

   a. The name, address, and telephone number of the construction site operator;

   b. The type of construction activity (e.g., school, commercial, subdivision, roadway, etc.);

   c. Whether the construction activity is part of a common plan of development or sale;

   d. Estimates of the total construction site acreage and the acreage to be disturbed by the operator submitting the NOI;

   e. The printed name (or other identifier), address and county of the construction site;

   f. An accurate latitude and longitude (in decimal degree format to 6 decimal places) of the construction site at the point nearest to the closest surface water;

   g. The latitude and longitude (in decimal degree format to 6 decimal places) of outfalls that may discharge stormwater to a receiving surface water;

   h. Confirmation that a SWPPP meeting the requirements in Part 6 of this permit has been developed and will be implemented prior to commencement of construction activities;

   i. If the NOI is a late application, the operator shall certify that a SWPPP has been developed and implemented prior to submittal of the NOI;

   j. The name and telephone number of a contact person for the SWPPP;

   k. The name of the closest surface water, which may include an unnamed wash, or canal;

l. The name(s) of the MS4 into which there is a potential to discharge, if applicable;

m. The construction activity's estimated start and completion dates; and

n. Fees are to be paid using a credit card or electronic check (ACH-debit) at the time of NOI submission in myDEQ.

3. Effective Date of Permit Coverage.

a. Routine Coverage. Except as set forth in subsection (c) below, an eligible operator is authorized to discharge stormwater from a construction site when an authorization certificate is issued, after the NOI information is entered and certified in myDEQ.

b. Incomplete NOI Submitted. If ADEQ notifies the operator that an NOI is incomplete or incorrect, the operator shall submit a revised or new NOI in myDEQ if the operator still intends to obtain coverage under this permit.

c. Discharges to Impaired, Not-Attaining or Outstanding Arizona Waters. Applicants seeking coverage for a construction site that has one or more outfalls within 1/4 mile upstream of an impaired or not-attaining water or an OAW are not authorized under this permit for 30 calendar days following submission of their NOI, SWPPP, SAP and initial application fees in myDEQ. ADEQ may notify operators within this time frame that the NOI is approved, or there is cause for a SWPPP amendment, or denial of coverage as specified in Parts 1.5(3) and 1.5(4) of this permit. If notification is not received in the 30 calendar day time period, the operator is deemed covered under this permit.

d. SWPPP Requiring Additional Information. If the operator receives notification from ADEQ that the SWPPP is incomplete or otherwise deficient, the operator shall submit a revised SWPPP to ADEQ that addresses the comments if the operator still intends to obtain permit coverage. If review of the revised SWPPP reveals that a discharge of pollutants may cause or contribute to an exceedance of an applicable surface water quality standard in the receiving surface water, monitoring may be required, in accordance with Part 7. The revised SWPPP must include the applicable re-review fee. Permit coverage is suspended until ADEQ issues the permit authorization certificate.

e. Ongoing Construction Activities.

For operators of ongoing construction activities that are in process as of the effective date of this permit:

i. Within the first 60 calendar days from the effective date of this permit, the operator shall update the SWPPP as necessary to comply with the requirements of Part 6 of this permit; and

ii. Within the first 60 calendar days from the effective date of this permit, the operator shall submit a new NOI in myDEQ. The operator may continue to comply with the terms and conditions of the expired permit (AZG2013-001) until the NOI is submitted and payment is made for the permit application fee.

iii. If eligible, an operator may submit an NOT within the first 60 calendar days from the effective date of this permit, if construction is finished and final stabilization has been achieved.

f. Change in Operators. For construction activities where the operator changes, including instances where an operator is added after an NOI has been submitted, the new operator shall submit an NOI and receive an authorization certificate before assuming operational control or commencing work on-site (see Appendix B, Subsection 19).

g. Certificate of Authorization. The operator will receive a Certification of Authorization from myDEQ assigning an authorization number and approval date. The Certificate of Authorization is not the permit. It acknowledges that ADEQ received the NOI and that the operator is authorized to discharge stormwater, subject to the terms and conditions of this permit. Correspondence with ADEQ concerning any construction activity covered by this permit shall reference the authorization number.

4. Late Applications. The operator is only permitted for eligible discharges that occur after a complete and accurate NOI is submitted in myDEQ and authorization is granted. ADEQ reserves the right to take enforcement action for any un-permitted discharges or permit noncompliance that occur between the time construction commenced and either permit authorization is granted, denied, or a complete and accurate Erosivity Waiver is submitted and approved in myDEQ.

5. Modified NOI. The operator may modify the NOI in myDEQ if there are revisions to personnel contact information or if outfall locations change. There is no fee for either of these modifications. Any other modifications require the submission of a NOT, terminating the existing NOI, and obtaining a new NOI for continued coverage in myDEQ, including the application fee.

2.4 Fee Requirements.

In accordance with A.A.C R18-14-109, the operator shall pay the initial AZPDES water quality protection services fee for coverage under this permit at the time the NOI is submitted. In addition, the operator shall pay the applicable annual fee when billed, unless a notice of termination has been submitted to ADEQ. The annual fee is due on the anniversary of the date of the authorization certificate (see Part 2.3(3)). Both fees are based on the amount of acreage identified in the NOI, in accordance with A.A.C. R18-14-109, Table 6.

2.5 Authorization of Emergency-Related Construction Activities.

Emergency-related construction activities are automatically authorized provided that:

1. The activity is being performed in order to avoid imminent endangerment to human health or the environment or in response to an emergency and the activity requires immediate authorization;

2. If the activity continues for more than 30 calendar days after the initial emergency-related start date, the operator shall prepare a SWPPP and submit a complete and accurate NOI;

3. The operator provides documentation in the SWPPP to substantiate the occurrence of the public emergency; and

4. The operator complies with all other applicable requirements in the permit regarding discharges associated with the construction activities.

2.6 Terminating Coverage.

1. Notice Required. To terminate permit coverage, the operator shall submit a complete and accurate Notice of Termination (NOT) in myDEQ. The operator is responsible for meeting the terms and conditions of this permit until the construction site's authorization is terminated. The operator may submit a complete and accurate NOT in myDEQ after any of the following conditions have been met:

a. The operator has established final stabilization on all portions of the site for which the operator is responsible, in accordance with Part 3.4(2).

b. Another operator who has a valid authorization number under this general permit or an individual AZPDES permit has assumed control over all areas of the site that have not been finally stabilized (see Appendix B, Subsection 19);

c. For residential construction activities, temporary stabilization has been completed and the residence has been transferred to the homeowner (or a homeowner's association) in accordance with Part 3.4(2);

d. The planned construction activity identified on the original NOI was never initiated (i.e., grading was never started) and plans for construction have been permanently abandoned or indefinitely postponed;

e. The operator has obtained coverage for the site under another authorizing AZPDES permit;

f. The operator qualifies for one of the alternatives in Part 3.4(3) and submits the required documentation demonstrating compliance with the NOT in myDEQ.

2. NOT Requirements. The operator shall submit a complete and accurate NOT in myDEQ.

3. Effective Date of Permit Termination. Authorization to discharge terminates under this permit when the permittee submits the NOT in myDEQ and receives the termination acknowledgement certificate.

2.7 Change of Operator Request due to Foreclosure or Bankruptcy.

If a lending institution or another person takes operational control of the permitted construction site due to foreclosure or bankruptcy, the new operator is responsible for discharges from the construction site. If the construction site has not achieved final stabilization as defined in Part 3.4(2), the new operator shall submit a NOI in myDEQ for permit coverage within 30 calendar days prior to taking control of the site. In the event the new operator taking control of the construction site fails to submit a NOI for the ongoing construction activities, the existing operator may submit a petition to the department to terminate permit coverage by submitting a Change of Operator Request (COR) form (available on the ADEQ website). In making this request, the existing operator must no longer have access to the property and shall submit the following information:

1. The date of the loss of control of the construction site;

2. The person that has control of the construction site;

3. The reasons for being unable to submit a NOT that complies with the requirements of Part 2.6;

4. A copy of the SWPPP documenting conditions at the time of loss of control. The existing operator shall indicate areas of exposed soils and material stockpiles; the location, type and quantity of chemicals storage; the existing control measures left in place and their condition; and areas that have been stabilized. The existing operator shall indicate if there is public access to the site (e.g., perimeter fence, gate, etc.) and shall identify any conditions, which may be dangerous or hazardous, or may pose a significant environmental threat.

5. Documentation that the permittee informed the person taking control of the construction site of the requirements of this permit.

ADEQ will review the COR, SWPPP and related information to determine appropriate actions, including (but not limited to) terminating permit coverage for the existing operator. As part of this

assessment, ADEQ may conduct a site inspection. Submitting a COR does not suspend ongoing enforcement actions and does not preclude ADEQ from taking enforcement actions for violations of this permit.

3.0 EFFLUENT LIMITATIONS AND WATER QUALITY STANDARDS APPLICABLE TO ALL DISCHARGES FROM CONSTRUCTION SITES

The control requirements in this Part incorporate the technology-based effluent limitations to meet water quality standards that, where applicable, apply to all stormwater and allowable non-stormwater discharges from construction sites eligible for coverage under this permit. These requirements apply the national effluent limitations guidelines and new source performance standards found at 40 CFR Part 450. The operator shall comply with the control measures requirements included in Part 3 through site planning and designing, installing, and maintaining these controls.

3.1 Non-numeric Effluent Limitations and Associated Control Measures.

At a minimum, the operator shall design, install and maintain the following effluent limitations reflecting the best practicable technology currently available on construction sites:

1. Erosion and Sediment Control (Part 3.3)
2. Site Stabilization (Part 3.4)
3. Pollution Prevention (Part 3.5)
4. Controls for Allowable Non-Stormwater Discharges and Dewatering Activities (Part 3.6)
5. Surface Outlets (Part 3.7)

3.2 General Maintenance Requirements.

1. Ensure that all control measures required, and described in Parts 3.3 through 3.7, remain in effective operating condition during permit coverage and are protected from activities that would reduce their effectiveness.
2. Inspect all control measures in accordance with the inspection requirements in Part 4. The operator shall document the findings in accordance with Part 4.4. When controls need to be replaced, repaired, or maintained, make the necessary repairs or revisions. Routine maintenance does not constitute a corrective action (see Part 5.1). The operator shall comply with the following schedule:
    a. If the identified control measure deficiency does not require significant maintenance, repair, or replacement, or if the problem can be corrected through routine maintenance, initiate work to fix the problem immediately after discovery, and complete such work by the close of the next work day, if feasible. SWPPP recordkeeping is not required for actions taken under this paragraph.
    b. When the installation of a new control (that is not in response to a corrective action in Part 5.1), or a significant repair of an existing control is needed, install the new or modified control and make it operational, or complete the repair, by no later than 7 calendar days from the time of discovery, or before the next storm event (whichever is sooner) where feasible. If it is infeasible to complete the installation or repair within 7 calendar days or before the next storm event, SWPPP records must document why it is infeasible. The SWPPP must also document the schedule for installing the control(s) and making it operational as soon as practicable after the 7-day timeframe. Where these actions result in changes to any of the controls or procedures documented in the SWPPP, modify the SWPPP accordingly within 7 calendar days of completing this work.

3.3 Erosion and Sediment Control Requirements.

Design, install, and maintain effective erosion and sediment controls to minimize the discharge of pollutants. The operator shall minimize the amount of soil exposed during construction activities. The operator is also subject to the deadlines for temporary and/or permanent stabilization of exposed portions of the site in accordance with Part 3.4.

The following general requirements are applicable to all construction sites that implement the erosion and sediment controls in Part 3.3.

1. Design Requirements.

   a. The operator shall account for the following factors in designing control measures:

      i. The expected amount, frequency, intensity, and duration of precipitation;

      ii. The nature of stormwater runoff and all sources of run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features. If any stormwater flow will be channelized at the site, control measures must be designed to control both peak flowrates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and stream bank erosion; and

      iii. The range of soil particle sizes expected to be present on the site.

   b. The operator shall direct stormwater flows to vegetated areas of the site to increase sediment removal and maximize stormwater infiltration, including any natural buffers established under Part 3.3(7), unless infeasible. Use velocity dissipation devices if necessary to prevent erosion when directing stormwater to vegetated areas.

2. Installation Requirements.

   a. Complete the installation of control measures by the time each phase of construction activity has begun. In the event it is infeasible to install one or more control measures prior to the start of construction activities, the operator shall ensure that those controls are installed as soon as possible. SWPPP records must document why it is infeasible.

      Following the installation of these initial control measures, all other controls planned for this portion of the site and described in the SWPPP must be installed and made operational as soon as conditions on the site allow. The requirement to install control measures prior to construction activities for each phase of the project does not apply to activities associated with the actual installation of these controls.

   b. Use standard industry practices and follow manufacturer's specifications. The operator shall install all control measures in accordance with standard industry practices, including applicable design specifications. Design specifications may be found in manufacturer specifications and/or in applicable erosion and sediment control manuals or local ordinances. Any departures from such specifications must reflect standard industry practice and must be explained in the SWPPP.

3. Control Stormwater Volume and Velocity.

   a. If off-site areas direct flow onto the construction site, divert run-on flows, and/or provide other appropriate control measures to account for off-site contributions of stormwater and non-stormwater flow.

      If stormwater conveyance channels are used at the site, the operator shall design and construct them to avoid unstabilized areas and to reduce erosion, unless infeasible. Minimize erosion of channels and their embankments, outlets, adjacent stream banks, slopes, and downstream waters during discharge conditions using

erosion controls and velocity dissipation devices within and along the length of any constructed stormwater conveyance channel, and at any outlet to provide a non-erosive flow velocity.

b. Sediment Basins and Traps. If necessary, the operator shall install and maintain sediment basin(s) and / or traps to manage run-on, runoff, and sediment discharge from the construction site.

i. Design Requirements. The SWPPP shall provide sizing and calculation requirements for sediment basin(s) and shall indicate whether the basin(s) will be temporary or permanent.

a. When discharging from the sediment basin, utilize outlet structures that minimize pollutants;

b. Prevent erosion of the sediment basin using stabilization controls (e.g., erosion control blankets), and the inlet and outlet using erosion controls and velocity dissipation devices; and

c. Sediment basins must be situated outside of surface waters and any natural buffers established under Part 3.3(7), unless approved under a CWA section 404 permit.

ii. Maintenance requirements. The operator shall maintain sediment basins, ponds, and traps, and remove accumulated sediment when design capacity has been reduced by 50%.

iii. Polymers, flocculants, or other cationic treatment shall be used in accordance with manufacturers' instructions to provide for adequate settling time and minimize or eliminate these chemicals in the discharge. Furthermore, the operator shall comply with the requirements in Part 6.3(10).

4. Control Stormwater Discharges.

Control stormwater discharges including both peak flowrates and total stormwater volume to minimize channel and streambank erosion and scour in the immediate vicinity of outfalls. Examples of control measures that can be used to comply with this requirement include the use of erosion controls and/or velocity dissipation devices (e.g., check dams, sediment traps) within and along the length of a stormwater conveyance and at the outfall to slow down runoff.

5. Minimize the amount of soil exposed and the disturbance of steep slopes by:

a. Preserving Natural Vegetation. Where practicable, existing vegetation should be preserved. If natural vegetation can be preserved, the operator shall clearly mark vegetation before clearing activities begin. Locations of trees and boundaries of buffer zones to be preserved shall be identified on the SWPPP site map;

b. Phase or sequence construction activities. Where practicable, minimize the area of disturbance at any one time.

c. Steep slopes. Where practicable, implement standard erosion and sediment control practices, such as phasing disturbances to these areas and using stabilization practices designed to be used on steep grades.

6. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

a. Perimeter Control. The operator shall use appropriate control measures (e.g., fiber rolls, berms, silt fences, vegetative buffer strips, sediment traps, or equivalent sediment controls) at all times for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction site.

   For sites where stormwater from disturbed areas, exclusive of rights-of-way, is conveyed to one or more retention basins that are designed to retain stormwater runoff from a local 100 year / 2 hour storm event, as calculated by an Arizona registered professional engineer, geologist or landscape architect (A.R.S. § 32-144) or equivalent, the operator is not required to utilize perimeter controls.

   For linear construction activities (see Appendix A) with rights-of-way that restrict or prevent the use of such perimeter controls, the operator shall maximize the use of these controls where practicable and document in the SWPPP why it is impracticable in other areas of the site.

b. Control discharges from stockpiles of sediment or soil. As necessary, implement the following measures for any stockpiled or land clearing debris composed, in whole or in part, of sediment or soil:

   i. Place stockpiles outside of washes or other surface waters, stormwater conveyances (such as curb and gutter systems), or streets leading to stormwater conveyances, such that the placement does not conflict with local laws and local rights-of-way are not impacted.

   ii. Locate the stockpiles outside of any buffers established consistent with Part 3.3(7);

   iii. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier;

   iv. Avoid rinsing sediment, debris, or other pollutants accumulated on pavement or other impervious surfaces after the stockpile has been removed into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water;

   v. To the extent practicable, implement control measures to prevent the generation of wind-blown sediment and debris; and

   vi. Use perimeter controls or other effective sediment control measures around soil stockpiles, except when they are being actively worked. For piles that will be unused for 14 calendar days or more, provide cover or appropriate temporary stabilization.

c. Storm Drain Inlet Protection. The operator shall assess the need for and install inlet protection measures necessary to remove sediment discharges from the site. If the site discharges to any storm drain inlet that carries stormwater flow to a surface water (and it is not first directed to a sediment basin, sediment trap, or similarly effective control and the operator has authority to access the storm drain inlet), then inlet protection is required.

   Inlet protection measures may be removed in the event of flood conditions that may endanger the safety of the public. Such actions shall be documented in the SWPPP. The operator shall evaluate alternative control measures to be used in the future to prevent a recurrence of this problem.

d. If existing control measures need to be repaired or modified or if additional control measures are necessary, implementation shall be completed within 7 calendar days or before the next storm event (whichever is sooner), unless otherwise prescribed in i. – iv. below. If implementation before the next storm event is

impracticable, the reason(s) for delay shall be documented in the SWPPP and alternative control measures shall be implemented as soon as possible. Additionally, the following maintenance activities shall be implemented:

i. Remove accumulated sediment when it reaches a maximum of one-third the height of the silt fence or one-half the height of a fiber roll.

ii. Sediment shall be removed from temporary and permanent sedimentation basins, ponds and traps when the depth of sediment collected in the basin reaches 50% of the storage capacity.

iii. Construction site egress location(s) shall be inspected for evidence of off-site tracking of sediment, debris, and other pollutants onto paved surfaces. Removal of sediment, debris, and other pollutants from all off-site paved areas shall be completed as soon as practicable.

iv. Accumulations of sediment, debris, and other pollutants observed in off-site surface waters, drainage ways, catch basins, and other drainage features shall be removed in a manner and at a frequency sufficient to minimize impacts and to ensure no adverse effects on water quality.

7. Maintain natural buffers adjacent to perennial surface waters and direct stormwater to vegetated areas to increase sediment removal, unless infeasible.

a. Provide Natural Buffers or Equivalent Erosion and Sediment Controls. This requirement only applies when a perennial surface water or a lake (if feasible) is located within 50 feet of the site's construction activities:

i. Areas not owned or are otherwise outside the activities of the operator may be considered areas of undisturbed natural buffer for purposes of compliance with this part.

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

b. Alternatives. In areas where it is infeasible to maintain the 50-foot buffer, the operator shall:

i. Document in the SWPPP the reasons why the 50 foot buffer cannot be maintained, and identify the additional erosion and sediment controls selected;

ii. Preserve as much buffer as possible and design, implement and maintain additional erosion and sediment controls (such as berms, diversion dikes, sediment basins, etc.);

iii. Ensure that all discharges from the area of construction activity to the natural buffer are first treated by the site's erosion and sediment controls, and use velocity dissipation devices if necessary to prevent erosion caused by stormwater within the buffer;

iv. Document in the SWPPP the natural buffer width retained on the property, and show the buffer boundary on the site plan;

v. Delineate, and clearly mark off, with flags, tape, or other similar marking device all natural buffer areas; and

vi. Follow the additional stabilization requirements described in Part 3.4(1).

The operator is not required to enhance the quality of the vegetation that already exists in the buffer, or provide vegetation if none exists.

c. Exceptions.

i. If there is no discharge of stormwater to perennial waters through the area between the site and any perennial waters located within 50 feet of the site, the operator is not required to comply with the requirements in this Part. This includes situations where control measures, such as a berm or other barrier that will prevent such discharges, have been implemented.

ii. Where no natural buffer exists due to preexisting development disturbances (e.g., structures, impervious surfaces) that occurred prior to the initiation of planning for the current development of the site, operators are not required to comply with the requirements in this Part, unless portions of the preexisting development are removed.

