

Transportation Erosion Control Supervisor (TECS) Certification Program



TOOLBOX



Version 2.0



COLORADO

Department of
Transportation



Transportation Erosion Control Supervisor (TECS) Toolbox

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Section 1: Documents



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THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) TRANSPORTATION EROSION CONTROL SUPERVISOR (TECS) CERTIFICATION PROGRAM

CDOT requires any individual designated as the CDOT Transportation Erosion Control Supervisor (TECS) on CDOT projects to complete the TECS Certification Program, which is comprised of two, 1 day courses. Per specification 208.03(c): "All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department".



The first class of the TECS training is in a classroom setting and is delivered by instructors using Power Point slides, student activities, open discussion, the Toolbox and the Training SWMP to assist the training participant in their future career as a TECS. The second class of TECS training is conducted outdoors at the CDOT BMP Field Academy.

This training is comprised of field activities that include but are not limited to; site assessments, inspection protocols, linking the SWMP document to the construction site, evaluating BMPs under simulated precipitation event conditions and critical thinking.

Both training days are required for the TECS Certification. Class 1 (classroom) must be successfully completed prior to attending Class 2 (field). Class 2 must be taken within 12 months of taking Class 1 (or Class 1 must be repeated).

Successful participation and completion of the TECS classes, including passing an exam at the end of each class, is required to be TECS certified. Successful participation and completion includes attendance, completion of class assignments and a passing score on the exams, given at the end of each class. Attendance includes **missing no more than 15 minutes of either training day.**



Recertification

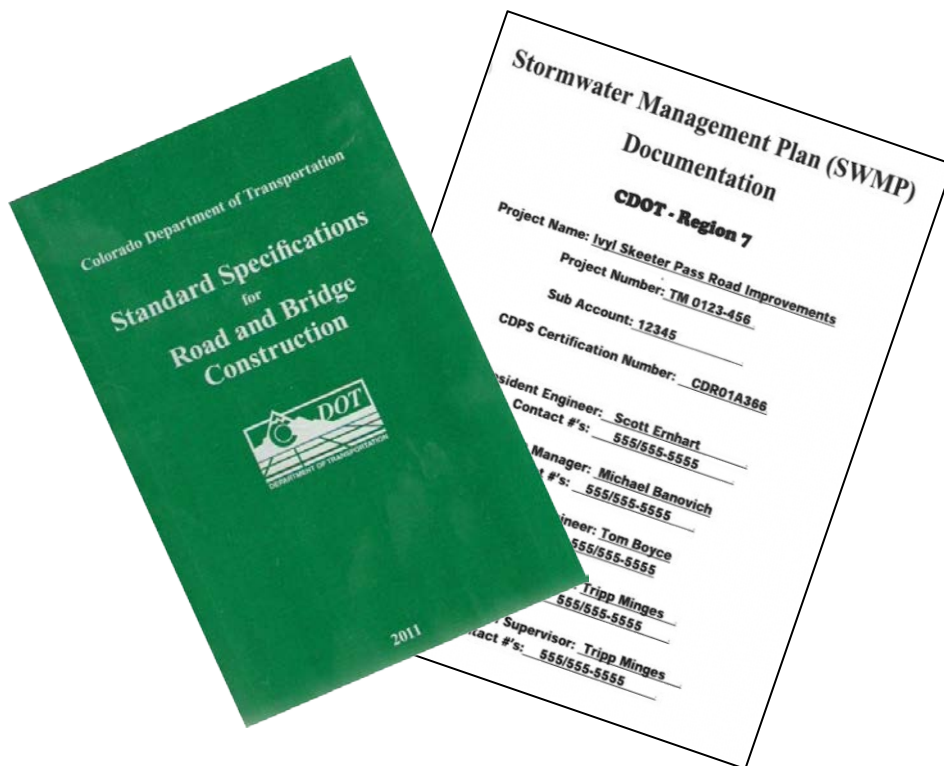
Once issued, the certification is current for three years. Continuing Education Credits may be used to extend the Certification up to 2 years for a total of 5 years. Recertification requirements must be met within the three-year period (either by taking the Refresher Class or by Continuing Education Credits) in order to maintain the certification, otherwise the initial two-day training program must be repeated.

Course Description

This course consists of two, 1 day courses with training topics that include but are not limited to the following:

Class 1

- The regulatory requirements under the Colorado Construction Stormwater Program and how these requirements relate to CDOT specifications.
- The potential liabilities associated with non-compliance (EPA Audit Findings)



- Using the inspection tool, "The Gauntlet", while conducting site walks, in order to evaluate potential pollution sources and their associated BMPs.

- CDOT SWMP components, including the function of the SWMP notebook as a planning tool and as a legal, living document, “The Story”.
- The role and responsibilities of the ECM.
- Construction project planning and phasing.
- Record-keeping requirements and maintaining the SWMP notebook components as a living document for compliance.
- Top 5 CDOT Non-Compliance Areas

Class 2

- Inspecting a CDOT construction site.
- Record-keeping requirements and maintaining the SWMP notebook components as a living document for compliance.
- Proper placement and installation of BMPs.
- Sheet flow vs. Channelized Flows.
- Proper inspection and subsequent documentation to achieve compliance.
- BMP problem solving.
- Evaluating drainage areas and applying proper BMPs.
- Revegetation practices.
- Stabilization methodology (Temporary, Interim, & Final).





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List of Common CDOT Acronyms and Forms

TECS- Transportation Erosion Control Supervisor Certificate

ECM - Erosion Control Management

EPA – Environmental Protection Agency

CWA – Clean Water Act

NPDES – National Pollutant Discharge Elimination System

CDPS–SCP: Colorado Discharge Permit System- Stormwater Construction Permit. CDPS General Permit for Stormwater Discharges Associated with Construction Activities

CDPHE – Colorado Department of Public Health and Environment

WQCD - Water Quality Control Division of CDPHE (aka the Division)

SWMP- Stormwater Management Plan

BMP: Best Management Practices

MS4 - Municipal Separate Storm Sewer System

7DA - 7 Day

WQ – Water Quality

MAR - Region Water Quality Inspection

RECAT - Headquarters Water Quality Inspection

208s / A 8% – CDOT Approved Standard Details for Temporary Erosion Control

Form 1388- CDOT Daily Inspection Form 1388 (no longer required)

Form 1176 – CDOT Inspection Reports Form 1176 for 7 day and post-runoff events as required by 208.03(c)

Form 105- CDOT Speed Memorandum Relating to Water Quality. CDOT Form used in official communication between CDOT Engineer and Contractor.

SPCC/Spill Response Plan – Plans that Meet the Requirements in 208.06 (c) (may or may not be an EPA-defined Spill Prevention, Control, and Countermeasure Plan)

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RWPCM- Region Water Pollution Control Manager

PE- Project Engineer



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MEMORANDUM

DATE: MARCH 28, 2016

TO: REGION TRANSPORTATION DIRECTORS, PROGRAM ENGINEERS, RESIDENT ENGINEERS, REGION ENVIRONMENTAL PROGRAM ENGINEERS

FROM: JOSHUA LAIPPLY, P.E. CHIEF ENGINEER 

SUBJECT: EPA AUDIT FINDING - COMPLIANCE WITH SPECIFICATION 208.09 FAILURE TO PERFORM EROSION CONTROL

This Chief Engineer Memorandum is being issued to announce stormwater management process changes initiated by the findings of the March 2015 Environmental Protection Agency (EPA) Audit. A Construction Bulletin will be issued under separate cover to provide more detailed information to address these EPA Audit Findings and achieve program compliance.

The EPA conducted an inspection of the CDOT Municipal Separate Storm Sewer System (MS4) Stormwater Permit March 30 - April 2, 2015. The inspection was part of EPA's "Municipal Infrastructure National Enforcement Initiative". The inspection included a statewide documentation review of the program and field inspections of applicable program areas.

The inspection report was delivered to CDOT by EPA on September 30, 2015. CDOT has reviewed the findings and, in early December 2015, provided preliminary responses back to EPA addressing the findings and implementing corrective action. Attached is Appendix C of the EPA Audit Report which contains those findings relevant to CDOT's Regulatory Authority and CDOT's responses.

While CDOT's responses to the EPA are preliminary, we are actively pursuing the Corrective Actions/Recommendations stipulated by the EPA to document compliance throughout our program. It is our hope that by moving forward on addressing these corrective actions we can get our program in compliance that much sooner. The one finding and specific change I would like to address in this memorandum is EPA's finding 3CS (2nd page of Appendix C attachment) relating to CDOT's Regulatory Authority described in the specification - 208.09 Failure to Perform Erosion Control. More specifically, the failure to implement the stipulations of issuing Liquidated Damages and Stop Work Orders as outlined in subsection 105.01. This specification applies to all projects regardless of type of contracting mechanism.

As documented in ESCAN, the percentage of findings corrected within the 48 hour timeframe is reported in the Department's Lead Lag performance measure report. The ESCAN report indicates that CDOT is not achieving the stated goals regarding water quality erosion and sediment control inspections. This metric is viewed by CDOT executive management as instrumental to the performance success of the permit compliance and avoidance of project stop work orders or fines which affect project schedule and costs.

Here is where I need your assistance in ensuring that CDOT properly administers erosion control on all CDOT projects and remains in compliance on this issue:

- Understand and follow the specification as this is our Regulatory Authority. Therefore, compliance with subsection 208.09 is commensurate with compliance with the Construction Program in accordance with the MS4 permit.
- The new specification changes "may" to "will" with respect to the CDOT Project Engineer issuing 105's, LD's and Stop Work Orders. Note the new escalation procedure stated in the new specification (to be included in all projects with AD on or after 4/21/16) if the contractor fails to address the Finding.



- Please note that with the issuance of the revised subsection 208.09 specification there will be two different versions of this specification in use within CDOT this 2016 construction season (one for projects advertised before April 21st and one for projects advertised on or after 4/21/2016).
- For current projects advertised before 4/21/16 the EPA Finding 1CS (Appendix C) noted that CDOT was not following the specification in issuing stop work orders after the corrections were not completed within 48 hours and/or discharges into state waters. Revised language in the new specification subsection 208.09 changes from “may issue the stop work” to “will issue the stop work order”. Based on the EPA Audit, Project Engineers need to therefore interpret the “may” as “will” and shall issue liquidated damages and/or stop work orders and require the Contractor to submit a corrective action plan per 208.09. Documenting your decisions/actions can make the difference in demonstrating meeting compliance for those challenging times where the Contractor is doing their best to address the situation. For any assistance, contact your Region Water Quality Pollution Control Manager.
- ESCAN is the CDOT computer application used to track thousands of Headquarters and Region inspections that are required by CDPHE, CDOT Construction Manual, and Specifications. ESCAN reporting is important because CDOT depends on these queries as proof of compliance and assurance that we are following our procedures.
- If Headquarters or Region inspections resulting in corrective actions are not reported in the ESCAN tool- Corrective Action Response Log (CARL), the report will show the finding as not completed within the 48-hour period, even if the Project Engineer and the Contractor have come to an agreement about the fix.
- Note that the ESCAN is currently being updated to include the new Deferment process which has been written into the new 208.09. The Deferment process allows for a period of time (to be determined by PE, RWPCM and Contractor) that penalties will be suspended, temporarily, for extraordinary circumstances where it is impossible to meet the 48-hour deadline. Until the updated version is released, continue to use, within the existing version of ESCAN, the interim option to extend the final completion date for approved exempted Findings that are justified in requiring more than 48 hours of time to complete.
- It is important that the Project Engineer uses ESCAN to track the CDOT Form 105's associated with compliance to the MS4 process and stormwater related Form 105's. This importance is based on how CDOT tracks compliance on project sites and the need for this information to be readily accessible within the ESCAN software to determine our Lead/Lag performance measures, the required CDPHE Annual report, compliance within CDOT MS4 Program and the ability to flag those projects that are out of compliance and address internally in a timely manner.
- Several of the audit findings will be handled in upcoming training classes to be developed and delivered by the Environmental Programs Branch.

Thank you all in advance in assisting with these important compliance issues. More information will be forthcoming related to addressing the EPA Audit findings. Know that this information is important and we need everyone to do his or her part by following the specifications and the process to keep the program in compliance. Please share this Memorandum with all of your design and construction staff and also consultants working on CDOT projects.

Attachment
Appendix C of the EPA Audit Report



III. Response to Construction Sites (CS) Program Findings

1 CS – The Standard Specifications does not require stop work orders to be issued for discharges to state waters or other egregious non-compliance instances.

1CS Finding:

Regarding stop work orders, section 208.09 of the Standard Specifications states under which circumstances a stop work order *may* be issued. Although the Standard Specifications states a stop work order *may* be issued under various circumstances, it does not require the issuance of a stop work order for discharges to state waters or other egregious non-compliance instances.

CDOT Clarification:

A stop work order was one of four items that was stated in the permit, so “may” was used in specification 208.09 since other options were also available tools for instances of non-compliance. Specifically, the Standard Specifications, specification 208.09 states, “If all other failures are not corrected within 48 hours after liquidated damages have begun to be assessed, the Engineer may issue a Stop Work Order in accordance with subsection 105.01. Work shall not resume until the Engineer has approved a written corrective action plan submitted by the Contractor that includes measures to prevent future violations and a schedule for implementation.” In addition, a Stop Work Order may also be used when a spill occurs on a construction site.

1CS Corrective Actions:

CDOT’s new permit, issued in 2015, no longer requires a stop work order in specific instances.

CDOT Response:

CDOT is in the process of updating the Standard Specifications to reflect current MS4 Permit and/or MS4 Construction Program requirements. Progress will be noted with the assessment submitted under 1PM. The word “may” in the new specifications to be released has been changed to “will”. In addition, a memorandum from the Chief Engineer is being prepared to emphasize the CDOT Regulatory Authority process to CDOT’s Professional Engineer’s (PE) and the need to impose Stop Work Orders when Liquidated Damages are insufficient to correct the non-compliance.

2CS – CDOT failed to ensure compliance with the Construction General Permit, enforce according to the Standard Specifications, and implement sanctions for chronic failures at design-bid projects.

CDOT Finding Clarification:

CDOT does not have Design-bid projects, only Design-bid-build, Design-build, or Construction Management General Contractor projects. The 2 projects noted by the EPA are Design-build projects, therefore our response addresses the Design-build project process.

2CS Corrective Actions:

CDOT's new permit, issued in 2015, no longer incorporates the Construction General Permit by reference. The new permit incorporates specific contractor requirements which CDOT must ensure that contractors are adhering to. Update and implement the Construction Sites Program to ensure CDOT requires contractors implement the requirements listed in CDOT's new permit.

CDOT Response:

CDOT agrees with the corrective action to incorporate specific contractor requirements by updating specification 208 of the Standard Specifications and is also preparing Construction Program Descriptions Documents (PDDs) per our new MS4 permit. CDOT will provide an update on the new MS4 Construction Program to the EPA in conjunction with the resource assessment (1PM).

2CS Recommended Actions:

It is recommended that CDOT develop an alternative enforcement structure that provides additional pathways to enforcement escalation including oversight of PE decisions by the Water Quality Control Manager and does not rely only on the PE for the construction site to be the responsible party for ensuring that projects remain on schedule *and* for making final enforcement decisions at the sites (e.g., issuing stop work orders, assessing liquidated damages/assets, etc.). It is also recommended that CDOT evaluate its design-build process to determine why these projects tend to have more problems, and then address the root cause(s) of the problems.

CDOT Response:

CDOT will review its alternative enforcement structure that provides additional pathways to enforcement escalation and process for design-build projects. These 2 recommendations will be taken to Executive Management for further comment. An update will be provided to EPA in conjunction with the resource assessment (1PM).

3CS – CDOT failed to follow the Standard Specifications procedure for several construction sites across Regions by failing to issue and collect liquidated damages for corrective actions that went beyond 48 hours.

3CS Corrective Actions:

Follow the Standard Specifications procedure for construction sites by issuing and collecting liquidated damages for corrective actions that go beyond 48 hours. Indicate in a response how CDOT plans to ensure this is achieved.

CDOT Response:

CDOT agrees with this corrective action. A Chief Engineer's memorandum is being prepared for distribution to CDOT's Project Engineers that will provide additional direction on CDOT's regulatory authority process and will be provided to EPA upon its completion.

4CS – CDOT has no formal mechanism to address chronic noncompliance by contractors as long as corrective actions occur within 48 hours.

4CS Corrective Actions:

Update the Standard Specifications to include a process to address chronic noncompliance by contractors even if corrective actions are always completed within 48 hours. Ensure there is an infrastructure in place to track chronic noncompliance by contractors. Submit this update to EPA.

CDOT Response:

CDOT agrees with this corrective action. The Construction Program and 208 specifications are being updated. The new MS4 Construction Program will include an escalation process and will address chronic noncompliance by contractors and associated frequency of MS4 Compliance Inspections described in the new MS4 Permit. An update on CDOT's progress will be provided to EPA in conjunction with the resource assessment (1PM).

