Large Construction
Stormwater
Pollution Prevention Plan

For

LGI Homes – Texas, L.L.C.

1450 Lake Robbins Dr., Suite 430
The Woodlands, TX 77380

For

Potranco West II Unit 2 and 3

Residential

In

City of Castroville
Medina County, TX

Prepared by

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A. Permit Regulations

A new general permit to discharge under the Texas Pollutant Discharge Elimination System (TPDES) was issued March 5, 2023 under provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code. The general permit superseded and replaced TPDES General Permit No. TXR150000, issued previously on March 5, 2018 and amended January 28, 2022. Operators of Large and Small Construction sites (see definitions below) who discharge stormwater associated with construction activity located in the State of Texas may discharge stormwater to Surface Water in the State provided they receive authorization and meet the permit conditions. The general permit provides authorization for discharges from large and small construction sites, according to Federal Phase I and Phase II stormwater regulation finalized in the Federal Register November 16, 1990, and December 8, 1999, respectively. Any discharges eligible for authorization under this general permit may alternatively be authorized under a separate general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) as applicable.

B. Copy of Regulations

A copy of the permit requirements must be included in the Stormwater Pollution Prevention Plan (SWP3).

A copy of the stormwater permit regulations is included in the "Notices/Permits" tab section of this SWP3.

C. Authorization Deadlines for Each Type of Activity

Large Construction Activities ((Disturbing 5 acres or more; or part of a larger common plan that will disturb 5 or more acres.) Refer to definitions in the general permit for "a larger common plan".

New Construction-On or after March 5, 2023, the operator must be authorized prior to commencement of construction activities which is the initial disturbance of soils associated with construction-related activities at the site.

Ongoing Construction- Authorized under the previous permit and continuing to operate-Submit a NOI to renew authorization; or a NOT to terminate coverage under the permit within a 90-day period after March 5, 2023. The operator must continue to meet the conditions and requirements of the 2018 permit amended January 28, 2022 TPDES general permit until new authorization is received.

Small Construction Activities (Disturbing 1 acre or more, but less than 5 acres; or part of a larger common plan that will disturb 1 acre; but less than 5 acres.)

New Construction- On or after March 5, 2023, the operator must be authorized prior to commencement of construction Activities.

Ongoing Construction- Authorized under the previous permit and continuing to operate- Meet the requirements of the new general permit within a 90-day period after March 5, 2023. The operator must continue to meet the conditions and requirements of the 2018 permit amended January 28, 2022 TPDES Construction General Permit.

Automatic Authorization – Operators of small construction activities only, as defined in Part I.B of the general permit; but who do not meet in the conditions and requirements for waivers, may be automatically authorized for small construction activities. If they will have low potential for erosion and meet all of the conditions listed in the permit Part II.E.1 (a) – (h), a SWP3 is not required.

D. Definition of Operators

All operators of large, (and small construction sites that do not meet waiver requirements), must develop a SWP3 according to the provisions of the general permit that covers either the entire site or all portions of the site where the applicant is the operator. The SWP3 must be developed and implemented prior to obtaining coverage and prior to commencing construction activities.

General contractors normally have operational control of the day-to-day activities at the construction site and owners control the construction specifications. Operators are defined in the general permit as:

Primary Operator – The person or persons having on-site operational control over construction plans and specifications, including the ability to make modification to those plans and specifications; or the person or persons having on-site day-to day operational control of those activities at a construction site that are necessary to ensure compliance with a SWP3 for the site or other permit conditions (for example, they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions). If the primary operator changes due to responsibility at the site being transferred from one primary operator to another after the initial NOI is submitted, the new primary operator must submit a paper NOI or an electronic NOI at least ten (10) days prior to assuming operational control of a construction site and commencing construction activity.

Secondary Operator – The person or entity, often the property owner, whose operational control is limited to 1) the employment of other operators, such as a general contractor, to perform or supervise construction activities; or 2) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

Secondary operators must either prepare their own SWP3 or participate in a shared SWP3 that covers the areas of the construction site, where they have control over the construction plans and specifications. If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

A secondary operator is not required to submit a NOI, provided a primary operator at the site has submitted a NOI prior to commencement of construction activities. A primary operator is required to submit a NOI and the secondary operator must have provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may 1) alternatively submit a NOI under the general permit, 2) may seek coverage under an alternative TPDES individual permit, or 3) may seek coverage under an alternative TPDES general permit if available.

All secondary operators of large construction activities must post a copy of the signed and certified TCEQ Large Construction Site Notice for Secondary Operators on the approved TCEQ form and provide a copy of the signed and certified TCEQ site notice to the operator of any MS4 receiving the discharge at least two (2) days prior to the commencement of construction activities. The Large Construction Site Notice must be maintained until final stabilization has been achieved.

E. Waiver Applicability & Coverage

For small construction activities in certain counties having a low annual rain volume during periods of low potential for erosion, operators are not required to submit a NOI for coverage or post a notice unless required by the executive director.

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit, when the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5). The operator may calculate a site-specific R factor utilizing the following online calculator: http://lew.epa.gov/, or using another available resource.

The operator must submit a Low Rainfall Erosivity Waiver (LREW) certification form to the TCEQ electronically via the online e-Permits system available through the TCEQ website. The form is a certification by the operator that the small construction activity will commence and be completed within a period when the value of the calculated R factor is less than five (5).

Applicants who request and obtain an electronic reporting waiver shall submit the LREW on a paper form provided by the executive director at least seven (7) days prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ.

The waiver from coverage does not apply to any non-stormwater discharges, including what is allowed under the permit. The operator must ensure that all non-stormwater discharges are either authorized under a separate permit or authorization or are captured and routed to an authorized treatment facility for disposal.

Refer to the General Permit for a detailed discussion of how to determine whether the project qualifies for the waiver.

F. Compliance With State and/or Local Regulations

Permittees which discharge stormwater associated with construction activities must ensure their Stormwater Pollution Prevention Plan is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by state and/or local officials.

The City of Castroville and Medina County have existing ordinances and practices that require permits for construction activities and a regulatory process for reviewing plans, approving permits and inspecting construction sites. The erosion and sediment control plans for temporary and permanent structures must be approved to obtain the grading and building permits.

Reviews of the above documents are made during the preparation of the SWP3. If required, such documents and/or information is included in the SWP3. The SWP3 must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in such plans.

G. Edwards Aquifer Rules

A site regulated under 30 TAC § 213 may not begin construction until the appropriate Edwards Aquifer Protection Plan (EAPP) has been approved by the TCEQ's Edwards Aquifer Protection Program. For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone (CZ), operators must meet all applicable requirements of, and operate according to, 30 TAC § 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of the general permit. The online link to the Edwards Aquifer Map Viewer is https://www.tceq.texas.gov/gis/edwards-viewer.html.

If applicable, a copy of the EAPP plan will be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee will maintain a copy of the approval letter for the plan in its SWP3.

This project is not located in an Edwards Aquifer Zone.

H. Submitting the NOI Electronically

Effective September 1, 2018, the NOIs were required to be submitted electronically using STEERS. A paper form cannot be used unless a completed waiver form requesting approval to submit a paper NOI is submitted and approved. The applicant must certify on the NOI that a Stormwater Pollution Prevention Plan (SWP3) has been prepared.

Operators with an electronic reporting waiver must submit a completed NOI to TCEQ at least seven (7) days prior to prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ. An authorization is no longer provisional when the executive director finds the NOI is administratively complete and an authorization number is issued to the permittee for the construction site indicated on the NOI.

If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

If the primary operator changes after the initial NOI is submitted, the new primary operator will submit a NOI or an electronic NOI at least 10 days before assuming operational control. Secondary operators of large construction activities as described in the general permit are authorized immediately following compliance with the applicable conditions described in the permit.

Permittee	Authorized Signature	Position
Owner / Operator	Charles Merdian LGI Homes – Texas, L.L.C.	CFO
Contractor / Operator		

1. Small Construction Site Notice (SCSN)

For small construction activities, each permittee will complete, sign, and post a Small Construction Site Notice using the appropriate TCEQ form. If applicable, a copy of a signed and certified Construction Site Notice will also be submitted to the operator of the MS4 at least two (2) days prior to commencing construction activities. A copy of the signed and certified TCEQ Small Construction Site Notice (Includes low potential for erosion), must be maintained until final stabilization is achieved.

The project does not qualify for a Small Construction Site Notice.

2. Large Construction (NOI)

For large construction activities each primary operator will complete, sign and submit a NOI using the appropriate TCEQ form. A copy of the signed NOI will be retained in the SWP3 for each permittee.

The project will require a NOI since it will disturb 5 acres or more.

3. Notice of Change (NOC)

If relevant information changes, or if incorrect information was provided in the NOI, a NOC form must be submitted to the executive director at least 14 days before the change occurs. If not possible, the operator must submit a NOC within 14 days of discovery of the change. If the operator becomes aware that any relevant facts or incorrect information was omitted in the NOI, the correct information must be provided within 14 days after discovery.

Effective September 1, 2018, applicants must submit a NOC using the online e-Permits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. If a waiver from electronic reporting is granted, a paper NOC reporting form will be issued by TCEQ. All waivers for electronic reporting are not transferrable. Electronic reporting waivers expire on the same date as the authorization to discharge except for temporary waivers that expire one (1) year from issuance. A copy of the NOC form or letter must also be placed in the SWP3 and provided to the operator of any MS4 receiving the discharge. Operators are authorized immediately following confirmation of receipt of the electronic form by the TCEQ, unless otherwise notified by the executive director.

Information on a NOC may include but is not limited to a change in the description of the construction project; an increase in the number of acres disturbed (for increases of one or more acres); or the name of the operator (where the name of the operator has changed). A transfer of operational control from one operator to another, including a transfer of the ownership of a company, cannot be included in a NOC. A NOC is not required for notifying TCEQ of a decrease in the number of acres disturbed. The information must be included in the SWP3 on-site.

4. Where to Submit

NOI forms, NOT forms, NOC letters, and Small Construction Site Notices that require a signature and must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications). A copy of all documents will be retained in the SWP3. Refer to the following table for information. For Small Construction Site Notices, submit Signatories forms via mail consistent with other water quality general permits. A copy must be maintained.

Item	Mailing Address
Notices of Intent (NOIs), and **Notices of Change (NOCs)** **Notices of Termination (NOTs)** NOI Fees **A.** A fee of must be submitted along with the NOI: 1. $325 if submitting a paper NOI, or 2. $225 if submitting a NOI electronically. **B.** Fees are due upon submission of the NOI. A NOI will not be declared administratively complete unless the associated fee has been paid in full. **C.** No separate annual fees will be assessed for this general permit. The Water Quality Annual Fee has been incorporated into the NOI fees as described above. **D.** Effective September 1, 2018, applicants seeking coverage under a NOI or LREW must submit their application using the online e-Permits system available through the TCEQ website, or request and obtain a waiver from electronic reporting to comply with federal electronic reporting requirements in 40CFR Part 127. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance.	**Texas Commission on Environmental Quality** Stormwater & General Permits Team, MC-228 P.O. Box 13087 Austin, Texas 78711-3087 If the construction activities are located in the Edwards Aquifer Recharge Zone, Contributing Zone, or within 10 miles upstream of the Edwards Aquifer Recharge Zone, applicants shall also submit an electronic copy of the NOI to: EAPP@TCEQ.Texas.gov Or mail a paper copy to the appropriate TCEQ regional office: Counties: Comal, Bexar, Medina, Uvalde, and Kinney Contact: TCEQ Water Program Manager San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 (210) 490-3096 Counties: Williamson, Travis, and Hays Contact: TCEQ Water Program Manager Austin Regional Office 12100 Park 35 Circle Room 179, Building A Austin, Texas 78753 (512) 339-2929 **Copies of NOIs, NOCs and NOTs will also be submitted to the operator of the MS4 (city of site):** *(Refer to the definition of MS4 operator in the general permit):* ***Medina County*** 1100 16th Street Hondo, TX 78861 E-filing of NOI, NOC or NOT: https://www6.tceq.state.tx.us/steers/
Delegation Letters- Submit the Delegation of Signatory Form, per 30 TAC 305.128. For Small Construction activities, submit by mail per instructions on the approved TCEQ form.	**Texas Commission on Environmental Quality** Executive Director Stormwater General Permits Team, MC-148 P.O. Box 13087 Austin, Texas 78711-3087

A. Stormwater Pollution Prevention Plans (SWP3s)

The Stormwater Pollution Prevention Plan (SWP3) is used to comply with effluent limits and other permit conditions for authorized discharges that will reach Waters of the United States; and also discharges to MS4s and privately-owned Separate Storm Sewer Systems that drain to surface Waters in the State or Waters of the United States. The required SWP3 contents, including additional effluent limitations, are listed in the general permit Part IV.

A SWP3 must identify any potential sources of pollution that have been determined to cause, have a reasonable potential to cause, or contribute to a violation of water quality standards or have been found to cause or contribute to the loss of a designated use of surface water in the state from discharges of stormwater from construction activities. It also includes construction support activities such as vehicle repair areas, fueling areas, etc. that are present at a construction site solely for the support construction activities and are only used by operators at the construction site.

Where potential sources of these pollutants are present at a construction site, the SWP3 must also contain a description of the management practices that will be used to prevent these pollutants from being discharged into surface Waters in the State or Waters of the U.S (See 40 CFR 122.20 for definitions).

The SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater associated with construction activity and non-stormwater discharges described in the permit, in compliance with the permit terms and conditions.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project, provided reference is made to the other operators at the site. Where there is more than one SWP3 for a site, permittees must coordinate to ensure that BMPs and controls are consistent and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure compliance with the terms and conditions of the general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators must independently obtain authorization but may work together to prepare and implement a single, comprehensive SWP3 for the entire construction site.

For the project, the owner and general contractor are the same. Refer to Delineation of Responsibilities.

B. Deadlines for SWP3 Preparation Implementation and Compliance

The SWP3 will be prepared prior to obtaining authorization under the general permit and implemented prior to commencing construction activities that result in soil disturbance. The SWP3 will be updated as needed based on changes in operations, deficiencies noted during site inspections, in response to spills, or as notified by the executive director. The SWP3 must be prepared so that it provides for compliance with the terms and conditions of this general permit.

C. SWP3 Signature

The SWP3 shall be signed in accordance with § 30 TAC 305.44 (relating to Signatories to Reports) and retained on the construction site. If there is no place on-site to store the SWP3, a notice must be posted which describes the SWP3 location. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site. If the SWP3 is retained off-site, then it shall be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request.

A copy of the signed NOI, TCEQ issued permit, or Small Construction Site Notice must be kept with the SWP3 to verify permit coverage and certification of the SWP3.

A copy of the SWP3 shall be retained at the location listed on the posted Site Notice or Construction Site Notice.

D. Notification by Executive Director that SWP3 is Not Sufficient

The executive director may notify the permittee at any time that the SWP3 does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of this permit that are not being met by the SWP3 as well as those requiring modification in order to meet the minimum requirements of this Part. Within seven (7) calendar days of receipt of such notification from the executive director (or as otherwise provided by the executive director), the permittee shall make the required changes to the SWP3 and shall submit to the executive director a written certification that the requested changes have been made. The executive director may take appropriate enforcement action for the period of time the permittee was operating under a plan that did not meet the minimum requirements of the permit. (Refer to Part XIV. (A), Revisions and Updates, for information regarding updates to the SWP3).

E. Contents of SWP3

The SWP3 must be developed and implemented by primary operators of small and large construction activities and include, at a minimum, the information described in the permit and must comply with the construction and development effluent guidelines in the general permit.

1. Project Description

Home Building- Refer to Part V. D for a detailed description of earth disturbing activities taking place during the construction:

(a) Existing Soil Cover

The following soil cover exists on a typical lot where vertical construction of homes will take place:

Existing Soil Cover on a Typical Lot		
Type of Cover	**Lot Coverage**	**Approximate Density**
Native Grass / Weeds	0%	0%
Brush	0%	0%
Trees	0%	0%
No Vegetation – Soil	100%	NA
No Vegetation – Pavement/Structures	0%	NA

(b) Existing Soil Condition

NRCS Soil Survey described the soils as primarily a Doss association, gently undulating, Monteola clay, 1 to 5 percent slopes and a Stephen clay, 1 to 3 percent slopes. The soils have very low to low erosion potential depending on the k factor, the slope steepness, and the vegetation cover condition. The Survey soils are no longer valid since development grading was recently completed.

The quality of discharge from the site is estimated to be fair since the lots are not covered with grass.

(c) Planned or Existing On-Site Systems

The following systems are planned and/or exist on the site:

Planned or Existing On-Site Systems		
Systems Present	**Yes/No**	**Brief Description**
Pipe and Inlet Systems	Yes	In the street curbs and gutters.
Other systems (channel, creek, watercourse, culverts, swales, etc.)	Yes	Swales on the lots and large channels along the rear.
Detention Basin	Yes	
Retaining Walls	No	

(d) Planned or Existing Off-Site Systems

The following are systems that are planned or existing off the site that could potentially impact the site:

Planned or Existing Off-Site Systems		
Systems Present	**Yes/No**	**Brief Description**
Pipe and Inlet Systems	Yes	In adjacent street.
Other systems (channel, creek, watercourse, culverts, swales, etc.)	Yes	Project discharges into an existing channel and creek
Detention Basin	Yes	
Others	Yes	Streets, curbs, and gutters

Existing Areas of Erosion		
Area Presently Showing Signs of Erosion	**Yes/No**	**Brief Description (location, approximate area, and probable cause)**
Gullies	No	No gullies were noted during the site inspection.
Sediment Buildup in Roadways	No	No sediment buildup was noted during the inspection.
Soil Loss around Structures	No	No soil loss was noted during the site inspection.
Eroding Creek Bank	No	There are no creeks nearby that show signs of an eroding creek bank.
Other	No	N/A

2. Off-Site Storage Areas

Any off-site storage areas associated with this project will be indicated on the map and the material management and spill response procedures in this SWP3 will apply.

Refer to Part V.E. of this SWP3 for more information on any related off-site material storage activity.

3. Runoff Coefficient and Soil Characteristics

The following are the estimated runoff coefficients on a typical lot (Refer to the Drainage Plan if provided.):

Runoff Coefficients on a Typical Lot during Construction	
Runoff Coefficient Before Construction Activities Begin	0.50
Runoff Coefficient after Construction Activities Begin (Range)	0.50-0.70

Runoff Coefficients on a Typical Lot (Completed)				
Pervious %	Impervious %	C Value Pervious	C Value Impervious	Revised Runoff Coefficient
40	60	0.30	0.90	0.65

4. Industrial Activity Associated with Construction

Location and description of any discharge associated with industrial activity other than construction, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by the permit.

Discharge of stormwater runoff from concrete batch plants at regulated construction sites may be authorized under the provisions of the general permit. If there are any concrete or asphalt plants associated with this project, they will be indicated in Part V.E.

Batch plants will not be used on-site during construction of homes.

Stormwater Pollution Prevention Plan Certification

Primary or Secondary Operator (Owner)

"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.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign this document and can provide documentation in proof of such authorization upon request."

Project or Site:	**Potranco West II Unit 2 and 3 (RES)**
Owner Name:	LGI Homes – Texas, L.L.C.
Corporate Address:	1450 Lake Robbins Dr., Suite 430
	The Woodlands, TX 77380
Corporate Phone:	281-362-8998
Signature:	DocuSigned by: Charles Meridan 332F584FB4124C8...
Printed Name:	Charles Meridan
Title:	CFO
Date:	10/25/2023

The SWP3 shall be signed in accordance with 30 Texas Administrative Code §305.44, as follows:

(1) For a corporation, by a responsible corporate officer.
(2) For a partnership, by a general partner.
(3) For a sole proprietorship, by the proprietor.
(4) For a municipality, state, federal, or other public agency, by principal executive officer, mayor, or ranking elected official.

Stormwater Pollution Prevention Plan Certification

Primary Operator
(General Contractor)

"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.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign this document and can provide documentation in proof of such authorization upon request."

Project or Site: **Potranco West II Unit 2 and 3 (RES)**

Operator Name: _____

Company Address: _____

_____

Company Phone: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

The SWP3 shall be signed in accordance with 30 Texas Administrative Code §305.44, as follows:

(1) For a corporation, by a responsible corporate officer.
(2) For a partnership, by a general partner.
(3) For a sole proprietorship, by the proprietor.
(4) For a municipality, state, federal, or other public agency, by principal executive officer, mayor, or ranking elected official.
(5) By a Duly Authorized Representative.

Stormwater Pollution Prevention Plan Certification

Sub-Contractor Certification

Contractors, builders, or others (contractors) involved in construction activity who are not the operator, developer, or general contractor, and have not been issued the Stormwater Construction General Permit (Permit) authorization, execute this Contractor Certification which places the responsibility of complying with and abiding by the intent and purpose of the permit with the contractor for any and all work performed under the authority and direction of the contractor. Furthermore, the contractor assumes responsibility to avoid or eliminate any actual or potential adverse effects upon the environment according to the Stormwater Pollution Prevention Plan (SWP3), during all phases of building, construction, or delivery activity on any and all construction sites under the control and responsibility of the contractor as described in the SWP3.

"I certify that I understand the terms and conditions of the TXR150000 General Permit that authorizes stormwater discharges associated with construction activity from the construction site identified as part of this certification. I have read and understand the Operator's Notice of Intent, SWP3 and BMPs described pertaining to the project location listed below. I agree that as a contractor, builder, or a support service company, I am responsible for installing and/or maintaining the appropriate pollution prevention measures that I am responsible for according to the agreement I have with the permittee.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign this document and can provide documentation in proof of such authorization upon request."

Project or Site: **Potranco West II Unit 2 and 3 (RES)**

Operator Name: _____

Company Address: _____

_____

Company Phone: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

The SWP3 shall be signed in accordance with 30 Texas Administrative Code §305.44, as follows:

(1) For a corporation, by a responsible corporate officer.
(2) For a partnership, by a general partner.
(3) For a sole proprietorship, by the proprietor.
(4) For a municipality, state, federal, or other public agency, by principal executive officer, mayor, or ranking elected official.
(5) By a Duly Authorized Representative.

Stormwater Pollution Prevention Plan Certification

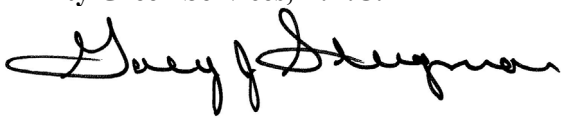
Professional

"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."

Certifying SWP3 for:
LGI Homes – Texas, L.L.C.
The Woodlands, TX

Project:
Potranco West II Unit 2 and 3 (RES)
Castroville, TX

Trinity Green Services, L.L.C.



Gary J. Steigman –
CPESC No. 2743, CPSWQ, CESSWI

Date: October 26, 2023

The certification above covers only the technical information that was either prepared, evaluated; or, gathered by the Certifier during the preparation of the SWP3.

Unless otherwise noted, referenced standards and specifications for BMPs included in this document follow recommendations in the *National Catalog of Erosion and Sediment Control and Stormwater Management*, "Guidelines for Community Assistance, Appendix 1 – Representative Examples" dated Feb. 1996 USDA-NRCS. If the BMP details are not sufficient, or a threat to public health, property, safety or well-being is perceived to exist by using the recommended BMPs, please contact Trinity Green Services.

The plan has been prepared according with the Clean Water Act and represents a planning tool to assist the contractor to comply with environmental regulations during the project construction. The decisions on how to operate the construction site rest solely with the contractor and not with Trinity Green Services. Therefore, Trinity Green Services is not liable for the operational decisions of the contractor or the failure of the contractor to follow the recommendations as outlined in the SWP3.

Contractor agrees to hold Trinity Green Services harmless for any potential violations the contractor may receive for operational violations from regulatory agencies, including but not limited to, such as city governments, the State, or EPA. Trinity Green Services will answer questions on how the SWP3 was prepared and defend recommendations made with any regulated authority that may request it.

A. Posted Notices

For small projects, operators must post a copy of a signed and certified Small Construction Site Notice at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities at least 2 days prior to commencing construction activity and maintain the notice in that location until completion of the construction activity and final stabilization has been achieved. A copy of the signed and certified Small Construction Site Notice must be provided to the operator of any municipal separate storm sewer system (MS4) receiving the discharge. Small Construction Site Notices may have a redacted signature as long as there is an original signed and certified Site Notice with a viewable signature, located on-site and available for review.

For large projects, operators must maintain a posted Site Notice at the construction site until final stabilization has been achieved and a Notice of Termination has been submitted to the TCEQ. Operators with authorization for construction activity under the general permit must post a TCEQ Site Notice at the construction site in a place readily available for viewing by the general public, local, state, and federal authorities.

If the construction project is a linear construction project such as a pipeline or highway, the notices must be placed in a publicly accessible location near where construction is actively underway. Site Notices for small and large construction activities at these linear construction sites may be located, as necessary, along the length of the project, but must still be readily available for viewing by the general public.

Operators requesting a waiver from coverage are not required to post the waiver certification form at the construction site.

B. Location of Copies of the General Permit

The permittee will retain a copy of the general permit language in the SWP3; or at the construction site if the SWP3 is stored Off-Site.

A copy of the regulations will be retained at the location listed on the Posted Site Notice or Construction Site Notice.

C. Plan Review

The permittee will make the SWP3 available for review upon request by the executive director, a federal, state, tribal or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; or the operator of a municipal separate storm sewer receiving discharges from the site. For revisions to the SWP3, refer to Part XIV. (Procedures for Revising and Modifying the SWP3).

D. SWP3 Storage Location and Period of Availability

The SWP3 is required to be kept on the site or must be made available to the executive director for review at the time of an on-site inspection from the date of project initiation to the date of final stabilization. Permittees with day-to-day operational control over SWP3 implementation shall have a copy of the SWP3 available at a central location on the site for the use of all operators and those identified as having responsibilities under the SWP3 whenever they are on the construction site. If the SWP3 is retained off-site, then it will be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request. The SWP3 may be kept electronically if the records are in a format that can be read in a similar manner as a paper record, legally valid with valid with no less evidentiary value then the paper equivalent, and immediately accessible to the inspector during an inspection.

E. Inspection Reports

A report summarizing the scope of the inspection must be completed within 24-hours following the inspection. The report must also include the date(s) of the inspection and major observations relating to the implementation of the SWP3. The reports will be stored on the site. For details regarding inspections, refer to Part XV. (B) Inspections.

Standardized forms for inspections reports are included in Appendix 2.0 of this SWP3. Site inspection reports will be kept with the SWP3. The qualifications of the inspectors are included in Appendix 1.0 of this SWP3.

F. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required in the permit. For activities in which a NOT is not required, records will be retained for a minimum period of three (3) years from the date that the operator terminates coverage under the permit. Records include: 1) A copy of the SWP3; 2) All reports and actions required by this permit including a copy of the Small Construction Site Notice; 3) All data used to complete the NOI, if a NOI is required for coverage under the general permit; and all records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

G. Standard Permit Conditions

Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued (CWA and TWC), and is grounds for enforcement action; for terminating, revoking and reissuance or modification; or denying coverage under this general permit.

The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for modifying, revoking, reissuing, terminating; or, otherwise suspending authorization under this permit.

If a discharger (permittee) is under a TCEQ enforcement action, the discharger cannot claim as a defense that it would have been necessary for him/her to halt or reduce the permitted activity in order for the permittee to maintain compliance with the permit conditions**.**

Inspection and entry is allowed under the Texas Health and Safety Code.

A. Responsibilities Of Operators

All secondary operators and primary operators with control over constructions plans and specifications shall ensure: 1) project specifications allow or provide that adequate BMPs are developed to meet the requirements of Part III of the general permit; 2) the SWP3 indicates the areas of the project where they have control over project specifications including the ability to make modifications in specifications; 3) all other operators affected by modification in project specifications are necessary to remain compliant with the conditions of the general permit 4) the SWP3 for portions of the project where each operator has control indicates the name and permit number for operators with day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and permit. Refer to the TPDES General Permit for responsibilities of operators.

The following is a breakdown of the responsibilities of each permittee.

Delineation of Responsibilities	
Activity	**Responsibility**
Owner: **Permittee with operational control over the construction plans and specifications including the ability to make modifications will:**	***Company Name*** **Permit No. TXR1589IC**
1. File Notice of Intent (NOI) to obtain permit coverage. *	LGI Homes – Texas, L.L.C.
2. Certify SWP3.	LGI Homes – Texas, L.L.C. and Trinity Green Services, L.L.C.
3. Preparation of the Stormwater Pollution Prevention Plan (SWP3). Ensure specifications allow or provide adequate BMPs.	Trinity Green Services, L.L.C.
4. Ensure SWP3 meets minimum requirements of permit.	LGI Homes – Texas, L.L.C. and Trinity Green Services, L.L.C.
5. Ensure SWP3 includes all areas of the project and ensure each permittee is aware of his/her requirements under the SWP3 and areas of control are established.	LGI Homes – Texas, L.L.C.

Delineation of Responsibilities (Cont'd)	
Activity	**Responsibility**
Owner: **Permittee with operational control over the construction plans and specifications including the ability to make modifications will:**	***Company Name***
6. Ensure names and permit numbers of each permittee with day-to-day operational control of the site are included in the SWP3.	LGI Homes – Texas, L.L.C.
7. Delegate the authority to sign reports and implement the SWP3 to appropriate individuals/companies.	LGI Homes – Texas, L.L.C.
8. Update the SWP3 as necessary based on changes during construction and based on input from inspection reports. Ensure that all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their BMP s as necessary to remain compliant with the conditions of this general permit.	LGI Homes – Texas, L.L.C. and Trinity Green Services, L.L.C.
9. File Notice of Termination once project has achieved final stabilization. Mail a copy to the MS4, City of Medina (Address on pg. 12) *	LGI Homes – Texas, L.L.C.

*The owner may choose to be a Secondary Operator (See definition Part 1. D. of the SWP3). If a contractor operator has not been authorized or has abandoned the site, a Secondary Operator is considered to be the responsible party and must obtain authorization as a primary operator under the permit until the authority for day-to-day operational control is transferred to another primary operator. The new primary operator must update or develop a new SWP3 that will reflect the transfer of operational control and include any additional updates to the SWP3 to meet requirements of the permit.

Delineation of Responsibilities	
Activity	**Responsibility**
Operator / General Contractor: **Permittees with day-to-day operational control of the site will:**	***Company Name*** **Permit No. TXR1589IC**
1. File Notice of Intent (NOI) to obtain permit coverage.	LGI Homes – Texas, L.L.C.
2. Certify SWP3 meets permit requirements for the portions of the project where they are operators and identifies their area of operational control.	LGI Homes – Texas, L.L.C. and Trinity Green Services, L.L.C.
3. Install structural Best Management Practices (BMPs) specified in the SWP3. Identifies person(s) responsible for BMP implementation.	LGI Homes – Texas, L.L.C.
4. Initiate temporary/permanent stabilization practices within 14 days where construction activities have temporarily or permanently ceased unless disturbing activities will resume within 14 days.	LGI Homes – Texas, L.L.C.
5. Maintain structural BMPs during the life of the construction project.	LGI Homes – Texas, L.L.C.

Delineation of Responsibilities (Cont'd)	
Activity	**Responsibility**
Operator / General Contractor: **Permittees with day-to-day operational control of the site will:**	***Company Name***
6. Perform procedural BMPs needed to supplement structural BMPs such as street sweeping.	LGI Homes – Texas, L.L.C.
7. Removal of BMPs once construction is complete.	LGI Homes – Texas, L.L.C.
8. Perform inspections: a. Weekly b. Biweekly c. After a ½" or Greater Storm Event d. Monthly *(monthly and storm event in arid and semi-arid areas.)*	 Trinity Green Services, L.L.C. N/A N/A N/A
9. Delegate the authority to sign reports and implement the SWP3 to appropriate individuals/companies.	LGI Homes – Texas, L.L.C.
10. Update the SWP3 as necessary based on changes during construction and based on input from inspection reports.	LGI Homes – Texas, L.L.C. and Trinity Green Services, L.L.C.
11. File a Notice of Termination (NOT) when the site is stabilized or when operator no longer has day-to-day operational control of the site. Mail a copy to the MS4, City of Medina (Address on pg. 12)*	LGI Homes – Texas, L.L.C.

A. Project Information

Potranco West II Unit 2 and 3 will be a residential homebuilding (vertical construction) project in which equal to or greater than one acre or more is disturbed or is part of a larger common plan of development or sale that will disturb one acre or more acres. Therefore, it meets eligibility requirements and a Texas Stormwater Permit is required. The Stormwater Pollution Prevention Plan is prepared to satisfy the conditions of that permit.

B. Receiving Water

The name of the receiving water(s) and the areal extent and description of wetlands or other special aquatic sites (as described under 40 CFR 230.3 within or near the site which will be disturbed or which will receive discharges from disturbed areas of the project.

The stormwater runoff from this site will discharge to an unnamed tributary to Kempf Creek to Medina River below Medina Diversion Lake. The receiving waters is not an impaired 303(d) listed waters. No TMDL has been established. Erosion controls along with solid waste and hazardous material management practices have been identified to minimize, reduce or eliminate any project effects. If inspections reveal that additional BMPs are needed, they will be added during the construction phase in a timely manner. Any wetlands or other water bodies are shown on the site map, if applicable.

C. Name of Agency(ies) With Jurisdiction Authority

The State of Texas has authority to administer the National Pollutant Discharge Elimination System (NPDES) stormwater program under Section 26.040 of the Texas Water Code and Section 402 of the Clean Water Act. The Texas Commission on Environmental Quality (TCEQ) issues authorization to discharge stormwater under the TPDES General Permit No. TXR150000.

A copy of the stormwater permit regulations is included in the "Notices/Permits" tab section of this SWP3.

D. Nature of the Construction Activity

Residential construction activities are for the vertical construction of residential homes which will include the installation of sediment and erosion controls; grading, excavation, and backfill for foundations and utilities; forming and pouring a concrete foundation slab, sidewalks, driveways, and patios; framing and finishing the interior and exterior of the structure; stabilizing the site; landscaping and removing temporary BMPs.

E. Industrial Activity

Industrial activities must be 1) located within 1 mile of the project boundary; 2) operate under a SWP3, be directly related to the project; 3) cannot be a commercial operation nor serve other unrelated construction projects; and 4) does not continue to operate beyond the completion of the construction activity it supports.

The following table contains the description any related industrial activity present at this site:

Related Industrial Activity	Description	Used at Site? Yes/No
On-Site Concrete or Asphalt Batch Plants	Refer to the general permit Part IV. An on-site concrete batch plant is sometimes used during development of large projects to produce concrete on the site. The runoff from the on-site batch plant must be treated with BMPs suitable for on-site concrete batch plant operation. Coverage is authorized under this permit as long as the on-site batch plant is used solely for this project. If the batch plant mixes material for any other site, it must have a separate industrial SWP3 and permit. Runoff from the batch plant area must be contained with a temporary holding pond and the water recycled in the process water for mixing concrete. The pond should be designed and monitored to ensure there are no discharges during storm events.	No
Equipment Staging Areas	Entrances into the equipment staging area or lot may need a crushed rock entry to prevent off-site tracking of sediment. Any petroleum products stored in the equipment staging area must be in closed containers in good condition to prevent leaking. Maintenance on equipment should be done with drip pans, and used fluids captured and properly disposed of off the site. Fuel tanks will have secondary containment or will be double-walled. If total storage of oil product containers 50 gallon or larger is over 1,320 gallons, they will be regulated by an EPA Spill Prevention Control and Countermeasures (SPCC) plan developed and available on the site.	No
Material Storage Areas	Material storage areas should be maintained to keep material limited on the site to materials needed for the job. Liquid containers must be kept closed when fluids are not being removed and drip pans must be under any containers with valves or spigots attached. Spills and leaks will be cleaned up promptly and materials removed from the site. The spill response poster will be posted in the area.	Yes

F. Estimated Total Area to be Disturbed

Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities including off-site borrow and fill areas. Only the lots will be disturbed during the project.

Area of the Project and Soil Disturbance *(Includes all areas disturbed by excavation, grading, or other activities including off-site borrow and fill areas.)*	
Total Project Acres	24.4 acres
Total Disturbed Acres	18.1 acres

G. General Location and Site Maps

A general location map (e.g., a portion of a city or county map) and a detailed site map indicating the following, if applicable, is included: 1) drainage patterns and approximate slopes anticipated before and after major grading activities; 2) areas where soil disturbance will occur; locations of all controls and buffers, either planned or in place; 3) locations where temporary or permanent stabilization practices are expected to be used; 4) locations of construction support activities, including those located off-site; 5) surface waters (including wetlands) either within or within one mile downstream of the sites discharge points, and also waters that are impaired; locations where stormwater discharges from the site directly to a surface water body or a municipal separate storm sewer system; 6) vehicle wash areas 7) designated points on the site where vehicles will exit onto paved roads which applies to construction transition from unstable dirt areas to exterior paved roads 8) property boundaries, 9) demolition.

Whenever a change occurs on-site, the detailed site map must be updated.

Location and site maps for this project are included in Part XIII of this SWP3. The entrance to the project can be found by using the following coordinates:

Latitude	**Longitude**
29.433536 degrees N	-98.844506 degrees W
29° 26' 00.73"	-98° 50' 40.22"

A. Permit Area

This project is located in Texas; an EPA delegated state and is not on Indian land.

B. Eligibility

1. Stormwater Associated with Construction Activities

The project is also eligible for permit coverage since it meets the definition of small or large construction activities as defined by TPDES General Permit No. TXR150000. There are no other discharges authorized under a separate NPDES permit or TPDES permit. Authorization of discharges from construction activities associated with the construction or operation of a facility licensed for storage of high-level radioactive waste is prohibited by the U.S. Nuclear Regulatory Commission. The NOI includes confirmation that the construction activities are not associated with a facility licensed to store high-level radioactive waste by the U.S. Nuclear Regulatory Commission.

2. Discharges of Stormwater Associated with Construction Support Activity

Related activities are eligible for coverage under the general permit provided the following conditions are met:

- activities are located within (1)-mile from the boundary of the permitted construction site and directly supports the construction activity;
- a SWP3 is developed according to the provisions of the general permit and includes appropriate controls and measures to reduce erosion and discharge of pollutants in stormwater runoff according to the provisions of the permit;
- activities are directly related to the construction site;
- activities are not a commercial operation, nor serve other unrelated construction projects; and
- construction support activities either do not continue to operate beyond the completion date of the construction site it supports

C. Limitations on Permit Coverage

1. Post Construction Discharges

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization are not eligible for coverage. Discharges following the submission of the notice of Termination or removal of the appropriate TCEQ site notice are not eligible for coverage.

2. Prohibition of Non-Stormwater Discharges

Except as otherwise provided in the general permit and the SWP3, only discharges that are composed entirely of stormwater associated with construction activity; or authorized non-stormwater discharges are authorized under the general permit.

3. Compliance with Water Quality Standards

Discharges to surface water in the state that would cause; have the reasonable potential to cause or contribute to a violation of water quality standards; or that would fail to protect and maintain existing designated uses are not eligible for coverage under the general permit and may be covered under an individual or alternative permit.

4. Impaired Receiving Waters/TMDLs

The permittee shall determine whether the authorized discharge is to an impaired water body on the latest EPA-approved CWA Section 303(d) List; or are waters with an EPA-approved or established TMDL that are found on the latest EPA-approved Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d) as not meeting applicable Texas Surface Water Quality Standards.

New sources or new discharges of the pollutants of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Pollutants of concern are those for which the water body is listed as impaired.

Discharges of the pollutants of concern to impaired water bodies for which there is a TMDL are not eligible for under the general permit unless they are consistent with the approved TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges into their SWP3 in order to be eligible for coverage under the general permit. For consistency with the construction stormwater-related items in an approved TMDL, the SWP3 must be consistent with any applicable condition, goal, or requirement in the TMDL, TMDL Implementation Plan (I-Plan), or as otherwise directed by the executive director.

This SWP3 is designed to eliminate any potential constituents of concern from entering any impaired water body.

5. Edwards Aquifer

Discharges to the Edwards Aquifer Recharge Zone or Contributing Zone cannot be authorized by the permit where prohibited by 30 TAC Chapter 213 (relating to the Edwards Aquifer Rules). Commencement of construction may not begin until the appropriate Edwards Aquifer Protection Plan has been approved by the TCEQ's Edwards Aquifer Protection Program.

For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone, operators must meet all applicable requirements of, and operate according to the Edwards Aquifer Rules) in addition to the provisions and requirements of the general permit.

The SWP3 will incorporate requirements of the Rule, if applicable, to reduce impacts to the Edwards Aquifer and Contributing Zone.

For existing discharges, the requirements of the agency-approved Water Pollution Abatement Plan under the Rules are in addition to the general permit. For discharges located in the within ten stream miles upstream of the Aquifer Recharge Zone, applicants will also submit a copy of the NOI to the appropriate TCEQ regional office.

Construction activities are not located within 10 miles upstream from the Edwards Aquifer Recharge Zone.

6. Discharges to Specific Watersheds and Water Quality Areas	Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.
7. Protection of Streams and Watersheds by Other Governmental Entities	The general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities. *Federal, state, or local governmental entity requirements are reviewed during the permit application process. If there are additional requirements in the future, the SWP3 will be modified to accommodate these additional requirements.*
8. Indian Lands	Stormwater runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under the general permit. *This project is not located on Indian Country Land.*
9. Oil and Gas Production	The Clean Water Act § 402(1)(2) provides that stormwater discharges from construction activities related to oil and gas exploration, production, processing, or treatment operations, or transmission facilities are exempt from the general permit regulations. The exemption does not include stormwater discharges from the construction of administrative buildings, parking lots, and roads servicing an administrative building at an oil and gas site, as these are considered traditional construction activities. However; if the exempt activities have lost their exemption as a result of a spill of a reportable quantity or hazardous substances that contribute to a violation of water quality standards, they must obtain permit coverage under the general permit or individual permit. *This project is not associated with oil and gas production*.
10. Agricultural Activities	Stormwater discharges from agricultural activities that are not point source discharges of stormwater are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities. Discharges of stormwater runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of confined animal feeding operations, would be point sources regulated under this general permit. *This project is not associated with agricultural activities.*
11. TX Coastal Management Program	*If the project is located within one of the following Texas Counties: Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, Victoria, and Willacy; additional requirements are needed to this SWP3 to be consistent with the requirements of the Texas Coastal Management Program.*

D. Potential Pollutant Identification

The SWP3 must also identify any potential sources of pollution that have been determined to cause; have a reasonable potential to cause or contribute to a violation of water quality standards; or have been found to cause or contribute to the loss of a designated use of surface Water in the State from discharges of stormwater from construction activities and construction support activities. Where potential sources of pollutants are present at a construction site, the SWP3 must also contain a description of the management practices that will be used to prevent these pollutants from being discharged into surface "Waters in the State" or "Waters of the U.S." The term "Waters of the U.S." is defined in 40 CFR (122.2).

The following potential pollutants were evaluated for each phase of soil disturbance and were used as the basis for formulating management practices.

1. Constituents of Concern

Water quality standards that could possibly be violated are shown in the table below.

Activity	Potential Water Quality Standard Violated	Actions Taken to Prevent Impact on Water Quality Standard
Soil disturbing activities including minor grading for the foundation, utility installation, and final landscape grading.	• Total Suspended Solids (TSS) • Biological Oxygen Demand (BOD) • Metals • Chemical Oxygen Demand (COD) • Oil & Grease	• Sediment and erosion control measures (See Part IX) • Site entrance controls • Spill response procedures • Solid waste management procedures • Material management procedures
Concrete forming and placement for foundations, drives, patios, and sidewalks, including washout from concrete trucks.	• pH • Total Suspended Solids (TSS) • Chemical Oxygen Demand (COD) • Oil & Grease • Biological Oxygen Demand (BOD)	• Sediment and erosion control measures • Dedicated concrete washout areas • Site entrance controls • Solid waste management procedures • Material management procedures
Home construction including erection and finishing of the house walls, roof, floors and ceilings.	• Total Suspended Solids (TSS) • Chemical Oxygen Demand (COD) • Biological Oxygen Demand (BOD) • Oil & Grease	• Sediment and erosion control measures • Solid waste management procedures • Material management procedures
Final stabilization of the site including installing grass and other landscaping materials.	• Total Suspended Solids (TSS) • Nitrogen • Biological Oxygen Demand (BOD) • Pesticides • Herbicides	• Sediment and erosion control measures • Solid waste management procedures • Application procedures for fertilizers, pesticides and herbicides

2. Potential Sources of Pollution The following potential pollutant sources were evaluated for this site as to whether or not they have the potential to affect the quality of stormwater discharges from the site: ***Note: The Operator will update as changes occur.***

Potential Pollutant Sources Used or Found On-Site *		
Material/Potential Pollutant Source	**Used/Found On-Site Yes/No**	**Comments**
Solvents	Yes	Used by utility and painting contractors and will be removed from the site by contractors.
Stains, Paints	Yes	Used by painting contractor. Paints and stains may be stored inside the structure and the contractor will remove waste paints and stains from the site.
Wood Preservatives	Yes	Used by painting contractor. Wood preservatives will be stored inside the structure and contractor will remove waste wood preservatives from the site.
Fuels	Yes	Used by vehicles performing dirt work and construction activities. Secondary containment will be provided for tanks to contain leaks and spills.
Oils	Yes	Used by vehicles performing dirt work and construction activities. Also, some oils and greases will be used in steel and drilling work. Drip pans will be used when changing oil.
Grease	Yes	Used by vehicles performing dirt work and construction activities.
Roofing Tar	Yes	Roofing tar will be used to seal flashing during the construction. Waste tar will be disposed of in covered container and the roofing contractor will remove excess tar from the site.
Pesticides	Yes	Pesticides may be used as a preparation before the foundation is poured and for pest control during construction to control fire ants, etc. Pesticides will be used according to the manufacturer's labeled instructions and will not be applied just before a storm event. Excess pesticides will be removed from the site once application is complete.
Fertilizer	Yes	Fertilizer is used during final site preparation when vegetated areas are sodded or seeded. Fertilizer will not be applied just before a storm event and will not be stored on the site for any length of time.
Sediment/Total Suspended Solids	Yes	Erosion from area where soil is disturbed due to construction has a high potential of sediment and suspended solids. Sediment and erosion control measures are included in this SWP3.
Trash	Yes	Trash from empty cardboard, paint, plastic, and metal containers will be properly contained on the site and removed frequently for off-site disposal. Waste overflow from containers must be cleaned up immediately. Trash will be protected from exposure to wind and rain. It will be covered when not in use.

**Waste water from washout and clean out of stucco, paint, form release oils, curing compounds, fuels, oils, soaps, solvents used for vehicle and equipment washing, operations and maintenance is prohibited. Waste waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.*

Potential Pollutant Sources Used or Found On-Site (Cont'd)		
Material/Potential Pollutant Source	**Used/Found On-Site Yes/No**	**Comments ****
Paving	Yes	Paving operations will not be performed immediately before an anticipated major storm event. Excess chemical from paving will be removed.
Concrete Curing Compound	Yes	Curing compound will be used as needed and concrete contractor will remove remaining compound from the site.
Glue/Adhesives	Yes	Glue and other adhesives will be used in flooring and other similar functions. Empty containers will be disposed of properly.
Joint Compound	Yes	Joint compound will be used to adhere wallboard joints. Empty containers will be disposed of properly.
Refrigerants	Yes	Refrigerants will be used in the AC units. Any AC servicing will be performed by HVAC trained technicians.
Painting and Brick Wash Waters*	Yes	Contained on the site in designated areas where possible.
Excavation Pump Out Water or Dewatering *	No	Must be performed in accordance with the EPA and state regulations as described in the general permit. Daily observation and evaluation of controls required. A report to be completed prior to each observation and evaluation.
Concrete Wash Water*	Yes	Concrete trucks will be washed out at a designated site shown on the site map when it is installed. Refer to other parts of the SWP3 for more requirements.
Soil Stabilization Material Such as Hydrated Lime	No	Contained on the site and not applied just before a storm event.
Sanitary/Septic Waste	Yes	Locate portable toilets so that they are secure and will not be tipped or knocked over; and away from surface waters; inlets, or conveyances. Licensed sanitary services will ensure facilities are in working order at all times. Toilets must be prevented from overturning during windy or stormy conditions.
Water Injection	No	Water injection is used to stabilize expansive clay soil. The area to be stabilized is excavated to the finished sub-grade less the depth of the cap material thereby minimizing run-off of the excess water from the injection process. After injection, the area is capped with select fill.
Dust	No	Problem areas are controlled by lightly sprinkling the problem areas with water without creating runoff.
Debris	Yes	Debris is sorted, and hauled offsite to a regulated facility. Stockpiles onsite are protected. Saw-cutting waste must be captured and disposed of in a washout pit.

An ESA was not provided for this site. * Prohibited unless managed by appropriate controls. **Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, herbicides, detergents, sanitary wastes, and other materials, present at the site to precipitation and to stormwater.

PART VII.
Endangered and Threatened Species and Critical Habitat Protection

(Required by the stormwater discharge-permitting agency)

A. Endangered and Threatened Species and Critical Habitat Protection

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by the permit unless the requirements of the Endangered Species Act are satisfied. Federal requirements related to endangered species apply to all TPDES permitted discharges and site-specific controls may be required to ensure that protection of endangered or threatened species is achieved. If a permittee has concerns over potential impacts to listed species, the permittee may contact TCEQ for additional information.

In accordance with EPA Permit, Endangered Species Act Review Procedures of the EPA NPDES General Permit, eligibility for stormwater discharges under the permit should be pre-determined under one of six criteria (A through F) as part of the NOI submittal process. The SWP3 provides the web link for a listing of Endangered and Threatened Species in the area of construction. However, as additional assessment reports and documents applicable to this requirement become available, those reports and documents should be attached with the SWP3 as required by the NPDES General Permit.

Trinity Green Services shall not in any way be responsible for determination of potential impacts to endangered and threatened species and their habitat from proposed site construction activities or those endangered and threatened species and their habitat which may be discovered during construction operations.

For the most current list of Endangered and Threatened Species, please see http://www.fws.gov/endangered/.

A. Historic Properties

In accordance with the EPA NPDES General Permit the Owner/Operator is reminded to comply with applicable state, tribal and local laws concerning the protection of historic properties and places. This SWP3 provides a web link for a listing of sites on the National Register of Historic Places in the area of construction. As additional assessment reports and documents applicable to this requirement become available, those reports and documents should be attached with the SWP3 for reference.

Trinity Green Services shall not in any way be responsible for determination of potential impacts to those listed historical sites from proposed site construction activities or those unknown historic sites which may be discovered during construction operations.

For the most current list of Historic Properties, please see http://www.nps.gov/history/nr/research/

A. Control Measure Selection and Sequencing

Each SWP3 shall include a description of appropriate control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in stormwater discharges. The SWP3 must clearly describe for each major activity: (a) appropriate control measures and general timing (or sequence) during the construction process that the measures will be implemented; and (b) the permittee responsible for implementation of specific controls. For example, the perimeter controls for one portion of the site will be installed by Contractor A after the necessary clearing and grubbing is completed for installation of the measure; but before the clearing and grubbing for the remaining portions of the site.

Perimeter controls will be actively maintained by Contractor B until final stabilization of the portions of the site up gradient of the perimeter control.

Temporary perimeter controls will be installed and removed by the contractor after final stabilization is achieved. Refer to the Delineation of Responsibilities.

1. Erosion and Sediment Controls

Refer to the general permit Part IV. Section A., Federal Effluent Limitation Guidelines. Design, install, and maintain effective erosion controls to minimize the discharge of pollutants by applying the Best Practicable Control technology currently available (BPT) that satisfy 40CFR **§** 450.22, thru **§** 450.23.

(a) General Requirements

i. Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.

ii. Control measures must be properly selected, installed, and maintained according to the manufacturers or designer's specifications.

iii. Controls must be developed to minimize the off-site transport of litter, construction debris, and construction materials**.**

If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations.

Except as provided in 40 CFR 125.30 - 125.32, any discharge regulated under the General Permit with the exception of sites that obtained waiver based on low rainfall erosivity, must achieve at a minimum the effluent limitations representing the degree of effluent reduction attainable by application of the best practicable control technology currently available (BPT). Refer to the General Permit for erosion and sediment control requirements applicable to all sites.

Permittees shall design and utilize appropriate controls in accordance with the permit to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site. The SWP3 also includes a description of sediment control practices used to remove eroded soils from stormwater runoff, including the general timing or sequence for implementation of controls. Controls selected by the permittee must be compliant with the requirements in the general permit. The following table displays which control measures or best management practices will be implemented during each phase of construction activity for the project:

Control Measure Selection and Sequence for Each Phase		
Activity or Phase of Construction	**Control Measures Taken**	**When Control Measures Implemented**
Soil disturbing activities including minor grading for the foundation, utility installation, and final landscape grading.	• Sediment and erosion control measures • Spill response procedures • Solid waste management procedures • Material management procedures	• Install the lot perimeter and curb controls, protection for existing vegetation, and storm inlet protection before major construction begins. Protect stockpiles of soil and debris. • Implement spill response plan as needed. • Trash receptacle should be on the site once work begins. • Material management procedures go into effect once materials arrive on the site.
Concrete forming and placement for foundations, drives, patios, and sidewalks including washout from concrete trucks. *	• Sediment and erosion control measures • Dedicated concrete washout areas • Solid waste management procedures • Material management procedures	• Maintain BMPs during construction. Protect stockpiles of concrete materials. • Dedicated washout area must be in place before concrete placement begins. • Soil stabilization material to be contained on the site. • Trash receptacle should be on-site once work begins. • Material management procedures go into effect.
Home construction including erection and finishing of the home's walls, roof, floors, and ceilings. **	• Sediment and erosion control measures • Solid waste management procedures • Material management procedures	• Maintain BMPs during construction. Protect stockpiles of vertical construction materials. • Trash receptacle should be on the site once work on structure. • Material management procedures go into effect as materials arrive on the site.
Final stabilization of the site including installing grass and other landscaping materials.	• Sediment and erosion control measures • Solid waste management procedures • Application procedures for fertilizers, pesticides and herbicides	• Maintain BMPs. Remove sediment and erosion control measures when construction is complete, and site has been properly stabilized. • Trash receptacles should be on the site once work begins. • Fertilizer, pesticide and herbicide procedures will be in effect as stabilization begins.

An Environmental Assessment was not provided for this site.