Where some natural buffer exists but portions of the area within 50 feet of the perennial water are occupied by preexisting development disturbances, operators are required to comply with the requirements in this Part. For the purposes of calculating the sediment load reduction, an operator is not expected to compensate for the reduction in buffer function from the area covered by these preexisting disturbances.

If, during the life of the project, any portion of these preexisting disturbances will be disturbed, the area disturbed will be deducted from the area treated as natural buffer.

iii. Linear construction activities are not required to comply with the requirements in this Part if site constraints (e.g., limited right-of-way) prevent the operator from meeting any of the compliance alternatives in Part 3.3(7), provided that, to the extent practicable, disturbances are limited to within 50 feet of the perennial water and/or the operator provides supplemental erosion and sediment controls to treat stormwater discharges from construction activities within 50 feet of the perennial water. The operator shall document in the rationale for why it is infeasible to comply with the requirements in Part 3.3(7) in the SWPPP, and describe any buffer width retained and/or supplemental erosion and sediment controls installed.

iv. “Small residential lot” construction (see Appendix A) is exempt from buffer requirements, provided that the operator minimizes the discharge of pollutants by complying with the requirements of Parts 3.3 through 3.8.

v. The following disturbances within 50 feet of a perennial water are exempt from the requirements in this Part:

a. Construction approved under a CWA section 404 permit; or

b. Construction of a water-dependent structure or water access area (e.g., pier, boat ramp, trail).

Any of the above disturbances that occur within the buffer area shall be documented in the SWPPP.

8. The operator shall minimize soil compaction, unless minimizing soil compaction is not required because the intended function of a specific area of the site dictates that it be compacted. Preserve topsoil, unless preserving topsoil is not required because the intended function of a specific area of the site dictates that the topsoil be disturbed or removed.

3.4 Site Stabilization Requirements, Schedules and Deadlines.

The operator shall comply with the stabilization requirements in this Part to minimize the discharge of pollutants. If revegetation plans include seeding, the SWPPP shall include seed mix and application specifications that will be used for vegetative stabilization. If the operator uses fertilizers or tackifiers on-site to establish vegetation, additional control measures shall be implemented to minimize the presence of these chemicals in the discharge.

1. Temporary Stabilization.

   The operator must provide temporary stabilization, or initiate permanent stabilization, of disturbed areas within 14 calendar days of the most recent land disturbance in areas where construction or support activities have been temporarily suspended or have permanently ceased, except as follows:

   a. Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable;

   b. When the site is using vegetative stabilization and is located in an area of the state experiencing drought conditions (see Appendix A), vegetative stabilization measures shall be initiated as soon as practicable, when growing conditions are best for planting or seeding;

   c. Stabilization shall be initiated within 7 calendar days, for areas within 50 feet of an impaired or not-attaining water or OAW.

   d. Where areas of construction activity are awaiting vegetative stabilization for periods greater than 14 calendar days after the most recent activity, non-vegetative methods of stabilization shall be employed. These methods shall be described in the SWPPP.

   The operator is not expected to apply temporary or permanent stabilization measures to areas that are intended to remain unvegetated or unstabilized following construction (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, or materials).

2. Final Stabilization.

   Final stabilization means that one of the following conditions (a, b, or c) is met:

   a. All soil disturbing activities at the site have been completed; all construction materials, waste, and temporary erosion and sediment control measures (including any sediment that was being retained by the temporary erosion and sediment control measures) have been removed and properly disposed; and either i. and/or ii. below is met:

      i. A uniform (i.e., evenly distributed, without large bare areas) vegetative cover with a density of 70% of the native background vegetative cover for the area is in place on all unpaved areas and areas not covered by permanent structures.

         When preconstruction native background vegetation covered less than 100% of the ground (e.g., arid areas, beaches), the 70% coverage criteria is adjusted as follows: if the native vegetation covered 50% of the ground, 70% of 50% (.70 X .50 = .35) or 35% cover density would be required; or

      ii. Equivalent permanent stabilization measures (such as the use of riprap, gabions, gravel, or geotextiles) have been employed.

   b. For individual lots in residential construction, final stabilization means that the homebuilder:

i. Has completed final stabilization as specified in Part 3.4(2)(a) above; or

ii. Has established temporary stabilization, including perimeter controls, for an individual lot prior to occupation of the home by the homeowner and has informed the homeowner of the need for, and benefits of, final stabilization; and

iii. An NOT may be submitted in myDEQ.

c. For construction activities on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to water of the U.S., and areas that are not being returned to their preconstruction agricultural use shall meet the final stabilization criteria above. Upon final stabilization, an NOT may be submitted in myDEQ.

Any non-vegetative stabilization methods (e.g., decomposed granite, geotextiles, or degradable mulch) must achieve the same requirements for final stabilization as specified in Part 3.4(2)(a).

3. Site Stabilization Alternatives.

An operator with an eligible site may choose one of the following alternatives instead of implementing the stabilization requirements in Parts 3.4(1) and 3.4(2). Documentation of eligibility of one of the alternative stabilization activities must be included in the SWPPP and identified on the NOT in myDEQ.

a. Sites with additional retention capacity (see A.R.S. § 49 – 255.01(L)). Stabilization deadline requirements in this permit do not apply to sites with retention capacity that meets or exceeds the 100 year/2 hour storm event as calculated by an Arizona registered professional engineer, geologist or landscape architect (A.R.S. § 32-144) or equivalent, and that meet the following conditions:

i. There are no outfalls that discharge to a perennial or intermittent water body;

ii. All stormwater generated by disturbed areas of the site, exclusive of public rights-of-way, is directed to one or more retention basins;

iii. The operator complies with pollution prevention measures;

iv. The operator maintains capacity of retention basin(s); and

v. The operator determines temporary and final stabilization requirements for the site to reduce or minimize the discharge of sediment and other pollutants to meet the requirements of Parts 3.4(1) and 3.4(2).

b. Sites returned to pre-construction discharge conditions. Construction operators may qualify for this alternative by demonstrating that stormwater discharges from the site's pre- and post-construction activities are equal or less than in volume and pollutant load from disturbed areas as calculated by an Arizona registered professional engineer, geologist or landscape architect (A.R.S. § 32-144) or equivalent; and where the site does not have outfalls that will discharge to an impaired or not-attaining water or OAW.

c. Arid, semi-arid, and drought-stricken areas: Final stabilization is met if the area has been seeded or planted to establish vegetation that provides 70 percent or more of the cover that is provided by vegetation native to local undisturbed areas within three (3) years and, to the extent necessary to prevent erosion

on the seeded or planted area, non-vegetative erosion controls have been applied that provide cover for at least three years without active maintenance.

3.5 Pollution Prevention Requirements.

1. The operator shall design, install, and maintain effective pollution prevention measures to prevent or minimize the discharge of pollutants from spilled or leaked materials from construction activities. To meet this requirement, the operator shall:

   a. Eliminate certain pollutant discharges from the site (see Part 1.4, Prohibited Discharges);

   b. Properly maintain all pollution prevention controls (see Part 3.2, General Maintenance Requirements); and

   c. Comply with pollution prevention control measures for pollutant-generating activities that occur at the site as outlined in this Part.

   The operator shall comply with the pollution prevention standards in this Part if any of the following activities are conducted at the site or at any construction support activity areas covered by this permit (see Part 1.3(1)(c)).

2. Minimize the Discharge of Pollutants – from equipment and vehicle washing, wheel wash water, and other wash waters.

   a. Concrete Washout. To comply with the prohibition in Part 1.4(1) for discharges of wastewater from washout of concrete:

      i. Where possible, concrete suppliers should conduct washout activities at their own plants or dispatch facilities.

      ii. If conducted at the construction site, the operator shall employ control measures to contain and manage on-site concrete washout to prevent discharge (see Part 6.3(8)).

      iii. Specify locations of concrete washout activities that will occur at the construction site.

   b. Washing of equipment and vehicles. Any operator that washes equipment or vehicles on-site shall implement the following control measures:

      i. Provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing; and

      ii. To comply with the prohibition in Part 1.4(4), for storage of soaps, detergents, or solvents, the operator shall provide either cover (e.g., plastic sheeting or temporary roofs) to prevent these detergents from coming into contact with rainwater, or implement a similarly effective means designed to prevent the discharge of pollutants from these areas.

   c. Washing of Applicators and Containers used for Paint or Other Materials. To comply with the prohibition in Part 1.4(2), the operator shall provide an effective means of eliminating the discharge of water from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials. To comply with this requirement, the operator shall:

      i. Direct all wash water into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation;

ii. Locate any washout or cleanout activities as far away as possible from surface waters and stormwater inlets or conveyances, and, to the extent practicable, designate areas to be used for these activities and conduct such activities only in these areas; and

iii. Handle washout or cleanout wastes as follows:

a. Do not dump liquid wastes in storm sewers;

b. Dispose of liquid wastes in accordance with applicable requirements in Part 3.5(5);

d. Fueling and Maintenance of Equipment or Vehicles. Any operator that conducts fueling and/or maintenance of equipment or vehicles at the site shall provide an effective means of eliminating the discharge of spilled or leaked chemicals, including fuel, from the area where these activities will take place. To comply with the prohibition in Part 1.4(3), operators shall:

i. If applicable, comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and Section 311 of the CWA;

ii. Ensure adequate supplies are available at all times to handle spills, leaks, and disposal of used liquids;

iii. Use drip pans and absorbents under or around leaky vehicles;

iv. Dispose of or recycle oil and oily wastes in accordance with other federal, state, tribal, or local requirements;

v. Clean up spills or contaminated surfaces immediately, using dry clean up measures where possible, and eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge; and

vi. Do not clean surfaces by hosing the area down.

3. Construction Site Egress. The operator shall implement effective control measures to minimize tracking of sediments, debris and other pollutants from vehicles and equipment leaving the site (e.g., stone pads, concrete or steel wash racks, or equivalent systems). Fine grains that remain visible *(i.e., staining)* on the surfaces of off-site streets, other paved areas, and sidewalks after you have implemented sediment removal practices are not a violation of this part.

If site conditions make it infeasible to install structural controls to prevent track-out (e.g., a linear operator conducting construction activities within a paved right-of-way or immediately adjacent and parallel to a paved right-of-way), the operator shall explain in the SWPPP why such controls cannot be installed; what alternative measures will be used to prevent sediment from being tracked-out or accumulated on paved areas; and what procedures will be used to ensure track-out is discovered and removed as soon as practicable.

The reasons for any departure from the use of standard ingress/ egress control measures to control track-out shall be documented in the SWPPP:

a. Explain why structural control measures cannot be installed;

b. Describe what alternative measures will be used to prevent sediment from being tracked-out or accumulated on paved areas; and

c. Describe what procedures will be used to ensure track-out is discovered and removed as soon as practicable.

4. The operator shall minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater. These requirements do not apply to those products, materials, or wastes that are not a source of stormwater contamination or that are designed to be exposed to stormwater.

   a. Pollution Prevention Measures. The operator shall implement pollution prevention procedures to prevent litter, construction debris, and construction chemicals exposed to stormwater from becoming a pollutant source for stormwater discharges. These procedures shall include storage practices to minimize exposure of the materials to stormwater, and spill prevention and response practices.

   b. Storage, Handling, and Disposal of Construction Products, Materials, and Wastes. The operator shall minimize the exposure to stormwater of any of the products, materials, or wastes specified below that are present at the site by complying with the requirements in this Part.

   c. The operator shall consider and implement the following control measures, as appropriate:

      i. For building products: In storage areas, provide either cover (e.g., plastic sheeting or temporary roofs) to prevent these products from coming into contact with rainwater, or implement a similarly effective means designed to prevent the discharge of pollutants from these areas.

      ii. For pesticides, herbicides, insecticides, fertilizers, and landscape materials:

         a. In storage areas, provide either cover (e.g., plastic sheeting or temporary roofs) to prevent these chemicals from coming into contact with rainwater, or implement a similarly effective means designed to prevent the discharge of pollutants from these areas; and

         b. Comply with all application and disposal requirements included on the registered pesticide, herbicide, insecticide, and fertilizer label.

      iii. For diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals:

         a. To comply with the prohibition in Part 1.4(3), store chemicals in water-tight containers, and provide either cover (e.g., plastic sheeting or temporary roofs) to prevent these containers from coming into contact with rainwater, or implement a similarly effective means designed to prevent the discharge of pollutants from these areas (e.g., spill kits), or provide secondary containment (e.g., spill berms, decks, spill containment pallets); and

         b. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.

      iv. For hazardous or toxic waste:

         a. Separate hazardous or toxic waste from construction and domestic waste;

b. Store in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, tribal, or local requirements;

c. Store all containers that will be stored outside within appropriately-sized secondary containment (e.g., spill berms, decks, spill containment pallets) to prevent spills from being discharged, or provide a similarly effective means designed to prevent the discharge of pollutants from these areas (e.g., storing chemicals in covered area or having a spill kit available on-site);

d. Dispose of hazardous or toxic waste in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, tribal, and local requirements; and

e. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.

v. For construction and domestic waste: Provide waste containers (e.g., dumpster or trash receptacle with covers/ lids) of sufficient size and number to contain construction and domestic wastes. In addition:

a. On work days, clean up and dispose of waste in designated waste containers; and

b. Clean up immediately if containers overflow.

vi. For sanitary waste: Position portable toilets outside of washes or other surface waters, or stormwater conveyances, such as curb and gutter systems, or streets. Ensure that they are secured and will not be tipped over using stakes or tie downs or other similar control measures.

5. Spill Prevention and Response Procedures. Operators are prohibited from discharging toxic or hazardous substances from a spill or other release, consistent with Part 1.4. The operator shall minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for timely and effective clean-up of spills if or when they occur by implementing measures such as:

a. Procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides," etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;

b. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling;

c. Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause or detect a spill or leak should be knowledgeable in the proper reporting procedures established by their facility. Employees who are responsible for spill response and/or cleanup, must be properly trained and have necessary spill response equipment available; and

d. Procedures for notification of appropriate facility personnel and emergency response. Where a leak, spill, or other release occurs that contains a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, the operator shall immediately notify ADEQ Emergency Response Duty Office at

(602) 771-2330, or toll free at (800) 234-5677. Contact information must be in locations that are readily accessible and available. Within 7 calendar days of knowledge of the release, operators shall provide a description in the SWPPP of: the release; the circumstances leading to the release; and the date of the release. Local requirements may necessitate additional reporting of spills or discharges to local emergency response, public health, or drinking water supply agencies.

6. Fertilizer Discharge Restrictions.

Operators are required to minimize discharges of fertilizers containing nitrogen or phosphorus by applying these products consistent with manufacturer's specifications.

3.6 Controls for Allowable Non-Stormwater Discharges and Dewatering Activities.

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. Appropriate controls include, but may not be limited to sediment basins or traps; dewatering tanks; tube settlers; weir tanks; or filtration systems (e.g., bag or sand filters) that are designed to remove sediment; chemical treatment; or transportation offsite for disposal.

1. The operator shall ensure all water from dewatering or basin draining activities is discharged in a manner that does not cause nuisance conditions including erosion and / or sedimentation in receiving channels or on surrounding properties.

2. The operator shall retain superchlorinated wastewaters (i.e., containing chlorine above residual levels acceptable in drinking water systems) on-site until the chlorine dissipates, or shall otherwise effectively dechlorinate the water to concentrations that meet surface water quality standards of the surface water prior to discharge.

3.7 Surface Outlets.

When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

3.8 Surface Water Quality Standards.

1. Surface Water Quality Standards.

The operator shall control discharges from the site as necessary to not cause or contribute to an exceedance of an applicable surface water quality standard (SWQS).

ADEQ expects that compliance with conditions in this permit will control discharges as necessary to not cause or contribute to an exceedance of an applicable surface water quality standard (A.A.C. Title 18, Chapter 11, Article 1). However, if at any time the operator becomes aware, or ADEQ determines, that the construction site's discharge causes or contributes to an exceedance of an applicable surface water quality standard, the operator shall take corrective action as required in Part 5.1, document the corrective actions as required in Parts 5.3 and 6.4, and report the corrective actions to ADEQ as required in Part 8.1.

Additionally, ADEQ may impose additional surface water quality-based requirements on a site-specific basis, or require the operator to obtain coverage under an individual permit in accordance with Part 1.2, if information in the NOI, required reports, or from other sources indicates that additional controls are necessary to not cause or contribute to an exceedance of an applicable surface water quality standard.

2. Discharge Limitations for Impaired or Not-attaining Waters and OAWs.

Operators of construction sites that have one or more outfalls that are located within 1/4 mile upstream of an impaired or not-attaining water or OAW are required to comply with the following requirements, which supplement the requirements applicable to the site in other corresponding parts of this permit:

a. Frequency of Site Inspections. The operator shall conduct inspections at the frequency specified in Part 4.2(3).

b. Deadline to Complete Stabilization. The operator shall comply with the deadlines for completing site stabilization as specified in Part 3.4(1)(c).

c. Sampling and Analysis Plan. The operator shall prepare and submit a sampling and analysis plan as outlined in Part 7.2.

If the discharge is to an impaired or not-attaining water, ADEQ may notify the operator that additional limits or controls are necessary to not cause or contribute an exceedance of applicable surface water quality standards, any applicable waste load allocation (WLA), to prevent the site from contributing to an impairment, or if coverage under an individual permit is necessary in accordance with Appendix B, Subsection 17.

If during coverage under a previous permit, the operator was required to install and maintain control measures specifically to meet the assumptions and requirements of an USEPA approved or established TMDL (for any parameter) or to otherwise control a discharge to not cause or contribute an exceedance of applicable surface water quality standards, the operator shall continue to implement such controls as part of this permit.

4.0 INSPECTIONS

4.1 Inspector Qualifications.

The operator shall provide qualified personnel (as defined in Appendix A) to perform inspections according to the selected inspection schedule identified in the SWPPP. The operator shall conduct inspections of the site in accordance with Parts 4.2 through 4.5 of this permit.

4.2 Inspection Schedule.

At a minimum, the operator shall conduct a site inspection in accordance with one of the schedules listed below. The operator shall document in the SWPPP which schedule is being used and, when necessary, the location of the rain gauge or weather station used to obtain rainfall information. The Department encourages adding inspections before and/or during predicted storm events and "spot" inspections to ensure control measures will be effective in managing stormwater runoff and associated pollutants.

1. Routine Inspection Schedule. The operator shall ensure inspections are performed at the site as indicated below to ensure control measures are functional and that the SWPPP is being properly implemented. To determine the amount of rainfall from a storm event that occurs on the site (in accordance with options b. or c.), the operator shall obtain rainfall information (in accordance with Part 4.4(3)) from either a properly maintained rain gauge on the site, or a weather station that is representative of the site's location. For any day of rainfall during normal business hours that measures 0.25 inch or greater, the total rainfall measured for that day shall be recorded in accordance with Part 4.4(3).

    a. The site will be inspected a minimum of once within 7 calendar days, but not within 5 calendar days of the previous inspection; or

    b. The site will be inspected a minimum of once within 14 calendar days, but not within 10 calendar days of the previous inspection, and within 24 hours of the occurrence of each storm event of 0.5 inch or greater in 24 hours; or

    c. The site will be inspected a minimum of once per month, but not within 14calendar days of the previous inspection and within 24 hours of the occurrence of a storm event of 0.25 inch or greater.

    Note: Within 24 hours of the occurrence of a "storm event" means that you must conduct an inspection within 24 hours once a storm event has produced 0.5 inches of precipitation within a 24-hour period, even if the storm event is still continuing. Thus, if you have elected to inspect in accordance with (b) above, and there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.5 inches or more of rain, you must conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.

2. Reduced Inspection Schedule. The operator may reduce inspections if the entire site has been temporarily stabilized, discharges are unlikely based on seasonal rainfall patterns, or runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or frozen ground exists). With a reduced inspection schedule, the site shall be inspected at least once per month (but not within 14 calendar days of the previous inspection) and before an anticipated storm event and within 24 hours of each storm event of 0.5 inch or greater in 24 hours.

3. Inspection Schedule for Sites with Outfalls within 1/4 mile Upstream of Impaired or Not-Attaining Waters or OAWs. If any portion of the construction site has one or more outfalls within 1/4 mile upstream of an impaired or not-attaining water or OAW, the operator shall inspect the site at least once every 7-calendar days. The operator may reduce

inspections to the schedule specified in Part 4.2(2) for those areas of the construction site that have undergone temporary or final stabilization.