5CS - Contractors' failures to meet Construction General Permit and Standard Specifications requirements were not identified by CDOT inspectors and a contractor Transportation Erosion Control Supervisor inspector during oversight inspections at CDOT construction sites.

5CS Corrective Actions:

CDOT's new permit, issued in 2015, no longer incorporates all of the requirements from the Construction General Permit. Ensure contractors as well as CDOT are in compliance with the Permit and the Standard Specifications. This includes ensuring CDOT and TCES inspectors are trained on the requirements and enforce those requirements. Indicate in a response how CDOT intends to ensure compliance.

CDOT Response:

CDOT agrees with this corrective action and CDOT is in the process of updating specification 208 of the Standard Specifications and will also provide training. In addition, the TECS certification will be reviewed and modified as necessary. An update on CDOT's progress will be provided to EPA in conjunction with the resource assessment (1PM).



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OVERVIEW OF REGULATIONS





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CDPS GENERAL PERMIT
STORMWATER DISCHARGES ASSOCIATED WITH
CONSTRUCTION ACTIVITY
AUTHORIZATION TO DISCHARGE UNDER THE
COLORADO DISCHARGE PERMIT SYSTEM

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), this permit authorizes the discharge of stormwater associated with construction activities (and specific allowable non-stormwater discharges in accordance with Part I.D.3 of the permit) certified under this permit, from those locations specified throughout the State of Colorado to specified waters of the State. Such discharges shall be in accordance with the conditions of this permit.

This permit specifically authorizes the facility listed on page 1 of this permit to discharge, as of this date, in accordance with permit requirements and conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

This permit and the authorization to discharge shall expire at midnight, **June 30, 2012**.

Issued and Signed this 31st day of May, 2007

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT



Janet S. Kieler
Permits Section Manager
Water Quality Control Division

SIGNED AND ISSUED MAY 31, 2007

EFFECTIVE JULY 1, 2007

ADMINISTRATIVELY
CONTINUED EFFECTIVE
JULY 1, 2012

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PART I

A. COVERAGE UNDER THIS PERMIT

1. **Authority to Discharge**

Under this permit, facilities are granted authorization to discharge stormwater associated with construction activities into waters of the state of Colorado. This permit also authorizes the discharge of specific allowable non-stormwater discharges, in accordance with Part I.D.3 of the permit, which includes discharges to the ground. This includes stormwater discharges from areas that are dedicated to producing earthen materials, such as soils, sand and gravel, for use at a single construction site (i.e., borrow or fill areas). This permit also authorizes stormwater discharges from dedicated asphalt batch plants and dedicated concrete batch plants. (Coverage under the construction site permit is not required for batch plants if they have alternate CDPS permit coverage.) This permit does not authorize the discharge of mine water or process water from such areas.

- a) **Applicable Sections:** In accordance with Part I.A.3 of this permit, some parts of this permit do not apply to sites covered under a Qualifying Local Program, as defined in I.A.2.d. For sites not covered by a Qualifying Local Program, all parts of the permit apply except Part I.A.3. The permittee will be responsible for determining and then complying with the applicable sections.
- b) **Oil and Gas Construction:** Stormwater discharges associated with construction activities directly related to oil and gas exploration, production, processing, and treatment operations or transmission facilities are regulated under the Colorado Discharge Permit System Regulations (5CCR 1002-61), and require coverage under this permit in accordance with that regulation. However, references in this permit to specific authority under the Federal Clean Water Act (CWA) do not apply to stormwater discharges associated with these oil and gas related construction activities, to the extent that the references are limited by the federal Energy Policy Act of 2005.

2. **Definitions**

- a) **Stormwater:** Stormwater is precipitation-induced surface runoff.
- b) **Construction activity:** Construction activity refers to ground surface disturbing activities, which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.
- c) **Small construction activity:** Stormwater discharge associated with small construction activity means the discharge of stormwater from construction activities that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one 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 and less than five acres.
- d) **Qualifying Local Program:** This permit includes conditions that incorporate qualifying local erosion and sediment control program (Qualifying Local Program) requirements by reference. A Qualifying Local Program is a municipal stormwater program for stormwater discharges associated with small construction activity that has been formally approved by the Division.

Other Definitions: Definitions of additional terms can be found in Part I.E. of this permit.

3. **Permit Coverage Without Application – for small construction activities under a Qualifying Local Program only**

If a small construction site is within the jurisdiction of a Qualifying Local Program, the operator of the construction activity is authorized to discharge stormwater associated with small construction activity under this general permit without the submittal of an application to the Division.

- a) **Applicable Sections:** For sites covered by a Qualifying Local Program, only Parts 1.A.1, 1.A.2, 1.A.3, I.D.1, I.D.2, I.D.3, I.D.4, I.D.7, I.D.8, I.D.11, I.E and Part II of this permit, with the exception of Parts II.A.1, II.B.3, II.B.8, and II.B10, apply.

A. COVERAGE UNDER THIS PERMIT (cont.)

- b) **Local Agency Authority:** This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.
- c) **Permit Coverage Termination:** When a site under a Qualifying Local Program has been finally stabilized, coverage under this permit is automatically terminated.
- d) **Compliance with Qualifying Local Program:** A construction site operator that has authorization to discharge under this permit under Part I.A.3 shall comply with the requirements of the Qualifying Local Program with jurisdiction over the site.
- e) **Full Permit Applicability:** The Division may require any operator within the jurisdiction of a Qualifying Local Program covered under this permit to apply for and obtain coverage under the full requirements of this permit. The operator must be notified in writing that an application for full coverage is required. When a permit certification under this permit is issued to an operator that would otherwise be covered under Part I.A.3 of this permit, the full requirements of this permit replace the requirements as per Part I.A.3 of this permit, upon the effective date of the permit certification. A site brought under the full requirements of this permit must still comply with local stormwater management requirements, policies or guidelines as required by Part I.D.1.g of this permit.

4. **Application, Due Dates**

- a) **Application Due Dates:** At least **ten calendar days** prior to the commencement of construction activities, the applicant shall submit an application form as provided by the Division, with a certification that the Stormwater Management Plan (SWMP) is complete.

One original completed discharge permit application shall be submitted, by mail or hand delivery, to:

Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD-Permits-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

- b) **Summary of Application:** The application requires, at a minimum, the following:
 - 1) The applicant's company name; address; telephone number; and email address (if available); whether the applicant is the owner, developer, or contractor; and local contact information;
 - 2) Project name, address, county and location of the construction site, including the latitude and longitude to the nearest 15 seconds of the approximate center of the construction activity;
 - 3) Legal description or map of the construction site;
 - 4) Estimates of: the total area of the site, the area of the site that is expected to be disturbed, and the total area of the larger common plan of development or sale to undergo disturbance;
 - 5) The nature of the construction activity;
 - 6) The anticipated start date and final stabilization date for the project;
 - 7) The name of the receiving water(s), or the municipal separate storm sewer system and the ultimate (i.e., named) receiving water(s);
 - 8) Certification that the SWMP for the construction site is complete (see Part I.C. below); and
 - 9) The signature of the applicant, signed in accordance with Part I.F.1 of this permit.

5. **Permit Certification Procedures**

If this general permit is appropriate for the applicant's operation, then a certification will be developed and the applicant will be authorized to discharge stormwater under this general permit.

- a) **Request for Additional Information:** The Division shall have up to **ten calendar days** after receipt of the above information to request additional data and/or deny the authorization for any particular discharge. Upon receipt of additional information, the Division shall have an additional **ten calendar days** to issue or deny authorization for the particular discharge. (Notification of denial shall be by letter, in cases where coverage under an alternate general permit or an individual permit is required, instead of coverage under this permit.)

A. COVERAGE UNDER THIS PERMIT (cont.)

- b) **Automatic Coverage:** If the applicant does not receive a request for additional information or a notification of denial from the Division dated within ten calendar days of receipt of the application by the Division, authorization to discharge in accordance with the conditions of this permit shall be deemed granted.
- c) **Individual Permit Required:** If, after evaluation of the application (or additional information, such as the SWMP), it is found that this general permit is not appropriate for the operation, then the application will be processed as one for an individual permit. The applicant will be notified of the Division's decision to deny certification under this general permit. For an individual permit, additional information may be requested, and 180 days may be required to process the application and issue the permit. At the Division's discretion, temporary coverage under this general permit may be allowed until the individual permit goes into effect.
- d) **General vs. Individual Permit Coverage:** Any permittee authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual CDPS permit. The permittee shall submit an individual application, with reasons supporting the request, to the Division at least 180 days prior to any discharge.
- e) **Local Agency Authority:** This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.

6. **Inactivation Notice**

When a site has been finally stabilized in accordance with the SWMP, the permittee must submit an **Inactivation Notice** form that is signed in accordance with Part I.F.1. of this permit. The Inactivation Notice form is available from the Division and includes:

- a) Permit certification number;
- b) The permittee's name, address, telephone number;
- c) Name, location, and county for the construction site for which the inactivation notice is being submitted; and
- d) Certification that the site has been finally stabilized, and a description of the final stabilization method(s).

7. **Transfer of Permit**

When responsibility for stormwater discharges at a construction site changes from one entity to another, the permittee shall submit a completed **Notice of Transfer and Acceptance of Terms** form that is signed in accordance with Part I.F.1. of this permit. The Notice of Transfer form is available from the Division and includes:

- a) Permit certification number;
- b) Name, location, and county for the construction site for which the Notice of Transfer is being submitted;
- c) Identifying information for the new permittee;
- d) Identifying information for the current permittee; and
- e) Effective date of transfer.

If the new responsible party will not complete the transfer form, the permit may be inactivated upon written request to the Division and completion of the Inactivation Notice if the permittee has no legal responsibility, through ownership or contract, for the construction activities at the site. In this case, the new owner or operator would be required to obtain permit coverage separately.

8. **Reassignment of Permit**

When a permittee no longer has control of a specific portion of a permitted site, and wishes to transfer coverage of that portion of the site to a second party, the permittee shall submit a completed **Notice of Reassignment of Permit Coverage** form that is signed in accordance with Part I.F.1. of this permit. The Notice of Reassignment of Permit Coverage form is available from the Division and includes:

- a) Current permit certification number;
- b) Identifying information and certification as required by Part I.A.4.b for the new permittee;
- c) Identifying information for the current permittee, revised site information and certification for reassignment; and
- d) Effective date of reassignment.

A. COVERAGE UNDER THIS PERMIT (cont.)

If the new responsible party will not complete the reassignment form, the applicable portion of the permitted site may be removed from permit coverage upon written request to the Division if the permittee has no legal responsibility, through ownership or contract, for the construction activities at the portion of the site. In this case, the new owner or operator would be required to obtain permit coverage separately.

9. **Sale of Residence to Homeowners**

For residential construction only, when a residential lot **has been conveyed to a homeowner** and all criteria in paragraphs a through e, below, are met, coverage under this permit is no longer required and the conveyed lot may be removed from coverage under the permittee's certification. At such time, the permittee is no longer responsible for meeting the terms and conditions of this permit for the conveyed lot, including the requirement to transfer or reassign permit coverage. The permittee remains responsible for inactivation of the original certification.

- a) The lot has been sold to the homeowner(s) for private residential use;
- b) the lot is less than one acre of disturbed area;
- c) all construction activity conducted by the permittee on the lot is completed;
- d) a certificate of occupancy (or equivalent) has been awarded to the home owner; and
- e) the SWMP has been amended to indicate the lot is no longer covered by permit.

Lots not meeting all of the above criteria require continued permit coverage. However, this permit coverage may be transferred (Part I.A.7, above) or reassigned (Part I.A.8, above) to a new owner or operator.

10. **Permit Expiration Date**

Authorization to discharge under this general permit shall expire on June 30, 2012. The Division must evaluate and reissue this general permit at least once every five years and must recertify the permittee's authority to discharge under the general permit at such time. Therefore, a permittee desiring continued coverage under the general permit must reapply by March 31, 2012. The Division will initiate the renewal process; however, it is ultimately the permittee's responsibility to ensure that the renewal is submitted. The Division will determine if the permittee may continue to operate under the terms of the general permit. An individual permit may be required for any facility not reauthorized to discharge under the reissued general permit.

11. **Individual Permit Criteria**

Various criteria can be used in evaluating whether or not an individual (or alternate general) permit is required instead of this general permit. This information may come from the application, SWMP, or additional information as requested by the Division, and includes, but is not limited to, the following:

- a) the quality of the receiving waters (i.e., the presence of downstream drinking water intakes or a high quality fishery, or for preservation of high quality water);
- b) the size of the construction site;
- c) evidence of noncompliance under a previous permit for the operation;
- d) the use of chemicals within the stormwater system; or
- e) discharges of pollutants of concern to waters for which there is an established Total Maximum Daily Load (TMDL).

In addition, an individual permit may be required when the Division has shown or has reason to suspect that the stormwater discharge may contribute to a violation of a water quality standard.

B. STORMWATER MANAGEMENT PLAN (SWMP) – **GENERAL REQUIREMENTS**

- 1. A SWMP shall be developed for each facility covered by this permit. The SWMP shall be prepared in accordance with good engineering, hydrologic and pollution control practices. (The SWMP need not be prepared by a registered engineer.)

B. STORMWATER MANAGEMENT PLAN (SWMP) – **GENERAL REQUIREMENTS** (cont.)

2. The SWMP shall:
 - a) Identify all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the facility;
 - b) Describe the practices to be used to reduce the pollutants in stormwater discharges associated with construction activity at the facility; and ensure the practices are selected and described in accordance with good engineering practices, including the installation, implementation and maintenance requirements; and
 - c) Be properly prepared, and updated in accordance with Part I.D.5.c, to ensure compliance with the terms and conditions of this permit.
3. Facilities must implement the provisions of the SWMP as written and updated, from commencement of construction activity until final stabilization is complete, as a condition of this permit. The Division reserves the right to review the SWMP, and to require the permittee to develop and implement additional measures to prevent and control pollution as needed.
4. The SWMP may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under section 311 of the CWA, or Best Management Practices (BMPs) Programs otherwise required by a separate CDPS permit, and may incorporate any part of such plans into the SWMP by reference, provided that the relevant sections of such plans are available as part of the SWMP consistent with Part I.D.5.b.
5. For any sites with permit coverage before June 30, 2007, the permittee's SWMP must meet the new SWMP requirements as summarized in Section II.I of the rationale. Any needed changes must be made by **October 1, 2007**.

C. STORMWATER MANAGEMENT PLAN (SWMP) – **CONTENTS**

The SWMP shall include the following items, at a minimum.

1. **Site Description.** The SWMP shall clearly describe the construction activity, to include:
 - a) The nature of the construction activity at the site.
 - b) The proposed sequence for major activities.
 - c) Estimates of the total area of the site, and the area and location expected to be disturbed by clearing, excavation, grading, or other construction activities.
 - d) A summary of any existing data used in the development of the site construction plans or SWMP that describe the soil or existing potential for soil erosion.
 - e) A description of the existing vegetation at the site and an estimate of the percent vegetative ground cover.
 - f) The location and description of all potential pollution sources, including ground surface disturbing activities (see Part I.A.2.b), vehicle fueling, storage of fertilizers or chemicals, etc.
 - g) The location and description of any anticipated allowable sources of non-stormwater discharge at the site, e.g., uncontaminated springs, landscape irrigation return flow, construction dewatering, and concrete washout.
 - h) The name of the receiving water(s) and the size, type and location of any outfall(s). If the stormwater discharge is to a municipal separate storm sewer system, the name of that system, the location of the storm sewer discharge, and the ultimate receiving water(s).
2. **Site Map.** The SWMP shall include a legible site map(s), showing the entire site, identifying:
 - a) construction site boundaries;
 - b) all areas of ground surface disturbance;
 - c) areas of cut and fill;
 - d) areas used for storage of building materials, equipment, soil, or waste;
 - e) locations of dedicated asphalt or concrete batch plants;
 - f) locations of all structural BMPs;
 - g) locations of non-structural BMPs as applicable; and
 - h) locations of springs, streams, wetlands and other surface waters.

C. STORMWATER MANAGEMENT PLAN (SWMP) – CONTENTS (cont.)

3. **Stormwater Management Controls.**

The SWMP must include a description of all stormwater management controls that will be implemented as part of the construction activity to control pollutants in stormwater discharges. The appropriateness and priorities of stormwater management controls in the SWMP shall reflect the potential pollutant sources identified at the facility.