* Prohibited unless managed by appropriate controls.

**Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, herbicides, detergents, sanitary wastes, and other materials, present at the site to precipitation and to stormwater.

B. Interim and Permanent Stabilization Practices

Refer to the general permit Part IV. Section B. The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the site, including a schedule of when the practices will be implemented. Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanism, and other similar measures.

Erosion control and stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily ceased. Stabilization measures that provide a protective cover must be initiated as soon as practicable in portion of the site where construction activities have permanently ceased. Except as provided in Parts IX. (B), measures must be initiated no more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

1. Schedule of Temporary and Permanent Stabilization Measures

Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. Stabilization measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased. The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. The measures must be completed as soon as practicable, but no more than 14 calendar days after the initiation of soil stabilization measures:

2. Delays Due to Frozen Conditions

Inspection frequencies for construction sites, where runoff is unlikely due to the occurrence of frozen conditions at the site, must be conducted at least once every month until thawing conditions begin to occur (See definitions for thawing conditions in Part I.B). The SWP3 must also contain a record of the approximate beginning and ending dates of when frozen conditions occurred at the site, which resulted in inspections being conducted monthly, while those conditions persisted, instead of at the interval of once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

3. Delay in Temporary Stabilization Due to Drought or Arid Conditions

In arid areas, semi-arid areas, or drought-stricken areas, as they are defined in the general permit, where the immediate initiation of vegetative stabilization measures after construction activity has temporarily or permanently ceased; or is precluded by arid conditions, other types of erosion control and stabilization measures must be initiated at the site as soon as practicable. Where vegetative controls are infeasible due to arid conditions, and within 14 calendar days of a temporary or permanent cessation of construction activity in any portion of the site, the operator shall immediately install non-vegetative erosion controls in areas of the construction site where construction activity is complete or has ceased. If non-vegetative controls are infeasible, the operator shall install temporary sediment controls as described below.

4. Infeasible Non-Vegetative Controls

In areas where non-vegetative controls are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible and must demonstrate that the perimeter controls will retain sediment on-site to the extent practicable. The operator must continue to inspect the BMPs at the frequencies established in the permit for un-stabilized sites.

5. When to Start Stabilization

The requirement for permittees to initiate stabilization is triggered as soon as it is known with reasonable certainty that construction activity at the site or in certain areas of the site will be stopped for 14 or more additional calendar days. If the initiation or completion of vegetative stabilization is prevented by circumstances beyond the control of the permittee, the permittee must employ and implement alternative stabilization measures immediately. When conditions at the site changes that would allow for vegetative stabilization, then the permittee must initiate or complete vegetative stabilization as soon as practicable. Final stabilization must be achieved prior to termination of permit.

C. Permanent Vegetative Techniques and Schedule of Implementation

The following are vegetative techniques to be used as sediment and erosion controls for the lots after the vertical construction of a home is completed:

Permanent Stabilization Techniques and Schedule of Implementation	
Type of Vegetation	**Description of Use (application schedule, rate, maintenance schedule)**
Native Grass/Weeds	Existing vegetation on the lot that is scheduled to remain will be protected throughout the project period. Other vegetation will be protected as long as possible before clearing it.
Grass Strips or Sod, Native or Various Types of Improved Grasses, Shrubs, and Trees	Disturbed areas will be covered with perennial grass sod such as Bermuda, St. Augustine, etc. and also with landscape plantings such as trees and shrubs when final grading is completed.
Manual or Hydraulic Seeding and Mulching	Cool season and warm season grasses will be used depending on the time of the year and manufacturers specifications and recommendations. Seeding will be started immediately following final grading of areas that will be no longer disturbed. Seeds should not be placed on slopes unless the slopes are covered with blankets. A proper seed bed will be required.

D. Stabilization Record Keeping and Temporary Stabilization Practices

The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in general permit: 1) the dates when major grading activities occur; 2) the dates when construction activities temporarily or permanently cease on a portion of the site; and 3) the dates when stabilization measures are initiated

No areas are currently identified that would require temporary stabilization. If areas are determined to need temporary stabilization during the permit period, or based on inspections, then the SWP3 will be amended and temporary stabilization measures will be added to the SWP3.

If temporary stabilization is required due to inactivity on the site for more than 14 days, the following temporary stabilization measures will be considered:

(a) Hydraulic Seeding - Hydro-seed or apply Bonded Fiber Matrix (BFM); or
(b) Blown Mulch - Apply straw or other approved mulch to disturbed areas; or
(c) Manual Seed and Mulch - Apply seed and mulch over disturbed areas; or
(d) Tackifiers - Hydraulic application of approved chemical tackifiers to stabilize disturbed soil; or
(e) Erosion Control Blankets - Install on slopes and on soil along the curbs.

E. Intended Sequence of Soil Disturbing Activities

A description of the intended sequence of major activities that disturb soils for major portions of the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation) is required.

The following table displays an approximate sequence of soil disturbing activities for the length of the project. During construction, the actual schedule of activities will be included below and also in the inspection forms. The actual schedule of activities will be shown on the phasing log to be completed by the general contractor. The reports will show the start and completion dates for each phase. The estimated construction start date is shown on the permit application (NOI).

Residential Sequence of Soil Disturbing Activities for Each Lot			
Activity	**Approximate Start**	**Actual Start**	**Finish**
1. Installation of Erosion and Sediment Controls	Day 1		
2. Prepare the Foundation Area	Day 2		
3. Excavate and Install Plumbing and Utilities	Days 3-9		
4. Foundation Installation	Days 10-12		
5. Framing the House	Days 13-50		
6. Exterior Finishes	Days 51-65		
7. Interior Finishes	Days 66-104		
8. Flatwork, Drive, Sidewalks and Porches	Days 105-111		
9. Final Grading	Days 112-116		
10. Landscaping	Days 117-120		
11. Remove Temporary BMPs	Days 121-123		

F. Pollution Prevention Measures

Refer to the general permit Part IV. Section D., Federal Effluent Guidelines.

Permittees shall ensure that all other required controls and BMPs comply with all of the requirements of the general permit with regard to the effluent limitations representing the degree of effluent reduction attainable by application of the Best Practicable Control Technology currently available (BPT).

The SWP3 must include a description of not only erosion and sediment controls, but also practices to eliminate or minimize other pollutants from being discharged from the site.

G. Perimeter Controls

Minimum controls include silt fences, vegetative buffer strips, or equivalent sediment controls for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

H. Velocity Dissipation Devices

Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected).

Velocity dissipation devices such as silt fence and inlet protection will be part of this project. The project is entering into an existing storm sewer system that has existing velocity dissipation devices such as rock riprap and basins.

Records of Stabilization Log

Major Grading Date		**Construction Cease Date**		**Stabilization Measures Date**		**Remarks**
Begin Date	End Date	Temporary	Permanent	Start Date	Completed Date	

I. Sediment Basins

General – Sediment basin must be designed for and appropriate for runoff at the site. The use of existing detention or retention ponds at the site may not be appropriate. A sedimentation basin is required, where feasible, for common drainage area locations. They may be temporary or permanent; and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, the permittee is not required to include the flows from off-site areas and flow from on-site areas that are either undisturbed or have already undergone permanent stabilization if the flows are diverted around both the disturbed areas of the site and the sediment basin. Capacity calculations shall be included in the SWP3.

Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations.

The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins. Unless infeasible, when discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface. The permittee must provide documentation in the SWP3 to support the determination, including the specific conditions or time period when the exception will apply.

Ten or More Acres of Drainage Area- A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. When discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that with-draw water from the surface.

Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

During construction, this project will disturb more than 10 acres and does have a permanent sediment/detention basin. Sediment basins on individual home lots are not practicable due to the size of the lot.

Less than 10 acres of Drainage Area- Sediment traps and sediment basins may be used to control solids in stormwater runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

Post-Construction Controls Existing and/or Planned	Selected (Yes/No)	Explanation of Selection
Stormwater Detention Structures (including wet ponds)	Yes	An existing detention basin is located near the sub-division.
Flow Attenuation by Use of Open Vegetated Swales and Natural Depressions	Yes	Open vegetated swales are used around the house to carry stormwater away from the site. The swales allow for increased infiltration compared to concrete swales.
Infiltration of Runoff On-Site	Yes	Grass and landscaped areas provide for increased infiltration on the site to reduce runoff from the site once construction has been completed.
Permanent Vegetation	Yes	Permanent vegetation will be accomplished by sodding the soil exposed landscape areas with a mixture of perennial grass and by planting landscape vegetation which may not be possible at all times due to drought, weather, or time of year (winter).
Permanent Swale and Channel	Yes	They are used to divert run-on or run-off water from the site.
Permanent Diversion Dike	Yes	Permanent diversion dikes are similar in function to permanent swales in controlling run-on or run-off.
Storm Drain System	Yes	A curb, pipe, inlet, basin, channel, and gutter storm drain system is installed. The stormwater is collected in the street and flows to the curb inlet and pipes leading to the detention basin.
Sequential Systems (which combine several practices)	Yes	A series of swales, channels, basins, and lot landscape vegetation will help reduce post construction flows by increasing infiltration for the site and retaining peak flows.

Summary of the Project BMPs - Permanent, Temporary, and Procedural			
Technique/BMP		**Used Yes/No**	**Selected to Control**
Existing Permanent BMPs	Detention/Retention Pond	Yes	Stormwater Detention/Retention
	Storm Drain System	Yes	Stormwater
	Sediment Traps	No	Sediment
	Gabions	No	Erosion/Sediment
	Retaining Wall	No	Erosion
	Hydro Mulch/Gravel/Native Vegetation/Sod/Seeding	Yes	Erosion/Sediment
	Rock Outlet Protection or Velocity Dissipation Devices	Yes	Erosion
	Vegetated Berm	Yes	Erosion/Sediment
Project Temporary BMPs	Mulch	Yes	Erosion/Sediment
	Seed/Mulch Future Areas	Yes	Erosion/Sediment
	Erosion Control Blanket/Mat	Yes	Erosion/Sediment
	Hydro-Seed	No	Erosion/Sediment
	Tackifiers (Must be Approved for Use)	No	Erosion/Sediment
	Fiber Roll	No	Sediment
	Dust Control	Yes	Erosion/Sediment
	Maintain Existing Vegetation	Yes	Erosion /Sediment
	Erosion Control Grass Sod	No	Erosion/Sediment
	Soil and Material Stockpile Protection	Yes	Erosion
	Silt Fence	Yes	Sediment
	Portable Toilet	Yes	Bacteria
	Vegetation Protection Fence	Yes	Trash/Litter
	Interceptor Swale	No	Erosion/Sediment
	Diversion Dike	No	Erosion/Sediment
	Sand/Gravel Bag Berm	No	Erosion/Sediment
	Rock Dams/Berms/Checks	No	Erosion/Sediment
	Velocity Dissipation Devices	Yes	Erosion /Sediment
	Sediment/Detention Basin on each lot	No	Sediment
	Sediment Traps	No	Sediment
	Protect/Maintain Storm Inlet	Yes	Sediment
	Cut Back Curb	Yes	Sediment
	Stabilized Construction Entrance	No	Sediment
	Concrete Wash Area	Yes	Pollution (pH)
Project Procedural BMPs	Contain Wash Waters On-Site	Yes	Non-Stormwater Discharges
	Concrete Saw-cutting Waste Mgmt.	Yes	Pollution (pH)
	Remove Hazardous Chemicals from Site	Yes	Hazardous Waste
	Sweep Street as needed	Yes	Sediment
	Regular Trash Pickup (Cover When Not in Use)	Yes	Trash
	Topsoil Preservation	Yes	Erosion, Sediment
	Minimize Soil Exposure by Phasing	Yes	Erosion, Sediment
	Minimize Soil Compaction in Areas Planned for Vegetation	Yes	Erosion, Sediment
	Soil Conditioning/Seedbed Preparation for Vegetation	Yes	Erosion

J. Prohibition on Unpermitted Discharges of Solid Materials

No solid materials, including building materials, shall be discharged to waters of the State, except as authorized by federal Clean Water Act Section 404 permit.

Control of solid materials from the site will be accomplished by adherence to the trash and waste removal procedures established in the SWP3. Waste from cleaning and the disposal of wastes in designated waste containers on days of operation at the site must be consistent with EPA NPDES CGP. Wastes must be cleaned up immediately if containers overflow. Storage of litter, debris, and waste construction materials in designated containers and frequent removal will be used to control solid materials from the site. Site inspections will monitor the progress of these procedures and make changes as needed.

This project will not disturb wetlands or involve dredge and fill and therefore a USCOE 404 permit is not required.

K. Off-Site Tracking and Dust Generation

Off-site vehicle tracking of sediments and the generation of dust shall be minimized, to the extent practicable that is consistent with EPA NPDES CGP.

Tracking will be controlled using the site entrance pads as called for on the site map. The rock entrance pads will help the tires of vehicles leaving the site to deposit mud and dirt from the site before entering the street. Dust control will be accomplished by spraying water on disturbed problem areas or dirt roadways as determined necessary by the site superintendent or as noted as needed during the site inspections. Vehicle access to the construction site will be limited to a controlled access point. An attempt will be made to keep contractor vehicles off the site except for material deliveries. At a minimum, the access point to the construction site will be covered with crushed rock or grass mesh to minimize the dirt tracked off the site and dust generated.

L. State/Tribal and/or Local Waste Disposal Regulations

The SWP3 shall be consistent with applicable state, tribal and/or local waste disposal, sanitary sewer or septic system regulations to the extent these are located within the permitted area.

Portable toilets will be provided and maintained as required by regulations. No additional state, tribal or local plan requirements were found that would impact this project. If such requirements become known in the future, the SWP3 will be updated.

M. Construction and Waste Materials Stored On-Site

The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials. Exposure of wastes to both precipitation and wind must be minimized.

Operators will 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. Minimize the exposure of waste materials by keeping waste container lids closed when not in use. For waste containers that do not have lids and could leak the permittee must provide either a cover (e.g., a tarp, plastic sheeting, temporary roof) to minimize exposure of wastes to precipitation, or a similarly effective means designed to minimize the discharge of pollutants (e.g., secondary containment).

Waste Management Practices	
Solid Waste Management	
Management Practice	**Comments**
Covered, Leak-proof Trash Container on the Site	Trash will be protected from wind and rain and will be covered when not in use. Containers without lids will be covered with tarps, plastic sheets, or roofs.
Covered Dumpster	A covered dumpster may be used at each site to control trash and construction debris.
Roll-Off Trash Container	A roll-off container may be used at the site if volume of waste warrants it; otherwise, a trash container will be used.
Daily Site Cleanup Procedures Implemented	Crews will be instructed to clean up trash and debris regularly and remove them from the site. Blow-able trash will be placed inside trash containers during and near the end of each workday.
Timely Collection of Waste from Containers	Solid waste contractors will pick up waste from containers on a regular schedule.
Concrete Washout Areas	Concrete trucks chutes will be washed out in a designated leak-proof site. The designated site will be shown on the site map when it is installed. Concrete waste management practices are described in Parts X.C. and XVII. in the SWP3.
Hazardous Waste Management	
Management Practice	**Comments**
Paint, Thinner and Solvents Used by Contractors	Paints, thinners, and solvents used by contractors will be stored in contractor's vehicles and removed from the site each day, when possible.
Storing Paints, Thinners, and Solvents on the Site	When paints, thinners or solvents cannot be removed from the site, they will be stored inside structure and secured to prevent exposure to stormwater.
Disposal of Waste Paints, Thinners, and Solvents	Waste paints, thinners, and solvents will be removed from the site by the contractor for proper disposal. No waste products will be disposed of in the dumpster except open, empty containers.
Dikes Around Site Fueling Areas and Fuel Storage Areas	Dikes will be constructed around site fueling and fuel storage areas.
Controlled Storage Facilities for Fertilizer and Other Chemicals	Chemicals or fertilizers stored on the site will be placed in a controlled storage facility. Contractors will remove chemicals from the site each day.
Procedures for Handling Spills are Established and Posted on the Site	A spill response bulletin will be posted on the site when possible or available in the site superintendent's vehicle.

N. Off-Site Transport of Suspended Sediment

Permittee shall design and utilize appropriate controls to minimize the Off-Site transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

O. Off-Site Material Storage Areas

Off-site material storage areas (also including overburden and stockpiles of dirt, borrow areas, etc.) used solely by the permitted project are considered a part of the project and shall be addressed in the SWP3.

There are no off-site material storage areas including off-site borrow or fill areas for this project. If there are off-site storage areas, they will be shown on the location and site maps and will have BMPs identified for them.

P. Litter, Construction Debris Removal

Litter, construction debris, and construction chemicals exposed to stormwater shall be picked up prior to anticipated storm events (e.g., forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily, etc.).

Litter and construction debris will be accumulated on-site in a roll-off dumpster or trash box containment system. Trash will be removed at a frequency determined by the on-site project manager and based on the findings of the inspection reports. Trash should be removed before it reaches the top of the roll-off or container and trash starts spilling out of the trash container. Site inspections will check to verify that liquid wastes, tires, batteries and other hazardous material style waste are not disposed of with the trash. Subcontractors will be encouraged to remove their leftover chemicals from the site for reuse or proper disposal. Trash must be protected from wind and rain. Trash should be covered when not in use such as overnight or days when the site is inactive. The dumping of trash is prohibited unless it is a regulated facility designed to handle the type of debris or trash.

Q. Pollutant Sources From Areas Other Than Construction

The SWP3 shall include a description of pollutant sources from areas other than construction (including stormwater discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

No areas other than construction are included in this project at this time. If other areas are used in the future, then measures to minimize potential pollution sources from the sites will be added to the SWP3.

R. Project Measures Necessary to Protect Listed Endangered or Threatened Species or Critical Habitat

In accordance with the EPA NPDES General Permit, a description of measures necessary to protect federally-listed endangered or threatened species, or federally designated habitat, must be included within the SWP3 text to maintain eligibility under the permit. If not provided herein, where applicable, those controls would be attached with any assessment reports and documentation identifying federally listed endangered and threatened species and potential impacts to those federally listed endangered and threatened species or federally designated habitat referenced in Part VII of this SWP3.

No information was provided.

S. Project Measures Necessary to Protect Listed Historic Properties

In addition, a description of measures necessary to protect historic places identified within the National Register of Historic Places, or identified at the project site, must be included within the SWP3 text to maintain eligibility under the permit. If not provided herein, where applicable, those controls would be attached with any assessment reports and documentation identifying federally listed historic places and referenced in Part VIII of this SWP3.

No information was provided.

A. Authorized Non-Stormwater Discharges

Non-Stormwater Discharge Source	Comments
1. Discharges from fire-fighting activities (fire-fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, and similar activities).	Only discharges from *emergency* fire-fighting activities are considered an allowable non-stormwater discharge.
2. Uncontaminated fire hydrant flushing (excluding discharges of hyper-chlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushing from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushing does not include systems utilizing reclaimed wastewater as a source water).	New hydrant installation includes flushing of the fire hydrants to ensure lines are clean and have no residual chlorine. No hyper-chlorinated water discharges (from water lines disinfection) will be allowed.
3. Water from routine external washing of vehicles, external portion of buildings or structures, and pavement, where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed according to regulations) and where the purpose is to remove mud, dirt, or dust.	Concrete trucks are rinsed on the site without the use of detergents. Wash water is retained on the site. Washout on construction sites must be performed
4. Uncontaminated water used to control dust.	Water is used during development to control dust on roadways under construction.
5. Potable water sources including waterline flushing (excluding discharges of hyper-chlorinated water unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life.	Domestic drinking water supply lines are flushed to ensure lines are clean and have no residual chlorine. No hyper-chlorinated water discharges (from water lines disinfection) will be allowed.
6. Uncontaminated air conditioning condensate.	Air conditioning condensate from the construction trailer during construction.
7. Uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents.	Unusual unless ground water is encountered during excavation. Groundwater in excavations will be pumped out onto the ground and not allowed to directly discharge from the site.
8. Lawn watering and similar irrigation drainage.	Temporary and permanent vegetation may be irrigated to establish and enhance growth.
9. Other permitted discharges.	Authorized under a separate NPDES, TPDES, or TCEQ permit may be combined if they comply with the associated permit.

Except for flows from fire-fighting activities, sources of non-stormwater listed in the permit that are combined with stormwater discharges associated with construction activity must be identified in the SWP3. The SWP3 shall identify and ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Any non-stormwater must be discharged through stable discharge structures.

All discharges authorized by the permit and covered in the SWP3 are composed entirely of stormwater associated with construction activities; or are an authorized Non-Stormwater Discharge.

B. Prohibited Non-Stormwater Discharges

The following discharges are prohibited:

1) Wastewater from wash out of concrete, unless managed by an appropriate control;
2) Wastewater from wash out and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
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.

Discharges leaving the site from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited; unless managed by appropriate controls to address sediment and prevent erosion. Operators must observe and evaluate the dewatering controls once per day while the dewatering discharge occurs as described in the general permit. Dewatering controls are to be consistent with the 2022 EPA NPDES CGP.

Permittees must design and utilize appropriate controls to minimize the Off-Site transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

C. Concrete Truck Washout

The discharge is prohibited unless managed by an appropriate control. The washout of concrete trucks associated with off-site production facilities may be conducted at regulated construction sites provided the following requirements are met. Authorization is limited to the land disposal of wash out water from concrete trucks that are associated with off-site production facilities. Wash out water associated with on-site concrete production facilities must be authorized under a separate TCEQ general permit or individual permit.

Direct discharge of concrete truck washout water to surface water in the state, including discharge to storm sewers, is prohibited by the general permit.

Concrete truck washout water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have a minimal slope that allow infiltration and filtering of washout water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site. The location must be shown on the site map.

Washout of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck washout water is prohibited at all times, and the operator shall ensure that its BMPs are sufficient to prevent the discharge of concrete truck washout as the result of rain.

The discharge of washout water shall not cause or contribute to groundwater contamination. A leak-proof wash out is required where soils will allow seepage into the ground water.

A. Maintenance Requirements

All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

1. Modification of Controls

If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator must replace or modify the control as soon as practicable after making the discovery.

2. Sediment Removal

Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

Sediment will be removed and placed in a protected location or removed from the site.

3. Removal of Off-Site Accumulations of Sediment

If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must to work with the owner or operator of the property to remove the sediment.

Off-site accumulations of mud will be removed manually as soon as possible to prevent tracking. Dry soil will be removed by sweeping the streets as needed. The determination for the frequency of street sweeping will be determined by the project manager and based on the results and findings of the inspections.

PART XII.
Procedures for Dealing with Spills and Releases in Excess of Reportable Quantities

A. Releases in Excess of Reportable Quantities

The discharge of hazardous materials or oil from the site will be prevented or minimized using the best management practices (BMPs) identified in this SWP3. Any discharges in 24 hours equal to or in excess of the reportable quantities listed in 40 CFR 110, 117, or 302 will be reported to the National Response Center and the agencies listed below as soon as practical after knowledge of the spill is known to the permittees. The Stormwater Pollution Prevention Plan must be modified per the permit deadline. A description of the release; the circumstances leading to the release; and the date of the release is required. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

Agency	Phone Number
National Response Center	(800) 424-8802
Texas Commission on Environmental Quality	(800) 832-8224 (512) 239-2454
Trinity Green Services	(888) 243-3605 (toll free) (214) 446-9500
Local	911

Material	Media Released To	Reportable Quantity (equal to or greater than)
Engine oil, fuel, hydraulic and brake fluid	Land	25 gallons
Engine oil, fuel, hydraulic and brake fluid	Water	Visible Sheen
Antifreeze and battery acid	Land	100 lbs. (13 gallons)
Refrigerant	Air	1 lb.

B. Spills

Pollution measures must minimize the discharge of pollutants from spills and leaks; operators shall implement chemical spill and leak prevention and response procedures.

Small spills (e.g., oil leaks, overfills, etc.) will be cleaned as soon as possible and reported, if required. Oil dry, plastic shovels, plastic bags and sealable container will be obtained locally as needed. Contaminated material will be collected in the bags, bags dated, nature of material noted and stored in the container. Spill material will be properly disposed of off the site. Spill response procedures will be available on-site for personnel responsible for fluid material handling to review. A copy of the spill response plan (located in the back of the book) will be posted at the site near where liquid materials are stored. In cases of a spill, personnel on the site will make decisions in response to the spill based on the following priority:

1. Protect people
2. Protect property
3. Protect the environment

Refer to the Spill Response Plan tab for listing of companies, if known, who provide the services of cleanup, removal and disposal of spilled or hazardous material and their contact information.

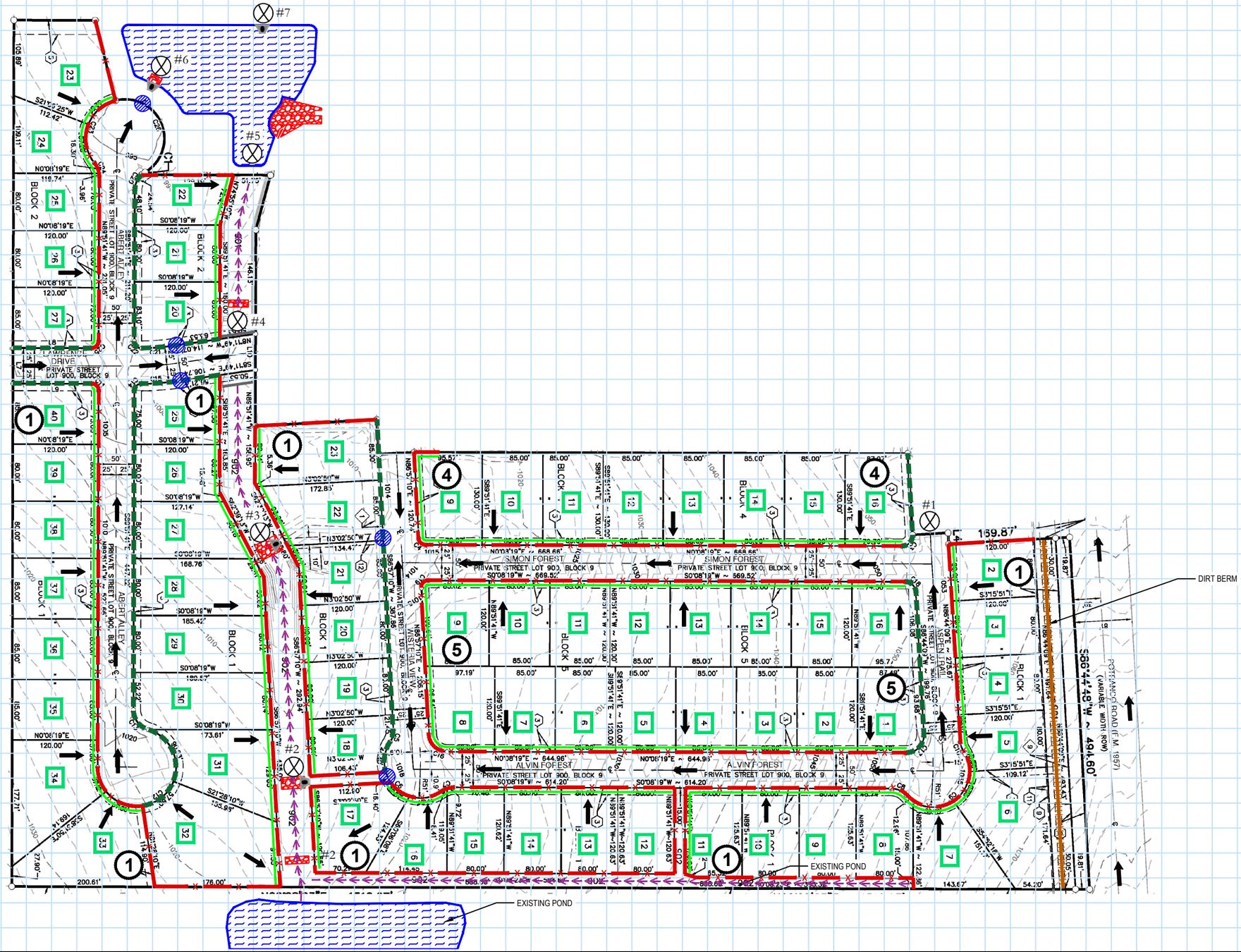
If there is the potential for exposure to dangerous conditions as a result of a fire, notify the Fire Department.

BMP INSTALLATION AND MAINTENANCE LOG (Reference Site/Best Management Practices Map)					
Item No.	BMP Activity	Date/Initials	BMP Installed/Maintained By (Company Name)	Date of Activity	Verified By (e.g., Name of Site Superintendent)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

BMP INSTALLATION AND MAINTENANCE LOG (Reference Site/Best Management Practices Map)					
Item No.	BMP Activity	Date/Initials	BMP Installed/Maintained By (Company Name)	Date of Activity	Verified By (e.g., Name of Site Superintendent)
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

BMP INSTALLATION AND MAINTENANCE LOG (Reference Site/Best Management Practices Map)					
Item No.	BMP Activity	Date/Initials	BMP Installed/Maintained By (Company Name)	Date of Activity	Verified By (e.g., Name of Site Superintendent)

BMP INSTALLATION AND MAINTENANCE LOG (Reference Site/Best Management Practices Map)					
Item No.	BMP Activity	Date/Initials	BMP Installed/Maintained By (Company Name)	Date of Activity	Verified By (e.g., Name of Site Superintendent)



LEGEND

- CURLEX / SILT FENCE / CURB CUT-BACK
- SILT FENCE
- DIRT BERM
- DETENTION POND
- STEEP SLOPE
- DRAINAGE / SWALE / CHANNEL
- PRE CONSTRUCTION FLOW DIRECTION
- POST CONSTRUCTION FLOW DIRECTION
- PROTECTED STORM INLET
- OUTFALL
- BLOCK NUMBER
- LOT IN PLAN
- OR — HEADWALL / CULVERT
- EXISTING ROCK RIP RAP
- C.W.O. — CONCRETE WASH OUT AREA (FIELD LOCATE)
- TRASH CONTAINER / DUMPSTER (FIELD LOCATE)
- P.T. — INSTALL A PORTABLE TOILET PER LOCAL REGULATIONS AND NOTE THE LOCATION ON THIS PLAN

Trinitygreen
1760 South Stemmons Fwy, Ste. 160
Lewisville, TX 75067
(214)446-9500 Office
(214)446-9501 Fax
www.TrinityGRN.com

LGI HOMES - TEXAS, L.L.C. (SAN ANTONIO)

POTRANCO WEST II
UNIT 2 AND 3

CASTROVILLE, TX

LATITUDE:	29° 26' 00.73" / 29.433536
LONGITUDE:	-98° 50' 40.22" / -98.844506
PROJECT No.	LGIHOM0002 230016
PREPARED BY: G. STEIGMAN, CPESC	
DRAWN BY: T. SUTTON	DATE: 10/25/2023
REVIEWED BY: G. STEIGMAN	

DATE:	REVISION:	DATE:	REVISION:	DATE:	REVISION:
.	.	.	.	.	.

NOTE: DO NOT COMPLETELY BLOCK INLETS, AS DOING SO MAY CAUSE FLOODING.

* PLANS PROVIDED BY PAPE-DAWSON ENGINEERS (SEPTEMBER-2023), WERE USED TO PREPARE THIS PLAN.

*

0 75 150

SCALE - 1" = 150'
(11" x 17")

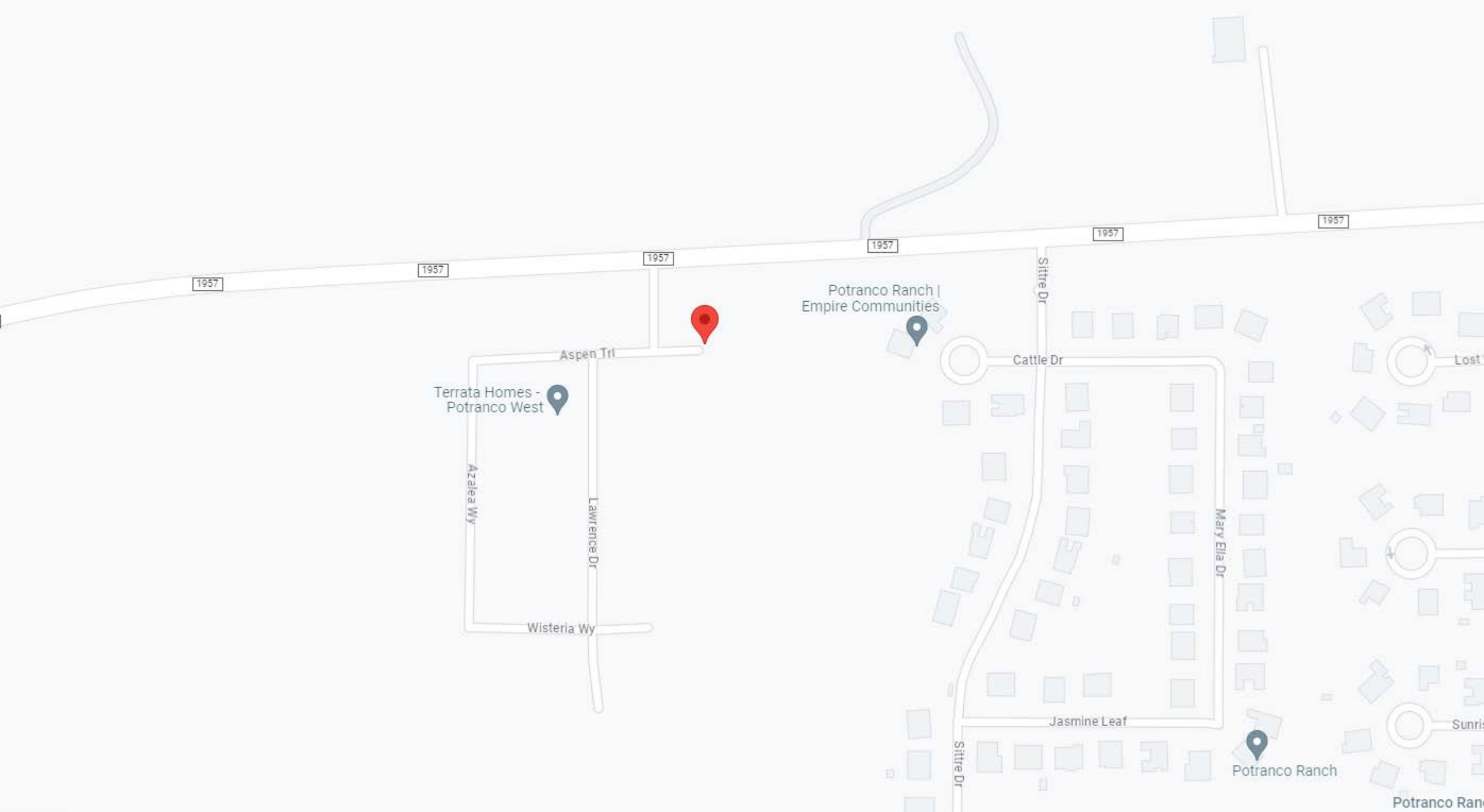
NORTH

SITE / BEST MANAGEMENT PRACTICES PLAN

RESIDENTIAL

SHEET 1 OF 1


10/2023
1985
2023
POTRANCO WEST II UNIT 2 AND 3
N
Image © 2023 Airbus
Google Earth
1985
Imagery Date: 6/23/2023 29°25'54.94" N 98°50'38.74" W elev 1033 ft eye alt 4843 ft


1957
1957
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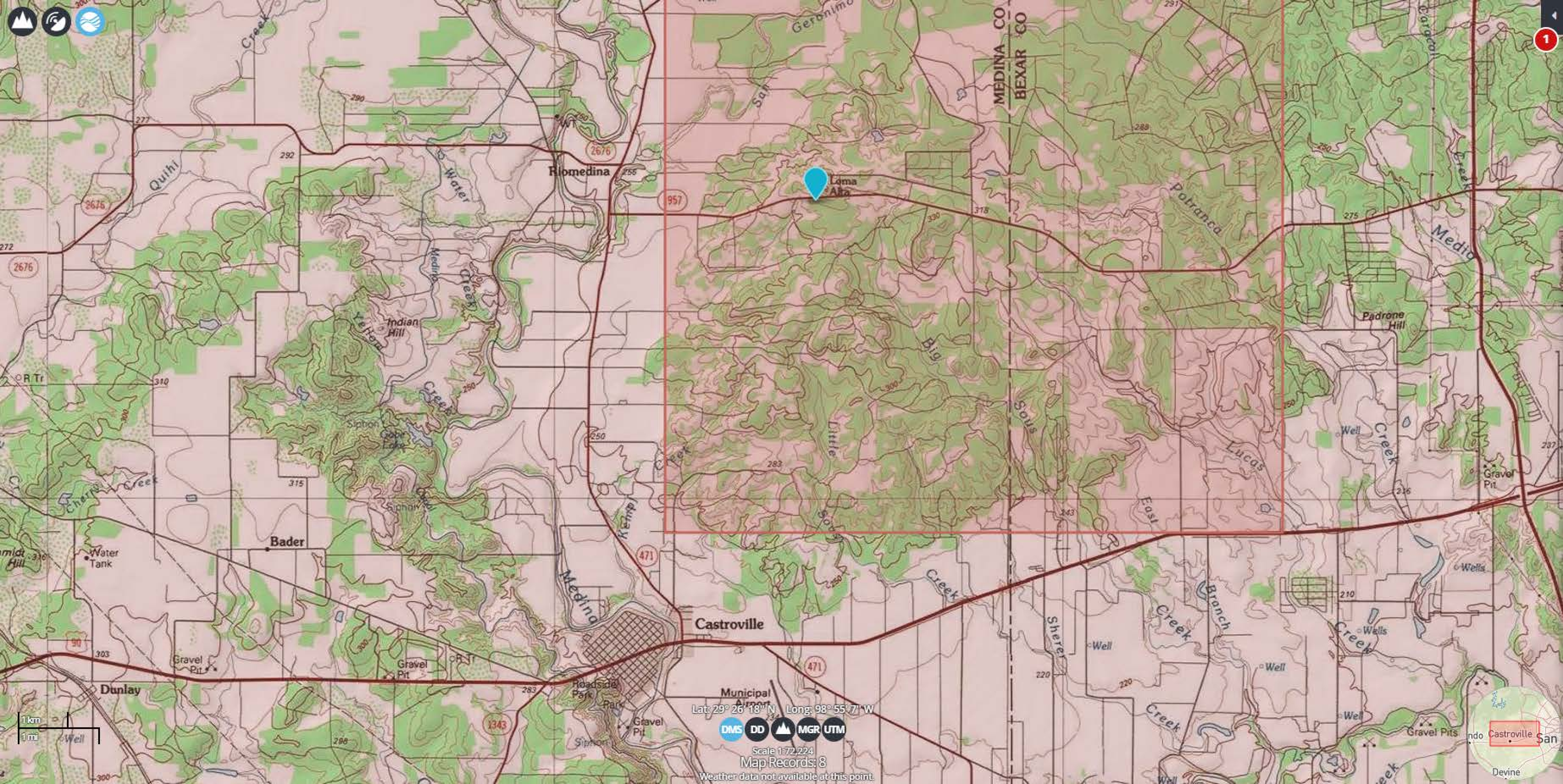
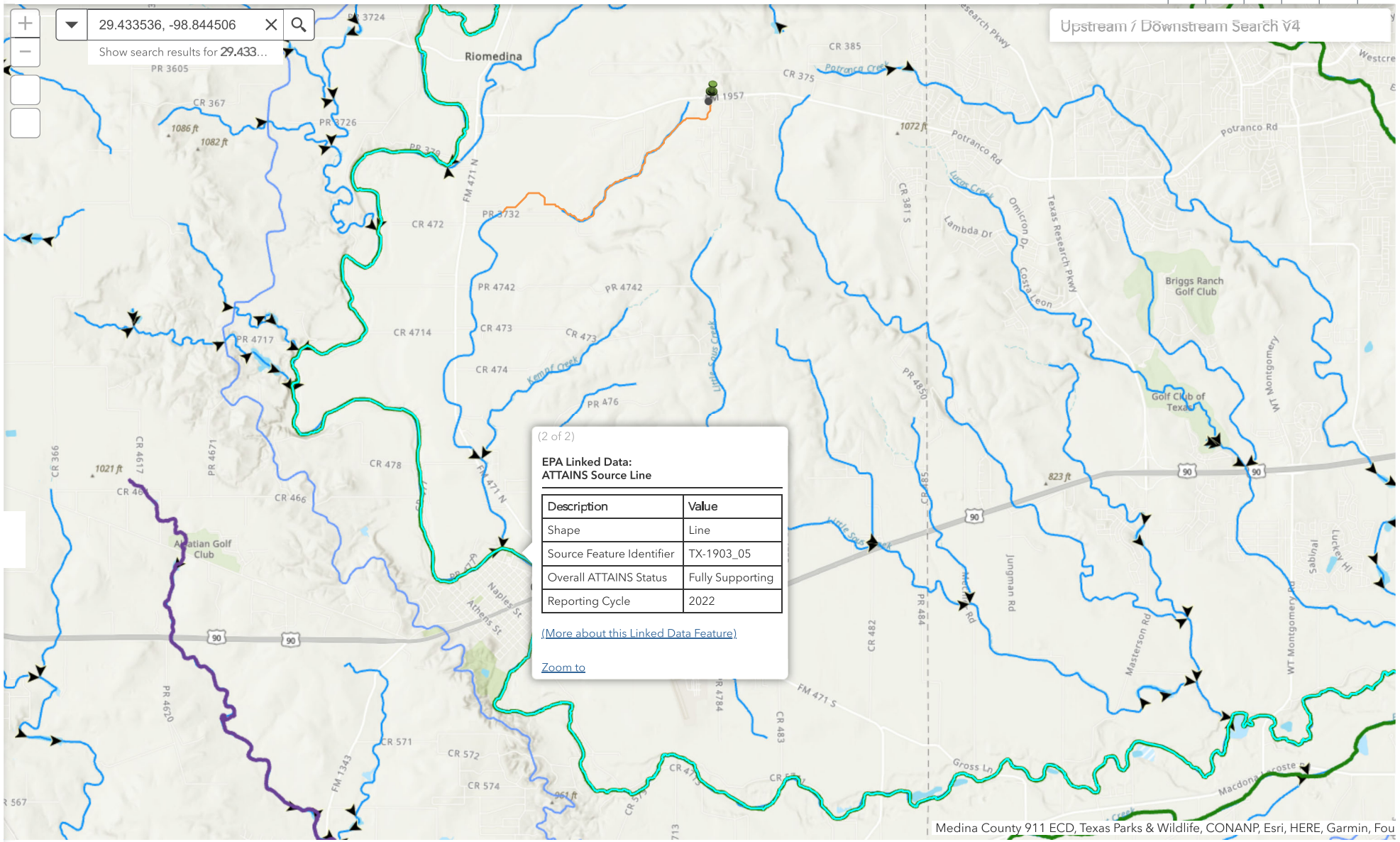
Potranco Ranch |
Empire Communities
Sittre Dr
Aspen Trl
Terrata Homes -
Potranco West
Cattle Dr
Azalea Wy
Lawrence Dr
Mary Ella Dr
Wisteria Wy
Jasmine Leaf
Sittre Dr
Potranco Ranch



Riomedina
Loma Alta
MEDINA CO
BEXAR CO
Geronimo
Potranca
Indian Hill
Padrone Hill
Bader
Castroville
Dunlay
Water Tank
Gravel Pit
Roadside Park
Municipal
Medina
Big
Little
Lucas
Creek
Well
Gravel Pits
1 km
1 mi
Lat: 29° 26' 18" N Long: 98° 55' 7" W
DMS
DD
MGR
UTM
Scale 1:72,224
Map Records: 8
Weather data not available at this point.
Devine

WATERS GeoViewer 2.0



How's My Waterway?

Explore, Discover and Learn about your water.

Waterbody Report

Medina River Below Medina Diversion Lake

Assessment Unit ID: TX-1903_05

Waterbody Condition: Good

Existing Plans for Restoration: No

303(d) Listed: No

Year Reported: 2022

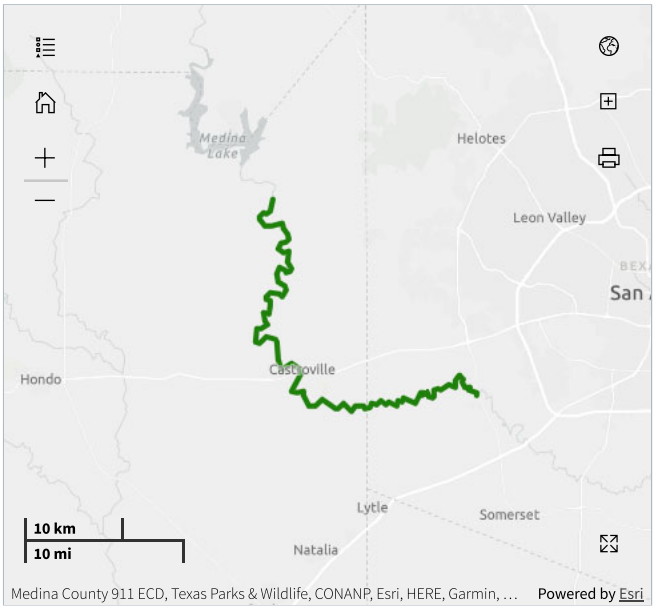
Organization Name (ID): Texas (TCEQMAIN)

What type of water is this?

Stream (43.05 Miles)

Where is this water located?

From the confluence with Polecat Creek approximately 125 m upstream of FM 1604 upstream to the Medina Diversion Dam



Assessment Information from 2022

State or Tribal Nation specific designated uses:

Information on Water Quality Standards — Expand All

Aquatic Life Use	Good
Domestic Water Supply - Public Water Supply	Good
General Use	Good
Recreation Use	Good

Probable sources contributing to impairment from 2022:

No probable sources of impairment identified for this waterbody.

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

No plans specified for this waterbody.

Map Scale: 1:2,870 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Water Erosion Potential (TX)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
DSC	Doss association, gently undulating	Low water erosion potential	Doss (65%)	Percs slowly (0.99)	17.7	71.9%
				Organic matter (0.97)		
				Silt content (0.58)		
				LS factor (0.35)		
MeB	Stephen clay, 1 to 3 percent slopes	Very low water erosion potential	Stephen (75%)	Percs slowly (0.99)	2.7	10.9%
				Organic matter (0.98)		
				Silt content (0.34)		
				LS factor (0.10)		
MnC	Monteola clay, 1 to 5 percent slopes	Low water erosion potential	Monteola (85%)	Percs slowly (1.00)	4.2	17.2%
				Organic matter (0.97)		
				LS factor (0.35)		
				Silt content (0.32)		
Totals for Area of Interest					**24.6**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Low water erosion potential	21.9	89.1%
Very low water erosion potential	2.7	10.9%
Totals for Area of Interest	**24.6**	**100.0%**

A. Keeping Plans Current

The permittee must revise or update the SWP3 including the Site Plan whenever the following occurs:

1. a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. results of inspections or investigations by construction site personnel authorized by the permittee, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

B. Modifying the SWP3 Based on Results of Inspections

Based on the results of the inspection, the SWP3 shall be modified as necessary (e.g., show additional controls on map and/or revise description of controls) to include additional or modified BMPs designed to correct problems identified. Revisions to the SWP3 shall be completed within seven (7) calendar days following the inspection. If existing BMPs need to be modified or if additional BMPs are necessary, implementation must be completed before the next storm event. If implementation before the next anticipated storm event is impracticable, they must be implemented as soon as practicable.

C. Updating SWP3 to Stay in Compliance With State/Tribal and/or Local Regulations

Stormwater Pollution Prevention Plans must be updated as necessary to remain consistent with any changes applicable to:

1. protecting surface water resources:
2. sediment and erosion site plans;
3. site permits;
4. stormwater management site plans;
5. site permits approved by state, tribal and/or local officials from whom the permittee receives written notice

This SWP3 will be amended and recorded as necessary to stay current with all state/tribal and/or local regulations affecting stormwater runoff from this project.

SWP3 **REVISION/AMENDMENT** LOG			Name of Project:		
No.	**Date**	**Reason For Revision (Who and Why Requested)**	**Brief Description of Revision**	**Date Implemented**	**Signature**

Make additional copies of blank form as needed. Keep completed copies in the SWP3.

A. Inspections of Controls

Personnel provided by the permittee must inspect disturbed areas (cleared, graded, or excavated) of the construction site that do not meet the requirements of final stabilization in the general permit; all locations where stabilization measures have been implemented; areas of construction support activity covered under this permit; stormwater controls (including pollution prevention controls) for evidence of, or the potential for, the discharge of pollutants, areas where stormwater typically flows within the construction site; and points of discharge from the construction site.

Personnel conducting these inspections must be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site; but are not required to have signatory authority. Inspections must cover the following items;

1. Inspect all stormwater controls (including sediment and erosion control measures identified in the SWP3) to ensure that they are installed properly, appear to be operational, and minimizing pollutants in discharges, as intended.

2. Identify locations on the construction site where new or modified stormwater controls are necessary.

3. Check for signs of visible erosion and sedimentation that can be attributed to the points of discharge where discharges leave the construction site or discharge into any surface water in the state flowing within or adjacent to the construction site.

4. Identify any incidents of noncompliance observed during the inspection.

5. Inspect locations where vehicles enter or exit the site for evidence of off-site sediment tracking.

If an inspection is performed when discharges from the construction site are occurring: 1) identify all discharge points at the site; and 2) observe and document the visual quality of the discharge (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other such indicators of pollutants in stormwater).

Complete any necessary maintenance needed, based on the results of the inspection and in accordance with the requirements listed in the permit.

Inspection frequencies:
Inspections of construction sites must be conducted at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, unless as otherwise provided in the permit.

Inspection frequencies must be conducted at least once every month in areas of the construction site that meet final stabilization or have been temporarily stabilized**.**

Dewatering Controls:

Personnel provided by the permittee must observe and evaluate dewatering controls at a minimum of once per day on the days where dewatering discharges from the site occur.

Inspectors must be knowledgeable of the permit; activities, and SWP3.

Inspection frequencies for construction sites, where runoff is unlikely due to the occurrence of frozen conditions at the site, must be conducted at least once every month until thawing conditions begin to occur (See definitions for thawing conditions in the permit). The SWP3 must also contain a record of the approximate beginning and ending dates of when frozen conditions occurred at the site, which resulted in inspections being conducted monthly, while those conditions persisted, instead of at the interval of once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 must also contain a record of the total rainfall measured, as well as, the approximate beginning and ending dates of when drought conditions occurred at the site which resulted in inspections being conducted monthly while those conditions persisted instead of at the interval of once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

As an alternative to the inspection schedule above, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

The inspection procedures described above can be performed at the frequencies and under the applicable conditions indicated for each schedule option, provided that the SWP3 reflects the current schedule and that any changes to the schedule are made in accordance with the following provisions: the inspection frequency schedule can only be changed a maximum of one time each month; the schedule change must be implemented within the first 5 calendar days of a month; and the reason for the schedule change documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).

Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described above. Inspection of linear construction sites could require the use of vehicles that could compromise areas of temporary or permanent stabilization, cause additional disturbance of soils, and result in the increase the potential for erosion. In these circumstances, controls must be inspected at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, but representative inspections may be performed.

For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described above. The conditions of the controls along each inspected 0.25-mile portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25-mile portion to either the end of the next 0.25-mile inspected portion, or to the end of the project whichever occurs first.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, then the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection. The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season). Inspections may be temporarily suspended for adverse conditions for consistency with other water quality general permits. Documentation of adverse conditions must be included in the SWP3.

In the event of flood or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

B. Inspections of Storage Areas

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified in the SWP3 shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

Inspection Reports

A report summarizing the scope of the inspection must be completed within 24-hours following the inspection. The report must also include the date(s) of the inspection and major observations relating to the implementation of the SWP3. Major observations in the report must include: the locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Observation and Evaluation Reports – Dewatering

A report summarizing the scope of the observation and evaluations must be completed within 24-hours following the observation and evaluation of dewatering controls. The report must include the date of observation and evaluation, name and title of personal making the observations and evaluations, approximate times that dewatering began and ended on the day of observation and evaluation (if discharge is continues over after normal business hours, indicate so), estimated rate (in gallons per day) of discharge on the day of observation and evaluation, any indications of pollutant discharge, and major observations including: locations where discharge of pollutants from the site have occurred, and locations where BMPs must be maintained, replaced, or added.

Actions taken as a result of inspections must be described within the report, including the dates of actions taken, and should be retained as a part of the SWP3 consistent with the EPA NPDES CGP. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be retained as part of the SWP3 and signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection.

If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

C. Qualifications of Inspectors

"Qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls and who possesses the skills to access conditions at the site that could impact stormwater quality and the effectiveness of the BMPs selected to control the quality of the stormwater discharges.

The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

The qualifications of the inspectors are in Appendix 1.0 of this SWP3.

A. Final Stabilization Requirements For Submitting A Notice of Termination (NOT)

A Notice of Termination (NOT) is attached to the SWP3 and will be completed by the permitted parties once the site is stabilized or once their operational control of the site is terminated. To meet the definition of final stabilization, the site must have been completed and reached permanent vegetation equal to 70% of native background coverage on all portions of the site not covered by roof or pavement, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed before the NOT is filed.

In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:

1. Temporary erosion control measures (e.g., degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and

2. The temporary erosion control measures are selected, designed, and installed to achieve 70 percent vegetative coverage within three years.

B. Procedures for Filing a Notice of Termination (NOT)

Large Construction Activities

Compliance with the conditions of the permit is required until the NOT is submitted and approved by TCEQ.

Each operator that has submitted an NOI for authorization of large construction activities under this general permit must apply to terminate that authorization following the conditions described in the general permit.
Authorization of large construction must be terminated by submitting an NOT on a paper form to TCEQ supplied by the executive director or electronically via the online e-Permits system available through the TCEQ website. Authorization to discharge under this general permit terminates at midnight on the day a paper NOT is postmarked for delivery to the TCEQ or immediately following confirmation of the receipt of the NOT submitted electronically by the TCEQ. Compliance with the conditions and requirements of this permit is required until an NOT is submitted.

Effective September 1, 2018, applicants were required to submit a NOT using the online e-Permits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge.

A Notice of Termination is attached to the SWP3 and will be completed by the permitted parties to terminate coverage after one of the following conditions is met: 1) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee; 2) a transfer of operational control has occurred; or 3) the operator has obtained alternative authorization under an individual or general TPDES permit.