4. Inspection Schedule for Inactive and Unstaffed Sites. A site is inactive and unstaffed that will have an anticipated period of no construction activity for at least six consecutive months. Inactive and unstaffed sites that have one or more outfalls within 1/4 mile upstream of an impaired or not-attaining water or OAW are not eligible for this reduced inspection frequency unless they have undergone temporary stabilization. Operator's responsibilities include:

   a. Immediately before becoming inactive and unstaffed, the operator shall perform an inspection in accordance with Part 4.3. All control measures must be in operational condition in accordance with Part 3.2 prior to becoming inactive and unstaffed;

   b. During the time the site is inactive and unstaffed, the operator shall perform an inspection at least once every six months and within 24 hours of each storm event of 0.5 inch or greater in 24 hours;

   c. Non-storm event inspections must be at least three months apart;

   d. All control measures must be maintained in operational condition;

   e. The site shall be secured, such as limited access, blocking or fencing;

   f. Maintain a statement in the SWPPP as required in Part 6.4(11) indicating that the construction site is inactive and unstaffed. The statement must be signed and certified in accordance with Appendix B, Subsection 9; and

   g. If circumstances change and the site becomes active and/or staffed, this exception no longer applies and the operator shall immediately resume the routine inspection schedule. ADEQ retains the authority to revoke this exception from routine inspections where it is determined that the discharge causes, has a reasonable potential to cause, or contribute to an exceedance of an applicable water quality standard, including designated uses.

5. Inspections are only required during the site's normal working hours. If an inspection day (except those required relative to a rainfall event) falls on a Saturday or holiday, the inspection may be conducted on the preceding workday. If the inspection day falls on a Sunday, the inspection may be conducted on the following Monday. If rainfall events occur on the weekend or holiday, an inspection relative to that event may be conducted the following workday.

6. Inspections are not required under Adverse Conditions. The operator is not required to inspect areas that, at the time of the inspection, are considered unsafe for inspection personnel. Inspections may be postponed when conditions such as local flooding, high winds, or electrical storms, or situations that otherwise make inspections unsafe. The inspection must resume as soon as conditions are safe.

4.3 Scope of Inspections.

At a minimum, the inspector shall examine each of the following, during each inspection:

1. All structural controls identified in the SWPPP to ensure they are in place and functioning as intended. Repair, replace, or maintain any controls as necessary in accordance with Part 3.2;

2. The effectiveness of non-structural controls and practices (such as good housekeeping practices and pollution prevention measures);

3. All areas of the site used for storage of materials that are exposed to precipitation;

4. All locations where new or modified control measures are necessary to meet the requirements of Part 3;
5. Locations where vehicles and equipment enter or exit the site for evidence of tracking sediment, debris, and other pollutants onto and off the site;
6. Site conditions for evidence of, or the potential for, pollutants entering the municipal separate storm sewer;
7. The presence of materials or conditions subject to the CGP that are not addressed in accordance with the SWPPP;
8. Inspect outfalls, to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to surface waters;
9. All locations where temporary stabilization measures have been implemented; and
10. When a discharge is occurring during an inspection, observe and note the physical characteristics (color, odor, clarity, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollutants). In addition, when there is no discharge, examine each outfall for evidence of erosion, sedimentation and other their sources.

4.4 Inspection Report Form.

For each inspection, the operator shall complete an inspection report either on a form provided on the ADEQ website or an equivalent form developed by the operator that documents all of the information required by this permit. The operator may supplement the inspection report form as necessary with additional information, forms or drawings. Within 7 calendar days of completing the inspection, the corresponding inspection report shall be placed with previous reports (in chronological order) and kept with the SWPPP. At a minimum, the report shall include:

1. The inspection date;
2. Name(s) and title(s) of qualified person(s) making the inspection
3. Identification of discharges of sediment or other pollutants from the site. Identify the outfall(s) and associated control measures on the site map(s), in accordance with Part 6.3(6);
4. For inspections occurring during or after a storm event:
    a. Best estimate of the beginning of each storm event;
    b. Duration of each event;
    c. Approximate amount of rainfall for each event (in inches);
    d. A description of the physical characteristics of the stormwater discharge (Part 4.3(10)) from the site, when present;
    e. Document the evidence of erosion, sedimentation and other pollutants; and
    f. Document the presence of control measures in all areas inspected and whether such controls are operating effectively.
5. Identification of control measures that need to be maintained, failed to operate as designed, or proved inadequate. Until removed from the site, identify the location(s) of these control measures on the site map(s), in accordance with Part 6.3(6);
6. Identification of what additional control measures are needed, if any, that did not exist at the time of the inspection. Identify the location(s) of these control measures on the site map(s), in accordance with Part 6.3(6);

7. Identification of all sources of non-stormwater discharges occurring at the site and associated control measures in place;

8. Identification of material storage areas and, evidence of or potential for, pollutant discharge from such areas;

9. Corrective actions required (in accordance with Part 5.3), including any necessary changes to the SWPPP, and implementation dates (of corrective actions and SWPPP changes); and

10. Identification of any other instances of non-compliance with the conditions of this permit that are not associated with Part 4.4(10), or where the inspector does not identify any incidents of non-compliance, the inspection report shall contain a certification that the construction activities or site is being operated in compliance with the SWPPP and this permit.

11. If the operator determines that certain area(s) of the site are unsafe to inspect, the Inspection Report shall document the unsafe condition(s) and specify the locations where the unsafe condition(s) exists.

4.5 Inspection Follow-up.

1. Control Measure Assessment. Based on the findings and observations of the inspection, the operator shall implement the changes necessary to comply with the conditions in Part 3 and revise the SWPPP as needed in accordance with Part 6.5. The changes shall be implemented in accordance with the schedule described in “General Maintenance Requirements” in Part 3.2.

2. Corrective Actions. Based on the scope of inspection conducted in accordance with Part 4.3, the operator shall determine and implement appropriate corrective actions, and meet the applicable deadlines pursuant toPart5.

5.0 CORRECTIVE ACTIONS.

5.1 Corrective Action Triggers.

Corrective actions are actions the operator takes in compliance with this Part to modify, or replace any control measure that failed to meet the conditions of Part 3. Routine maintenance or repairs do not constitute corrective actions. If any of the following conditions at the construction site occur resulting in or from a failure of a control measure, the operator shall implement new or modified control(s):

1. A necessary control measure was never installed, was installed incorrectly, or was not installed in accordance with the requirements in Part 3.2; or
2. A stormwater control needs to be repaired or replaced (beyond routine maintenance required under Part 3.2); or
3. One of the prohibited discharges in Part 1.4 is occurring or has occurred; or
4. ADEQ or USEPA determines that revisions to the control measures are necessary to meet the requirements of Part 3; or
5. A discharge is causing an exceedance of an applicable surface water quality standard.

On the same day a condition requiring corrective action is discovered, the operator shall take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational. However, if the problem is identified when it is too late in the work day to initiate a corrective action, the corrective action shall be initiated on the following work day, unless the condition poses imminent endangerment to human health or the environment, in which case the operator shall take immediate action.

5.2 Corrective Action Deadlines.

Any control measures or repairs required must be made operational, or completed, by no later than 7 calendar days from the time of discovery. If the operator cannot complete the necessary repairs or installation of controls within 7 calendar days, the SWPPP shall include the following:

1. The reason it is infeasible to complete the installation or repair within the 7 calendar day timeframe; and
2. The schedule for installing and making the control measure(s) operational as soon as practicable after the 7-day timeframe.

Any corrective actions that result in changes to any of the control measures or procedures shall be documented in the SWPPP within 7 calendar days of completing the corrective action work. The operator shall complete all corrective actions in accordance with the deadlines specified in this Part.

5.3 Corrective Action Report.

For each corrective action taken in accordance with this Part, the operator shall document the details of the corrective action in the inspection report required by Part 4.4. These reports shall be signed in accordance with the signatory requirements in Appendix B, Subsection 9 and maintained with the SWPPP in accordance with the record keeping requirements in Appendix B, Subsection 11.

1. Construction Sites with Outfalls Located within 1/4 Mile Upstream of an Impaired or Not-attaining Water or OAW. When any condition listed in Part 5.1 occurs, the operator of a construction site that has one or more outfalls located within 1/4 miles upstream of an impaired or not-attaining water or OAW (in accordance with Parts 1.5(3) or (4)) shall

submit a corrective action report to ADEQ, on or before 30 calendar days (from the date of the incident), in accordance with Part 8.1. The operator shall retain a copy of the inspection report documenting the corrective action(s) on-site with the SWPPP as required in Part 6.4.

2. Report Schedule. Within 7 calendar days of discovery of any condition listed in Part 5.1, the operator shall document and maintain with the SWPPP the following information:

   a. Summary of corrective action taken or to be taken;

   b. Whether SWPPP revisions are required as a result of this discovery or corrective action;

   c. Date corrective action initiated or will be initiated; and

   d. Date corrective action completed or expected to be completed.

6.0 STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARATION

6.1 General Information.

1. A site specific SWPPP shall be developed by a "qualified person" before the operator may submit the NOI for permit coverage, and before conducting any construction activity. Any SWPPP prepared for coverage under a previous version of this AZPDES construction general permit must be reviewed and updated by the operator to comply with this permit's requirements prior to submitting the NOI in accordance with Part 2.3.

   At least one SWPPP must be developed for each construction activity or site covered by this permit. A "joint" or "common" SWPPP may be developed and implemented as a cooperative effort where there is more than one operator at a site. All operators shall either implement their portion of a common SWPPP or develop and implement their own SWPPP.

2. The SWPPP shall be prepared and implemented in accordance with standard industry practices and shall:

   a. Identify all potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the construction site;

   b. Identify, describe, and ensure implementation of control measures that will be used to reduce pollutants in stormwater discharges from the construction site;

   c. Assure compliance with the terms and conditions of this permit; and

   d. Identify the responsible person for on-site SWPPP implementation.

3. All operator(s) shall sign and certify the SWPPP in accordance with the signatory requirements of Appendix B, Subsection 9.

4. The operator shall implement the SWPPP from initial commencement of construction activity until an NOT is submitted to ADEQ in accordance with Parts 2.5(1) or 2.6.

5. SWPPPs that do not meet all provisions of this permit are considered incomplete. Operating under an incomplete or inadequate SWPPP is a violation of the permit.

6. Emergency-Related Construction Activities. Operators conducting construction activities in response to an emergency (see Part 2.5), shall document the cause of the emergency (e.g., natural disaster, extreme flooding conditions, etc.), information substantiating its occurrence (e.g., state disaster declaration or similar state or local declaration), and describe the construction necessary to reestablish effected public services.

6.2 Types of Operators.

1. Operator Requirements. Either Part 6.1(2)(a) or (b), or both, will apply depending on the type of operational control a person exerts over the site. Part 6.1(2)(c) applies to all operators who have control over only a portion of a construction site.

   a. Operators with Operational Control over Construction Plans and Specifications shall ensure that:

      i. The SWPPP indicates the areas of the site where the operator has operational control over construction activity specifications, including the ability to make revisions in specifications;

      ii. All other operators implementing portions of the SWPPP impacted by any changes made to the SWPPP are notified of such revisions in a timely manner; and

iii. The SWPPP indicates the name(s) of the person(s) with day-to-day operational control of those activities necessary to ensure compliance with the SWPPP or other permit conditions.

b. Operators with Control over Day-to-Day Activities shall ensure that:

i. The SWPPP identifies the persons responsible for implementation of control measures identified in the SWPPP;

ii. The SWPPP indicates areas of the site where each operator has operational control over day-to-day activities; and

iii. The SWPPP indicates the name(s) of the person(s) with operational control over construction activity specifications (including the ability to make revisions in specifications).

c. Operators with Control over Only a Portion of a Larger Construction Site are responsible for compliance with the terms and conditions of this permit as it relates to the activities on the operator's portion of the construction site (including implementation of control measures required by the SWPPP). Operators shall ensure either directly or through coordination with other operators, that activities do not render another person's control measure(s) ineffective.

6.3 SWPPP Contents.

1. Stormwater Team. Each operator, or group of operators, must assemble a "stormwater team," which is responsible for overseeing the development of the SWPPP, any later revisions to it, and for compliance with the requirements in this permit. The SWPPP must identify the name, title and a description of the qualifications and a copy of any training certificates of team members, including inspector(s), as well as their individual responsibilities. Each member of the stormwater team must have ready access to an electronic or paper copy of applicable portions of this permit, the most updated copy of the SWPPP, and other relevant documents or information that must be kept with the SWPPP. The team may include members who are not employed by the operator (such as third party consultants).

2. Identification of Operators. The SWPPP shall identify all operators, including contact information, for the site and the areas and phases over which each operator has control.

3. Sequence and Estimated Dates of Construction Activities. The SWPPP must include a description of the intended sequence of construction activities, including a schedule of the estimated start dates and the duration of the activity, for the following activities:

a. Installation of control measures and when they will be made operational, including an explanation of the sequence and schedule for installation of the control measures;

b. Commencement and duration of construction activities, including clearing and grubbing, grading, site preparation (i.e., excavating, cutting and filling), underground utility installation, infrastructure installation, final grading, and creation of soil and vegetation stockpiles requiring stabilization;

c. Cessation, temporarily or permanently, of construction activities on the site, or in designated portions of the site including the beginning and ending dates of inactive/ unstaffed status, when applicable;

d. Final or temporary stabilization of areas of exposed soil. The dates for stabilization must reflect the applicable deadlines to which the operator is subject in Part 3.4(1); and

e. Removal of temporary stormwater conveyances, channels, and other control measures; removal of construction equipment and vehicles; and cessation of any pollutant-generating activities.

4. Site Description. The SWPPP shall describe the construction site, including:

   a. A description of the site and its intended use after the NOT is submitted to ADEQ (e.g. low density residential, shopping mall, highway, etc.);

   b. The total area of the site, and an estimate of the total area of the site expected to be disturbed by construction activities including off-site supporting activities, borrow and fill areas, staging and equipment storage areas;

   c. The percentage of the site that is impervious (e.g., paved, roofed, etc.) before and after construction;

   d. A description of the site's soils including potential for erosion;

   e. Areas where it is infeasible to maintain a 50 foot buffer in accordance with Part 3.3(7), describe which alternative was selected for the site, and comply with any additional requirements to provide documentation;

   f. On-site and Offsite Material Storage. The operator shall identify and describe all material storage areas (including overburden and stockpiles of dirt, borrow areas, etc.) used for the permitted site in the SWPPP unless those areas are covered by another AZPDES permit; and

   g. A general location map (e.g., USGS quadrangle map, a portion of a city or county map, or other map) – with enough detail to identify:

      i. The location of the construction site and one mile radius; and

      ii. The surface waters including tributaries within one mile radius of the site.

5. Site Map(s). The SWPPP shall contain a legible site map or series of maps completed to scale, showing the entire site that identifies:

   a. Topography of the site, existing types of cover (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of flow onto, over, and from the site property before and after major grading activities;

   b. Drainage divides and direction of stormwater flow for all drainage areas located within the site limits (i.e., use arrows to show which way stormwater will flow);

   c. Areas of soil disturbance and areas that will not be disturbed. Boundaries of the property and of the locations where construction activities will occur, including:

      i. Locations where construction activities will occur, noting any phasing of construction activities;

      ii. Locations where sediment or soil will be stockpiled;

      iii. Locations of any crossings of surface waters;

      iv. Designated points on the site where vehicles will exit onto paved roads; and

      v. Locations of construction support activity areas covered by this permit (see Part 1.3(1)(c)).

   d. Locations of temporary and permanent control measures identified in the SWPPP;

   e. Locations where stabilization control measures are expected to occur;

   f. Areas protected by buffers (i.e., either the 50-foot buffer or other buffer areas retained on-site when within 50 feet of a perennial water) consistent with Part 3.3(7). The site map must show the boundary line of all such buffers;

g. Locations of on-site material, waste, borrow areas, or equipment storage areas, and other supporting activities (per Part 1.3(1)(c));

h. Locations of all potential pollutant-generating activities identified in Part 6.3(9). Examples include, but are not limited to: the pollutant-generating activities listed in Part 3.5 (fueling and maintenance operations; concrete, paint, and stucco washout); waste disposal; solid waste storage and disposal; and dewatering operations (Part 3.6);

i. Locations of all surface waters and any impaired or not-attaining waters or OAWs within 1/4 mile of the construction site. If none exist on-site, the SWPPP shall indicate so;

j. Stormwater outfall(s), using arrows to indicate discharge direction. Include the following:

   i. Location(s) where stormwater and/or allowable non-stormwater discharges are discharged to surface waters (in accordance with Part 1.3); and

   ii. Location(s) of any discharges to municipal separate storm sewer systems (MS4s) from the construction site.

k. Locations and registration numbers of all on-site drywells and drywells on adjacent properties that may receive stormwater runoff from the site, if available. If none exist, the SWPPP shall indicate so;

l. Areas where final stabilization has been accomplished and no further construction permit requirements apply (if none, the SWPPP shall indicate so); and

m. Location and boundaries of buffer zones to be preserved.

6. Receiving Waters. The SWPPP shall identify the nearest surface water that may receive stormwater discharges, including ephemeral and intermittent streams, dry washes, and arroyos. If applicable, the SWPPP shall also identify and describe any wetlands near the site that could be disturbed or that could potentially receive discharges from disturbed areas of the site. Indicate if the receiving surface water is listed as impaired, not-attaining or an OAW.

7. Control Measures to be used During Construction Activity. The SWPPP shall describe all control measures as required in Parts 3.3 through 3.7 that will be implemented and maintained as part of construction activities to control pollutants in discharges. For each control measure the SWPPP shall contain:

   a. A description of:

      i. The appropriate control measure, including measures to minimize or eliminate non-stormwater discharges;

      ii. The general sequence during the construction process or schedule of when the control measures will be implemented; and

      iii. Which operator is responsible for the implementation of control measures.

   b. Standard detail drawings and/or specifications for the structural control measures, including design or installation details, used on the site;

   c. Specific sediment controls that will be installed and made operational prior to conducting activities in any given portion of the site to meet the requirement of Parts 3.3 through 3.7;

   d. Documentation of controls for site egress points that are intended to minimize tracking of pollutants from vehicles leaving the site, consistent with Part 3.5(3).

8. Summary of Potential Pollutant Sources. The SWPPP shall identify the location and

description of any pollutant sources, including any non-stormwater discharges, associated with the construction activity, from:

- areas other than construction (i.e., support activities including stormwater discharges);
- dedicated asphalt or concrete plants; or
- other non-construction pollutant sources, such as fueling and maintenance operations, materials stored on-site, waste piles, equipment staging yards, etc.

The operator shall implement control measures in these areas to minimize pollutant discharges and shall detail these controls in the SWPPP.

If the construction site has one or more outfalls within 1/4 mile upstream of an impaired or not-attaining water, the SWPPP shall identify sources of the pollutants of concern listed on the 303(d) list that may potentially be discharged from the construction site and describe additional or enhanced control measures to minimize discharges of these pollutants.

9. Use of Treatment Chemicals. If polymers, flocculants, or other cationic treatment chemicals will be used at the site, the SWPPP shall include:

   a. A justification for the need for such chemicals and an assessment of potential water quality impacts;

   b. A description of the training specific personnel have or will receive on the use and storage of any cationic treatment chemicals and/or chemical treatment systems at the construction site;

   c. A listing of all treatment chemicals to be used at the site, a description of how the chemicals will be stored, and why the selection of these chemicals is suited to the soil characteristics of the site;

   d. The dosage of all treatment chemicals that will be used at the site or the methodology that will be used to determine dosage;

   e. A copy of any applicable Safety Data Sheets (SDS);

   f. Schematic drawings of any chemically-enhanced controls or chemical treatment systems to be used for application of the treatment chemicals;

   g. Copies of applicable manufacturer's specifications regarding the use of specific treatment chemicals and/or chemical treatment systems and references to state or local requirements affecting the use of these chemicals.

10. Pollution Prevention Procedures.

   a. Spill Prevention and Response Procedures. The SWPPP must describe procedures to prevent and respond to spills, leaks, and other releases consistent with Part 3.5, including:

      i. Procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides," etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;

      ii. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling;

      iii. Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or position of the employee(s) responsible for detection and response of spills or leaks; and

iv. Procedures for notification of appropriate site personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 3.5(5) and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period. Contact information must be in locations that are readily accessible and available.

The operator may reference the existence of other plans, such as the Spill Prevention Control and Countermeasure (SPCC) plans developed for the construction activity under Part 311 of the CWA, or spill control programs otherwise required by an AZPDES permit for the construction activity, provided that a copy of that other plan is kept with the SWPPP on-site. If an SPCC or other spill prevention plan already exists, the operator may use such plans and incorporate them by reference in the SWPPP.

b. Waste Management Procedures. The SWPPP must describe procedures for handling and disposing all wastes generated at the site, including, but not limited to, clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste.