The description of stormwater management controls shall address the following components, at a minimum:

- a) **SWMP Administrator** - The SWMP shall identify a specific individual(s), position or title who is responsible for developing, implementing, maintaining, and revising the SWMP. The activities and responsibilities of the administrator shall address all aspects of the facility's SWMP.
- b) **Identification of Potential Pollutant Sources** - All potential pollutant sources, including materials and activities, at a site must be evaluated for the potential to contribute pollutants to stormwater discharges. The SWMP shall identify and describe those sources determined to have the potential to contribute pollutants to stormwater discharges, and the sources must be controlled through BMP selection and implementation, as required in paragraph (c), below.

At a minimum, each of the following sources and activities shall be evaluated for the potential to contribute pollutants to stormwater discharges, and identified in the SWMP if found to have such potential:

- 1) all disturbed and stored soils;
 - 2) vehicle tracking of sediments;
 - 3) management of contaminated soils;
 - 4) loading and unloading operations;
 - 5) outdoor storage activities (building materials, fertilizers, chemicals, etc.);
 - 6) vehicle and equipment maintenance and fueling;
 - 7) significant dust or particulate generating processes;
 - 8) routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.;
 - 9) on-site waste management practices (waste piles, liquid wastes, dumpsters, etc.);
 - 10) concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment;
 - 11) dedicated asphalt and concrete batch plants;
 - 12) non-industrial waste sources such as worker trash and portable toilets; and
 - 13) other areas or procedures where potential spills can occur.
- c) **Best Management Practices (BMPs) for Stormwater Pollution Prevention** - The SWMP shall identify and describe appropriate BMPs, including, but not limited to, those required by paragraphs 1 through 8 below, that will be implemented at the facility to reduce the potential of the sources identified in Part I.C.3.b to contribute pollutants to stormwater discharges. The SWMP shall clearly describe the installation and implementation specifications for each BMP identified in the SWMP to ensure proper implementation, operation and maintenance of the BMP.
 - 1) **Structural Practices for Erosion and Sediment Control.** The SWMP shall clearly describe and locate all structural practices implemented at the site to minimize erosion and sediment transport. Practices may include, but are not limited to: straw bales, wattles/sediment control logs, silt fences, earth dikes, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, and temporary or permanent sediment basins.
 - 2) **Non-Structural Practices for Erosion and Sediment Control.** The SWMP shall clearly describe and locate, as applicable, all non-structural practices implemented at the site to minimize erosion and sediment transport. Description must include interim and permanent stabilization practices, and site-specific scheduling for implementation of the practices. The SWMP should include practices to ensure that existing vegetation is preserved where possible. Non-structural practices may include, but are not limited to: temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, vegetative buffer strips, protection of trees, and preservation of mature vegetation.

C. STORMWATER MANAGEMENT PLAN (SWMP) – CONTENTS (cont.)

- 3) Phased BMP Implementation. The SWMP shall clearly describe the relationship between the phases of construction, and the implementation and maintenance of both structural and non-structural stormwater management controls. The SWMP must identify the stormwater management controls to be implemented during the project phases, which can include, but are not limited to, clearing and grubbing; road construction; utility and infrastructure installation; vertical construction; final grading; and final stabilization.
- 4) Materials Handling and Spill Prevention. The SWMP shall clearly describe and locate all practices implemented at the site to minimize impacts from procedures or significant materials (see definitions at Part I.E.) that could contribute pollutants to runoff. Such procedures or significant materials could include: exposed storage of building materials; paints and solvents; fertilizers or chemicals; waste material; and equipment maintenance or fueling procedures.

Areas or procedures where potential spills can occur must have spill prevention and response procedures identified in the SWMP.

- 5) Dedicated Concrete or Asphalt Batch Plants. The SWMP shall clearly describe and locate all practices implemented at the site to control stormwater pollution from dedicated concrete batch plants or dedicated asphalt batch plants covered by this certification.
- 6) Vehicle Tracking Control. The SWMP shall clearly describe and locate all practices implemented at the site to control potential sediment discharges from vehicle tracking. Practices must be implemented for all areas of potential vehicle tracking, and can include: minimizing site access; street sweeping or scraping; tracking pads; graveled parking areas; requiring that vehicles stay on paved areas on-site; wash racks; contractor education; and/or sediment control BMPs, etc.
- 7) Waste Management and Disposal, Including Concrete Washout.
 - i) The SWMP shall clearly describe and locate the practices implemented at the site to control stormwater pollution from all construction site wastes (liquid and solid), including concrete washout activities.
 - ii) The practices used for concrete washout must ensure that these activities do not result in the contribution of pollutants associated with the washing activity to stormwater runoff.
 - iii) Part I.D.3.c of the permit authorizes the conditional discharge of concrete washout water to the ground. The SWMP shall clearly describe and locate the practices to be used that will ensure that no washout water from concrete washout activities is discharged from the site as surface runoff or to surface waters.
- 8) Groundwater and Stormwater Dewatering.
 - i) The SWMP shall clearly describe and locate the practices implemented at the site to control stormwater pollution from the dewatering of groundwater or stormwater from excavations, wells, etc.
 - ii) Part I.D.3.d of the permit authorizes the conditional discharge of construction dewatering to the ground. For any construction dewatering of groundwater not authorized under a separate CDPS discharge permit, the SWMP shall clearly describe and locate the practices to be used that will ensure that no groundwater from construction dewatering is discharged from the site as surface runoff or to surface waters.

4. **Final Stabilization and Long-term Stormwater Management**

- a) The SWMP shall clearly describe the practices used to achieve final stabilization of all disturbed areas at the site, and any planned practices to control pollutants in stormwater discharges that will occur after construction operations have been completed at the site.
- b) Final stabilization practices for obtaining a vegetative cover should include, as appropriate: seed mix selection and application methods; soil preparation and amendments; soil stabilization practices (e.g., crimped straw, hydro mulch or rolled erosion control products); and appropriate sediment control BMPs as needed until final stabilization is achieved; etc.

C. STORMWATER MANAGEMENT PLAN (SWMP) – CONTENTS (cont.)

- c) Final stabilization is reached when all ground surface disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

The Division may, after consultation with the permittee and upon good cause, amend the final stabilization criteria in this section for specific operations.

5. **Inspection and Maintenance**

Part I.D.6 of the permit includes requirements for site inspections. Part I.D.7 of the permit includes requirements for BMP maintenance. The SWMP shall clearly describe the inspection and maintenance procedures implemented at the site to maintain all erosion and sediment control practices and other protective practices identified in the SWMP, in good and effective operating condition.

D. TERMS AND CONDITIONS

1. **General Limitations**

The following limitations shall apply to all discharges covered by this permit:

- a) Stormwater discharges from construction activities shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any water quality standard, including narrative standards for water quality.
- b) Concrete washout water shall not be discharged to state surface waters or to storm sewer systems. On-site permanent disposal of concrete washout waste is not authorized by this permit. Discharge to the ground of concrete washout waste that will subsequently be disposed of off-site is authorized by this permit. See Part I.D.3.c of the permit.
- c) Bulk storage structures for petroleum products and any other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State waters.
- d) No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by the Division. In granting the use of such chemicals, special conditions and monitoring may be addressed by separate correspondence.
- e) The Division reserves the right to require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that compliance with the SWMP is a problem, or to measure the effectiveness of the BMPs in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.
- f) All site wastes must be properly managed to prevent potential pollution of State waters. This permit does not authorize on-site waste disposal.
- g) All dischargers must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies regarding any discharges of stormwater to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal stormwater management programs developed to comply with CDPS permits. Dischargers must comply with local stormwater management requirements, policies or guidelines including erosion and sediment control.

2. **BMP Implementation and Design Standards**

Facilities must select, install, implement, and maintain appropriate BMPs, following good engineering, hydrologic and pollution control practices. BMPs implemented at the site must be adequately designed to provide control for all potential pollutant sources associated with construction activity to prevent pollution or degradation of State waters.

D. TERMS AND CONDITIONS (cont.)

3. **Prohibition of Non-Stormwater Discharges**

- a) Except as provided in paragraphs b, c, and d below, **all discharges covered by this permit shall be composed entirely of stormwater associated with construction activity.** Discharges of material other than stormwater must be addressed in a separate CDPS permit issued for that discharge.
- b) Discharges from the following sources that are combined with stormwater discharges associated with construction activity may be authorized by this permit, provided that the non-stormwater component of the discharge is identified in the SWMP (see Part I.C.1.g of this permit):
 - emergency fire fighting activities
 - landscape irrigation return flow
 - uncontaminated springs
- c) Discharges to the ground of concrete washout water from washing of tools and concrete mixer chutes may be authorized by this permit, provided that:
 - 1) the source is identified in the SWMP;
 - 2) BMPs are included in the SWMP in accordance with Part I.C.3(c)(7) and to prevent pollution of groundwater in violation of Part I.D.1.a; and
 - 3) these discharges do not leave the site as surface runoff or to surface waters
- d) Discharges to the ground of water from construction dewatering activities may be authorized by this permit, provided that:
 - 1) the source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42;
 - 2) the source is identified in the SWMP;
 - 3) BMPs are included in the SWMP, as required by Part I.C.3(c)(8); and
 - 4) these discharges do not leave the site as surface runoff or to surface waters.

Discharges to the ground from construction dewatering activities that do not meet the above criteria must be covered under a separate CDPS discharge permit. Contaminated groundwater requiring coverage under a separate CDPS discharge permit may include groundwater contaminated with pollutants from a landfill, mining activity, industrial pollutant plume, underground storage tank, or other source.

4. **Releases in Excess of Reportable Quantities**

This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the Division's Noncompliance Notification Requirements (see Part II.A.3 of the permit).

5. **SWMP Requirements**

- a) **SWMP Preparation and Implementation:** The SWMP shall be prepared prior to applying for coverage under the general permit, and certification of its completion submitted with the application. The SWMP shall be implemented prior to commencement of construction activities. The plan shall be updated as appropriate (see paragraph c, below), below). SWMP provisions shall be implemented until expiration or inactivation of permit coverage.
- b) **SWMP Retention Requirements:** A copy of the SWMP must be retained on site unless another location, specified by the permittee, is approved by the Division.
- c) **SWMP Review/Changes:** The permittee shall amend the SWMP:
 - 1) when there is a change in design, construction, operation, or maintenance of the site, which would require the implementation of new or revised BMPs; or
 - 2) if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity; or

D. TERMS AND CONDITIONS (cont.)

- 3) when BMPs are no longer necessary and are removed.

SWMP changes shall be made prior to changes in the site conditions, except as allowed for in paragraph d, below. SWMP revisions may include, but are not limited to: potential pollutant source identification; selection of appropriate BMPs for site conditions; BMP maintenance procedures; and interim and final stabilization practices. The SWMP changes may include a schedule for further BMP design and implementation, provided that, if any interim BMPs are needed to comply with the permit, they are also included in the SWMP and implemented during the interim period.

- d) **Responsive SWMP Changes:** SWMP changes addressing BMP installation and/or implementation are often required to be made in response to changing conditions, or when current BMPs are determined ineffective. The majority of SWMP revisions to address these changes can be made immediately with quick in-the-field revisions to the SWMP. In the less common scenario where more complex development of materials to modify the SWMP is necessary, SWMP revisions shall be made in accordance with the following requirements:
 - 1) the SWMP shall be revised as soon as practicable, but in no case more than 72 hours after the change(s) in BMP installation and/or implementation occur at the site, and
 - 2) a notation must be included in the SWMP prior to the site change(s) that includes the time and date of the change(s) in the field, an identification of the BMP(s) removed or added, and the location(s) of those BMP(s).

6. **Inspections**

Site inspections must be conducted in accordance with the following requirements and minimum schedules. The required minimum inspection schedules do not reduce or eliminate the permittee's responsibility to implement and maintain BMPs in good and effective operational condition, and in accordance with the SWMP, which could require more frequent inspections.

- a) **Minimum Inspection Schedule:** The permittee shall, at a minimum, make a thorough inspection, in accordance with the requirements in I.D.6.b below, at least once every 14 calendar days. Also, post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections may be used to fulfill the 14-day routine inspection requirement. A more frequent inspection schedule than the minimum inspections described may be necessary, to ensure that BMPs continue to operate as needed to comply with the permit. The following conditional modifications to this Minimum Inspection Schedule are allowed:
 - 1) **Post-Storm Event Inspections at Temporarily Idle Sites** – If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection must be documented in the inspection record. Routine inspections still must be conducted at least every 14 calendar days.
 - 2) **Inspections at Completed Sites/Areas** – For sites or portions of sites that meet the following criteria, but final stabilization has not been achieved due to a vegetative cover that has not become established, the permittee shall make a thorough inspection of their stormwater management system at least once every month, and post-storm event inspections are not required. This reduced inspection schedule is *only* allowed if:
 - i) all construction activities that will result in surface ground disturbance are completed;
 - ii) all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
 - iii) the SWMP has been amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this paragraph.

D. TERMS AND CONDITIONS (cont.)

- 3) **Winter Conditions Inspections Exclusion** – Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This exception is applicable only during the period where melting conditions do not exist, and applies to the routine 14-day and monthly inspections, as well as the post-storm-event inspections. The following information must be documented in the inspection record for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began. Inspections, as described above, are required at all other times.

When site conditions make the schedule required in this section impractical, the permittee may petition the Division to grant an alternate inspection schedule.

b) **Inspection Requirements**

- 1) **Inspection Scope** - The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly.
- 2) **Inspection Report/Records** - The permittee shall keep a record of inspections. Inspection reports must identify any incidents of non-compliance with the terms and conditions of this permit. Inspection records must be retained for three years from expiration or inactivation of permit coverage. At a minimum, the inspection report must include:

- i) The inspection date;
- ii) Name(s) and title(s) of personnel making the inspection;
- iii) Location(s) of discharges of sediment or other pollutants from the site;
- iv) Location(s) of BMPs that need to be maintained;
- v) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- vi) Location(s) where additional BMPs are needed that were not in place at the time of inspection;
- vii) Deviations from the minimum inspection schedule as provided in Part I.D.6.a above;
- viii) Description of corrective action for items iii, iv, v, and vi, above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary; and
- viii) After adequate corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

- c) **Required Actions Following Site Inspections** – Where site inspections note the need for BMP maintenance activities, BMPs must be maintained in accordance with the SWMP and Part I.D.7 of the permit. Repair, replacement, or installation of new BMPs determined necessary during site inspections to address ineffective or inadequate BMPs must be conducted in accordance with Part I.D.8 of the permit. SWMP updates required as a result of deficiencies in the SWMP noted during site inspections shall be made in accordance with Part I.D.5.c of the permit.

7. **BMP Maintenance**

All erosion and sediment control practices and other protective measures identified in the SWMP must be maintained in effective operating condition. Proper selection and installation of BMPs and implementation of comprehensive Inspection and Maintenance procedures, in accordance with the SWMP, should be adequate to meet this condition. BMPs that are not adequately maintained in accordance with good engineering, hydrologic and pollution control practices, including removal of collected sediment outside the acceptable tolerances of the BMPs, are considered to be no longer operating effectively and must be addressed in accordance with Part I.D.8, below. A specific timeline for implementing maintenance procedures is not included in this permit because BMP maintenance is expected to be proactive, not responsive. Observations resulting in BMP maintenance activities can be made during a site inspection, or during general observations of site conditions.

D. TERMS AND CONDITIONS (cont.)

8. **Replacement and Failed BMPs**

Adequate site assessment must be performed as part of comprehensive Inspection and Maintenance procedures, to assess the adequacy of BMPs at the site, and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs must be installed to ensure on-going implementation of BMPs as per Part I.D.2.

Where BMPs have failed, resulting in noncompliance with Part I.D.2, they must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants.

When new BMPs are installed or BMPs are replaced, the SWMP must be updated in accordance with Part I.D.5(c).

9. **Reporting**

No scheduled reporting requirements are included in this permit; however, the Division reserves the right to request that a copy of the inspection reports be submitted.

10. **SWMP Availability**

A copy of the SWMP shall be provided upon request to the Division, EPA, or any local agency in charge of approving sediment and erosion plans, grading plans or stormwater management plans, and within the time frame specified in the request. If the SWMP is required to be submitted to any of these entities, it must include a signed certification in accordance with Part I.F.1 of the permit, certifying that the SWMP is complete and meets all permit requirements.

All SWMPs required under this permit are considered reports that shall be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the Colorado Discharge Permit System Regulations. The permittee shall make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2.

11. **Total Maximum Daily Load (TMDL)**

If a TMDL has been approved for any waterbody into which the permittee discharges, and stormwater discharges associated with construction activity have been assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the Division will either:

- a) Ensure that the WLA is being implemented properly through alternative local requirements, such as by a municipal stormwater permit; or
- b) Notify the permittee of the WLA, and amend the permittee's certification to add specific BMPs and/or other requirements, as appropriate. The permittee may be required to do the following:
 - 1) Under the permittee's SWMP, implement specific management practices based on requirements of the WLA, and evaluate whether the requirements are being met through implementation of existing stormwater BMPs or if additional BMPs are necessary. Document the calculations or other evidence that show that the requirements are expected to be met; and
 - 2) If the evaluation shows that additional or modified BMPs are necessary, describe the type and schedule for the BMP additions/revisions.