Small Construction Activities (and for Secondary Operators at Large Construction Sites)

Upon meeting any of the conditions listed above, each operator that has obtained automatic authorization and did not submit an NOI must:

1. remove the site notice;

2. complete the applicable portion of the site notice related to removal of the site notice; and

3. submit a copy of the completed site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator), with documentation of such notification included in the SWP3

C. Transfer of Operational Control

A transfer of operational control occurs when either of the following criteria is met:

1. Another operator has assumed control over all areas of the site that have not been finally stabilized; and all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator, provided that the permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Record of this notification (or attempt at notification) shall be retained by the operator. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

2. A homebuilder has purchased one or more lots from an operator who obtained coverage under the general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the permit requirements, including the development of a SWP3 if necessary. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to lot(s) it has operational control over, and the original operator remains responsible for common controls or discharges and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

   When the primary operator of a large construction activity changes or operational control is transferred, the original operator must submit a Notice of Termination (NOT) within 10 days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least 10 days prior to the transfer of operational control.

Operators of regulated construction activities who are not required to submit an NOI must remove the original site notice, and the new operator must post the required site notice prior to the transfer of operational control. A copy of the completed site notice must be provided to the operator of any MS4 receiving the discharge.

D. Where to Submit

Permittee shall submit a Notice of Termination to the address shown on the NOT instructions.

The NOT may also be submitted by e-filing, by following the instructions on the link below:

http://www.tceq.texas.gov/permitting

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This section contains detailed drawings and descriptions of common Best Management Practices (BMPs). Not all the BMPs in this section are recommended for this project but are included for circumstances in which the BMPs must be changed to ensure the implementation of appropriate pollution prevention controls.

The BMPs recommended for this project are listed in the table "List of BMPs – Management, Structural and Vegetative" (Part IX.F), and also are shown on the "Best Management Practices" map (Part XIII).

If the BMP details are not effective; or, a threat to public health, property, well-being, or safety is perceived to exist by using the recommended BMPs, please contact Trinity Green Services.

Texas BMP List

1000 Materials Specifications
1001 Concrete Sawcutting Waste Management (SWM)
1002 Concrete Washout Area (CWO Type III)
1003 Concrete Washout Area (CWO Type IV)
1005 Concrete Washout Area (CWA Type IV)
1012 Concrete Waste Management (CWM)
1017 Curb Side Sediment Barrier (Straw Wattle®) (CSSBII)
1020 Curb Storm Drain Inlet Protection (CIP Type II)
1021 Curb Storm Drain Inlet Protection (CIP Type IV)
1035 Cut Back Curb (CBC)
1036 Disturbed Area Stabilization (Ds2) (With Permanent Vegetation)
1037 Disturbed Area Stabilization (TS) (With Temporary Seedings)
1038 Dust Control (DU)
1039 Earth Dike (DD)
1040 Erosion Control Blanket (ECBWB)
1041 Filter Bag (FB) (Dirtbag® for Dewatering Construction Sites)
1042 Floating Turbidity Barriers (FTB)
1044 Gravel Bag Gutter Check (GC Type I) For Use in Paved Areas
1046 Hazardous Waste Management (HWM)
1048 Inlet Protection at Grade (IPAG) For Use in Paved Areas
1050 Inlet Protection at Grade (IPAG) Type II (Grates) Siltsak
1058 Modified Cut Back Curb (CBC Type II)
1061 Mulch Berm (MBWF) (Wood Fiber)
1062 Disturbed Area Stabilization Mulching Only (Ds1)
1064 Perforated Pipe Riser for a Sediment Basin (SB Type II)
1065 Permanent Seeding (PS)
1066 Pipe Slope Drain (PSD)
1070 Portable Concrete Washout Container (PCWOCII) (Patent Pending)
1071 Reinforced Silt Fence (RSF Type I)
1073 Rip-Rap Inflow Protection (RRP)
1074 Rip-Rap Outlet Sediment Trap (ST Type III)
1075 Rock Outlet Protection (ROP Type I)
1076 Sanitary / Septic Waste Management (SSWM)
1077 Secondary Containment (SC Type I) For Tanks without Double Walls
1079 Sediment Basin with Pipe Spillway (SBI)
1080 Sediment Basin with Riser (SB Type I)
1082 Sediment Saver Gravel Bag (GB)
1086 Silt Fence (SF)
1089 Stabilized Construction Entrance Single Lot (SCE SRL)
1092 Slope Protection (SP II) Fiber Rolls
1093 Sodding - (SD)
1094 Solid Waste Management (SWM)
1096 Stabilized Construction Entrance (SCE Type I)

1097	Standard or Box Inlet Protection (SIP) (During Construction)
1098	Stone Check Berm (CB)
1105	Super Silt Fence (SSF)
1106	Swale (SW) (Temporary/Permanent)
1111	Triangular Filter Fabric Fence (TFFF)
1114	Wind Erosion Control (WEC)
1127	Erosion Control Blanket (ECB) (Type II)
1135	Curb Side Erosion Control Blanket (CECB)
1145	Curb Storm Drain Inlet Protection with Gravel Bags (CIP Type VIII)
1146	Mulch Berm (Type II)
1146B	12’ Length Access Mulch Berm
1147	Silt Fence Gate (SFG)
1157	Curb Storm Drain Inlet Protection (Trinity Green Services RockSoxx®)
1159	Portable Rock Berm (Trinity Green Services RockSoxx®)

MATERIALS SPECIFICATIONS

Geotextile Fabrics

CLASS	APPARENT OPENING SIZE MM. / MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.30	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40 – 0.80*	90	190

* U.S. STD Sieve CW-02215

The properties shall be determined in accordance with the following procedures:

-Apparent opening size MSMT 323

-Grab tensile strength ASTM D 1682: 4"x 8" specimen, 1"x 2" clamps, 12"/min. strain rate in both principal directions of geotextile fabric.

-Burst strength ASTM D 3786

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolephins, polyesters, or polyamindes. The geotextile fabrics shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a 0.01 cm./sec. Minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20% when tested in accordance with the grab tensile strength requirements listed above.

Silt Fence

Class F geotextile fabrics for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 3.0 gal./ft.^{2} /min. flow rate and 75% minimum filtering efficiency when tested in accordance with MSMT 322.

Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

STONE SIZE

	SIZE RANGE	D_{50}	D_{100}	AASHTO	WEIGHT
NUMBER 57*	3/8" – 1½"	½"	1½"	M-43	N/A
NUMBER 1	2" – 3"	2½"	3"	M-43	N/A
RIP-RAP**	4" – 7"	5½"	7"	N/A	N/A
CLASS I	N/A	9.5"	15"	N/A	150 lb. max
CLASS II	N/A	16"	24"	N/A	700 lb. max
CLASS III	N/A	23"	34"	N/A	2,000 lb. max

* This classification is to be used on the inside face of stone outlets and check dams.

** This classification is to be used whenever small rip-rap is required. The State Highway Administration designation for this stone is Stone For Gabions (§905.01.04).

STONE FOR GABION BASKETS

BASKET THICKNESS		SIZE OF INDIVIDUAL STONES	
INCHES	MM	INCHES	MM
6	150	3 – 5	75 – 125
9	225	4 – 7	100 – 175
12	300	4 – 7	100 – 175
18	460	4 – 7	100 – 175
36	910	4 – 12	100 - 300

NOTE: Recycled concrete equivalent may be substituted for all stone classifications. Recycled concrete equivalent shall be concrete broken into the sizes meeting the appropriate classification, shall contain no steel reinforcement, and shall have a density of 150 pounds per cubic foot. The use of recycled concrete must be approved by the local regulatory agency prior to use. This requirement applies to any of the following recommended BMPs requiring graded rock.

Concrete Sawcutting Waste Management (SWM)

Definition

Sawcutting is the use of a saw blade to cut grooves or joints in new concrete in order to control cracking of the pavement surface. Sawcutting joints involve sawing a narrow, shallow groove in the concrete. Sawcutting is also used to remove curb sections for pavement repairs, utility trenches, and driveways. Cutting is usually done to the full depth for this type of application. Water is used to control the saw blade temperature. These type operations produce concrete dust and slurry that will pollute water. If the polluted water reaches a watercourse, it will lower the acidity or raise the pH number of the watercourse. The change in pH causes significant chemical changes in water bodies which in turn is harmful to aquatic life. Suspended solids are also a by-product of sawcutting.

Purpose

The purpose of this management practice is to prevent by-products of sawcutting from entering the storm water system and polluting receiving waters.

Conditions Where the Practice Applies

The practice applies to all construction projects that include sawcutting activities.

Design Criteria for Collection

During saw cutting operations, the slurry and cuttings shall be continuously vacuumed to control the flow of water from the operations site.

The slurry and cuttings shall not be allowed to drain to the storm drain system, swale, stream or other water body.

The slurry and cuttings shall not be allowed to remain on the pavement to dry out.

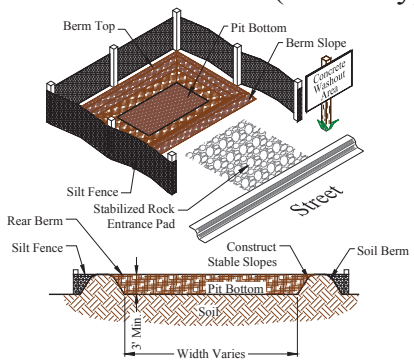
Operation and Maintenance

Develop pre-determined, safe slurry disposal areas.

Collected slurry and cuttings shall be discharged in an area protected by one or more sediment removal BMPs and shall be performed in a manner that does not result in a violation of groundwater or surface water quality standards.

Never dump waste in unauthorized locations or without the property owner's permission.
Project personnel should inspect the operations to ensure that operators are diligent in controlling the water produced by the sawcutting activities. After construction is completed, the pavement should be inspected to ensure that waste removal procedures were performed correctly.

Concrete Washout Area (CWO Type III)



Cross Section
Not to Scale

Definition

A temporary pit disposal area for concrete waste resulting from concrete excess, fresh concrete mix, or concrete saw-cut dust. The waste sources are truck and equipment washing or concrete dust and concrete debris resulting from demolition.

Purpose

It protects water quality parameters that can be affected by the introduction of concrete. Concrete affects the pH of water causing significant chemical changes in water bodies and harm to aquatic life.

Conditions Where the Practice Applies

The practice will be used on any construction project that involves the demolition of existing concrete or the use of fresh concrete and where the waste concrete must be disposed of on site. It is illegal to dump waste concrete into vacant areas on the job-site, or into ditches or drainage facilities. Under normal groundwater table conditions, a liner is not required.

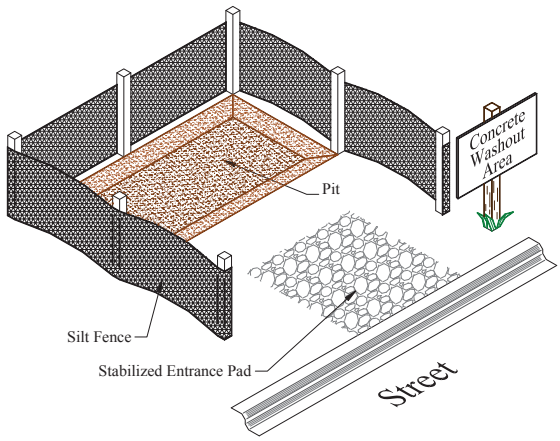
Installation

Install concrete washout on level ground away from swales and other flow channels. Dig a pit with a minimum depth of three feet. The length and width should be appropriate for the nature of construction activity. Use the excavated dirt to form a berm on the sides and rear of the pit. Install silt fence on the exterior side of the berm. Add stone leading from the curb to the end of the pit to provide a stabilized entrance.

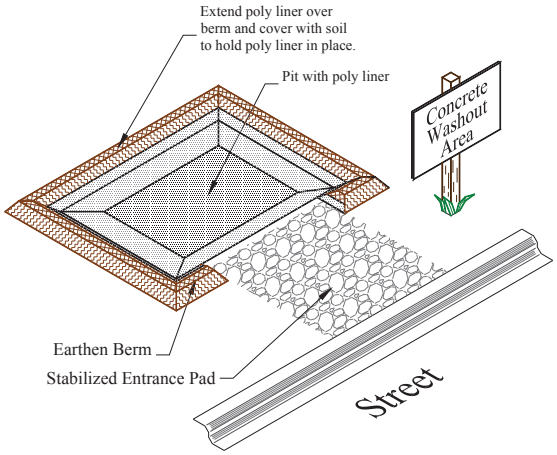
Maintenance

The concrete washout area shall be repaired and/or enlarged as necessary to maintain capacity for waste concrete. Waste material from concrete washout operations must be removed and legally disposed of when it has accumulated two-thirds of the wet storage capacity of the structure. When construction work is terminated, the concrete washout area must be removed. The disturbed area shall be seeded and mulched or otherwise stabilized in a manner accepted by the local jurisdiction.

Concrete Washout Area (CWO Type IV)



Concrete Washout Area (CWA Type IV)



Note:

Concrete truck washout onsite is prohibited outside designated areas. Designated areas shall be lined and bermed to prevent discharge to surface and ground water. Hardened concrete from concrete trucks shall be removed and disposed of in a proper manner and location.

Concrete Waste Management (CWM)

Standards and Specifications

Definition

A temporary disposal area for concrete waste resulting from concrete excess, fresh concrete mix, or dust. The waste sources are truck and equipment washing or concrete dust and concrete debris resulting from demolition. (See Concrete Sawcutting Waste Management.)

Purpose

It protects water quality parameters that can be affected by the introduction of concrete. Concrete affects the pH of water causing significant chemical changes in water bodies and harming aquatic life.

Conditions Where Practice Applies

The practice will be used on any construction project that involves the demolition of existing concrete or the use of fresh concrete and the waste concrete must be disposed of on site. It is illegal to dump waste concrete into vacant areas on the job-site, offsite, or into ditches or drainage facilities.

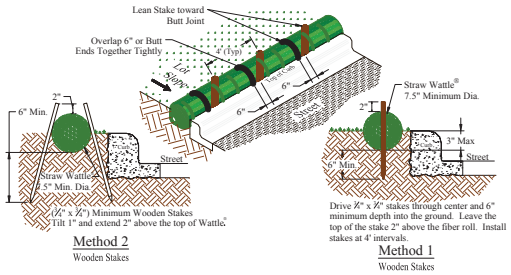
Design Criteria and Practices

Refer to the following drawings of the most common types of disposal areas. Develop pre-determined, safe concrete disposal areas away from the stormwater conveyance system. Add the location to the BMP Map when the location is determined and place a sign near the dump site if required by regulations. Find out the depth of the groundwater table and the soil permeability to determine if lining is needed. Provide adequate storage based on frequency of cleanout and volume of waste. Educate drivers and equipment operators on proper disposal and equipment cleaning procedures and enforce procedures.

Maintenance

Check the washout area periodically to make sure that the wash water containment is not leaking. Check the liner for damage that would allow leakage into the groundwater. If torn, replace immediately. The silt fence toe-in should not permit leakage under the silt fence. Remove dry waste concrete before the pit becomes full to prevent overflow. Dispose of dry concrete at a recycling facility. Maintain stabilized entrance if entrance is required.

Curb Side Sediment Barrier (Straw Wattle®) (CSSBII)



Source: 1-866-WATTLES www.earthsavers.com

Definition

A temporary sediment barrier consisting of a compacted straw roll referred to as "Wattle"® composed of rice straw in netting that is photodegradable and/or biodegradable. The netting consists of seamless high density polyethylene and ethel vinyl acetate.

Purpose

The roll is used to intercept sediment laden water and prevent the sediment and associated pollutants from entering the street and the storm water system. The roll reduces the velocity of the water which in turn causes heavier soil particles to be deposited in front of it. Water is allowed to flow through the roll which provides filtration of soil particles. The Wattle® is placed along the curb where street curb and gutter are present on the lot where home or commercial construction is underway. Abnormally large, steep drainage areas require special considerations. Wattles® are manufactured by Earth-Savers®. Call 1-866-WATTLES, or check their website at www.earth-savers.com for information.

Conditions Where the Practice Applies

The roll is recommended for use on flatter slopes and small drainage areas occurring on housing or commercial lots where sheet flow exists rather than concentrated flow. An advantage of using this device is that it is biodegradable and can be opened and spread on the lot for use as a soil conditioner after construction is completed. Its use is not recommended unless it can be partially trenched and staked. Rolls can be used on steeper slopes and larger drainage areas; however the diameter must be large enough to trap the estimated sediment volume
and they must be installed in multiple rows. Refer to Slope
Protection BMP (SP-1) for slope applications.

Design Criteria

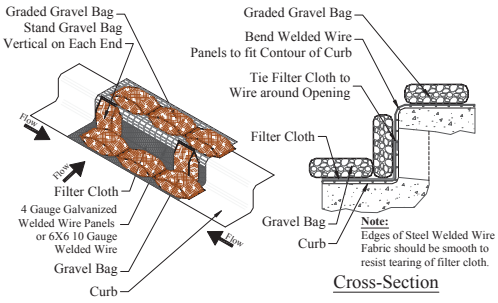
Contact Earth-Savers®, Erosion Control Products, for detailed specifications. The soil should be smoothed in the area of the Wattle® placement and obstructions such as rocks greater than 1"-2" must be removed. Set the roll in a trench or anchor furrow 2"-3" deep. Butt joint tightly or overlap 6". Drive stakes on 4' spacing through the center of the Wattle® and into the ground to at least a 6" depth when using small Wattles®. Larger Wattles® require greater staking depth. The minimum diameter of the Wattle® is 7.5" and the maximum diameter is 19". Usually, 7.5" diameter Wattles® are sufficient for normal-sized housing lots. The longevity of the roll must equal or exceed the period of intended use. "Dog leg" the ends upslope for containment. Backfill the upslope length of Wattle® with soil and compact.

Maintenance

Inspect after each rainfall event. Remove the sediment after it reaches a height of 1/3 the Wattle® height. Dispose of sediment in a proper place that will not allow contamination of the storm water system. Insure that erosion and sediment loss does not occur under the device. Repair or replace the Wattle® if damaged by construction equipment. The Wattle® must remain in place until the disturbed area is permanently stabilized. Discard the Wattle® after the job is stabilized with vegetation.

Curb Storm Drain Inlet Protection

(CIP Type II)



Definition

A filter constructed around a storm drain inlet.

Purpose

Storm drain inlet protection is used to filter sediment laden runoff before it enters the storm drain system.

Conditions Where the Practice Applies

Storm drain inlet protection is a secondary sediment control device and is not to be used in place of a sediment trapping device on the lot unless approved by the appropriate approval authority.

Design Criteria

Storm drain inlet protection shall be used when the drainage area to an inlet is disturbed and the following conditions prevail:

1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device.
2. Watertight blocking of the inlets is not advisable.
3. Drainage area is less than 1/4 acre for curb or standard inlet protections and 1 acre for elevated or yard inlets. For yard inlets, the total for inlets in series must be 1 acre or less and the contributing drainage area must have slopes flatter than 5 percent.

Several methods of covering inlets have been developed recently. It is important to use methods that have proven effective. Follow local ordinances. Some communities do not allow covering of storm inlets due to the possibility of increased flooding. Several other important design considerations include traffic safety, elimination of seepage at the ends and underneath the filter cloth, and preventing the filter from entering the inlet.

Construction Specifications

1. Bend a continuous piece of 6"x 6" 10-gauge welded wire fabric, or 6"x 6" 4-gauge galvanized welded wire panels, to form a "Z" shape as shown on the drawing. An alternative method is to cut wire in sections and hinge sections together. The width of the wire should extend at least 12" past the left and right sides of the drain opening.

2. Tie a continuous piece of approved Geotextile fabric the same width as the wire mesh. Fold the fabric along the top for added tie strength at wire intersections.

3. The Geotextile should extend out from the curb the same distance as the wire fabric and should extend up the wire fabric so that approximately 2/3 of the drain opening is covered. This allows for sediment storage and overflow during periods of high rainfall. **Note: The Geotextile opening size should be selected based on the filtered soil gradation testing and should retain the gravel.**

4. Place the assembly against the inlet throat. The top of the wire fabric is held in place by gravel bags. Place gravel bags against the curb and the fabric to prevent seepage between the curb and the filter cloth. Place small gravel bags around the opening to prevent seepage under the filter cloth and also to form a sediment trap. Clear graded gravel ("pea" size max) is preferable for primary filtering. The infiltration rate through the bag should permit the allowable flow rate. **Caution: Gravel bags should be placed off the street surface unless a suitable reflector is used for traffic safety.** To protect the grate inlet if in front of the curb opening, place the gravel bags between the curb and outside edge of the grate inlet.

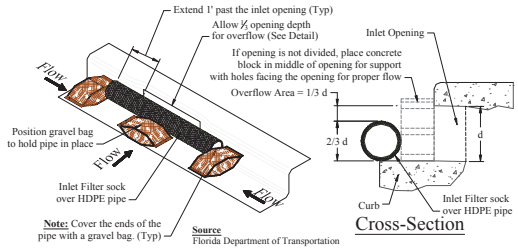
Maintenance

Maintenance requirements for storm drain inlet protection are intense, due to the susceptibility to clogging. When the structure does not drain completely within 24 hours after a storm event, it is clogged. When this occurs, accumulated sediment must be removed and the geotextile fabric or filtering device must be cleaned and replaced.

Check the bags and filter cloth regularly to insure they are not torn or clogged. If clogged or torn, replace immediately. Keep clean bags on hand to use as replacements. Remove dirty bag or filter cloth and wash clean in an appropriate facility. Place bags so leakage does not occur under front edge of the filter cloth. Remove any sediment that has accumulated in the gutter.

Curb Storm Drain Inlet Protection

(CIP Type IV)



Definition

A temporary sediment barrier and filter made of high density polyethylene (HDPE) flexible corrugated drainage pipe, (commonly called "drain field pipe"), with uniform slotted openings and holes in the pipe. The pipe is placed against the front of a curb storm drain opening. A polyester drain envelope (sock) is stretched over the pipe for filtering.

Purpose

Storm drain inlet protection is used to intercept sediment laden water in the curb gutter opening and prevent the sediment and associated pollutants from entering the storm water underground pipe system. The barrier reduces the velocity of the water which in turn causes heavier soil particles to be deposited in front of it. While allowing flow through the pipe, the barrier filters certain smaller sized particles in suspension and prevents them from flowing through the pipes. Excessive flows pass over the top of the filter and pipe. Advantages to this device are that it is recyclable, reusable, and easily cleaned.

Conditions Where the Practice Applies

This type of inlet protection is used in curb openings in front of lots with small drainage areas. Generally, the drainage area should be less than ¼ acre and the total for inlets in series should be 1 acre or less with slopes flatter than 5 percent in the contributing drainage area. Some local regulations may not permit the use of this type of device or protection. Always check local regulations. *If a grate exists refer to Inlet Protection at Grade details.

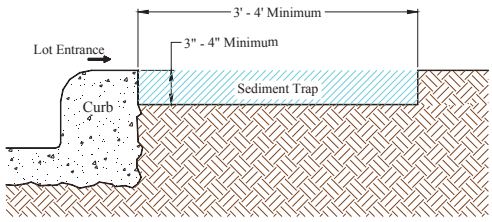
Design Criteria

For the pipe and filter sock, contact Advanced Drainage Systems, Inc. (ADS) phone (800) 821-6710 or check their website at www.ads-pipe.com. Standard flexible corrugated pipe with uniform slots and drilled holes is acceptable for this application. Select the proper length so that the pipe does not require splicing. The pipe should extend at least 1' past each end of the curb opening. Select the diameter of the pipe that will allow the required overflow area. Do not allow the device to enter the storm system. Place gravel bags on each end in the gutter to hold the device in place, trap heavier particles, and prevent sediment from entering the ends of the pipe. Also, position a gravel bag in the middle section for weight to prevent sediment from flowing under the pipe. The gravel bag must be durable, and composed of filter material to retain the gravel, and contain "pea-sized" gravel. The sock must be machine knitted polyester that stretches and fits snugly over the pipe. The filter properties of the sock must meet filtering requirements based on the soil type.

Maintenance

Perform maintenance as needed or as required. Inspect following rainfall events and at least daily during prolonged rainfall. Maintain to provide an adequate sediment holding capacity. Trash shall be removed daily and sediment shall be removed after each rainfall. If the filter becomes clogged, replace or wash in an authorized location. Replace damaged or clogged gravel bags. Sediment shall be incorporated in the project at designated locations or disposed of outside the project or in conformance with local requirements. Remove the device after final stabilization has been achieved.

Cut Back Curb (CBC)



Definition

A temporary sediment trap formed by excavation behind the curb.

Purpose

The purpose is to intercept sediment laden runoff from the lot during construction and retain sediment on the lot.

Conditions Where the Practice Applies

A cutback curb is installed when discharge from the lot runs over the curb and traditional silt fence or erosion control blanket is not used. It can also be installed at the entrance to the lot when access is needed.

Design Criteria

Cut back soil from behind curb 3" - 4" deep to form a temporary sediment trap. The depth required may be increased if more sediment storage is needed. Installing the sidewalk will form a two-stage sediment trap that will be more effective.

Maintenance

The trap must be cleaned regularly as site conditions or rain events cause sediment deposition in the trap. Allow sediment laden water to infiltrate before cleaning to prevent overflow into the street.

Disturbed Area Stabilization (Ds2)

(With Permanent Vegetation)

Definition

Planting grasses on highly erodible or critically eroding areas.

Purpose

To stabilize the soil, reduce damage from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources.

Conditions

On highly erodible or critically eroding areas. These areas usually cannot be stabilized by ordinary conservation treatment and management, and if left untreated, can cause severe erosion or sediment damage. Examples of applicable areas are dams, dikes, levees, cuts, and fills and other bare slopes.

Planning Considerations

1. Use conventional planting methods where possible.
2. Companion crops aid in getting permanent cover established, especially when mixed plantings are done during marginal planting periods.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.
4. Bloc sod is effective in controlling erosion adjacent to concrete flumes and other structures.
5. Consider using irrigation, especially when late plantings are done.
6. Use low maintenance plants in most cases to ensure long-lasting erosion control.

Specifications

A. Grading and Shaping

1. Grading and shaping is not normally required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishments.
2. When conventional seeding and fertilizing is to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.
3. Concentrations of water that will cause excessive soil erosion will be diverted to a safe outlet. Diversions and other treatment practices must conform with the appropriate standards and specifications.

B. Seedbed Preparation

1. Seedbed preparation is not required where hydraulic seeding and fertilizing equipment is to be used.
2. When conventional seeding is to be used, seedbed preparation will be done as follows: Broadcast plantings;
    a. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
    b. Tillage may be done with any suitable equipment.
    c. Tillage may be done on the contour where feasible.
    d. On slopes too steep for the safe operation of tillage equipment, the soil surface will be pitted or trenched across the slope with appropriate hand tools to provide a place 6 to 8 inches apart in which seed may lodge and germinate.

C. Lime and Fertilizer- Application

1. When hydraulic seeding equipment is used:
    a. The initial fertilizer will be mixed with seed, inoculants (if needed) and wood cellulose or wood pulp fiber mulch and applied in a slurry. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydro seeder.
    b. Finely ground limestone will be mixed with water and applied immediately after mulching is completed or in combination with the top dressing.
2. When conventional planting is to be done, lime and fertilizer will be applied uniformly in one of the following ways:
    a. Apply before land preparation so that it will be mixed with the soil during seedbed preparation; or,
    b. Mix with the soil used to fill the holes, distribute in furrows; or
    c. Broadcast after steep surfaces are scarified, pitted or trenched.
    d. A fertilizer pellet will be placed at root depth beside each pine tree seedling.

D. Plant Selection

1. Refer to Tables 1 and 2 for approved species.
2. Species not listed shall be approved before they are used.
3. Plants shall be selected on the basis of species characteristics; site and soil conditions; planned use and maintenance of the area; time of year of planting; method of planting; and the needs and desires of the land user.
4. Plant selections may include companion crops to provide quick cover. Care shall be taken in selecting companion crop species and seeding rates to limit competition so that the desired permanent vegetation may become established as soon as possible.
5. The term "pure live seed" is used to express the quality of seed, even if it is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. PLS is determined by multiplying the percent of pure seed times the percent of germination and dividing by 100.

EXAMPLE: Common Bermuda Seed 70% germination, 80% purity

$$PLS = \frac{70\% \text{ germination} \times 80\% \text{ purity}}{100}$$

$$PLS = \frac{56}{100} = 0.56 = 56\%$$

The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56 percent PLS, the bulk seeding rate is:

$$\frac{10 \text{ lbs. PLS/acre}}{56\% \text{ PLS}} = 17.9 \text{ lbs/acre}$$

You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

Planting

1. Hydraulic seeding – Mix the seed, inoculate, fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.
2. Conventional seeding – Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker – seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with a cultipacker or other suitable equipment.
3. No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent species. No-till seeding must be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

E. Mulching

1. Use mulch on all slopes steeper than 3 percent; when seedings are made so late in the fall and winter that germination cannot be expected until spring; in the bottom of spillways; and on road banks.
2. Temporary vegetation seeded alone may be established on good sites without the use of mulch.
3. Mulching materials will consist of:
    a. Use of dry straw or dry hay of good quality and free of weed seeds. Dry straw will be applied at the rate of 2 tons per acre. Dry hay will be used at a rate of 2½ tons per acre; or,
    b. For hydraulic seeding, use wood cellulose mulch or wood pulp fiber at the rate of 500 pounds per acre and dry straw or dry hay at the rate listed in A above; or,
    c. For hydraulic seeding on slopes ¾:1 or steeper, 1,000 pounds of wood cellulose or wood pulp fiber which includes a tackifier may be substituted for the treatment in B above; or,
    d. Use three tons per acre of Sericea lespedeza hay containing mature seed; or,
    e. Apply pine straw or pine bark at a thickness of 3 inches. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted; or,
    f. Soil retention blankets, erosion control netting, other manufactured materials, or black sod may be required in addition to mulch on unstable soils and concentrated flow areas.
4. Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They will have the property to be evenly dispersed when agitated in water. The fibers shall have a contrasting color to the soil to allow visual metering and aid in uniform application during seeding.

F. Applying Mulch

1. Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. About 75 percent of the soil surface will be covered.
2. Wood cellulose or wood fiber mulch will be applied with hydraulic seeding equipment.

G. Anchoring Mulch

1. Anchor straw or hay mulch immediately after application by spraying uniformly onto the mulch as it is ejected from the blower machine, or sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.
    a. Care shall be taken at all times to protect the public, adjacent property, pavements, curbs, sidewalks, and all other structures.
    b. Press the mulch into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position.
    c. Apply synthetic tackifiers or binders applied immediately after the mulch is spread. Synthetic tackifiers will be mixed and applied according to manufacturer's specifications.
    d. Fall and winter plantings may include ½ bushel of rye or wheat to stabilize the mulch.
    e. Plastic mesh or netting with no larger than one inch by one inch mesh may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas.
2. Where wood cellulose or wood pulp fiber mulch is applied alone, a tackifier will be used.

Maintenance

Irrigation will be applied at a rate that will not cause runoff. Check after rain events for erosion damage or loss of seeds.

Topdressing will be applied on all temporary grass species and permanent grasses planted alone or in mixtures with other species. Recommended rates of application are listed in Table 1.

Second year fertilizer rates and maintenance fertilizer rates are listed in Table 1.

Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests.

Mow Sericea lespedeza only after frost to ensure that the seeds are mature. Mow between November and March.

Bermuda grass, Bahia grass and Tall fescue may be mowed as desired. Maintain at least 6 inches of top expansion under any use and management. Moderate use of top growth is beneficial after establishment.

Exclude livestock until the plants are well established.

Mowing should not be done during the quail nesting season (September through April).

Table 1
Fertilizer Requirements

Type of Species	Year	Analysis or Equivalent N-P-K	Rate	N Top Dressing Rate
Cool Season Grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./acre 1000 lbs./acre 400 lbs./acre	50-100 lbs./ acre[1,2] ------ 30
Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./acre 1000 lbs./acre 400 lbs./acre	0-50 lbs./ acre[1] ---- ----
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./acre 800 lbs./acre 400 lbs./acre	50-100 lbs./ acre[2,3] 50-100 lbs./ acre[2] 30 lbs./ acre
Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./acre 1000 lbs./acre 400 lbs./acre	50 lbs./ acre[3] ---- ----

[1]Apply in spring following seeding.
[2]Apply in split applications when high rates are used.
[3]Apply when plants grow to a height of 2 to 4 inches.
[4]Apply in 3 split applications.

Table 2
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] PLS[1] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Bahia, Pensacola *(paspalum notatum)*			P[4]	.... ____ ____	166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread into Bermuda pastures and lawns. Mix with Sericea lespedeza or weeping love grass.
alone or with temporary cover	60 lbs.	1.4 lb.	C	.... ____ ____	
with other perennials	30 lbs.	0.7 lb.			
Bahia, Wilmington *(paspalum notatum)*			M-L	J F M A M J J A S O N D	Same as above.
alone or with temporary cover	60 lbs.	1.4 lb.	P	.... ____ ____	
with other perennials	30 lbs.	0.7 lb.			
Bermuda, common *(cynodon dactylon)* Hulled seed				J F M A M J J A S O N D	1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
alone	10 lbs.	0.2 lb.	P	..... ____ ____	
with other perennials	6 lbs.	0.1 lb.	C	..... ____ ____	

Table 2 continued
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] PLS[1] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Bermuda, common *(cynodon dactylon)*			P[4]	____ ____	
with temporary cover	10 lbs.	0.2 lb.	C	____	
with other perennials	6 lbs.	0.1 lb.			Plant with winter annuals. Plant with Tall fescue.
Bermuda Springs *(cynodon dactylon)*				J F M A M J J A S O N D	A cubic foot contains approximately 650 springs. A bushel contains 1.25 cubic feet or approximately 800 springs. Same as above.
Coastal, Common, Midland, or Tift 44	40 cu. Ft.	0.9 cu. ft.	M-L	..... ____ ____ ____	
	or				
Coastal, Common, or Tift 44	sod plugs 3' x 3'		P	... ____ ____ ____	
			C	.... ____ ____	
Tift 78			C	.... ____ ____	Southern Coastal Plain only.
Centipede *(eremochloa ophiuroides)*	Block sod only			J F M A M J J A S O N D	Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winter hardy as far north as Athens and Atlanta.
			P	..... ____ ____	
			C	... ____ ____ ____ ...	

Table 2 continued
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] PLS[1] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Crownvetech *(coronilla varia)*			M-L[4]	J F M A M J J A S O N D	100,000 seed per pound. Dense growth. Drought tolerant and fire resistant. Attractive rose, pink, and white blossoms spring to late fall. Mix with 30 pounds of Tall fescue or 15 pounds of rye. Inoculate seed with M inoculant. Use from North Atlanta and northward.
with winter annuals or cool season grasses	15 lbs.	0.3 lb.	P	____ ____ .... ____ ____	
Fescue, Tall *(festuca arundinacea)*				J F M A M J J A S O N D	227,000 seed per pound. Use alone only on better sites. Not for droughty soils. Mix with perennial lespedezas or Crown vetch. Apply topdressing in spring following fall plantings. Not for heavy use areas or athletic fields.
			M-L	... ____ ____	
alone	50 lbs.	1.1 lb.	P	... ____ ____	
with other perennials	30 lbs.	0.7 lb.			

Table 2 continued
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	PLS [3] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Lespedeza, Sericea *(lespedeza cuneata)*					350,000 seed per pound. Widely adapted. Low maintenance. Mix with Weeping love grass, Common Bermuda, Bahia, or tall fescue. Takes 2 to 3 years to become fully established. Excellent on roadbanks. Inoculate seed with EL inoculant
scarified	60 lbs.	1.4 lb.	M-L[4]	... ___ ___	
			P	... ___ ___ ___ ...	
			C	... ___ ___ ___ ...	
unscarified	75 lbs.	1.7 lb.	M-L	.... ___ ___ ___ ___	Mix with Tall fescue or winter annuals
			P	___ ___ .... ___ ___ ___ ___	
			C	___ ___ .... ___ ___ ___ ___	
seed-bearing hay	3 tons	138 lb.	M-L	___ ___	Cut when seed is mature, but before it shatters. Add tall fescue or winter annuals.
			P	___	
			C	___ ...	

Table 2 continued
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	PLS [3] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Lespedeza Ambro virgata *(lespedeza virgata dc)* 0r Appalow *(lespedeza cuneata (durmont) g. don)*					300,000 seed per pound. Height of growth is 18-24 inches. Advantageous in urban areas. Spreading-type growth. New growth has bronze coloration. Mix with weeping love grass, common Bermuda, Bahia, tall fescue or winter annuals. Do not mix with Sericia lespedeza. Slow to develop solid stands. Inoculate seed with EL inoculant.
scarified	60 lbs.	1.4 lb.	M-L[4]	... ___ ___ ...	
			P	... ___ ___ ___ ...	
			C	... ___ ___	
unscarified	75 lbs.	1.7 lb.	M-L	.... ___ ___ ___ ___	
			P	___ ___ .... ___ ___ ___ ___	
			C	___ ___ .... ___ ___ ___ ___	
Lovegrass, Weeping (*eragrostis curvula*)					1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericia lespedeza on roadbanks.
alone	4 lbs.	0.1 lb.	M-L	... ___ ___ ...	
			P	... ___ ___ ___ ...	
			C	... ___ ___ ___ ...	
with other perennials	2 lbs.	0.05 lb.		..... ___ ___ ___ ...	
Maidencane *(panicum hemitomon)*					For very wet sites. May clog channels. Dig sprigs from local sources. Use along riverbanks and shorelines
sprigs	2' x 3' spacing		All	..... ___ ___ ...	

Table 2 continued
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates[2] Per Acre	PLS [3] Per 1000 Sq. ft.	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Panicgrass, Atlantic Coastal (*panicum amarum var. amarulum)*	20 lbs.	0.5 lb.	P[4]	..... ___ ___	Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
			C	..... ___ ___	
Reed Canary Grass (*phalaris arundinacea*)					Grows similar to Tall fescue.
alone	50 lbs.	1.1 lb.	M-L	... ___ ___ ...	
			P	... ___ ___ ...	
with other perennials	30 lbs.	0.7 lb.		... ___ ___ ...	
Sunflower, Aztec Maximillian (*helianthus maximiliani)*	10 lbs.	0.2 lb.	M-L	... ___ ___	227,000 seed per pound. Mix with Weeping love grass or other low-growing grasses or legumes.
			P	... ___ ___	
			C	___ ___	
Switchgrass (*panicum virgatum)*	40 lbs.	0.9 lb.	M-L	... ___ ___	Streambanks.
			P	... ___ ___	
			C	... ___ ___	

[1] Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily.
[2] Reduce seeding rates by 50% when drilled.
[3] PLS is an abbreviation for Pure Live Seed.
[4] M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents Southern coastal Plain; Sand Hills; Black Lands; and Atlantic coast Flatwoods MLRAs

Disturbed Area Stabilization (TS)
(With Temporary Seedings)

Definition
Establishing temporary vegetative cover with fast growing seedings on disturbed or denuded areas.

Purpose
- To reduce erosion, sediment and runoff damages to downstream resources.
- To improve wildlife habitat.
- To improve aesthetics.
- To improve safety and public road rights-of-way.
- To improve tilth and add organic matter for permanent plantings.

Conditions
This practice is applicable on areas subject to erosion for up to twelve months or until establishment of finished grade or permanent vegetative cover. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization.

Specifications

A. . Grading and Shaping

Excessive stormwater must be controlled by planned and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment basins and others.

1. No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

B. Seedbed Preparation

1. When a hydraulic seeder is used, seedbed preparation is not required.
2. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.
3. When soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

C. Lime and Fertilizer

1. Agricultural lime is not required.
2. On reasonably fertile soils or soil material, fertilizer is not required.
3. On soils of very low fertility, use 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.). If the site will permit, apply before land preparation and disk, rip or chisel to incorporate.

D. Seeding

1. Select a grass or grass-legume mixture suitable to the area and season of the year.

2. Apply seed uniformly by hand, cyclone seeder, drill, cultipacker-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-half to one inch deep.

E. Mulching
Temporary vegetation can, in most cases, be established without the use of mulch. Mulch without seeding should be considered for short term protection.

Maintenance

If water is applied, it must be at a rate not causing runoff and erosion. Thoroughly wet the soil to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

Check seeded areas after each rainfall event to see if seeds were washed away. It may be necessary to cover the seeds with an erosion control blanket temporarily until seeds germinate. If soil is crusted, keep the surface moist until seedlings appear.

Table 1
PLANTS, PLANTING RATES, AND PLANTING DATES FOR TEMPORARY COVER OR COMPANION CROPS[1]

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] Per 1000 Sq. ft.	PLS[3]	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Barley (*hordeum vulgare*)				M-L[4] P C		14,000 seed per pound. Winter hardy. Use on productive soils.
alone	3 bu. (144 lbs.)		3.3 lb.			
in mixtures	½ bu. (24 lbs.)		0.6 lb.			
Lespedeza, Annual (*lespedeza striata*)				M-L P C		200,000 seed per pound. May volunteer for several years. Use inoculate EL.
alone	40 lbs.		0.9 lb.			
in mixtures	10 lbs.		0.2 lb.			
Lovegrass, Weeping (*eragrostis curvula*)				M-L P C		1,500,000 seed per pound. May last for several years. Mix with Sericea Lespedeza.
alone	4 lbs.		0.1 lb.			
in mixtures	2 lbs.		0.05 lb.			
Millet, Browntop (*panicum fasciculatum*)				M-L P C		137,000 seed per pound. Quick dense cover. Will provide too much competition in mixtures if seeded at high rates.
alone	40 lbs.		0.9 lb.			
in mixtures	10 lbs.		0.2 lb.			

Table 2
PLANTS, PLANTING RATES, AND PLANTING DATES FOR TEMPORARY COVER OR COMPANION CROPS[1]

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] Per 1000 Sq. ft.	PLS[3]	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Millet, Pearl (*pennesetum glaucum*)				M-L[4] P C		88,000 seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
alone	50 lbs.		1.1 lb.			
Oats (*avena sativa*)				M-L P C		13,000 seed per pound. Use on productive soils. Not as winter hardy as rye or barley.
alone	4 bu. (128 lbs.)		2.9 lb.			
in mixtures	1 bu. (32 lbs.)		0.7 lb.			
Rye (*secale cereale*)				M-L P C		18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
alone	3 bu. (128 lbs.)		3.9 lb.			
in mixtures	½ bu. (32 lbs.)		0.6 lb.			
Ryegrass, Annual (*lolium temulentum*)				M-L P C		227,000 seed per pound. Dense cover. Very competitive and is not to be used in mixtures.
alone	40 lbs.		0.9 lb.			

Table 3
PLANTS, PLANTING RATES, AND PLANTING DATES FOR TEMPORARY COVER OR COMPANION CROPS

Species	Broadcast Rates[2] Per Acre	Broadcast Rates[2] Per 1000 Sq. ft.	PLS[3]	Resource Area	Planting Dates by Resource Planting Dates (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
Sudangrass (*sorghum sudanese*)				M-L[4] P C		55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.
alone	60 lbs.		1.4 lb.			
Triticale (*x-triticosecale*)				C		Use on lower part of Southern Costal Plain and in Atlantic Coastal Flatwoods only.
alone	3 bu. (144 lbs.)		3.3 lb.			
in mixtures	½ bu. (24 lbs.)		0.6 lb.			
Wheat (*triticum aestivum*)				M-L P C		15,000 seed per pound. Winter hardy.
alone	3 bu. (180 lbs.)		4.1 lb.			
in mixtures	½ bu. (30 lbs.)		0.7 lb.			

[1] Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily.
[2] Reduce seeding rates by 50% when drilled.
[3] PLS is an abbreviation for Pure Live Seed.
[4] M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents Southern coastal Plain; Sand Hills; Black Lands; and Atlantic coast Flatwoods MLRAs

Dust Control (DU)

Definition
Dust control is a practice used to reduce the surface and air transport of dust during construction activities. Examples of temporary dust control practices include windbreaks of trees or fence, minimization of soil disturbance, spray-on adhesives, tillage, chemical treatment, sweeping impervious areas, and water spraying. Permanent measures include covering the disturbed area with vegetation, stones, gravel, or concrete.

Purpose
The purpose of using this practice is to prevent pollutants from infiltrating into storm water.

Conditions Where Practice Applies
The practice should be applied to all construction earth disturbing activities. Application of dust control practices is especially critical in arid areas where exposed soil is more likely to be transported into receiving water bodies through runoff or wind action.

Design Criteria
The design of any dust control project should limit the amount of soil or dust particulates exposed at one time, and reduce the potential for dust generation. The performance objectives established for the particular project should also be considered during the design stage. Additionally, some project sites may require solutions to both industrial and land disturbance dust control problems. Realistically, it may not be practical or possible to develop a design that meets all of the project goals and objectives at one time. Therefore it may be more appropriate to develop a phased design approach that utilizes a combination of temporary, permanent, and mechanical measures for dust control.

Temporary Methods

1. Vegetative Coverings: Temporary seeding and mulching may be applied to cover bare soil and to prevent wind erosion. The soil must be kept moist to establish cover.

2. Barriers: Solid board fences, silt fences, snow fences, burlap fences, crate walls, bales of hay, and similar material can be used to control air currents and soils blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.

3. Irrigation: This is generally done as an emergency treatment. The site is sprinkled with water until the surface is wet. Repeat as necessary. If this method is to be employed at a construction site, it is recommended that a temporary gravel rock entrance be created to prevent mud from spreading onto local streets.

4. Tillage: This practice roughens the soil and brings clods to the surface. This is an emergency measure, which should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment, which may produce the desired effect.

5. Adhesives: Use spray-on adhesives according to Table 1. These adhesives form fairly impenetrable surfaces, and should be used only if other methods prove to be difficult to work with.

Table 1
Design of Adhesive Measures

Type of Emulsion	Water Dilution	Nozzle Type	Application Rate (gpa)
Anionic Asphalt	7-1	Coarse	1,200
Latex	12.5-1	Fine	235
Resin and Water	4-1	Fine	300

Permanent Methods

1. Permanent Vegetation: Seeding and sodding should be done to permanently stabilize exposed areas against wind erosion. It is recommended that existing trees and large shrubs be allowed to remain in place to the greatest extent possible during site grading processes.

2. Stone: Course gravel or crushed stone may be placed over highly erodible soils.

3. Topsoiling: This method is recommended when permanent vegetation cannot be established on a site. Topsoiling is a process in which less erosive soil material is placed on top of highly erodible soils.

Dust Collection Methods

1. Cyclone Collectors: Cyclone collectors use centrifugal force to separate dry dust and chemical pollutants in the air.
2. Bag Collectors/Fabric Filters: Bag collectors and fabric filters remove dust by filtration. Storage and disposal of collected dust should be carefully considered so that it does no become a source of fugitive dust. Negative Pressure Systems: These systems minimize the release of dust from an operation by maintaining a small negative pressure or suction to confine the dust to a particular operation.

3. Water Spraying: This temporary mechanical method confines and settles the dust from the air by dust and water particle adhesion. Water is sprayed through nozzles over the problem area.
4. Street Sweepers: Recent studies have shown that street sweepers effectively remove the smallest dust particles and achieve meaningful runoff quality benefits. Two kinds of street sweepers are common in mechanical dust collection systems. The brush system has proven to be efficient at an industrial facility generating dust on a daily basis. It has proven to be extremely dependable and picks up the majority of generated dust. Vacuum sweepers may be the best choice for areas that are prone to storm water overflow. This is because they are more efficient at picking up the smaller particles that are typically associated with contaminated storm water. Other technologies include the tandem sweeping operation, the regenerative air sweeper, and the "EnviroWhirl". The tandem operation involves two successive cleaning passes, first by a mechanical sweeper and then followed by a vacuum-assisted sweeper. The regenerative air sweeper blows air onto the pavement and immediately vacuums it up. The "EnviroWhirl" is a vacuum-assisted dry sweeper. It is able to remove debris and dust down to 2.5 microns. Independent studies conducted in Oregon and Washington report that the EnviroWhirl sweeper alone was able to remove 99.6 percent of all particulates over 10 microns. A series of once-a-week sweepings resulted in a 76 percent reduction of suspended solids in downstream receiving waters.

Maintenance
Dust control measures require periodic and diligent maintenance. For example, mechanical equipment should be operated according to the manufacturer's recommendations and inspected regularly as part of an industrial site's preventive maintenance program. Temporary dust control measures, such as chemical spraying, watering, etc., require periodic renewal. Permanent solutions such as vegetation, wind barriers, and impervious surfaces, also require upkeep and maintenance in order to remain effective.

Reference: "Storm Water Management Fact Sheet Dust Control:, U.S. Environmental Protection Agency, EPA 832-F-99-003 September 1999. Office of Water. Washington D.C."

Earth Dike (DD)

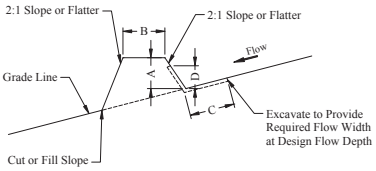


Table 1		
	Dike A	Dike B
A-Dike Height	18"	30"
B-Dike Width	24"	36"
C-Flow Width	4'	6'
D-Flow Depth	12"	24"

Definition
A temporary berm or ridge of soil, compacted, stabilized, and located in such a manner as to direct storm water to a desired location.

Purpose
The purpose of the earth dike is to direct runoff to a sediment trapping device which reduces the potential for erosion and sedimentation. Earth dikes can also be used for diverting clean water away from disturbed areas.

Conditions Where the Practice Applies
Earth dikes are often constructed across disturbed areas and around construction sites such as parking lots and subdivisions. The dikes shall remain in place until the disturbed areas are permanently stabilized.
Earth dikes are constructed:
1. To divert sediment laden runoff from a disturbed area to a sediment trapping device.
2. Across disturbed areas to shorten overland flow distances.
3. To direct sediment laden water along the base of slopes to a trapping device.
4. To divert clear water from an undisturbed area to a stabilized outlet. Runoff shall be discharged at a non-erosive velocity.

Design Criteria

Refer to Table 1 and Table 2. The use of the Tables is limited. Engineering design may preempt the use of Table 1 and Table 2. The basis for the engineering design shall be the 2-year 24-hour duration storm using NRCS criteria, assuming the worst soil cover conditions to prevail in the contributing drainage area over the life of the earth dike. Manning's Equation shall be used to determine earth dike flow channel velocities associated with the developed discharges. The Manning's Roughness coefficients to be used in the equation are 0.025 for seed and mulch, 0.03 for soil stabilization matting or sod, and for 4"-7" stone use 0.045 for flow depths up to 1' (Dike A) and 0.038 for flow depths between 1 and 2 feet (Dike B). Allowable flow channel velocities shall be less than 4 fps for seed and mulch, less than 6 fps for stabilization matting or sod, and less than 8 fps for 4"-7" stone.

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Earth dikes having longitudinal slopes flatter than 1% should have spot elevations along the flow line.
2. Diverted runoff from the disturbed areas shall be directed to a sediment trapping device.
3. Diverted runoff from undisturbed areas shall outlet directly onto an undisturbed, stabilized area at a non-erosive velocity (<4 fps for grass).
4. All trees, brush, stumps, and obstructions shall be removed and disposed of so as not to interfere with the proper functioning of the earth dike berm and flow channel.
5. The dike shall be excavated or shaped to line, grade and cross section as required, meeting the criteria specified herein and being free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the earth dike berm and flow channel.
8. Inspection and maintenance must be provided periodically and after each rain event.

Earth dikes must have an outlet that functions without causing erosion. Runoff from disturbed areas shall be conveyed to a sediment trapping device such as a sediment trap or basin until the drainage area above the dike is adequately stabilized. Adjust the on-site location to fit actual field conditions.

Diversions around disturbed areas shall be discharged into an undisturbed, stabilized area on watercourse at a non-erosive velocity.

Maintenance

Follow recommendations for stabilizing the dike. Inspect after rain events for breaks in dikes or erosion. Remove sediment blockage that prevents drainage. Maintain a positive grade. Check outlets for erosion.

Table 2: Earth Dike Selection

	Drainage Area in Acres									
Slope % **	1	2	3	4	5	6	7	8	9	10
1	Seed	and	4							
2	Mulch	4		Seed	And	Soil	Stabilization			
3								6	6	6
4	4*						6			
5					6	6				
6				6		4" – 7"		Stone	Pressed	
7			6			7" (min)		Into	Ground	
8									"B"	Dike
9										
10		6					"A"	Dike		

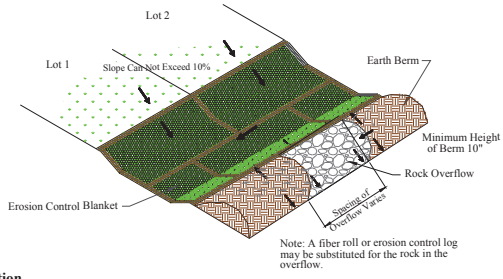
*Velocity of discharge in feet/second
**For slopes steeper than 10% contact a professional engineer.

Directions for Using Table 2

1. Determine the location on the Erosion and Sediment Control Plan where using the earth dike to divert runoff is feasible. Determine the longitudinal slopes of the proposed temporary earth dike location.
2. Determine the maximum drainage area to various design points along the proposed earth dike alignment.
3. Enter Table 2 with the slope and drainage corresponding to the previously determined design points along the earth dike. Using Table 2, choose an earth dike type (A or B) and lining (1, 2, or 3) for the earth dike alignment between the design points.
4. Review the slopes along the earth dike alignment between the design points to insure that the slope/drainage area relationship does not exceed the chosen lining.

Erosion Control Blanket (ECBWB)

Used with Earth Berm as Perimeter Control



Definition

Application of a protective layer of straw, other plant residues, stone, or synthetic materials to the soil surface.

Purpose

To protect the soil surface from the forces of raindrop impact and overland flow. Blankets foster the growth of vegetation, reduce evaporation, insulate the soil, and suppress weed growth. They are frequently used to accent landscape plantings.

Conditions Where the Practice Applies

Mulch temporary or permanent seedlings immediately after planting. Mulch around plantings of trees, shrubs, or ground covers to stabilize the soil between plants. Areas that cannot be seeded because of the season should be mulched to provide temporary protection of the soil surface. Use an organic mulch in this case that can be incorporated into the soil during seedbed preparation. Use blankets on slopes or in channels.