6.4 Documentation Requirements including Permit Related Records.

The operator shall keep the following inspection, monitoring, and certification records complete and up-to-date. Retaining these records with the SWPPP (unless otherwise specified below) is necessary to demonstrate compliance with the conditions of this permit.

1. A copy of this permit (an electronic copy easily available to SWPPP personnel is also acceptable);
2. A copy of the NOI submitted to ADEQ, including any correspondence exchanged between the operator and ADEQ specific to coverage under this permit;
3. A copy of the authorization certificate received from ADEQ;
4. Identification of any municipality that received a copy of the authorization certificate;
5. Copies of any other agreements (such as a CWA section 404 permit, local grading permit, etc.) with any state, local, or federal agencies that would affect the provisions or implementation of the SWPPP, if applicable;
6. Descriptions and dates of any incidences of spills, leaks, or other releases that resulted in discharges of pollutants in stormwater to a regulated MS4 or to surface waters the circumstances leading to the release and actions taken in response to the release and measures taken to prevent the recurrence of such releases (see Part 3.5(5));
7. Documentation of repairs of structural control measures, including the date(s) of discovery of areas in need of repair/replacement, date(s) that the structural control measure(s) returned to full function, and the justification for any extended repair schedules (see Part 3.2). The maintenance records shall include the date(s) of regular maintenance;
8. All inspection reports (see Part 4.4);
9. Description of any corrective action taken at the site, including triggering event and dates when problems were discovered and revisions occurred;
10. If the construction site's activities are located within 50 feet of a perennial water, the operator shall describe which alternative was selected for the site, and comply with any additional documentation requirements in Part 3.3(7).

11. Documentation to support the operator's claim that the construction activities have changed from active to inactive and unstaffed with respect to the requirements to conduct inspections (see Part 4.2(4));

12. A Sampling and Analysis Plan – For operators required to conduct analytical monitoring (Part 7.2), a Sampling and Analysis Plan (SAP) shall be implemented and kept with the SWPPP (as part of the SWPPP or as an appendix to the SWPPP).

13. Post-Construction Stormwater Management.

    a. The SWPPP shall include a description of post-construction stormwater management control measures that will be installed during the construction process to control pollutants in stormwater discharges after construction has been completed.

    b. If 'temporary' sediment basins are to be used as, or converted to retention basins in the post-construction phase, the operator shall remove and properly dispose of sediments accumulated in the basin, as necessary, to meet the original capacity, or the capacity that is specified in the post-construction specifications.

    c. New discharge connections or permanent stormwater outfalls directly to OAWs are prohibited under this permit.

    This permit only authorizes and requires the operator to install and maintain stormwater control measures up to and including final stabilization of the site, and does not require continued maintenance after stormwater discharges associated with the construction activity have been eliminated from the site and a NOT has been submitted to ADEQ. However, post-construction control measures that discharge pollutants from point sources once construction is complete may require authorization under a separate AZPDES permit. See Part 1.5(1).

6.5 SWPPP Updates and Revision Requirements.

1. Maintaining an Updated SWPPP.

   The SWPPP shall be revised as necessary during permit coverage to reflect current conditions and to maintain accuracy. The operator shall make any required amendments to the SWPPP within 7 calendar days whenever:

   a. There is a change in design, construction, operation, or maintenance at the construction site that may have a significant effect on the discharge of pollutants to the surface that has not been previously addressed in the SWPPP; or

   b. During inspections, monitoring if required, or investigations by the operator or by ADEQ or USEPA, it is determined that the discharges are causing or contributing to surface water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the construction site; or

   c. There is a change to the stormwater team.

2. Conditions Requiring SWPPP Revisions.

   The operator shall complete required revisions to the SWPPP within 7 calendar days following the occurrence of any of the conditions listed below. The operator shall modify the SWPPP, including the site map(s), in response to any of the following conditions:

   a. New operators become active in construction activities at the site, construction plans are changed (that will affect the quality of the discharge), control measures, pollution prevention measures, or other activities at the site are no longer

accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered under Part 5.1. Operators do not need to modify their SWPPPs if the estimated dates in Part 6.3(6) change during the course of construction;

b. Areas on the site map where operational control has been transferred (and the date of transfer) since initiating permit coverage;

c. If inspections or investigations by site staff, or by local, state, or federal officials determine that SWPPP revisions are necessary for compliance with this permit;

d. ADEQ determines it is necessary to impose additional requirements on the discharge (in accordance with Part 6.5.1), the following must be included in the SWPPP:

   i. A copy of any correspondence describing such requirements; and

   ii. A description of the control measures that will be used to meet such requirements.

e. To reflect any revisions to applicable federal, state, tribal, or local requirements that affect the control measures implemented at the site; and

f. If applicable, if a change in chemical treatment systems or chemically-enhanced control is made, including use of a different treatment chemical, different dosage rate, or different area of application.

g. SWPPP Revision Records. Operators are required to maintain records showing the dates of all SWPPP revisions. The records must include the name of the person authorizing each change (see Part 6.1(3)) and a brief summary of all changes.

3. Certification Requirements.

   All revisions made to the SWPPP consistent with Part 6.5(2) must be authorized by a person identified in Appendix B, Subsection 9.

4. Required Notice to Other Operators.

   When the operator determines that a revision to the SWPPP is required and there are multiple operators covered under a common SWPPP, any operators who may be impacted by the change to the SWPPP shall be notified at the address of record in the SWPPP.

6.6 Deficiencies in the SWPPP.

ADEQ may notify the operator at any time that the SWPPP does not meet one or more of the requirements of this permit. The notification shall identify the parts of this permit that are not being met and parts of the SWPPP that require revision to comply with the permit. Within 15 calendar days of receipt of the notification from ADEQ (or as otherwise provided by ADEQ), the operator shall make the required changes to the SWPPP and submit to ADEQ a written certification that the changes have been made. ADEQ may require re-submittal of the SWPPP to confirm all deficiencies have been adequately addressed.

In accordance with Appendix B, Subsection 1, ADEQ also is not precluded from taking enforcement action for any period of time the operator was operating under a SWPPP that did not meet the minimum requirements of this permit.

6.7 Posting, SWPPP Review and Making SWPPPs Available.

1. The operator must post the authorization number(s) in a conspicuous location near the main entrance of the construction site and retain a copy of the authorization certificate in the SWPPP. For linear construction activities, the authorization number(s) must be posted near the entrance where most of the construction activity is occurring.
2. The operator must post the following statement with the authorization number: "For stormwater complaints, please visit www.azdeq.gov." Lettering must be 2" or greater.
3. A copy of the SWPPP shall be on-site or at an easily accessible location, whenever construction or support activities are actively underway, and shall be available to ADEQ or any other federal, state or local authority having jurisdiction over the site at any reasonable time (generally Monday through Friday, 8:00 a.m. to 5:00 p.m.).
4. The SWPPP shall be made available to ADEQ or any other federal, state, tribal, or local authority having jurisdiction over stormwater discharges from the site at the time of an on-site inspection.
5. The operator shall provide a copy of the SWPPP to ADEQ upon request within 7 calendar days or at a time frame agreed upon with ADEQ.
6. Operators with sites that meet the requirements for inactive and unstaffed are not required to maintain the SWPPP on-site. However, the SWPPP must be locally available (i.e., in Arizona) and must be on-site when conducting the inspections required by Part 4. For the purpose of a regulatory inspection, the SWPPP shall be made available to ADEQ, USEPA, or other Federal, State or local authority having stormwater program authority, within 48 hours of request. If otherwise requested by ADEQ, the operator shall submit copies of these documents within 14 calendar days of request.

6.8 Procedures for Inspection, Maintenance, and Corrective Action.

The SWPPP must describe the procedures operators will follow for maintaining their control measures, conducting site inspections, and, where necessary, taking corrective actions, in accordance with Part 3.2, Part 4, and Part 5 of the permit. The following information must also be included in the SWPPP:

1. Personnel responsible for conducting inspections;
2. The inspection schedule that will be followed based on whether the site is subject to Part 4.2, and whether the site qualifies for any of the reduced inspection frequencies in Part 4.2(2) or 4.2(4). If conducting inspections in accordance with the inspection schedule in Part 4.2(3), document the weather information required in the inspection report;
3. If reducing the inspection frequency in accordance with Part 4.2(2) or 4.2(4), the beginning and ending dates of the reduced inspection period; and
4. Any inspection or maintenance checklists or other forms that will be used.
5. The operator shall ensure that all qualified personnel (see Appendix A) review the requirements of this permit. Qualified personnel are responsible for:
    a. The design, installation, maintenance, and/ or repair of control measures (including pollution prevention measures);
    b. The application and storage of treatment chemicals (if applicable);
    c. Conducting inspections as required in Part 4; and
    d. Taking corrective actions as required in Part 5.

7.0 STORMWATER MONITORING

The provisions of Part 7 apply only to construction sites with one or more outfalls within 1/4 mile upstream of an impaired, not-attaining or outstanding Arizona water (OAW), or as otherwise specified by ADEQ. Any portion of the construction site that extends within this distance is subject to the requirements of this Part, unless the operator provides a justification for not monitoring, consistent with Part 7.1. The monitoring plan, or justification, must be a part of the SWPPP and submitted to ADEQ for approval.

ADEQ may notify the operator, in writing, of additional discharge monitoring required to ensure protection of surface water if it is determined that a pollutant may be causing or contributing to an exceedance of a surface water quality standard.

7.1 Monitoring Program.

Operators of construction activities as described above in Part 7.0 shall prepare and implement a monitoring program that meets the requirements of this Part. Sites can be exempted from monitoring if the operator provides a demonstration acceptable to ADEQ that there is no potential for the discharge to reach the impaired, not-attaining or OAW, surface water.

Additionally, if the operator can demonstrate that there is no reasonable potential that construction activities will be an additional source of the specific pollutant for which the water is impaired, analytical monitoring for that parameter may not be required. As part of this demonstration, the operator must consider all on-site activities and pollutant sources, as well as any known pollutants (metals, nutrients, etc.) to be present in the on-site soils that will be disturbed.

7.2 Sampling and Analysis Plan (SAP).

The operator shall develop a written, site-specific, SAP for analytical monitoring of stormwater discharges, unless an acceptable rationale demonstrates that stormwater monitoring is not necessary, in accordance with Part 7.1. The SAP shall be a part of the SWPPP as either an appendix or separate SWPPP section. The SAP shall include:

1. Locations of monitoring sites;
2. The name(s) and title of the person(s) who will perform the monitoring;
3 A map showing the segments or portions of the surface water that are most likely to be impacted by the discharge of pollutant(s);
4. Water quality parameters and pollutants to be sampled;
5. The citation and description of the sampling protocols to be used;
6. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required. Method detection limits shall be below applicable surface water quality standards as technology allows.

7.3 Analytical Monitoring Requirements.

1. When to Sample. The operator shall conduct analytical monitoring a minimum of two times per wet season throughout the duration of permit coverage. Analytical monitoring

is only required when stormwater or snowmelt exits the construction site by way of an outfall in sufficient quantity to allow for sample collection and analysis.

For the purposes of analytical monitoring, wet seasons are defined as follows:

Summer wet season: June 1 – October 31
Winter wet season: November 1 – May 31

2. Adverse Conditions. The operator is not required to collect samples under adverse conditions, in accordance with Part 4.2(6). Information about any adverse conditions that prevented sampling shall be documented in the SWPPP.

3. Where to Sample.

The operator shall conduct analytical monitoring at outfalls observed or suspected to contain the greatest pollutant load resulting from construction activities, using Table 7-1 below:

Table 7-1. Minimum Number of Samples to Collect

Number of Outfalls	Number of Samples
1 to 4	All
5 to 19	5
20 or more	25% of total

4. What to Sample.

a. OAWs: All operators of construction sites with outfalls that are located within 1/4 mile upstream of an OAW shall monitor for turbidity, in Nephelometric Turbidity Units (NTU), both immediately upstream and downstream of each outfall. The operator shall compare turbidity values from the outfalls and if there is a 25% or more increase at the downstream outfall, the operator shall evaluate and replace, maintain, or install additional control measures as necessary to reduce sediment transport.

b. OAWs: the operator shall also sample for any pollutants for which the OAW is impaired.

c. Impaired or Not-attaining Waters: All operators with construction sites with outfalls that are located within 1/4 mile upstream of impaired or not-attaining waters shall monitor for the pollutant(s) for which the receiving water is impaired.

d. Lakes: If the surface water is a lake that is impaired or not-attaining, or an OAW, a site-specific proposal for sampling the impact area shall be submitted with the SAP.

5. How to Sample. The operator shall establish written procedures for sample collection, preservation, tracking, handling, and analyses. The approved SAP (in accordance with Parts 1.5(3) and 1.5(4)) shall be a part of the SWPPP, either as an appendix or a separate SWPPP section. The SAP shall include the following:

a. Sample Collection, Preservation, Tracking, Handling and Analyses:

i. Designate and train personnel to collect, maintain, and handle samples in accordance with the appropriate sample protocols.
ii. Identify water quality parameters/pollutants to be sampled including any pollutant(s) of concern in accordance with this Part;

iii. Identify the required sample analyses and associated analytical method (analytical laboratory and field analyses).

b. Written procedures for:

i. Sample collection (equipment and containers, calibration procedures, document site conditions during sampling, field notes and conditions under which the sample was taken);

ii. Preservation (sample preparation to meet holding times);

iii. Tracking (including chain-of-custody procedures); and

iv. Handling (packing, transporting and shipping procedures to maximize sample integrity).

c. Calibration and Maintenance of Equipment and Monitoring Methods.

All monitoring instruments and equipment (including operators' own field instruments for measuring pH and turbidity) shall be calibrated and maintained in accordance with manufacturers' recommendations. All laboratory analyses shall be conducted according to test procedures specified in 40 CFR Part 136, unless other test procedures have been specified in this general permit.

All samples collected for analytical monitoring shall be analyzed by a laboratory that is licensed by the Arizona Department of Health Service (ADHS) Office of Laboratory Licensure and Certification. This requirement does not apply to parameters that require analysis at the time of sample collection as long as the testing methods used are approved by ADHS or ADEQ. These parameters may include flow, dissolved oxygen, pH, temperature, and total residual chlorine. The operator may conduct field analysis of turbidity if the operator has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to properly perform the field analysis.

d. Discharge Monitoring Report. All operators subject to analytical monitoring shall submit the results on the electronic Discharge Monitoring Report (DMR) in myDEQ. The operator shall retain records of all stormwater monitoring information with the SWPPP.

The DMR shall be submitted within 30 days after receiving laboratory results. In the event no samples are collected during a wet season, the DMR indicating “no data” using the appropriate No Discharge Information (NODI) code(s) shall be submitted no later than:

Winter Wet Season: June 30
Summer Wet Season: November 30

or at the time the conditions in Part 2.6 have been met and an NOT is submitted in myDEQ, whichever is sooner.

8.0 RECORDKEEPING

8.1 Records.

1. Address for Submittal of All Forms and Reports. All documents required by this permit (NOIs, SWPPPs, NOTs, and DMRs) shall be submitted, in electronic format, in myDEQ. Any other written correspondence, such as Corrective Action Forms (see Part 5.3) shall be signed and dated in accordance with Appendix B, Subsection 9 of this permit and submitted to ADEQ at the address below:

   Arizona Department of Environmental Quality
   Surface Water Protection Unit
   1110 W. Washington Street
   Phoenix, AZ 85007

2. Record Retention. The operator shall retain records of all stormwater monitoring information, corrective actions, inspection and other reports with the SWPPP for a period of at least three years from the date the NOT was submitted to ADEQ.

APPENDIX A.

Definitions

24-hour Period – any consecutive 24-hours.

Anticipated Storm Event – any storm event with at least a 30% chance of precipitation as predicted by the National Weather Service for the area local to the construction site.

Approved Total Maximum Daily Loads (TMDLs) – Approved TMDLs are those that are developed by the Arizona Department of Environmental Quality and approved by USEPA. See also, Total Maximum Daily Load.

Arid Areas – the parts of Arizona that receive an average annual rainfall of 0 to 10 inches.

Borrow Areas – areas where materials are dug for use as fill, either on-site or off-site.

Calendar Day - means the period of 24 consecutive hours commencing at 12:01 a.m. and concluding at midnight.

Cationic Treatment Chemical – polymers, flocculants, or other chemicals that contain an overall positive charge. Among other things, they are used to reduce turbidity in stormwater discharges by chemically bonding to the overall negative charge of suspended silts and other soil materials and causing them to bind together and settle out. Common examples of cationic treatment chemicals are chitosan and cationic PAM.

Commencement of Construction Activities – the initial disturbance of soils or 'breaking ground' associated with clearing, grading, excavating, or stockpiling of fill material activities or other construction-related activities, such as the placement of fertilizers, pesticides, herbicides, detergents, fuels, oils, or other chemicals, or the occurrence of authorized non-stormwater washout activities, or dewatering activities have begun on the site.

Common Plan of Development or Sale – A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one common plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot.

Construction Activity – activities such as, clearing, grading, excavating, stockpiling of fill material and other similar activities. This definition encompasses both large construction activities defined in 40 CFR 122.26 (b)(14)(x), small construction activities in 40 CFR 122.26 (b)(15)(i), and includes construction support activities.

Construction Site or S**ite** – the land or water area where construction activities will occur, including construction support activities, and where control measures will be installed and maintained. The construction support activities may be located at a different part of the property from where the primary construction activity will take place, or on a different piece of property altogether. Construction activities are often located on a smaller lot or parcel within the construction site.

Construction Support Activity – a construction-related activity that exclusively supports the construction site and involves activities such as clearing, grading, excavating, and stockpiling of fill materials or pollutant-generating activities of its own, and can include activities associated with concrete or asphalt batch plants, equipment staging yards, materials storage areas, excavated material disposal areas, and borrow areas. These activities may or may not be contiguous with

the construction site, but the acreage of the support area should be included in the total site acreage amount. When the term "support activities" is used without clarification, it means "construction support activities".

Construction Waste – discarded materials, such as packaging materials, scrap construction materials, masonry products, timber, steel, pipe, and electrical cuttings, plastics, and Styrofoam.

Control Measure – refers to any practice or method (including effluent limitations) used to prevent or reduce the discharge of pollutants to surface waters.

Conveyance Channel – a temporary or permanent waterway designed and installed to safely convey stormwater flow within and out of a construction site.

Director – means the director of environmental quality or the director's designee.

Discharge – when used without qualification, any addition of any pollutant to surface waters or to a MS4 from any point source.

Discharge of a Pollutant – any addition of any "pollutant" or combination of pollutants to surface waters from any "point source," or any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This includes additions of pollutants into surface waters from surface runoff which is collected or channeled by man. See 40 CFR 122.2.

Domestic Waste – typical household trash, garbage or rubbish items generated by construction activities.

Drought-Stricken Area – for the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely:

1. Drought to persist or intensify
2. Drought ongoing, some improvement
3. Drought likely to improve, impacts ease
4. Drought development likely

Effective Operating Condition – a control measure is kept in effective operating condition if it has been implemented and maintained in such a manner that it is working as designed to minimize pollutant discharges.

Effluent Limitations – any of the Part 3 requirements.

Emergency-related Construction Activity – an activity initiated in response to an emergency (e.g., natural disaster, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.

Ephemeral water – a surface water that has a channel that is at all times above the water table, and that flows only in direct response to precipitation. [A.A.C. R18-11-101(22)]

Erosion Control – temporary or permanent measures to prevent soil particles from detaching and being transported in stormwater.

Hazardous Materials, Substances, or **Hazardous or Toxic Waste** – any liquid, solid, or contained gas that contain properties that are dangerous or potentially harmful to human health or the environment. Examples include paints, caulks, sealants, fluorescent light ballasts,

solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids. See also 40 CFR 261.2.

Impaired Waters – waters that have been assessed by ADEQ under the Clean Water Act, as not attaining a water quality standard for at least one designated use, and are listed in Arizona's current 303(d) List or on the 305(b) Category 4 list.

Infeasible – for the purpose of this permit, infeasible means not technologically possible or not economically practicable and achievable in light of best industry practices.

Intermittent waters – streams or reaches that flow continuously only at certain times of the year, as when it receives water from a spring or from another surface source, such as melting snow. [A.A.C. R18-11-101(25)]

Linear Construction Activities – includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

Minimize – to reduce and/or eliminate to the extent achievable, using control measures that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are:

a. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the Clean Water Act (33 U.S.C. 1288) that discharges to surface waters;
b. Designed or used for collecting or conveying stormwater;
c. Which is not a combined sewer; and
d. Which is not part of a Publicly Owned Treatment Works.