Discharge monitoring may also be required. The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above. The Division reserves the right to require individual or alternate general permit coverage.

E. ADDITIONAL DEFINITIONS

For the purposes of this permit:

1. **Best Management Practices (BMPs):** schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, pollution prevention, and practices to control site runoff, spillage or leaks, waste disposal, or drainage from material storage.
2. **Dedicated asphalt plants and concrete plants:** portable asphalt plants and concrete plants that are located on or adjacent to a construction site and that provide materials only to that specific construction site.
3. **Final stabilization:** when all ground surface disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed. For purposes of this permit, establishment of a vegetative cover capable of providing erosion control equivalent to pre-existing conditions at the site will be considered final stabilization.
4. **Municipal separate storm sewer system:** a conveyance or system of conveyances (including: roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), owned or operated by a State, city, town, county, district, or other public body (created by state law), having jurisdiction over disposal of sewage, industrial waste, stormwater, or other wastes; designed or used for collecting or conveying stormwater.
5. **Operator:** the entity that has day-to-day supervision and control of activities occurring at the construction site. This can be the owner, the developer, the general contractor or the agent of one of these parties, in some circumstances. It is anticipated that at different phases of a construction project, different types of parties may satisfy the definition of 'operator' and that the permit may be transferred as the roles change.
6. **Outfall:** a point source at the point where stormwater leaves the construction site and discharges to a receiving water or a stormwater collection system.
7. **Part of a larger common plan of development or sale:** a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules.
8. **Point source:** any discernible, confined and discrete conveyance from which pollutants are or may be discharged. Point source discharges of stormwater result from structures which increase the imperviousness of the ground which acts to collect runoff, with runoff being conveyed along the resulting drainage or grading pattern.
9. **Pollutant:** dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste.
10. **Process water:** any water which, during manufacturing or processing, comes into contact with or results from the production of any raw material, intermediate product, finished product, by product or waste product. This definition includes mine drainage.
11. **Receiving Water:** any classified stream segment (including tributaries) in the State of Colorado into which stormwater related to construction activities discharges. This definition includes all water courses, even if they are usually dry, such as borrow ditches, arroyos, and other unnamed waterways.
12. **Significant Materials** include, but are not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharge.
13. **Stormwater:** precipitation-induced surface runoff.

F. GENERAL REQUIREMENTS

1. **Signatory Requirements**

- a) All reports required for submittal shall be signed and certified for accuracy by the permittee in accordance with the following criteria:
- 1) In the case of corporations, by a principal executive officer of at least the level of vice-president or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the form originates;
 - 2) In the case of a partnership, by a general partner;
 - 3) In the case of a sole proprietorship, by the proprietor;
 - 4) In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee, if such representative is responsible for the overall operation of the facility from which the discharge described in the form originates.
- b) **Changes to authorization.** If an authorization under paragraph a) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph a) of this section must be submitted to the Division, prior to or together with any reports, information, or applications to be signed by an authorized representative.
- c) **Certification.** Any person signing a document under paragraph a) of this section shall make the following certification:

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

2. **Retention of Records**

- a) The permittee shall retain copies of the SWMP and all reports required by this permit and records of all data used to complete the application to be covered by this permit, for three years after expiration or inactivation of permit coverage.
- b) The permittee shall retain a copy of the SWMP required by this permit at the construction site from the date of project initiation to the date of expiration or inactivation of permit coverage, unless another location, specified by the permittee, is approved by the Division.

3. **Monitoring**

The Division reserves the right to require sampling and testing, on a case-by-case basis (see Part I.D.1.e), for example to implement the provisions of a TMDL (see Part I.D.11 of the permit). Reporting procedures for any monitoring data collected will be included in the notification by the Division of monitoring requirements.

If monitoring is required, the following definitions apply:

- a) The **thirty (30) day average** shall be determined by the arithmetic mean of all samples collected during a thirty (30) consecutive-day period.
- b) A **grab** sample, for monitoring requirements, is a single “dip and take” sample.

PART II

A. MANAGEMENT REQUIREMENTS

1. Amending a Permit Certification

The permittee shall inform the Division (Permits Section) in writing of changes to the information provided in the permit application, including the legal contact, the project legal description or map originally submitted with the application, or the planned total disturbed acreage. The permittee shall furnish the Division with any plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge and receiving stream. If applicable, this notification may be accomplished through submittal of an application for a CDPS process water permit authorizing the discharge. The SWMP shall be updated and implemented prior to the changes (see Part I.D.5.c).

Any discharge to the waters of the State from a point source other than specifically authorized by this permit or a different CDPS permit is prohibited.

2. Special Notifications - Definitions

- a) **Spill:** An unintentional release of solid or liquid material which may cause pollution of state waters.
- b) **Upset:** An exceptional incident in which there is unintentional and temporary noncompliance with permit discharge limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

3. Noncompliance Notification

- a) The permittee shall report the following instances of noncompliance:
 - 1) Any noncompliance which may endanger health or the environment;
 - 2) Any spill or discharge of hazardous substances or oil which may cause pollution of the waters of the state.
 - 3) Any discharge of stormwater which may cause an exceedance of a water quality standard.
- b) For all instances of noncompliance based on environmental hazards and chemical spills and releases, all needed information must be provided orally to the Colorado Department of Public Health and Environment spill reporting line (24-hour number for environmental hazards and chemical spills and releases: 1-877-518-5608) within 24 hours from the time the permittee becomes aware of the circumstances.

For all other instances of noncompliance as defined in this section, all needed information must be provided orally to the Water Quality Control Division within 24 hours from the time the permittee becomes aware of the circumstances.

For all instances of noncompliance identified here, a written submission shall also be provided within 5 calendar days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of:

- 1) The noncompliance and its cause;
- 2) The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue;
- 3) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

A. MANAGEMENT REQUIREMENTS (cont.)

4. **Submission of Incorrect or Incomplete Information**

Where the permittee failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or report to the Division, or relevant new information becomes available, the permittee shall promptly submit the relevant application information which was not submitted or any additional information needed to correct any erroneous information previously submitted.

5. **Bypass**

- a) A bypass, which causes effluent limitations (i.e., requirements to implement BMPs in accordance with Parts I.B.3 and I.D.2 of the permit) to be exceeded is prohibited, and the Division may take enforcement action against a permittee for such a bypass, unless:
- 1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - 2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities (e.g., alternative BMPs), retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment (e.g., implemented additional BMPs) to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - 3) The permittee submitted notices as required in "Non-Compliance Notification," Part II.A.3.

6. **Upsets**

- a) **Effect of an Upset:** An upset constitutes an affirmative defense to an action brought for noncompliance with permit limitations and requirements if the requirements of paragraph b of this section are met. (No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.)
- b) **Conditions Necessary for a Demonstration of Upset:** A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:
- 1) An upset occurred and that the permittee can identify the specific cause(s) of the upset;
 - 2) The permitted facility was at the time being properly operated;
 - 3) The permittee submitted notice of the upset as required in Part II.A.3. of this permit (24-hour notice); and
 - 4) The permittee complied with any remedial measures required under 40 CFR Section 122.41(d) of the federal regulations or Section 61.8(3)(h) of the Colorado Discharge Permit System Regulations.
- c) **Burden of Proof:** In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

7. **Removed Substances**

Solids, sludges, or other pollutants removed in the course of treatment or control of discharges shall be properly disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

8. **Minimization of Adverse Impact**

The permittee shall take all reasonable steps to minimize any adverse impact to waters of the State resulting from noncompliance with any terms and conditions specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

A. MANAGEMENT REQUIREMENTS (cont.)

9. **Reduction, Loss, or Failure of Stormwater Controls**

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the permit requirements. Upon reduction, loss, or failure of any stormwater controls, the permittee shall, to the extent necessary to maintain compliance with its permit, control production, or remove all pollutant sources from exposure to stormwater, or both, until the stormwater controls are restored or an alternative method of treatment/control is provided.

It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

10. **Proper Operation and Maintenance**

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

B. RESPONSIBILITIES

1. **Inspections and Right to Entry**

The permittee shall allow the Director of the State Water Quality Control Division, the EPA Regional Administrator, and/or their authorized representative(s), upon the presentation of credentials:

- a) To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
- b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and
- c) To enter upon the permittee's premises to investigate, within reason, any actual, suspected, or potential source of water pollution, or any violation of the Colorado Water Quality Control Act. The investigation may include, but is not limited to, the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing permittee staff on alleged violations and other matters related to the permit, and access to any and all facilities or areas within the permittee's premises that may have any effect on the discharge, permit, or any alleged violation.

2. **Duty to Provide Information**

The permittee shall furnish to the Division, within the time frame specified by the Division, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or inactivating coverage under this permit, or to determine compliance with this permit. The permittee shall also furnish to the Division, upon request, copies of records required to be kept by this permit.

3. **Transfer of Ownership or Control**

Certification under this permit may be transferred to a new permittee if:

- a) The current permittee notifies the Division in writing when the transfer is desired as outlined in Part I.A.7; and
- b) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and
- c) The current permittee has met all fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15.

B. RESPONSIBILITIES (cont.)

4. **Modification, Suspension, or Revocation of Permit By Division**

All permit modification, inactivation or revocation and reissuance actions shall be subject to the requirements of the Colorado Discharge Permit System Regulations, Sections 61.5(2), 61.5(3), 61.7 and 61.15, 5 C.C.R. 1002-61, except for minor modifications.

- a) This permit, and/or certification under this permit, may be modified, suspended, or revoked in whole or in part during its term for reasons determined by the Division including, but not limited to, the following:
 - 1) Violation of any terms or conditions of the permit;
 - 2) Obtaining a permit by misrepresentation or failing to disclose any fact which is material to the granting or denial of a permit or to the establishment of terms or conditions of the permit;
 - 3) Materially false or inaccurate statements or information in the application for the permit;
 - 4) Promulgation of toxic effluent standards or prohibitions (including any schedule of compliance specified in such effluent standard or prohibition) which are established under Section 307 of the Clean Water Act, where such a toxic pollutant is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

- b) This permit, and/or certification under this permit, may be modified in whole or in part due to a change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge, such as:
 - 1) Promulgation of Water Quality Standards applicable to waters affected by the permitted discharge; or
 - 2) Effluent limitations or other requirements applicable pursuant to the State Act or federal requirements; or
 - 3) Control regulations promulgated; or
 - 4) Other available information indicates a potential for violation of adopted Water Quality Standards or stream classifications.

- c) This permit, or certification under this permit, may be modified in whole or in part to include new effluent limitations and other appropriate permit conditions where data submitted pursuant to Part I indicate that such effluent limitations and permit conditions are necessary to ensure compliance with applicable water quality standards and protection of classified uses.

- d) At the request of the permittee, the Division may modify or inactivate certification under this permit if the following conditions are met:
 - 1) In the case of inactivation, the permittee notifies the Division of its intent to inactivate the certification, and certifies that the site has been finally stabilized;
 - 2) In the case of inactivation, the permittee has ceased any and all discharges to state waters and demonstrates to the Division there is no probability of further uncontrolled discharge(s) which may affect waters of the State.
 - 3) The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes and regulations for such modification, amendment or inactivation;
 - 4) Fee requirements of Section 61.15 of the Colorado Discharge Permit System Regulations have been met; and
 - 5) Applicable requirements of public notice have been met.

For small construction sites covered by a Qualifying Local Program, coverage under this permit is automatically terminated when a site has been finally stabilized.

B. RESPONSIBILITIES (cont.)

5. **Permit Violations**

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit.

Dischargers of stormwater associated with industrial activity, as defined in the EPA Stormwater Regulation (40 CFR 122.26(b)(14) and Section 61.3(2) of the Colorado Discharge Permit System Regulations, which do not obtain coverage under this or other Colorado general permits, or under an individual CDPS permit regulating industrial stormwater, will be in violation of the federal Clean Water Act and the Colorado Water Quality Control Act, 25-8-101, as amended. Failure to comply with CDPS permit requirements will also constitute a violation.

6. **Legal Responsibilities**

The issuance of this permit does not convey any property or water rights in either real or personal property, or stream flows, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority granted by Section 510 of the Clean Water Act.

7. **Severability**

The provisions of this permit are severable. If any provisions of this permit, or the application of any provision of this permit to any circumstance, are held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

8. **Renewal Application**

If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least ninety (90) days before this permit expires. If the permittee anticipates that there will be no discharge after the expiration date of this permit, the Division should be promptly notified so that it can inactivate the certification in accordance with Part II.B.4.d.

9. **Confidentiality**

Except for data determined to be confidential under Section 308 of the Federal Clean Water Act and Colorado Discharge Permit System Regulations, Section 61.5(4), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division. The permittee must state what is confidential at the time of submittal.

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Commission or the Division, but shall be kept confidential. Any person seeking to invoke the protection of this section shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

10. **Fees**

The permittee is required to submit payment of an annual fee as set forth in the Water Quality Control Act. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S. 1973 as amended.

B. RESPONSIBILITIES (cont.)

11. **Requiring an Individual CDPS Permit**

The Director may require the permittee to apply for and obtain an individual or alternate general CDPS permit if:

- a) The discharger is not in compliance with the conditions of this general permit;
- b) Conditions or standards have changed so that the discharge no longer qualifies for a general permit; or
- c) Data/information become available which indicate water quality standards may be violated.

The permittee must be notified in writing that an application for an individual or alternate general CDPS permit is required. When an individual or alternate general CDPS permit is issued to an operator otherwise covered under this general permit, the applicability of this general permit to that operator is automatically inactivated upon the effective date of the individual or alternate general CDPS permit.

RATIONALE

STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY

GENERAL PERMIT IN COLORADO THIRD RENEWAL COLORADO DISCHARGE PERMIT NUMBER COR-030000

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I. INTRODUCTION

This permit is for the regulation of stormwater runoff from construction activities, and specific allowable non-stormwater discharges in accordance with Part I.D.3 of the permit. The term "construction activity" includes ground surface disturbing activities, including, but not limited to, clearing, grading, excavation, demolition, installation of new or improved haul and access roads, staging areas, stockpiling of fill materials, and borrow areas. "Stormwater" is precipitation-induced surface runoff. This rationale will explain the background of the Stormwater program, activities which are covered under this permit, how to apply for coverage under this permit, and the requirements of this permit.

The forms discussed in the rationale and permit are available on the Water Quality Control Division's website at: www.cdphe.state.co.us/wq/PermitsUnit

II. CHANGES IN THIS GENERAL PERMIT

Several notable changes from the previous General Permit for Construction Activities have been incorporated into this permit. Significant changes are listed below. Numerous other minor changes were made for clarification purposes only.

A. Authority to Discharge

This section has been restructured to list all of the types of activities covered by this permit, and to be consistent with the definition of "construction activity." The definition of construction activity has been expanded to provide clarification. See Part I.A.1 of the permit.

II. *CHANGES IN THIS GENERAL PERMIT (cont.)*

B. *Authority to Discharge – Oil and Gas Construction*

This section has been added, to take into account a regulatory change. The federal Energy Policy Act of 2005 exempts nearly all oil and gas construction activities from federal requirements under the Clean Water Act's NPDES stormwater discharge permit program. In January 2006, the Colorado Water Quality Control Commission held a hearing to determine what effects, if any, the change in federal law would have upon Colorado's stormwater regulations. The Commission determined that oil and gas construction sites in Colorado that disturb one or more acres are still required to be covered under Colorado's stormwater permitting regulations (Colorado Discharge Permit System (CDPS) regulations (5CCR 1002-61)). In practice, oil and gas construction sites have the same requirements under this permit as do other types of construction. However, this permit contains some references to the federal Clean Water Act; generally these references are not applicable to oil and gas construction sites to the extent that the references are limited by the federal Energy Policy Act of 2005. See Part I.A.1(b) of the permit.

C. *Application Requirements*

The permit application requirements have changed slightly, including the addition of an email address, if available. See Part I.A.4(b).

The applicant must be either the owner and/or operator of the construction site. An operator at a construction site that is not covered by a certification held by an appropriate entity may be held liable for operating without the necessary permit coverage.

D. *Temporary Coverage*

Part I.A.5(d) of the previous permit (effective July 1, 2002) dealt with temporarily covering a facility under the general permit even if an individual permit is more appropriate. This permit section essentially duplicated the previous section (see Part I.A.5(c)), and so it has been deleted.

E. *Reassignment of Permit Coverage*

Procedures have been added to clarify the requirements for the transfer of coverage of specific portions of a permitted site to a second party. See Section VIII.I.3 of the rationale and Part I.A.8 of the permit.