Design Criteria

Choose the correct product based on water velocity and slope steepness.

* A surface mulch is the most effective, practical means of controlling runoff and erosion on disturbed land prior to vegetation establishment. Mulch reduces soil moisture loss by evaporation, prevents crusting and sealing of the soil surface, moderates soil temperatures, provides a suitable micro climate for seed germination, and may increase the infiltration rate of the soil.
* Organic mulches such as straw, wood chips, and shredded bark have been found to be the most effective mulch materials. Materials containing weed and grass seeds which may compete with establishing vegetation should not be used. Also, decomposition of some wood products can tie up significant amounts of soil nitrogen, making it necessary to modify fertilization rates or add fertilizer with the mulch.

* A variety of erosion control blankets have been developed in recent years for use as mulch, particularly in critical areas such as waterways and channels. Various types of netting materials are also available to anchor organic mulches.
* Chemical soil stabilizers or soil binders, when used alone, are less effective than other types of mulches. These products are primarily useful for tacking wood fiber or straw mulches.
* The choice of materials for mulching should be based on soil conditions, season, type of vegetation, and size of the area. A properly applied and tacked mulch is always beneficial. It is especially important when conditions of germination are not optimum, such as midsummer and early winter, and on difficult sites such as cut slopes and drought soils.

Construction Specifications

1. All smoothing seedbed preparation and vegetation operations must be completed prior to placing the erosion control blanket. Any rocks, clods, sticks, or other debris, which would prevent the blanket from making close contact with the soil, should be removed. The erosion control blanket should be placed immediately after planting seed.
2. Unroll the erosion control blanket from the top down, parallel to the direction of flow in flumes and ditches and perpendicular to the direction of flow on slopes. Allow the blankets to lie loosely on the soil but without wrinkles. Do not stretch.
3. To secure the blanket, bury the upslope end in a slot or trench no less than 6" deep, cover with soil, and tamp firmly. Staple the blanket every 12" across the top end and every 3' around the edges of the bottom. Where erosion control blankets are laid side to side, the adjacent edges should be overlapped with the uphill blanket on top and stapled together. Each blanket should also be stapled down the center, every 3'. Do not stretch the erosion control blanket when applying staples.

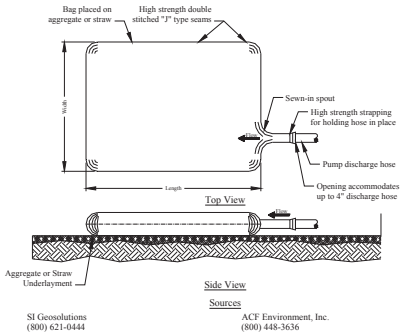
Material	Rate Per Acre	Notes
Straw	1½- 2 tons	Spread by hand machine; tack down when subject to blowing
Woodchips	5-6 tons	Treat with 12 lbs. nitrogen/ton
Bark Blower	35 cubic yards	Can apply with mulch
Pine Straw	1-2 tons	Spread by hand or machine; will not blow like straw
Peanut Hulls	10-20 tons	Will wash off slopes. Treat with 12 lbs. nitrogen/ton

Always follow manufacturer's recommendations when using a particular product.

Maintenance

After each rain event, check staples and fasteners to make sure they held the blanket in place. Check for undermining of soil. The surface should remain smooth with minimal soil loss. If covered with sediment, replace immediately. Check for loss of grass seed or vegetation, and control weeds.

Filter Bag (FB)
(Dirtbag® for Dewatering Construction Sites)



Sources

SI Geosolutions
(800) 621-0444

ACF Environment, Inc.
(800) 448-3636

Definition

A bag made of non-woven polypropylene geo-textile through which sediment laden water (polluted storm water) is pumped from storm water filled holes created during excavation operations on construction sites. The pump discharge hose from the hole is connected to a spout hand sewn into the bag. Dirtbag® is manufactured by SI Geo-solutions (800) 621-0444 and marketed by ACF Environmental, Inc. (800) 448-3636

Purpose

The geo-textile filters and retains the sand, silt, and fine material contained in the storm water. It prevents sediment and attached pollutants from entering the storm water underground pipe systems or environmentally sensitive areas such as wetlands, streams, lakes and ponds.

Conditions Where the Practice Applies

The filter bag is recommended for use where a sediment pond with inadequate storage is onsite, a temporary settling basin cannot be built, or other techniques such as flocculation are not possible. Construction projects that result in excavated holes include foundations, basements, pipe lines, municipal water/sewer lines, marine construction, utility, highway and site development areas. Temporary sediment ponds that do not have filtering devices also may be emptied using this device. Examples for use are construction projects that result in excavated holes, foundations, basements, pipelines, municipal water/sewer lines, marine construction, utilities, highways, and site development areas. Temporary sediment ponds that do not have filtering devices also may be emptied using this device.

Note: The State of Texas construction stormwater management regulations state that when discharging from basins and impoundments, utilize devices that withdraw water close to the water surface where water quality is expected to be the best with respect to suspended sediment. In some cases it may be necessary to increase the intake hose length and attach a flotation device to the hose intake.

Design Criteria

The maximum pump capacity is approximately 1100 gpm (2.5 cfs). Flow rates depend on the site of the bag, slope, and material on which the bag is placed. The pump discharge hose cannot exceed the diameter of the spout, which is 4 inches. Geo-textile non-woven filter cloth must be sewn into a bag with a double needle using a high strength thread. Standard sizes are 10' x 15', 12.5' x 15', 15' x 15'. Special sizes must be designed by the manufacturer. Recommended model specifications: Seams-ASTM D-4884 (100 lbs./in). Weight-ASTM D-3776 (10 oz./yd.). Grab Tensile-ASTM D-4632 (250 lbs.). Puncture-ASTM D-4833 (150 lbs.). Flow rate-ASTM D-4491 (85 gpm/sq. ft.). Permittivity-ASTM D-4491 (1.2 sec.). Mullen Burst-ASTM D-3786 (460 lbs/sq. in.). UV Resistant-(70%). Apparent Opening Site % Retained US Sieve Size (100).

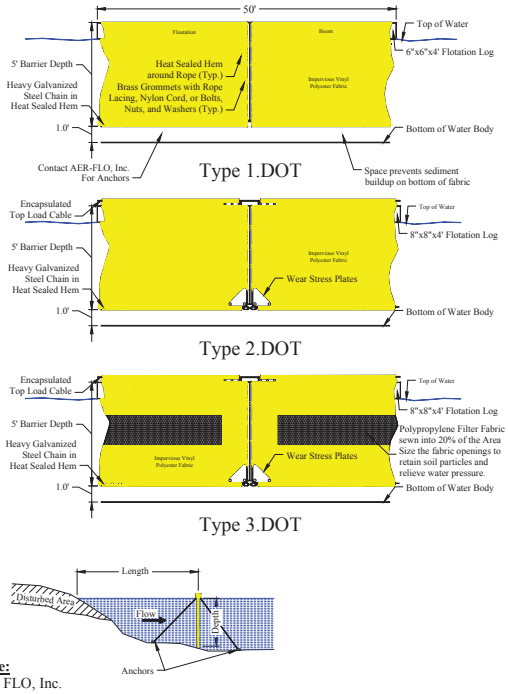
Always check local regulations to make sure flow from the bag can be discharged into the local storm water system. Also locate the bag in a grassy area if possible for additional filtering. Place the bag on a gravel or straw bed to achieve maximum flow through the bag bottom surface. The spout or intake should point up hill so that water from the bag flows down slope away from the bag. The pump hose must be tightly secured to the spout with manufactured straps. In some cases a small temporary secondary settling basin or filter may be needed.

Maintenance

The bag must be cleaned or replaced when it no longer can efficiently filter sediment or allow water to pass at the desired rate. The use of excessive flow rates or overfilling the bag with sediment will cause the bag to rupture or failure of the hose attachment strap. Allow the bag to drain completely before moving. Dispose of the bag and sediment in an approved disposal location offsite using a dump truck. If disposal is permitted on site, open the bag in the designated location and stabilize the sediment with grass seed or grass sod.

Floating Turbidity Barriers
(FTB)

re



Source:

AER - FLO, Inc.
Bradenton, FL
(800) 832-7356
www.aerflo.com

Definition

A temporary barrier (curtain) made of vinyl polyester fabric and installed in water bodies or watercourses down slope from construction activities where disturbed soil areas are present. There are three basic types of floating barriers that meet the Florida Department of Transportation's and some other state's specifications. Type 1.DOT is for sites with light winds and current velocities less than one foot per second including ponds, shallow lakes, small streams and marshes. Type 2.DOT is for sites with current velocities up to five feet per second. Type 3.DOT is for use where some current must flow through the curtain to relieve high pressure flows.

Purpose

The curtain confines sediment-laden runoff to a limited area and allows time for the sediment to settle to the bottom of the water. This in turn reduces the turbidity of the water and prevents pollutants attached to sediment from spreading over the water body.

Conditions Where the Practice Applies

Use turbidity barriers where traditional Best Management Practices (BMPs) cannot be used on the disturbed areas due to unfavorable topography or other site restrictions. They are used to protect wetlands, lakes, creeks or other environmentally sensitive water bodies protected by local, state and federal regulations. Staked barriers (similar to silt fence) on land are not included in this BMP.

Design Criteria

- Variables that influence the distance to the barrier from shore include water velocity, barrier depth and particle size.
- The silt and sediment must be contained in the retention area long enough to allow it to settle.
- The current in the containment area must not be so great that the particles are allowed to migrate beyond the barrier before settling can occur.
- Table 1 shows the time required for particles of various sizes to settle one foot in calm water at 68 degrees F (based on Stoke's Law).

Table 1

Particle Size (MM)	Description	Time to Settle 1' in Depth
0.002	Coarse Clay	24 Hours
0.006	Fine Silt	3 Hours
0.02	Medium Silt	14 Minutes
0.06	Coarse Silt	2 Minutes
0.20	Fine Sand	8 Seconds

Refer to the following tables: Barrier Selection Guide (Table 2), Fabric Specifications (Table 3) and Material Description (Table 4).

Table 2

Barrier Selection Guide							
Current (Ft. per Sec.)	**Curtain Depth in Feet**						
	0-5	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30+**
0	A	B	B	C	D	E	F
1	B	B	C	D	E	F	F
2	C	C	D	E	F	F	G
3	D	D	E*	F*	F*	G*	G*
4	D	E*	F*	F*	G*	G*	G*
5	D	E*	F*	G*	G*	G*	G*

A. Type 1.e, 16 oz. nominal laminated fabric, 6-inch flotation, standard anchorage.
B. Type 1.DOT, 18 oz. laminated fabric, 6-inch flotation, standard anchorage.
C. Type 2.e, 16 oz. nominal laminated fabric, 8-inch flotation, special anchorage, engineering suggested.
D. Type 2.DOT, 18 oz. laminated fabric, 8-inch flotation, special anchorage, engineering required.
E. Type 2.DOT, 22 oz. coated fabric, 8-inch flotation, special anchorage, engineering required.
F. Type 2.DOT, 22 oz. coated fabric, 10-inch flotation, special anchorage, engineering required.
G. Type 2.DOT, 22 oz. coated fabric, 12-inch flotation, special anchorage, engineering required.

***Note:** Stresses exceed working cable loads unless specially designed.
Source: AER-FLO, Inc. (800) 832-7356

Table 3

Fabric Specifications				
Characteristic Test Method	**16 oz. Nominal Laminated**	**18. oz. Laminated**	**22 oz. Coated**	**Geotextile Filter**
Construction	Vinyl Laminate on 1000 Denier 9 x 9 Scrim	Vinyl Laminate on 1300 Denier 9 x 9 Scrim	Vinyl Laminate on Woven 6 oz. Polyester Base	Woven Polypropylene
Weight ASTM D-2374	Nominal 16 oz./ sq. yd. 376 gr./ sq. M	18 oz./ sq. yd. 423 gr./ sq. M	22 oz./ sq. yd. 517 gr./ sq. M	7.5 oz./ sq. yd. 176 gr./ sq. M
Adhesion ASTM D-751-95 Sec 43.1.2	15 lb./ in. 14 daN/ 5 cm.	15 lb./ in. 14 daN/ 5 cm.	14 lb./ in. 13 daN/ 5 cm.	Not Applicable
Grab Tensile ASTM D-5034	250 x 225 lb./ in 238 x 214 daN/ 5 cm.	397 x 373 lb./ in 378 x 363 daN/ 5 cm.	500 x 400 lb./ in 476 x 389 daN/ 5 cm.	350 x 250 lb./ in 333 x 230 daN/ 5 cm.
Toung Tear ASTM D-2261	70 x 55 lb./ in. 67 x 52 daN/ 5 cm.	96 x 86 lb./ in. 91 x 82 daN/ 5 cm.	132 x 143 lb./ in. 126 x 136 daN/ 5 cm.	95 x 55 lb./ in. 90 x 52 daN/ 5 cm.
Hydrostatic ASTM D-751-95 Sec 34.2	400psi 2778 kPa	385psi 2674- kPa	881psi 6118kPa	Not Applicable

Source: AER-FLO, Inc. (800) 832-7356

Table 4

1 DOT	1.e	2.DOT	2.e	3.DOT (see Note 1 below)	Material Description
	*		*		16 ox. Nominal laminated vinyl-polyester fabric
*		*		*	18 oz. laminated vinyl-polyester fabric
		*		*	22 oz. vinyl coated polyester fabric (see Table 2)
		*		*	Polypropylene woven filter fabric
*	*	*	*	*	Heat sealed seams (See Note 1 below)
*	*	*	*	*	5/8-inch polypropylene twisted rope edge reinforcement
*	*				6" x 6" x 48" EPS foam blocks providing 11 lbs./ft/ buoyancy
		*		*	8" x 8" x 48" EPS foam blocks providing 18 lbs./ft/ buoyancy (See Note 2 below)
*	*	*	*	*	Standard depth = 5 feet
		*	*	*	Standard depth = 50 feet
*	*				Standard depth = 100 feet
*	*	*	*	*	#4 brass grommets approximately 12" o.c. in edges for laced connection
*	*				Aluminum stress plates at top and bottom corners
		*	*	*	5/16-inch galvanized street proof coil ballast chain – 95 lbs./ 100 ft.
		*	*	*	5/16-inch 7 x 19 vinyl coated galvanized steel top load cable 9800 lb.
		*	*	*	Breaking strength – 1960 lb. allowable working load
		*	*	*	Galvanized steel safety snap top connection

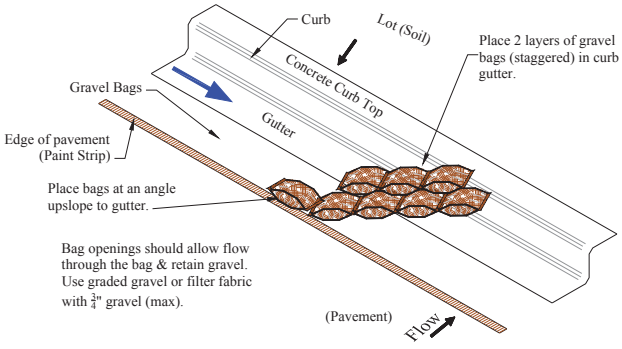
Notes:
1. Filter fabric in Type 3.DOT barriers cannot be heat sealed. It must be sewn.
2. Buoyancy is increased on special depths. See Table 2.

Source: AER-FLO, Inc. (800) 832-7356

Maintenance
Check barriers after each storm event to make sure that sediment is contained within the area. If sediment is escaping, increase the flow length if necessary. Also, check to make sure the barrier remains in the specified location and the fabric remains tied or fastened together tightly. The curtain must remain vertical. Adjust anchors as required. Correct all deficiencies immediately. If particles are small and remain in suspension too long for site conditions, use a coagulant to clear the water.

Gravel Bag Gutter Check (GC Type I)

FOR USE IN PAVED AREAS



Definition
A filter and velocity dissipator constructed of gravel placed in a bag of Geotextile Fabric or other durable porous fabric that will retain gravel throughout period of use.

Purpose
Gravel Bags are used to reduce runoff velocities to trap and filter sediment in storm water runoff.

Conditions where the Practice Applies
A gutter check is a secondary sediment control device and is not to be used in place of a sediment trapping device on the disturbed area unless approved by the appropriate approval authority. Use where the concrete curb is complete and the street is paved, but the lots have not been stabilized.

Design Criteria
Curb checks shall be used when the drainage area to an inlet is disturbed and the following conditions prevail:
1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device on the lot.
2. Watertight blocking of the curb inlets is not advisable.
3. Drainage area is less than 1/4 acre for the gutter check.
4. The potential for heavy loads of sediment in the gutter exists.

Maintenance
Check bags regularly and after rain events to insure they are not torn or clogged. If clogged or torn, replace immediately. Keep clean bags on hand to use as replacements. If reusable, wash bags in an appropriate facility. Remove any sediment and trash that has accumulated in front of the bag in the gutter and dispose of it in a proper location.

Hazardous Waste Management (HWM)

Definition
The hazardous waste management BMP addresses the problem of the storm water polluted with hazardous waste through spill or other forms of contact. The objective of the Management Program is to minimize the potential of stormwater contamination from common construction site hazardous wastes through appropriate recognition, handling storage and disposal practices.

It is not the intent of this Management Program to supersede or replace normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken. The General Permit requires reporting of significant spills to the National Response Center (NCR) at (800) 424-8802.

Purpose
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites, which use or generate hazardous waste. Many wastes such as fuel, oil, grease, fertilizer and pesticide are present at most construction sites.

Installation, Application and Disposal Criteria
The hazardous waste management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements of the management program are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures:

Targeted Hazardous Waste Materials
- Paints
- Solvents
- Stains
- Wood preservatives
- Cutting oils
- Greases
- Roofing tar
- Pesticides
- Fuels & lube oils
- Lead based paints (Demolition)

Storage Procedures
- Wherever possible minimize use of hazardous materials.
- Minimize generation of hazardous wastes on the job-site.
- Segregate potentially hazardous waste from non-hazardous construction site debris.
- Designate a foreman or supervisor to oversee hazardous materials handling procedures.
- Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.
- Store waste materials away from drainage ditches, swales and catch basins.
- Use containment berms in fueling and maintenance areas and where the potential for spills is high.
- Ensure that adequate hazardous waste storage volume is available.
- Ensure that hazardous waste collection containers are conveniently located.
- Do not allow potentially hazardous waste handling and disposal procedures.
- Clearly mark on all hazardous waste containers which materials are acceptable for the container.

Disposal Procedures

- Regularly schedule hazardous waste removal to minimize on-site storage.
- Use reputable, licensed hazardous waste haulers.

Education

- Instruct workers in identification of hazardous waste.
- Educate workers of potential dangers to humans and the environment from hazardous wastes.
- Instruct workers on safety procedures for common construction site hazardous wastes.
- Educate all workers on hazardous waste storage and disposal procedures.
- Have regular meetings to discuss and reinforce identification, handling and disposal procedures (incorporate in regular safety seminars).
- Establish a continuing education program to indoctrinate new employees.

Quality Assurance

- Foreman and/or construction supervisor shall monitor on-site hazardous waste storage and disposal procedures.
- Educate and if necessary, discipline workers who violate procedures.
- Ensure that the hazardous waste disposal contractor is reputable and licensed.

Requirements

- Job-site hazardous waste handling and disposal education and awareness program.
- Commitment by management to implement hazardous waste management practices.
- Compliance by workers.
- Sufficient and appropriate hazardous waste storage containers.
- Timely removal of stored hazardous waste materials.

Costs

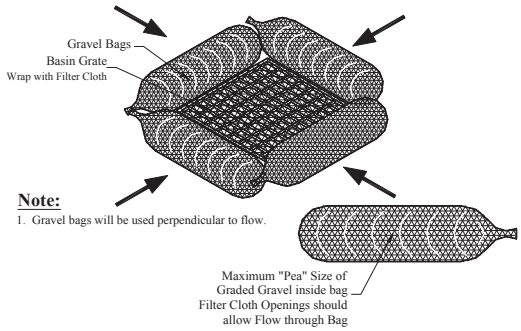
- Possible modest cost impact for additional hazardous storage containers.
- Small cost impact for training and monitoring.
- Potential cost impact for hazardous waste collection and disposal by licensed hauler-actual cost depends on type of material and volume.

Limitations

This practice is not intended to address site-assessments and pre-existing contamination. Major contamination, large spills or other serious hazardous waste incidents require immediate response from specialists. Demolition activities and potential pre-existing materials, such as asbestos, are not addressed by this program. Site-specific information on plans is necessary. Contaminated soils are not addressed. One part of a comprehensive construction site waste management program.

Gravel Bag Inlet Protection At Grade (GBIPAG)

For Use in Paved Areas



Definition

A filter constructed around a storm drain inlet by using gravel bags and filter fabric. (See Material Specifications)

Purpose

Storm drain inlet protection is used to filter sediment laden runoff before it enters the storm drain system.

Conditions Where the Practice Applies

Storm drain inlet protection is a secondary sediment control device and is not to be used in place of a sediment trapping device unless approved by the appropriate approval authority.

Design Criteria

Place graded gravel bags around the grate. Lift grate and wrap with Geotextile Fabric Class F to completely cover all openings and reset grate. Storm drain inlet protection shall be used when the drainage area to an inlet is disturbed and the following conditions prevail:

1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device.
2. Watertight blocking of the inlets is not advisable.
3. Drainage area is less than 1/4 acre for curb or standard inlet protections and 1 acre for elevated or yard inlets. For yard inlets, the total for inlets in series must be 1 acre or less and the contributing drainage area must have slopes flatter than 5 percent.

Several methods of covering inlets have been developed recently. It is important to use methods that have proven effective. Follow local ordinances. Some communities do not allow covering of storm inlets due to the possibility of increased flooding. Several other important design considerations include traffic safety, elimination of seepage at the ends and underneath the filter cloth, and preventing the filter from entering the inlet.

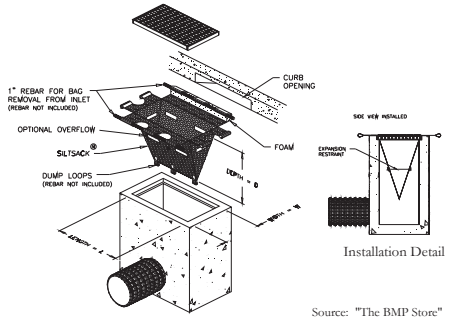
Maintenance

Maintenance requirements for storm drain inlet protection are intense, due to the susceptibility to clogging. When the structure does not drain completely within 24 hours after a storm event, it is clogged. When this occurs, accumulated sediment must be removed and the geotextile fabric or filtering device must be cleaned and replaced.

Check the bags and filter cloth regularly to insure they are not torn or clogged. If clogged or torn, replace immediately. Keep clean bags on hand to use as replacements. If reusable, wash bags and filter cloth in an appropriate facility. Check around the edges of the grate for leakage between the four edges of the grate and pavement. Remove any sediment and trash that has accumulated in front of the bag in the gutter and dispose of it in a proper location.

Inlet Protection at Grade (IPAG) Type II

(Grates)



Source: "The BMP Store"

Definition

A geo-textile fabric bag that hangs underground and is attached at its top to a grate that receives storm water originating from the disturbed areas of a construction site. Siltsack® is one example of this device.

Purpose

The bag is used to filter sediment laden water and prevent the sediment from entering the storm water underground pipe system.

Conditions Where the Practice Applies

It is used where other surface protection is prohibited due to the presence of construction equipment and other vehicular traffic. It is also used along highways where grates are used in combination with curb inlets and the implementation of other surface protection creates a safety hazard or is prohibited by regulations.

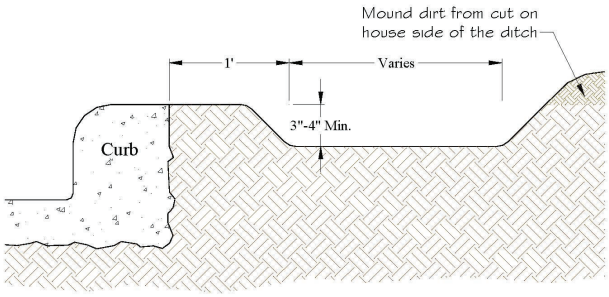
Design Criteria

The top of the bag must be attached to the grate so that it does not break loose and enter the underground storm system. Handles are required on top of the grate that will allow the bag to be removed by equipment, if necessary, without sediment spillage. An overflow section is recommended in the top of the bag for emergency bypass.

Important: The bag must be fabricated so that it does not bulge out underground. Bulging will prevent the removal of the bag from the grate opening which is not acceptable. Taper the bag (top to bottom) and fabricate the frame from galvanized steel for strength. Fabricate top to the grate dimensions. The top must fit tightly around the grate perimeter so that leakage does not occur between the edge of the grate and the opening. The fabric is made of polypropylene geo-textile and must equal or exceed the following regular flow requirements per ASTM Test Method standards: D4632 Average Wide Width Strength -165.0 lbs./in.; D4884 Grab Tensile Strength-315x300 lbs.; D4632 Grab Tensile Elongation-15x15%; D4833 Puncture-125 lbs.; D3786-Mullen Burst-650 lbs.; D4533 Trapezoid Tear-120x150 lbs.; D4355 UV resistance- 90%; D4751-Apparent Opening Size-40 U.S. Sieve; D4491-Flow Rate-40 gal./min./ft.2; D4491-Permittivity-0.55 sec-1. Note: Special designs by a professional will allow the specification requirements to be increased or decreased in order to reflect areas having specific soils in the disturbed area and storm water runoff characteristics. Check state and local regulations for requirements.

Maintenance
Check the grate daily to make sure the bag is securely fastened to the metal grate. Check inside the bag after each rain. Empty the bag when it is 1/3 full. Dispose of the sediment in a safe place that will not harm the environment. Do not allow spillage when emptying the bag.

Modified Cut Back Curb
(CBC Type II)



Definition
A temporary sediment trap formed by excavation behind the curb.

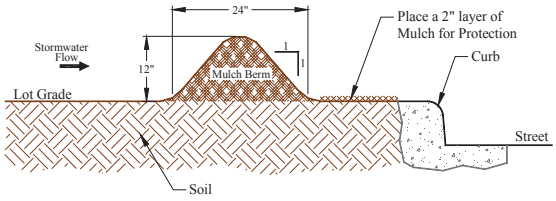
Purpose
The purpose is to intercept sediment laden runoff from the lot during home construction and retain sediment on the lot.

Conditions Where the Practice Applies
A cutback curb is installed when discharge from the lot runs over the curb and traditional silt fence or erosion control blanket is not used. It can also be installed at the entrance to the lot when access is needed and silt fence or mesh cannot be placed in the driveway.

Design Criteria
Cut back the soil from behind the curb 3" - 4" deep on the lot side to form a temporary sediment trap. The depth and width may be increased if more sediment storage is needed. The size of the cut should be based on the calculation of volume required for sediment storage.

Maintenance
The trap must be cleaned regularly as site conditions or rain events cause sediment deposition in the trap. Do not allow sediment to flow into the street. Allow sediment laden water to infiltrate before cleaning to prevent overflow into the street. If the cutback curb is used in the driveway, do not allow the sediment in the trap to be tracked into the street.

Mulch Berm (MBWF)
(Wood Fiber)



Definition
A temporary berm used along the street curb to intercept sediment laden runoff from homebuilding sites. It is composed of wood fibers and wood chips ground from untreated waste lumber or trees and is used as a substitute for silt fence on lots that are uniformly graded where sheet flow rather than concentrated flow conditions exist.

Purpose
The purpose is to reduce the velocity of sediment laden water causing sediment deposition in front of the berm. The berm can also have a filtering effect on sediment laden water.

Conditions Where The Practice Applies
Use mulch berms in place of silt fence, erosion control blankets or fiber rolls where conditions and regulations allow. It is 100% organic and biodegradable and does not harm the environment. Vehicles or equipment can be driven over the berm, however the dimensions of the berm must be maintained for effectiveness. After construction, the material can be used as mulch or soil conditioner on the lot. The practice does not include the use of other waste products such as ground wallboard or processed mulch. The use of this practice is not recommended around perimeters of large drainage areas such as developments.

Design Criteria
Stockpile wood chips on lot for replacement or use. Unless otherwise directed, construct a 18-24" wide by 12" high berm as shown above. In some special cases where the drainage area is larger than a normal lot size, increase the dimensions to 18" high and 36" wide.
A tackifier or spray may be applied for additional strength or effectiveness if necessary. Follow the manufacturer's recommendations when using additives. Do not use chemically pressure treated waste lumber. Special machines are available that blow and construct the berms to specified dimensions. Usually about 25 percent of the berm consists of fibers less than 2 inches in length.

Maintenance
Frequent maintenance may be required to insure the BMP's effectiveness. Hand raking may be necessary to maintain the berm. Routinely inspect and maintain the filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed after the lot has received final stabilization.

Disturbed Area Stabilization Mulching Only (Ds1)

Definition
Application of a protective layer of straw, other plant residues, stone, or synthetic materials to the soil surface.

Purpose
To protect the soil surface from the forces of raindrop impact and overland flow. Mulch fosters the growth of vegetation, reduces evaporation, insulates the soil, and suppresses weed growth. Mulch is frequently used to accent landscape plantings.

Conditions Where Practice Applies
Mulch temporary or permanent seedings immediately after planting. Mulch around plantings of trees, shrubs, or ground covers to stabilize the soil between plants. Areas that cannot be seeded because of the season should be mulched to provide temporary protection of the soil surface. Use an organic mulch in this case that can be incorporated into the soil during seedbed preparation.

Design Criteria
1. A surface mulch is the most effective, practical means of controlling runoff and erosion on disturbed land prior to vegetation establishment. Mulch reduces soil moisture loss by evaporation, prevents crusting and sealing of the soil surface, moderates soil temperatures, provides a suitable microclimate for seed germination, and may increase the infiltration rate of the soil.
2. Organic mulches such as straw, wood chips, and shredded bark have been found to be the most effective mulch materials. Materials containing weed and grass seeds which may compete with establishing vegetation should not be used. Also, decomposition of some wood products can tie up significant amounts of soil nitrogen, making it necessary to modify fertilization rates or add fertilizer with the mulch.
3. A variety of erosion control blankets have been developed in recent years for use as mulch, particularly in critical areas such as waterways and channels. Various types of netting materials are also available to anchor organic mulches.
4. Chemical soil stabilizers or soil binders, when used alone, are less effective that other types of mulches. There products are primarily useful for tacking wood fiber or straw mulches.
5. The choice of materials for mulching should be based on soil conditions, season, type of vegetation, and size of the area. Properly applied and tacked mulch is always beneficial. It is especially important when conditions of germination are not optimum, such as midsummer and early winter, and on difficult sites such as cut slopes and drought soils.

6. Organic Mulches
   a) Straw is the most commonly used material in conjunction with seeding. Wheat straw is the most commonly used straw, and can be spread by hand or with a mulch blower. If the site is susceptible to blowing wind, the straw should be tacked down to prevent loss.
   b) Wood chips are suitable for areas that will not be closely mowed, and around ornamental plantings. Chips do not require tacking. Because they decompose slowly they must be treated with 12 pounds of nitrogen per ton to prevent nutrient deficiency in plants. They can be inexpensive mulch if the chips are obtained from trees cleared on the site.
   c) Wood fiber refers to short cellulose fibers applied as slurry in hydro seeding operations. Wood fiber hydro seeder slurries may be used to tack straw mulch on steep slopes, critical areas, and where harsh climatic conditions exist. Wood fiber mulch does not provide sufficient erosion protection to be used alone.
   d) Peanut hulls, cotton burs, and pine straw are organic materials that make excellent mulches but may only be available locally or seasonally. Creative use of these materials can reduce costs.
7. Erosion Control Blankets and Netting
   a) Jute mesh or the various types of netting is very effective in holding mulch in place on waterways and slopes before grasses become established.
   b) Erosion control blankets promote seeding growth in the same way as organic mulches. They are very useful in establishing grass in channels and waterways. A wide variety of synthetic and organic materials are available such as wood excelsior, small grain straw, coconut fiber, or mixtures of these materials. When installing erosion control blankets, it is critical to obtain a firm, continuous contact between the material and the soil. Without such contact, the material is useless and erosion will occur underneath.

Construction Specifications

1. Select a mulch material based on the site and practice requirements, availability of material, and availability of labor and equipment. Table 1 lists commonly used mulches.
2. Before mulching, complete the required grading, install sediment control practices, and prepare the seedbed. Also, plant and cover seed before mulching except when seed is applied as part of a hydro seeder slurry containing wood fiber mulch.
3. Uniformly spread organic mulches by hand or with a mulch blower at a rate which provides about 75% ground cover. When spreading straw mulch by hand, divide the area to be mulched into sections of approximately 1,000 square feet and place 70-90 pounds of straw (1½ to 2 bales) in each section to facilitate uniform distribution. This will be 1½ to 2 tons of straw per acre. In hydro seeding operations a green dye may be added to the slurry, to assure a uniform application.

4. Anchoring Straw Mulch
   a) When straw mulch is subject to be blown away by wind, it must be anchored immediately after spreading. It can be anchored with a mulch anchoring tool or a regular farm disk, which weight has been added to and the disk set to run straight. The disk should not be sharp enough to cut the straw.
   b) Liquid mulch binders can also be used to tack mulch subject being blown away by wind. Applications of liquid mulch binders and tackifiers should be heavies at the edges of areas and at crests of ridges and banks, to resist wind. Binders should be applied uniformly to the rest of the area. Binders may be applied after mulch is spread or may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective method. Liquid binders include asphalt and an array of commercially available synthetic binders.
   c) Emulsified asphalt is the most commonly used mulch binder. Any type thin enough to be blown from spray equipment is satisfactory. Asphalt is classified according to the time it takes to cure. Rapid setting (RS or CRS designation) is formulated for curing in less than 24 hours, even during periods of high humidity. It is best used in spring and fall. Medium setting (MS or CMS) is formulated for curing within 24 to 48 hours, and slow setting (SS or CSS) is formulated for use during hot, dry weather, requiring 48 hours or more curing time.
   d) Apply asphalt at 10 gallons per 1,000 square feet (500 gallons per acre). Heavier applications will cause straw to "perch" over rills.
   e) Straw mulch may also be anchored with lightweight plastic, cotton, jute, wire or paper netting which are stapled over the mulch. The manufacturer's recommendations on stapling netting should be followed.

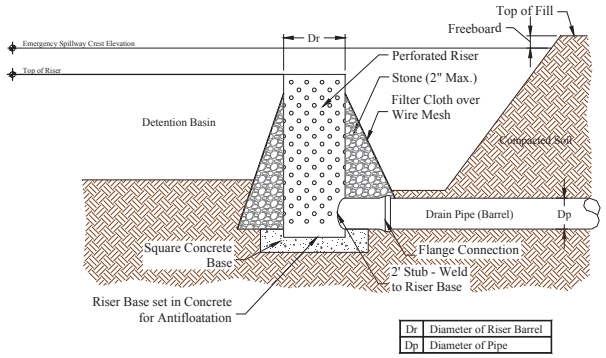
Table 1
Mulching Materials and Application Rates

Material	Rate Per Acre	Notes
Straw	1 ½- 2 tons	Spread by hand machine; tack down when subject to blowing
Woodchips	5-6 tons	Treat with 12 lbs nitrogen/ton
Bark blower	35 cubic yards	Can apply with mulch
Pine Straw	1-2 tons	Spread by hand or machine; will not blow like straw
Peanut Hulls	10-20 tons	Will wash off slopes. Treat with 12 lbs. nitrogen/ton

Maintenance
Inspect all mulches periodically, and after rainstorms to check for rill erosion, dislocation, or failure. Where erosion is observed, apply additional mulch. If washout occurs, repair the slope grade, reseed, and reinstall mulch. Continue inspections until vegetation is firmly established.

Perforated Pipe Riser for a Sediment Basin

(SB Type II)



Definition
A temporary pipe drawdown device constructed in a sediment basin.

Purpose
The purpose of a perforated riser is to facilitate emptying the pool volume completely so that all storage is available.

Conditions Where the Practice Applies
A sediment basin is required to control runoff and sediment from large areas where sediment traps are not appropriate. Use when the pool volume cannot be pumped empty or manually drained.
This standard applies to the installation of temporary sediment basins on sites where: (A) failure of the structure would not result in the loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities; (B) the drainage area does not exceed 100 acres; (C) the maximum embankment height does not exceed 15 feet measured from the natural ground to the embankment top along the centerline of the embankment; (D) the basin is to be removed within 36 months after the beginning of construction of the basin. The structure shall be designed to conform with the U.S.D.A., Natural Resource Conservation Service, formerly Soil Conservation Service standard for farm ponds (378).

Design Criteria
The minimum storage volume requirement for sediment basins is 3,600 cubic feet per acre of contributory drainage area. Design and construction shall comply with the federal, state and local safety laws, ordinances, rules, and regulations. Contact Trinity Green Services for detailed design assistance.

Construction Specifications for Riser
The total area of the perforations must be greater than 2 times the area of the internal orifice.

The perforated portion of the draw-down device shall be wrapped with 0.5" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.

For Construction Specifications see "Sediment Basin with Riser."

Maintenance
The sediment basin plans shall indicate the method(s) of disposing of the sediment removed from the basin. The sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the basin or adjacent to a stream or floodplain. Disposal sites must be considered in an approved sediment control plan. The sediment basin plans shall show the method of disposal of the sediment basin after the drainage area is stabilized, and shall include the stabilization of the sediment basin site. Sediment shall not be allowed to flush into a stream or drainage way. Make sure the riser drains the pond within the desired timeframe. If it becomes clogged, replace the filter and/or remove trash.

Repair all damage caused by soil erosion and construction equipment at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser, as shown on the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain. Disposal areas must be stabilized.

Local requirements concerning fencing and signs shall be met, warning the public of hazards of soft sediment and floodwater.

When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed and safely disposed of and the basin shall be backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry using dewatering methods, graded, and back filled.

Permanent Seeding - (PS)

Definition
Controlling runoff and erosion on disturbed areas by establishing perennial vegetative cover with seed.

Purpose
To reduce erosion and decrease sediment yield from disturbed areas, and to permanently stabilize such areas in a manner that is economical, adapts to site conditions, and allows selection of the most appropriate plant materials.

Conditions Where Practice Applies
Disturbed areas where permanent, long-lived vegetative cover is needed or the most effective method of stabilizing the soil. Permanent seeding may also be used on rough-graded areas that will not be brought to final grade for a year or more.

Planning Considerations

1. The most common and economical means of stabilizing disturbed soils is by seeding grasses and legumes. The advantages of seeding over other means of establishing plants include the smaller initial cost, lower labor input, and greater flexibility of method. Disadvantages of seeding include potential for erosion during the establishment stage. Seasonal limitations on suitable seeding dates, and weather related problems such as droughts, etc.

2. The probability of successful plant establishment can be maximized through good planning. The selection of plants for permanent vegetation must be site specific. Factors that should be considered are type of soils, climate, establishment rate, and management requirements of the vegetation. Other factors that may be important are wear, mowing tolerance, and salt tolerance of vegetation.

3. The use of irrigation (temporary or permanent) will greatly improve the success of vegetation establishment.

4. Endophyte infected tall fescue appears to establish quicker and have better survival under adverse conditions than endophyte free tall fescue.

5. The operation of equipment is restricted on slopes steeper than 3:1, severely limiting the quality of the seedbed that can be prepared. Provisions for establishment of vegetation on steep slopes can be made during final grading. In construction of fill slopes, for example, the last 4-6 inches might not be compacted. A loose, rough seedbed with irregularities that hold seeds and fertilizer is essential for hydro seeding. Cut slopes should be roughened.

6. Good mulching practices are critical to protect against erosion on steep slopes. When using straw, anchor with netting or tackifier. On slopes steeper than 2:1, jute, excelsior, or synthetic matting may be required to protect the slope.

Specifications

Grading and Shaping
Minor grading and shaping may be needed to provide a surface on which equipment can safely and efficiently be used for seedbed preparation and seeding.

Plant Selection
Plant selection for permanent vegetation should be based on plant characteristics, site and soil conditions, time of year of planting, method of planting, and the intended use of the vegetated area. Climate factors can vary widely be state or location.

Plant selection may include companion plants to provide quick cover on difficult sites, late seedings, or in situations where the desired permanent cover may be slow to establishment. Annuals are usually used for companion plants. The plants used for temporary vegetation may be used for companion plants provided the seeding rate is reduced by one half.

Temporary Vegetation Ryegrass or other highly competitive plants should not be used as a companion plant.

Table 1
Perennial Grasses; Legumes and Mixtures; Seeding Rates;
and Planting Dates for Disturbed Areas

Species	Seeding Rates/Acre	Seeding Dates & Adapted Area		
		North	Central	South
Bahiagrass, Pensacola	40 lbs.	----	Mar. 1 – July 1	Feb. 1- Nov. 1*
Bermuda grass, Common	10 lbs.	Apr. 1 – July 1	Mar. 15 – July 1	Mar. 1 – July 15
Bahiagrass, Pensacola Common Bermuda grass	30 lbs. 5 lbs.	____	Mar. 1 – July 1	Mar. 1 – July 15
Bermuda grass, hybrid (Lawn Types)	Solid Sod	Anytime	Anytime	Anytime
Bermuda grass, hybrid (Lawn Types)	Sprigs 1/sq. ft.	Mar. 1 – Aug. 1	Mar. 1 – Aug. 1	Feb. 15 - Sept. 1
Fescue, Tall	40-50 lbs.	Sept. 1 – Nov. 1	Sept. 1 – Nov. 1	----
Sericea	40-60 lbs.	Mar. 15 – July 15	Mar. 1 – July 15	Feb. 15 – July 15
Sericea & Common Bermuda grass	40-60 lbs. 10 lbs.	Mar. 15 – July 15	Mar. 1 – July 1	Feb. 15 – July 15

*Fall planting of Bahia should contain 45 pounds of small grain to provide cover during winter months.

Note: Legume seed should be treated with the inoculant specific for the species of legume.

Seedbed Requirements
Establishment of vegetation should not be attempted on sites that are unsuitable due to inappropriate soil texture, poor drainage, concentrated overland flow, or steepness of slope, until measures have been taken to correct these problems.

To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. A good growth medium should have these criteria:

a) Enough fine-grained (silt and clay) soil material to maintain adequate moisture and nutrient supply.
b) Sufficient pore space to permit root penetration.
c) Sufficient depth of soil to provide an adequate root zone. The depth to rock or impermeable layers such as hardpans should be 12 inches or more, except on slopes steeper than 2:1 where the addition of soil is not feasible.
d) A favorable pH range for plant growth, usually 6.0 – 6.5
e) Freedom from large roots, branches, stones, or large clods. Clods and stones may be left on slopes steeper than 3:1 if they are to be hydro seeded.

If any of the above criteria are not met – i.e., if the existing soil is too coarse, dense, shallow or acidic to foster vegetation – special amendments or topsoil should be used to improve soil conditions. The soil conditioners described below may be beneficial or, preferably, topsoil may be applied in accordance with recommendations.

Soil Conditioners
In order to improve the structure or drainage characteristics of a soil, the following materials may be added. These amendments should only be necessary where soils have limitations that make them poor for plant growth or for turf establishment.

a) Peat – Appropriate types are sphagnum moss peat, reed-sedge peat, or peat humus, all from freshwater sources. Peat should be shredded and conditioned in storage piles for at least 6 months after excavation.
b) Sand – Clean and free of toxic materials.
c) Vermiculite – Horticultural grade and free of toxic substances.
d) Rotted manure – Stable or cattle manure not containing undue amounts of straw or other bedding materials.
e) Thoroughly rotted sawdust – Free of stones and debris. All 6 pounds of nitrogen to each cubic yard.

Soil Amendments

a) Liming Materials
Lime (Agricultural limestone) should have a neutralizing value of not less than 90 percent calcium carbonate equivalent and 90 percent will pass through a 10 mesh sieve and 50 percent will pass through a 60 mesh sieve.
Selma chalk should have a neutralizing value of not less than 80 percent calcium carbonate equivalent and 90 percent will pass through a 10 mesh sieve.
b) Plant Nutrients
Commercial grade fertilizers that comply with current Fertilizer Laws should be used to supply nutrients required to establish vegetation.

c) Rates of Soil Amendments
Lime and fertilizer needs should be determined by soil tests. The local county Cooperative Extension Service can provide information on obtaining soil tests. Commercial laboratories that make recommendations based on soil analysis may be used.

When soil tests are not available, use the following rates for application of soil amendments.

Lime (Agricultural limestone or equivalent):
Light-textured, sandy soils: 2 tons/acre
Heavy-textured, clay-like soils: 3 tons/acre (Do not apply lime to alkaline soils)

Fertilizer:
Grasses alone: 800 – 1200 lbs. /acre of 10-10-10 or the equivalent.
Grass-legume mixtures: 800 – 1200 lbs. /acre of 5-10-10 or the equivalent
Legumes along: 800 – 1200 lbs. /acre of 0-10-10 or the equivalent

d) Application of Soil Amendments
Apply lime and fertilizer evenly and incorporate into the top 6 inches of soil by disking, chiseling or other suitable means during seedbed preparation. Operate machinery on the contour.

Seedbed Preparation
Install necessary mechanical erosion and sedimentation control practices before seedbed preparation, and complete grading according to the approved plan.

Complete the seedbed preparation, which began with incorporation of soil amendments with tillage as a minimum that will adequately loosen the soil to a depth of at least 6 inches. Break up large clods, alleviate compaction, and smooth and firm the soil into a uniform surface. Fill in or level depressions that can collect water.

Planting Methods

a) Seeding: Use certified seed for permanent seeding whenever possible. It should meet standards and be tagged with a "Certified Seed" tag. Seed tags contain important information on seed purity, germination, and presence of weed seeds. Seed must meet state standards for content of noxious weeds. Do not accept seed containing "prohibited" noxious weed seed.

Seeding dates are given in Table 1. Seeding properly carried out within the optimum dates have a higher probability of success. It is also possible to have satisfactory establishment when seeding outside these dates. However, as plantings are deviated from the optimum dates, the probability of failure increases rapidly. Seeding dates should be taken into account in scheduling land-disturbing activities.

Inoculate legume seed with the Rhizobium bacteria appropriate to the species of legume.

Plant seed uniformly with a cyclone seeder, drill, cultipacker seeder, or by hand on a fresh, firm, friable seedbed. If the seedbed has been sealed by rainfall, it should be disked so the seed will be sown in a freshly prepared seedbed.

When using broadcast-seeding methods, subdivide the area into workable sections and determine the amount of seed needed for each section. Apply one-half of the seed while moving back and forth across the area, making a uniform pattern; then apply the second half in the same way, but moving at right angles to the first pass.

Cover broadcast seed by raking or chain dragging; then firm the surface with a roller or cultipacker to provide good seed contact. Small grains should be planted no more than 1 inch deep and grasses and legume seed no more than ½ inch deep.

b) Hydro seeding: Surface roughening is particularly important when hydro seeding, as roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Fine seeded preparation is not necessary for hydro seeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

Mix seed, inoculate if required, and a seed carrier with water and apply as a slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber, or cane fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. Uses the correct legume inoculate at four times the recommended rate when adding inoculant to a hydro seeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor. Fertilizer may be applied with a hydro seeder as a separate operation after seedlings are established.

Lime is not normally applied with a hydraulic seeder because it is abrasive but if necessary it can be added to the seed slurry and applied at seeding or it may be applied with the fertilizer mixture. Also lime can be blown onto steeper slopes in dry form.

c) Sprigging: Hybrid Bermuda grass cannot be grown from seed and must be transplanted. Vegetative methods of establishing common and hybrid Bermuda grass, centipede grass, and zoysia include sodding, plugging and sprigging. Sprigs are fragments of horizontal stems which include at least one node (joint). They are normally sold by the bushel and can either be broadcast or planted in furrows using a tractor-drawn transplanter.

Furrows should be 4-6 inches deep and 2 feet apart. Place sprigs about 2 feet apart in the row with one end at or above ground level.

Broadcast sprigs at the specified rate. Press into the top ½ to 2 inches of soil with a cultipacker or with a disk set nearly straight so that the sprigs are not brought back to the surface. A mulch tacking machine may be used to press sprigs into the soil.

d) Mulching: The use of a mulch will help ensure establishment of vegetation under normal conditions and is essential to seeding success under harsh site conditions. Harsh site conditions include:

a. Seeding in late fall (wood fiber mulches are not adequate for this use),
b. Slopes steeper than 3:1
c. Adverse soils (shallow, rocky, or high in clay or sand), and
d. Areas receiving concentrated flow.

Maintenance

Moisture is essential for seed germination and vegetation establishment. Supplemental irrigation can be very helpful in assuring adequate stands in dry seasons or to speed development of full cover. It is a requirement for establishment of vegetation from sprigs and should be used elsewhere when feasible. However, irrigation is rarely critical for low-maintenance vegetation planted at the appropriate time of year.

Water application rates must be carefully controlled to prevent runoff. Inadequate or excessive amounts of water can be more harmful than no supplemental water.

Generally, a stand of vegetation cannot be determined to be fully established until soil cover has been maintained for one full year from planting. Inspect vegetated areas for failure and make necessary repairs and vegetate as soon as possible.

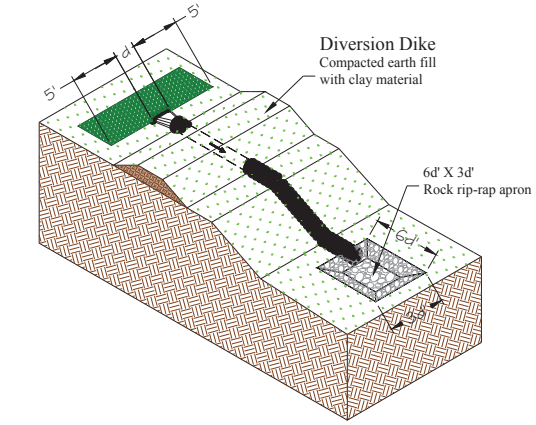
If stand has inadequate cover, reevaluate choice of plant materials and quantities of lime and fertilizer. Re-establish the stand after seedbed preparation or over-seed the stand. Consider seeding temporary cover if the time of year is not appropriate for establishment of permanent vegetation.

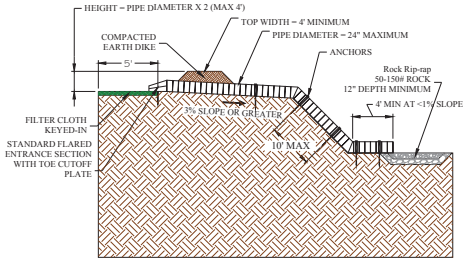
If vegetation fails to grow, soil must be tested to determine if acidity or nutrient imbalance is responsible.

Fertilization: On the typical disturbed site, full establishment usually requires application of fertilizer in the second growing season. Turf grasses require annual maintenance fertilization. Use soil tests if possible or follow the guidelines given for the specific seeding mixtures.

Protect establishing vegetation from traffic that will be harmful. Use either temporary fences or barriers to protect areas that may be damaged by excessive traffic.

Pipe Slope Drain (PSD)





Description of Practice
A pipe slope drain is a pipe that is installed to convey surface runoff down the face of unstabilized slopes. It is used to minimize erosion on the slope face. **Use of flexible piping is preferred.**

Conditions Where Practice Applies
Pipe slope drains are used in conjunction with earth dikes. The dikes direct surface runoff to the slope drain, which conveys concentrated flow down the face of a slope. When used to convey water down an unstabilized fill slope on a road construction project, the drainage area to the pipe slope drain will be limited to two (2) acres. When used as an inflow protection device, the drainage area will be five (5) acres.

Design Criteria for Pipe Slope Drain

Size	Diameter (inches)	Pipe/Tubing Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-(2) (24)[PIP]	24	5.0

Inlet
At the inlet of the pipe slope drain, the height of the earth dike shall be at least two times the pipe diameter and measured from the invert of the pipe. A standard flared entrance section shall be installed and secured at the inlet to the pipe slope drain with a watertight connection. To prevent erosion, geotextile fabric shall be placed under the inlet and shall extend 5' in front of the inlet and be keyed in 6" on all sides.

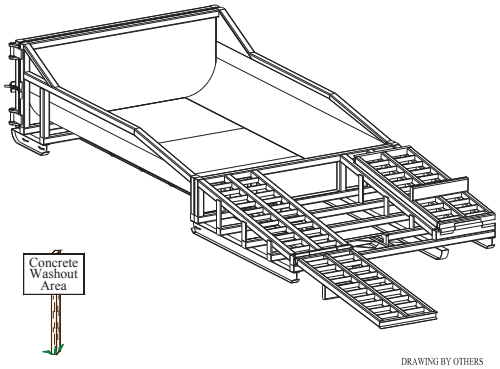
Outlet
When the drainage area is disturbed, the pipe slope drain shall outlet into a sediment trap or basin, or a stable conveyance that leads to a trap or basin. The point of discharge shall be as far away from the trap or basin outlet structure as possible. When the drainage area is stabilized, the pipe slope drain shall outlet onto a stabilized area at a non-erosive velocity. The point of discharge may be protected by rock outlet protection.

[PIP] Due to the height limitations on earth dikes, the maximum pipe diameter for pipe slope drain is 24". For drainage areas over 3-1/2 acres, two (2) 24" pipes shall be used. A minimum spacing of 2D (4 feet) is required between pipes.

Construction Specifications
1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
4. A flared end section shall be attached to the inlet end of a pipe with a watertight connection. Geotextile Class E or better shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The geotextile fabric shall be keyed in on all sides.
5. The Pipe Slope Drain shall be securely anchored to the slope. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of the pipe. These details should be provided by pipe suppliers.
6. The soil around and under the pipe and end sections shall be hand tamped in 4-inch lifts to the top of the earth dike.
7. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible, then the slope drain will discharge into a stable conveyance that leads to a sediment trap or basin. When discharging into a trap or basin, the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
8. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity. 4"-7" stone underlain with Geotextile Class C shall be employed as necessary.

Maintenance
Inspect and perform maintenance periodically and after each rain event. The inlet shall be kept open and free of sediment and debris at all times. Check for seepage through the dike. Recompact soil around the pipe in the dike if seeping. Repair rock outlet if necessary. Ponding in front of the inlets requires regrading or lowering of inlet elevation.