Municipal Separate Storm Sewer System (MS4) – all separate storm sewers, defined as "large," "medium," or "small" municipal separate storm sewer systems; or any municipal separate storm sewers on a system-wide or jurisdiction-wide basis as determined by the Director under A.A.C. R18-9-C902(A)(1)(g)(i) through (iv). [A.A.C. R18-9-A901(23)]. This also includes similar systems owned or operated by separate storm sewer municipal jurisdictions not required to obtain stormwater discharge authorization.

myDEQ – ADEQ's e-Permitting/e-Compliance Portal that offers the "Regulated Community" a digital solution to better assist them in meeting their environmental priorities and responsibilities with an easy online tool, available 24/7 to meet business needs.

Natural Buffer – for the purposes of this permit, an area of undisturbed natural cover surrounding surface waters within which construction activities are restricted. Natural cover includes the vegetation, exposed rock, or barren ground that exists prior to commencement of construction activities.

Natural Vegetation – vegetation that occurs spontaneously without regular management, maintenance, or species introductions or removals, and that generally has a strong component of native species.

Not-Attaining Water – [R18-11-601(11)] a surface water that is assessed as impaired, but is not placed on the 303(d) List because a TMDL is prepared and implemented for the surface water; or

an action which meets the requirements of R18-11-604(D)(2)(h) is occurring and is expected to bring the surface water to "attaining" before the next 303(d) List submission; or the impairment of the surface water is due to pollution but not a pollutant, for which a TMDL load allocation cannot be developed.

Notice of Intent (NOI) – the form (electronic) required for authorization of coverage under the Construction General Permit.

Notice of Termination (NOT) – the form (electronic) required for terminating coverage under the Construction General Permit.

Outfall – a "*point source"* as defined by 40 CFR 122.2 at the point where construction site stormwater discharges to surface waters or to a Municipal Separate Storm Sewer.

Outstanding Arizona Water (OAW) – a surface water that has been designated by ADEQ as an outstanding state resource under A.A.C. R18-11-112.

Perennial Water – a surface water that flows continuously throughout the year (A.A.C. R18-11-101(30)).

Permittee - for the purposes of this permit**,** a person who is given authorization to discharge stormwater from construction activities.

Person – an individual, employee, officer, managing body, trust, firm, joint stock company, consortium, public or private corporation, including a government corporation, partnership, association or state, a political subdivision of this state, a commission, the United States government or any federal facility, interstate body or other entity. [A.R.S. § 49-201(27)]

Point Source – as defined in 40 CFR 122.2, as any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant – sediment, fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substances and chemicals, pesticides, herbicides, fertilizers and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt (e.g., overburden material), and mining, industrial, municipal and agricultural wastes or any other liquid, solid, gaseous or hazardous substances. [A.R.S. § 49-201(29)]

Pollutant-generating Activities – at construction sites, those activities that lead to the discharge of pollutants, either as a result of construction activity or construction support activity. Types of pollutants that are typically associated with construction sites include, but are not limited to:

a. Sediment;
b. Nutrients;
c. Heavy metals;
d. Pesticides and herbicides;
e. Oil and grease;
f. Bacteria and viruses;
g. Trash, debris, and solids;
h. Treatment polymers; and
i. Any other toxic chemicals.

Pollution Prevention Measures – control measures designed to reduce or eliminate the addition of pollutants to construction site discharges through analysis of pollutant sources, implementation of proper handling/ disposal practices, employee education, and other actions.

Polymers – coagulants and flocculants used to control erosion on soil or to enhance the sediment removal capabilities of sediment traps or basins. Common construction site polymers include polyacrylamide (PAM), chitosan, alum, polyaluminum chloride, and gypsum.

Process Wastewater - any water which, during manufacturing or processing, comes into direct contact with or results from, the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Prohibited Discharges – discharges that are not allowed under this permit, including:

a. Wastewater from washout of concrete;
b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
c. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
d. Soaps or solvents used in vehicle and equipment washing; and
e. Toxic or hazardous substances from a spill or other release.

Qualified Person or **Qualified Personnel** – those (either the operator's employees or outside personnel) who are knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possess the skills and training to assess conditions at the construction site that could impact stormwater quality, and the skills and training to assess the effectiveness of any control measures selected to control the quality of stormwater discharges from the construction activity.

Received – for the purposes of this permit and in reference to NOIs, NOTs, Permit Waivers and SWPPPs, means the day the information was signed electronically in myDEQ and an Authorization to discharge was issued by myDEQ.

Receiving Water – a surface water as defined in A.A.C. R18-11-101(41) into which regulated stormwater discharges.

Reclaimed Water – water that has been treated or processed by a wastewater treatment plant or an on-site wastewater treatment facility. A.R.S. § 49-201(31).

Routine Maintenance – refers to any maintenance task that is done on a planned and ongoing basis to identify and prevent problems before they result in equipment failure.

Run-on – stormwater that drains from land located upslope or upstream from the regulated site in question.

Sediment Control – measures designed to intercept and settle out soil particles that have become detached and transported by water. Sediment control measures complement soil stabilization measures (erosion control).

Semi-Arid – the parts of Arizona that receive an annual rainfall of between 10 and 20 inches.

Site – see "construction site".

Small Residential Lot – for the purpose of this permit, a lot being developed for residential purposes that will disturb less than 1 acre of land, but is part of a larger residential project that will ultimately disturb greater than or equal to 1 acre.

Spill – the release of a hazardous or toxic substance from its container or containment (see Part 3.5(5)).

Stabilization – covering or maintaining an existing cover over soil that reduces and minimizes erosion. The use of vegetative and/or non-vegetative cover to prevent erosion and sediment loss in areas exposed through the construction process.

Steep Slope - where a state, tribe, local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 15 percent or greater in grade.

Storm Event – a precipitation event that results in an amount of precipitation 0.25" or greater.

Stormwater – stormwater runoff, snow melt runoff, and surface runoff and drainage. See 40 CFR 122.26(b)(13).

Stormwater Discharges Associated with Construction Activity – a discharge of pollutants in stormwater runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavating), construction materials, or equipment storage or maintenance (e.g., fill piles, borrow areas, concrete truck washout, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. See 40 CFR 122.26(b)(14)(x) and 40 CFR 122.26(b)(15).

Stormwater Pollution Prevention Plan (SWPPP) – a site-specific, written document that, among other things: (1) identifies potential sources of stormwater pollution at the construction site; (2) describes control measures to reduce or eliminate pollutants in stormwater discharges from the construction site; and (3) identifies procedures the operator will implement to comply with the terms and conditions of this general permit.

Stormwater Team – an individual or group of individuals responsible for oversight of the development and revisions of the SWPPP, and oversight of compliance with the permit requirements. The individual(s) on the "Stormwater Team" must be identified in the SWPPP.

Surface Water – a "Water of the United States" as defined in A.A.C. R18-11-101(41) and includes the following:

a. A water that is currently used, was used in the past, or may be susceptible to use in interstate or foreign commerce;
b. An interstate water, including an interstate wetland;
c. All other waters, such as an intrastate lake, reservoir, natural pond, river, stream (including an intermittent or ephemeral stream), creek, wash, draw, mudflat, sandflat, wetland, slough, backwater, prairie pothole, wet meadow, or playa lake, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such water:
    i. That is or could be used by interstate or foreign travelers for recreational or other purposes;
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. That is used or could be used for industrial purposes by industries in interstate or foreign commerce;
d. An impoundment of a surface water as defined by this definition;
e. A tributary of a surface water identified in subsections (41)(a) through (d); and
f. A wetland adjacent to a surface water identified in subsections (41)(a) through (e).

Surface Water Quality Standards (SWQS) –standards that define the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and USEPA adopt water quality standards to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (See CWA sections 101(a)(2) and 303(c)). SWQS also include an Antidegradation Policy.

Temporary Stabilization – a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other

techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

Topsoil – the uppermost layer of naturally occurring soil for a particular area, and is often rich in organic matter, biological activity, and nutrients.

Total Maximum Daily Load (TMDL) – an estimation of the total amount of a pollutant from all sources that may be added to a water, while still allowing the water to achieve and maintain applicable surface water quality standards. Each total maximum daily load shall include allocations for sources that contribute the pollutant to the water, as required by section 303(d) of the Clean Water Act (33 United States Code, Section 1313(d)) and regulations implementing that statute to achieve applicable surface water quality standards. [A.R.S. § 49-231(4)]

Toxic Waste – see "Hazardous Materials"

Turbidity – a condition of water quality characterized by the presence of suspended solids and/or organic material; expressed as Nephelometric Turbidity Units (NTU).

Upstream - The term upstream (or up river) refers to the direction towards the source of the river, against the direction of flow. Likewise, the term downriver (or downstream) describes the direction towards the mouth of the river, in which the current flows.

Vegetative Buffer Strips – small areas or strips of land of permanent vegetation, designed to intercept pollutants and manage other environmental concerns. Vegetative buffers include: riparian buffers, filter strips, grassed waterways, shelterbelts, windbreaks, living snow fences, contour grass strips, cross-wind trap strips, shallow water areas for wildlife, field borders, alley cropping, herbaceous wind barriers, and vegetative barriers.

Waste Load Allocation (WLA) – the maximum load of pollutants each discharger of waste is allowed to release into a particular waterway. Discharge limits are usually required for each specific water quality criterion being, or expected to be, violated. WLAs constitute a type of water quality-based effluent limitation. (See 40 C.F.R. § 130.2(h))

Wetland – an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland includes a swamp, marsh, bog, cienega, tinaja, and similar areas. [A.A.C. R18-11-101(49)]

Work Day – a calendar day on which construction activities will take place.

Acronyms

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
A.R.S.	Arizona Revised Statute
AZPDES	Arizona Pollutant Discharge Elimination System
CFR	Code of Federal Regulations
CWA	Clean Water Act
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOT	Notice of Termination
NTU	Nephelometric Turbidity Units
OAW	Outstanding Arizona Water
SAP	Sampling and Analysis Plan
SDS	Safety Data Sheet
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
SWQS	Surface Water Quality Standard
TMDL	Total Maximum Daily Load
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
WLA	Waste Load Allocation

APPENDIX B. STANDARD PERMIT CONDITIONS

Standard permit conditions in Appendix B are consistent with the general permit provisions required under 40 CFR 122.41 and A.A.C. R-18-9-A905(A)(3).

1. Duty to Comply. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(a)(1) and A.R.S. §§ 49-261, 262, 263.01, and 263.02.]

a. The operator shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act; A.R.S. Title 49, Chapter 2, Article 3.1; and A.A.C. Title 18, Chapter 9, Article 9, and is grounds for enforcement action, permit termination, revocation and reissuance, or revision, or denial of a permit renewal application.
b. The issuance of this permit does not waive any federal, state, county, or local regulations or permit requirements with which an operator discharging under this permit is required to comply.
c. The operator shall comply with any effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

2. Duty to Reapply / Continuation of the Expired General Permit. [A.A.C. R18-9-A905, which incorporates 40 CFR 122.41(b) and A.A.C. R18-9-C903]

a. Upon reissuance of the general permit, the operator shall file an electronic Notice of Intent (NOI) through myDEQ, within the timeframe specified in the new general permit, and shall obtain new written authorization to discharge from the Director.

a. If the Director does not reissue the general permit before the expiration date, the current general permit will be administratively continued and remain in force and effect until the general permit is reissued.
b. Any operator granted authorization to discharge under the general permit before the expiration date automatically remains covered by the continued general permit until the earlier of:
    i. Reissuance or replacement of the general permit, at which time the operator shall comply with the NOI conditions of the new general permit to maintain authorization to discharge; or
    ii. The date the operator has submitted an electronic Notice of Termination; or
    iii. The date the Director has issued an individual permit for the discharge; or
    iv. The date the Director has issued a formal permit decision not to reissue the general permit, at which time the operator shall seek coverage under an alternative general permit or an individual permit, or cease discharge.

3. Need To Halt or Reduce Activity Not a Defense. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(c)]

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

4. Duty to Mitigate. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(d)]

The operator shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment per A.R.S. § 49-255.01(E)(1)(d).

5. Proper Operation and Maintenance. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(e)]

The operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the operator to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

6. Permit Actions. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. Filing a request by the operator for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7. Property Rights. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(g)]

This permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or invasion of operatoral rights, nor any infringement of federal, state, Indian tribe, or local laws or regulations.

8. Duty to Provide Information. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(h)]

The operator shall furnish to ADEQ, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The operator shall also furnish to ADEQ upon request, copies of records required to be kept by this permit.

9. Signatory Requirements. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(k) and (l); A.A.C. R18-9-A905(A)(1)(c), which incorporates 40 CFR 122.22]

All Notices of Intent (NOI) and Notices of Termination (NOT) must be e-signed in the myDEQ online permitting system as follows:

a. NOIs:

i. For a corporation*:* By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other operator who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

ii. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

iii. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a

principal executive officer of a federal (or state) agency includes: (1) The chief executive officer (or director) of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

b. All NOTs, reports, including SWPPPs, inspection reports, monitoring reports, and other information required by this permit must be signed by an operator described in Appendix B, Subsection 9(a) above or by a duly authorized representative of that operator. An operator is a duly authorized representative only if:

   i. The authorization is made through myDEQ by an operator described in Subsection 9(a) above;

   ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the site, such as the position of manager, operator, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a named individual or any individual occupying a named position); and

   iii. The signed and dated authorization is included in the SWPPP. A copy must be submitted to ADEQ, upon request through myDEQ.

c. Certification. Any operator signing documents under the terms of this permit shall make the following certification:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the operator or operators who manage the system, or those operators directly responsible for gathering 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.

10. Inspection and Entry. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(i)]

The operator shall allow the Director or an authorized representative upon the presentation of credentials and such other documents as may be required by law to:

a. Enter upon the operator's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit;

b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this general permit;

c. Inspect at reasonable times any facility or equipment (including monitoring and control equipment), practices or operations regulated or required under this permit;

d. Sample or monitor at reasonable times any substances or parameters at any location, for the purposes of assuring permit compliance or as otherwise authorized by A.R.S. Title 49, Chapter 2, Article 3.1, and 18 A.A.C. 9, Articles 9.

11. Monitoring and Records. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(j)]

a. Representative Samples/Measurements. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the monitored activity.

b. Retention of Records. The operator shall retain records of all monitoring

information, including all calibration and maintenance records, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date permit coverage ends. Operators shall submit any such records to the Director upon request. The operator shall retain the SWPPP developed in accordance with Part 6 of this permit, for at least three (3) years after the last revision or amendment is made to the plan. The Director may extend this retention period upon request by notifying the operator in writing at any time prior to the end of the standard three year retention period.

c. Records Contents. Records of monitoring information must include:

i. The date, exact place, and time of sampling or measurements;

ii. The initials or name(s) of the individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The time(s) analyses were initiated;

v. The initials or name(s) of the individual(s) who performed the analyses;

vi. References and written procedures, when available, for the analytical techniques or methods used;

vii. The analytical techniques or methods used; and

viii. The results of such analyses.

d. Any operator who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained in this permit is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4, which includes the possibility of fines and/or imprisonment.

12. Reporting Requirements. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(l)]

a. Planned changes. The operator shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted site. Notice is required only when:

i. The alteration or addition to a permitted site may meet one of the criteria for determining whether a site is a new source in 40 CFR 122.29(b) (incorporated by reference at A.A.C. R18-9-A905(A)(1)(e)); or

ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1) (incorporated by reference at A.A.C. R18-9-A905(A)(3)(b)).

b. Monitoring reports. Monitoring results must be reported at the intervals specified elsewhere in this permit.

i. Monitoring results must be reported on a Discharge Monitoring Report (DMR) provided online by ADEQ. Pursuant to Section 7.4, all monitoring data collected pursuant to Part 7 must be submitted electronically to the Department using the e-Discharge Monitoring Report (e-DMR) form, available at www.azdeq.gov/mydeq.

ii. If the operator monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the e-DMR (if available), or submitted as a separate

report.

iii. Calculations for all limitations which require averaging of measurements must use an arithmetic mean and non-detected results must be incorporated in calculations as the limit of quantitation for the analysis.

c. Anticipated noncompliance. The operator shall give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

d. Twenty-four hour reporting.

i. The operator shall report to ADEQ any noncompliance with this permit which may endanger human health or the environment. The operator shall orally notify the office listed below within 24 hours:

Arizona Department of Environmental Quality – Surface Water Protection
1110 W. Washington Street, Phoenix, AZ 85007
602-771 – 2330

ii. A written submission shall also be provided to the office identified above within five (5) days of the time the operator becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

iii. The following shall be included as information which must be reported within 24 hours under this paragraph.

1) Any upset which exceeds any effluent limitation in the permit.

2) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. (See 40 CFR 122.44(g) which is incorporated by reference at A.A.C. R18-9-A905(A)(3)(d)).

iv. ADEQ may waive the written report on a case-by-case basis for reports under this subsection if the oral report has been received within 24 hours.

e. Other noncompliance. The operator shall report all instances of noncompliance not otherwise required to be reported under this subsection, at the time monitoring reports are submitted. The reports shall contain the information listed in subsection 12(d).

f. Other information. When the operator becomes aware that it failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Department, the operator shall promptly submit the facts or information to ADEQ in myDEQ.

13. Reopener Clause. [A.A.C. R18-9-A905(A)(3)(d), which incorporates 40 CFR 122.44(c)]

The Department may elect to modify the permit prior to its expiration (rather than waiting for the new permit cycle) to comply with any new statutory or regulatory requirements, such as for effluent limitation guidelines, which may be promulgated in the course of the current permit cycle.

14. Other Environmental Laws.

No condition of this general permit releases the operator from any responsibility or requirements under other environmental statutes or regulations. For example, this permit does not authorize the taking of endangered or threatened species as prohibited by

Section 9 of the Endangered Species Act, 16 U.S.C. 1538. Information regarding the location of endangered and threatened species and guidance on what activities constitute a taking are available from the U.S. Fish and Wildlife Service. The operator shall also comply with applicable State and Federal laws, including Spill Prevention Control and Countermeasures (SPCC).

15. State or Tribal Law. [Pursuant to A.A.C. R18-9-A904(C)]

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State or Tribal law or regulation under authority preserved by Section 510 of the Clean Water Act.

16. Severability.

The provisions of this general permit are severable, and if any provision of this general permit, or the application of any provision of this general permit to any circumstance, is held invalid, the application of the provision to other circumstances, and the remainder of this general permit shall not be affected.

17. Requiring Coverage under an Individual Permit or an Alternative General Permit. [Pursuant to A.A.C. R18-9-C902 and R18-9-A909]

a. The Director may require an operator authorized by this permit to apply for and/or obtain either an individual AZPDES permit or an alternative AZPDES general permit. Any interested operator may petition the Department to take action under this section. The Department may require an operator authorized to discharge under this permit to apply for an individual permit in any of the following cases:

   i. A change occurs in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;

   ii. Effluent limitation guidelines are promulgated for point sources covered by the general permit;

   iii. An Arizona Water Quality Management Plan containing requirements applicable to the point sources is approved;

   iv. Circumstances change after the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary;

   v. If the Director determines that the discharge is a significant contributor of pollutants. When making this determination, the Director shall consider:

      1) The location of the discharge with respect to surface waters

      2) The size of the discharge,

      3) The quantity and nature of the pollutants discharged to surface waters, and

      4) Any other relevant factors.

b. If an individual permit is required, the Director shall notify the discharger in writing of the decision. The notice shall include:

   i. A brief statement of the reasons for the decision;

   ii. An application form;

   iii. A statement setting a deadline to file the application;

   iv. A statement that on the effective date of issuance or denial of the individual permit, coverage under the general permit will automatically terminate;

v. The operator's right to appeal the individual permit requirement with the Water Quality Appeals Board under A.R.S. § 49-323, the number of days the operator has to file a protest challenging the individual permit requirement, and the name and telephone number of the Department contact operator who can answer questions regarding the appeals process; and

vi. The operator's right to request an informal settlement conference under A.R.S. 41-1092.03(A) and 41-1092.06.

c. The discharger shall apply for an individual permit within 90 days of receipt of the notice, unless the Director grants a later date. In no case shall the deadline be more than 180 days after the date of the notice.

d. If the discharger fails to submit the individual permit application within the time period established in Appendix B, Subsection 17(c) the applicability of the general permit to the discharger is automatically terminated at the end of the day specified by the Director for application submittal.

e. Coverage under the general permit shall continue until an individual permit is issued or denied unless the general permit coverage is terminated under Appendix B, Subsection 17(d).

18. Request for an Individual Permit. [Pursuant to A.A.C. R18-9-C902]

a. An operator may request an exclusion from coverage of a general permit by applying for an individual permit.

i. The operator shall submit an individual permit application under R18-9-B901(B) and include the reasons supporting the request no later than 90 days after publication of the general permit.

ii. The Director shall grant the request if the reasons cited by the operator are adequate to support the request.

b. If an individual permit is issued to an operator otherwise subject to a general permit, the applicability of the general permit to the discharge is automatically terminated on the effective date of the individual permit.