F. *Individual Permit Criteria*

This section has been modified to include situations involving a Total Maximum Daily Load (TMDL). See Part I.A.11 of the permit.

G. *Stormwater Management Plan (SWMP)*

The Stormwater Management Plan section has been divided into two parts: Stormwater Management Plan (SWMP) – General Requirements, which provides the basic framework and general requirements for the SWMP, and Stormwater Management Plan (SWMP) – Contents, which specifically identifies each item that must be addressed in the SWMP. See Parts I.B and I.C of the permit.

H. *Stormwater Management Plan (SWMP) – General Requirements*

The SWMP General Requirements section has been modified to require that the SWMP be updated in accordance with Parts I.D.5(c) and I.D.5(d) of the permit (SWMP Review/Changes). This additional requirement ensures that the SWMP provisions reflect current site conditions. See Part I.B.2(c) of the permit.

II. CHANGES IN THIS GENERAL PERMIT (cont.)

I. Stormwater Management Plan (SWMP) – Contents

The SWMP Contents section has been modified. Some of the changes are limited to organization of information, which does not require modification of an existing permittee's current SWMP. Most of the SWMP changes involve either clarifications, reformatting, or taking recommendations from the Division's SWMP guide and making them permit requirements (e.g., vehicle tracking controls, BMP installation specifications). If an **existing permittee (i.e., those with permit coverage before June 30, 2007)** followed the recommendations in the SWMP guide (Appendix A of the permit application), then their SWMP will presumably meet the new requirements. However, for any existing permittees who did not follow the applicable SWMP guide recommendations, their SWMP must be amended to include the new required items:

-SWMP Administrator

-Identification of potential pollutant sources

-Best Management Practices descriptions and installation specifications, including dedicated concrete or asphalt batch plants; vehicle tracking control; and waste management and disposal (including concrete washout activities).

For existing permittees, any SWMP changes based on the change in permit requirements must be completed by **October 1, 2007**. The plan is not to be submitted to the Division unless requested, but must be available on site as outlined in Part I.D.5(b) of the permit.

The BMP requirement clarifications included in this renewed permit in no way imply that adequate BMPs to address all pollutant sources at a permitted site were not required in previous permits. The revised requirements are intended only to better clarify SWMP content requirements and provide improved direction to permittees.

The SWMP changes are listed below. All new applicants (after June 30, 2007) for permit coverage for their sites must fully comply with the new SWMP organization, plan requirements, and implementation.

1. **Site Description:** The requirement to provide an estimate of the run-off coefficient has been removed. The run-off coefficient as currently utilized in the SWMP may not contribute sufficiently to permit compliance to justify the effort in determining accurate values. See Part I.C.1 of the permit. However, the Division still encourages use of the coefficient as needed to adequately evaluate site-specific BMP selection and design criteria (e.g., pond capacities, BMP location, etc.) See Section C.2 of the SWMP guidance (Appendix A of the permit application).
2. **Site Map:** The requirement to identify boundaries of the 100-year flood plain has been removed. The boundaries as currently utilized in the SWMP may not contribute sufficiently to permit compliance to justify the effort in determining their location. See Part I.C.2 of the permit.
3. **Stormwater Management Controls:** This section has been modified to require identification of a SWMP Administrator and all potential pollutants sources in the SWMP. See Part I.C.3 of the permit.
 - a) The SWMP Administrator is a specific individual(s), position or title who is responsible for the process of developing, implementing, maintaining, and revising the SWMP. This individual serves as the comprehensive point of contact for all aspects of the facility's SWMP. **This requirement may necessitate changes to existing permittees' SWMPs.**

II. CHANGES IN THIS GENERAL PERMIT (cont.)

- b) *The requirement to identify Potential Pollutant Sources has been expanded to include more details for the evaluation of such sources. This evaluation allows for the appropriate selection of BMPs for implementation at a facility or site. Additionally, this section was added to be consistent with the SWMP guide. **This requirement may necessitate changes to existing permittees' SWMPs.***
- c) *Best Management Practices (BMPs) for Stormwater Pollution Prevention: This section was modified to require the following items to be addressed in the SWMP. **These requirements may necessitate changes to existing permittees' SWMPs.** This section also requires that the SWMP provide installation and implementation specifications for each BMP identified in the SWMP. For structural BMPs, in most cases, this must include a technical drawing to provide adequate installation specifications. See Part I.C.3(c).*
 - i) *Dedicated concrete or asphalt batch plants. This section requires that the practices used to reduce the pollutants in stormwater discharges associated with dedicated concrete or asphalt batch plants be identified in the SWMP. (Coverage under the construction site SWMP and permit is not required for batch plants if they have alternate CDPS permit coverage.)*
 - ii) *Vehicle tracking control. This section requires that practices be implemented to control sediment from vehicle tracking, and that all such practices implemented at the site be clearly described in the SWMP.*
 - iii) *Waste management and disposal. This section requires that the practices implemented at the site to control stormwater pollution from construction site waste, including concrete washout activities, be clearly described in the SWMP. It also requires that concrete washout activities be conducted in a manner that does not contribute pollutants to surface waters or stormwater runoff.*
 - iv) *Concrete Washout Water. Part I.D.3(c) of the permit has been revised to conditionally authorize discharges to the ground of concrete wash water from washing of tools and concrete mixer chutes when appropriate BMPs are implemented. The permit prohibits the discharge of concrete washout water to surface waters and to storm sewer systems. Part I.C.3(c)(7) of the permit requires that BMPs be in place to prevent surface discharges of concrete washout water from the site.*

The use of unlined pits to contain concrete washout water is a common practice in Colorado. The Division has further evaluated the need for a permit for discharge of concrete washout water to the ground. The Division has determined that the use of appropriate BMPs for on-site washing of tools and concrete mixer chutes would prevent any significant discharge to groundwater. BMPs to protect groundwater are required by Part I.C.3(c)(7) of the permit. Because pH is a pollutant of concern for washout activities, the soil must have adequate buffering capacity to result in protection of the groundwater standard, or a liner/containment must be used. The following management practices are recommended to prevent an impact from unlined pits to groundwater:

- (1) the use of the washout site should be temporary (less than 1 year), and*
- (2) the washout site should be not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.*

II. *CHANGES IN THIS GENERAL PERMIT (cont.)*

Where adequate management practices are not followed to protect groundwater quality, the Department may require discharges to unlined pits to cease, or require the entity to obtain alternate regulatory approval through notice from either the Water Quality Control Division or the Hazardous Materials and Waste Management Division.

In addition, Part I.D.1(b) of the permit has been revised to clearly state that the permit does not authorize on-site permanent disposal of concrete washout waste, only temporary containment of concrete washout water from washing of tools and concrete mixer chutes. Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste.

- v) *Construction Dewatering. Part I.D.3(d) of the permit has been revised to conditionally authorize discharges to the ground of water from construction dewatering activities when appropriate BMPs are implemented. The permit does not authorize the discharge of groundwater from construction dewatering to surface waters or to storm sewer systems. Part I.C.3(c)(8) of the permit requires that BMPs be in place to prevent surface discharges. The permittee may apply for coverage under a separate CDPS discharge permit, such as the Construction Dewatering general permit, if there is a potential for discharges to surface waters.*

The Division has determined that potential pollutant sources introduced into groundwater from construction dewatering operations do not have a reasonable potential to result in exceedance of groundwater standards when the discharge is to the ground. The primary pollutant of concern in uncontaminated groundwater is sediment. Although technology-based standards for sediment do exist in 5 CCR 1002-41, the discharge of sediment to the ground as part of construction dewatering does not have the reasonable potential to result in transport of sediment to the groundwater table so as to result in an exceedance of those standards.

For a discharge of water contaminated with other pollutants that are present in concentrations that may cause an exceedance of groundwater standards, separate CDPS discharge permit coverage is required. Contaminated groundwater may include that contaminated with pollutants from a landfill, mining activity, industrial pollutant plume, underground storage tank, or other source of human-induced groundwater pollution and exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42.

J. *Terms and Conditions, General Limitations and Design Standards*

This section reiterates the requirement that facilities select, install, implement, and maintain appropriate BMPs, following good engineering, hydrologic and pollution control practices. In addition, requirements for protection of water quality standards (see Part I.D.1.(a) of the permit) and requirements to adequately design BMPs to prevent pollution or degradation of State waters (see Part I.D.2 of the permit) have been revised and are fully discussed in Part III.B of the rationale, below. Additional language was also added to Section III.B of the rationale further clarifying the expectations for compliance with this permit.

1. *Management of Site Waste*

This section has been modified to clarify that on-site waste must be properly managed to prevent potential pollution of State waters, and that this permit does not authorize on-site waste disposal. Solid waste disposal is regulated by the Hazardous Materials and Waste Management Division.

II. *CHANGES IN THIS GENERAL PERMIT (cont.)*

K. *Terms and Conditions, SWMP Requirements*

1. **SWMP Review/Changes:** *This section now requires that when changes are made to site conditions, the SWMP must be revised immediately, except for some BMP description changes which conditionally may occur within 72 hours. This requirement is included to both ensure that the SWMP be kept accurate and up-to-date, and to clarify that stormwater management at a site typically should be proactive instead of responsive, and be integrated into site management to ensure it is calibrated with those changes. The section was also clarified to state that only changes in site conditions that do not require new or modified BMPs do not need to be addressed in the SWMP. See Part I.D.5(c) of the permit.*
2. **SWMP Certification:** *The previous permit was unclear on a requirement that the copy of SWMP that remains at the facility had to be signed in accordance with permit signatory requirements. This requirement has been deleted. The signatory requirement of Part I.F.1 only applies to the SWMP if it is to be submitted to the Division or to EPA. See Part I.F.1 of the permit.*

L. *Terms and Conditions, Post-Storm Inspections*

The previous permit required post-storm inspections, but did not specify the timing of inspections. This section now requires that post-storm event inspections generally be conducted within 24 hours of the event. An alternative timeline has been allowed, only for sites where there are no construction activities occurring following a storm event. For this condition, post-storm event inspections shall instead be conducted prior to commencing construction activities, but no later than 72 hours following the storm event, and the delay noted in the inspection report.

Any exception from the minimum inspection schedule is temporary, and does not eliminate the requirement to perform routine maintenance due to the effects of a storm event, including maintaining vehicle tracking controls and removing sediment from impervious areas. In many cases, maintenance needs will require a more frequent inspection schedule than the minimum inspections required in the permit, to ensure that BMPs continue to operate as needed to comply with the permit. See Part I.D.6(a) of the permit.

M. *Terms and Conditions, Inspections*

1. *The Winter Conditions Inspection Exclusion section has been modified to include documentation requirements for this exclusion. See Part I.D.6(a) of the permit. The Inspection Scope has been modified to include the requirement to inspect waste storage areas during inspections conducted in accordance with the permit. See Part I.D.6(b) of the permit.*
2. *The requirements for sites to qualify for reduced inspection frequencies for completed sites have been slightly modified (see Part I.D.6(a)(2) of the permit,). The requirement now is that only construction activities that disturb the ground surface must be completed. Construction activities that can be conducted without disturbance of the ground surface; for example, interior building construction, and some oil well activities, would not prohibit a site from otherwise qualifying for the reduced inspection frequency. In addition, the requirement for the site to be prepared for final stabilization has been slightly modified to allow for sites that have not yet been seeded to qualify, as long as the site has otherwise been prepared for final stabilization, including completion of appropriate soil preparation, amendments and stabilization practice. This will allow for sites with seasonal seeding limitations or where additional seed application may be needed in the future to still qualify.*

II. CHANGES IN THIS GENERAL PERMIT (cont.)

3. *The Inspection Report/Records section (Part I.D.6(b)(2)) was added to clarify requirements for inspection reports generated during an inspection conducted in accordance with Part I.D.6 of the permit. Inspection reports must be signed by the inspector, or the individual verifying the corrective action indicated in the inspection report, on behalf of the permittee. Inspection reports are not typically required to be submitted to the Division, and therefore, are not required to be signed and certified for accuracy in accordance with Part I.F.1 of the permit. However, any inspection reports that are submitted to the Division must follow the signatory requirements contained in that section.*

N. Terms and Conditions, Maintenance, Repair, and Replacement of Control Practices

These sections have been added to clarify requirements for maintaining the BMPs identified in the SWMP and for addressing ineffective or failed BMPs. BMP maintenance and site assessment to determine the overall adequacy of stormwater quality management at the site must occur proactively, in order to ensure adequate control of pollutant sources at the site. In most cases, if BMPs are already not operating effectively, or have failed, the issue must be addressed immediately, to prevent discharge of pollutants. See Parts I.D.7 and I.D.8 of the permit.

O. Total Maximum Daily Load (TMDL)

A section on TMDLs has been added. This section gives a general outline of the additional requirements that may be imposed by the Division if the facility discharges to a waterbody for which a stormwater-related TMDL is in place. See Section VIII.C of the rationale and Part I.D.11 of the permit.

P. Additional Definitions

Part I.E of the permit has been modified to remove the definition of runoff coefficient, as it is no longer a permit requirement. The definition for state waters has also been deleted, but can be found in Regulation 61.

Q. Changes in Discharge

The section on the types of discharge or facility changes that necessitate Division notification has been clarified. See Part II.A.1 of the permit.

R. Non-Compliance Notification

The section on notification to the Division regarding instances of non-compliance has been amended to clarify which types of noncompliance require notification. See Part II.A.3 of the permit.

S. Short Term Certifications

The previous permit allowed small short-term construction activities to be authorized for a predetermined period from 3 to 12 months, and then automatically expire (an inactivation request did not need to be submitted). The issuance of these certifications has led to significant confusion and incidents of noncompliance resulting from permittees unintentionally letting their certifications expire prior to final stabilization, as well as issues regarding billing. Therefore, the provisions for short-term certifications have been deleted.

T. Bypass

The Division has revised the Bypass conditions in Part II.A.5 of the permit to be consistent with the requirements of Regulation 61.8(3)(i). The revised language addresses under what rare occurrences BMPs may be bypassed at a site.

III. BACKGROUND

As required under the Clean Water Act amendments of 1987, the Environmental Protection Agency (EPA) has established a framework for regulating municipal and industrial stormwater discharges. This framework is under the National Pollutant Discharge Elimination System (NPDES) program (Note: The Colorado program is referred to as the Colorado Discharge Permit System, or CDPS, instead of NPDES.) The Water Quality Control Division ("the Division") has stormwater regulations (5CCR 1002-61) in place. These regulations require specific types of industrial facilities that discharge stormwater associated with industrial activity (industrial stormwater), to obtain a CDPS permit for such discharge. The regulations specifically include construction activities that disturb one acre of land or more as industrial facilities. Construction activities that are part of a larger common plan of development which disturb one acre or more over a period of time are also included.

A. General Permits

The Division has determined that the use of general permits is the appropriate procedure for handling most of the thousands of industrial stormwater applications within the State.

B. Permit Requirements

This permit does not impose numeric effluent limits or require submission of effluent monitoring data in the permit application or in the permit itself. The permit instead imposes practice-based effluent limitations for stormwater discharges through the requirement to develop and implement a Stormwater Management Plan (SWMP). The narrative permit requirements include prohibitions against discharges of non-stormwater (e.g., process water). See Part I.D.3 of the permit.

The permit conditions for the SWMP include the requirement for dischargers to select, implement and maintain Best Management Practices (BMPs) at a permitted construction site that adequately minimize pollutants in the discharges to assure compliance with the terms and conditions of the permit. Part I.D.2 of the permit includes basic design standards for BMPs implemented at the site. Facilities must select, install, implement, and maintain appropriate BMPs, following good engineering, hydrologic and pollution control practices. BMPs implemented at the site must be adequately designed to control all potential pollutant sources associated with construction activity to prevent pollution or degradation of State waters. Pollution is defined in CDPS regulations (5CCR 1002-61) as man-made or man-induced, or natural alteration of the physical, chemical, biological, and radiological integrity of water. Utilizing industry-accepted standards for BMP selection that are appropriate for the conditions and pollutant sources present will typically be adequate to meet these criteria, since construction BMPs are intended to prevent the discharge of all but minimal amounts of sediment or other pollutants that would not result in actual pollution of State waters, as defined above. However, site-specific design, including ongoing assessment of BMPs and pollutant sources, is necessary to ensure that BMPs operate as intended.

The permit further requires that stormwater discharges from construction activities shall not cause, have the reasonable potential to cause, or measurably contribute to an excursion above any water quality standard, including narrative standards for water quality. This condition is the basis for all CDPS Discharge permits, and addresses the need to ensure that waters of the State maintain adequate water quality, in accordance with water quality standards, to continue to meet their designated uses. It is believed that, in most cases, BMPs can be adequate to meet applicable water quality standards. If water quality impacts are noted, or the Division otherwise determines that additional permit requirements are necessary, they are typically imposed as follows: 1) at the renewal of this general permit or through a general permit specific to an industrial sector (if the issue is sector-based); 2) through direction from the Division based on the implementation of a TMDL (if the issue is watershed-based); or 3) if the issue is site-specific, through a revision to the certification from the Division based on an inspection or SWMP review, or through an individual permit.