Portable Concrete Washout Container
(PCWOCII)
(Patent Currently Pending by Concrete Washout Systems, Inc.)



DRAWING BY OTHERS

Definition
A portable self-contained and water-tight bin that contains concrete washout, material, and wastewater.

Purpose
Allows operators to wash out concrete trucks, pumps, and equipment on-site and facilitate off-site recycling of concrete material.

Conditions Where Practice Applies
New construction projects where concrete is used as a construction material or demolition projects where concrete dust and debris result from demolition activities.

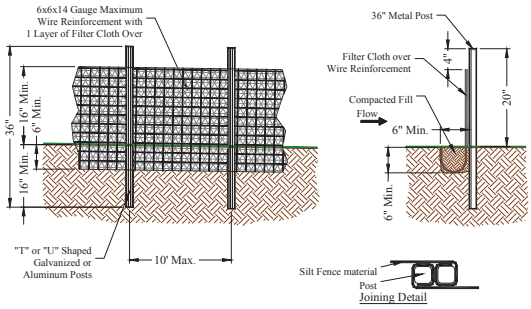
Design Criteria
The container must be portable, watertight, temporary, and equipped with ramps. A capacity of 350 cubic yards of poured concrete is recommended.

Note: Some operators prefer to set the portable washout in a dirt pit (optional).

Maintenance: Cleanout when ¾ full. Recycle waste or dispose of concrete at regulated facility.

Contact Information
Concrete Washout Systems, Inc.
P.O. Box 809
Wilton, CA. 95693
www.concretewashout.com
Toll Free: 1-877-2-WASHOUT
(1-877-292-7468)
Fax: (916) 689-0592

Reinforced Silt Fence (RSF Type I)



Definition
A temporary barrier of Geotextile Class F over wire reinforcement used to intercept sediment laden runoff from small drainage areas. (See Material Specifications)

Purpose
The purpose of silt fence is to reduce velocity and allow the deposition of transported sediment to occur. Limits imposed by ultraviolet light on the stability of the fabric will dictate the maximum period that the silt fence may be used.

1. Reinforced silt fence provides a barrier that can collect and hold debris and soil, preventing the material from entering critical areas, streams, streets, etc.
2. Reinforced silt fence can be used where the installation of a dike would destroy sensitive areas, woods, wetlands, etc.

Conditions where the Practice Applies
Reinforced silt fence is limited to intercepting sheet flow runoff from limited distances according to slope. It provides filtering and velocity dissipation to promote gravity settling of sediment.

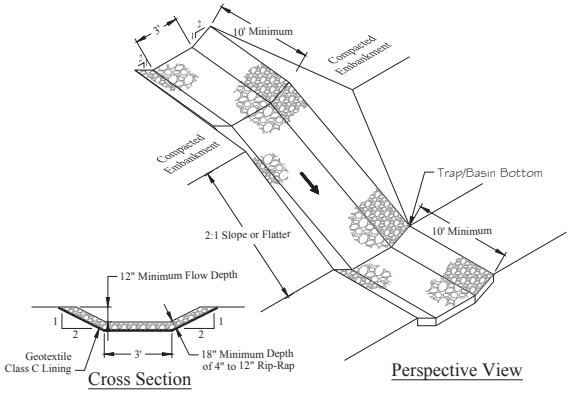
Design Criteria
The posts must be a minimum of 16" in the ground and at least to the top of the fabric. The fabric must be 16"-24" above the ground. On slopes less than 2% and sandy soils, the maximum slope and silt fence length is limited. **Steel posts must be used.** Reinforced silt fence should be placed as close to the contour as possible. Use 36" wide cloth. Where ends of the geotextile fabric meet they shall be overlapped. Roll the fabric ends around each end post, overlap, and butt posts together tightly. Fasten with wire, staples, or other durable ties. The length of the flow contributing to reinforced silt fence shall conform to the following limitations. Limits can be increased depending on slope and soil type. This illustration represents one example of installation. Check local regulations for details.

Slope (%)	Slope Steepness	Slope Length (Ft.) (Maximum)	Silt Fence Length (Ft.) (Maximum)
2	0-50:1	Unlimited	Unlimited
2-10	50:1-10:1	125	1,000
10-20	10:1-5:1	100	750
20-33	5:1-3:1	60	500
33-50	3:1-2:1	40	250
50 +	> 2:1	20	125

Maintenance
Reinforced silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulations reach 50% of the fabric height.

The reinforced silt fence will be inspected daily for damage by construction equipment. Particular attention should be given to "toe-in" and connections.

Rip-Rap Inflow Protection (RRP)



Definition
A temporary or permanent, lined drainageway installed to convey concentrated runoff into sediment traps and basins or down steep slopes as applicable. Rip-Rap Inflow Protection consists of the installation of rock or recycled concrete equivalent in a flow channel for stabilization.

Purpose
The purpose of Rip-Rap Inflow Protection is to provide stable conveyance of concentrated runoff down steep slopes, (i.e. into temporary sediment traps and basins) thereby preventing erosion of the flow channel.

Conditions Where the Practice Applies
Rip-Rap Inflow Protection is required where the slope of a drainage way contributing to a sediment trap or basin exceeds 10:1 but is less than 4:1. Runoff may be directed to the inflow device by means of dikes or swales.

Design Criteria
Rip-rap Inflow protection shall be 4" - 12" rip-rap (min.), underlain with Geotextile Class C and placed from the ditch overfall elevation to the bottom of the trap or basin when the inflow slope is between 4:1 and 10:1. Slopes flatter than 10:1 shall be stabilized in accordance with Temporary Swale or Earth Dike criteria as applicable. For slopes steeper than 4:1, see Gabion Inflow Protection.

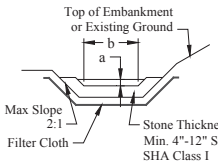
Other Requirements:

1. Rip-rap Inflow Protection shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and a 3' minimum bottom width. The channel shall be lined with 4" – 12" rip-rap or SHA Class I to a depth of 18".
2. Filter cloth shall be installed under all Rip-Rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-Rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be substituted for Rip-Rap Inflow Protection.
6. Rip-Rap should blend into existing ground.
7. Rip-Rap Inflow Protection shall be used where the slope is between 4:1 and 10:1. For slopes flatter than 10:1, use Earth Dike or Temporary Swale.

Maintenance
Inspect after each rain event for rock movement or undermining. Replace rock as needed. Recompact embankment while replacing soil lost during rain events. If under mining has occurred, remove rock and filter cloth and reinstall cloth and rock after regarding. Check the outlet for signs of erosion.

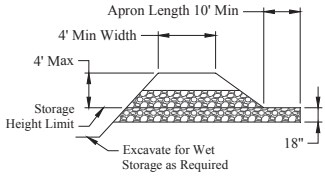
Rip-Rap Outlet Sediment Trap

(ST Type III)



Top of Compacted Embankment Minimum 1' Above Top of Stone Lining. Maximum 4' Above Existing Ground. Bottom Width of Weir (b) Minimum Depth of Channel (a)

Cross Section



Filter Cloth Shall be Embedded at Least 6" into the Existing Ground at Entrance to the Outlet Channel

Profile

Definition
A temporary sediment control device formed by excavated and/or an embankment with an approved outlet used to intercept sediment laden runoff and to retain the sediment.

Purpose
The purpose of a sediment trap is to intercept sediment laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way downstream of the sediment trap from sedimentation.

Conditions Where the Practice Applies
A sediment trap is installed at points of discharge from a disturbed area.

Design Criteria
The storage requirement for sediment traps and sediment basins is 3,600 cubic feet per acre of contributory drainage area. The sediment traps and basins storage volume of 3,600 cubic feet minimum per acre shall be divided equally into "dry" or dewatered storage and "wet" or retention storage. The basins and traps will be dewatered to the wet pool elevation corresponding to 1,800 cubic feet of storage per acre of drainage.

1. The maximum drainage area for each type of sediment trap shall be as follows:

Practice Type	Maximum Drainage Area
Pipe Outlet	5 Acres
Stone Outlet	5 Acres
Rip-rap Outlet	10 Acres
Stone Outlet / Rip-rap	10 Acres

2. To estimate the present volume of sediment available in a trap use a contour map if available, or use the following:

Volume (Cubic Feet) = 0.4 [Surface Area (sq. ft.) times the Maximum Depth (ft.)]

3. All embankment for sediment traps shall not exceed 4 feet in height as measured at the low point of the original ground along centerline of the embankment. If any of the design criteria for traps are exceeded, standards for basins must be used.

Construction Specifications
The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.

The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.

Geotextile Class C filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone.

Outlet channel must have positive drainage from the trap.

Construction of traps shall be carried out in such a manner that sediment pollution is abated.

Maintenance
Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ¼ of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

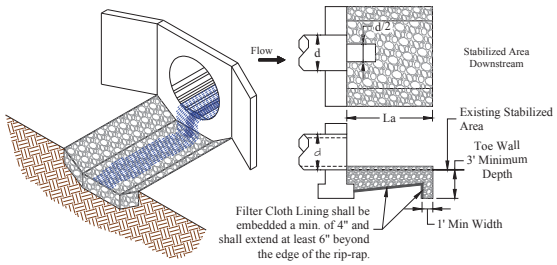
The structure shall be inspected periodically after each rain and repaired as needed. Replace stones or compacted fill if needed.

Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with required criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion, and monitored and maintained erosion-free during the life of the trap.

The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

Rock Outlet Protection (ROP Type I)

Discharge to a Flat Area
No Tailwater Influence



Definition
Rock placed at the outfall of channels or culverts.

Purpose
The purpose of rock outlet protection is to reduce the velocity of flow to non-erosive rates in the receiving channel.

Conditions Where the Practice Applies
This practice applies where discharge velocities and energies at the outlets of culverts are sufficient to erode the next downstream reach. This applies to outlets of all types such as sediment basins, storm water management ponds, and road culverts.

Design Criteria
The design method applies to sizing rock rip-rap and gabions to protect a downstream area. It does not apply to rock lining of channels or streams. Many counties and state agencies have regulations and design procedures established for dimensions, type, and size of materials, and locations where outlet protection is required.

Design Procedures
1. Investigate the downstream channel to assure that non-erosive velocities can be maintained.
2. Determine the tailwater condition at the outlet.
3. Using the discharge velocity and depth of flow, determine the rip-rap size and apron length required.
4. Calculate apron width at the downstream end if a flared section is to be used.

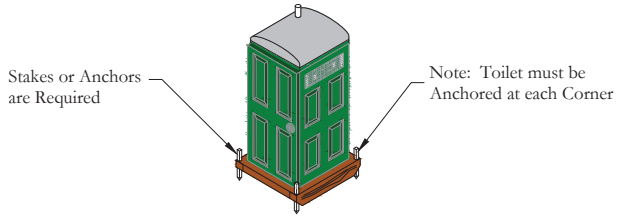
There are three classifications of rock outlet protection: (1) Discharge to semi-confined section (maximum tailwater condition); (2) Discharge to a confined channel section and (3) Discharge to a flat area with no tailwater influence. The outlet protection may be done using rock rip-rap, or gabions. Rip-rap thickness is 19", 32", and 46" for Class I, II, and III, respectively. The stone shall consist of field stone and hewn quarry stone. The filter is a layer of material placed between the rip-rap and the underlying soil surface to prevent soil movement into and through the rip-rap. Rip-rap shall have a filter placed under it in all cases. A filter can be gravel or Geotextile Class "C". Gabion baskets may be substituted for rock rip-rap. Gabions shall be of single unit construction. Place Geotextile under all gabions and follow manufacturer's specifications.

Construction Specifications
1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile Class C or better shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile fabric over the damaged part or by completely replacing the geotextile fabric. All overlaps whether for repairs or for joining two pieces of geotextile fabric shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile fabric. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

Maintenance
Once a rip-rap outlet has been properly designed and installed, the maintenance needs are low.
It should be inspected after high flows to see if scour beneath the rip-rap has occurred or if any stones have been dislodged. Repairs should be made immediately. Check for erosion where the rip-rap outlet ends and the earthen channel begins and repair as necessary.

Sanitary / Septic Waste Management (SSWM)



Description and Purpose
Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Application
Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

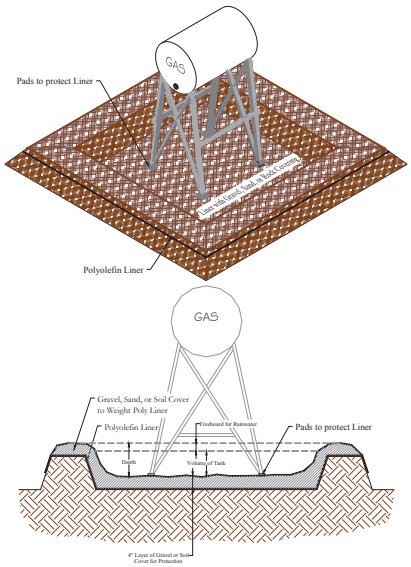
Implementation
Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements by reputable, licensed sanitary and septic waste haulers. If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.

Procedures
- Portable toilets must be provided if no permanent facilities are available.
- Sanitary facilities must be provided on the site in close proximity to areas where people are working.
- Locate portable toilets a minimum of 20 feet away from storm drain inlets, conveyance channels, or surface waters. If unable to meet 20-foot distance requirement, provide containment for portable toilets.
- Temporary sanitary facilities should be located away from drainage facilities, watercourses and from traffic circulation.
- Untreated raw wastewater should never be discharged or buried.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.

- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- Portable toilets must be secured to the ground by stakes or other suitable means to prevent them from turning over during high winds or by accident.

Secondary Containment (SC Type I)

For Tanks without Double Walls



Liner Source: Environmental Protection, Inc.
Contact: 1-800-OK-LINER
www.geomembrane.com

Definition
A lined pit or berm/pit constructed of soil under and around the base of an above-ground fuel storage tank used temporarily for refueling equipment on a construction site.

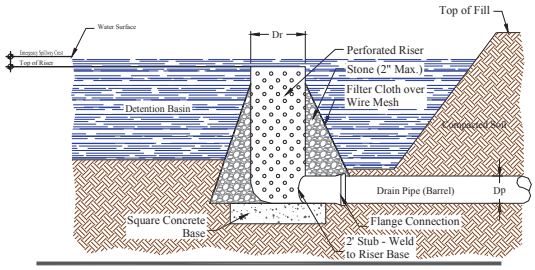
Purpose
The pit or berm/pit is used to contain fuel in case of an accidental spill or leak and to prevent it from seeping into the ground or into surface storm water removal systems. It is used for temporary containment purposes only. The spill should be removed immediately and disposed of in accordance with state, federal, and local regulations.

Conditions Where the Practice Applies
Normally the containment is needed on large surface grading projects such as residential developments where earth-moving equipment is used, the need to refuel is often, and tank double-wall protection is not provided. Temporary above-ground fuel tanks are sometimes used on house or commercial construction projects. These recommendations for temporary secondary containment are not applicable where permanent fuel storage is required on industrial facilities or as part of a Spill Prevention, Containment or Countermeasures Plan (SPCC) required under industrial regulations which require permanent secondary containment.

Design Criteria
The volume of the secondary containment should be equal to the tank volume plus freeboard for rainfall events that may occur during or immediately after a spill. Extend the berms out far enough to contain pressure leaks or spray from the tank. Normally, freeboard should be an additional 10 percent of the tank volume or the depth of a 2-year, 24- hour frequency storm, whichever is less. (Less freeboard is required in arid or desert climates). The secondary containment should not be located in flood prone areas such as the 100-year floodplain, floodways, swales, creeks or areas having a water table near the surface. Always provide a liner to prevent seepage into the ground. The liner should be covered with at least 4 inches of soil or gravel to prevent damage to the liner during installation of the tank or to protect it from damage by UV rays. The liner should be durable enough to last the period of intended use. When berms are used in lieu of pits or in conjunction with pits, the berms should be constructed with stable slopes to maintain the required depth. The tank should be labeled, e.g. gasoline.
- Liner Material: Enviro Liner® 6000 series (Model 6020 minimum) geo-membrane or equivalent is acceptable for use on most projects unless special circumstances warrant otherwise. Contact Environmental Protection, Inc. (800)-OK-LINER or *www.geomembrane.com*
- The liner must be black polyolefin material with a thickness of at least 20 mils and designed for durability, chemical resistance, and flexibility. A one-piece panel or factory seamed panels are required. Overlaps are not acceptable.
- Liner Properties: Thickness (Nominal) ASTM D5199- 20 mil (0.5 mm). Tensile Strength at Break ASTM D638 - 77ppi (13.5 N/mm). Elongation ASTM D638- 800%. Tear Resistance ASTM D1004 -11 lbs (49 N). Low Temperature Impact Resistance ASTM D1790 -94 ˚F (70 ˚C. Dimensional Stability ASTM D1204 (max change) - 1.5%. Puncture Resistance ASTM D4833-32 lbs (142 N). Cover the liner to protect it from UV damage by placing 4 inches of soil, sand, or gravel over the liner.

Maintenance
Check daily for damage to berm or leaks in the tank. Maintain the berm at the specified height in order to maintain the required volume plus freeboard. Maintain cover over the liner to protect it from sunlight or physical damage. Clean up leaks that occurred during vehicle filling.

Sediment Basin with Pipe Spillway (SBI)



Definition
A temporary barrier or dam constructed across a drainage way to intercept sediment laden runoff. Excavation to build may be used to achieve the required storage.

Purpose
The purpose of a sediment basin is to protect downstream properties and drainage ways by trapping sediment and controlling the release of storm water runoff.

Wet and Dry Storage
The minimum storage volume requirement for sediment basins in 3,600 cubic feet per acre of contributory drainage area. The basin storage volume of 3,600 cubic feet per acre shall be divided equally into "dry" or dewatered storage and "wet" or retention storage. Basins shall be dewatered to the wet pool elevation corresponding to 1,800 cubic feet of storage per acre of drainage area.

Conditions Where the Practice Applies
A sediment basin is required to control runoff and sediment from large areas where sediment traps are not appropriate. Detention ponds may be used as sediment basins provided that they meet the requirements of and the construction sequence addresses converting the sediment basin to a permanent storm water detention pond.

Conditions of Use
This standard applies to the installation of temporary sediment basins on sites where: (A) failure of the structure would not result in the loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities, (B) the drainage area does not exceed 100 acres, (C) the maximum embankment height does not exceed 15 feet measured from the natural ground to the embankment top along the centerline of the embankment and (D) the basin is to be removed within 36 months after the beginning of construction of the basin.

Where these criteria cannot be met, the structure shall be designed to conform to the U.S.D.A., Natural Resource Conservation Service, formerly Soil Conservation Service standard for farm ponds (378).

Design Criteria
Design and construction shall comply with the federal, state and local safety laws, ordinances, rules, and regulations. Contact Trinity Green Services for detailed design assistance.

Maintenance

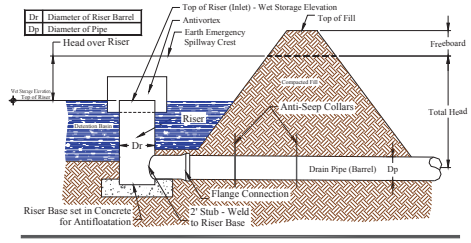
Repair all damage caused by soil erosion and construction equipment at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser as shown on the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain. Disposal areas must be stabilized. Irrigate, control weeds, fertilize and mow as needed.

When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed and safely disposed of and the basin shall be backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry using dewatering methods, graded, and back filled.

After permanent stabilization of all disturbed contributory drainage areas, temporary sediment basins, if initially built and certified to meet permanent standards, may be converted to permanent stormwater management structures. To convert the basin from temporary to permanent use, the outlet structure must be modified in accordance with approved stormwater management design plans. Additional grading may also be necessary to provide the required storage volume in the basin. Conversion can only take place after all disturbed areas have been permanently stabilized to the satisfaction of the inspection authority and storm drains have been flushed.

Sediment Basin with Riser

(SB Type I)



Definition
A temporary barrier or dam constructed across a drainage way to intercept sediment laden runoff. Excavation to build may be used to achieve the required storage.

Purpose
The purpose of a sediment basin is to protect downstream properties and drainage ways by trapping sediment and controlling the release of storm water runoff during earth disturbing activities.

Conditions Where the Practice Applies
A sediment basin is required to control runoff and sediment from large areas where sediment traps are not appropriate. Stormwater management ponds may be used as sediment basins provided that they meet these requirements and the construction sequence addresses converting the sediment basin to a permanent storm water detention pond. This standard applies to the installation of temporary sediment basins on sites where:
(A) failure of the structure would not result in the loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities; (B) the drainage area does not exceed 100 acres; (C) the maximum embankment height does not exceed 15 feet measured from the natural ground to the embankment top along the centerline of the embankment; and (D) the basin is to be removed within 36 months after the beginning of construction of the basin. The structure shall be designed to conform to the U.S.D.A., Natural Resource Conservation Service, formerly Soil Conservation Service standard for farm ponds (378).

Design Criteria
The minimum storage volume requirement for sediment basins is 3600 cubic feet per acre of contributory drainage area. The basin storage volume of 3600 cubic feet per acre shall be divided equally into "dry" or dewatered storage and "wet" or retention storage. Basins shall be dewatered to the wet pool elevation corresponding to 1800 cubic feet of storage per acre of drainage area. Design and construction shall comply with the federal, state and local safety laws, ordinances, rules, and regulations. Contact Trinity Green Services for detailed design assistance.

Construction Specifications
1. Site Preparation: Perimeter sediment control devices must be installed prior to clearing and grubbing. Areas where the embankment is to be placed shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. The pool area shall not be cleared until completion of the dam embankment unless the pool area is to be used for borrow. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) shall be cleared of all brush, trees, and other objectionable materials.

2. Cut-off Trench: A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be four feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be two feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for the embankment. The trench shall be dewatered during the backfilling-compaction operations.

3. Embankment: The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) or organic materials (Unified Soil Classes OL and OH) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed in six-inch to eight-inch thick continuous lifts over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

4. Principal Spillway: Steel risers shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. Concrete risers shall be poured with the principal spillway in place or precast with voids around the principal spillway filled with concrete or shrink proof grout for watertight connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight.

All connections between barrel sections must be achieved by approved watertight band assemblies. The barrel and riser shall be placed on a firm, smooth foundation of impervious soil as the embankment is constructed. Breaching the embankment to install the barrel is unacceptable. Pervious materials such as sand, gravel or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four-inch lifts and hand-compacted under and around the pipe to at least the same density as the adjacent embankment. A depth of 1.5 times the pipe diameter (min.) shall be backfilled over the principal spillway and hand-compacted before crossing it with construction equipment.

5. Emergency Spillway: The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of ± 0.2 feet.

6. Vegetative Treatment: Stabilize the embankment in accordance with appropriate vegetative standards and specifications immediately following construction. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon basin completion and monitored and maintained erosion free during the life of the basin.

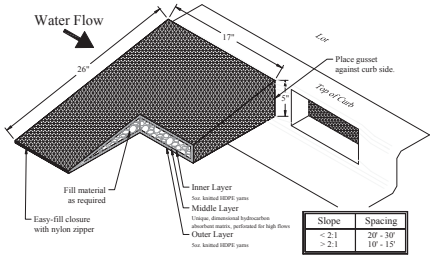
7. **Safety:** Local requirements concerning fencing and signs shall be met, warning the public of hazards of soft sediment and floodwater.

Maintenance
Repair all damage caused by soil erosion and construction equipment at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser as shown on the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain. Disposal areas must be stabilized. Irrigate, control weeds, fertilize and mow as needed.

When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed and safely disposed of, and the basin shall be backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry using dewatering methods, graded, and back filled.

After permanent stabilization of all disturbed contributory drainage areas, temporary sediment basins, if initially built and certified to meet permanent standards, may be converted to permanent stormwater management structures. To convert the basin from temporary to permanent use, the outlet structure must be modified in accordance with approved stormwater management design plans. Additional grading may also be necessary to provide the required storage volume in the basin. Conversion can only take place after all disturbed areas have been permanently stabilized to the satisfaction of the inspection authority and storm drains have been flushed.

Sediment Saver™ Gravel Bag
(GB)



Slope	Spacing
< 2:1	20' - 30'
> 2:1	10' - 15'

Definition
A manufactured bag composed of material consisting of outer and inner layers of knitted HDPE yarns and a middle layer of dimensional hydrocarbon absorbent matrix perforated to allow water to flow through it at a high rate. The bag is filled with ½ cubic foot of gravel and closed with a zipper.

Purpose
The bag is used alone or in conjunction with other devices as a barrier and a filter to intercept sediment laden water from soil disturbed construction areas and to prevent the sediment and associated pollutants from entering the street and the storm water drainage systems. The bag reduces the velocity of the water which in turn causes heavier soil particles to be deposited in front of it. Water is allowed to flow freely through the bag which provides filtration of soil particles.

Conditions Where the Practice Applies
To be used only as a secondary sediment control device for storm drain inlets or culvert protection. The bags should not used in the place of a primary sediment trapping device on the lot or other disturbed area unless it is approved for such use by the appropriate approval authority. Use the bags around At-Grade-Inlets (commonly called grates) on paved areas such as parking lots. They are also used as checks in concrete street gutters along the curb or in conjunction with a curb drain inlet protection.

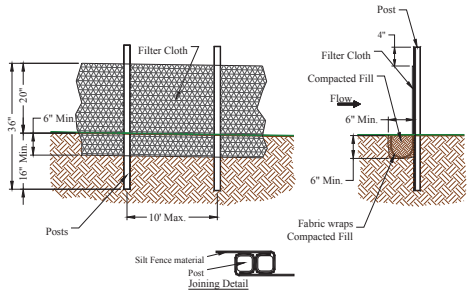
Design Criteria
1. The bag shall be constructed of two layers of knitted HDPE filaments with a fabric weight of 5 oz./sq.yd., and with a middle layer of hydrocarbon absorption matrix (0.5 lbs./cu.ft.density), perforated for high flows.
2. The bag shall have a grab tensile strength of 50 lbs. (ASTM D4632) and a Mullen Burst Strength of 500 lbs. (ASTM D3786).
3. The bag shall have a UV Resistance (5yrs.) of >85% at 850 hrs. (ASTM D4355).
4. The bag shall have the following dimensions: 17"W (43.18cm) x 5"D (1270cm) at the gusseted end x 26"L (66.04cm).
5. When specified for the job, the bag shall be a Sediment Saver™ supplied by Earth-Saver®.
6. The effective flow rate shall be 90 gpm/ft²

When used in heavy traffic areas where the zipper is subject to damage, tie the opening tight with galvanized wire. Fill the bag to a maximum of ½ cu.ft. of clean ¾" diameter gravel or when specified, use clean "pea-sized gravel." The zipper side should face the road with the 5" gusset side placed tight against the curb to prevent water from getting between the curb and the bag.

Maintenance
Check periodically for damage from equipment and after each rain event. Repair or replace immediately as required. If the bag becomes clogged with sediment or other pollutants, clean or replace immediately. Also remove accumulated sediment or trash in the gutter or street. Keep clean bags on hand for replacements. Dispose of bags in a landfill.

Source
Earth-Saver Erosion Control Products
1-866-928-8537 www.earth-savers.com

Silt Fence (SF)



Definition

A temporary barrier of Geotextile Class F used to intercept sediment laden runoff from small drainage areas. (See Material Specifications)

Purpose

The purpose of silt fence is to reduce velocity and allow the deposition of transported sediment to occur. Limits imposed by ultraviolet light on the stability of the fabric will dictate the maximum period that the silt fence may be used.

1. Silt fence provides a barrier that can collect and hold debris and soil, preventing the material from entering critical areas, streams, streets, etc.
2. Silt fence can be used where the installation of a dike would destroy sensitive areas, woods, wetlands, etc.

Conditions where the Practice Applies

Silt fence is limited to intercepting sheet flow runoff from limited distances according to slope. It provides filtering and velocity dissipation to promote gravity settling of sediment.

Design Criteria

The posts must be a minimum of 16" into the ground and at least to the top of the fabric. The fabric should extend 16"-24" above the ground. Wood or steel posts may be used in certain instances. Silt fence should be placed as close to the contour as possible. Use 36" wide cloth. Where ends of the geotextile fabric meet, they shall be overlapped. Roll the fabric ends around each end post, overlap, and butt posts together tightly. Fasten with wire, staples, or other durable ties.

- If wood posts are to be used they must meet the following specifications:
1½" X 1½" minimum square posts, or 1¾" minimum diameter round post
- If metal posts are to be used, they must be standard "T" or "U" post weighing not less than 1 lb. per linear foot. The length of the flow contributing to silt fence shall conform to the following limitations. For slopes less than 2% and sandy soils, maximum slope and silt fence lengths will be unlimited. Always check local requirements.

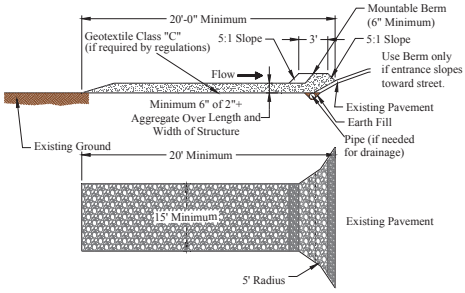
Slope (%)	Slope Steepness	Slope Length (Ft.) (Maximum)	Silt Fence Length (Ft.) (Maximum)
2	0-50:1	Unlimited	Unlimited
2-10	50:1-10:1	125	1,000
10-20	10:1-5:1	100	750
20-33	5:1-3:1	60	500
33-50	3:1-2:1	40	250
50 +	> 2:1	20	125

Maintenance

Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulations reach 50% of the fabric height.

The silt fence will be inspected daily for damage by construction equipment. Particular attention should be given to "toe-in" and connections.

Stabilized Construction Entrance Single Residence Lot (SCE SRL)



Definition

A stabilized layer of aggregate that is underlain with geotextile.
Stabilized entrances are located at any point where traffic enters or leaves a home construction site.

Purpose

The purpose of the stabilized construction entrance is to reduce tracking of sediment onto streets or public rights-of-way and provide a stable area for entrance or exit from the construction site.

Conditions Where the Practice Applies

1. Stabilized construction entrances shall be located at points of construction ingress and egress.
2. For single family residences, the entrance should be located at the permanent driveway.
3. Stabilized construction entrances should not be used on existing pavement.

Design Criteria

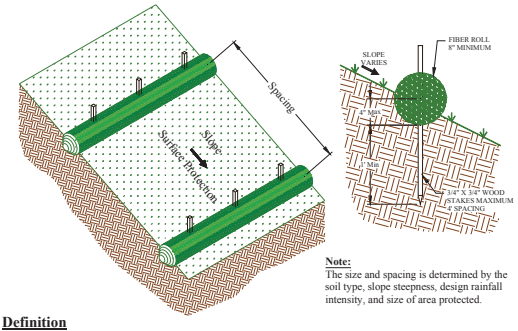
1. Length - Minimum of 20' 0" for single residence lot.
2. Width - Minimum of 15' 0", should be flared at the existing road to provide a 5' turning radius.
3. Geotextile shall be placed over the existing ground prior to placing stone if required by authorities. Select geotextile based on soil type under proposed rock. Plan approval authority may not require geotextile fabric for single family residence.
4. Stone-crushed aggregate 2"+. Recycled concrete equivalent may be used also. The rock should be placed at least 6" deep over the length and width of the entrance.
5. Surface Water - All the surface water flowing to or diverted toward construction entrances shall be piped under the entrance to maintain positive drainage. Pipe installed under the construction entrance shall be protected with a mountable berm. The pipe shall be sized according to the drainage, with the minimum diameter being 6".
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance. (Check local requirements)
7. Offset from paved entrance. Arlington, Texas requires silt fence on both sides of entrance.

Maintenance

If stone compacts, raking is required. Add more stone if needed. Clean up fugitive sediment. Wash wheels into approved trap if necessary. Daily maintenance is required.

Slope Protection (SP II)

Fiber Rolls



Note:
The size and spacing is determined by the soil type, slope steepness, design rainfall intensity, and size of area protected.

Definition

Tubes of straw or fiber used for erosion control, sediment control, and stormwater runoff control. Plastic netting or burlap contain the straw or fiber.

Purpose

Fiber rolls allow water to pass through while decreasing runoff velocity, increasing infiltration rates, and trapping sediments. Also known as sediment logs or wattles, they can provide temporary or permanent controls and biodegrade with time.

Conditions Where the Practice Applies

- On the face of slopes along the contour to reduce the slope length.
- At grade breaks where slopes transition from shallow to steep.
- In shallow drainage swales on small lots.
- Along streambanks.
- On flat ground such as urban development projects.

Limitations

- Applicable where surface flows do not exceed 1 cfs and on slopes of less than 3H:1V
- Fiber rolls are not to be used at the base of slopes in place of linear sediment barriers such as silt fences.
- Not recommended in concentrated flow areas.

Standards and Specifications (Always follow manufacturer's recommendations)

- Fiber rolls are either prefabricated rolls or rolled tubes of erosion control blankets 8-9" in diameter.
- Remove debris and larger stones from the sloped area before installing the fiber roll.
- Slope ends slightly down slope to prevent ponding in middle.
- For maximum effectiveness use in combination with surface roughing, straw mulch, erosion control blankets, hydromulching, or bonded fiber matrix

Sodding - (SD)

Definition

Permanently stabilizing areas by laying a continuous cover of grass sod.

Purpose

To prevent erosion and damage from sediment and runoff by stabilizing the soil surface with permanent vegetation; to provide immediate vegetative cover of critical areas; to stabilize disturbed areas with a suitable plant material that cannot be established by seed; and to stabilize drainage ways and channels and other areas of concentrated flow where flow velocities will not exceed that specified for a vegetated waterway.

Conditions Where Practice Applies

Disturbed areas which require immediate and permanent vegetative cover, or where sodding is preferred to other means of grass establishment such as waterways or sod flumes carrying intermittent flow at acceptable velocities, areas around drop inlets, residential or commercial lawns and golf courses where prompt use and aesthetics are important, and steep critical areas needing immediate cover.

Planning Considerations

1. Advantages of properly installed sod include immediate erosion control, nearly year-round establishment capability, less chance of failure than with seeding, and rapid stabilization of surfaces for traffic areas, channel linings, or critical areas.
2. Initially it is more costly to install sod than to plant seed; however, the higher cost may be justified for specific situations where sod performs better than seed.
3. Sodding for soil stabilization eliminates the seeding and mulching operations, but site preparation is required. Sodding is a more reliable method of producing adequate cover and erosion control than seeding.
4. Sod can be laid during the times of the year when seeded grasses may fail, provided there is adequate water available for irrigation in the early establishment period. Irrigation is essential, at all times of the year, to install sod.
5. In waterways and sod flumes that carry concentrated flow, properly pegged sod provides immediate protection and is preferable to seeding.
6. Sod placed around drop inlets can protect them from sediment and help maintain the necessary grade around the inlet.
7. The site should be prepared and ready for laying of sod when it is delivered. Leaving sod stacked or rolled can cause severe damage and loss of plant material.

Specifications

Selection of appropriate types of sod

The type of sod selected should be adapted to both the site and the intended purpose. These are limited to Bermuda, zoysia, centipede, St. Augustine, tall fescue, and Bahia grass. Tall fescue and bahia grass are not readily available but can be obtained from some growers. Species selection is primarily determined by region, availability, and intended use (Table 1).

Table 1
Types of Sod

Warm Season Grasses	Varieties	Adaptable Region
Bermuda grass	Tifway, Tifgreen, Tiflawn, common	North Central South
Bahia grass	Pensacola	Central South
Centipede	No improved varieties	Central South
St. Augustine	Bitterblue, Raleigh, common	South
Zoysia	Emerald, Meyer	South
Cool Season Grasses	**Varieties**	**Adaptable Region**
Tall Fescue	Kentucky 31	North

Sod Quality

Sod should be machine cut at a uniform depth of ½ to 2 inches (excluding shoot growth and thatch). The sections of sod should be strong enough to support their own weight and retain their size and shape when lifted by one end. Sod should be placed within 35 hours of harvest.

Site Preparation

Test soil to determine the exact requirements for lime and fertilizer. Soil test may be conducted by laboratories that make recommendations based on soil analysis. When soil test recommendations are unavailable, the following soil amendments may be sufficient:

a) Agricultural limestone at a rate of 2 tons per acre (100 lbs per 1,000 square foot).
b) Fertilizer at a rate of 1,000 lbs. per acre (25 lbs. per 1,000 square foot) of 10-10-10.

Equivalent nutrients may be applied with other fertilizer formulations. The soil amendments should be spread evenly over the treatment area and incorporated into the top 6 inches of soil by disking, chiseling, or other effective means. If topsoil is applied, follow specifications.

Prior to laying sod, clear the soil surface of trash, debris, roots, branches, stones, and clods larger than 2 inches in diameter. Fill or level low spots in order to avoid standing water. Rake or harrow the site to achieve a smooth and level final grade.

Complete soil preparation by rolling or cultipacking to firm the soil. Avoid using heavy equipment on the area, particularly when the soil is wet, as this may cause excessive compaction and make it difficult for the sod to take root.

Sod Installation

a) Moistening the sod after it is unrolled helps maintain its viability. Store it in the shade during installation.
b) Rake the soil surface to break the crust just before laying sod. During the summer, lightly irrigate the soil, immediately before laying the sod to cool the soil and reduce root burning and dieback.
c) Do not lay sod on gravel, frozen soils, or soils that have been recently sterilized or treated with herbicides.
d) Lay the first row of sod in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger strips in a brick-like pattern. Be sure that the sod is not stretched or overlapped and that all joints are betted tightly to prevent voids. Angled ends caused by the automatic sod cutting must be matched correctly. Use a knife or sharp spade to trip and fit irregularly shaped areas. A sharpened masons trowel can be used to tuck down the ends and trim pieces.
e) Install strips of sod with their longest dimension perpendicular to the slope. On slopes 3:1 or greater, or wherever erosion may be a problem, secure sod with pegs or staples.
f) As sodding of clearly defined areas is completed, roll sod immediately to provide firm contact between roots and soil.
g) After rolling, irrigate until the soil is wet at least 6 inches below the sod.
h) Keep sodded areas moist to a depth of 4 inches until the grass takes root. This can be determined by gently tugging on the sod. Resistance indicates that rooting has occurred.
i) Mowing should not be attempted until the sod is firmly rooted, usually 2 to 3 weeks. Set the mower high (2”-3”).

Sodded Waterways

Sod provides a resilient channel lining, providing immediate protection from concentrated flow and eliminating the need for installing mats or mulch. The following points apply to the use of sod in waterways:

a) Prepare the soil. The sod type must be able to withstand the velocity of flow specified in the channel design.
b) Lay sod strips perpendicular to the direction of flow, with the lateral joints staggered in a brick-like pattern. Edges should butt tightly together.
c) After rolling or tamping to create a firm contact, peg or staple individual sod strips to resist washout during establishment. Jute or other netting material may be pegged over the sod for extra protection on critical areas. Fasten sod firmly at the ends of the strips and in the center, or every 3”-4” if the strips are long. When ready to mow, drive pegs or staples flush with the ground.

Maintenance
After the first week, water as necessary to maintain adequate moisture in the root zone and prevent dormancy of the sod.

Do not remove more than one-third of the shoot in any mowing. Grass height should be maintained between 2 and 3 inches unless otherwise specified.

After the first growing season, established sod requires fertilization and may also require lime.

Follow soil test recommendations when possible.

Table 2
Characteristics of Grasses Used as Sod

Grass	Adaptation					Maintenance	
	Shade	Heat	Cold	Drought	Wear	Mowing Height	Mowing Frequency
Bermuda grass	No	Good	Poor	Excellent	Excellent	1 inch	High
Bahia grass	Fair	Good	Poor	Excellent	Good	2-3 inches	High
Centipede	Fair	Good	Poor	Good	Poor	1½ inch	Low
Tall Fescue	Good	Fair	Good	Good	Good	3 inches	High
St. Augustine	Good	Good	Poor	Poor	Poor	2-3 inches	Medium
Zoysia	Fair	Good	Fair	Excellent	Good	1 inch	High

SOLID WASTE MANAGEMENT (SWM)

Description
Large volumes of solid waste are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. The solid waste management practice lists techniques to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices.

Primary Use
The practices should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the projects.

Applications
The solid waste management practice for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits. Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures:

Targeted Solid Waste Materials
Paper and cardboard containers
Plastic packaging
Styrofoam packing and forms
Insulation materials (non-hazardous)
Wood pallets
Wood cuttings
Pipe and electrical cuttings
Concrete, brick, and mortar waste
Shingle cuttings and waste
Roofing tar
Steel (cuttings, nails, rust residue)
Gypsum board cuttings and waste
Sheathing cuttings and waste
Miscellaneous cutting and waste
Food waste
Demolition waste

Storage Procedures
- Wherever possible, minimize production of solid waste materials.
- Designate a foreman or supervisor to oversee and enforce proper solid waste procedures.
- Instruct construction workers in proper waste procedures.
- Segregate potentially hazardous waste from non-hazardous construction site debris.
- Keep solid waste materials under cover in either a closed dumpster or other enclosed trash container that limits contact with rain and runoff.
- Store waste materials away from drainage ditches, swales and catch basins.
- Do not allow trash containers to overflow.
- Do not allow waste materials to accumulate on the ground.
- Prohibit littering by workers and visitors.
- Police site daily for litter and debris.
- Enforce solid waste handling and storage procedures

Disposal Procedures
- If feasible, segregate recyclable wastes from non-recyclables waste materials and dispose of properly.
- General construction debris may be hauled to a licensed construction debris landfill (typically less expensive that a sanitary landfill).
- Use waste facilities approved by local jurisdiction.
- Runoff which comes into contact with unprotected waste shall be directed into structural treatment such as silt fence to remove debris.

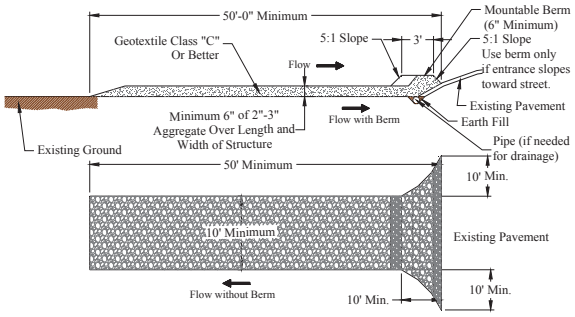
Training
- Train all workers on solid waste storage and disposal procedures.
- If required or applicable, clearly mark on all solid waste containers which materials are acceptable.

Quality Control
- Foreman and/or construction supervisor shall monitor on-site solid waste storage and disposal procedures.
- Discipline workers who repeatedly violate procedures.

Requirements
- Job-site waste handling and disposal education and awareness program.
- Commitment by management to implement and enforce Solid Waste Management Program.
- Compliance by workers.
- Sufficient and appropriate waste storage containers.
- Timely removal of stored solid waste materials.
- Possible modest cost impact for additional waste storage containers.
- Small cost impact for training and monitoring.
- Minimal overall cost impact.

Limitations
Only addresses non-hazardous solid waste.
One part of a comprehensive construction site management program.

Stabilized Construction Entrance (SCE Type I)



Definition
A stabilized layer of aggregate that is underlain with Geotextile Class C (See Standards for Geotextile). Stabilized entrances are located at any point where traffic enters or exits a construction site.

Purpose
The purpose of the stabilized construction entrance is to reduce tracking of sediment onto streets or public rights-of-way and provide a stable area for entrance or exit from the construction site.

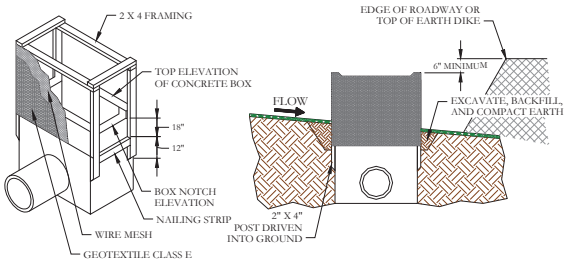
Conditions Where the Practice Applies
1. Stabilized construction entrances shall be located at points of construction ingress and egress.
2. Stabilized construction entrances should not be used on existing pavement.

Design Criteria
1. Length - Minimum of 50'-0" (30'-0" for single residence lot).
   *Arlington, TX Length - Minimum of 75'-0" with Silt Fence.
2. Width - Minimum of 10'-0", should be flared at the existing road to provide a turning radius.
   *Arlington, TX Width - Minimum of 25'-0"
3. Geotextile Class C shall be placed over the existing ground prior to placing stone.
4. Stone-crushed aggregate 2"-3" (See Standards for Geotextile and Rock). Recycled concrete equivalent also may be used. The rock should be placed at least 6" deep over the length and width of the entrance.
5. Surface Water - All the surface water flowing to or diverted toward construction entrances shall be piped under the entrance to maintain positive drainage. Pipe installed under the construction entrance shall be protected with a mountable berm. The pipe shall be sized according to the drainage, with the minimum diameter being 6".
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or exits a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance. (Check local requirements)
7. Offset from paved entrance. Arlington, Texas requires silt fence on both sides of entrance.

Maintenance
If stone compacts, raking is required. Add more stone if needed. Clean up fugitive sediment. Wash wheels into approved trap if necessary. Daily maintenance is required.

Standard or Box Inlet Protection (SIP)

(During Construction)



Definition

A Best Management Practice filter constructed of Geotextile Fabric Class E and a wooden frame around a storm drain box inlet. (See Material Specifications)

Purpose

Prevent sediment and pollutants from entering the storm water pipe system during construction.

Conditions Where the Practice Applies

It is a secondary sediment control device used as a backup in case sediment is transported from the primary source of erosion.

Design Criteria

The maximum drainage area is 1/4 acre.

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

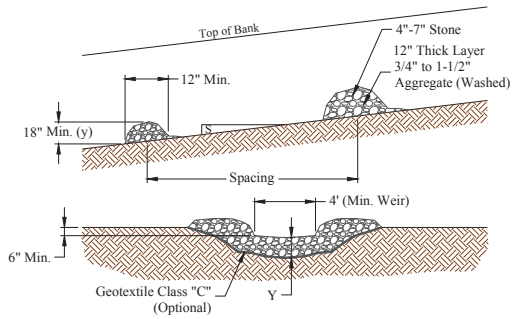
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

Maintenance

The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

Insure that leakage is not occurring along the bottom of the filter fabric. Keep soil compacted around the base. Remove sediment and trash deposited around the filter cloth after each rain event. Dispose of sediment and trash at a proper location.

Stone Check Berm (CB)



Definition

Stone check berms are stone weirs in series in swales and ditches.

Purpose

Stone check berms are constructed to reduce runoff velocities to non-erosive rates and to prevent channel erosion in drainage courses.

Design Criteria

1. Stone check berms shall be located so as to provide maximum velocity reduction. This may be achieved by considering the volume of runoff, the drainage area and the slope. The check berms should be placed in reasonably straight ditch sections to minimize the potential for erosion in the channel bend. All stone check berms should be keyed into the sides and bottom of the channel. This is not to be used as a sediment trapping device. Sediment laden runoff must pass through a sediment trapping device prior to being discharged from the site.
2. The distance between the stone check berms will vary with the longitudinal ditch slope. Stone check berms shall be constructed using 4"-7" stone (See Materials Specifications, Stone Size) or recycled concrete equivalent and shall be placed to form a weir. The outlet crest or top of the stone weir shall be approximately 6 inches lower than the outer edges. The inside or upstream side of the weir shall be lined with a 1-foot thick layer of washed (¾" to 1½") crushed aggregate. Use of Geotextile Class E (See Materials Specifications, Geotextiles) or better under the bottom and sides of the berm prior to placement of stone is optional.

3. The height of the stone outlet weir should not exceed 1/3 the ditch or swale. Additionally, the maximum height of the weir must not exceed 2 feet to prevent scour of the toe of the berm. If the check berm exceeds this, these provisions do not apply and an engineering analysis should be conducted. The stone check berm should be wide enough to reach from bank to bank of the ditch or swale with the weir section length in the center of the berm.
4. The number of check berms will depend on the length and slope of the ditch or swale. The required spacing is determined as:
   x = y/S where
   x = check berm spacing in Feet
   y = check berm height in Feet
   S = natural Channel Slope Ft./Ft.

The spacing is most sensitive to channel slope and height of berm.

Construction Specifications

Swales and ditches shall be prepared in accordance with the construction specifications described in the standards and specifications for a temporary swale.

The check berm shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and is keyed into the channel banks.

The top of the check berm shall be constructed so the center is approximately 6" lower than the outer edges, forming a weir that water can flow across.

The maximum height of the check berm at the center shall not exceed 2'.

The upstream side of the check berm shall be lined with approximately 1' of 0.75" to 1.5" aggregate.

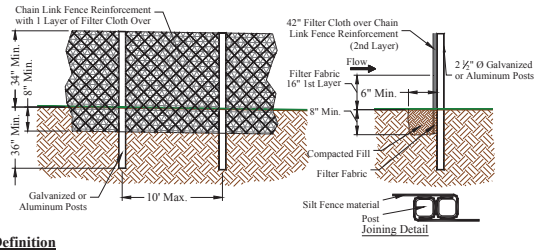
Standard Stone Check Berm Design

Slope	Spacing
2% or less	80'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
Over 10%	Used lined waterway design (Requires Professional Engineer)

Maintenance

Check after each rain event. Accumulated sediment shall be removed when it has built up to half of the original height of the weir crest. Do not allow water to run around the ends of the berm. This causes erosion and makes the berm ineffective. Do not remove the berm until the ditch is permanently stabilized. Replace rock or stones lost during rain events.

Super Silt Fence (SSF)



Definition

A temporary barrier of Geotextile Class F over chain link fence reinforcement used to intercept sediment laden runoff from small drainage areas. (See Material Specifications)

Purpose

The purpose of Super Silt Fence is to reduce velocity and allow the deposition of transported sediment to occur. Limits imposed by ultraviolet light on the stability of the fabric will dictate the maximum period that the silt fence may be used.

1. Super Silt Fence provides a barrier that can collect and hold debris and soil, preventing the material from entering critical areas, streams, streets, etc.
2. Super Silt Fence can be used where the installation of a dike would destroy sensitive areas, woods, wetlands, etc.

Design Criteria

Steel posts must be used. Super Silt Fence should be placed as close to the contour as possible. No section of silt fence should exceed a grade of 5 percent for a distance more than 50 feet. Where ends of the geotextile fabric meet, they shall be overlapped. Roll the fabric ends around each end post, overlap, and butt posts together tightly. Fasten with wire, staples, or other durable ties. Fencing shall be 42" in height and constructed in accordance with the details for Chain Link Fencing. Use 42" fabric and 6' length posts.

1. The poles do not need to be set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid-section.
4. Filter cloth shall be embedded a minimum of 8" into the ground with a 6" wide trench.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

The length of the flow contributing to Super Silt Fence shall conform to the following limitations.

Slope (%)	Slope Steepness	Slope Length (Ft.) (Maximum)	Silt Fence Length (Ft.) (Maximum)
0-10	0-10:1	Unlimited	Unlimited
10-20	10:1-5:1	200	1,500
20-33	5:1-3:1	100	1,000
33-50	3:1-2:1	100	500
50 +	2:1 +	50	250

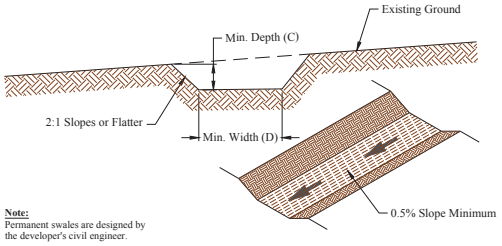
Maintenance

Maintenance shall be performed as needed and silt buildups removed when bulges develop in the super silt fence or when silt reaches 50% of the fence height.

The super silt fence will be inspected daily for damage by construction equipment. Particular attention should be given to "toe-in" and connections.

Swale (SW)

(Temporary/Permanent)



Note:
Permanent swales are designed by the developer's civil engineer.

Definition

A swale is an excavated drainageway constructed and located to convey runoff to a desired location. It may be permanent or temporary.

Purpose

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device. A permanent swale is part of the permanent stormwater management system and is permanently stabilized with vegetation or by other means.

Conditions Where the Practice Applies

Swales are constructed:

1. To divert sediment laden runoff from a disturbed area to a sediment trapping device.
2. Across disturbed areas to shorten overland flow distances.
3. To direct sediment laden water along the base of slopes to a trapping device.
4. To divert clear water from an undisturbed area to a stabilized outlet. Runoff shall be discharged at non-erosive velocities.
5. As a permanent Best Management Practice to remove storm water from lots in housing or commercial developments.

Design Criteria

The basis for engineering design shall be the 2-year, 24-hour duration storm using N.R.C.S. criteria, assuming the worst soil cover conditions to prevail in the contributing drainage area over the life of the earth dike. Manning's Equation shall be used to determine flow channel velocities associated with the developed discharges. The Manning's Roughness coefficients to be used in the equation are 0.025 for seed and mulch, 0.03 for soil stabilization matting or sod, and for 4"-7" stone use 0.045 for flow depths up to 1 foot, and 0.038 for flow depths between 1 and 2 feet. Allowable flow channel velocities shall be less than 4 fps for seed and mulch, less than 6 fps for stabilization matting or sod, and less than 8 fps for 4"-7" stone.

Table 1

	Swale A	Swale B
Drainage Area	Table 2	Table 3
Slope	Table 2	Table 3
Bottom Width	4' Minimum	6' Minimum
Depth	1' Minimum	1' Minimum
Side Slopes	2:1 or Flatter	2:1 or Flatter

For slopes or drainage areas other than specified on Table 2 or 3, a professional engineer's design is required. If the slope of the swale or the drainage area contributing to the swale falls between values on Table 2 or 3, round up to the next higher slope or drainage area.

Stabilization of the swale shall be completed after installation.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Swales having longitudinal slopes flatter than 1% should have spot elevations along the flow line.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity (≤) 4 fps for grass).
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale flow channel.
5. The swale shall be excavated or shaped to line, grade and cross section as required, meeting the criteria specified herein and being free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed on construction shall be placed so that it will not interfere with the functioning of the swale flow channel.
8. Inspection and maintenance must be provided periodically and after each rain event.

Stabilization

Stabilization of the temporary swale shall be completed in accordance with the standards and specifications. The temporary swale flow channel shall be stabilized in accordance with Table 2 or Table 3 and the following criteria:

Flow Channel Stabilization Methods

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil in a minimum 7" layer.