19. Change of Operator. [A.A.C. R18-9-C904]

If a change of ownership or operator occurs for a facility operating under a general permit:

a. Permitted owner or operator. The operator shall submit an electronic Notice of Termination within 30 days after the new owner or operator assumes responsibility for the site.

i. The e-Notice of Termination shall include all requirements for termination specified in the general permit for which the e-Notice of Termination is submitted.

ii. An operator shall comply with the permit conditions specified in the general permit for which the e-Notice of Termination is submitted until the e-Notice of Termination is submitted to the Department.

b. New owner or operator.

i. The new owner or operator shall submit an e-Notice of Intent to the Department within the time period specified in the general permit before taking over operational control of, or initiation of activities at, the site.

ii. If the previous permittee was required to implement a stormwater pollution prevention plan, the new owner shall develop a new stormwater pollution prevention plan, or may modify, certify, and implement the old stormwater

pollution prevention plan if the old stormwater pollution prevention plan complies with the requirements of the current general permit.

iii. The operator shall submit an e-Notice of Termination to the Department when:

1) The site ceases construction operations and the discharge is no longer associated with construction or construction-related activities,

2) The construction is complete and final site stabilization is achieved, or

3) The operator's status changes.

20. Bypass. [A.A.C. R18-9-A905(A)(3)(a), which incorporates 40 CFR 122.41(m)]

a. Definitions.

i. Bypass means the intentional diversion of waste streams from any portion of a treatment facility

ii. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations. The operator may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions Appendix B, Subsections 20(c) and 20(d).

c. Notice.

i. Anticipated bypass. If the operator knows in advance of the need for a bypass, if possible prior notice shall be submitted at least ten days before the date of the bypass.

ii. Unanticipated bypass. The operator shall submit notice of an unanticipated bypass as required in Appendix B, Subsection 12(d).

d. Prohibition of bypass.

i. Bypass is prohibited, and ADEQ may take enforcement action against the operator for bypass, unless:

1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable industry judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

3) The operator submitted notices as required under Appendix B, Subsection 20(c).

ii. ADEQ may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in this Appendix B, Subsection 20(d).

21. Upset. [A.R.S. §§ 49-255(8) and 255.01(E), A.A.C. R18-9-A905(A)(3)(a), which

incorporates 40 CFR 122.41(n)]

a. Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the operator. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Appendix B, Subsection 21(c) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. An operator who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   i. An upset occurred and that the operator can identify the cause(s) of the upset;

   ii. The permitted facility was at the time being properly operated;

   iii. The operator submitted notice of the upset as required in Appendix B, Subsection 12(d)(iii); and

   iv. The operator complied with any remedial measures required under Appendix B, Subsection 4.

d. Burden of proof. In any enforcement proceeding, the operator, who is seeking to establish the occurrence of an upset, has the burden of proof.

22. Penalties for Violations of Permit Conditions.

Any permit noncompliance constitutes a violation and is grounds for an enforcement action, permit termination, revocation and reissuance, revision, or denial of a permit renewal application.

a. Civil Penalties. A.R.S. § 49-262 provides that any operator who violates any provision of A.R.S. Title 49, Chapter 2, Article 2, 3 or 3.1 or a rule, permit, discharge limitation or order issued or adopted under A.R.S. Title 49, Chapter 2, Article 3.1 is subject to a civil penalty not to exceed $25,000 per day per violation.

b. Criminal Penalties. Any operator who violates a condition of this general permit, or violates a provision under A.R.S. Title 49, Chapter 2, Article 3.1, or A.A.C. Title 18, Chapter 2, Article 9 is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4, which may include the possibility of fines and/or imprisonment.

Appendix D – NOI Application Form, Authorization Letter

Note: This process is completed online through myDEQ at https://www.azdeq.gov/mydeq.

A separate Notice of Intent (NOI) must be filed with the Arizona Department of Environmental Quality (ADEQ) for each Operator for this project. ADEQ defines an Operator in the Arizona Pollution Discharge Elimination System General Permit, Part 2.1. as:

2.1.1 **All Operators.** All operators are required to obtain coverage for stormwater discharges associated with construction activity under this permit. For the purposes of this permit, an "operator" is any person associated with a construction project that meets either of the following two criteria:

1. The person has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
2. The person has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the permit).

Subcontractors generally are not considered operators for the purposes of this permit.

2.1.2 **Multiple Operators.** Where there are multiple operators associated with the same project, all operators are required to obtain permit coverage. The following applies in these situations:

1. If one operator has control over plans and specifications and a different operator has control over activities at the project site, they may divide responsibility for compliance with the terms of this permit as long as they jointly develop a common SWPPP (see Part 6.1(1)), which documents which operator has responsibility for each requirement of the permit.
2. If an operator only has operational control over a portion of a larger project (e.g., one of four homebuilders in a subdivision), the operator is responsible for compliance with applicable effluent limits (see Part 3), terms, and conditions of this permit as it relates to their activities on their portion of the construction site and implementation of control measures described in the SWPPP in the areas under their control.
3. Operators must ensure either directly or through coordination with other operators, that their activities do not render another person's pollutant discharge controls ineffective.
4. If the operator of a construction support activity (see Part 1.3(1)(c)) is different than the operator of the main construction site, that operator is also required to obtain permit coverage.

Operator Requirements. Either Part 6.1(2)(a) or (b), or both, will apply depending on the type of operational control a person exerts over the site. Part 6.1(2)(c) applies to all operators who have control over only a portion of a construction site.

a. Operators with Operational Control over Construction Plans and Specifications shall ensure that:

i. The SWPPP indicates the areas of the project where the operator has operational control over project specifications, including the ability to make modifications in specifications;
ii. All other operators implementing portions of the SWPPP impacted by any changes made to the SWPPP are notified of such modifications in a timely manner; and
iii. The SWPPP indicates the name(s) of the person(s) with day-to-day operational control of those activities necessary to ensure compliance with the SWPPP or other permit conditions.

b. Operators with Control over Day-to-Day Activities shall ensure that:

i. The SWPPP identifies the persons responsible for implementation of control measures identified in the SWPPP;
ii. The SWPPP indicates areas of the project where each operator has operational control over day-to-day activities; and
iii. The SWPPP indicates the name(s) of the person(s) with operational control over project specifications (including the ability to make modifications in specifications).

c. Operators with Control over Only a Portion of a Larger Project are responsible for compliance with the terms and conditions of this permit as it relates to the activities on the operator's portion of the construction site (including implementation of control measures required by the SWPPP). Operators shall ensure either directly or through coordination with other operators, that activities do not render another person's control measure(s) ineffective.

Appendix E – Inspection Report Form

2020 Construction General Permit
Instructions for the Inspection Report Form

Purpose

The Inspection and Corrective Action Report forms were designed to assist you in preparing inspection & corrective action reports for ADEQ's 2020 Construction General Permit (CGP). Refer to Part 4 of the 2020 CGP for inspection requirements. All operators covered under the 2020 CGP must use a standardized format that provides consistent content and format to document the results of each inspection. Electronic forms, including online databases are acceptable; provided that these formats document all of the inspection-related information required by the 2020 CGP. ADEQ's Inspection and Corrective Action Report Forms provide a way to use standardized report forms that comply with the requirements of Part 4.4 of the permit. You may supplement the inspection report form with additional information, forms or drawings, as necessary to include the specific circumstances of your project.

The actual obligations of regulated construction activities are determined by the relevant provisions of the permit, not by this form. In the event of a conflict between this form and any corresponding provision of the 2020 CGP, the permit's requirements shall prevail.

Overview of Inspection Requirements

Construction operators covered under the 2020 CGP are subject to the following requirements in Part 4:

Inspection Schedule (see Part 4.2)

Operators must conduct inspections using one of the following three schedules:

- Once within 7 calendar days (regardless of rainfall), but not within 5 days of the previous inspection; or
- Once within 14 calendar days, but not within 10 calendar days of the previous inspection, and within 24 hours of a storm event of 0.5 inch or greater; or
- Once per month, but not within 14 calendar days of the previous inspection, and within 24 hours of a storm event of 0.25 inch or greater.

Your inspection frequency is increased if the site discharges to an impaired or not-attaining water, or outstanding Arizona water (OAW) (see Part 4.2(3)). Your inspection frequency may be decreased to account for stabilized areas, or discharges are unlikely based on seasonal rainfall patterns, or for winter conditions (see Part 4.2(2)).

Scope of Inspections (see Part 4.3)

At a minimum, you must examine each of the following during each inspection:

- Cleared, graded, or excavated areas of the site;
- Stormwater controls (e.g., perimeter controls, sediment basins, inlets, exit points etc.) and pollution prevention practices (e.g., pollution prevention practices for vehicle fueling/maintenance and washing, construction product storage, handling, and disposal, etc.) at the site;
- Material, waste, or borrow areas covered by the permit, and equipment storage and maintenance areas;
- Areas where stormwater flows within the site;
- Stormwater outfalls;
- Areas where stabilization has been implemented;
- Whether stormwater controls or pollution prevention practices require maintenance or corrective action, or whether new or modified controls are required;
- For the presence of conditions that could lead to spills, leaks, or other pollutant accumulations and discharges;
- Whether there are visible signs of erosion and sediment accumulation at points of discharge and to the channels and streambanks that are in the immediate vicinity of the discharge; and
- If a stormwater discharge is occurring at the time of the inspection, whether there are obvious, visual signs of pollutant discharges. The physical characteristics to look for in a discharge include color, odor, clarity, floating, settled, or suspended solids, foam, oil sheen. There may also be other obvious indicators of pollutants in the discharge.

Inspection Reports (see Part 4.4)

Within 24 hours of completing each inspection, you are required to complete an inspection report that includes:

- Date of inspection;
- Names and titles of persons conducting the inspection;
- Summary of inspection findings, including if any permit violations have occurred on the site;
- Rain gauge or weather station readings if your inspection is triggered by either the 0.25 inch or 0.5 inch storm threshold; and
- If you determine that a portion of your site is unsafe to access for the inspection, document the conditions that prevented the inspection and where these conditions occurred on the site.

Instructions for Using the Inspection Report Form

The Inspection Report form is intended for use in the field and filled out either by hand or electronically. If you will be filling out the form electronically (i.e., you will be typing in your findings), please use the fillable PDF, available at www.azdeq.gov search word construction.

These forms may be customized to include the specifics of your project in order to make your inspection reports complete. Do this by adding extra pages from the appropriate sections of the form, or by adding maps, or blanks sheets with additional information.

The following tips for using these forms will help you ensure that the minimum permit requirements are met:

- **Review the inspection requirements.** Before you start your inspection, read the CGP's Part 4 inspection requirements. This will ensure that you have a working understanding of the permit's underlying inspection requirements.
- **Complete all required text fields.** Fill out all text fields. Only by filling out all fields will the form be compliant with the requirements of the permit. (*Note:* Where you do not need the number of rows provided in the form for your inspection, you may leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Use your site map to document inspection findings.** In several places in the form, you are directed to specify the location of certain features of your site, including where stormwater controls are installed and where you will be stabilizing exposed soil. You are also asked to fill in location information for unsafe conditions and the locations of any discharges occurring during your inspections. Where the form asks for location information, reference the point on your SWPPP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Sign the Certification Statement for each inspection report.** The certification for the Inspection and Corrective Action Report forms must be signed by the permittee/operator to be considered complete. Frequently, permittees delegate inspection responsibilities to a contractor or subcontractor. In situations such as this, the contractor or subcontractor is the inspector and is required to sign Section VI.A of the form. The permittee/ operator must sign Section VI.B. If the permittee/operator performs the inspections, then sign only Section VI.B. The form includes a signature block for both parties.
- **Include the inspection form with your SWPPP.** Once your form is complete, make sure to include a copy of the inspection form in your SWPPP in accordance with Part 6.4(8) of the 2020 CGP.
- **Retain copies of all inspection reports with your records.** You must also retain in your records copies of all inspection reports in accordance with the requirements in Appendix B, subsection 11 of the 2020 CGP. These reports must be retained for at least 3 years from the date your permit coverage expires or is terminated.

Section-by-Section Instructions

Specific instructions follow corresponding to each section of the report form. These instructions provide you with more details in terms of what ADEQ expects to be documented in these reports.

Section I "General Information"

Name of Project: Enter the name for the project.

AZCN No. (CGP Authorization No.): Enter the authorization number that was assigned to your NOI application for permit coverage.

Inspection Date: Enter the date you conducted the inspection.

Inactive/unstaffed site (See Part 4.2(4)): The entire project site must be designated by the operator as inactive and unstaffed, with a duration lasting at least six months.

Inspector Name, Title & Contact Information: Provide the name of the person(s) (either a member of your company's staff or a contractor or subcontractor) that conducted this inspection. Provide the inspector's name, title, and contact information as directed in the form.

Present Phase of Construction: If this project is being completed in more than one phase, indicate which phase it is currently in.

Inspection Schedule (See Part 4.2): Check the box that describes the inspection frequency that applies to you. It is possible for a project site to be subject to different inspection frequencies in different areas of the site. For example, one-

third of the drainage area of a project may be actively worked, one-third may be temporarily stabilized and the other one-third may discharge to an impaired water or OAW. In this example, parts of the project would be subject to three different inspection schedules (routine, reduced and discharges within 1/4 mile of an impaired or not-attaining water, or OAW).

Consult CGP Part 4.2 for the applicable inspection frequency. Check all the inspection frequencies that apply to your project. If your entire project is being actively worked, you can choose your frequency based on CGP Part 4.2(1): once per 7 calendar days; once per 14 calendar days and within 24 hrs of a 0.5 inch storm event; or once per month and within 24 hrs of a 0.25 inch storm event. See Part 4.2(2) for other situations which may qualify for a reduced inspection schedule.

Inspection Triggered by a 0.25-Inch or 0.5-Inch Storm Event: If you were required to conduct this inspection because of either a 0.25 inch (or greater) or 0.5 inch (or greater) storm event, indicate whether you relied on an on-site rain gauge or a nearby weather station (and where the weather station is located). Also, specify the total amount of rainfall for this specific storm event.

Identify all sources of non-stormwater discharges occurring at the site and the associated control measures in place: Part 1.3(2) lists the only non-stormwater discharges that are allowed under the permit, provided that appropriate control measures are in place to assure compliance with Part 3 of the permit.

Adverse or Unsafe Conditions for Inspection: Inspections are not required where a portion of the site or the entire site is subject to unsafe conditions. See CGP Part 4.2(6) and 4.4(12). These conditions should not regularly occur, and should not be consistently present on a site. Generally, unsafe conditions are those that render the site (or a portion of it) inaccessible or that would pose a significant probability of injury to applicable personnel. Examples could include severe storm or flood conditions, high winds, and downed electrical wires.

If your site, or a portion of it, is affected by unsafe conditions during the time of your inspection, provide a description of the conditions that prevented you from conducting the inspection and what parts of the site were affected. If the entire site was considered unsafe, specify the location as “Entire site”.

Section II “Description of Discharges”

Was a Stormwater Discharge Occurring From Any Part of Your Site At The Time of the Inspection: During your inspection, examine all outfalls at your site, and determine whether a discharge is occurring during the inspection. If there is a discharge:

a. Identify all points of the property in which there is a discharge;

b. Observe and document the physical characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollutants; and

c. Document whether the stormwater controls are operating effectively, and describe any such controls that are clearly not operating as intended or are in need of maintenance.

d. When there is no discharge, examine each outfall for evidence of erosion, sedimentation and other pollutants, and the presence of current (and indications of prior) discharges and their sources.

NOTE: Inspectors should attempt at least one inspection during, or immediately following a rain event in order to have the opportunity to observe the physical characteristics (color, odor, clarity, etc.) of the discharge (see Part 4.3(11) and 4.4(5)). Such observations are a very simple and expedient way to assess whether control measures are working properly.

Outfall: (repeat as necessary if there are multiple outfalls – a Continuation Sheet is provided for this purpose)
Specify the location on your site where the discharge is occurring or may occur. The best way to describe the location of the outfall is to tie it to a numbered location on the site map. An “outfall” is defined in the permit as, “the point where construction site stormwater discharges to a surface water or to a MS4.” Its location may be an outlet from a stormwater control or constructed stormwater channel, a discharge into a storm sewer inlet, or a specific point on the site. Be as specific as possible; it is recommended that you refer to a precise point on your site map.

Observations: Describe the discharge in terms of the physical characteristics of color, odor, clarity, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollutants. Also, describe the physical characteristics of any allowable non-stormwater discharges, if present. These non-stormwater discharges are only allowed if the appropriate control measures are in place to assure compliance with Part 3 of the permit.

Are there visible signs of erosion or sediment accumulation? When there is no discharge, examine each outfall for evidence of erosion, sedimentation and other pollutants, and the presence of current (and indications of prior) discharges and their sources. At each point of discharge and the channel and streambank in the immediate vicinity, visually assess whether there are any obvious signs of erosion and/or sediment accumulation that can be attributed to your discharge. If you answer “yes”, include a description in the space provided of the erosion and sediment deposition that you found, specify where on the site or the surface water in which you found it, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue.

Section III "Condition and Effectiveness of All On-site Control Measures"

Description of Control Measures:

E&S Controls

Provide a list of all erosion and sediment (E&S) controls that your SWPPP indicates will be installed and implemented at your site. This list must include at a minimum all E&S controls required by CGP Part 3.3. Include also any natural buffers established under CGP Part 3.3(7). Buffer requirements only apply if your project's earth-disturbing activities will occur within 50 feet of a perennial water. Where it is infeasible to maintain the 50 foot buffer, certain alternatives or exceptions may apply, such as for linear construction projects. You may group your E&S controls on your form if you have several of the same type of controls (e.g., run-on / run-off controls, sediment basins and traps, inlet protection measures, perimeter controls, and stockpile controls may be grouped together on one line). However, if there are any problems with a specific control, you must separately identify the location of the control, whether repairs or maintenance, or corrective action is necessary, and in the notes section you must describe the specifics about the problem you observed.

Stabilization Area

List all areas where soil stabilization is required to begin because construction work in that area has permanently stopped or temporarily stopped (i.e., work will stop for 14 or more days), and all areas where stabilization has been implemented.

P2 Controls

Provide a list of all pollution prevention (P2) practices that are implemented at your site. This list must include all P2 practices required by Part 3.5, and those that are described in your SWPPP.

Repairs or Other Maintenance Needed: Note that the permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance in order to keep controls in effective operating condition (Part 3.1 – general maintenance) and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, more serious conditions. See Section IV of this form and Part 5.1 of the permit for triggering conditions.

E&S Controls

Answer "yes" if the E&S control requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control to continue operating effectively. At a minimum, maintenance is required in the following specific instances:

- for perimeter controls, whenever sediment has accumulated to 1/2 or more the above-ground height of the control (CGP Part 3.3(6)(a));
- where sediment has been tracked-out onto the surface of off-site streets or other paved areas (CGP Part 3.5(3);
- for inlet protection measures, when sediment accumulates, the filter becomes clogged, and/or performance is compromised (CGP Part 3.3(6)(c)); and
- for sediment basins, as necessary to maintain at least 1/2 of the design capacity of the basin (CGP Part 3.3(6)(b)).

Note: In many cases, "yes" answers are expected and indicate a project with an active operation and maintenance program. You should also answer "yes" if work to fix the problem is still ongoing from the previous inspection.

P2 Practices

Answer "yes" if the P2 practice requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control to continue operating effectively. *Note:* In many cases, "yes" answers are expected and indicate a project with an active operation and maintenance program.

Corrective Action Required / Date of Discovery:

E&S Controls and P2 Practices

Answer "yes" if during your inspection you found any of the following conditions to be present (CGP, Part 5.1):

- a necessary E&S control was never installed, was installed incorrectly, or not in accordance with the corresponding CGP Part 3.3(2) requirement;
- a stormwater control needs to be repaired or replaced beyond routine maintenance;
- one of the "prohibited discharges" listed in CGP Part 1.4 is occurring or has occurred;
- ADEQ or USEPA determines that modifications to the control measures are necessary to meet the requirements of Part 3; or
- A discharge is causing an exceedance of an applicable surface water quality standard.

If you answer "yes" to any of the conditions listed above, you must take corrective action and complete a corrective action report. The report and instructions are available online at www.azdeq.gov, search word ***construction***.

Note: You should answer "yes" if work to fix the problem from a previous inspection is still ongoing.

Provide the date on which the condition that triggered the need for corrective action was first identified. If the condition was discovered for the first time during this inspection, enter the inspection date. If the condition is a carryover from a previous inspection, enter the original date of the condition's discovery.