III. BACKGROUND (cont.)

Some construction sites may be required to comply with a Qualifying Local Program in place of meeting several of the specific requirements in this permit. Sites covered by a Qualifying Local Program may not be required to submit an application for coverage or a notice of inactivation and may not be required to pay the Division's annual fee. See Section VII of the rationale.

C. Violations/Penalties

Dischargers of stormwater associated with industrial activity, as defined in the CDPS regulations (5CCR 1002-61), that do not obtain coverage under this or other Colorado general permits, or under an individual CDPS permit regulating industrial stormwater, will be in violation of the Federal Clean Water Act and the Colorado Water Quality Control Act, 25-8-101. For facilities covered under a CDPS permit, failure to comply with any CDPS permit requirement constitutes a violation. As of the time of permit issuance, civil penalties for violations of the Act or CDPS permit requirements may be up to \$10,000 per day, and criminal pollution of state waters is punishable by fines of up to \$25,000 per day.

IV. STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY

The stormwater regulations (CDPS regulations (5CCR 1002-61)), require that stormwater discharges associated with certain industrial activities be covered under the permit program. Construction activity that disturbs one acre or more during the life of the project is specifically included in the listed industrial activities. This permit is intended to cover most stormwater discharges from construction facilities required by State regulation to obtain a permit.

A. Construction Activity

Construction activity includes ground surface disturbing activities including, but not limited to, clearing, grading, excavation, demolition, installation of new or improved haul and access roads, staging areas, stockpiling of fill materials, and dedicated borrow/fill areas. Construction does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility. (The maintenance exclusion is intended for projects such as road resurfacing, and where there will be less than one acre of additional ground disturbed. Improvements or upgrades to existing facilities or roads, where at least one acre is disturbed, would not qualify as "routine maintenance.")

Definitions of additional terms can be found in Part I.E of the permit.

Stormwater discharges from all construction activity require permit coverage, except for operations that result in the disturbance of less than one acre of total land area and which are not part of a larger common plan of development or sale. A "larger common plan of development or sale" is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules.

B. Types of Discharges/Activities Covered

1. **Stormwater:** *This permit is intended to cover most new or existing discharges composed **entirely** of stormwater from construction activities that are required by State regulation to obtain a permit. This includes stormwater discharges associated with areas that are dedicated to producing earthen materials, such as soils, sand, and gravel, for use at a single construction site. These areas may be located at the construction site or at some other location. This permit does not authorize the discharge of mine water or process water from borrow areas. This permit may also cover stormwater discharges associated with dedicated asphalt plants and concrete plants located at a specific construction site.*

IV. *STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (cont.)*

2. **Process water:** *Under certain restrictions, discharges to the ground from construction dewatering, and from concrete washout activities, are also covered (see Parts I.C.3(c)(7), I.C.3(c)(8), I.D.3(c) and I.D.3(d) of the permit).*

C. *Types of Activities NOT Covered*

1. **Stormwater:** *Aside from the sources listed in subparagraph B.1, above, this permit does not cover stormwater discharged from construction sites that is mixed with stormwater from other types of industrial activities, or process water of any kind. Other types of industrial activities that require stormwater discharge permits pursuant to different sections of the regulations (Regulation 5 CCR 1002-61, Section 61.2(e)(iii)(A-I, K)], are not covered by this permit.*
2. **Process water:** *This permit also does not cover any discharge of process water to surface waters. If the construction activity encounters groundwater, in order to discharge this groundwater to surface waters, a Construction Dewatering Discharge Permit (permit number COG-070000) must also be obtained. An application for this permit can be obtained from the Division at the address listed in Part I.A.4(a) of the permit, or at the website in Section I of the rationale.*

V. *COVERAGE UNDER THIS GENERAL PERMIT*

Under this general permit, owners or operators of stormwater discharges associated with construction activity may be granted authorization to discharge stormwater into waters of the State of Colorado. This includes stormwater discharges associated with industrial activity from areas that are dedicated to producing earthen materials, such as soils, sand and gravel, for use at a single construction site, and dedicated asphalt plants and dedicated concrete plants.

This permit does not pre-empt or supersede the authority of other local, state or federal agencies to prohibit, restrict or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.

Authorization to discharge under the permit requires submittal of a completed application form and a certification that the SWMP is complete, unless the site is covered by a Qualifying Local Program. Upon receipt of all required information, the Division may allow or disallow coverage under the general permit.

VI. *APPLICATION AND CERTIFICATION*

*At least **ten days** prior to the commencement of construction activities, the owner or operator of the construction site shall submit an original completed application which includes the signed certification that the SWMP is complete. Original signatures are required for the application to be considered complete. For small construction sites only, if the site is covered by a Qualifying Local Program (see below), submittal of an application is not required.*

For the purposes of this permit, the “operator” is the person who has day-to-day control over the project. This can be the owner, the developer, the general contractor or the agent of one of these parties, in some circumstances. At different times during a construction project, different types of parties may satisfy the definition of “operator” and the certification may be transferred as roles change.

(Note - Under the Federal regulations, this application process is referred to as a Notice of Intent, or NOI. For internal consistency with its current program, the Division will continue to use the term “application.”) A summary of the permit application requirements is found in the permit at Part I.A.4(b).

If coverage under this general permit is appropriate, then a certification will be developed and the applicant will be certified under this general permit.

VII. QUALIFYING LOCAL PROGRAMS

For stormwater discharges associated with small construction activity (i.e., one to five acre disturbed area sites), the permit includes conditions that incorporate approved qualifying local erosion and sediment control program (Qualifying Local Program) requirements by reference. A Qualifying Local Program is a municipal stormwater program for stormwater discharges associated with small construction activity that has been formally approved by the Division. The requirements for Qualifying Local Programs are outlined in Part 61.8(12) of the Colorado Discharger Permit System Regulations (also see the Division's "Qualifying Local Programs for Small Construction Sites - Application Guidance"). Such programs must impose requirements to protect water quality that are at least as stringent as those required in this permit.

A. Approval Termination

A Qualifying Local Program may be terminated by either the Division or the municipality. Upon termination of Division approval of a Qualifying Local Program, any small construction activity required to obtain permit coverage under Section 61.3(2)(h) of the CDPS regulations (5CCR 1002-61), shall submit an application form as provided by the Division, with a certification that the Stormwater Management Plan (SWMP) is complete as required by Part I.A.3 of the permit, within 30 days of Division notification.

B. Approval Expiration

Division approval of a Qualifying Local Program will expire with this general permit on June 30, 2012. Any municipality desiring to continue Division approval of their program must reapply by March 31, 2012. The Division will determine if the program may continue as a approved Qualifying Local Program.

VIII. TERMS AND CONDITIONS OF PERMIT

A. Coverage under a Qualifying Local Program – For Small Construction Sites Only

For small construction sites (disturbing less than 5 acres) covered under a Qualifying Local Program (see Section VII, above), only certain permit requirements apply, as outlined below. The local program must have been formally designated by the Division to qualify. Most municipalities have some type of local program and may require permits and fees. However, simply having a program in place does not necessarily mean that it is a qualifying program and that a State permit is not required. The local municipality is responsible for notifying operators and/or owners that they are covered by a Qualifying Local Program. As of May 31, 2007, the only approved Qualifying Local Programs within the state are for Golden, Durango and Lakewood. An updated list of municipalities with Qualifying Local Programs, including contact information, is available on the Division's website at: <http://www.cdphe.state.co.us/wq/PermitsUnit/stormwater/construction.html>.

The Division reserves the right to require any construction owner or operator within the jurisdiction of a Qualifying Local Program covered under this permit to apply for and obtain coverage under the full requirements of this permit.

1. **Permit Coverage:** *If a construction site is within the jurisdiction of a Qualifying Local Program, the owner or operator of the construction activity is authorized to discharge stormwater associated with small construction activity under this general permit **without** the submittal of an application to the Division. The permittee also is not required to submit an inactivation notice or payment of an annual fee to the Division.*

VIII. TERMS AND CONDITIONS OF PERMIT (cont.)

2. **Permit Terms and Conditions:** *The permittee covered by a Qualifying Local Program must comply with the requirements of that Qualifying Local Program. In addition, the following permit sections are applicable:*
- a) *Parts 1.A.1, 1.A.2, and 1.A.3: Authorization to discharge and discussion of coverage under the permit.*
 - b) *Part I.D.1: General limitations that must be met in addition to local requirements.*
 - c) *Parts I.D.2, I.D.3, I.D.4: BMP implementation, prohibition of non-stormwater discharges unless addressed in a separate CDPS permit, and requirements related to releases of reportable quantities.*
 - d) *Part I.D.11: Potential coverage under a Total Maximum Daily Load (TMDL).*
 - e) *Part I.E: Additional definitions.*
 - f) *Part II (except for Parts II.A.1, II.B.3, II.B.8, and II.B.10): Specifically includes, but is not limited to, provisions applicable in the case of noncompliance with permit requirements, and requirements to provide information and access.*

B. Stormwater Management Plans (SWMPs)

Prior to commencement of construction, a stormwater management plan (SWMP) shall be developed and implemented for each facility covered by this permit. A certification that the SWMP is complete must be submitted with the permit application. The SWMP shall identify potential sources of pollution (including sediment) which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the facility. In addition, the plan shall describe the Best Management Practices (BMPs) which will be used to reduce the pollutants in stormwater discharges from the construction site. (Note that permanent stormwater controls, such as ponds, that are used as temporary construction BMPs must be adequately covered in the SWMP.) Facilities must implement the provisions of their SWMP as a condition of this permit. The SWMP shall include the following items:

1. *Site Description*
2. *Site Map*
3. *Stormwater Management Controls*
4. *Long-term Stormwater Management*
5. *Inspection and Maintenance*

(See Parts I.B. and I.C of the permit for a more detailed description of SWMP requirements.) The Division has a guidance document available on preparing a SWMP. The document is included as Appendix A of the permit application, and is available on the Division's website at www.cdphe.state.co.us/wq/PermitsUnit.

Some changes have been made to the SWMP requirements. See Section II.I of the rationale for a discussion on permittee responsibilities regarding those changes.

VIII. TERMS AND CONDITIONS OF PERMIT (cont.)

Master SWMP

Often, a large construction project will involve multiple smaller construction sites that are within a common plan of development, or multiple well pads under construction within an oil and gas well field. Pollutant sources and the types of BMPs used can be relatively consistent in such cases. A permittee could significantly streamline the SWMP development process through the use of a master SWMP. SWMP information must be developed and maintained for all construction activities that exceed one acre (or are part of a common plan of development exceeding one acre) conducted within the permitted area. By developing a single master plan, the permittee can eliminate the need to develop repetitive information in separate plans. Such a plan could include two sections, one containing a reference section with information applicable to all sites (e.g., installation details and maintenance requirements for many standard BMPs, such as silt fence and erosion blankets), and the second containing all of the information specific to each site (e.g., site BMP map, drainage plans, details for BMPs requiring site specific design, such as retention ponds).

As new activities begin, information required in the SWMP is added to the plan, and as areas become finally stabilized, the related information is removed. Records of information related to areas that have been finally stabilized that are removed from the active plan must be maintained for a period of at least three years from the date that the associated site is finally stabilized.

C. Total Maximum Daily Load (TMDL)

If the designated use of a stream or water body has been impaired by the presence of a pollutant(s), development of a Total Maximum Daily Load (TMDL) may be required. A TMDL is an estimate of allowable loading in the waterbody for the pollutant in question. Types of discharges that are or have the potential to be a significant source of the pollutant are also identified. If a TMDL has been approved for any waterbody into which the permittee discharges, and stormwater discharges associated with construction activity have been assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the Division will either:

- 1. Notify the permittee of the TMDL, and amend the permittee's certification to add specific BMPs and/or other requirements, as appropriate; or*
- 2. Ensure that the TMDL is being implemented properly through alternative local requirements, such as by a municipal stormwater permit. (The only current example of this is the Cherry Creek Reservoir Control Regulation (72.0), which mandates that municipalities within the basin require specific BMPs for construction sites.)*

See Part I.D.11 of the permit for further information.

D. Monitoring

Sampling and testing of stormwater for specific parameters is not required on a routine basis under this permit. However, the Division reserves the right to require sampling and testing on a case-by-case basis, in the event that there is reason to suspect that compliance with the SWMP is a problem, or to measure the effectiveness of the BMPs in removing pollutants in the effluent. See Part I.D.1(e) of the permit.

E. Facility Inspections

Construction sites typically must inspect their stormwater management controls at least every 14 days and within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. At sites or portions of sites where ground-disturbing construction has been completed but a vegetative cover has not been established, these inspections must occur at least once per month. (At sites where persistent snow cover conditions exist, inspections are not required during the period that melting conditions do not exist. These

VIII. TERMS AND CONDITIONS OF PERMIT (cont.)

conditions are only expected to occur at high elevations within the Colorado mountains.) For all of these inspections, records must be kept on file. Exceptions to the inspection requirements are detailed in Part I.D.6 of the permit.

F. SWMP Revisions

The permittee shall amend the SWMP whenever there is a change in design, construction, operation, or maintenance of the site, which would require the implementation of new or revised BMPs. The SWMP shall also be amended if it proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity. The timing for completion of SWMP changes is detailed in Parts I.D.5(c) and I.D.5(d) of the permit.

SWMP revisions shall be made prior to change in the field, or in accordance with Part I.D.5(d) of the permit.

G. Reporting

The inspection record shall be made available to the Division upon request. Regular submittal of an annual report is not required in this permit. See Part I.D.9 of the permit.

H. Annual Fee

The permittee is required to submit payment of an annual fee as set forth in the Water Quality Control Act. Permittees will be billed for the initial permit fee within a few weeks of permit issuance and then annually, based on a July 1 through June 30 billing cycle.

I. Responsibility for Permit

The permit certification for a site may be inactivated, once coverage is no longer needed. The certification may be transferred, if another party is assuming responsibility for the entire area covered by the certification. In addition, permit responsibility for **part** of the area covered by the certification may be reassigned to another party. These actions are summarized below. The Stormwater Program construction fact sheet explains these actions in further detail under the section on Multiple Owner/Developer Sites, and is available on the Division website at

<http://www.cdphe.state.co.us/wq/PermitsUnit/stormwater/ConstFactSheet.PDF>, Section F.

1. **Inactivation Notice:** When a site has been finally stabilized in accordance with the SWMP, the permittee shall submit an **Inactivation Notice** that is signed in accordance with Part I.F.1 of the permit. A summary of the Inactivation Notice content is described in Part I.A.6 of the permit. A copy of the Inactivation Notice form will be mailed to the permittee along with the permit certification. Additional copies are available from the Division.

For sites where all areas have been removed from permit coverage, the permittee may submit an inactivation notice and terminate permit coverage. In such cases the permittee would no longer have any land covered under their permit certification, and therefore there would be no areas remaining to finally stabilize. Areas may be removed from permit coverage by:

- reassignment of permit coverage (Part I.A.8 of the permit);
- sale to homeowner(s) (Part I.A.9 of the permit); or
- amendment by the permittee, in accordance with Division guidance for areas where permit coverage has been obtained by a new operator or returned to agricultural use.

VIII. TERMS AND CONDITIONS OF PERMIT (cont.)

2. **Transfer of Permit:** When responsibility for stormwater discharges for an *entire* construction site changes from one individual to another, the permit shall be transferred in accordance with Part I.A.7 of the permit. The permittee shall submit a completed **Notice of Transfer form**, which is available from the Division, and at www.cdphe.state.co.us/wq/PermitsUnit. If the new responsible party will not complete the transfer form, the permit may be inactivated if the permittee has no legal responsibility, through ownership or contract, for the construction activities at the site. In this case, the new owner or operator would be required to obtain permit coverage separately.
3. **Reassignment of Permit:** When a permittee no longer has control of a specific portion of a permitted site, and wishes to transfer coverage of that portion of the site to a second party, the permittee shall submit a completed **Notice of Reassignment of Permit Coverage form**, which is available from the Division, and at www.cdphe.state.co.us/wq/PermitsUnit. The form requires that both the existing permittee and new permittee complete their respective sections. See Part I.A.8 of the permit.

J. Duration of Permit

The general permit will expire on June 30, 2012. The permittee's authority to discharge under this permit is approved until the expiration date of the general permit. Any permittee desiring continued coverage under the general permit past the expiration date must apply for recertification under the general permit at least 90 days prior to its expiration date.