The temporary swale type (A or B) and lining (1, 2, or 3) shall be shown on the plans using the standard symbol. Temporary swale type and lining may vary along its length.

In highly erodible soils, as defined by the local approval agency, refer to the next higher slope grade for the type of stabilization.

Engineering Design Criteria

Engineering design may preempt the use of Table 2 or Table 3. The basis for the engineering design shall be in the 2-year, 24-hour duration storm, assuming the worst soil cover conditions to prevail in the contributing drainage area over the life of the temporary swale. Manning's Equation shall be used to determine temporary swale flow channel velocities associated with the developed discharges. The Manning's Roughness coefficients to be used in the equation are 0.025 for seed and mulch, 0.03 for soil stabilization matting or sod, and for 4" – 7" stone use 0.045 for flow depths up to 1 foot and 0.038 for flow depths between 1 and 2 feet. The allowable flow channel velocities shall be less than 4 fps for seed and mulch, less than 6 fps for Stabilization Matting or sod, and less than 8 fps for 4" – 7" stone.

Outlet

1. Temporary swales must have an outlet that functions without causing erosion.
2. Runoff from disturbed areas shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.
3. The location may need to be adjusted to meet field conditions.
4. Clear water diversions around disturbed areas shall be discharged onto an undisturbed, stabilized area or watercourse at a non-erosive velocity.

Maintenance

Inspect after rain events for signs of erosion. Revegetate as required. Remove sediment deposition and dispose of sediment in a proper designated location. Check the outlet of the swale for signs of erosion and protect as necessary. Maintain the positive grade of the swale. Maintain stabilization recommendations.

Table 2: Temporary Swale Selection

4' Flat Bottom

	Drainage Area (acres)									
Slope %	1	2	3	4	5	6	7	8	9	10
1	Seed	and				4				
2	Mulch		4	4	4					
3		4		Seed	And	Soil	Stabilization		6	6
4					Matting			6		
5	4*						6			
6						6				
7					6			4" – 7" Stone Pressed		
8				6				7" (Min.) Into Ground		
9										
10			6							

*Velocity of discharge in feet/second

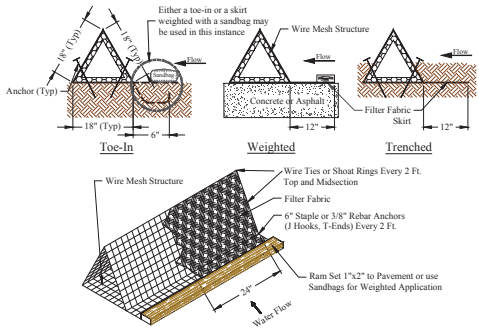
Table 3: Temporary Swale Selection

6' Flat Bottom

	Drainage Area (acres)									
Slope %	1	2	3	4	5	6	7	8	9	10
1	Seed	and				4				
2	Mulch		4	4	4					
3		4		Seed	And	Soil	Stabilization		6	6
4					Matting			6		
5	4*						6			
6						6				
7					6			4" – 7" Stone Pressed		
8								7" (Min.) Into Ground		
9										
10				6						

*Velocity of discharge in feet/second

Triangular Filter Fabric Fence (TFFF)



Definition

A temporary sediment barrier constructed of wire mesh & Geotextile Fabric Class E used where laden runoff from small drainage areas occurs. (See Material Specifications)

Purpose

The purpose is to reduce runoff velocity and filter sediment from construction areas.

Conditions Where the Practice Applies

A triangular filter fabric fence is effective on all sites with concrete or asphalt surfaces where runoff will flow onto adjacent properties from parking lots or similar areas, but not exceed a maximum of 1/4 acres of drainage area.

Design Criteria

1. Dikes are to be installed along a line of constant elevation (along a contour line).
2. Maximum slope perpendicular to the dike is 1:1.
3. Maximum drainage flow to the dike shall be 11 CFS per 100 linear feet of dike.
4. Maximum distance of flow to dike should be 200 feet or less.
5. Maximum concentrated flow to dike shall be 1 CFS.
6. If 50% or less of soil, by weight, passes the U.S. Standard Sieve #200, select the equivalent opening size (E.O.S.) to retain 85% of the soil.
7. Maximum equivalent opening size shall be 70 (#70 Sieve).
8. Minimum equivalent opening size shall be 100 (#100 Sieve).

9. If 85% or more of soil, by weight, passes the U.S. Standard Sieve #200, triangular sediment dike shall not be used due to clogging.
10. Sufficient room for the operation of sediment removal equipment shall be provided between the dike and other obstructions in order to properly remove sediment.
11. The ends of the dike shall be turned upgrade to prevent bypass of stormwater.

Limitations

Ponding may occur directly adjacent to the dike, which may possibly cause flooding. Remove if a potential for damage exists.

Triangular sediment filter dikes are not effective for conditions which include substantial concentrated flows or when they are not constructed along a contour line due to the potential for flow concentration and overtopping.

Maintenance

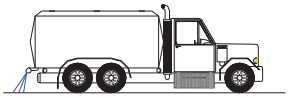
Inspection should be made on a regular basis, especially after large (>0.5") storm events. If the fabric becomes clogged, it should be cleaned, or if necessary, replaced.

Sediment should be removed when it reaches approximately 6" in depth. In addition, inspections should be made on a regular basis to check the structural integrity of the dike. If structural deficiencies are found, the dike should be repaired or replaced immediately.

As with silt fence, integrity of the filter fabric is important to the effectiveness of the dike. Overlap between dike sections must be checked on a regular basis and repaired if deficient.

Check to insure that sediment is not going under the front of the fabric.

Wind Erosion Control (WEC)



Definition
A Best Management Practice to prevent or alleviate dust nuisance generated by construction activities.

Conditions Where the Practice Applies
Wind Erosion BMP's are suitable during the following construction activities:

- Construction Vehicle traffic on unpaved roads
- Sediment tracking onto paved roads
- Batch drop from front-end loaders
- Final grading/site stabilization
- Drilling and blasting activities
- Soils and debris storage piles
- Areas with unstabilized soil

Design Criteria

- Water prevents dust only for a short period and should be applied daily (or more often) to be effective.
- Over watering may cause erosion
- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil
- Effectiveness depends on soil, temperature, humidity, and wind velocity.
- Chemically treated sub grades may make the soil water repellent, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- Asphalt, as a mulch tack or chemical mulch, requires a 24-hour curing time to avoid adherence to equipment, worker shoes, etc. Application should be limited because asphalt surfacing may eventually migrate into the drainage system.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.

SITE CONDITION	DUST CONTROL PRACTICES								
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel Or Asphalt	Silt Fences	Temporary Gravel Construction Entrances/Equipment Wash Down	Haul Truck Covers	Minimize Extent Of Disturbed Area
Disturbed Areas not Subject to Traffic	■	■	■	■	■				■
Disturbed Areas Subject to Traffic			■	■	■		■		■
Material Stock Pile Stabilization			■	■		■			■
Demolition			■				■	■	
Clearing/Excavation			■	■		■			■
Truck Traffic on Unpaved Roads			■	■	■		■	■	
Mud/Dirt Carry Out					■		■		

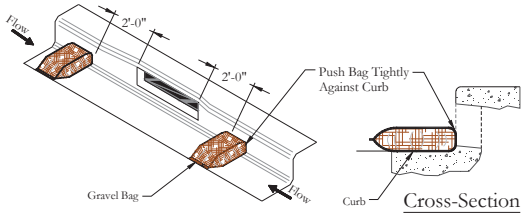
Additional Preventative Measures include:

* Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.
* Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
* Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and vehicle wash down areas.
* Materials applied as temporary soil stabilizers and soil binders also generally provide wind erosion control benefits.
* Quickly stabilize exposed soils using vegetation, mulching, spray-on adhesives, calcium chloride, sprinkling, and stone/gravel layering.
* Limit the amount of areas disturbed by clearing and earth moving operations by scheduling these activities in phases.
* Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
* Stabilize inactive construction sites using vegetation or chemical stabilization methods.
* Schedule construction activities to minimize exposed area.
* Identify and stabilize key access points prior to commencement of construction.
* Minimize the impact of dust by anticipating the direction of prevailing winds.
* Direct most construction traffic to stabilized roadways within the project site.
* All distribution equipment should be equipped with a positive means of shutoff.
* Provide covers for haul trucks transporting materials that contribute to dust.
* Provide for wet suppression or chemical stabilization of exposed soils.

Reference:

This information taken from the California Stormwater BMP Handbook
Published by the California Stormwater Quality Association
January 2003

Curb Storm Drain Inlet Protection with Gravel Bags (CIP Type VIII)



Definition
A filter constructed around a storm drain inlet by using gravel bags and filter fabric. (See Material Specifications)

Purpose
Storm drain inlet protection is used to filter sediment laden runoff before it enters the storm drain system.

Conditions Where the Practice Applies
Storm drain inlet protection is a secondary sediment control device and is not to be used in place of a sediment trapping device unless approved by the appropriate approval authority.

Design Criteria
Place graded gravel bags as shown. Storm drain inlet protection shall be used when the drainage area to an inlet is disturbed and the following conditions prevail:

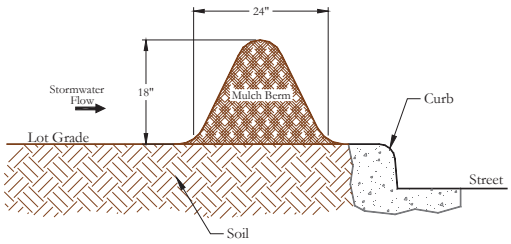
1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device.
2. Watertight blocking of the inlets is not allowed by regulations or ordinances.
3. Drainage area is less than 1/4 acre for curb or standard inlet.

Several methods of covering inlets have been developed recently. It is important to use methods that have proven effective. Follow local ordinances. Some communities do not allow covering of storm inlets due to the possibility of increased flooding. Several other important design considerations include traffic safety, elimination of seepage at the ends and underneath the filter cloth, and preventing the filter from entering the inlet.

Maintenance
Maintenance requirements for storm drain inlet protection are intense, due to the susceptibility to clogging. When the curb gutter does not drain completely within 24 hours after a storm event, it is clogged. When this occurs, accumulated sediment must be removed and the gravel bag must be cleaned and replaced.

Check the bags and filter cloth regularly to insure they are not torn or clogged. If clogged or torn, replace immediately. Keep clean bags on hand to use as replacements. If reusable, wash bags and filter cloth in an appropriate facility. Remove any sediment and trash that has accumulated in front of the bag in the gutter and dispose of it in a proper location.

Mulch Berm (Type II)



Definition
A temporary berm used along the street curb to intercept sediment laden runoff from homebuilding sites. It is composed of wood fibers and wood chips ground from untreated waste lumber or trees and is used as a substitute for silt fence on lots that are uniformly graded where sheet flow rather than concentrated flow conditions exist.

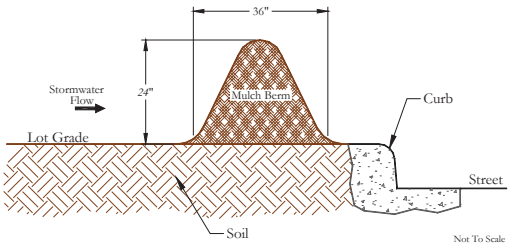
Purpose
The purpose is to reduce the velocity of sediment laden water causing sediment deposition in front of the berm. The berm can also have a filtering effect on sediment laden water.

Conditions Where the Practice Applies
Use mulch berms in place of silt fence, erosion control blankets or fiber rolls where conditions and regulations allow. It is 100% organic and biodegradable and does not harm the environment. Vehicles or equipment can be driven over the berm; however the dimensions of the berm must be maintained for effectiveness. After construction, the material can be used as mulch or soil conditioner on the lot. The practice does not include the use of other waste products such as ground wallboard or processed mulch. The use of this practice is not recommended around perimeters of large drainage areas such as developments.

Design Criteria
Stockpile wood chips on lot for replacement or use. Unless otherwise directed, construct a 24" wide by 18" high berm as shown above. In some special cases where the drainage area is larger than a normal lot size, increase the dimensions to 18" high and 36" wide. A tackifier or spray may be applied for additional strength or effectiveness if necessary. Follow the manufacturer's recommendations when using additives. Do not use chemically pressure treated waste lumber. Special machines are available that blow and construct the berms to specified dimensions. Usually about 25 percent of the berm consists of fibers less than 2 inches in length.

Maintenance
Prevent material from entering the street. Clean streets immediately if necessary. Frequent maintenance may be required to insure the BMP's effectiveness. Hand raking may be necessary to maintain the berm. Routinely inspect and maintain the filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed after the lot has received final stabilization.

12' Length Access Mulch Berm



Definition
A temporary berm used along the street curb at access points to intercept sediment laden runoff from homebuilding sites. It is composed of wood fibers and wood chips ground from untreated waste lumber or trees and is used as a substitute for silt fence on lots that are uniformly graded where sheet flow rather than concentrated flow conditions exist.

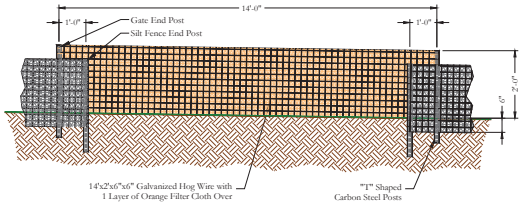
Purpose
The purpose is to reduce the velocity of sediment laden water causing sediment deposition in front of the berm. The berm can also have a filtering effect on sediment laden water.

Conditions Where the Practice Applies
Use mulch berms in place of silt fence, erosion control blankets or fiber rolls where conditions and regulations allow. It is 100% organic and biodegradable and does not harm the environment. Vehicles or equipment can be driven over the berm; however the dimensions of the berm must be maintained for effectiveness. After construction, the material can be used as mulch or soil conditioner on the lot. The practice does not include the use of other waste products such as ground wallboard or processed mulch. The use of this practice is not recommended around perimeters of large drainage areas such as developments.

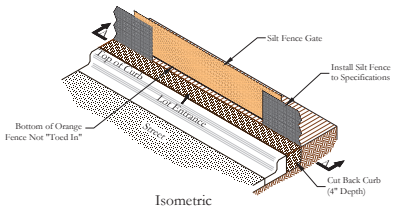
Design Criteria
Stockpile wood chips on lot for replacement or use. Unless otherwise directed, construct a 12' long, 36" wide by 24" high berm as shown above. A tackifier or spray may be applied for additional strength or effectiveness if necessary. Follow the manufacturer's recommendations when using additives. Do not use chemically pressure treated waste lumber. Special machines are available that blow and construct the berms to specified dimensions. Usually about 25 percent of the berm consists of fibers less than 2 inches in length.

Maintenance
Prevent material from entering the street. Clean streets immediately if necessary. Frequent maintenance may be required to insure the BMP's effectiveness. Hand raking may be necessary to maintain the berm. Routinely inspect and maintain the filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed after the lot has received final stabilization.

Silt Fence Gate (SFG)



Section A-A



Isometric

Definition
A temporary gate or barrier installed in the driveway or as a temporary construction entrance of a housing lot before the driveway paving is installed. It is used with a cutback curb in the entrance.

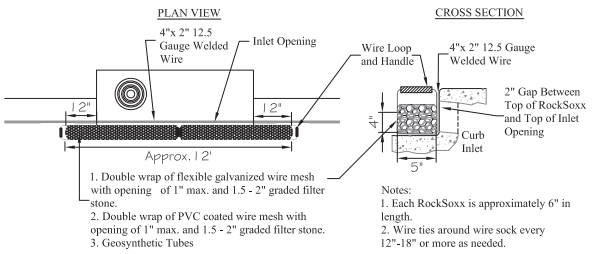
Purpose
The purpose is to prevent vehicles from entering and exiting the driveway under muddy conditions which would result in the mud being tracked into the street.

Conditions Where the Practice Applies
The practice can be used where a temporary stabilized construction entrance with rock or other paving will not be installed.

Installation
Follow the above illustration when installing the practice. The cutback curb should be installed only when silt fence will be installed along the front of the lot. Since the gate area will be opened, the bottom of the gate will not require "toe-in".
The gate end post will not need to be driven into the ground each time the gate is opened as the gate will wrap around the T-posts at each end. The silt fence along the front of the lot shall be installed in accordance with silt fence specifications which includes toe-in of the fence bottom.

Maintenance
The barrier should not be opened under muddy conditions. Check the cutback curb after each rain event and maintain required volume in the cutback curb. Sediment taken from the cutback curb shall be disposed of on the lot.

Curb Storm Drain Inlet Protection
(Trinity Green Services RockSoxx™)



Definition
A filter constructed around a storm drain inlet.
RockSoxx are a portable section of wire mesh berm containing 1.5 - 2" graded filter stone.

Purpose
Storm drain inlet protection is used to filter sediment laden run-off before it enters the storm drain system. RockSoxx are designed for use as a low grade sediment control device or as filtration for curb inlet locations.

Conditions where the Practice Applies
Storm drain inlet protection is a secondary sediment control device and is not to be used in place of a sediment trapping device unless approved by the appropriated approval authority.

Design Criteria
Storm drain inlet protection shall be used when the drainage area to an inlet is disturbed and the following conditions prevail:

1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device.
2. Watertight blocking of the inlets is not advisable.

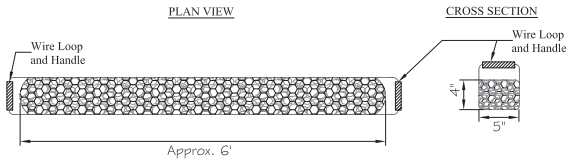
Maintenance Requirements
Maintenence requirements for RockSoxx are simple, but must be followed due to the susceptibility to clogging.

When there is a build-up of sediment after a rain event that reaches half the height of the RockSoxx, the RockSoxx must be cleaned and reinstalled.

Individual RockSoxx Approximate Weight: 65 lbs.

Trinitygreen
751 Hebron Parkway, Suite 225
Lewisville, TX 75057
(214)446-9500 Office
(214)446-9501
www.TrinityGRN.com

Portable Rock Berm
(Trinity Green Services RockSoxx™)



Definition

Rock Soxx are a portable section of wire mesh berm containing 1.5 - 2" graded filter stone.

Purpose and Conditions Where the Practice Applies

Rock Soxx are designed for use as a low grade sediment control device or as filtration for curb inlet locations.

Design Criteria

Rock Soxx can be used as a stand alone device or as a rock berm/dam to reduce run-off velocities to non-erosion rates and to prevent channel erosion in drainage courses.
1. In areas of excessive slope, minimal trenching may be required.
2. Metal or wooden posts may be required for high velocity or steep slope locations.

Rock Soxx can be used for storm drain and curb inlet protection when the drainage area to an inlet is disturbed and the following conditions prevail:

1. It is not possible to temporarily divert the storm drain outfall into a sediment trapping device.
2. Watertight blocking of the inlets is not advisable.

Maintenance Requirements

Maintenence requirements for Rock Soxx are simple, but must be followed due to the susceptibility to clogging.

When there is a build-up of sediment after a rain event that reaches half the height of the Rock Soxx, the Rock Soxx must be cleaned and reinstalled.

Individual Rock Soxx Approximate Weight: 65 lbs.

Trinitygreen
751 Hebron Parkway, Suite 225
Lewisville, TX 75057
(214)446-9500 Office
(214)446-9501
www.TrinityGRN.com

Definition

"Qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls and who possesses the skills to assess conditions at the site that could impact stormwater quality and the effectiveness of the BMPs selected to control the quality of the stormwater discharges.

Stormwater Construction Inspector Qualifications	
Inspector's Name	**See Attachments**
Training Received	
Training Covered	
Construction Experience	
Installing Sediment and Erosion Control Experience	
Stormwater Construction Inspection Experience	

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Abigail McCleary Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on April 15, 2009
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning April 2009 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Abigail McCleary

has completed the course

Storm Water Compliance Inspector Training

April 15, 2009

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Alvin Ramee Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on April 18, 2017
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning April 2017 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Alvin Ramee

has completed the course

Storm Water Compliance Inspector Training

April 18, 2017

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	Blake Reed Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on April 5, 2023
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning April 2023 to Present

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	C.J. McCormick Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on August 20, 2008 - Construction Stormwater Inspector Training on January 10, 2005
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning January 2005 to Present

Qualified Storm Water Construction Inspector

C.J. McCormick

has completed a five-hour Storm Water Inspector Training for General Construction course covering storm water regulations, storm water pollution prevention plans, best management practices, site inspection procedures, endangered species and historical preservation impacts and is now qualified to perform storm water site inspections.

Company: Paradigm Engingeering Date of Training: January 10, 2005

STATE OF TEXAS JOHNNY D. COMBS 69341 REGISTERED PROFESSIONAL ENGINEER

Johnny D. Combs, P.E., REM, CPSWQ
Paradigm Engineering

PARADIGM

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	David Simpson Qualified Stormwater Compliance Inspector CESSWI #6008
Training Received	- CESSWI Inspector Certification on September 20, 2021 - Construction Stormwater Inspector Training on June 18, 2018
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning June 2018 to Present

EnviroCert International, Inc.®

certifies that

David Alan Simpson

Subscribes to the Code of Ethics and Professional Conduct and has met the requirements established for the CESSWI™ Program as a

Certified Erosion, Sediment and Storm Water Inspector™

CESSWI™ Number: 6008 Certificate Date: September 20, 2021

Robert Anderson, EnviroCert Board President

Jim O'Loughlin, EnviroCert Technical Advisory Council

CESSWI

The CESSWI™ Certification was established in 2007

Trinity Green Services

Certificate of Training

This is to certify that

David Simpson

has completed the course

Storm Water Compliance Inspector Training

June 18, 2018

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	Derrick Summrell Qualified Stormwater Compliance Inspector CESSWI #1573
Training Received	- City of Dallas Construction Workshop on March 26, 2014 - CESSWI Inspector Certification on June 7, 2011 - Construction Stormwater Inspector Training on December 1, 2010 - Industrial Stormwater Inspector Training on October 5, 2008 - Construction Stormwater Inspector Training on October 2, 2006
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning March 2006 to Present

CITY OF DALLAS
TRINITY WATERSHED MANAGEMENT
STORMWATER MANAGEMENT

certifies that

Derrick Summrell

has satisfactorily completed a professional 3-hour Construction Workshop in

Texas Pollutant Discharge Elimination System (TPDES)
Construction Permit Requirements

issued this 26th day of March 2014

THE TRINITY DALLAS

Susan G. Alvarez, P.E., CPM
Sr. Program Manager, SWM

Stormwater Management

The CESSWI™ Application Review Committee
certifies that

Derrick Lee Summrell

Subscribes to the Code of Conduct and Ethics and has met the requirements established by the CESSWI Council as a

Certified Erosion, Sediment and Storm Water Inspector™

An EnviroCert International, Inc. Program

Certification Number: 1573

Certification Date: June 7, 2011

Chair, CESSWI Council

CESSWI Program Manager

The CESSWI Program was established in 2007.

Trinity Green Services

Certificate of Training

This is to certify that

Derrick Summrell

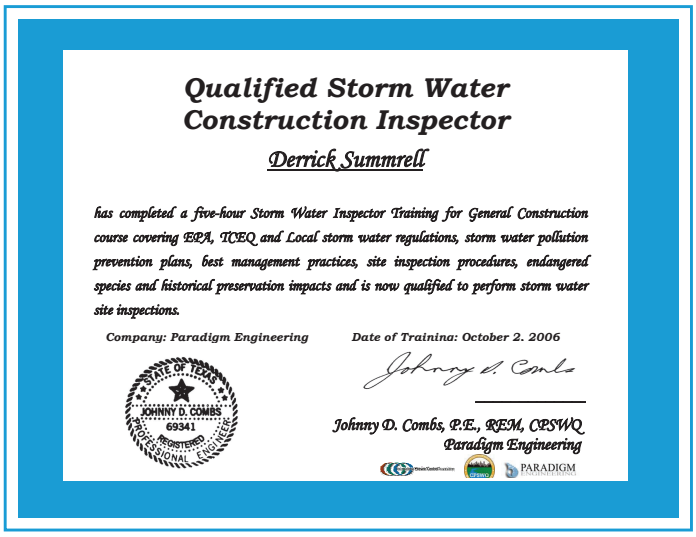
has completed the course

Storm Water Compliance Inspector Training

December 1, 2010

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts. This individual completed the requirements of this course and is now qualified to perform storm water site inspections.

Trinitygreen



Qualified Storm Water Construction Inspector

Derrick Summrell

has completed a five-hour Storm Water Inspector Training for General Construction course covering EPA, TCEQ and Local storm water regulations, storm water pollution prevention plans, best management practices, site inspection procedures, endangered species and historical preservation impacts and is now qualified to perform storm water site inspections.

Company: Paradigm Engineering

Date of Trainina: October 2. 2006

STATE OF TEXAS JOHNNY D. COMBS 69341 REGISTERED PROFESSIONAL ENGINEER

Johnny D. Combs, P.E., REM, CPSWQ
Paradigm Engineering

PARADIGM

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Eric Chandler Qualified Stormwater Compliance Inspector CESSWI #3600
Training Received	- San Antonio Water System Stormwater Compliance Workshop on June 16, 2016 - San Antonio Water System Stormwater Compliance Workshop on October 23, 2014 - CESSWI Inspector Training on August 5, 2013 - Construction Stormwater Inspector Training on August 20, 2008 - Construction Stormwater Inspector Training on May 8, 2008 - Bachelor of Science Degree in Geography, Resource, and Environmental Studies – Texas State University
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning May 2008 to Present

CERTIFICATE Of COMPLETION

Recognizing

Eric E. Chandler

For having attended the San Antonio Water System

TPDES Storm Water Compliance Workshop

June 16, 2016
(5 hours)

San Antonio Water System

Robert Martinez, Manager
Resource Protection and Compliance

Scott R. Halty, Director
Resource Protection and Compliance

CERTIFICATE of COMPLETION

recognizing

Eric E. Chandler

for having attended the San Antonio Water System

TPDES Storm Water Compliance Workshop

23 October 2014
(6 hours)

San Antonio Water System

Philip Handley, Supervisor
Construction Compliance Section

Scott R. Halty, Director
Resource Protection and Compliance Department

The CESSWI™ Application Review Committee
certifies that

Eric Edward Chandler

Subscribes to the Code of Conduct and Ethics and has met the requirements established by the CESSWI Council as a

Certified Erosion, Sediment and Storm Water Inspector™

A Division of EnviroCert International, Inc.

Certification Number: 3600

Certification Date: August 5, 2013

Charles R. Wilson Jr.
Program Director

The CESSWI Program was established in 2007.

Trinity Green Services

Certificate of Training

This is to certify that

Eric Chandler

has completed the course

Storm Water Compliance Inspector Training

August 20, 2008

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Paradigm University

Certificate of Training

Qualified Storm Water Inspector

is hereby presented to

Eric Chandler

on

May 8, 2008

for completing the requirements of the Paradigm Engineering Storm Water Inspector Training for General Construction outlining EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation, site inspection procedures, endangered species and historical preservation impacts and is now qualified to perform storm water site inspections.

JOHNNY D. COMBS 69341

paradigm

Johnny D. Combs
P.E., REM, CPSWQ, CPESC, CESSWI

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	Jacob Lansdon Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on August 10, 2022
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning August 2022 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Jacob Lansdon

has completed the course

Storm Water Compliance Inspector Training

August 10, 2022

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation, site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Jeremy Castillo Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on September 26, 2022
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning September 2022 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Jeremy Castillo

has completed the course

Storm Water Compliance Inspector Training

September 26, 2022

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation, site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Justin Adams Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on April 1, 2016 - M.S. in Environmental Science 2011
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning April 2016 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Justin Adams

has completed the course

Residential Storm Water Compliance Inspector Training

April 1, 2016

This course outlined EPA and State storm water regulations, storm water pollution prevention plans, best management practice implementation, and site inspection procedures. This individual completed the requirements of this course and is now qualified to perform storm water site inspections.

QPmAz2I9Z3

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Lance Dunnahoe Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on May 7, 2017
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning May 2017 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Lance Dunnahoe

has completed the course

Storm Water Compliance Inspector Training

May 7, 2017

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Liana Caldera Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on August 30, 2023
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning August 2023 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Liana Caldera

has completed the course

Storm Water Compliance Inspector Training

August 30, 2023

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation, site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Linda McCleary Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on August 1, 2008 - Construction Stormwater Inspector Training on March 19, 2004
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning March 2004 to Present

Trinity Green Services

Certificate of Training

This is to certify that

Linda McCleary

has completed the course

Storm Water Compliance Inspector Training

August 20, 2008

This course outlined EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation,site inspection procedures, endangered species and historical preservation impacts.

Trinitygreen

Qualified Storm Water Construction Inspector

Linda J. McCleary

has completed a five-hour Storm Water Inspector Training for General Construction course covering storm water regulations, storm water pollution prevention plans, best management practices, site inspection procedures, endangered species and historical preservation impacts and is now qualified to perform storm water site inspections.

Company: Paradigm Engineering, LTD *Date of Training: March 19, 2004*

STATE OF TEXAS JOHNNY D. COMBS 69341 REGISTERED PROFESSIONAL ENGINEER

Johnny D. Combs, P.E., REM, CPSWQ
Paradigm Engineering

PARADIGM

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	Raymond Segovia Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on September 5, 2023
Training Covered	The training covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning September 2023 to Present

Trinitygreen

Stormwater Inspector Qualifications

Stormwater Construction Inspector Qualifications	
Inspector's Name	Rusty Combs Qualified Stormwater Compliance Inspector
Training Received	- Construction Stormwater Inspector Training on August 20, 2008 - Construction Stormwater Inspector Training on December 28, 2007
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning December 2007 to Present

Paradigm University

Certificate of Training

Qualified Storm Water Inspector

is hereby presented to

Rusty Combs

on

December 28, 2007

for completing the requirements of the Paradigm Engineering Storm Water Inspector Training for General Construction outlining EPA, State, and Local storm water regulations, storm water pollution prevention plans, best management practice implementation, site inspection procedures, endangered species and historical preservation impacts and is now qualified to perform storm water site inspections.

paradigm

Johnny D. Combs
P.E., REM, CPSWQ, CPESC, CESSWI

Trinitygreen

Stormwater Construction Inspector Qualifications	
Inspector's Name	Shana Swain Qualified Stormwater Compliance Inspector CESSWI #4569
Training Received	- SAWS Storm Water Compliance Workshop on June 16, 2016 - CESSWI Inspector Certification on October 30, 2015 - Construction Stormwater Inspector Training on June 29, 2015
Training Covered	The trainings covered EPA, State, and Local Stormwater Regulations, Stormwater Pollution Prevention Plans (SWP3s), Best Management Practice (BMP) proper installation and maintenance, and site inspection procedures.
Construction & Stormwater Experience	Beginning June 2013 to Present

CERTIFICATE
Of
COMPLETION

Recognizing

Shana Swain

For having attended the San Antonio Water System

TPDES Storm Water Compliance Workshop

June 16, 2016
(5 hours)

San Antonio Water System

Robert Martinez, Manager
Resource Protection and Compliance

Scott R. Halty, Director
Resource Protection and Compliance

EnviroCert International, Inc.®

certifies that

Shana Marie Swain

Subscribes to the Code of Conduct and Ethics and has met the requirements established for the CESSWI™ Program as a

Certified Erosion, Sediment and Storm Water Inspector™

CESSWI Number: 4569

Certificate Date: October 30, 2015

Alan Black, Director, Technical Committee Chair

Robert Anderson, EnviroCert Board President

CESSWI

The CESSWI Certification was established in 2007

Trinity Green Services

Certificate of Training

This is to certify that

Shana Swain

has completed the course

Residential Storm Water Compliance Inspector Training

June 29, 2015

This course outlined EPA and State storm water regulations, storm water pollution prevention plans, best management practice implementation, and site inspection procedures. This individual completed the requirements of this course and is now qualified to perform storm water site inspections.

G2bmNwJtKr

Trinitygreen

Residential Construction/Implementation Compliance Inspection
Start and Complete Log
After Storm Event Construction Compliance Inspection
Corrective Actions Log

Residential
Construction/Implementation Compliance Inspection

Contractor: _____

Project Location: **Potranco West II Unit 2 and 3 (RES) -**

Conducted By: _____ **Date:** _____

Weather information at time of inspection:

☐ Dry ☐ Raining ☐ Misting ☐ Icy ☐ Snow

Precipitation Amount: _____ inches Discharge Occurring: ☐ Yes ☐ No

Executive Summary

Note below the location of any locations needing new or additional BMPs, locations needing repair or maintenance of BMPs, and locations where BMPs are operating correctly.

Location	**New/Additional BMPs Needed**
Location	**BMPs Need Repair or Maintenance**
Location	**BMPs Operating Correctly**

Additional Notes:

1. _____
2. _____
3. _____

Part 1: Walk through the facility and look for signs of pollution including paint, solvents, chemicals, solid waste, oil, fuel, and signs of soil erosion.			
	Y	**N**	**Notes**
a. Signs of pollution leaving site?			
b. Structural BMPs working properly?			
c. Structural BMPs in good condition?			
d. Additional BMPs needed?			
e. Construction Permit Notice posted?			
f. SWP3 and inspection reports available?			
g. Changes to SWP3 implemented within 7 days?			
h. Signs of pollution leaving material storage areas?			
i. Signs of Off-Site tracking at entry/exit points?			
j. Corrections made before next rain event?			
k. Trash container location shown on map?			
l. Concrete washout area location shown on map?			
m. Portable toilet location shown on map?			
Part 2: Inspection report summary.			
	Information/Comments		
a. Name of Inspector			
b. Qualifications of Inspector			
c. Measures/Areas Inspected			
d. Observed Conditions			
e. Changes Necessary to the SWP3			
f. Was Inspection Conducted Within 24 Hours of Last Rainfall Over ½”?			
g. Is this the Final Inspection?			
Part 3: Final Stabilization/Termination Checklist			
	Y	**N**	**Notes**
a. Has a Notice of Termination been filed?			

If construction ceases on the site for more than 14 days, the site must be stabilized until construction resumes, unless activities will resume within 14 days.		
Date Construction Stopped	Date Construction Resumed	Measure Taken to Stabilize Site

Check only if this is a true statement.	
☐	This evaluation did not identify any incident(s) of noncompliance during inspection. The facility or site is in compliance with the SWP3 and the TPDES General Permit No. TXR150000.

"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.

I further certify that I am authorized under 30 Texas Administrative Code §305.128 to sign this document and can provide documentation in proof of such authorization upon request."

Signature: _____ Printed Name: _____

Date: _____ Title: _____

Dewatering Discharges (CGP Part 3.F.7) Complete this section within 24 hours of completing the inspection. (If necessary, complete additional inspection reports for each separate inspection location.)	
Inspector Information	
Project Name: Potranco West II Unit 2 and 3 (RES)	**TPDES ID Number**
Inspector Name:	**Title:**
Company Name:	**Email:**
Address:	**Phone Number:**
Inspection Details	
Inspection Date:	**Inspection Location:**
Discharge Start Time:	**Discharge End Time:**
Rate of Discharge (gallons per day):	**Corrective Action Required?**[1] ☐ Yes ☐ No
Describe Indicators of Pollutant Discharge at Point of Dewatering Discharge:[1]	

[1] If you observe any of the following indicators of pollutant discharge, you are required to take corrective action under Part 5.1.5.b:

- a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; or
- a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water.

Dewatering Discharges Project Name_____ Section B – Signature and Certification (CGP Part 2.E.e)	
"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 contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
MANDATORY: Signature of Operator or "Duly Authorized Representative:"	
Signature:	**Date:**
Printed Name:	**Affiliation:**
OPTIONAL: Signature of Contractor or Subcontractor	
Signature:	**Date:**
Printed Name:	**Affiliation:**

Start and Complete Log

Location	Start	Complete	Location	Start	Complete

After Storm Event Construction Compliance Inspection

Contractor: _____

Project Location: **Poranco West II Unit 2 and 3 (RES) -** _____

Conducted By: _____

Part 1: Walk through the facility and look for signs of erosion control measures that may have failed or been damaged from the recent storm event.			
	Y	**N**	**Note**
a. Are there any erosion control structures damaged from the storm event?			
b. Are there signs of new ruts or gullies from the storm event?			
c. Are there signs of significant amounts of mud in the street or outfalls from the storm event?			
d. Are there any conditions that need immediate attention?			

Part 2: Inspection report summary.	**Information/Comments**
a. Name of inspector	
b. Qualifications of inspector	
c. Measures/areas inspected	
d. Observed conditions	
e. Changes necessary to the SWP3	

	Y	**N**	**Note**
f. Was inspection conducted within 24 hours of last storm event over ½"?			

Check only if this is a true statement.

☐	This evaluation did not identify any incident(s) of noncompliance during inspection. The facility or site is in compliance with the SWP3 and the TPDES General Permit No. TXR150000.

"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.

I further certify that I am authorized under 30 Texas Administrative Code §305.128 to sign this document and can provide documentation in proof of such authorization upon request."

Signature: _____ Printed Name: _____

Date: _____ Title: _____

FACILITY INSPECTION FORM

RAIN EVENT LOG		
DATE	**INSPECTOR**	**RAINFALL AMOUNT**

SWEEP LOG Name of Project:		
Location	**Date / Time**	**Signature**

Make additional copies of blank form as needed. Keep completed copies in the SWP3

Contractor: _____ **Conducted By:** _____

Project: _____ **Inspection Date:** _____

Corrective Actions Log

Location	Corrective Action Needed	Action Noted Date	Correction Date	Repair Date (optional)	Repair Initials (optional)	Verified Date	Notes

Insert a Signed Copy of All Delegation Letters in this Section

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 27, 2023

Re: Confirmation of the Submission of the Construction Delegation of Signatories to Report

Dear Permittee,

This is an acknowledgement that you have successfully completed the application of Construction Delegation of Signatories to Report.

ER Account Number: ER041107

Application Reference Number: 600280

Delegation Application Contact: Charles Merdian

TPDES Permit(s) Number: TXR1589IC

Please be aware that TCEQ staff may contact your designated contact for any additional information.

If you have any questions, you may contact the Stormwater Processing Center by email at SWPERMIT@tceq.texas.gov or by telephone at (512) 239-3700.

Sincerely,
Stormwater Program
Water Quality Division

Texas Commission on Environmental Quality

Delegation of Signatories - CGP

multiple

Section 1# Site Information

Site Info#: 1

Authorization Number, Site Name, Regulated Entity Number, Regulated Entity Name, Physical Location	TXR1589IC|POTRANCO WEST II UNIT 1 AND LIFT STATION|RN111432928|POTRANCO WEST II UNIT 1 AND LIFT STATION|SW OF CR 388 AND POTRANCO RD, CASTROVILLE, TX, 78009

Customer (Applicant) Information

How is this applicant associated with this site?	Operator
What is the applicant's Customer Number (CN)?	CN604301820
Type of Customer	Corporation
Full legal name of the applicant:	
Legal Name	LGI HOMES-TEXAS, LLC
Texas SOS Filing Number	801539837
Federal Tax ID	352436873
State Franchise Tax ID	32046694835
State Sales Tax ID	
Local Tax ID	
DUNS Number	
Number of Employees	101-250
Independently Owned and Operated?	Yes

Section 1# Delegated Information

Delegation#: 1

1	Position	Compliance Specialist
2	Name	Trinity Green Services, L.L.C.
3	I certify that the person/title above is a duly authorized representative described in 30 TAC 305.128.	Yes

Certification

1	I understand that this authorization does not extend to the signing of a Notice of Intent, Notice of Change, or Notice of Termination for obtaining coverage under a stormwater general permit.	Yes

Delegation Application Contact

Person TCEQ should contact for questions about this application:

1 Organization Name

2 Prefix

3	First	Charles
4	Middle	
5	Last	Merdian
6	Suffix	
7	Credentials	
8	Title	CFO
Mailing Address		
9	Address Type	Domestic
9.1	Mailing Address (include Suite or Bldg. here, if applicable)	1450 Lake Robbins Dr., Suite 430
9.2	Routing (such as Mail Code, Dept., or Attn:)	
9.3	City	The Woodlands
9.4	State	TX
9.5	ZIP	77380
10	Phone (###-###-####)	2813628998
11	Extension	
12	Alternate Phone (###-###-####)	
13	Fax (###-###-####)	
14	Email	cmerdian@lgihomes.com

Certification

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

I certify that I am authorized under 30 Texas Administrative Code 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

1. I am Charles Merdian, the owner of the STEERS account ER041107.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Delegation of Signatories - CGP multiple.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OPERATOR Signature: Charles Merdian OPERATOR

Customer Number:	CN604301820
Legal Name:	LGI HOMES-TEXAS, LLC
Account Number:	ER041107
Signature IP Address:	67.200.245.226
Signature Date:	2023-10-27
Signature Hash:	860EAD4EBC21B3E9A3181287213135429DA5A541614938CC87BE63D19BF86224
Form Hash Code at time of Signature:	0371411FF5F2E6BC7273D8FAFB9D15BF22494B077DAF809FE0CA0A5063685784

Submission

Reference Number:	The application reference number is 600280
Submitted by:	The application was submitted by ER041107/Charles Merdian
Submitted Timestamp:	The application was submitted on 2023-10-27 at 14:41:26 CDT
Submitted From:	The application was submitted from IP address 67.200.245.226
Confirmation Number:	The confirmation number is 496841
Steers Version:	The STEERS version is 6.70

Additional Information

Application Creator: This account was created by Stephanie Owens -Hale

TCEQ Large Construction Site Notice

Primary Operator

Large construction sites disturb more than five acres or are part of a larger common plan of development that disturbs more than five acres. Primary operators of large construction sites will fill out this notice. Primary operators will then post this notice at the construction site in a location where it is safely and readily available for viewing by the general public and local, state, and federal authorities. Additional information about the TCEQ Construction Stormwater General Permit may be found on TCEQ's webpage on Assistance Tools for Construction Stormwater General Permits.

Note: You must also develop a Stormwater Pollution Prevention Plan prior to the commencement of construction.

Site-Specific TPDES Authorization Number: TXR15 89IC

Primary Operator Name: LGI Homes - Texas, L.L.C.

Contact Name and Phone Number: Scott Myles 210-467-2846

Project Description:

Physical Location/Description S. of FM 1957 and Forester Way, Castroville, TX 78009

Potranco West II Unit 2 and 3 (RES)

Estimated Start Date TBD

Projected End Date or Date Disturbed Soils Will Be Stabilized

Location of Stormwater Pollution Prevention Plan (SWP3):

Trinity Green Services eSWP3 inspect@trinitygrn.com / 214-446-9500

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Texas Pollutant Discharge Elimination System
Stormwater Construction General Permit

The Notice of Change (NOC) submitted to update the Notice of Intent (NOI) for the facility listed below was received on October 24, 2023. The intent to discharge stormwater associated with construction activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) stormwater Construction General Permit (CGP) TXR150000 is acknowledged. Your facility's unique TPDES CGP stormwater authorization number is:

TXR1589IC

Coverage Effective: February 15, 2022

The TCEQ's stormwater CGP requires certain stormwater pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a stormwater pollution prevention plan (SWP3) that is tailored to your construction site. As a facility authorized to discharge under the stormwater CGP, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

Project/Site Information:
RN111432928
Potranco West Ii Unit 1 And Lift Station
Sw of Cr 388 And Potranco Rd
Castroville, TX 78009
Medina County

Operator:
CN604301820
Lgi Homes-Texas, LLC
1450 Lake Robbins Dr Ste 430
The Woodlands, TX 77380

This CGP and all authorizations expire on March 5, 2028, unless otherwise amended. If you have any questions related to processing of your application, you may contact the Stormwater Processing Center by **email at** SWPERMIT@tceq.texas.gov **or by telephone at (512) 239-3700**. For technical issues, you may contact the stormwater technical staff by **email at** SWGP@tceq.texas.gov **or by telephone at (512) 239-4671**. Also, you may obtain information on the TCEQ web site at https://www.tceq.texas.gov/goto/wq-dpa. A copy of this document should be kept with your SWP3.

Issued Date: October 24, 2023

FOR THE COMMISSION

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 24, 2023

Dear Applicant:

Re: TPDES General Permit for Construction Stormwater Runoff (TXR150000)
Notice of Change to an Active Authorization

Your Notice of Change (NOC) request to update your authorization under the general permit for discharge of stormwater associated with construction activities has been received. Pursuant to authorization from the Executive Director of the Texas Commission on Environmental Quality, the Division Deputy Director of the Water Quality Division has issued the enclosed Certificate. The effective date of your authorization under the Construction General Permit has not changed.

For questions related to the processing of your application you may contact the Stormwater Processing Center by email at SWPERMIT@tceq.texas.gov or by telephone at (512) 239-3700.

If you have any technical questions regarding this general permit, you may contact the stormwater technical staff at (512) 239-4671 or by email at SWGP@tceq.texas.gov. Also, you may obtain information on the stormwater web site at https://www.tceq.texas.gov/permitting/stormwater.

Sincerely,

Robert Sadlier, Deputy Director

Water Quality Division

Texas Commission on Environmental Quality

Construction Notice of Change

TXR1589IC

Site Information (Regulated Entity)

What is the name of the site to be authorized?	POTRANCO WEST II UNIT 1 AND LIFT STATION
Does the site have a physical address?	No

Physical Address

Because there is no physical address, describe how to locate this site:	SW OF CR 388 AND POTRANCO RD
City	CASTROVILLE
State	TX
ZIP	78009
County	MEDINA
Latitude (N) (##.######)	29.433978
Longitude (W) (-###.######)	-98.844986
Primary SIC Code	6552
Secondary SIC Code	1521
Primary NAICS Code	
Secondary NAICS Code	

Regulated Entity Site Information

What is the Regulated Entity's Number (RN)?	RN111432928
What is the name of the Regulated Entity (RE)?	POTRANCO WEST II UNIT 1 AND LIFT STATION
Does the RE site have a physical address?	No

Physical Address

Because there is no physical address, describe how to locate this site:	SW OF CR 388 AND POTRANCO RD
City	CASTROVILLE
State	TX
ZIP	78009
County	MEDINA
Latitude (N) (##.######)	29.433978
Longitude (W) (-###.######)	-98.844986
Facility NAICS Code	
What is the primary business of this entity?	

Customer (Applicant) Information

How is this applicant associated with this site?	Operator
What is the applicant's Customer Number (CN)?	CN604301820

Type of Customer	Corporation

Full legal name of the applicant:

Legal Name	LGI HOMES-TEXAS, LLC
Texas SOS Filing Number	801539837
Federal Tax ID	352436873
State Franchise Tax ID	32046694835
State Sales Tax ID	
Local Tax ID	
DUNS Number	
Number of Employees	101-250
Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes

Responsible Authority Contact

Organization Name	LGI HOMES-TEXAS, LLC
Prefix	
First	CHARLES
Middle	
Last	MERDIAN
Suffix	
Credentials	
Title	CFO

Responsible Authority Mailing Address

Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1450 LAKE ROBBINS DR STE 430
Routing (such as Mail Code, Dept., or Attn:)	
City	THE WOODLANDS
State	TX
ZIP	77380
Phone (###-###-####)	2813628998
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	CMERDIAN@LGIHOMES.COM

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	
Organization Name	LGI HOMES-TEXAS LLC

Prefix	
First	CHARLES
Middle	
Last	MERDIAN
Suffix	
Credentials	
Title	CFO
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1450 LAKE ROBBINS DR STE 430
Routing (such as Mail Code, Dept., or Attn:)	
City	THE WOODLANDS
State	TX
ZIP	77380
Phone (###-###-####)	2813628998
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	CMERDIAN@LGIHOMES.COM

Notice of Change General Characteristics

1	What are you proposing to change from what was last provided for this permit?	Changes to General Characteristics
2	What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?	6552
3	If applicable, what is the Secondary SIC Code(s)?	1521
4	What is the total number of acres that the construction project or site will disturb under the control of the primary operator?	50
5	Is the project site part of a larger common plan of development or sale?	Yes
6	What is the estimated start date of the project?	02/22/2022
7	What is the estimated end date of the project?	06/05/2028
8	What is the construction project or site type?	OTHER
9	Will concrete truck washout be performed at the site?	Yes
10	What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?	UNNAMED TRIBUTARY TO KEMPF CREEK TO MEDINA RIVER BELOW MEDINA DIVERSION LAKE
11	What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?	1903
12	Is the discharge into a Municipal Separate Storm Sewer System (MS4)?	Yes
12.1	What is the name of the MS4 Operator?	CITY OF CASTROVILLE

13	Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?	No
14	I certify that a stormwater pollution prevention plan (SWP3) has been developed, will be implemented prior to construction, and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator.	Yes

Certification

I certify that I am authorized under 30 Texas Administrative Code 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

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

1. I am Charles Merdian, the owner of the STEERS account ER041107.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Construction Notice of Change TXR1589IC.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OPERATOR Signature: Charles Merdian OPERATOR

Customer Number:	CN604301820
Legal Name:	LGI HOMES-TEXAS, LLC
Account Number:	ER041107
Signature IP Address:	67.200.245.226
Signature Date:	2023-10-24
Signature Hash:	860EAD4EBC21B3E9A3181287213135429DA5A541614938CC87BE63D19BF86224
Form Hash Code at time of Signature:	66CB9E5D13936FB5BE6FEA4E667F9104227B4C753E3F6F8DA218ECCF4ECB9BD3

Submission

Reference Number:	The application reference number is 599654
Submitted by:	The application was submitted by ER053547/Stephanie Owens -Hale
Submitted Timestamp:	The application was submitted on 2023-10-24 at 14:14:08 CDT
Submitted From:	The application was submitted from IP address 162.236.178.185
Confirmation Number:	The confirmation number is 495094
Steers Version:	The STEERS version is 6.70
Permit Number:	The permit number is TXR1589IC

Additional Information

Application Creator: This account was created by Stephanie Owens -Hale

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Texas Pollutant Discharge Elimination System
Stormwater Construction General Permit

The Notice of Intent (NOI) for the facility listed below was received on June 5, 2023. The intent to discharge stormwater associated with construction activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) stormwater Construction General Permit TXR150000 is acknowledged. Your facility's unique TPDES CGP stormwater authorization number is:

TXR1589IC

Coverage Effective: February 15, 2022

The TCEQ's stormwater CGP requires certain stormwater pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a stormwater pollution prevention plan (SWP3) that is tailored to your construction site. As a facility authorized to discharge under the stormwater CGP, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

Project/Site Information:
RN111432928
Potranco West Ii Unit 1 And Lift Station
Sw of Cr 388 And Potranco Rd
Castroville, TX 78009
Medina County

Operator:
CN604301820
Lgi Homes-Texas, LLC
1450 Lake Robbins Dr Ste 430
The Woodlands, TX 77380

This CGP and all authorizations expire on March 5, 2028, unless otherwise amended. If you have any questions related to processing of your application, you may contact the Stormwater Processing Center by **email at** SWPERMIT@tceq.texas.gov **or by telephone at (512) 239-3700**. For technical issues, you may contact the stormwater technical staff by **email at** SWGP@tceq.texas.gov **or by telephone at (512) 239-4671**. Also, you may obtain information on the TCEQ web site at https://www.tceq.texas.gov/goto/wq-dpa. A copy of this document should be kept with your SWP3.

Issued Date: June 05, 2023

FOR THE COMMISSION

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 5, 2023

Dear Applicant:

Re: TPDES General Permit for Construction Stormwater Runoff (TXR150000)
Notice of Intent Authorization

Your Notice of Intent (NOI) application for authorization under the general permit for discharge of stormwater associated with construction activities has been received. Pursuant to authorization from the Executive Director of the Texas Commission on Environmental Quality, the Division Deputy Director of the Water Quality Division has issued the enclosed Certificate.

Please refer to the attached certificate for the authorization number that was assigned to your project/site and the effective date. Please use this number to reference this project/site for future communications with the Texas Commission on Environmental Quality (TCEQ).

Authorization under the Edwards Aquifer Protection Program is required before construction can begin where the site is located within the Edwards Aquifer Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone. See https://www.tceq.texas.gov/permitting/eapp/viewer.html for additional information.

It is the responsibility of the Operator to notify the TCEQ Stormwater Processing Center of any change in address supplied on the original Notice of Intent by submitting a Notice of Change.

A Notice of Termination must be submitted when permit coverage is no longer needed.

For questions related to processing of your application you may contact the Stormwater Processing Center by email at SWPERMIT@tceq.texas.gov or by telephone at (512) 239-3700. If you have any technical questions regarding the general permit, you may contact the stormwater technical staff by email at SWGP@tceq.texas.gov or by telephone at (512) 239-4671. Also, you may obtain information on the stormwater web site at https://www.tceq.texas.gov/permitting/stormwater.

Sincerely,

Robert Sadlier, Deputy Director

Water Quality Division

Texas Commission on Environmental Quality

Construction Notice of Intent Renewal

TXR1589IC

Site Information (Regulated Entity)

What is the name of the site to be authorized?	POTRANCO WEST II UNIT 1 AND LIFT STATION
Does the site have a physical address?	No
Physical Address	
Because there is no physical address, describe how to locate this site:	SW OF CR 388 AND POTRANCO RD
City	CASTROVILLE
State	TX
ZIP	78009
County	MEDINA
Latitude (N) (##.######)	29.433978
Longitude (W) (-###.######)	-98.844986
Primary SIC Code	6552
Secondary SIC Code	1521
Primary NAICS Code	
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	RN111432928
What is the name of the Regulated Entity (RE)?	POTRANCO WEST II UNIT 1 AND LIFT STATION
Does the RE site have a physical address?	No
Physical Address	
Because there is no physical address, describe how to locate this site:	SW OF CR 388 AND POTRANCO RD
City	CASTROVILLE
State	TX
ZIP	78009
County	MEDINA
Latitude (N) (##.######)	29.433978
Longitude (W) (-###.######)	-98.844986
Facility NAICS Code	
What is the primary business of this entity?	