Stabilization Method: For each area, specify the method of stabilization (e.g., hydroseed, sod, planted vegetation, erosion control blanket, mulch, rock) and indicate whether stabilization has been initiated.

Notes:

E&S Controls

For each E&S control and the area immediately surrounding it, note whether the control is properly installed and whether it appears to be working to minimize sediment discharge. If repairs or maintenance is required, briefly note the actions taken to fix the problem. When repairs or maintenance have been completed, record in the notes in Section III of the form the date completed and what was done. If it is infeasible to complete the installation or repair of an E & S control within 7 calendar days or before the next storm event, briefly note the reason why it is infeasible. At a minimum, the following conditions must be documented on the form:

- Failure to install or to properly install a required E&S control;
- Damage or destruction to an E&S control caused by vehicles, equipment, or personnel, a storm event, or other event;
- Mud or sediment deposits found downslope from E&S controls;
- Sediment tracked out onto paved areas by vehicles leaving construction site;
- Noticeable erosion at discharge outlets or at adjacent streambanks or channels;
- Erosion of the site's sloped areas (e.g., formation of rills or gullies);
- E&S control is no longer working due to lack of maintenance; and
- Identification of material storage areas and, evidence of or potential for, pollutant discharge from such areas.

For buffer areas (applies only to areas adjacent to perennial waters), make note of whether they are marked off (as required in Part 3.3(7), whether there are signs of construction disturbance within the buffer, which is prohibited under the CGP, and whether there are visible signs of erosion resulting from discharges through the area.

Stabilization

For each area where stabilization has been initiated, describe the progress that has been made, and what additional actions are necessary to complete stabilization. Note the effectiveness of stabilization in preventing erosion. If stabilization has been initiated but not completed, make a note of the date it is to be completed. If stabilization has been completed, make a note of the date it was completed. If stabilization has not yet been initiated, make a note of the date it is to be initiated, and the date it is to be completed.

P2 Practices

For each P2 control and the area immediately surrounding it, note whether the control is properly installed and whether it appears to be working to minimize or eliminate pollutant discharges. If repairs or maintenance is required, briefly note the actions taken to fix the problem. When repairs or maintenance have been completed, record the date completed and what was done. If it is infeasible to complete the implementation, installation or repair of a P2 practice within 7 calendar days or before the next storm event, briefly note the reason why it is infeasible. At a minimum, the following conditions must be documented on the Inspection Report form:

- Failure to install or to properly install a required P2 control;
- Damage or destruction to a P2 control caused by vehicles, equipment, or personnel, or a storm event;
- Evidence of a spill, leak, or other type of pollutant discharge, or failure to have properly cleaned up a previous spill, leak, or other type of pollutant discharge;
- Spill response supplies are absent, insufficient, or not where they are supposed to be located;
- Improper storage, handling, or disposal of chemicals, building materials or products, fuels, or wastes; and
- P2 practice is no longer working due to lack of maintenance.

Use the "Notes" section to provide a list of any additional control measures that may be required by Part 3.3 of the permit, but were not covered under E&S Controls, Stabilization or P2 Practices, above. Use the "Notes" section to describe any other instances of non-compliance with the conditions of this permit that are not associated with Part 4.4(10). If you do not identify any incidents of non-compliance, you must certify by checking the box on the certification page of this report form (Section VI.A and/ or VI.B) that the construction project or site is being operated in full compliance with the SWPPP and the permit.

Note: If corrective action is required, you must complete a separate Corrective Action Report to describe the condition and your work to fix the problem. The report and instructions are available online at www.azdeq.gov, search word construction.

Section IV "Signature/ Certification"

Signature and Certification by Contractor or Subcontractor (Section IV.A)

Operators who conduct their own inspections are not required to sign Section IV. A. An inspector who is delegated by the operator as a contractor or subcontractor is required to sign the form in Section IV.A, because they carried out the inspection and completed the form on the permittee's behalf. In such cases, the permitted operator is still required to sign the inspection report in Section IV.B.

Signature and Certification by Permittee (Section IV.B)

At a minimum, Section IV.B of the inspection report must always be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply to scenarios (1) and (2):

If the signatory will be the person who signed the NOI for permit coverage, as a reminder, that person must be one of the following types of individuals:

- *For a corporation*: A responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship*: A general partner or the proprietor, respectively.
- *For a municipality, state, federal, or other public agency*: Either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to ADEQ, if requested.

2020 Construction General Permit (CGP)
Routine Inspection Report Form

Section I. General Information (see instructions)

Name of Project		CGP Authorization No.	AZCN- _____	Inspection Date	

○ **Check box when using this form to inspect an inactive/unstaffed construction site (this option applies to an entire site only).** See Part 4.2(4) of the permit.
Inspect the site immediately before becoming inactive/unstaffed and every 6 months thereafter and within 24 hours of each storm event of 0.5 inch or greater in 24 hours.

Inspector Name, Title and Contact Information	**Name:**_____ **Title:** _____ **Contact information:** _____
Present Phase of Construction	

Inspection Schedule (all days are calendar days) *(Note: you may be subject to different inspection frequencies in different areas of the site. Check all that apply. * See Part 4.2 for qualifications)*

Routine Schedule: ○ Within 7 days* ○ Within 14 days* and within 24 hours of a 0.5" storm event

○ Once per month, but not within 14 days of the previous inspection and within 24 hours of a 0.25" storm event

Reduced Schedule: once per month (but not within 14 days of the previous inspection) and before an anticipated storm event and within 24 hours of the end of each storm event of 0.5 inch or greater in 24 hours.

○ Once per month (in stabilized areas)
○ Once per month (where discharges are unlikely based on seasonal rainfall patterns)
○ Once per month (where winter conditions exist and earth-disturbing activities are being conducted)

Outfalls within 1/4 mile of an impaired water or outstanding Arizona water (OAW): ○ Every 7 days and within 24 hours of a 0.5" storm event

Was this inspection triggered by either a 0.25" or 0.5" storm event? ○ Yes ○ No

If yes, duration of storm event: ○ < 1 hour ○ < 6 hrs ○ > 6 hrs

If yes, how was the storm event determined (either 0.25" or 0.5")?

○ Rain gauge on site ○ Weather station representative of site. Specify weather station source: _____

Total rainfall amount that triggered the inspection (in inches)**:** _____

Identify all sources of non-stormwater discharges occurring at the site and the associated control measures in place

sources of non-stormwater discharges:	control measures associated with the non-stormwater discharges:
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

Adverse or Unsafe Conditions for Inspection

Did you determine that any portion of the site was unsafe for inspection per CGP Part 4.2(6)? ○ Yes ○ No

If "yes", complete the following:

- Describe the conditions that prevented you from conducting the inspection in this location:

- Location(s) where conditions were found:

Note: *Inspections may be postponed when adverse or unsafe conditions exist such as local flooding, high winds, or electrical storms, or situations that otherwise make inspections unsafe. However, the inspection must resume as soon as conditions are safe.*

Section II. Description of Discharges and Condition of the Discharge Locations (CGP Part 4.3(10)) (see instructions)

Outfall(s)	Observations *(Note: discharges may not occur at every outfall on the site after a storm event. Check all that apply.)*
1.	Describe the discharge: ○ Stormwater ○ Non-stormwater ○ None Since the last inspection, do you see any evidence of erosion, sediment accumulation and/ or other pollutants that can be attributed to your discharge? ○ Yes ○ No
If yes, describe the characteristics of the discharge (color, odor, clarity, etc.) specify the location(s) of these conditions, and indicate whether modification, maintenance, or corrective action is needed to correct the problem. Also, describe any visible signs of erosion or sediment accumulation.	
2.	Describe the discharge: ○ Stormwater ○ Non-stormwater ○ None Since the last inspection, do you see any evidence of erosion, sediment accumulation and/ or other pollutants that can be attributed to your discharge? ○ Yes ○ No
If yes, describe the characteristics of the discharge (color, odor, clarity, etc.) specify the location(s) of these conditions, and indicate whether modification, maintenance, or corrective action is needed to correct the problem. Also, describe any visible signs of erosion or sediment accumulation.	
3.	Describe the discharge: ○ Stormwater ○ Non-stormwater ○ None Since the last inspection, do you see any evidence of erosion, sediment accumulation and/ or other pollutants that can be attributed to your discharge? ○ Yes ○ No
If yes, describe the characteristics of the discharge (color, odor, clarity, etc.) specify the location(s) of these conditions, and indicate whether modification, maintenance, or corrective action is needed to correct the problem. Also, describe any visible signs of erosion or sediment accumulation.	

Section III. Condition and Effectiveness of All On-site Control Measures (Erosion and Sediment (E&S)), Stabilization and Pollution Prevention (P2) Practices (CGP Part 3.3 through 3.5) (see instructions)

Description of Control Measures	Type of Control Measure: ▪ Erosion and Sediment (E&S) ▪ Stabilization ▪ Pollution Prevention (P2)	Additional controls required?	Repairs or other maintenance needed?[1]	Corrective action required?[1, 2] Date of discovery	Specify stabilization method (mulch, rock, planted vegetation, etc.)
1.	○ E&S ○ Stabilization ○ P2	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	
Notes (e.g., provide details about needed additional control measures, maintenance performed, etc.)					

Description of Control Measures	Type of Control Measure: ▪ Erosion and Sediment (E&S) ▪ Stabilization ▪ Pollution Prevention (P2)	Additional controls required?	Repairs or other maintenance needed?[1]	Corrective action required?[1, 2] Date of discovery	Specify stabilization method (mulch, rock, planted vegetation, etc.)
2.	○ E&S ○ Stabilization ○ P2	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	
Notes (e.g., provide details about needed additional control measures, maintenance performed, etc.)					

Note 1: The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance in order to keep controls in effective operating condition and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, more serious conditions, which include: 1) A necessary stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 3.1 and/or Part 3.2; 2) One of the prohibited discharges in Part 1.4 is occurring or has occurred; or 3) ADEQ or USEPA determines that modifications to the control measures are necessary to meet the requirements of Part 3.

Note 2: If answering "Yes" (i.e., a site condition that meets one or more of the three criteria in Note 1 above requires a corrective action), you must complete a Corrective Action Report. See Part 5 of the permit for more information.

Section VI. Certification and Signature (CGP Appendix B. 9.)

Section IV.A. – Certification and Signature by Contractor or Subcontractor performing the inspections (if applicable)

Check one of the following:

- ○ No instances of non-compliance were discovered during this inspection and the project was in full compliance with the SWPPP and permit.
- ○ Inspection follow-up is required, in accordance with Parts 4.5(1) and 4.5(2) of the permit.

"*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.*"

Signature of Contractor or Subcontractor: _____ Title: _____

Printed name : _____ Date: _____

Business / Agency: _____ Phone number: _____

Section IV.B. – Certification and Signature by Permittee (permittee / operator or a duly authorized representative is required to sign)

Check one of the following:

- ○ No instances of non-compliance were discovered during this inspection and the project was in full compliance with the SWPPP and permit.
- ○ Inspection follow-up is required, in accordance with Parts 4.5(1) and 4.5(2) of the permit.

"*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.*"

Signature of Permittee or
"Duly Authorized Representative": _____ Title: _____

Printed Name: _____ Date: _____

Business / Agency: _____ Phone number: _____

Appendix F –Corrective Action Log

Project Name: Naranja Trails
SWPPP Contact: **Scott Kolt**

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

This log is in addition to the CAL on the Inspection Reports and can be used at the discretion of the Inspector/Delegate as a summary tool for the inspection reports.

2020 Construction General Permit
Instructions for the Corrective Action Report Form

Section I General Information

You must complete Section A of the CAR Form within 24 hours of discovering the condition that triggered corrective action.

Date/Time Problem First Discovered

Specify the date and time when the triggering condition was first discovered.

Name/Contact Information

Provide the individual's name, title, and contact information as directed in the form.

Section II.A Corrective Action Triggering Conditions

You must complete the Corrective Action Report Form no later than 7 calendar days after discovering the condition that triggered corrective action.

Site Condition That Triggered Corrective Action

Under the CGP, corrective action is required when one of 5 triggering conditions occurs at your site. See CGP Part 5.1. Check the box that corresponds to the condition that triggered this corrective action.

Description of the Site Condition

Provide a summary description of the condition you found that triggered corrective action under CGP Part 5.1 and the specific location where it was found. Be as specific as possible about the location; it is recommended that you refer to a precise point on your site map. If you have already provided this explanation in an inspection report, you can refer to that report.

Deadline for Completing a Corrective Action

This deadline is fixed in CGP Part 5.2. For all projects, the deadline is either:

(1) No more than 7 calendar days after the date you discovered the problem; or

(2) If it is infeasible to complete work within the first 7 calendar days, as soon as practicable following the 7th day.

If your estimated date of completion falls after the 7 calendar day deadline consistent with (2), above, explain:

(a) Why you believe it is infeasible to complete work within 7 calendar days; and

(b) The schedule for installing and making the new or modified stormwater control operational in the soonest practicable timeframe.

Section II.B Stormwater Control Modifications to be Implemented

Provide a list of changes (i.e., modifications and / or replacements) you plan to make to your control measures to correct the problem, and record either the actual date you completed the work or the planned date. Keep in mind that your work must be completed within the timeline that you specified in Section II.A for the completion of corrective action work. Refer to Part 5.2 for Corrective Action deadlines and Part 6.4(2)(a) for conditions requiring a SWPPP modification. Keep in mind that SWPPP changes must be made within 7 calendar days of completing the corrective action work.

Space is provided for you to include additional notes or observations regarding the changes that you implemented at your site to correct the problem.

Section III Signature/Certification

For each corrective action taken in accordance with this Part, the operator shall document the details of the corrective action in the inspection report required by Part 4.4. These reports shall be signed in accordance with the signatory requirements in Appendix B, Subsection 9 and maintained with the SWPPP in accordance with the record keeping requirements in Part 8.2 of the permit.

2020 Construction General Permit (CGP)
Corrective Action Report Form

Section I. General Information

(Complete this section within 24 hours of discovering the condition that triggered corrective action)

Name of Project		**CGP Authorization No.**	**AZCN** _____	**Authorization Date**	
Date/ Time Problem First Discovered			**Today's Date**		
Name and Contact Information of Individual Completing this Form	**Name:**_____ **Contact information:** _____				

Section II.A. Corrective Action Triggering Conditions

(Complete this section within 24 hours of discovering the condition that triggered corrective action)

What site conditions triggered the requirement to conduct corrective action? *(Check the box that applies)*

☐ A necessary control measure was never installed, was installed incorrectly, or was not installed in accordance with the requirements in Part 3.2; or

☐ A stormwater control needs to be repaired or replaced (beyond routine maintenance required under Part 3.2); or

☐ One of the prohibited discharges in Part 1.4 is occurring or has occurred; or

☐ ADEQ or USEPA determines that revisions to the control measures are necessary to meet the requirements of Part 3; or

☐ A discharge is causing an exceedance of an applicable surface water quality standard.

Provide a description of the problem: (Provide description of the specific problem that triggered the need for corrective action, and the specific location where it was found. If you have already provided this explanation in an inspection report, you can refer to that report.)

Deadline for completing corrective action:

☐ Work will be completed no more than 7 calendar days after the date the problem was discovered (enter date): ____ / ____ / ____

☐ It is infeasible to complete work within the first 7 days, therefore, the work will be completed as soon as practicable following the 7th day (enter date): ____ / ____ / ____

If the estimated date of completion falls after the 7-day deadline, document the following: (1) The reason it is infeasible to complete work within 7 days, and (2) The schedule for installing and making the new or modified stormwater control operational in the soonest practicable timeframe.

NOTE: *Any corrective actions that result in changes to any of the stormwater controls or procedures shall be documented in the SWPPP within 7 calendar days of completing the corrective action work.*

Section II.B. – Stormwater Control Modifications to be Implemented [Print additional sheets as necessary]			
List of stormwater control(s) to be modified or replaced to correct the condition that required the Corrective Action	**Date of Completion**	**SWPPP Update Necessary?** **If yes, specify date SWPPP modified**	**Notes and observations**
1.		☐ Yes ☐ No	
2.		☐ Yes ☐ No	
3.		☐ Yes ☐ No	

Section III. – Certification and Signature by Permittee (permittee / operator or a duly authorized representative is required to sign)

Check the following as appropriate:

- ☐ The operator has retained a copy of the inspection report documenting the corrective action(s) on-site with the SWPPP as required in Part 6.4.
- ☐ One or more outfalls is/are located within 1/4 miles upstream of an impaired or OAW and the operator shall submit a corrective action report to ADEQ, within 30 calendar days (from the date of the incident), in accordance with Part 8.1. in accordance with Parts 1.5(3) and 1.5(4).

"*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.*"

Signature of Permittee or
"Duly Authorized Representative": _____ Title: _____

Printed Name: _____ Date: _____

Business / Agency: _____ Phone number: _____

Appendix G –SWPPP Amendment Log

Project Name: Naranja Trails
SWPPP Contact: **Scott Kolt**

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

Appendix H –Contractor/Subcontractor Certifications/Agreements

(Add subcontractor list)

CONTRACTOR/SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Numbers: Psomas Project No. 7MHO240101
Project Title: **Naranja Trails**
Operator(s): _____

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

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

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

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

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____
_____
_____

Signature: _____
Title: _____
Date: _____

Appendix I –Grading and Stabilization Activities Log

Project Name: Naranja Trails
SWPPP Contact: **Scott Kolt**

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

Appendix I –Grading and Stabilization Activities Log

EXAMPLE ENTRIES

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measure and Location (Station)
	Initial staking and marking to identify the areas for construction, establish staging/material management areas, and install sanitary facilities and construction entrances			Post NOI AZCON #, implement material handling, waste management, equipment/vehicle practices, install stabilized construction entrances
	Removal of vegetation to include clearing and grubbing			Protect and minimize disturbances and install temporary perimeter erosion controls
	Mass grading			Install erosion/sediment controls, wind erosion control, and follow material handling and waste management practices
	Onsite earthwork: Rough grading, excavation, cut and fill, embankments, bridges, drainages, driveways, material stockpiles, etc.			Earth Fill: Material and slope stabilization, compaction, install any temporary erosion control measures and pollution prevention measures
	Install utilities, sewer, storm drains, curb and gutter, drainage and any associated post-construction erosion control measures			Install erosion/sediment controls and permanent structural and post-construction control measures and pollution prevention measures
	Complete final and landscape grading, install landscape			Install permanent seeding and plantings, permanent stabilization measures and any post-construction controls, remove surplus material
	Final paving			Install any additional temporary erosion/sediment and pollution prevention controls if needed
	Final Stabilization/Final Acceptance			Complete all punch lists items, remove temporary erosion control measures and File NOT

Appendix J –SWPPP Training Log

Stormwater Pollution Prevention Training Log

Project Name: **Naranja Trails**

Project Location: **Pima County, Section 12 , Township 12 South, Range 13 East**

Instructor's Name(s):

Instructor's Title(s):

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- ❑ **Erosion Control ECMs**
- ❑ **Emergency Procedures**
- ❑ **Sediment Control ECMs**
- ❑ **Good Housekeeping ECMs**
- ❑ **Non-Stormwater ECMs**

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 K –Delegation of Authority Form

Delegation of Authority

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

_____(name of person or position)
_____
_____
_____
_____

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in **CGP AZG2020-001**, and that the designee above meets the definition of a "duly authorized representative" as set forth in **CGP AZG2020-001**.

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: **Scott Kolt**

Company: **Meritage Homes**

Title: _____

Signature: _____

Start Date: _____

End Date: _____

- ☐ Primary Delegate of Authority – SWPPP Inspector
- ☐ Secondary Delegate of Authority – Back-up SWPPP Inspector

Delegation of Authority Form

Delegation of Authority (Contractor)

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

_____(name of person or position)
_____
_____
_____
_____

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in **CGP AZG2020-001**, and that the designee above meets the definition of a "duly authorized representative" as set forth in **CGP AZG2020-001**.

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: **Scott Kolt**

Company: **Meritage Homes**

Title: _____

Signature: _____

Start Date: _____

End Date: _____

☐ Primary Delegate of Authority – SWPPP Inspector

☐ Secondary Delegate of Authority – Back-up SWPPP Inspector

Delegation of Authority Form

Delegation of Authority (Contractor)

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

_____(name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in **CGP AZG2020-001**, and that the designee above meets the definition of a "duly authorized representative" as set forth in **CGP AZG2020-001**.

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: **Scott Kolt**

Company: **Meritage Homes**

Title: _____

Signature: _____

Start Date: _____

End Date: _____

☐ Primary Delegate of Authority – SWPPP Inspector

- Secondary Delegate of Authority – Back-up SWPPP Inspector

Appendix L – Additional Information

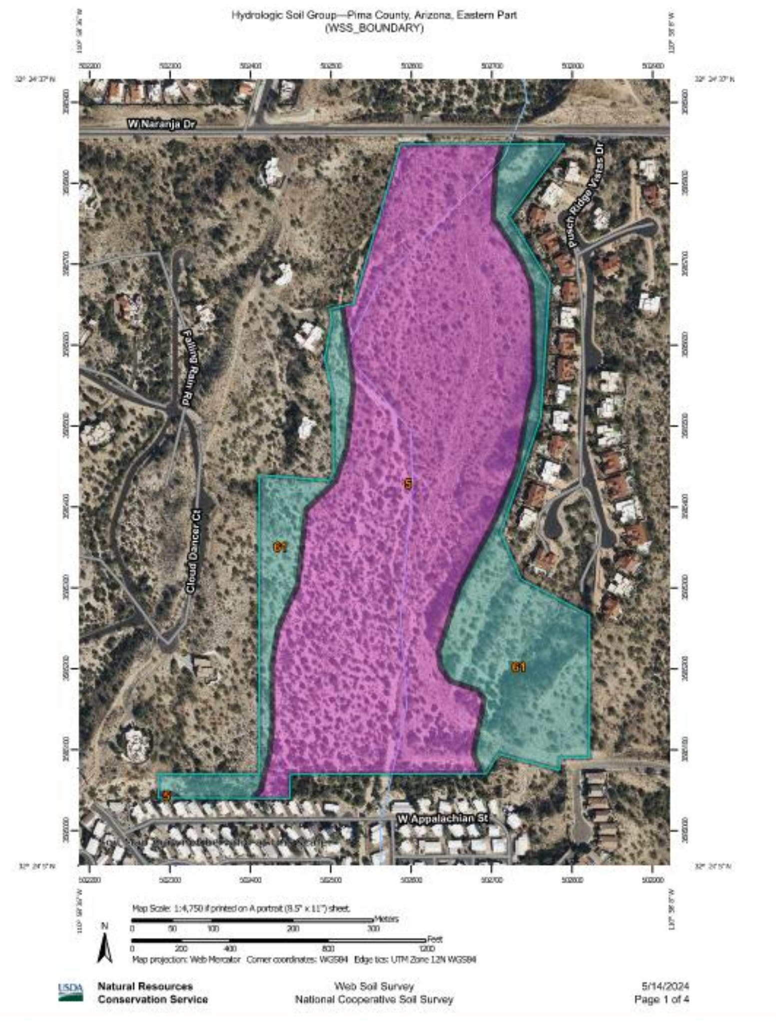
County:

- Sonoran Desert Tortoise Handling Guidelines
- APP Type 1 General Permit for Concrete Washouts
- Hazardous Materials Clearance
- NEPA Clearance (Categorical Exclusion Environmental Clearance Memo)
- NRCS Soil Map

Contractor:

- Add ROW Permit(s)
- Add Air Quality Activity Permit - Fugitive Dust Control

NRCS Soils Map



Pima County, Arizona, Eastern Part (AZ669)			Wind Erodibility Group	K Factor, Whole Soil	Hydrologic Soil Group
Map unit symbol	**Map unit name**	**% of Area**	**Rating**	**Rating**	**Rating**
5	Arizo-Riverwash Complex	70.7%	2	.05	A
61	Pinaleno-Stagecoach-Palos Verdes Complex	29.3%	6	.05	C
Totals:		100.0%			

A **wind erodibility group** (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.
The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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

Guidance for

CONCRETE WASHOUTS

Concrete Washouts are required by the Arizona Department of Environmental Quality (ADEQ) to comply with the Aquifer Protection Program Type 1 General Permit for Concrete Washouts. This permit allows the discharge of wastewater resulting from the washing concrete from trucks, pumps and ancillary equipment to a concrete washout impoundment area if the following conditions are met:

1. The Contractor and the County must have each submitted a Notice of Intent to be covered under the Arizona Pollutant Discharge Elimination System (AZPDES) Construction Permit, and has received authorization from ADEQ.
2. The Stormwater Pollution Plan must address concrete washouts activities.
3. Any vegetation at the soil base of the concrete washout impoundment area must be cleared, grubbed and compacted to a uniform density not less than 95%. If the concrete washout impoundment area is located above grade, any berms or dikes must be compacted to a uniform density not less than 95%.
4. If the depth to ground water is less than 20 feet below land surface, the concrete washout impoundment must be lined with a synthetic liner at least 30 mils thick.
5. The concrete washout impoundment must be located at least 50 feet away from any stormdrain inlet, open drainage channel, or watercourse and 100 feet away from any water supply well.
6. The concrete washout impoundment must be designed and operated to maintain adequate freeboard to prevent overflow or discharge of wastewater.
7. Any concrete washout wastewater must be routed to the concrete washout impoundment area.
8. The concrete washout impoundment shall only receive concrete washout wastewater.
9. The average daily discharge of concrete washout wastewater to the impoundment area shall be less than 3,000 gallons per day.
10. The following closure requirements must be met:
    - The concrete washout impoundment must be closed by removing and appropriately disposing of any liquids remaining in the impoundment.
    - After the impoundment is disassembled, the area must be graded (if necessary) to prevent ponding of water.
    - These closure activities must be completed before the AZPDES Notice of Termination is filed with ADEQ.

Concrete Subcontractor(s) Certification of the above Concrete Washout Conditions required under the APP Type 1 General Permit:

Subcontractor Name	Sub. Superintendent's Name	Signature	Date

Subcontractor Name	Sub. Superintendent's Name	Signature	Date

APP TYPE 1 PERMIT

FOR CONCRETE WASHOUT

PART B. TYPE 1 GENERAL PERMITS

R18-9-B301. Type 1 General Permit

A. A 1.01 General Permit allows any discharge of wash water from a sand and gravel operation, placer mining operation, or other similar activity, including construction, foundation, and underground dewatering, if only physical processes are employed and only hazardous substances at naturally occurring concentrations in the sand, gravel, or other rock material are present in the discharge.

B. A 1.02 General Permit allows any discharge from hydrostatic tests of a drinking water distribution system and pipelines not previously used, if all the following conditions are met:
   1. The quality of the water used for the test does not exceed an Aquifer Water Quality Standard or for non-drinking water pipelines, if reclaimed water is used, the reclaimed water meets Class A+ Reclaimed Water Quality Standards under A.A.C. R18-11-303 or Class B+ Reclaimed Water Quality Standards under A.A.C. R18-11-305;
   2. The discharge is not to a water of the United States, unless the discharge is under an AZPDES permit; and
   3. The test site is restored to its natural grade.

C. A 1.03 General Permit allows any discharge from hydrostatic tests of a pipeline, tank, or appurtenance previously used for transmission of fluid, other than those previously used for drinking water distribution systems, if all the following conditions are met:
   1. All liquid discharge is contained in an impoundment lined with flexible geomembrane. The liquid is evaporated or removed from the impoundment and taken to a treatment works or landfill authorized to accept the material within:
      a. 60 days of the hydrostatic test if the liner is 10 mils, or
      b. 180 days of the hydrostatic test if the liner is 30 mils or greater;
   2. The liner is placed over a layer, at least 3 inches thick, of well-sorted sand or finer grained material, or over an underliner that provides protection equal to or better than sand or finer grained material and the calculated seepage is less than 550 gallons per acre per day;
   3. The liner is removed and disposed of at an approved landfill unless the liner can be reused at another test location without a reduction in integrity;
   4. The test site is restored to its natural grade; and
   5. If the test waters are removed using a method not specified in subsection (C)(1), including a discharge under an AZPDES permit, the test waters meet Aquifer Water Quality Standards and the specific method is approved by the Department before the discharge.

D. A 1.04 General Permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, or potable water system maintenance and repair purposes, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, or the discharge is under an AZPDES permit.

E. A 1.05 General Permit allows a discharge to an injection well, surface impoundment, and leach line only if the discharge is filter backwash from a potable water treatment system, condensate from a refrigeration unit, overflows from an evaporative cooler, heat exchange system return water, or swimming pool filter backwash and the discharge is less than 1000 gallons per day. The 1.05 General Permit allows a discharge of those sources to a navigable water if the discharge is authorized by an AZPDES permit.

F. A 1.06 General Permit allows the burial of mining industry off-road motor vehicle waste tires at the mine site in a manner consistent with the cover requirements in R18-13-1203.

G. A 1.07 General Permit allows the operation of dockside facilities and watercraft if the following conditions are met:
   1. Docks that service watercraft equipped with toilets provide sanitary facilities at dockside for the disposal of sewage from watercraft toilets. No wastewater from sinks, showers, laundries, baths, or other plumbing fixtures at a dockside facility is discharged into waters of the state;
   2. Docks that service watercraft have conveniently located toilet facilities for men and women;
   3. No boat, houseboat, or other type of watercraft is equipped with a marine toilet constructed and operated to discharge sewage directly or indirectly into a water of the state, nor is any container of sewage placed, left, discharged, or caused to be placed, left, or discharged in or near any waters of the state by a person;
   4. Watercraft with marine toilets constructed to allow sewage to be discharged directly into waters of the state are locked and sealed to prevent usage. Chemical or other type marine toilets with approved storage containers are permitted if dockside disposal facilities are provided; and
   5. No bilge water or wastewater from sinks, showers, laundries, baths, or other plumbing fixtures on houseboats or other watercraft is discharged into waters of the state.

H. A 1.08 General Permit allows for any earth pit privy, fixed or transportable chemical toilet, incinerator toilet or privy, or pail or can-type privy if allowed by a county health or environmental department under A.R.S. Title 36 or a delegation agreement under A.R.S. § 49-107.

I. A 1.09 General Permit allows:
   1. The operation of:
      a. A sewage treatment facility with flows less than 20,000 gallons per day and approved by the Department before January 1, 2001, and

b. An on-site wastewater treatment facility with flows less than 20,000 gallons per day operating before January 1, 2001;

2. The person who owns or operates a facility under subsections (I)(1)(a) or (b) to operate the facility if the following conditions are met:
   a. The discharge from the facility does not cause or contribute to a violation of a water quality standard;
   b. The owner or operator does not expand the facility to accommodate flows above the design flow or 20,000 gallons per day, whichever is less;
   c. The facility only treats typical sewage;
   d. The facility does not treat flows from commercial operations using hazardous substances or creating hazardous wastes, as defined in A.R.S. § 49-921(5);
   e. The discharge from the facility does not create any environmental nuisance condition listed in A.R.S. § 49-141; or
   f. The owner or operator does not alter the treatment or disposal characteristics of the original facility, except as allowed under R18-9-A309(A)(9)(a).

J. A 1.10 General Permit allows the operation of a sewage collection system installed before January 1, 2001 that serves downstream from the point where the daily design flow is 3000 gallons per day or that includes a manhole, force main, or lift station serving more than one dwelling regardless of flow, if:
   1. The system complies with the performance standards in R18-9-E301(B),
   2. No sewage is released from the sewage collection system to the land surface, and
   3. The system is not operating under the 2.05 General Permit.

K. A 1.11 General Permit allows the operation of a sewage collection system that serves upstream from the point where the daily design flow is 3000 gallons per day to the building drains, or a single gravity sewer line conveying sewage from a building drain directly to an interceptor, lateral, or manhole, regardless of daily design flow, if all of the following are met:
   1. The system does not cause or contribute to an exceedance of a water quality standard established in 18 A.A.C. 11, Articles 1 and 4;
   2. No sewage is released from the sewage collection system to the land surface;
   3. No environmental nuisance condition listed in A.R.S. § 49-141 is created;
   4. The system does not include a manhole, force main, or lift station serving more than one dwelling;
   5. Applicable local administrative requirements for review and approval of design and construction are followed;
   6. The performance standards specified in R18-9-E301(B) are met using:
      a. Local building and construction codes,
      b. Relevant design and construction standards specified in R18-9-E301, and
      c. Appropriate operation and maintenance;
   7. The system flows directly into one of the following downstream facilities:
      a. An on-site wastewater treatment facility;
      b. A sewage treatment facility operating under an individual permit; or
      c. A sewage collection system operating under a 1.10, 2.05, or 4.01 General Permit; and
   8. The system is not operating under a 2.05 General Permit.

L. A 1.12 General Permit allows the discharge of wastewater resulting from washing concrete from trucks, pumps, and ancillary equipment to an impoundment if the following conditions are met:
   1. The person holds an AZPDES Construction General Permit authorizing the concrete washout activities;
   2. The Stormwater Pollution Prevention Plan required by the Construction General Permit issued according to 18 A.A.C. 9, Article 9, Part C, for the construction activity addresses the concrete washout activities;
   3. The vegetation at the soil base of the impoundment is cleared, grubbed, and compacted to uniform density not less than 95 percent. If the impoundment is located above grade, the berms or dikes are compacted to a uniform density not less than 95 percent;
   4. If groundwater is less than 20 feet below land surface, the impoundment is lined with a synthetic liner at least 30 mils thick;
   5. The impoundment is located at least 50 feet from any storm drain inlet, open drainage facility, or watercourse and 100 feet from any water supply well;
   6. The impoundment is designed and operated to maintain adequate freeboard to prevent overflow or discharge of wastewater;
   7. The concrete washout wastewater from any wash pad is routed to the impoundment;
   8. The impoundment receives only concrete washout wastewater;
   9. The annual average daily flow of wastewater to the impoundment is less than 3000 gallons per day; and
   10. The following closure requirements are met:
      a. The facility is closed by removing and appropriately disposing of any liquids remaining in the impoundment,
      b. The area is graded to prevent ponding of water, and
      c. Closure activities are completed before filing of the Notice of Termination under the AZPDES Construction General Permit.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4). Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department
Revised October 23, 2007

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran population of desert tortoises occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40° Celsius (105° Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 40° Celsius (105° Fahrenheit), the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises. Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mojave population of desert tortoises (north and west of the Colorado River). Mojave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

Deferred Account #:

Department Use Only	
Permit Number	

Air Quality Activity Permit Application

Pima County Department of Environmental Quality – Air Program
33 North Stone Ave., Suite 730 Tucson, Arizona 85701
Telephone: (520) 740-3340; Fax (520) 243-7340

1 Permitee/Applicant Information - (Activity Permit Holder)

Permittee _____ Phone _____
Mailing Address _____ Fax _____
City _____ State _____ ZIP _____

2 Applicant's Representative or Agent – (Complete Only If Different From Above)

Name _____ Title _____
Firm Name _____ Phone _____
Mailing Address _____ Fax _____
City _____ State _____ ZIP _____

3 Site Information

Site Address _____ Subdivision _____
Cross Streets _____ Township _____ Range _____ Section _____
Directions to Site _____
Site Contact _____ Phone _____
Start Date _____ End Date _____

Start and Finish dates do not reflect the effective dates of the permit

Intended Use of Site After Project Completion _____

4 Permit Specifications

SINGLE ACTIVITY PERMIT -or-

☐ Road Construction _____ Linear Feet
☐ Trenching _____ Linear Feet
☐ Land Stripping _____ Total Acres
☐ Blasting

MULTIPLE ACTIVITY PERMIT

☐ _____ Total Acres

A multiple activity permit may be obtained by persons conducting more than one dust producing activity at a single project site

If the project includes the Demolition or Renovation of an Existing Structure, Permitee may need to apply for an Asbestos NESHAP Permit.

5 Please read and sign the following

This certifies that I am familiar with Pima County rules and regulations that apply to the activity(s) specified above and that I accept full responsibility for complying with all applicable requirements of those rules and regulations as well as any permit conditions specified by the Control Officer for this permit.

X _____
Signature of Permitee or Permitee's Agent or Representative Date

Instructions for Completing the Permit Application

1 Permitee/Applicant Information - (Activity Permit Holder)

This area is to be filled out with the information pertaining to the company or individual whose name will be on the permit as the actual Permitee. Subcontractors hired by the Permitee to conduct the activities prescribed under this permit may be covered under the permit at the discretion of the Permitee. Both the subcontractor conducting work on behalf of the Permitee and the Permitee are responsible for compliance with applicable fugitive dust regulations in Pima County Code Title 17, Air Quality.

2 Applicant's Representative or Agent – (Party Submitting Application)

This area is to be filled out by the person submitting the application, if different from section 1. If the applicant is not the person or the owner/operator of the company performing the activities, the applicant must provide written verification that he/she is an authorized agent of the Permitee or has been delegated the responsibility to act as a representative for the company. If the Applicant and the Permitee are the same, the applicant may designate this by writing the word "same" on the Name line of this area and forgo completing the rest of the section.

3 Site Information

This information will assist PDEQ inspectors in identifying the exact location of the jobsite. PDEQ understands that a site address has not always been issued to a property prior to submitting an application and is therefore not available to the Permitee. In lieu of an address, a clear description of the project location must be given. If an official project name has not been established, then a unique project description is required. The "Intended Use of the Site after Project Completion" offers PDEQ an understanding of the work to be completed. The "Site Contact" should be a person familiar with the job site who is capable of answering questions regarding the site.

4 Permit Specifications

This area must contain a checkmark by each activity that will be covered under a permit and the exact amount of work to be completed. Any changes to the size and scope of the activities, that exceed the amount permitted, will require the Permitee to obtain an additional activity permit to include the added acreage, footage, linear feet or days prior to exceeding the limits of the permit. Be advised that trenching footage conducted within the footprint of a road covered by an active activity permit does not need to be accounted for in the application.

Table 17.12.540 ACTIVITY PERMIT FEES SCHEDULE

Single Activity Permit

ACTIVITY	RATE COMPONENTS
Landstripping and/or Earthmoving	1-2 Acres $100.00 >2-10 Acres $500.00 >10-40 Acres $1,500.00 >40+ Acres $3,000.00
Trenching	300-500 Ft. $75.00 501-1500 Ft. $200.00 1501-5000 Ft. $400.00 5001+ Ft. $800.00
Road Construction	50-1000 Ft. $50.00 1001-3000 Ft. $250.00 3001-6000 Ft. $500.00 6001+ Ft. $1000.00
Blasting	$25.00
Multiple Activity Permit	1-10 Acres $625.00 >10-40 Acres $2,000.00 >40+ Acres $4,000.00

Cash or Check only

Appendix M– Contractor's Spill Prevention Plan
Spill Reporting

Contractor:

- Add spill plan

SPILL REPORT

Date of spill:	Time:
Spill location and direction of flow:	
Material(s) spilled:	Amount (pounds, gallons):

Material released to:

☐ Pavement ☐ Sewer ☐ Storm drain
☐ Secondary containment ☐ Soil ☐ Wash

Size of contaminated area (square feet):

Cause: ☐ Operator error ☐ Procedural failure ☐ Equipment failure

Describe cause and party responsible for spill:

Describe actions taken to contain and clean-up materials, and dispose waste:

People involved in clean-up:

1. Name_____ Employer_____ Title_____
2. Name_____ Employer_____ Title_____
3. Name_____ Employer_____ Title_____
4. Name_____ Employer_____ Title_____

Is spill terminated? ☐ Yes ☐ No	If spill continues, what is the rate?

Comments:

Reported to:

1. Name_____ Employer_____ Date_____
2. Name_____ Employer_____ Date_____
3. Name_____ Employer_____ Date_____

Submitted by:
Name_____ Employer_____ Phone #: _____ Date_____

Appendix N – Construction Schedule and Implementation

Contractor:

- Add Construction Schedule

Appendix O – Field Contact List/Subcontractor List

Contractor:

- Complete Field Contact List
- Complete Subcontractor List

FIELD CONTACT PERSON(S)

Contact Person & Position	Phone Number	Alternate Phone Number	Alternate Contact Person	Phone Number

LIST OF CONTRACTORS AND SUBCONTRACTORS

Contractor:____

Responsibility:______________________________________

Address:____

City:____________________ State:____________________

Telephone:__________________ Fax:____________________

Contact:____

Date Started:_________________ Date Completed______________

Contractor:____

Responsibility:______________________________________

Address:____

City:____________________ State:____________________

Telephone:__________________ Fax:____________________

Contact:____

Date Started:_________________ Date Completed______________

Contractor:____

Responsibility:______________________________________

Address:____

City:____________________ State:____________________

Telephone:__________________ Fax:____________________

Contact:____

Date Started:_________________ Date Completed______________

Appendix P– Inspector, Stormwater Team Qualifications

Contractor:

- Add SWPPP Inspector's Qualifications
- Add Stormwater Team Qualifications

Appendix Q – NOT and Acknowledgement from ADEQ

Note: This process is completed online through myDEQ at https://www.azdeq.gov/mydeq.

Appendix R – Rainfall Log

Rainfall Log

Date	Duration of Event	Inches of Rain	Inspection Required	Comments