Customer (Applicant) Information

How is this applicant associated with this site?	Operator
What is the applicant's Customer Number (CN)?	CN604301820
Type of Customer	Corporation
Full legal name of the applicant:	
Legal Name	LGI HOMES-TEXAS, LLC
Texas SOS Filing Number	801539837
Federal Tax ID	352436873
State Franchise Tax ID	32046694835
State Sales Tax ID	

Local Tax ID	
DUNS Number	
Number of Employees	101-250
Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes

Responsible Authority Contact

Organization Name	LGI HOMES-TEXAS, LLC
Prefix	
First	CHARLES
Middle	
Last	MERDIAN
Suffix	
Credentials	
Title	CFO

Responsible Authority Mailing Address

Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1450 LAKE ROBBINS DR STE 430
Routing (such as Mail Code, Dept., or Attn:)	
City	THE WOODLANDS
State	TX
ZIP	77380
Phone (###-###-####)	2813628998
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	CMERDIAN@LGIHOMES.COM

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	CN604301820, LGI HOMES-TEXAS, LLC
Organization Name	LGI HOMES-TEXAS, LLC
Prefix	
First	CHARLES
Middle	
Last	MERDIAN
Suffix	
Credentials	
Title	CFO
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1450 LAKE ROBBINS DR STE 430
Routing (such as Mail Code, Dept., or Attn:)	
City	THE WOODLANDS
State	TX

ZIP	77380
Phone (###-###-####)	2813628998
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	CMERDIAN@LGIHOMES.COM

CNOI-R General Characteristics

1	Is the project or site located on Indian Country Lands?	No
2	Is the project or site associated to a facility that is licensed for the storage of high-level radioactive waste by the United States Nuclear Regulatory Commission under 10 CFR Part 72?	No
3	Is your construction activity associated with an oil and gas exploration, production, processing, or treatment, or transmission facility?	No
4	What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?	6552
5	If applicable, what is the Secondary SIC Code(s)?	1521
6	What is the total number of acres that the construction project or site will disturb under the control of the primary operator?	22
7	What is the construction project or site type?	Other
8	Is the project part of a larger common plan of development or sale?	Yes
9	What is the estimated start date of the project?	02/22/2022
10	What is the estimated end date of the project?	06/05/2028
11	Will concrete truck washout be performed at the site?	Yes
12	What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?	UNNAMED TRIBUTARY TO KEMPF CREEK TO MEDINA RIVER BELOW MEDINA DIVERSION LAKE
13	What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?	1903
14	Is the discharge into a Municipal Separate Storm Sewer System (MS4)?	Yes
14.1	What is the name of the MS4 Operator?	CITY OF CASTROVILLE
15	Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?	No
16	I certify that a stormwater pollution prevention plan (SWP3) has been developed, will be implemented prior to construction, and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator.	Yes
17	I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000).	Yes
18	I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed.	Yes

Certification

I certify that I am authorized under 30 Texas Administrative Code Subchapter 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

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

there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1. I am Charles Merdian, the owner of the STEERS account ER041107.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Construction Notice of Intent Renewal TXR1589IC.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OPERATOR Signature: Charles Merdian OPERATOR

Customer Number:	CN604301820
Legal Name:	LGI HOMES-TEXAS, LLC
Account Number:	ER041107
Signature IP Address:	67.200.245.226
Signature Date:	2023-06-05
Signature Hash:	860EAD4EBC21B3E9A3181287213135429DA5A541614938CC87BE63D19BF86224
Form Hash Code at time of Signature:	469BED06EE77DB4E43E9366D5400BE6ECDF9A2831352E23909472B366FF4B3DA

Fee Payment

Transaction by:	The application fee payment transaction was made by ER041107/Charles Merdian
Paid by:	The application fee was paid by NICHOLAS SANDOVAL
Fee Amount:	$225.00
Paid Date:	The application fee was paid on 2023-06-05
Transaction/Voucher number:	The transaction number is 582EA000554921 and the voucher number is 647125

Submission

Reference Number:	The application reference number is 571588
Submitted by:	The application was submitted by ER077365/Kathryn Scott
Submitted Timestamp:	The application was submitted on 2023-06-05 at 20:19:01 CDT
Submitted From:	The application was submitted from IP address 47.24.6.201
Confirmation Number:	The confirmation number is 473863
Steers Version:	The STEERS version is 6.65
Permit Number:	The permit number is TXR1589IC

Additional Information

Application Creator: This account was created by Kathryn Scott

Texas Commission on Environmental Quality

P.O. Box 13087, Austin, Texas 78711-3087

GENERAL PERMIT TO DISCHARGE UNDER THE

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces
TPDES General Permit No. TXR150000,
effective March 5, 2018, and amended January 28, 2022

Construction sites that discharge stormwater associated with construction activity located in the state of Texas may discharge to surface water in the state only according to monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the Commission of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of stormwater and certain non-stormwater discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein shall expire at midnight, on March 5, 2028.

EFFECTIVE DATE: March 5, 2023

ISSUED DATE: February 27, 2023

For the Commission

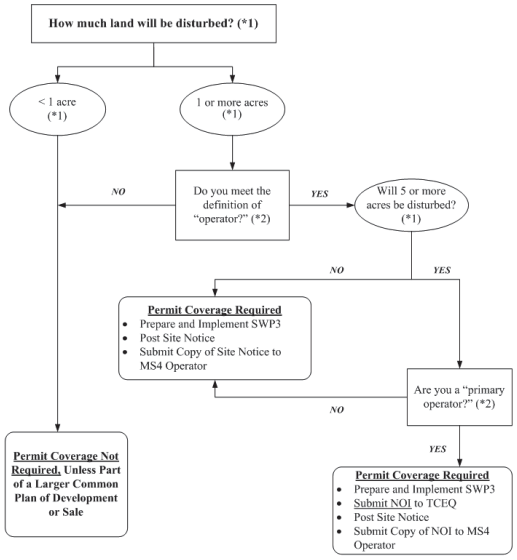
TPDES GENERAL PERMIT NUMBER TXR150000
RELATING TO STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Table of Contents

Part I. Flow Chart and Definitions

Section A. Flow Chart to Determine Whether Coverage is Required

When calculating the acreage of land area disturbed, include the disturbed land-area of all construction and construction support activities.



***(*1)** To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "common plan of development or sale").*
***(*2)** Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.*

Section B. Definitions

Arid Areas – Areas with an average annual rainfall of zero (0) to ten (10) inches.

Best Management Practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction – The initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., demolition; grubbing; stockpiling of fill material; placement of raw materials at the site).

Common Plan of Development – A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development (also known as a "common plan of development or sale") is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities. A common plan of development does not necessarily include all construction projects within the jurisdiction of a public entity (e.g., a city or university). Construction of roads or buildings in different parts of the jurisdiction would be considered separate "common plans," with only the interconnected parts of a project being considered part of a "common plan" (e.g., a building and its associated parking lot and driveways, airport runway and associated taxiways, a building complex, etc.). Where discrete construction projects occur within a larger common plan of development or sale but are located one quarter (¼) mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same "common plan" is not included in the area to be disturbed.

Construction Activity – Includes soil disturbance activities, including clearing, grading, excavating, construction-related activity (e.g., stockpiling of fill material, demolition), and construction support activity. This does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (e.g., the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing rights-of-way, and similar maintenance activities). Regulated construction activity is defined in terms of small and large construction activity.

Construction Support Activity – A construction-related activity that specifically supports construction activity, which can involve earth disturbance or pollutant-generating activities of its own, and can include, but are not limited to, activities associated with concrete or asphalt batch plants, rock crushers, equipment staging or storage areas, chemical storage areas, material storage areas, material borrow areas, and excavated material disposal areas. Construction support activity must only directly support the construction activity authorized under this general permit.

Dewatering – The act of draining accumulated stormwater or groundwater from building foundations, vaults, trenches, and other similar points of accumulation.

Discharge – For the purposes of this permit, the drainage, release, or disposal of pollutants in stormwater and certain non-stormwater from areas where soil disturbing activities (e.g., clearing, grading, excavation, stockpiling of fill material, and demolition), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck wash out, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

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", or (4) "Drought development likely". See http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html.

Edwards Aquifer – As defined under Texas Administrative Code (TAC) § 213.3 of this title (relating to the Edwards Aquifer), that portion of an arcuate belt of porous, water-bearing, predominantly carbonate rocks known as the Edwards and Associated Limestones in the Balcones Fault Zone trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak Limestone, McKnight Formation, West Nueces Formation, Devil's River Limestone, Person Formation, Kainer Formation, Edwards Formation, and Georgetown Formation. The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut Formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

Edwards Aquifer Recharge Zone – Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as that area designated as such on official maps located in the offices of the Texas Commission on Environmental Quality (TCEQ) and the appropriate regional office. The Edwards Aquifer Map Viewer, located at https://www.tceq.texas.gov/gis/edwards-viewer.html

Edwards Aquifer Contributing Zone – The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer. The contributing zone is located upstream (upgradient) and generally north and northwest of the recharge zone for the following counties: all areas within Kinney County, except the area within the watershed draining to Segment No. 2304 of the Rio Grande Basin; all areas within Uvalde, Medina, Bexar, and Comal Counties; all areas within Hays and Travis Counties, except the area within the watersheds draining to the Colorado River above a point 1.3 miles upstream from Tom Miller Dam, Lake Austin at the confluence of Barrow Brook Cove, Segment No. 1403 of the Colorado River Basin; and all areas within Williamson County, except the area within the watersheds draining to the Lampasas River above the dam at Stillhouse Hollow reservoir, Segment No. 1216 of the Brazos River Basin. The contributing zone is illustrated on the Edwards Aquifer map viewer at https://www.tceq.texas.gov/gis/edwards-viewer.html

Effluent Limitations Guideline (ELG) – Defined in 40 Code of Federal Regulations (CFR) § 122.2 as a regulation published by the Administrator under § 304(b) of the Clean Water Act (CWA) to adopt or revise effluent limitations.

Facility or Activity – For the purpose of this permit, referring to a construction site, the location of construction activity, or a construction support activity that is regulated under this general permit, including all contiguous land and fixtures (for example, ponds and materials stockpiles), structures, or appurtenances used at a construction site or industrial site.

Final Stabilization – A construction site status where any of the following conditions are met:

(a) All soil disturbing activities at the site have been completed and a uniform (that is, evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, or gabions) have been employed.

(b) For individual lots in a residential construction site by either:

(1) the homebuilder completing final stabilization as specified in condition (a) above; or

(2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization. If temporary stabilization is not feasible, then the homebuilder may fulfill this requirement by retaining perimeter controls or BMPs, and informing the homeowner of the need for removal of temporary controls and the establishment of final stabilization. Fulfillment of this requirement must be documented in the homebuilder's stormwater pollution prevention plan (SWP3).

(c) For construction activities on land used for agricultural purposes (such as 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 surface water and areas that are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

(d) In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:

(1) temporary erosion control measures (for example, degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and

(2) the temporary erosion control measures are selected, designed, and installed to achieve 70% of the native background vegetative coverage within three years.

High-Level Radioactive Waste – Meaning as assigned by 42 United States Code (U.S.C.) Section 10101 (12) and includes spent nuclear fuel as defined by 42 U.S.C. Section 10101 (23).

Hyperchlorination of Waterlines – Treatment of potable water lines or tanks with chlorine for disinfection purposes, typically following repair or partial replacement of the waterline or tank, and subsequently flushing the contents.

Impaired Water – A surface water body that is identified as impaired on the latest approved CWA § 303(d) List or waters with an EPA-approved or established total maximum daily load (TMDL) that are found on the latest EPA approved *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, which lists the category 4 and 5 water bodies.

Indian Country Land – (1) All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (2) all dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. (40 CFR § 122.2)

Indian Tribe – Any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation (40 CFR § 122.2).

Infeasible – Not technologically possible, or not economically practicable and achievable in light of best industry practices. (40 CFR § 450.11(b)).

Large Construction Activity – Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities).

Linear Project – 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.

Low Rainfall Erosivity Waiver (LREW) – A written submission to the executive director from an operator of a construction site that is considered as small construction activity under the permit, which qualifies for a waiver from the requirements for small construction activities, only during the period of time when the calculated rainfall erosivity factor is less than five (5).

Minimize – To reduce or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) – A separate storm sewer system owned or operated by the United States, a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, that discharges to surface water in the state.

Notice of Change (NOC) – Written notification to the executive director from a discharger authorized under this permit, providing changes to information that was previously provided to the agency in a notice of intent form.

Notice of Intent (NOI) – A written submission to the executive director from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) – A written submission to the executive director from a discharger authorized under this general permit requesting termination of coverage.

Operator – The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary Operator – The person or persons associated with construction activity that meets either of the following two criteria:

(a) the person or persons have on-site operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

(b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a Stormwater Pollution Prevention Plan (SWP3) for the site or other permit conditions (for example, they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person or entity, often the property owner, whose operational control is limited to:

(a) the employment of other operators, such as a general contractor, to perform or supervise construction activities; or

(b) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

Secondary operators must either prepare their own SWP3 or participate in a shared SWP3 that covers the areas of the construction site, where they have control over the construction plans and specifications.

If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

Outfall – For the purpose of this permit, a point source at the point where stormwater runoff associated with construction activity discharges to surface water in the state and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other water of the U.S. and are used to convey waters of the U.S.

Permittee – An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge stormwater runoff and certain non-stormwater discharges from construction activity.

Point Source – 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 (40 CFR § 122.2).

Pollutant – Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland. For the purpose of this permit, the term "pollutant" includes sediment.

Pollution – The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose (Texas Water Code (TWC) § 26.001(14)).

Rainfall Erosivity Factor (R factor) – The total annual erosive potential that is due to climatic effects, and is part of the Revised Universal Soil Loss Equation (RUSLE).

Receiving Water – A "Water of the United States" as defined in 40 CFR § 122.2 or a surface water in the state into which the regulated stormwater discharges.

Semi-arid Areas – Areas with an average annual rainfall of 10 to 20 inches.

Separate Storm Sewer System – A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying stormwater; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity – Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities).

Steep Slopes – 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.

Stormwater (or Stormwater Runoff) – Rainfall runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Associated with Construction Activity – Stormwater runoff, as defined above, from a construction activity.

Structural Control (or Practice) – A pollution prevention practice that requires the construction of a device, or the use of a device, to reduce or prevent pollution in stormwater runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State – Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization – A condition where exposed soils or disturbed areas are provided a protective cover or other structural control to prevent the migration of pollutants. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either permanent stabilization can be achieved or until further construction activities take place.

Thawing Conditions – For the purposes of this permit, thawing conditions are expected based on the historical likelihood of two (2) or more days with daytime temperatures greater than 32 degrees Fahrenheit (°F). This date can be determined by looking at historical weather data.

NOTE: The estimation of thawing conditions is for planning purposes only. During construction, the permittee will be required to conduct site inspections based upon actual conditions (i.e., if thawing conditions occur sooner than expected, the permittee will be required to conduct inspections at the regular frequency).

Total Maximum Daily Load (TMDL) – The total amount of a pollutant that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

Turbidity – A condition of water quality characterized by the presence of suspended solids and/or organic material.

Waters of the United States – Waters of the United States or waters of the U.S. means the term as defined in 40 CFR § 122.2.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Stormwater Associated with Construction Activity

   Discharges of stormwater runoff and certain non-stormwater discharges from small and large construction activities may be authorized under this general permit, except as described in Part II.C. of this permit.

2. Discharges of Stormwater Associated with Construction Support Activities

   Discharges of stormwater runoff and certain non-stormwater discharges from construction support activities as defined in Part I.B. of this general permit may be authorized, provided that the following conditions are met:

   (a) the construction support activities are located within one (1) mile from the boundary of the construction site where the construction activity authorized under the permit is being conducted that requires the support of these activities;

   (b) an SWP3 is developed and implemented for the permitted construction site according to the provisions in Part III.F. of this general permit, including appropriate controls and measures to reduce erosion and the discharge of pollutants in stormwater runoff according to the provisions in Part IV. of this general permit;

   (c) the activities are directly related to the construction site;

   (d) the activities are not a commercial operation, nor serve other unrelated construction projects; and

   (e) the activities do not continue to operate beyond the completion of the construction activity at the project it supports.

   Construction support activities that operate outside the terms provided in (a) through (e) above must obtain authorization under a separate Texas Pollutant Discharge Elimination System (TPDES) permit, which may include the TPDES Multi-Sector General Permit (MSGP), TXR050000 (related to stormwater discharges associated with industrial activity), an alternative general permit (if available), or an individual water quality permit.

3. Non-Stormwater Discharges

   The following non-stormwater discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

(a) discharges from emergency fire-fighting activities (emergency fire-fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, or similar activities);

(b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);

(c) water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where solvents, detergents, and soaps are not used, where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;

(d) uncontaminated water used to control dust;

(e) potable water sources, including waterline flushings, but excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life;

(f) uncontaminated air conditioning condensate;

(g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and

(h) lawn watering and similar irrigation drainage.

4. Other Permitted Discharges

Any discharge authorized under a separate National Pollutant Discharge Elimination System (NPDES), TPDES, or TCEQ permit may be combined with discharges authorized by this general permit, provided those discharges comply with the associated permit.

Section B. Concrete Truck Wash Out

The wash out of concrete trucks at regulated construction sites must be performed in accordance with the requirements of Part VI of this general permit.

Section C. Limitations on Permit Coverage

1. Post Construction Discharges

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the Notice of Termination (NOT) or removal of the appropriate TCEQ site notice, as applicable, for the regulated construction activity.

2. Prohibition of Non-Stormwater Discharges

Except as otherwise provided in Part II.A. of this general permit, only discharges that are composed entirely of stormwater associated with construction activity may be authorized under this general permit.

3. Compliance with Water Quality Standards

Discharges to surface water in the state that would cause, have the reasonable potential to cause, or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses of surface water in the state are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative general permit (see Parts II.H.2. and 3.) to authorize discharges to surface water in the state if the executive director determines that any activity will cause, has the reasonable potential to cause, or contribute to a violation of water quality standards or is found to cause, has the reasonable potential to cause, or contribute to, the impairment of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II.H.3. of this general permit.

4. Impaired Receiving Waters and Total Maximum Daily Load (TMDL) Requirements

The permittee shall determine whether the authorized discharge is to an impaired water body on the latest EPA-approved CWA § 303(d) List or waters with an EPA-approved or established TMDL that are found on the latest EPA-approved *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, which lists the category 4 and 5 water bodies.

New sources or new discharges of the pollutants of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standard(s) and are listed as category 4 or 5 in the current version of the *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, and waterbodies listed on the CWA § 303(d) List. Pollutants of concern are those for which the water body is listed as impaired.

Discharges of the pollutants of concern to impaired water bodies for which there is a TMDL are not eligible for coverage under this general permit unless they are consistent with the approved TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges into their SWP3, in order to be eligible for coverage under this general permit. For consistency with the construction stormwater-related items in an approved TMDL, the SWP3 must be consistent with any applicable condition, goal, or requirement in the TMDL, TMDL Implementation Plan (I-Plan), or as otherwise directed by the executive director.

5. Discharges to the Edwards Aquifer Recharge or Contributing Zone

Discharges cannot be authorized by this general permit where prohibited by 30 TAC Chapter 213 (relating to Edwards Aquifer). In addition, commencement of construction (see definition for commencement of construction in Part I.B. above)) at a site regulated under 30 TAC Chapter 213, may not begin until the appropriate Edwards Aquifer Protection Plan (EAPP) has been approved by the TCEQ's Edwards Aquifer Protection Program.

(a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone (CZ), operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

(b) For existing discharges located within the Edwards Aquifer Recharge Zone, the requirements of the agency-approved Water Pollution Abatement Plan (WPAP) under the Edwards Aquifer Rule are in addition to the requirements of this general permit. BMPs and maintenance schedules for structural stormwater controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in stormwater runoff are in addition to the requirements in this general permit for this pollutant.

(c) For discharges located within ten (10) stream miles upstream of the Edwards Aquifer recharge zone, applicants shall also submit a copy of the NOI to the appropriate TCEQ regional office.

Counties: Comal, Bexar, Medina, Uvalde, and Kinney

Contact: TCEQ Water Program Manager
San Antonio Regional Office
14250 Judson Road
San Antonio, Texas 78233-4480
(210) 490-3096

Counties: Williamson, Travis, and Hays

Contact: TCEQ Water Program Manager
Austin Regional Office
12100 Park 35 Circle
Room 179, Building A
Austin, Texas 78753
(512) 339-2929

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities.

8. Indian Country Lands

Stormwater runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Exempt Oil and Gas Activities

The CWA § 402(l)(2) provides that stormwater discharges from construction activities related to oil and gas exploration, production, processing, or treatment, or transmission facilities are exempt from regulation under this permit. The term "oil and gas exploration, production, processing, or treatment operations, or transmission facilities" is defined in 33 U.S.C. Annotated § 1362 (24).

The exemption in CWA § 402(l)(2) *includes* stormwater discharges from construction activities regardless of the amount of disturbed acreage, which are necessary to prepare a site for drilling and the movement and placement of drilling equipment, drilling waste management pits, in field treatment plants, and in field transportation infrastructure (e.g., crude oil pipelines, natural gas treatment plants, and both natural gas transmission pipeline compressor and crude oil pumping stations) necessary for the operation of most producing oil and gas fields. Construction activities are defined in 33 U.S. Code § 1362(24) and interpreted by EPA in the final rule. *See* June 12, 2006 Amendments to the NPDES Regulations for Storm Water Discharges Associated with Oil and Gas Exploration, Production, Processing, or Treatment Operations or Transmission Facilities (71 FR 33628, Part V. Terminology).

The exemption *does not include* stormwater discharges from the construction of administrative buildings, parking lots, and roads servicing an administrative building at an oil and gas site, as these are considered traditional construction activities.

As described in 40 CFR § 122.26(c)(1)(iii) [*regulations prior to 2006*], discharges from oil and gas construction activities are waived from CWA § 402(l)(2) permit coverage *unless* the construction activity (or construction support activity) has had a discharge of stormwater resulting in the discharge of a reportable quantity of oil or hazardous substances or the discharge contributes to a violation of water quality standards.

Exempt oil and gas activities which have lost their exemption as a result of one of the above discharges, must obtain permit coverage under this general permit, an alternative general permit, or a TPDES individual permit prior to the next discharge.

10. Stormwater Discharges from Agricultural Activities

Stormwater discharges from agricultural activities that are not point source discharges of stormwater are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities. Discharges of stormwater runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of concentrated animal feeding operations, would be point sources regulated under this general permit.

11. Endangered Species Act

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by this permit, unless the requirements of the Endangered Species Act are satisfied. Federal requirements related to endangered species apply to all TPDES permitted discharges and site-specific controls may be required to ensure that protection of endangered or threatened species is achieved. If a permittee has concerns over potential impacts to listed species, the permittee may contact TCEQ for additional information.

12. Storage of High-Level Radioactive Waste

Discharges of stormwater from construction activities associated with the construction of a facility that is licensed for the storage of high-level radioactive waste by the United States Nuclear Regulatory Commission under 10 CFR Part 72 are not authorized by this general permit. Texas Health and Safety Code (THSC) § 401.0525 prohibits TCEQ from issuing any TPDES authorizations for the construction or operation of these facilities.

Discharges of stormwater from the construction activities associated with the construction of a facility located at the site of currently or formerly operating nuclear power reactors and currently or formerly operating nuclear research and test reactors operated by a university are not prohibited under THSC § 401.0525 and continue to be regulated under this general permit.

13. Other

Nothing in Part II. of the general permit is intended to negate any person's ability to assert *force majeure* (act of God, war, strike, riot, or other catastrophe) defenses found in 30 TAC § 70.7

Section D. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

(a) New Construction – Discharges from sites where the commencement of construction activity occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction – Operators of large construction activities continuing to operate after the effective date of this permit, and authorized under the TPDES Construction General Permit (CGP) TXR150000 (effective on March 5, 2018, and amended on January 28, 2022), must submit an NOI to renew authorization or an NOT to terminate coverage under this general permit within 90 days of the effective date of this general permit. During this interim or grace period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the issued and amended 2018 TPDES CGP.

2. Small Construction Activities

(a) New Construction – Discharges from sites where the commencement of construction activity occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction – Discharges from ongoing small construction activities that commenced prior to the effective date of this general permit, and that do not meet the conditions to qualify for termination of this permit as described in Part II.F. of this general permit, must meet the requirements to be authorized, either under this general permit or a separate TPDES permit, within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the issued and amended 2018 TPDES CGP.

Section E. Obtaining Authorization to Discharge

1. Automatic Authorization for Small Construction Activities with Low Potential for Erosion

Operators of small construction activity, as defined in Part I.B. of this general permit, shall not submit an NOI for coverage, unless otherwise required by the executive director.

Operators of small construction activities, which occur in certain counties and during periods of low potential for erosion that do not meet the conditions of the waiver described in Part II.G. of this general permit, may be automatically authorized under this general permit if all the following conditions are met prior to the commencement of construction.

(a) The construction activity occurs in a county and during the corresponding date range(s) listed in Appendix A;

(b) The construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;

(c) All temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, permanent stabilization activities have been initiated, and a condition of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site; the permittee signs a completed TCEQ Small Construction Site Notice for low potential for erosion (Form TCEQ-20964), including the certification statement;

(d) A signed and certified copy of the TCEQ Small Construction Site Notice for low potential for erosion is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until final stabilization has been achieved;

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ site notice, with a viewable signature, located on-site and available for review by any applicable regulatory authority.

(e) A copy of the signed and certified TCEQ Small Construction Site Notice for low potential for erosion is provided to the operator of any MS4 receiving the discharge at least two (2) days prior to commencement of construction activities;

(f) Discharges of stormwater runoff or other non-stormwater discharges from any supporting concrete batch plant or asphalt batch plant is separately authorized under an individual TPDES permit, another TPDES general permit, or under an individual TCEQ permit where stormwater and non-stormwater is disposed of by evaporation or irrigation (discharges are adjacent to water in the state); and

(g) Any non-stormwater discharges are either authorized under a separate permit or authorization, are not considered by TCEQ to be a wastewater, or are captured and routed for disposal at a publicly operated treatment works or licensed waste disposal facility.

If all of the conditions in (a) – (h) above are met, then the operator(s) of small construction activities with low potential for erosion are not required to develop a SWP3.

If an operator is conducting small construction activities and any of the above conditions (a) – (h) are not met, the operator cannot declare coverage under the automatic authorization for small construction activities with low potential for erosion and must meet the requirements for automatic authorization (all other) small construction activities, described below in Part II.E.2.

For small construction activities that occur during a period with a low potential for erosion, where automatic authorization under this section is not available, an operator may apply for and obtain a waiver from permitting (Low Rainfall Erosivity Waiver – LREW), as described in Part II.G. of this general permit. Waivers from coverage under the LREW do not allow for any discharges of non-stormwater and the operator must ensure that discharges on non-stormwater are either authorized under a separate permit or authorization.

2. Automatic Authorization for Small Construction Activities

Operators of small construction activities as defined in Part I.B. of this general permit shall not submit an NOI for coverage, unless otherwise required by the executive director.

Operators of small construction activities, as defined in Part I.B. of this general permit or as defined but who do not meet in the conditions and requirements located in Part II.E.1 above, may be automatically authorized for small construction activities, provided that they meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement the SWP3 prior to commencing construction activities;

(b) all operators of regulated small construction activities must post a copy of a signed and certified TCEQ Small Construction Site Notice (Form TCEQ-20963), the notice must be posted at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities, at least two (2) days prior to commencing construction activity , and maintain the notice in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the TCEQ site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities);

(c) operators must maintain a posted TCEQ Small Construction Site Notice on the approved TCEQ form at the construction site until final stabilization has been achieved; and

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ Small Construction Site Notice, with a viewable signature, located on-site and available for review by an applicable regulatory authority.

(d) provide a copy of the signed and certified TCEQ Small Construction Site Notice to the operator of any municipal separate storm sewer system (MS4) receiving the discharge at least two (2) days prior to commencement of construction activities.

(e) if signatory authority is delegated by an authorized representative, then a Delegation of Signatory form must be submitted as required by 30 TAC § 305.128 (relating to Signatories to Reports). Operators for small construction activities must submit this form via mail following the instructions on the approved TCEQ paper form. A new Delegation of Signatory form must be submitted if the delegation changes to another individual or position.

As described in Part I.B of this general permit, large construction activities include those that will disturb less than five (5) acres of land, but that are part of a larger common plan of development or sale that will ultimately disturb five (5) or more acres of land and must meet the requirements of Part II.E.3. below.

3. Authorization for Large Construction Activities

Operators of large construction activities that qualify for coverage under this general permit must meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit that covers either the entire site or all portions of the site where the applicant is the operator. The SWP3 must be developed and implemented prior to obtaining coverage and prior to commencing construction activities;

(b) primary operators of large construction activities must submit an NOI prior to commencing construction activity at a construction site. A completed NOI must be submitted to TCEQ electronically using the online ePermits system on TCEQ's website.

Operators with an electronic reporting waiver must submit a completed paper NOI to TCEQ at least seven (7) days prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ. An authorization is no longer provisional when the executive director finds the NOI is administratively complete, and an authorization number is issued to the permittee for the construction site indicated on the NOI.

If an additional primary operator is added after the initial NOI is submitted, the additional primary operator must meet the same requirements for existing primary operator(s), as indicated above.

If the primary operator changes due to responsibility at the site being transferred from one primary operator to another after the initial NOI is submitted, the new primary operator must submit an electronic NOI, unless they request and obtain a waiver from electronic reporting, at least ten (10) days prior to assuming operational control of a construction site and commencing construction activity.

(c) all operators of large construction activities must post a TCEQ Large Construction Site Notice on the approved TCEQ form (Form TCEQ-20961) in accordance with Part III.D.2. of this permit. The TCEQ site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and must be maintained in that location until final stabilization has been achieved. For linear construction activities, e.g., pipeline or highway, the TCEQ site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public, local, state, and federal authorities;

(d) two days prior to commencing construction activities, all primary operators must:

i. provide a copy of the signed NOI to the operator of any MS4 receiving the discharge and to any secondary construction operator, and

ii. list in the SWP3 the names and addresses of all MS4 operators receiving a copy;

(e) if signatory authority is delegated by an authorized representative, then a Delegation of Signatories form must be submitted as required by 30 TAC § 305.128 (relating to Signatories to Reports). Primary operators must submit this form electronically using the State of Texas Environmental Electronic Reporting System (STEERS), TCEQ's online permitting system, or by paper if the permittee requested and obtained an electronic reporting waiver. A new Delegation of Signatories form must be submitted, if the delegation changes to another individual or position;

(f) all persons meeting the definition of "secondary operator" in Part I of this permit are hereby notified that they are regulated under this general permit, but are not required to submit an NOI, provided that a primary operator at the site has submitted an NOI, or prior to commencement of construction activities, a primary operator is required to submit an NOI and the secondary operator has provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may alternatively submit an NOI under this general permit, may seek coverage under an alternative TPDES individual permit, or may seek coverage under an alternative TPDES general permit if available; and

(g) all secondary operators of large construction activities must post a copy of the signed and certified TCEQ Large Construction Site Notice for Secondary Operators on the approved TCEQ form (Form TCEQ-20962) and provide a copy of the signed and certified TCEQ site notice to the operator of any MS4 receiving the discharge at least two (2) days prior to the commencement construction activities.

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ Large Construction Site Notice for Secondary Operators, with a viewable signature, located on-site and available for review by an applicable regulatory authority.

Applicants must submit an NOI using the online ePermits system (accessed using STEERS) available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge.

4. Waivers for Small Construction Activities:

Operators of certain small construction activities may obtain a waiver from coverage under this general permit, if applicable. The requirements are outlined in Part II.G. below.

5. Effective Date of Coverage

(a) Operators of small construction activities as described in either Part II.E.1. or II.E.2. above are authorized immediately following compliance with the applicable conditions of Part II.E.1. or II.E.2. Secondary operators of large construction activities as described in Part II.E.3. above are authorized immediately following compliance with the applicable conditions in Part II.E.3. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(b) Primary operators of large construction activities as described in Part II.E.3. above that electronically submit an NOI are authorized immediately following confirmation of receipt of the electronic form by the TCEQ, unless otherwise notified by the executive director.

Operators with an electronic reporting waiver are provisionally authorized 48-hours from the date that a completed paper NOI is postmarked for delivery to the TCEQ, unless otherwise notified by the executive director. An authorization is no longer provisional when the executive director finds the NOI is administratively complete and an authorization number is issued to the permittee for the construction site indicated on the NOI.

For construction activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction activities may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(c) Operators are not prohibited from submitting late NOIs or posting late site notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement action for any unpermitted activities that may have occurred between the time construction commenced and authorization under this general permit was obtained.

(d) If operators that submitted NOIs have active authorizations for construction activities that are ongoing when this general permit expires on March 5, 2028, and a new general permit is issued, a 90-day interim (grace) period is granted to provide coverage that is administratively continued until operators with active authorizations can obtain coverage under the newly issued CGP. The 90-day grace period starts on the effective date of the newly issued CGP.

6. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

(a) the TPDES CGP authorization number for existing authorizations under this general permit, where the operator submits an NOI to renew coverage within 90 days of the effective date of this general permit;

(b) the name, address, and telephone number of the operator filing the NOI for permit coverage;

(c) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;

(d) the number of acres that will be disturbed by the applicant;

(e) the estimated construction project start date and end date;

(f) confirmation that the project or site will not be located on Indian Country lands;

(g) confirmation if the construction activity is associated with an oil and gas exploration, production, processing, or treatment, or transmission facility (see Part II.C.9.)

(h) confirmation that the construction activities are not associated with the construction of a facility that is licensed for the storage of high-level radioactive waste by the United States Nuclear Regulatory Commission under 10 CFR Part 72 (see Part II.C.12.);

(i) confirmation that a SWP3 has been developed in accordance with all conditions of this general permit, that it will be implemented prior to commencement of construction activities, and that it is compliant with any applicable local sediment and erosion control plans; for multiple operators who prepare a shared SWP3, the confirmation for an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator;

(j) name of the receiving water(s);

(k) the classified segment number for each classified segment that receives discharges from the regulated construction activity (if the discharge is not directly to a classified segment, then the classified segment number of the first classified segment that those discharges reach); and

(l) the name of all surface waters receiving discharges from the regulated construction activity that are on the latest EPA-approved CWA § 303(d) List of impaired waters or *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)* as not meeting applicable state water quality standards.

7. Notice of Change (NOC)

(a) If relevant information provided in the NOI changes, the operator that has submitted the NOI must submit an NOC to TCEQ at least fourteen (14) days before the change occurs. Where a 14-day advance notice is not possible, the operator must submit an NOC to TCEQ within fourteen (14) days of discovery of the change. If the operator becomes aware that it failed to submit any relevant facts or submitted

incorrect information in an NOI, the correct information must be submitted to TCEQ in an NOC within fourteen (14) days after discovery.

(b) Information on an NOC may include, but is not limited to, the following:

i. a change in the description of the construction project;

ii. an increase in the number of acres disturbed (for increases of one (1) or more acres);

iii. or the name of the operator (where the name of the operator has changed).

(c) Electronic NOC.

Applicants must submit an NOC using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. All waivers from electronic reporting are not transferrable. Electronic reporting waivers expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance. A copy of the NOC form or letter must also be placed in the SWP3 and provided to the operator of any MS4 receiving the discharge. Operators are authorized immediately following confirmation of receipt of the electronic form by the TCEQ, unless otherwise notified by the executive director.

(d) Paper NOC.

Applicants who request and obtain an electronic reporting waiver shall submit the NOC on a paper form provided by the executive director, or by letter if an NOC form is not available.

(e) A copy of the NOC form or letter must also be placed in the SWP3 and provided to the operator of any MS4 receiving the discharge. A list that includes the names and addresses of all MS4 operators receiving a copy of the NOC (or NOC letter) must be included in the SWP3. Information that may not be included on an NOC includes but is not limited to the following:

i. transfer of operational control from one operator to another, including a transfer of the ownership of a company. A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing or charter number that is on record with the Texas Secretary of State (SOS) must be changed.

ii. coverage under this general permit is not transferable from one operator to another. Instead, the new operator will need to submit an NOI or LREW, as applicable, and the previous operator will need to submit an NOT.

iii. a decrease in the number of acres disturbed. This information must be included in the SWP3 and retained on site.

8. Signatory Requirement for NOI Forms, NOT Forms, NOC Forms, and Construction Site Notices

NOI forms, NOT forms, NOC forms, and Construction Site Notices that require a signature must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

Section F. Terminating Coverage

1. Notice of Termination (NOT) Required

Each operator that has submitted an NOI for authorization of large construction activities under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit.

Authorization of large construction must be terminated by submitting an NOT electronically via the online ePermits system available through the TCEQ website, or on a paper NOT form to TCEQ supplied by the executive director with an approved waiver from electronic reporting. Authorization to discharge under this general permit terminates at midnight on the day a paper NOT is postmarked for delivery to the TCEQ or immediately following confirmation of the receipt of the NOT submitted electronically by the TCEQ.

Applicants must submit an NOT using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance.

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge (with a list in the SWP3 of the names and addresses of all MS4 operators receiving a copy), within 30 days after any of the following conditions are met:

(a) final stabilization has been achieved on all portions of the site that are the responsibility of the operator;

(b) a transfer of operational control has occurred (See Section II.F.4. below); or

(c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

Compliance with the conditions and requirements of this permit is required until the NOT is submitted and approved by TCEQ.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

(a) if authorization for construction activity was granted following submission of an NOI, the permittee's site-specific TPDES authorization number for a specific construction site;

(b) an indication of whether final stabilization has been achieved at the site and a NOT has been submitted or if the permittee is simply no longer an operator at the site;

(c) the name, address, and telephone number of the permittee submitting the NOT;

(d) the name (or other identifier), address, county, and location (latitude/longitude) of the construction project or site; and

(e) a signed certification that either all stormwater discharges requiring authorization under this general permit will no longer occur, or that the applicant is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or have been transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

3. Termination of Coverage for Small Construction Sites and for Secondary Operators at Large Construction Sites

   (a) Each operator that has obtained automatic authorization for small construction or is a secondary operator for large construction must perform the following when terminating coverage under the permit:

      i. remove the TCEQ site notice;

      ii. complete the applicable portion of the TCEQ site notice related to removal of the TCEQ site notice; and

      iii. submit a copy of the completed TCEQ site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator, with documentation of such notification included in the SWP3).

   (b) The activities described in Part II.F.3.(a) above must be completed by the operator within 30 days of meeting any of the following conditions:

      i. final stabilization has been achieved on all portions of the site that are the responsibility of the operator;

      ii. a transfer of day-to-day operational control over activities necessary to ensure compliance with the SWP3 and other permit conditions has occurred (See Section II.F.4. below); or

      iii. the operator has obtained alternative authorization under an individual or general TPDES permit.

   For Small Construction Sites and Secondary Operators at Large Construction Sites, authorization to discharge under this general permit terminates immediately upon removal of the applicable TCEQ construction site notice. Compliance with the conditions and requirements of this permit is required until the TCEQ construction site notice is removed. The construction site notice cannot be removed until final stabilization has been achieved.

4. Transfer of Day-to-Day Operational Control

   (a) When the primary operator of a large construction activity changes or operational control over activities necessary to ensure compliance with the SWP3 and other permit conditions is transferred to another primary operator, the original operator must do the following:

      i. submit an NOT within ten (10) days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least ten (10) days prior to the transfer of operational control, in accordance with condition (c) below; and

      ii. submit a copy of the NOT from the primary operator terminating its coverage under the permit and its operational control of the construction site and submit a copy of the NOI from the new primary operator to the operator of any MS4 receiving the discharge in accordance with Part II.F.1. above.

   (b) For transfer of operational control, operators of small construction activities and secondary operators of large construction activities who are not required to submit an NOI must do the following:

      i. the existing operator must remove the original TCEQ construction site notice, and the new operator must post the required TCEQ construction site notice prior to the transfer of operational control, in accordance with the conditions in Part II.F.4.(c) i or ii below; and

      ii. a copy of the TCEQ construction site notice, which must be completed and provided to the operator of any MS4 receiving the discharge, in accordance with Part II.F.3. above.

   (c) Each operator is responsible for determining its role as an operator as defined in Part I.B. and obtaining authorization under the permit, as described above in Part II.E. 1. - 3. Where authorization has been obtained by submitting an NOI for coverage under this general permit, permit coverage is not transferable from one operator to another. A transfer of operational control can include changes to the structure of a company, such as changing from a partnership to a corporation, or changing to a different corporation type such that a different filing (or charter) number is established with the Texas Secretary of State (SOS). A transfer of operational control can also occur when one of the following criteria is met, as applicable:

      i. another operator has assumed control over all areas of the site that do not meet the definition for final stabilization;

      ii. all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator, provided that the original permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Records of this notification (or attempt at notification) shall be retained by the operator transferring operational control to another operator in accordance with Part VI of this permit. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal; or

      iii. a homebuilder has purchased one (1) or more lots from an operator who obtained coverage under this general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the requirements of this permit. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to the lot(s) it has operational control over in a larger common plan of development, and the original operator remains responsible for common controls or discharges, and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

Section G. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for stormwater discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

   Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit, when the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5).

   The operator must submit a Low Rainfall Erosivity Waiver (LREW) certification form to the TCEQ electronically via the online ePermits system available through the TCEQ website. The LREW form is a certification by the operator that the small construction activity will commence and be completed within a period when the value of the calculated R factor is less than five (5).

   Applicants who request and obtain an electronic reporting waiver shall submit the LREW on a paper form provided by the executive director at least seven (7) days prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ. An authorization is no longer provisional when the executive director finds the LREW is administratively complete, and an authorization number is issued to the permittee for the construction site indicated on the LREW. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance.

   This LREW from coverage does not apply to any non-stormwater discharges, including what is allowed under this permit. The operator must ensure that all non-stormwater discharges are either authorized under a separate permit or authorization or are captured and routed to an authorized treatment facility for disposal.

2. Steps to Obtaining a Waiver

   The construction site operator may calculate the R factor to request a waiver using the following steps:

   (a) estimate the construction start date and the construction end date. The construction end date is the date that final stabilization will be achieved.

   (b) find the appropriate Erosivity Index (EI) zone in Appendix B of this permit.

   (c) find the EI percentage for the project period by adding the results for each period of the project using the table provided in Appendix D of this permit, in EPA Fact Sheet 2.1, or in USDA Handbook 703, by subtracting the start value from the end value to find the percent EI for the site.

   (d) refer to the Isoerodent Map (Appendix C of this permit) and interpolate the annual isoerodent value for the proposed construction location.

   (e) multiply the percent value obtained in Step (c) above by the annual isoerodent value obtained in Step (d). This is the R factor for the proposed project. If the value is less than five (5), then a waiver may be obtained. If the value is five (5) or more, then a waiver may not be obtained, and the operator must obtain coverage under Part II.E.2. of this permit.

   Alternatively, the operator may calculate a site-specific R factor utilizing the following online calculator: https://lew.epa.gov/, or using another available resource.

   A copy of the LREW certification form is not required to be posted at the small construction site.

3. Effective Date of an LREW

   Unless otherwise notified by the executive director, operators of small construction activities seeking coverage under an LREW are provisionally waived from the otherwise applicable requirements of this general permit 48-hours from the date that a completed paper LREW certification form is postmarked for delivery to TCEQ, or immediately upon receiving confirmation of approval of an electronic submittal, made via the online ePermits system available through the TCEQ website.

   Applicants seeking coverage under an LREW must submit an application for an LREW using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge.

4. Activities Extending Beyond the LREW Period

   If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

   (a) recalculate the R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new LREW form at least two (2) days before the end of the original waiver period; or

   (b) obtain authorization under this general permit according to the requirements for automatic authorization for small construction activities in Part II.E.2. of this permit, prior to the end of the approved LREW period.

Section H. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

   Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC Chapter 305 (relating to Consolidated Permits). Applications for individual permit coverage must be submitted at least 330 days prior to commencement of construction activities to ensure timely authorization. Existing coverage under this general permit should not be terminated until an individual permit is issued and in effect.

2. General Permit Alternative

   Any discharges eligible for authorization under this general permit may alternatively be authorized under a separate general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges), as applicable.

3. Individual Permit Required

   The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit in the following circumstances:

   (a) the conditions of an approved TMDL or TMDL I-Plan on the receiving water;

   (b) the activity being determined to cause, has a reasonable potential to cause, or contribute to a violation of water quality standards or being found to cause, or contribute to, the loss of a designated use of surface water in the state; and

   (c) any other consideration defined in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) including 30 TAC § 205.4(c)(3)(D), which allows the commission to deny authorization under the general permit and require an individual permit if a discharger has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director.

      A discharger with a TCEQ compliance history rating of “unsatisfactory” is ineligible for coverage under this general permit. In that case, 30 TAC § 60.3 requires the executive director to deny or suspend an authorization to discharge under a general permit. However, per TWC § 26.040(h), a discharger is entitled to a hearing before the commission prior to having an authorization denied or suspended for having an “unsatisfactory” compliance history.

   Denial of authorization to discharge under this general permit or suspension of a permittee’s authorization under this general permit for reasons other than compliance history shall be done according to commission rules in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

Section I. Permit Expiration

1. This general permit is effective for a term not to exceed five (5) years. All active discharge authorizations expire on the date provided on page one (1) of this permit. Following public notice and comment, as provided by 30 TAC § 205.3 (relating to Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit. All authorizations that are active at the time the permit term expires will be administratively continued as indicated in Part II.I.2. below and in Part II.D.1.(b) and D.2.(b) of this permit.
2. If the executive director publishes a notice of the intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.
3. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit. If the application for an individual permit is submitted before the expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual permit. No new NOIs will be accepted nor new authorizations honored under the general permit after the expiration date.

Part III. Stormwater Pollution Prevention Plans (SWP3)

All regulated construction site operators shall prepare an SWP3, prior to submittal of an NOI, to address discharges authorized under Parts II.E.2. and II.E.3. of this general permit that will reach waters of the U.S. This includes discharges to MS4s and privately owned separate storm sewer systems that drain into surface water in the state or waters of the U.S.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project, provided reference is made to the other operators at the site. Where there is more than one (1) SWP3 for a site, operators must coordinate to ensure that BMPs and controls are consistent and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure compliance with the terms and conditions of this general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

An SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater associated with construction activity and non-stormwater discharges described in Part II.A.3., in compliance with the terms and conditions of this permit.

An SWP3 must also identify any potential sources of pollution that have been determined to cause, have a reasonable potential to cause, or contribute to a violation of water quality standards or have been found to cause or contribute to the loss of a designated use of surface water in the state from discharges of stormwater from construction activities and construction support activities. Where potential sources of these pollutants are present at a construction site, the SWP3 must also contain a description of the management practices that will be used to prevent these pollutants from being discharged into surface water in the state or waters of the U.S.

NOTE: Construction support activities can also include vehicle repair areas, fueling areas, etc. that are present at a construction site solely for the support construction activities and are only used by operators at the construction site.

The SWP3 is intended to serve as a road map for how the construction operator will comply with the effluent limits and other conditions of this permit. Additional portions of the effluent limits are established in Part IV. of the permit.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators of small and large construction activities must independently obtain authorization under this permit but may work together with other regulated operators at the construction site to prepare and implement a single, comprehensive SWP3, which can be shared by some or all operators, for the construction activities that each of the operators are performing at the entire construction site.

1. The SWP3 must include the following:
   (a) for small construction activities – the name of each operator that participates in the shared SWP3;
   (b) for large construction activities – the name of each operator that participates in the shared SWP3, the general permit authorization numbers of each operator (or the date that the NOI was submitted to TCEQ by each operator that has not received an authorization number for coverage under this permit); and
   (c) for large and small construction activities – the signature of each operator participating in the shared SWP3.
2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.
3. The SWP3 may provide that one operator is responsible for preparation of a SWP3 in compliance with the CGP, and another operator is responsible for implementation of the SWP3 at the project site.

Section B. Responsibilities of Operators

1. Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

   All secondary operators and primary operators with control over construction plans and specifications shall:
   (a) ensure the project specifications allow or provide that adequate BMPs are developed to meet the requirements of Part III of this general permit;
   (b) ensure that the SWP3 indicates the areas of the project where they have control over project specifications, including the ability to make modifications in specifications;
   (c) ensure that all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their BMP s as necessary to remain compliant with the conditions of this general permit; and

   (d) ensure that the SWP3 for portions of the project where each operator has control indicates the name and site-specific TPDES authorization number(s) for operators with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If a primary operator has not been authorized or has abandoned the site, the secondary operator is considered to be the responsible party and must obtain authorization as a primary operator under the permit, until the authority for day-to-day operational control is transferred to another primary operator. The new primary operator must update or develop a new SWP3 that will reflect the transfer of operational control and include any additional updates to the SWP3 to meet requirements of the permit.

2. Primary Operators with Day-to-Day Operational Control

   Primary operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with an SWP3 and other permit conditions must ensure that the SWP3 accomplishes the following requirements:
   (a) meets the requirements of this general permit for those portions of the project where they are operators;
   (b) identifies the parties responsible for implementation of BMPs described in the SWP3;
   (c) indicates areas of the project where they have operational control over day-to-day activities; and
   (d) the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications for areas where they have operational control over day-to-day activities.

Section C. Deadlines for SWP3 Preparation, Implementation, and Compliance

The SWP3 must be prepared prior to obtaining authorization under this general permit, and implemented prior to commencing construction activities that result in soil disturbance. The SWP3 must be prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site. If the SWP3 is retained off-site, then it shall be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request.

   NOTE: The SWP3 may be prepared and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally valid with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form.
2. Operators with authorization for construction activity under this general permit must post a TCEQ site notice at the construction site at a place readily available for viewing by the general public, and local, state, and federal authorities.

   (a) Primary and secondary operators of large construction activities must each post a TCEQ construction site notice, respective to their role as an operator at the construction site, as required above and according to requirements in Part II.E.3. of this general permit.
   (b) Primary and secondary operators of small construction activities must post the TCEQ site notice as required in Part III.D.2.(a) above and for the specific type of small construction described in Part II.E.1. and 2. of the permit.
   (c) If the construction project is a linear construction project, such as a pipeline or highway, the notices must be placed in a publicly accessible location near where construction is actively underway. TCEQ construction site notices for small and large construction activities at these linear construction sites may be relocated, as necessary, along the length of the project, but must still be readily available for viewing by the general public; local, state, and federal authorities; and contain the following information:
      i. the site-specific TPDES authorization number for the project if assigned;
      ii. the operator name, contact name, and contact phone number;
      iii. a brief description of the project; and
      iv. the location of the SWP3.
3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Revisions and Updates to SWP3s

The permittee must revise or update the SWP3, including the site map, within seven (7) days of when any of the following occurs:

1. a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. results of inspections or investigations by construction site personnel authorized by the permittee, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must be developed and implemented by primary operators of small and large construction activities and include, at a minimum, the information described in this section and must comply with the construction and development effluent guidelines in Part IV. of the general permit.

1. A site or project description, which includes the following information:
   (a) a description of the nature of the construction activity;
   (b) a list of potential pollutants and their sources;
   (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site, including estimated start dates and duration of activities;

(d) the total number of acres of the entire property and the total number of acres where construction activities will occur, including areas where construction support activities (defined in Part I.B. of this general permit) occur;

(e) data describing the soil or the quality of any discharge from the site;

(f) a map showing the general location of the site (e.g., a portion of a city or county map);

(g) a detailed site map (or maps) indicating the following:

i. property boundary(ies);

ii. drainage patterns and approximate slopes anticipated before and after major grading activities;

iii. areas where soil disturbance will occur (note any phasing), including any demolition activities;

iv. locations of all controls and buffers, either planned or in place;

v. locations where temporary or permanent stabilization practices are expected to be used;

vi. locations of construction support activities, including those located off-site;

vii. surface waters (including wetlands) either at, adjacent, or in close proximity to the site, and also indicate whether those waters are impaired;

NOTE: Surface waters adjacent to or in close proximity to the site means any receiving waters within the site and all receiving waters within one mile downstream of the site's discharge point(s).

viii. locations where stormwater discharges from the site directly to a surface water body or a municipal separate storm sewer system;

ix. vehicle wash areas; and

x. designated points on the site where vehicles will exit onto paved roads (for instance, this applies to construction transition from unstable dirt areas to exterior paved roads).

Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.

(h) the location and description of support activities authorized under the permittee's NOI, including asphalt plants, concrete plants, and other activities providing support to the construction site that is authorized under this general permit;

(i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;

(j) a copy of this TPDES general permit (an electronic copy of this TPDES general permit or a current link to this TPDES general permit on the TCEQ webpage is acceptable);

(k) the NOI and the acknowledgement of provisional and non-provisional authorization for primary operators of large construction sites, and the TCEQ site notice for small construction sites and for secondary operators of large construction sites;

(l) if signatory authority is delegated by an authorized representative, then a copy of the formal notification to TCEQ, as required by 30 TAC 305.128 relating to Signatories to Reports must be filed in the SWP3 and made available for review upon request by TCEQ or local MS4 Operator. For primary operators of large construction activities, the formal notification to TCEQ must be submitted either electronically through

STEERS, TCEQ's electronic reporting system, or, if qualifying for an electronic reporting waiver, by paper on a Delegation of Signatories form. For operators or small construction activities, the formal notification to TCEQ must be submitted by paper on a Delegation of Signatories form.

(m) stormwater and allowable non-stormwater discharge locations, including storm drain inlets on site and in the immediate vicinity of the construction site where construction support activities will occur; and

(n) locations of all pollutant-generating activities at the construction site and where construction support activities will occur, such as the following: Paving operations; concrete, paint and stucco washout and water disposal; solid waste storage and disposal; and dewatering operations.

2. A description of the BMPs that will be used to minimize pollution in runoff.

The description must identify the general timing or sequence for installation and implementation. At a minimum, the description must include the following components:

(a) General Requirements

i. Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.

ii. Control measures must be properly selected, installed, and maintained according to good engineering practices, and the manufacturer's or designer's specifications.

iii. Controls must be developed to minimize the offsite transport of litter, construction debris, construction materials, and other pollutants required of Part IV.D.

(b) Erosion Control and Stabilization Practices

The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the construction site, where small or large construction activity will occur. The erosion control and stabilization practices selected by the permittee must be compliant with the requirements for sediment and erosion control, located in Part IV. of this permit. The description of the SWP3 must also include a schedule of when the practices will be implemented. Site plans must ensure that existing vegetation at the construction site is preserved where it is possible.

i. Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, and other similar measures.

ii. The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in Part III.D.1 of this general permit:

(A) the dates when major grading activities occur;

(B) the dates when construction activities temporarily or permanently cease on a portion of the site; and

(C) the dates when stabilization measures are initiated.

iii. Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding fourteen (14) calendar days. Stabilization

measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased. The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Except as provided in (A) through (D) below, these measures must be completed as soon as practicable, but no more than fourteen (14) calendar days after the initiation of soil stabilization measures:

(A) where the immediate initiation of vegetative stabilization measures after construction activity has temporarily or permanently ceased due to frozen conditions, non-vegetative controls must be implemented until thawing conditions (as defined in Part I.B. of this general permit) are present, and vegetative stabilization measures can be initiated as soon as practicable.

(B) in arid areas, semi-arid areas, or drought-stricken areas, as they are defined in Part I.B. of this general permit, where the immediate initiation of vegetative stabilization measures after construction activity has temporarily or permanently ceased or is precluded by arid conditions, other types of erosion control and stabilization measures must be initiated at the site as soon as practicable. Where vegetative controls are infeasible due to arid conditions, and within fourteen (14) calendar days of a temporary or permanent cessation of construction activity in any portion of the site, the operator shall immediately install non-vegetative erosion controls in areas of the construction site where construction activity is complete or has ceased. If non-vegetative controls are infeasible, the operator shall install temporary sediment controls as required in Part III.F.2.(b)iii.(C) below.

(C) in areas where non-vegetative controls are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible, and must demonstrate that the perimeter controls will retain sediment on site to the extent practicable. The operator must continue to inspect the BMPs at the frequencies established in Part III.F.8.(c) for unstabilized sites.

(D) the requirement for permittees to initiate stabilization is triggered as soon as it is known with reasonable certainty that construction activity at the site or in certain areas of the site will be stopped for 14 or more additional calendar days. If the initiation or completion of vegetative stabilization is prevented by circumstances beyond the control of the permittee, the permittee must employ and implement alternative stabilization measures immediately. When conditions at the site changes that would allow for vegetative stabilization, then the permittee must initiate or complete vegetative stabilization as soon as practicable.

iv. Final stabilization must be achieved prior to termination of permit coverage.

v. TCEQ does not expect that temporary or permanent stabilization measures to be applied to areas that are intended to be left un-vegetated or un-stabilized following construction (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, or materials).

(c) Sediment Control Practices

The SWP3 must include a description of any sediment control practices used to remove eroded soils from stormwater runoff, including the general timing or sequence for implementation of controls. Controls selected by the permittee must be compliant with the requirements in Part IV. of this permit.

i. Sites With Drainage Areas of Ten (10) or More Acres

(A) Sedimentation Basin(s) or Impoundments

(1) A sedimentation basin or similar impoundment is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. A sedimentation basin or impoundment may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin or similar impoundment. Capacity calculations shall be included in the SWP3. Sedimentation basins must be designed for and appropriate for controlling runoff at the site and existing detention or retention ponds at the site may not be appropriate.

(2) Where rainfall data is not available, or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

(3) If a sedimentation basin or impoundment is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin or impoundment is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins or impoundments are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins or impoundments.

(4) Unless infeasible, when discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface.

(B) Perimeter Controls: At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

ii. Controls for Sites with Drainage Areas Less than Ten (10) Acres:

(A) Sediment traps and sediment basins may be used to control solids in stormwater runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(B) Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided. If a calculation is performed, then the calculation shall be included in the SWP3.

(C) If sedimentation basins or impoundments are used, the permittee shall comply with the requirements in Part IV.F. of this general permit.

3. Description of Permanent Stormwater Controls

A description of any stormwater control measures that will be installed during the construction process to control pollutants in stormwater discharges that may occur after construction operations have been completed must be included in the SWP3. Permittees are responsible for the installation and maintenance of stormwater management measures, as follows:

(a) permittees authorized under the permit for small construction activities are responsible for the installation and maintenance of stormwater control measures prior to final stabilization of the site; or

(b) permittees authorized under the permit for large construction activities are responsible for the installation and maintenance of stormwater control measures prior to final stabilization of the site and prior to submission of an NOT.

4. Other Required Controls and BMPs

(a) Permittees shall minimize, to the extent practicable, the off-site vehicle tracking of sediments and dust. The SWP3 shall include a description of controls utilized to control the generation of pollutants that could be discharged in stormwater from the site.

(b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials.

(c) The SWP3 must include a description of potential pollutant sources in discharges of stormwater from all areas of the construction site where construction activity, including construction support activities, will be located, and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(d) Permittees shall place velocity dissipation devices at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) to provide a non-erosive flow velocity from the structure to a water course, so that the natural physical and biological characteristics and functions are maintained and protected.

(e) Permittees shall design and utilize appropriate controls in accordance with Part IV. of this permit to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

(f) Permittees shall ensure that all other required controls and BMPs comply with all of the requirements of Part IV. of this general permit.

(g) For demolition of any structure with at least 10,000 square feet of floor space that was built or renovated before January 1, 1980, and the receiving waterbody is impaired for polychlorinated biphenyls (PCBs):

i. implement controls to minimize the exposure of PCB-containing building materials, including paint, caulk, and pre-1980 fluorescent lighting fixtures to precipitation and to stormwater; and

ii. ensure that disposal of such materials is performed in compliance with applicable state, federal, and local laws.

5. Documentation of Compliance with Approved State and Local Plans

(a) Permittees must ensure that the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by federal, state, or local officials.

(b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or stormwater management site plans or site permits approved by state or local official for which the permittee receives written notice.

(c) If the permittee is required to prepare a separate management plan, including but not limited to a WPAP or Contributing Zone Plan in accordance with 30 TAC Chapter 213 (related to the Edwards Aquifer), then a copy of that plan must be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee shall maintain a copy of the approval letter for the plan in its SWP3.

6. Maintenance Requirements

(a) All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, as soon as the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

(b) If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator shall replace or modify the control as soon as practicable after making the discovery.

(c) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

(d) If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee shall work with the owner or operator of the property to remove the sediment.

7. Observation and Evaluation of Dewatering Controls Pursuant to Part IV.C. of this General Permit

(a) Personnel provided by the permittee must observe and evaluate dewatering controls at a minimum of once per day on the days where dewatering discharges from the construction site occur. Personnel conducting these evaluations must be knowledgeable of this general permit, the construction activities at the site, and the SWP3 for the site. Personnel conducting these evaluations are not required to have signatory authority for reports under 30 TAC § 305.128 (relating to Signatories to Reports).

(b) Requirements for Observations and Evaluations

i. A report summarizing the scope of any observation and evaluation must be completed within 24-hours following the evaluation. The report must also include, at a minimum, the following:

(A) date of the observations and evaluation;

(B) name(s) and title(s) of personnel making the observations and evaluation;

(C) approximate times that the dewatering discharge began and ended on the day of evaluation, or if the dewatering discharge is a continuous discharge that continues after normal business hours, indicate that the discharge is continuous (this information can be reported by personnel initiating the dewatering discharge);

(D) estimates of the rate (in gallons per day) of discharge on the day of evaluation;

(E) whether or not any indications of pollutant discharge were observed at the point of discharge (e.g., foam, oil sheen, noticeable odor, floating solids, suspended sediments, or other obvious indicators of stormwater pollution); and

(F) major observations, including: the locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

ii. Actions taken as a result of evaluations, including the date(s) of actions taken, must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be retained as part of the SWP3 and signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

iii. The names and qualifications of personnel making the evaluations for the permittee may be documented once in the SWP3 rather than being included in each report.

8. Inspections of All Controls

(a) Personnel provided by the permittee must inspect disturbed areas (cleared, graded, or excavated) of the construction site that do not meet the requirements of final stabilization in this general permit, all locations where stabilization measures have been implemented, areas of construction support activity covered under this permit, stormwater controls (including pollution prevention controls) for evidence of, or the potential for, the discharge of pollutants, areas where stormwater typically flows within the construction site, and points of discharge from the construction site.

i. Personnel conducting these inspections must be knowledgeable of this general permit, the construction activities at the site, and the SWP3 for the site.

ii. Personnel conducting these inspections are not required to have signatory authority for inspection reports under 30 TAC § 305.128 (relating to Signatories to Reports).

(b) Requirements for Inspections

i. Inspect all stormwater controls (including sediment and erosion control measures identified in the SWP3) to ensure that they are installed properly, appear to be operational, and minimizing pollutants in discharges, as intended.

ii. Identify locations on the construction site where new or modified stormwater controls are necessary.

iii. Check for signs of visible erosion and sedimentation that can be attributed to the points of discharge where discharges leave the construction site or discharge into any surface water in the state flowing within or adjacent to the construction site.

iv. Identify any incidents of noncompliance observed during the inspection.

v. Inspect locations where vehicles enter or exit the site for evidence of off-site sediment tracking.

vi. If an inspection is performed when discharges from the construction site are occurring: identify all discharge points at the site, and observe and document the visual quality of the discharge (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other such indicators of pollutants in stormwater).

vii. Complete any necessary maintenance needed, based on the results of the inspection and in accordance with the requirements listed in Part III.F.6. above.

(c) Inspection frequencies:

i. Inspections of construction sites must be conducted at least once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, unless as otherwise provided below in Part III.F.8.(c)ii. – v. below.

(A) If a storm event produces 0.5 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than 0.5 inches but together produce 0.5 inches or more in 24 hours), you are required to conduct one inspection within 24 hours of when 0.5 inches of rain or more has fallen. When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.

(B) If a storm event produces 0.5 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.5 inches or more of rain on subsequent days, you must conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.5 inches or more of rain (i.e., only two (2) inspections would be required for such a storm event). When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.

ii. Inspection frequencies must be conducted at least once every month in areas of the construction site that meet final stabilization or have been temporarily stabilized.

iii. Inspection frequencies for construction sites, where runoff is unlikely due to the occurrence of frozen conditions at the site, must be conducted at least once every month until thawing conditions begin to occur (see definitions for thawing conditions in Part I.B.). The SWP3 must also contain a record of the approximate beginning and ending dates of when frozen conditions occurred at the site, which resulted in inspections being conducted monthly, while those

conditions persisted, instead of at the interval of once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

iv. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 must also contain a record of the total rainfall measured, as well as the approximate beginning and ending dates of when drought conditions occurred at the site, which resulted in inspections being conducted monthly, while those conditions persisted, instead of at the interval of once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

v. As an alternative to the inspection schedule in Part III.F.8.(c)i. above, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

vi. The inspection procedures described in Part III.F.8.(c)i. – v above can be performed at the frequencies and under the applicable conditions indicated for each schedule option, provided that the SWP3 reflects the current schedule and that any changes to the schedule are made in accordance with the following provisions: the inspection frequency schedule can only be changed a maximum of once per calendar month and implemented within the first five (5) business days of a calendar month; and the reason for the schedule change documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season).

(d) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.8.(a) above.

i. Inspection of linear construction sites could require the use of vehicles that could compromise areas of temporary or permanent stabilization, cause additional disturbance of soils, and result in the increase the potential for erosion. In these circumstances, controls must be inspected at least once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, but representative inspections may be performed.

ii. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.8.(a) above. The conditions of the controls along each inspected 0.25-mile portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25-mile portion to either the end of the next 0.25-mile inspected portion, or to the end of the project, whichever occurs first.

As an alternative to the inspection schedule described in Part III.F.8.(c)i. above, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

iii. the SWP3 for a linear construction site must reflect the current inspection schedule. Any changes to the inspection schedule must be made in accordance with the following provisions:

(A) the schedule may be changed a maximum of one time each month;

(B) the schedule change must be implemented at the beginning of a calendar month, and

(C) the reason for the schedule change must be documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season).

(e) Adverse Conditions.

Requirements for inspections may be temporarily suspended for adverse conditions. Adverse conditions are conditions that are either dangerous to personnel (e.g., high wind, excessive lightning) or conditions that prohibit access to the site (e.g., flooding, freezing conditions). Adverse conditions that result in the temporary suspension of a permit requirement to inspect must be documented and included as part of the SWP3. Documentation must include:

i. the date and time of the adverse condition,

ii. names of personnel that witnessed the adverse condition, and

iii. a narrative for the nature of the adverse condition.

(f) In the event of flooding or other adverse conditions which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable. Inspection Reports.

i. A report summarizing the scope of any inspection must be completed within 24-hours following the inspection. The report must also include the date(s) of the inspection and major observations relating to the implementation of the SWP3. Major observations in the report must include: the locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

ii. Actions taken as a result of inspections, including the date(s) of actions taken, must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be retained as part of the SWP3 and signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

iii. The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

(g) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable. If necessary, modify your site map to reflect changes to your stormwater controls that are no longer accurately reflected on the current site map.

9. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-stormwater components of the discharge, as listed in Part II.A.3. of this permit.

10. The SWP3 must include the information required in Part III.B. of this general permit.

11. The SWP3 must include pollution prevention procedures that comply with Part IV.D. of this general permit.

Part IV. Erosion and Sediment Control Requirements Applicable to All Sites

Except as provided in 40 CFR §§ 125.30-125.32, any discharge regulated under this general permit, with the exception of sites that obtained waivers based on low rainfall erosivity, must achieve, at a minimum, the following effluent limitations representing the degree of effluent reduction attainable by application of the best practicable control technology currently available (BPT). The BPT are also required by and must satisfy the Effluent Limitations Guideline (ELG) permitting requirement for application of 40 CFR § 450.24 New Source Performance Standards (NSPS), 40 CFR § 450.22 Best Available Technology Economically Achievable (BAT), and 40 CFR § 450.23 Best Conventional Pollutant Control Technology (BCT).

Section A. Erosion and Sediment Controls

Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:

1. control stormwater volume and velocity within the site to minimize soil erosion in order to minimize pollutant discharges;
2. control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge point(s);
3. minimize the amount of soil exposed during construction activity;
4. minimize the disturbance of steep slopes;
5. 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;
6. provide and maintain appropriate natural buffers around surface water in the state. Direct stormwater to vegetated areas and maximize stormwater infiltration to reduce pollutant discharges, unless infeasible. If providing buffers is infeasible, the permittee shall document the reason that natural buffers are infeasible and shall implement additional erosion and sediment controls to reduce sediment load;
7. preserve native topsoil at the site, unless the intended function of a specific area of the site dictates that the topsoil be disturbed or removed, or it is infeasible; and
8. minimize soil compaction. In areas of the construction site where final vegetative stabilization will occur or where infiltration practices will be installed, either:
   (a) restrict vehicle and equipment use to avoid soil compaction; or
   (b) prior to seeding or planting areas of exposed soil that have been compacted, use techniques that condition the soils to support vegetative growth, if necessary and feasible.

   Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.
9. TCEQ does not consider stormwater control features (e.g., stormwater conveyance channels, storm drain inlets, sediment basins) to constitute "surface water" for the purposes of triggering the buffer requirement in Part IV.A.(6) above.

Section B. Soil Stabilization

Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding fourteen (14) calendar days. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next workday, following the day when the earth-disturbing activities have temporarily or permanently ceased. Temporary stabilization must be completed no more than fourteen (14) calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage. In arid, semi-arid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative non-vegetative stabilization measures must be employed as soon as practicable. Refer to Part III.F.2.(b) for complete erosion control and stabilization practice requirements. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed.

Section C. Dewatering

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited, unless managed by appropriate controls to address sediment and prevent erosion. Operators must observe and evaluate the dewatering controls once per day while the dewatering discharge occurs as described in Part III.F.7. of this general permit.

Section D. Pollution Prevention Measures

Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:

1. minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
2. 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;
3. minimize the exposure of waste materials by closing waste container lids at the end of the workday and during storm events. For waste containers that do not have lids, where the container itself is not sufficiently secure enough to prevent the discharge of pollutants absent a cover and could leak, the permittee must provide either a cover (e.g., a tarp, plastic sheeting, temporary roof) to minimize exposure of wastes to precipitation, stormwater, and wind, or a similarly effective means designed to minimize the discharge of pollutants (e.g., secondary containment). Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use);
4. minimize exposure of wastes by implementing good housekeeping measures. Wastes must be cleaned up and disposed of in designated waste containers on days of operation at the site. Wastes must be cleaned up immediately if containers overflow;

5. minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. 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 established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, you must notify the National Response Center (NRC) at (800) 424-8802 in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117, and 40 CFR Part 302 as soon as you have knowledge of the release. You must also, within seven (7) calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release; and
6. minimize exposure of sanitary waste by positioning portable toilets so that they are secure and will not be tipped or knocked over, and so that they are located away from surface water in the state and stormwater inlets or conveyances.

Section E. Prohibited Discharges

The following discharges are prohibited:

1. wastewater from wash out of concrete, unless managed by an appropriate control;
2. wastewater from wash out and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
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.

Section F. Surface Outlets

When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible. If infeasible, the permittee must provide documentation in the SWP3 to support the determination, including the specific conditions or time periods when this exception will apply.

Part V. Stormwater Runoff from Concrete Batch Plants

Discharges of stormwater runoff from concrete batch plants present at regulated construction sites and operated as a construction support activity may be authorized under the provisions of this general permit, provided that the following requirements are met for concrete batch plant(s) authorized under this permit. Only the discharges of stormwater runoff and non-stormwater from concrete batch plants that meet the requirements of a construction support activity can be authorized under this permit (see the requirements for "Non-Stormwater Discharges" in Part II.A.3. and "Discharges of Stormwater Associated with Construction Support Activity" in Part II.A.2.).

If discharges of stormwater runoff or non-stormwater from concrete batch plants are not authorized under this general permit, then discharges must be authorized under an alternative general permit or individual permit [see the requirement in Part II.A.2.(c)].

This permit does not authorize the discharge or land disposal of any wastewater from concrete batch plants at regulated construction sites. Authorization for these wastes must be obtained under an individual permit or an alternative general permit.

Section A. Benchmark Sampling Requirements

1. Operators of concrete batch plants authorized under this general permit shall sample the stormwater runoff from the concrete batch plants according to the requirements of this section of this general permit, and must conduct evaluations on the effectiveness of the SWP3 based on the following benchmark monitoring values:

Table 1. Benchmark Parameters

Benchmark Parameter	Benchmark Value	Sampling Frequency	Sample Type
Oil and Grease (*1)	15 mg/L	1/quarter (*2) (*3)	Grab (*4)
Total Suspended Solids (*1)	50 mg/L	1/quarter (*2) (*3)	Grab (*4)
pH	6.0 – 9.0 Standard Units	1/quarter (*2) (*3)	Grab (*4)
Total Iron (*1)	1.3 mg/L	1/quarter (*2) (*3)	Grab (*4)

(*1) All analytical results for these parameters must be obtained from a laboratory that is accredited based on rules located in 30 TAC § 25.4 (a) or through the National Environmental Laboratory Accreditation Program (NELAP). Analysis must be performed using sufficiently sensitive methods for analysis that comply with the rules located in 40 CFR §§ 136.1(c) and 122.44(i)(1)(iv).

(*2) When discharge occurs. Sampling is required within the first 30 minutes of discharge. If it is not practicable to take the sample, or to complete the sampling, within the first 30 minutes, sampling must be completed within the first hour of discharge. If sampling is not completed within the first 30 minutes of discharge, the reason must be documented and attached to all required reports and records of the sampling activity.

(*3) Sampling must be conducted at least once during each of the following periods. The first sample must be collected during the first full quarter that a stormwater discharge occurs from a concrete batch plant authorized under this general permit.

January through March
April through June
July through September
October through December

For projects lasting less than one full quarter, a minimum of one sample shall be collected, provided that a stormwater discharge occurred at least once following submission of the NOI or following the date that automatic authorization was obtained under Part II.E.2., and prior to terminating coverage.

(*4) A grab sample shall be collected from the stormwater discharge resulting from a storm event that is at least 0.1 inches of measured precipitation that occurs at least 72 hours from the previously measurable storm event. The sample shall be collected downstream of the concrete batch plant, and where the discharge exits any BMPs utilized to handle the runoff from the batch plant, prior to commingling with any other water authorized under this general permit.

2. The permittee must compare the results of sample analyses to the benchmark values above, and must include this comparison in the overall assessment of the SWP3's effectiveness. Analytical results that exceed a benchmark value are not a violation of this permit, as these values are not numeric effluent limitations. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. The operator must investigate the cause for each exceedance and must document the results of this investigation in the SWP3 by the end of the quarter following the sampling event.

   The operator's investigation must identify the following:

   (a) any additional potential sources of pollution, such as spills that might have occurred;

   (b) necessary revisions to good housekeeping measures that are part of the SWP3;

   (c) additional BMPs, including a schedule to install or implement the BMPs; and

   (d) other parts of the SWP3 that may require revisions in order to meet the goal of the benchmark values.

   Background concentrations of specific pollutants may also be considered during the investigation. If the operator is able to relate the cause of the exceedance to background concentrations, then subsequent exceedances of benchmark values for that pollutant may be resolved by referencing earlier findings in the SWP3. Background concentrations may be identified by laboratory analyses of samples of stormwater run-on to the permitted facility, by laboratory analyses of samples of stormwater run-off from adjacent non-industrial areas, or by identifying the pollutant is a naturally occurring material in soils at the site.

Section B. Best Management Practices (BMPs) and SWP3 Requirements

Minimum SWP3 Requirements – The following are required in addition to other SWP3 requirements listed in this general permit, which include, but are not limited to the applicable requirements located in Part III.F.8. of this general permit, as follows:

1. Description of Potential Pollutant Sources – The SWP3 must provide a description of potential sources (activities and materials) that can cause, have a reasonable potential to cause or contribute to a violation of water quality standards or have been found to cause, or contribute to, the loss of a designated use of surface water in the state in stormwater discharges associated with concrete batch plants authorized under this permit. The SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater discharges associated with industrial activity and non-stormwater discharges (described in Part II.A.3. of this general permit), in compliance with the terms and conditions of this general permit, including the protection of water quality, and must ensure the implementation of these practices.

   The following must be developed, at a minimum, in support of developing this description:

   (a) Drainage – The site map must include the following information:

      i. the location of all outfalls for stormwater discharges associated with concrete batch plants that are authorized under this permit;

      ii. a depiction of the drainage area and the direction of flow to the outfall(s);

      iii. structural controls used within the drainage area(s);

      iv. the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activities (including fueling, repair, and storage areas for vehicles and equipment scheduled for maintenance); areas used for the treatment, storage, or disposal of wastes; liquid storage tanks; material processing and storage areas; and loading and unloading areas; and

      v. the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater (including the areas that drain to the treatment device); areas with significant materials; and areas where major spills or leaks have occurred.

   (b) Inventory of Exposed Materials – A list of materials handled at the concrete batch plant that may be exposed to stormwater and precipitation and that have a potential to affect the quality of stormwater discharges associated with concrete batch plants that are authorized under this general permit.

   (c) Spills and Leaks – A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to stormwater and precipitation and that drain to stormwater outfalls associated with concrete batch plants authorized under this general permit must be developed, maintained, and updated as needed.

   (d) Sampling Data – A summary of existing stormwater discharge sampling data must be maintained, if available.

2. Measures and Controls – The SWP3 must include a description of management controls to regulate pollutants identified in the SWP3's "Description of Potential Pollutant Sources" from Part V.B.1. of this permit, and a schedule for implementation of the measures and controls. This must include, at a minimum:

   (a) Good Housekeeping – Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.

      i. Operators must prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), settled dust, or other significant materials from paved portions of the site that are exposed to stormwater. Measures used to minimize the presence of these materials may include regular sweeping or other equivalent practices. These practices must be conducted at a frequency that is determined based on consideration of the amount of industrial activity occurring in the area and frequency of precipitation, and shall occur at least once per week when cement or aggregate is being handled or otherwise processed in the area.

      ii. Operators must prevent the exposure of fine granular solids, such as cement, to stormwater. Where practicable, these materials must be stored in enclosed silos, hoppers or buildings, in covered areas, or under covering.

   (b) Spill Prevention and Response Procedures – Areas where potential spills that can contribute pollutants to stormwater runoff and precipitation, and the drainage areas from these locations, must be identified in the SWP3. Where appropriate, the SWP3 must specify material handling procedures, storage requirements, and use of equipment. Procedures for cleaning up spills must be identified in the SWP3 and made available to the appropriate personnel.

   (c) Inspections – Qualified facility personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) must be identified to inspect designated equipment and areas of the facility specified in the SWP3. Personnel conducting these inspections are not required to have signatory authority for inspection reports under 30 TAC § 305.128. Inspections of facilities in operation must be performed

once every seven (7) days. Inspections of facilities that are not in operation must be performed at a minimum of once per month. The current inspection frequency being implemented at the facility must be recorded in the SWP3. The inspection must take place while the facility is in operation and must, at a minimum, include all areas that are exposed to stormwater at the site, including material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, truck wash down and equipment cleaning areas. Follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections must be maintained and be made readily available for inspection upon request.

(d) Employee Training – An employee training program must be developed to educate personnel responsible for implementing any component of the SWP3, or personnel otherwise responsible for stormwater pollution prevention, with the provisions of the SWP3. The frequency of training must be documented in the SWP3, and at a minimum, must consist of one (1) training prior to the initiation of operation of the concrete batch plant.

(e) Record Keeping and Internal Reporting Procedures – A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of stormwater discharges, must be included in the SWP3. Inspection and maintenance activities must be documented and records of those inspection and maintenance activities must be incorporated in the SWP3.

(f) Management of Runoff – The SWP3 shall contain a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.

3. Comprehensive Compliance Evaluation – At least once per year, one or more qualified personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) shall conduct a compliance evaluation of the plant. The evaluation must include the following:

(a) visual examination of all areas draining stormwater associated with regulated concrete batch plants for evidence of, or the potential for, pollutants entering the drainage system. These include, but are not limited to: cleaning areas, material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down and equipment cleaning areas. Measures implemented to reduce pollutants in runoff (including structural controls and implementation of management practices) must be evaluated to determine if they are effective and if they are implemented in accordance with the terms of this permit and with the permittee's SWP3. The operator shall conduct a visual inspection of equipment needed to implement the SWP3, such as spill response equipment.

(b) based on the results of the evaluation, the following must be revised as appropriate within two (2) weeks of the evaluation: the description of potential pollutant sources identified in the SWP3 (as required in Part V.B.1., "Description of Potential Pollutant Sources"); and pollution prevention measures and controls identified in the SWP3 (as required in Part V.B.2., "Measures and Controls"). The revisions may include a schedule for implementing the necessary changes.

(c) the permittee shall prepare and include in the SWP3 a report summarizing the scope of the evaluation, the personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the SWP3, and actions taken in response to the findings of the evaluation. The report must identify any incidents of noncompliance. Where the report does not identify incidences of noncompliance, the report must contain a statement that the evaluation did not identify any

incidence(s), and the report must be signed according to 30 TAC § 305.128 (relating to Signatories to Reports).

(d) the Comprehensive Compliance Evaluation may substitute for one of the required inspections delineated in Part V.B.2.(c) of this general permit.

Section C. Prohibition of Wastewater Discharges

Wastewater discharges associated with concrete production including wastewater disposal by land application are not authorized under this general permit. These wastewater discharges must be authorized under an alternative TCEQ water quality permit or otherwise disposed of in an authorized manner. Discharges of concrete truck wash out at construction sites may be authorized if conducted in accordance with the requirements of Part VI of this general permit.

Part VI. Concrete Truck Wash Out Requirements

This general permit authorizes the land disposal of wash out from concrete trucks at construction sites regulated under this general permit, provided the following requirements are met. Any discharge of concrete production wastewater to surface water in the state must be authorized under a separate TCEQ general permit or individual permit.

A. Discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit.

B. Concrete truck wash out water shall be disposed in areas at the construction site where structural controls have been established to prevent discharge to surface water in the state, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent discharge to surface water in the state. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site.

C. Wash out of concrete trucks during rainfall events shall be minimized. The discharge of concrete truck wash out water is prohibited at all times, and the operator shall insure that its BMPs are sufficient to prevent the discharge of concrete truck wash out as the result of rainfall or stormwater runoff.

D. The disposal of wash out water from concrete trucks, made under authorization of this general permit must not cause or contribute to groundwater contamination.

E. If a SWP3 is required to be implemented, the SWP3 shall include concrete wash out areas on the associated site map.

Part VII. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required in Part II.F.1. and 2. of this permit. For activities in which an NOT is not required, records shall be retained for a minimum period of three (3) years from the date that the operator terminates coverage under Section II.F.3. of this permit. Records include:

A. a copy of the SWP3;

B. all reports and actions required by this permit, including a copy of the TCEQ construction site notice;

C. all data used to complete the NOI, if an NOI is required for coverage under this general permit; and

D. all records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

Part VIII. Standard Permit Conditions

A. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued (CWA and TWC), and is grounds for enforcement action, for terminating, revoking and reissuance, or modification, or denying coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41 (a).

B. Authorization under this general permit may be modified, suspended, revoked and reissued, terminated or otherwise suspended for cause, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41(f). Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for modifying, revoking and reissuing, terminating or, otherwise suspending authorization under this permit, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41 (h). Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.

C. It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.

D. Inspection and entry shall be allowed under TWC Chapters 26-28, Texas Health and Safety Code §§ 361.032-361.033 and 361.037, and 40 CFR § 122.41(i). The statement in TWC § 26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.

E. The discharger is subject to administrative, civil, and criminal penalties, as applicable, under TWC Chapter 7 for violations including but not limited to the following:

1. negligently or knowingly violating the federal CWA §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA § 402, or any requirement imposed in a pretreatment program approved under CWA §§ 402(a)(3) or 402(b)(8);
2. knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance; and
3. knowingly violating CWA §303 and placing another person in imminent danger of death or serious bodily injury.

F. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

G. Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.

H. The permittee 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.

I. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

J. The permittee shall comply with the monitoring and reporting requirements in 40 CFR § 122.41(j) and (l), as applicable.

K. Analysis must be performed using sufficiently sensitive methods for analysis that comply with the rules located in 40 CFR §§ 136.1(c) and 122.44(i)(1)(iv).

Part IX. Fees

A. A fee of must be submitted along with the NOI:

1. $225 if submitting an NOI electronically, or
2. $325 if submitting a paper NOI.

B. Fees are due upon submission of the NOI. An NOI will not be declared administratively complete unless the associated fee has been paid in full.

C. No separate annual fees will be assessed for this general permit. The Water Quality Annual Fee has been incorporated into the NOI fees as described above.

Appendix A: Automatic Authorization

Periods of Low Erosion Potential by County – Eligible Date Ranges

Andrews: Nov. 15 - Apr. 30
Archer: Dec. 15 - Feb. 14
Armstrong: Nov. 15 - Apr. 30
Bailey: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Baylor: Dec. 15 - Feb. 14
Borden: Nov. 15 - Apr. 30
Brewster: Nov. 15 - Apr. 30
Briscoe: Nov. 15 - Apr. 30
Brown: Dec. 15 - Feb. 14
Callahan: Dec. 15 - Feb. 14
Carson: Nov. 15 - Apr. 30
Castro: Nov. 15 - Apr. 30
Childress: Dec. 15 - Feb. 14
Cochran: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Coke: Dec. 15 - Feb. 14
Coleman: Dec. 15 - Feb. 14
Collingsworth: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28
Concho: Dec. 15 - Feb. 14
Cottle: Dec. 15 - Feb. 14
Crane: Nov. 15 - Apr. 30
Crockett: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
Crosby: Nov. 15 - Apr. 30
Culberson: Nov. 1 - May 14
Dallam: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Dawson: Nov. 15 - Apr. 30
Deaf Smith: Nov. 15 - Apr. 30
Dickens: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
Dimmit: Dec. 15 - Feb. 14
Donley: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28
Eastland: Dec. 15 - Feb. 14
Ector: Nov. 15 - Apr. 30
Edwards: Dec. 15 - Feb. 14
El Paso: Jan. 1 - Jul. 14, or May 15 - Jul. 31, or Jun. 1 - Aug. 14, or Jun. 15 - Sept. 14, or Jul. 1 - Oct. 14, or Jul. 15 - Oct. 31, or Aug. 1 - Apr. 30, or Aug. 15 - May 14, or Sept. 1 - May 30, or Oct. 1 - Jun. 14, or Nov. 1 - Jun. 30, or Nov. 15 - Jul. 14
Fisher: Dec. 15 - Feb. 14
Floyd: Nov. 15 - Apr. 30
Foard: Dec. 15 - Feb. 14
Gaines: Nov. 15 - Apr. 30
Garza: Nov. 15 - Apr. 30
Glasscock: Nov. 15 - Apr. 30
Hale: Nov. 15 - Apr. 30
Hall: Feb. 1 - Mar. 30
Hansford: Nov. 15 - Apr. 30
Hardeman: Dec. 15 - Feb. 14
Hartley: Nov. 15 - Apr. 30
Haskell: Dec. 15 - Feb. 14
Hockley: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Howard: Nov. 15 - Apr. 30
Hudspeth: Nov. 1 - May 14
Hutchinson: Nov. 15 - Apr. 30
Irion: Dec. 15 - Feb. 14
Jeff Davis: Nov. 1 - Apr. 30 or Nov. 15 - May 14
Jones: Dec. 15 - Feb. 14
Kent: Nov. 15 - Jan. 14 or Feb. 1 - Mar. 30
Kerr: Dec. 15 - Feb. 14
Kimble: Dec. 15 - Feb. 14
King: Dec. 15 - Feb. 14
Kinney: Dec. 15 - Feb. 14
Knox: Dec. 15 - Feb. 14
Lamb: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Loving: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Lubbock: Nov. 15 - Apr. 30
Lynn: Nov. 15 - Apr. 30
Martin: Nov. 15 - Apr. 30
Mason: Dec. 15 - Feb. 14
Maverick: Dec. 15 - Feb. 14
McCulloch: Dec. 15 - Feb. 14
Menard: Dec. 15 - Feb. 14
Midland: Nov. 15 - Apr. 30
Mitchell: Nov. 15 - Apr. 30
Moore: Nov. 15 - Apr. 30
Motley: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
Nolan: Dec. 15 - Feb. 14
Oldham: Nov. 15 - Apr. 30

Parmer: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Pecos: Nov. 15 - Apr. 30
Potter: Nov. 15 - Apr. 30
Presidio: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Randall: Nov. 15 - Apr. 30
Reagan: Nov. 15 - Apr. 30
Real: Dec. 15 - Feb. 14
Reeves: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Runnels: Dec. 15 - Feb. 14
Schleicher: Dec. 15 - Feb. 14
Scurry: Nov. 15 - Apr. 30
Shackelford: Dec. 15 - Feb. 14
Sherman: Nov. 15 - Apr. 30
Stephens: Dec. 15 - Feb. 14
Sterling: Nov. 15 - Apr. 30
Stonewall: Dec. 15 - Feb. 14
Sutton: Dec. 15 - Feb. 14
Swisher: Nov. 15 - Apr. 30
Taylor: Dec. 15 - Feb. 14
Terrell: Nov. 15 - Apr. 30
Terry: Nov. 15 - Apr. 30
Throckmorton: Dec. 15 - Feb. 14
Tom Green: Dec. 15 - Feb. 14
Upton: Nov. 15 - Apr. 30
Uvalde: Dec. 15 - Feb. 14
Val Verde: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
Ward: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Wichita: Dec. 15 - Feb. 14
Wilbarger: Dec. 15 - Feb. 14
Winkler: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Yoakum: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Young: Dec. 15 - Feb. 14
Wheeler: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28
Zavala: Dec. 15 - Feb. 14

Appendix B: Storm Erosivity (EI) Zones in Texas

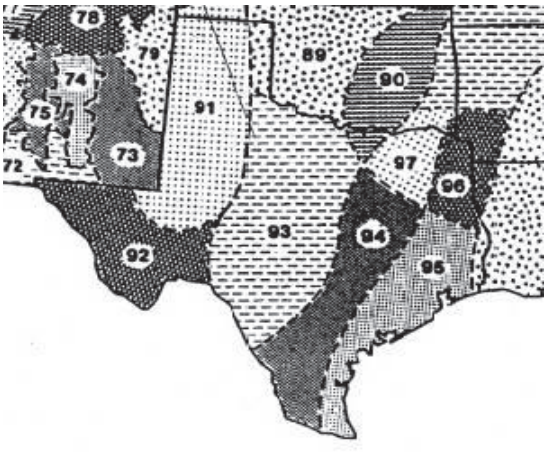


Figure B. EI Distribution Zones

Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix C: Isoerodent Map

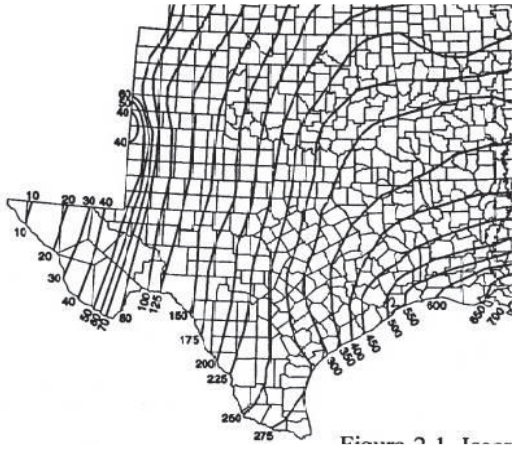


Figure C. Isoerodent Map of Texas. Units are hundreds ft*tonf*in(ac*h*yr)$^{-1}$

Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix D: Erosivity Indices for EI Zones in Texas

Table D. EI as percentage of average annual computed selected geographic areas (EI number) by date period (month/day).

Date Periods* (Month/Day)

EI #	1/1	1/16	1/31	2/15	3/1	3/16	3/31	4/15	4/30	5/15	5/30	6/14	6/29	7/14	7/29	8/13	8/28	9/12	9/27	10/12	10/27	11/11	11/26	12/11	12/31
89	0	1	1	2	3	4	7	2	8	27	38	48	55	62	69	76	83	90	94	97	98	99	100	100	100
90	0	1	2	3	4	6	8	13	21	29	37	46	54	60	65	69	74	81	87	92	95	97	98	99	100
91	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
92	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
93	0	1	1	2	3	4	6	8	13	25	40	49	56	62	67	72	76	80	85	91	97	98	99	99	100
94	0	1	2	4	6	8	10	15	21	29	38	47	53	57	61	65	70	76	83	88	91	94	96	98	100
95	0	1	3	5	7	9	11	14	18	27	35	41	46	51	57	62	68	73	79	84	89	93	96	98	100
96	0	2	4	6	9	12	17	23	30	37	43	49	54	58	62	66	70	74	78	82	86	90	94	97	100
97	0	1	3	5	7	10	14	20	28	37	48	56	61	64	68	72	77	81	86	89	92	95	98	99	100
106	0	3	6	9	13	17	21	27	33	38	44	49	55	61	67	71	75	78	81	84	86	90	94	97	100

*Each period begins on the date listed in the table above and lasts until the day before the following period. The final period begins on December 11 and ends on December 31.

Table adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service.

SPILL RESPONSE CONTRACTORS

TEXAS

This listing is not all-inclusive, nor is it an endorsement of any of the companies. This is provided for informational purposes only.

*See attachment for all state wide Spill Response Contractors

US Contractors

Texas

Alamo Environmental
San Antonio, TX 78217
Tel +1 (210) 404-1220
Tel +1 (800) 322-5085
Web

Ambipar Response
Midland, TX 79782
Tel +1 (817) 595-0100
Tel +1 (800) 980-7911
Web
Professionals in International Maritime Incident Response, Crisis Management, Training, Consultancy

Ambipar Response
Fort Worth, TX 76104
Tel +1 (817) 595-0100
Tel +1 (800) 980-7911
Web

AMPOL / American Pollution Control, Corp.
Port Arthur, TX 77640
Tel +1 (409) 365-4205
Tel +1 (800) 482-6765
Web
Complete spill response and hazmat services.

Ardent Global
Houston, TX 77032
Tel +1 (832) 850-4150

Tel +1 (206) 332-8200
Web

Asco Environmental Services
Sabine Pass, TX 77655
Tel +1 (409) 971-2521
Tel +1 (800) 207-7745
Web

Bulldog Environmental Services
Anton, TX 79313
Tel +1 (432) 413-5463
Tel +1 (833) 371-9630
Web

CG Environmental
Houston, TX 77076
Tel +1 (877) 276-1390
Web

Clean Channel Association
Pasadena, TX 77503
Tel +1 (713) 534-6195
Tel +1 (713) 534-6197
Web

Clean Gulf Associates
Humble, TX 77338
Tel +1 (281) 817-4601
Tel +1 (888) 242-2007
Web

Clean Harbors Environmental
Denton, TX 76201
Tel +1 (940) 735-3712
Tel +1 (800) 645-8265
Web
Land and water emergency response, containment, recovery, cleanup, disposal

Clean Harbors Environmental
Deer Park, TX 77536
Tel +1 (281) 478-2600
Tel +1 (800) 645-8265
Web

Clean Harbors Environmental
San Antonio, TX 78222
Tel +1 (210) 304-3000

Tel +1 (800) 645-8265
Web

Corpus Christi Area Oil Spill Control Assoc.
Corpus Christi, TX 78403
Tel +1 (361) 885-6188
Web
Oil spill cleanup cooperative since 1970 at port of Corpus Christi.

Cura Emergency Services
Plano, TX 75093
Tel +1 (972) 378-7333
Tel +1 (800) 579-2872
Web
Nationwide spill management and Environmental group

D&H Petroleum & Environmental Services
El Paso, TX 79907
Tel +1 (915) 859-8150
Tel +1 (800) 351-2227
Web
24-HR Chemical, Oil and Fuel Spill Cleanups – TX, NM

Environmental Evolutions National
Robstown, TX 78380
Tel +1 (877) 387-9401
Web
Emergency Response, Environmental Remediation, Super Sucker Trucks, Transportation, Mobile Cleaning

Environmental Restoration LLC
LaPorte, TX 77571
Tel +1 (346) 222-7142
Tel +1 (888) 814-7477
Web

Environmental Safety and Health Consulting Services, Inc (ES&H)
Grand Prairie, TX 75050
Tel +1 (972) 870-9424
Tel +1 (877) 437-2634
Web
Oil Spill Response & SMT, Tank Cleaning, Transportation, Disposal, Environmental Consulting & Training

ESA Consulting LLC
Longview, TX 75605
Tel +1 (903) 234-0404
Tel +1 (888) 837-0404
Web

ESS Environmental & Safety Solutions
El Paso, TX 79905
Tel +1 (915) 775-1171
Tel +1 (915) 238-1762
Web

Garner Environmental Services
Deer Park, TX 77536
Tel +1 (281) 930-1200
Tel +1 (800) 424-1716
Web
Specializes in Emergency Response, Disaster Response, Training and Safety Services

Garner Environmental Services
LaMarque, TX 77568
Tel +1 (409) 935-0308
Tel +1 (800) 424-1716
Web

Garner Environmental Services
Port Arthur, TX 77640
Tel +1 (409) 983-5646
Tel +1 (800) 424-1716
Web

GHD Services Inc
Houston, TX 77040
Tel +1 (866) 812-9565
Web
Nationwide emergency response, environmental consulting, construction engineering.

HAZMAT International Inc
Conroe, TX 77301
Tel +1 (936) 756-2255
Web

Haz Mat Special Services
LaPorte, TX 77571
Tel +1 (855) HAZ-MAT9
Web
High Haz emergency response company/oil spill clean up company

Heritage Environmental Services
Alvarado, TX 76009
Tel +1 (800) 377-4692
Tel +1 (877) 436-8778
Web
Oil and hazmat spill response services including transportation and disposal

Heritage Environmental Services
Marion, TX 78124
Tel +1 (210) 533-5066
Tel +1 (877) 436-8778
Web

Horizon Environmental
Baytown, TX 77520
Tel +1 (281) 479-5300
Tel +1 (866) 609-6208
Web

Horizon Environmental
Victoria, TX 77901
Tel +1 (361) 573-7400
Tel +1 (866) 609-6208
Web

Hulcher Services Inc
Denton, TX 76202
Tel +1 (940) 387-0099
Tel +1 (800) 637-5471
Web

Hull's Environmental Services, Inc
Odessa, TX 79763
Tel +1 (432) 934-6266
Tel +1 (866) 450-9077
Web
Oil, Fuel and Hazardous Material Spill Response Contractor

Lighthouse Environmental Services, Inc.
Houston, TX 77048
Tel +1 (713) 987-0400
Web

Lone Star Hazmat Response
Tyler, TX 75708
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Nacogdoches, TX 75964
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Dallas, TX 75236

Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Celina, TX 75009
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Brookshire, TX 77423
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
New Braunfels, TX 78132
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Pampa, TX 79065
Tel +1 (888) 9HAZMAT
Web

Lone Star Hazmat Response
Pecos, TX 79772
Tel +1 (888) 9HAZMAT
Web

Maalt Specialized Environmental, LLC
Fort Worth, TX 76119
Tel +1 (817) 446-6889
Tel +1 (877) 238-6889
Web
Comprehensive Emergency Response Services,oil field,pipeline, tanks & transportation

Masters ARS
Huffman, TX 77336
Tel +1 (281) 419-7800
Web
Environmental service company for commercial vehicle accidents and oil spills along the highway.

Miller Environmental Services Inc
Corpus Christi, TX 78408
Tel +1 (361) 289-9800
Web
Full service environmental and spill response company

Miller Environmental Services Inc
Beaumont, TX 77705
Tel +1 (409) 842-6900
Web

Milstead Hazardous Material Response LLC
Conroe, TX 77301
Tel +1 (833) 266-3500
Web

MSRC
Houston, TX 77032
Tel +1 (281) 776-4300
Web

MSRC
Galveston, TX 77553
Tel +1 (409) 740-9188
Web

MSRC
Ingleside, TX 78362
Tel +1 (361) 776-5336
Web

National Rapid Response
Cresson, TX 76035
Tel +1 (866) 536-9639
Tel +1 (877) 778-5175
Web
Full Service Emergency Response Cleanup Nationwide, Waste Management Nationwide, Training

New Direction Environmental, LLC
Katy, TX 77449
Tel +1 (832) 638-1105
Web

NJ Resources, Inc.
Houston, TX 77082
Tel +1 (832) 230-1601
Web

NRC
La Porte, TX 77571
Tel +1 (281) 867-9131
Web

Global Provider of Expert Environmental, Industrial, & Emergency Response Solutions

NRC
Fort Worth, TX 76131
Tel +1 (817) 847-1333
Web

NRC
Cibolo, TX 78108
Tel +1 (210) 566-8366
Web

Oil Spill Response Limited
Houston, TX 77024
Tel +1 (832) 431-3191
Web

OMI Environmental Solutions
Port Arthur, TX 77640
Tel +1 (409) 983-5646
Tel +1 (800) 645-6671
Web
Emergency Spill Response, Industrial Cleaning, Transportation, Environmental & Safety Supplies

OMI Environmental Solutions
Deerpark, TX 77536
Tel +1 (281) 470-2016
Tel +1 (800) 645-6671
Web

OMI Environmental Solutions
Kilgore, TX 75662
Tel +1 (903) 984-0329
Tel +1 (800) 645-6671
Web

OMI Environmental Solutions
La Marque, TX 77568
Tel +1 (409) 935-0308
Tel +1 (800) 645-6671
Web

Phoenix Pollution Control & Environmental Services Inc
Baytown, TX 77520
Tel +1 (281) 838-3400
Web
Oil/Haz-Mat response, Industrial services, vacuum trucks, roll-off boxes & training

Petrofac
Houston, TX 77084
Tel +1 (281) 558-5820
Tel +1 (281) 258-4632
Web
Crisis Management, Master Incident Practitioners, Response, Planning, Training, Exercises, Mitigation, Recovery

Protect Environmental Services, Inc
Haltom City, TX 76117
Tel +1 (817) 589-9005
Tel +1 (877) 589-9500
Web

Resolute Environmental & Response Services LLC
Baytown, TX 77520
Tel +1 (832) 770-3227
Web

Rhino Environmental Services
El Paso, TX 79904
Tel +1 (915) 886-4355
Tel +1 (800) 762-0241
Web

SET Environmental, Inc.
Houston, TX 77032
Tel +1 (281) 227-0718
Tel +1 (877) 437-7455
Web
Emergency Response, industrial services, vacuum trucks, waste transportation and disposal

SET Environmental, Inc.
Dallas, TX 75220
Tel +1 (972) 910-0441
Tel +1 (877) 437-7455
Web

SLICK Response Services
Deer Park, TX 77536
Tel +1 (281) 713-9969
Tel +1 (877) 35-SLICK
Web
Professionally equipped Full service oil spill / HAZMAT cleanup services

Spill Response Management
The Woodlands, TX 77381
Tel +1 (713) 824-3991

Web
30+ years' experience managing oil spills US domestic and foreign

Sport Environmental Services, LLC
Midland, TX 79701
Tel +1 (432) 683-1100
Web

Talon LPE
Amarillo, TX 79101
Tel +1 (806) 467-0607
Web
Environmental consulting, construction, drilling, training and spill response.

T&T Marine Salvage, Inc
Galveston, TX 77554
Tel +1 (409) 744-1222
Tel +1 (713) 534-0700
Web
An international leader in salvage, marine firefighting and pollution response.

T&T Marine Salvage, Inc
Humble, TX 77338
Tel +1 (281) 446-4010
Tel +1 (713) 534-0700
Web

TAS Environmental Services LP
Fort Worth, TX 76119
Tel +1 (817) 535-7222
Tel +1 (888) 654-0111
Web
Emergency response, oil spill cleanup, hazardous material cleanup, waste management

TAS Environmental Services LP
San Antonio, TX 78233
Tel +1 (888) 654-0111
Web

TAS Environmental Services LP
Dallas, TX 75217
Tel +1 (888) 654-0111
Web

TAS Environmental Services LP
Texarkana, TX 75501
Tel +1 (888) 654-0111
Web

TAS Environmental Services LP
Longview, TX 75603
Tel +1 (888) 654-0111
Web

The Response Group, Inc
Cypress, TX 77429
Tel +1 (281) 880-5000
Web

3D Marine (Response)
Houston, TX 77067
Tel +1 (281) 444-9495
Web
Spill Management, control and auditing.

Tradebe Environmental Services, LLC
LaPorte, TX 77571
Tel +1 (800) 914-9111
Web
Emergency response, environmental consulting, industrial cleaning, transportation & waste disposal

TRC Companies, Inc.
Midland, TX 79705
Tel +1 (432) 520-7720
Web

USA Environment, LP
Deer Park, TX 77536
Tel +1 (713) 425-6900
Web

U.S Environmental Services LLC
Pasadena, TX 77506
Tel +1 (281) 606-4960
Tel +1 (888) 279-9930
Web
USES specializes in environmental emergency response, industrial services/remediation/demolition

U.S Environmental Services LLC
Corpus Christi, TX 78409
Tel +1 (281) 867-4100
Tel +1 (888) 279-9930
Web

U.S Environmental Services LLC
Beaumont, TX 77705

Tel +1 (281) 606-4960
Web

Watchtower Defense
San Antonio, TX 78249
Tel +1 (210) 258-4772
Web

Witt O'Briens (Ambipar Group)
Houston, TX 77024
Tel +1 (281) 320-9796
Tel +1 (985) 781-0804
Web
Recognized leader in response management and preparedness services

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- Inflatable boom
- Permanent booms
- Beach (shoreseal)

Equipment Glossary (cont')

OIL SKIMMERS

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- Brush skimmers
- Rope mops
- Drum skimmers
- Disc skimmers
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More

SPILL REPORTING FORM

Project Type and Location _____

Date/Time of Spill: _____ Time Incident Contained: _____

Spill Location and Events Leading to Spill: _____

_____

_____

Material Spilled: _____

Source of Spill: _____

Amount Spilled: _____ Amount Spilled to Waterway: _____

Surface Area of Impacted Media in sq. ft.: _____ Type of Media (Soil or Pavement): _____

Corrective Action Taken: _____

_____

_____

_____

Action Taken to Prevent Future Spills: _____

_____

_____

Agencies Notified: _____

_____

Modifications to Stormwater Pollution Prevention Plan: _____

_____

_____

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information 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."

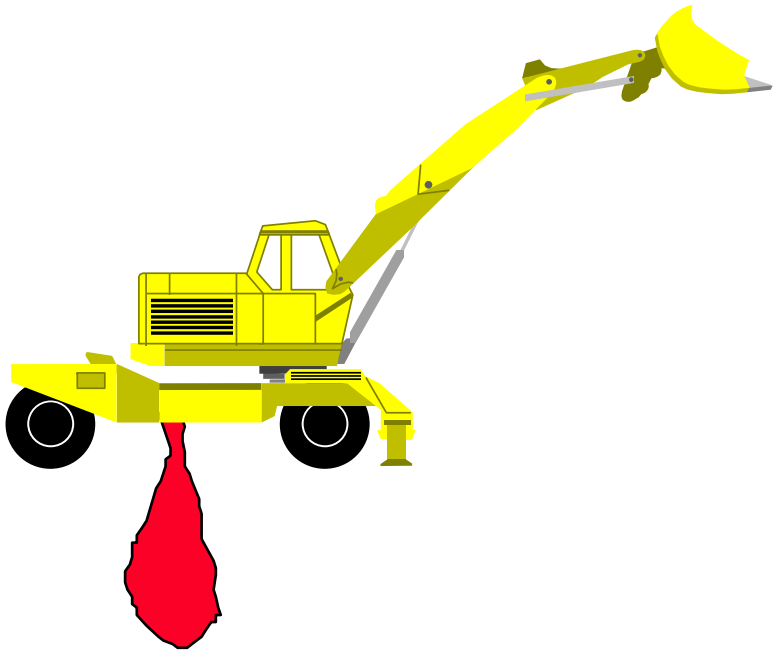
_____ _____

Signature of Reporter Date

_____ _____

Print Name/Title Company

Spill Response Plan



Point of Contact in case of a reportable quantity release:

EPA National Response Center	**(800) 424-8802**
Texas Commission on Environmental Quality	**(800) 832-8224 (toll free)** **(512) 239-2454**
Trinity Green Services	**(888) 243-3605**

Leak or Spill

- **Report spills immediately to owner**
- **Employees will not be punished for reporting spills**
- **Contain a spill, start cleanup, and report it if it's a reportable quantity**

Reportable Quantities		
Material	Media Released To	Reportable Quantity (equal to or greater than)
Engine oil, fuel, hydraulic & brake fluid	Land	25 gallons
Engine oil, fuel, hydraulic & brake fluid	Water	Visible Sheen
Antifreeze and battery acid	Land	100 lbs. (13 gal.)
Refrigerant	Air	1 lb.