Kathleen Rosow
December 18, 2006

IX. PUBLIC NOTICE – 12/22/06

The permit was sent to public notice on December 22, 2006. A public meeting was requested, and was held on February 2, 2007. Numerous comments were received on the draft permit. Responses to those comments, and a summary of changes made to the draft permit, are in a separate document entitled "Division Response To Public Comments." The permit will be sent to a second public notice on March 23, 2007. Any changes resulting from the second public notice will be summarized in the rationale.

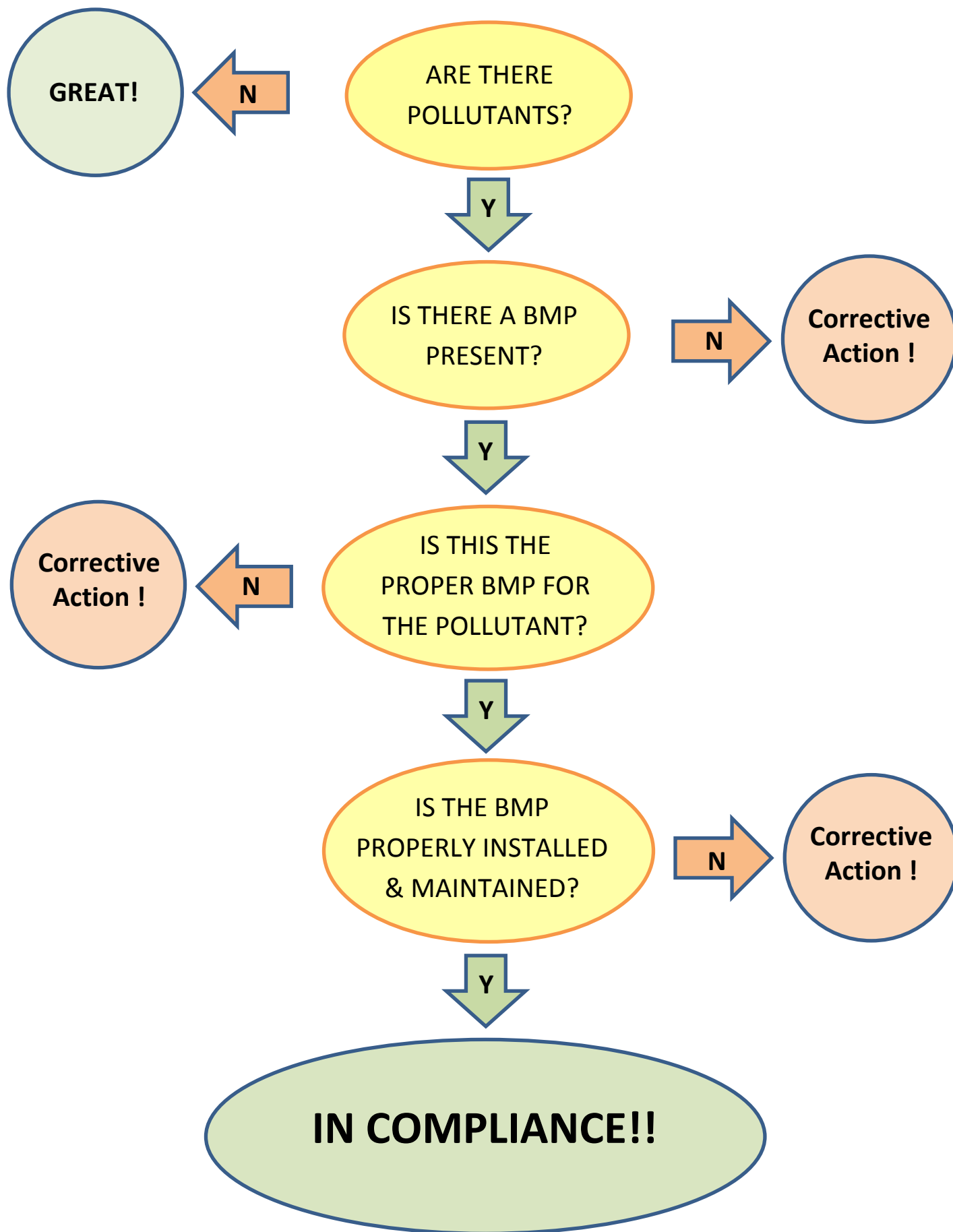
Kathleen Rosow
March 22, 2007

X. PUBLIC NOTICE – 3/23/07

The permit was sent to public notice for a second time on March 23, 2007. Numerous comments were received on the second draft permit. Responses to those comments, and a summary of the additional changes made to the draft permit, are contained in a separate document entitled "Division Response To Public Comments Part II". This document is part of the rationale. Any changes based on the Division response are incorporated into the rationale and permit. The response document is available online at <http://www.cdphe.state.co.us/wq/PermitsUnit/stormwater/construction.html>, or by emailing cdphe.wqstorm@state.co.us, or by calling the Division at 303-692-3517.

Kathleen Rosow
May 31, 2007

THE GAUNTLET





COLORADO

Department of
Transportation



Please refer to your Bid Package for the Specs which will be used on
Your Construction Site.

All Specs provided are for Reference ONLY, and are associated with
the *2017 CDOT Standard Specifications for Road and Bridge
Construction.*

**** Specs being used on one construction site may differ from the specs being used on another construction
site, See your Bid Packaged for the appropriate Specs for each individual site you are on. ****

107.21 No Waiver of Legal Rights. Upon completion of the Contract, the Department will make final inspection and notify the Contractor of acceptance. Final acceptance shall not preclude the Department from correcting any measurement, estimate, or certificate made before or after completion of the Contract, nor from recovering from the Contractor or surety or both, overpayments sustained because the Contractor failed to fulfill the obligations under the Contract. A waiver on the part of the Department of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor without prejudice to the terms of the Contract, shall be liable to the Department, for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Department's rights under any warranty or guaranty.

107.22 Third Party Beneficiary. It is specifically agreed between the parties executing this Contract that it is not intended by any of the provisions of any part of the Contract to create in the public or any member thereof a third party beneficiary hereunder, or to authorize any one not a party to this Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Contract. The duties, obligations and responsibilities of the parties to this Contract with respect to third parties shall remain as imposed by law.

107.23 Archaeological and Paleontological Discoveries. When the Contractor's operations, including materials pits and quarries, encounter plant or animal fossils, remains of prehistoric or historic structures, prehistoric or historic artifacts (bottle dumps, charcoal from subsurface hearths, old pottery, potsherds, stone tools, arrowheads, etc.), the Contractor's affected operations shall immediately cease. The Contractor shall immediately notify the Engineer, or other appropriate agency for contractor source pits or quarries, of the discovery of these materials. When ordered to proceed, the Contractor shall conduct affected operations as directed. Additional work, except that in contractor source materials pits or quarries under subsection 106.02(b), will be paid for by the Department as provided in subsection 104.02 when contract unit prices exist, or as extra work as provided in subsection 104.03 when no unit prices exist. Delays to the Contractor, not associated with work in contractor sources, because of the materials encountered may be cause for extension of contract time in accordance with subsection 108.08. If fossils, prehistoric or historic structures, or prehistoric or historic artifacts are encountered in a contractor source materials pit or quarry, all costs and time delays shall be the responsibility of the Contractor.

107.24 Air Quality Control. The Contractor shall comply with the "Colorado Air Quality Control Act," Title 25, Article 7, CRS and regulations promulgated thereunder.

107.25 Water Quality Control. The project work shall be performed using practices that minimize water pollution during construction. All the practices listed in (b) below shall be followed to minimize the pollution of any State waters, including wetlands.

(a) *Definitions.*

1. Areas of Disturbance (AD). Locations where any activity has altered the existing soil cover or topography, including vegetative and non-vegetative activities during construction.
2. Construction Site Boundary/Limits of Construction (LOC). The project area defined by the Stormwater Construction Permit.
3. Discharge of Pollutants. One or more pollutants leaving the LOC or entering State waters or other conveyances.
4. Limits of Disturbed Area (LDA). Proposed limits of ground disturbance as shown on the Plans.
5. Pollutant. Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste, as defined in the Colorado Code of Regulations (CCR) [5 CCR 1002-61, 2(76)]
6. Pollution. Man-made, man-induced, or natural alteration of the physical, chemical, biological, and radiological integrity of water. [25-8-103 (16), CRS]
7. State waters. Defined in subsection 101.77.

(b) *Construction Requirements.*

1. The Contractor shall comply with the “Colorado Water Quality Control Act” (Title 25, article 8, CRS), the “Protection of Fishing Streams” (Title 33, Article 5, CRS), the “Clean Water Act” (33 USC 1344), regulations promulgated, certifications or permits issued, and to the requirements listed below. In the event of conflicts between these requirements and water quality control laws, rules, or regulations of other Federal, or State agencies, the more restrictive laws, rules, or regulations shall apply.
2. If the Contractor determines construction of the project will result in a change to the permitted activities or LDA, the Contractor shall detail the changes in a written report to the Engineer. Within five days after receipt of the report, the Engineer, after coordination with Region Planning and Environmental Manager (RPEM), will approve or reject in writing the request for change, or detail a course of action including revision of existing permits or obtaining new permits.
3. If construction activities result in noncompliance of any permit requirement, the project will be suspended and the permitting agency notified, if required. The project will remain suspended until the Engineer receives written approval by the permitting agency.
4. The Contractor is legally required to obtain all permits associated with specific activities within, or off the Right of Way, such as borrow pits, concrete or asphalt plant sites, waste disposal sites, or other facilities. It is

the Contractor's responsibility to obtain these permits. The Contractor shall consult with the Engineer, and contact the Colorado Department of Public Health and Environment (CDPHE) or other appropriate federal, state, or local agency to determine the need for any permit.

5. The Contractor shall conduct the work in a manner that prevents pollution of any adjacent State waters. Erosion control work shall be performed in accordance with Section 208, this subsection, and all other applicable parts of the Contract.
6. Prior to the Environmental Pre-construction Conference the SWMP Administrator, identified in subsection 208.03(c), shall identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharges associated with construction activities. The list of potential pollutants shall be continuously updated during construction. At a minimum, each of the following shall be evaluated for the potential for contributing pollutants to stormwater discharges and identified in the SWMP, if found to have such potential:
 - (1) All exposed and stored soils.
 - (2) Vehicle tracking of sediments.
 - (3) Management of contaminated soils.
 - (4) Vehicle and equipment maintenance and fueling.
 - (5) Outdoor storage activities (building materials, fertilizers, chemicals, etc.).
 - (6) Significant dust or particle generating processes.
 - (7) Routine maintenance involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.
 - (8) On site waste management practices (waste piles, dumpsters, etc.).
 - (9) Dedicated asphalt and concrete batch plants.
 - (10) Concrete truck and equipment washing, including the concrete truck chute and associated fixtures and equipment.
 - (11) Concrete placement and finishing tool cleaning.
 - (12) Non-industrial waste sources that may be significant, such as worker trash and portable toilets.
 - (13) Loading and unloading operations.
 - (14) Other areas or procedures where spills could occur.

The SWMP Administrator shall record the location of potential pollutants on the site map. Descriptions of the potential pollutants shall be added to the SWMP notebook.

At or prior to the Environmental Pre-construction Conference the Contractor shall submit a Spill Response Plan for any petroleum products, chemicals, solvents, or other hazardous materials in use, or in storage, at the work site. See subsection 208.06(c) for Spill Response Plan requirements. Work shall not be started until the plan has been submitted to and approved by the Engineer.

On site above ground bulk storage containers with a cumulative storage shell capacity greater than 1,320 U.S. gallons, or storage containers having a “reasonable expectation of an oil discharge” to State waters, are subject to the Spill Prevention, Control and Countermeasure Plan (SPCC) Rule. Oil of any type and in any form is covered, including, but not limited to: petroleum; fuel oil; sludge; oil refuse; oil mixed with wastes other than dredged spoil. EPA Region 8 is responsible for administering and enforcing the SPCC plan requirements in Colorado. Prior to start of work, the Contractor shall submit a SPCC Form which has been approved by the EPA for the project.

7. The Contractor shall obtain a Construction Dewatering (CDW) permit from CDPHE anytime uncontaminated groundwater, including groundwater that is commingled with stormwater or surface water, is encountered during construction activities and the groundwater or commingled water needs to be discharged to State waters. If contaminated groundwater is encountered, a Remediation permit may be needed from CDPHE in accordance with Section 250.
8. Water from dewatering operations shall not be directly discharged into any State waters, unless allowed by a permit. Water from dewatering shall not be discharged into a ditch unless:
 - (1) Written permission is obtained from the owner of the ditch.
 - (2) It is covered in the approved CDW or Remediation Permit that allows the discharge.
 - (3) A copy of this approval is submitted to the Engineer. A copy of the Permit shall be submitted to the Engineer prior to dewatering operations commencing.

If the site is covered by a Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) and the following conditions are met, a separate CDW permit will not be required for discharge to the ground:

- (1) The source is identified in the Stormwater Management Plan (SWMP) as updated by the SWMP Administrator.
- (2) The SWMP describes and locates the practices implemented at the site to control stormwater pollution from the dewatering of groundwater or stormwater.
- (3) The SWMP describes and locates the practices to be used that will ensure that no groundwater from construction dewatering is discharged from the LOC as surface runoff or to surface waters or storm sewers.

- (4) Groundwater and groundwater combined with stormwater do not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42.

If surface waters are diverted around a construction area and no pollutants are introduced during the diversion, a CDW Permit is not required. If the diverted water enters the construction area and contacts pollutant sources (e.g. disturbed soil, concrete washout, etc.), the Contractor shall obtain a CDW permit for the discharge of this water to State waters or to the ground.

Construction Dewatering may be discharged to the ground on projects that are not covered by a CDPS-SCP if the conditions of the CDPHE's low risk guidance document for Discharges of Uncontaminated Groundwater to Land are met. The conditions of this guidance are:

- (1) The source of the discharge is solely uncontaminated groundwater or uncontaminated groundwater combined with stormwater and does not contain pollutants in concentrations that exceed water quality standards for groundwater referenced above.
- (2) Discharges from vaults or similar structures shall not be contaminated. Potential sources of contamination include process materials used, stored, or conveyed in the structures, or introduced surface water runoff from outside environments that may contain oil, grease, and corrosives.
- (3) The groundwater discharge does not leave the project boundary limits where construction is occurring.
- (4) Land application is conducted at a rate and location that does not allow for any runoff into State waters or other drainage conveyance systems, including but not limited to streets, curb and gutter, inlets, borrow ditches, open channels, etc.
- (5) Land application is conducted at a rate that does not allow for any ponding of the groundwater on the surface, unless the ponding is a result of implementing BMPs that are designed to reduce velocity flow. If the BMPs used result in ponding, the land application shall be done in an area with a constructed containment, such as an excavation or berm area with no outfall. The constructed containment shall prevent the discharge of the ponding water offsite as runoff.
- (6) A visible sheen is not evident in the discharge.
- (7) BMPs are implemented to prevent any sediment deposited during land application from being transported by stormwater runoff to surface waters or other conveyances.
- (8) All BMPs used shall be selected, installed, implemented, and maintained according to good Engineering, hydrologic and pollution control practices. The selected BMPs shall provide control for all potential pollutant sources associated with the discharge of uncontaminated groundwater to land. The discharge shall be routed

in such a way that it will not cause erosion to land surface. Energy dissipation devices designed to protect downstream areas from erosion by reducing the velocity of flow (such as hose attachments, sediment and erosion controls) shall be used when necessary to prevent erosion.

Discharged water shall be drained slowly so that it soaks into the ground without running outside the project boundary or causing flooding issues. The discharge shall be routed in such a way that it will not contact petroleum products or waste.

9. At least 15 days prior to commencing dredging or fill operations in a watercourse, the Contractor shall provide written notification to owners or operators of domestic or public water supply intakes or diversion facilities, if these facilities are within 20 miles downstream from the dredging or fill operations. Notification shall also be given to Owners or operators of other intakes or diversions that are located within five miles downstream from the site of the project. Identities of downstream owners and operators can be obtained from Colorado Division of Water Resources, Office of the State Engineer.
10. Temporary fill into wetlands or streams will not be allowed, except as specified in the Contract and permits. If such work is allowed, upon completion of the work all temporary fills shall be removed in their entirety and disposed of in an upland location outside of flood plains unless otherwise specified in the Contract.
11. Construction operations in waters of the United States as defined in 33 CFR Part 328.3, including wetlands, shall be restricted to areas and activities authorized by the U.S. Army Corps of Engineers as shown in the Contract. Fording waters will be allowed only as authorized by the U.S. Army Corps of Engineers 404 Permit.
12. Wetland areas outside of the permitted limits of disturbance shall not be used for storage, parking, waste disposal, access, borrow material, or any other construction support activity.
13. Pollutant byproducts of highway construction, such as concrete, asphalt, solids, sludges, pollutants removed in the course of treatment of wastewater, excavation or excess fill material, and material from sediment traps shall be handled, stockpiled, and disposed of in a manner that prevents entry into State waters, including wetlands. Removal of concrete waste and washout water from mixer trucks, concrete finishing tools, concrete saw and all concrete material removed in the course of construction operations or cleaning shall be performed in a manner that prevents waste material from entering State waters. A minimum of ten days prior to the start of the construction activity, the Contractor shall submit in writing a Method Statement for Containing Pollutant Byproducts to the Engineer for approval.
14. The use of chemicals such as soil stabilizers, dust palliatives, herbicides, growth inhibitors, fertilizers, deicing salts, etc., shall be in accordance

with the manufacturer's recommended application rates, frequency, and instructions.

15. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with the original manufacturer's label. Materials shall not be stored in a location where they may be carried into State waters at any time.
 16. Spill prevention and containment measures conforming to subsection 208.06 shall be used at storage, and equipment fueling and servicing areas to prevent the pollution of any State waters, including wetlands. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods. When required by the Colorado Water Quality Control Act, Regulation 5 CCR 1002-61, spills shall be reported to the Engineer and CDPHE in writing.
 17. The Contractor shall prevent construction activities from causing grass or brush fires.
 18. The construction activities shall not impair Indian tribal rights, including, but not limited to, water rights, and treaty fishing and hunting rights.
 19. Prior to start of work, the Contractor shall certify in writing to the Engineer that construction equipment has been cleaned prior to initial site arrival. Vehicles and equipment shall be free of soil and debris capable of transporting noxious weed seeds or invasive species onto the site. Additional equipment required for construction shall also be certified prior to being brought onto the project site.
 20. Vehicles which have been certified by the Contractor as having been cleaned prior to arrival on site may be cleaned on site at an approved area where wash water can be properly contained. Vehicles leaving and reentering the project site shall be recertified.
 21. At the end of each day the Contractor shall collect all trash and dispose of it in appropriate containers.
 22. Construction waste that is considered a pollutant or contaminant shall be collected and disposed of in appropriate containers. This material may be stockpiled on the project when it is contained or protected by an appropriate BMP.
- (c) *Stormwater Construction Permit.* A Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) shall be obtained from CDPHE by either the Contractor or CDOT. The Contract will clearly indicate whether the permit is to be obtained by the Contractor or CDOT.
1. *Contractor Obtained Stormwater Construction Permit.* The Contractor shall obtain a Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) for any project work that disturbs at least 1 acre of land. The Contractor shall apply for and obtain the permit

upon award of the Contract. The Contractor shall provide a copy of permit certification or the submitted CDPS-SCP application to the Engineer prior to or at the Pre-construction Conference. No work shall begin until the CDPS-SCP permit has been approved by CDPHE, unless otherwise directed. A copy of the Permit and application to obtain a permit shall be placed in the project SWMP notebook.

If a Utility Company has obtained a permit for the area prior to the Contractor being on site, then the Contractor shall coordinate with the Utility Company to transfer those areas over to the Contractor prior to work commencing. The Contractor shall not commence construction until Application for Transfer of Ownership for All Permits, Certifications and Authorizations has been approved by CDPHE and submitted to the Engineer.

To initiate partial acceptance of the stormwater construction work (including seeding and planting required for erosion control), the Contractor shall request in writing a Stormwater Completion Walkthrough. The Engineer will set up the walkthrough and will include: the Engineer or designated representative, Superintendent or designated representative, Stormwater Management Plan (SWMP) Administrator, Region Water Pollution Control Manager (RWPCM) and Landscape Architect representing the region. Unsatisfactory and incomplete erosion control work will be identified in this walkthrough, and will be summarized by the Engineer in a punch list. The Water

Quality Permit Transfer to Maintenance Punch List may be used as a template in creating the Engineer's punch list.

The Engineer will coordinate with CDOT Maintenance on regular inspections of the corrective work. The completed action items associated with the corrective work shall be shown as completed on the Punch List. Upon completion of all items shown, the Contractor shall submit the completed Punch List to the Engineer for review. Upon written approval of the Punch List, the Contractor shall submit the "Application for Transfer of Ownership for All Permits, Certifications and Authorizations" to the CDPHE requesting transfer of ownership of the CDPS-SCP to CDOT Maintenance. When requested by CDOT Maintenance and approved by the Engineer, the Permit may be transferred by the Contractor to the Resident Engineer instead of CDOT Maintenance.

Until the transfer of the permit has been approved by the CDPHE the Contractor shall continue to adhere to all permit requirements. Requirements shall include erosion control inspections, BMP installation, BMP maintenance, BMP repair, including seeded areas, and temporary BMP removal. All documentation shall be submitted to the Engineer and placed in the SWMP notebook.

All costs associated with the Contractor applying for, holding, and transferring the CDPS-SCP permit between parties will not be measured and paid for separately, but shall be included in the work in accordance with subsection 107.02.

2. *CDOT Obtained Stormwater Construction Permit.* CDOT will obtain the Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) from the Colorado Department of Public Health and Environment (CDPHE) prior to the award of contract. The Contractor may be legally required to obtain all other permits associated with specific activities within, or off the Right of Way, such as borrow pits, concrete or asphalt plant sites, waste disposal sites, or other facilities. These permits may include local agency or federal grading or stormwater permits. It is the Contractor's responsibility to obtain these permits. The Contractor shall consult with the Engineer, and contact the Colorado Department of Public Health and Environment (CDPHE) or other appropriate federal, state, or local agency to determine the need for any permit.

The Contractor shall coordinate with CDOT on transferring the respective Permit to the Contractor upon award of the Contract. The Contractor shall submit the "Application For Transfer of Ownership For All Permits, Certifications and Authorizations" for the CDPHE Permit, prior to commencement of construction. Work shall not begin until the CDPS-SCP permit transfer has been approved by CDPHE, unless otherwise directed.

If a Utility Company has obtained a permit for the area prior to the Contractor being on site, then the Contractor shall coordinate with the Utility Company to transfer those areas over to the Contractor prior to work commencing. The Contractor shall not commence construction until Application for Transfer of Ownership for All Permits,

Certifications and Authorizations has been approved by CDPHE and submitted to the Engineer.

To initiate partial acceptance of the stormwater construction work (including seeding and planting required for erosion control), the Contractor shall request in writing a Stormwater Completion Walkthrough. The Engineer will set up the walkthrough and will include: the Engineer or designated representative, Superintendent or designated representative, Stormwater Management Plan (SWMP) Administrator, Region Water Pollution Control Manager (RWPCM) and Landscape Architect representing the region. Unsatisfactory and incomplete erosion control work will be identified in this walkthrough, and will be summarized by the Engineer in a punch list. The Water Quality Permit Transfer to Maintenance Punch List may be used as a template in creating the Engineer's punch list.

The Engineer will coordinate with CDOT Maintenance on regular inspections of the corrective work. The completed action items associated with the corrective work shall be shown as completed on the Punch List. Upon completion of all items shown, the Contractor shall submit the completed Punch List to the Engineer for review. Upon written approval of the Punch List, the Contractor shall submit the "Application for Transfer of Ownership for All Permits, Certifications and Authorizations"

to the CDPHE requesting transfer of ownership of the CDPS-SCP to CDOT Maintenance. When requested by CDOT Maintenance and

approved by the Engineer, the Permit may be transferred by the Contractor to the Resident Engineer instead of CDOT Maintenance.

Until the transfer of the permit has been approved by the CDPHE the Contractor shall continue to adhere to all permit requirements. Requirements shall include erosion control inspections, BMP installation, BMP maintenance, BMP repair, including seeded areas, and temporary BMP removal. All documentation shall be submitted to the Engineer and placed in the SWMP notebook.

All costs associated with the Contractor applying for, holding, and transferring the CDPS-SCP permit between parties will not be measured and paid for separately, but shall be included in the work in accordance with subsection 107.02.

(d) *Measurement and Payment.*

1. All the work listed in (b) above, including but not limited to dewatering, erosion control for dewatering, and disposal of water resulting from dewatering operations, including all costs for CDPHE concurrences and permits, will not be measured and paid for separately, but shall be included in the work.
2. The Contractor shall be liable for any penalty (including monetary fines) applied to the Department caused by the Contractor's noncompliance with any water quality permit or certification. Monetary fines shall be deducted from any money due to the Contractor. If the monetary fine is in excess of all the money due to the Contractor, then the Contractor shall pay to the Department the amount of such excess.
3. The Contractor will not receive additional compensation, or time extensions, for any disruption of work or loss of time caused by any actions brought against the Contractor for failure to comply with good Engineering, hydrologic and pollution control practices.
4. If a spill occurs as a direct result of the Contractor's actions or negligence, the cleanup of such spill shall be performed by the Contractor at the Contractor's expense.
5. Areas exposed to erosion by fire resulting from the Contractor's operations shall be stabilized in accordance with Section 208 by the Contractor and at the Contractor's expense.

SECTION 208 EROSION CONTROL

DESCRIPTION

208.01 This work consists of constructing, installing, maintaining, and removing when required, Best Management Practices (BMPs) during the life of the Contract to prevent or minimize erosion, sedimentation, and pollution of any State waters as defined in subsection 107.25, including wetlands.

The Contractor shall coordinate the construction of temporary BMPs with the construction of permanent BMPs to assure economical, effective, and continuous erosion and sediment control throughout the construction period.

When a provision of Section 208 or an order by the Engineer requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin effecting completion of the action and pursue it to completion in a manner acceptable to the Engineer, and in accordance with the Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) requirements.

MATERIALS

208.02 Erosion control materials are subject to acceptance in accordance with subsection 106.01. Erosion control materials shall be subject to the following approval process:

Material	Approval Process	Notes:
Erosion Bales (Weed Free)	COC	The Contractor shall provide a transit certificate number or a copy of the transit certificate as supplied from the producer.
Silt Fence	COC	
Silt Berm	APL	
Erosion Log (Type 1 and 2)	COC	
Silt Dikes	COC	
Pre-fabricated Concrete Washout Structures (above ground)	APL	
Pre-fabricated Vehicle Tracking Pad	APL	
Aggregate Bag	COC	
Storm Drain Inlet Protection (Type I, II, and III)	APL	
COC = Certificate of Compliance; APL= Approved Product List		

The material for BMPs shall conform to the following:

- (a) *Erosion Bales*: Material for erosion bales shall consist of Certified Weed Free hay or straw. The hay or straw shall be certified under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS. Each certified weed free erosion bale shall be identified by blue and orange twine binding the bales.

The Contractor shall not place certified weed free erosion bales or remove their identifying twine until the Engineer has inspected them.

The Contractor may obtain a current list of Colorado Weed Free Forage Crop Producers who have completed certification by contacting the Colorado Department of Agriculture, Weed Free Forage Program, 305 Interlocken Pkwy, Broomfield, CO 80021, Contact: Weed Free Forage Coordinator at (303) 869-9038. Also available at www.colorado.gov/ag/csd.

Bales shall be approximately 5 cubic feet of material and weigh at least 35 pounds. Stakes shall be wood and shall be 2 inch by 2 inch nominal.

- (b) *Silt Fence*. Silt fence posts shall be wood with a minimum length of 42 inches. Wood posts shall be 1.5 inch by 1.5 inch nominal. Geotextile shall be attached to wood posts with three or more staples per post.

Silt fence geotextile shall conform to the following requirements:

Physical Requirements for Silt Fence Geotextiles

Property	Wire Fence Supported Requirements	Self-Supported Requirements Geotextile Elongation <50%	Test Method
Grab Strength, lbs	90 minimum	124 minimum	ASTM D4632
Permittivity sec-1	0.05	0.05	ASTM D4491
Ultraviolet Stability	Minimum 70% Strength Retained	Minimum 70% Strength Retained	ASTM D4355

Silt Fence (Reinforced). Silt fence posts shall be metal "studded tee" T-post with a minimum length of 66 inches. Metal posts shall be "studded tee" with .095 inch minimum wall thickness. Wire fabric reinforcement for the silt fence geotextile shall be a minimum of 14 gauge with a maximum mesh spacing of 6 inches. Geotextile shall be attached to welded wire fabric with ties or nylon cable ties at 12 inches on center at top, middle and bottom wire. Welded wire fabric shall be attached to the post with a minimum three 12 gauge wire ties per post. Vinyl or rubber safety caps shall be installed on all T-post.

- (c) *Temporary Berms.* Temporary berms shall be constructed of compacted soil.
- (d) *Temporary Slope Drains.* Temporary slope drains shall consist of fiber mats, plastic sheets, stone, concrete or asphalt gutters, half round pipe, metal or plastic pipe, wood flume, flexible rubber, or other materials suitable to carry accumulated water down the slopes. Outlet protection riprap shall conform to section 506. Erosion control geotextile shall be a minimum Class 2, conforming to subsection 712.08.
- (e) *Silt Berm.* Silt berm shall consist of an ultraviolet (UV) stabilized high-density polyethylene, shall be triangular in shape, and shall have the following dimensions :

Width	6 - 11 inches
Height	6 - 10 inches
Weight	0.3 - 1.4 lbs./sq. ft.
Percent Open Area	30 – 50%

Securing spikes shall be 10 to 12 inch x 0.375 inch diameter (minimum).

- (f) *Rock Check Dam.* Rock Check dams shall be constructed of stone. Stone shall meet the requirements of Section 506.
- (g) *Sediment Trap.* In constructing an excavated sediment trap, excavated soil may be used to construct the dam embankment, provided the soil meets the requirements of subsection 203.03. Outlet protection riprap shall be the size specified in the Contract and shall conform to Section 506. Erosion control geotextile shall be a minimum Class 1, conforming to subsection 712.08.
- (h) *Erosion Logs.* Erosion logs shall be one of the following types unless otherwise shown on the plans:
 - (1) Erosion Log (Type 1) shall be curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, photo-degradable tube netting. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.
 - (2) Erosion Log (Type 2) shall consist of a blend of 30-40 percent weed free compost and 60-70 percent wood chips. The compost-wood blend material shall pass a 50 mm (2 inch) sieve with a minimum of 70 percent retained on the 9.5 mm (3/8 inch) sieve and comply with subsection 212.02 for the remaining compost physical properties. The compost-wood chip blend may be pneumatically shot into a geotextile cylindrical bag or be pre-manufactured. The geotextile bag shall consist of HDPE or polypropylene mesh (knitted, not extruded) with openings of 1/8 to 3/8 inch

and contain the compost-wood chip material while not limiting water infiltration.

Erosion log (Type 1 and Type 2) shall have minimum dimensions as shown in Table 208-1, based on the specified diameter of the log.

**Table 208-1
Nominal Dimensions of Erosion Logs**

Diameter Type 1 (Inches)	Diameter Type 2 (Inches)	Length (feet)		Weight (minimum) (pounds/foot)	Stake Dimensions (Inches)
		Min.	Max.		
9	8	10	180	1.6	1.5 by 1.5 (nominal) by 18
12	12	10	180	2.5	1.5 by 1.5 (nominal) by 24
20	18	10	100	4.0	2 by 2 (nominal) by 30

Stakes to secure erosion logs shall consist of pinewood or hardwood.

- (i) *Silt Dikes*. Silt dikes shall be pre-manufactured triangular shaped urethane foam covered with a woven geotextile fabric. The fabric aprons shall extend a minimum of two feet beyond each side of the triangle.

Each silt dike shall have the following dimensions:

Dimension	Length
Center height	8 to 10 inches
Base	16 to 21 inches
Section length	3 to 7 feet
Section width including fabric extensions	5.6 feet

Staples shall be 6 gauge and at least 8 inches long.

- (j) *Concrete Washout Structure*. The Contractor shall construct a washout structure that will contain washout from concrete placement and construction equipment cleaning operations. Embankment required for the concrete washout structure may be excavated material, provided that this material meets the requirements of Section 203 for embankment.

A pre-fabricated concrete washout structure shall be used only when specified in the Contract. It shall consist of a watertight container designed to contain liquid and solid waste from concrete washout.

- (k) *Vehicle Tracking Pad*. Aggregate for the vehicle tracking pad shall be crushed natural aggregate with at least two fractured faces that meets the following gradation requirements:

Sieve size **Percent by weight**
Passing Square Mesh Sieves

75 mm (3 inch)	100
50 mm (2 inch)	0-25
19.0 mm (¾ inch)	0-15

Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.

Erosion control geotextile shall be Class 2 and conform to the requirements of

Pre-fabricated vehicle tracking pads if specified in the Contract shall have the subsection 712.08.following properties.

Minimum overall dimensions of the modular systems shall be:

Width of pad along edge of roadway	14 feet
Length of pad	30 feet

Weight (min.) (lbs./sq. ft.)	8
Crush strength (min.) (psi)	400

- (1) *Aggregate Bag.* Aggregate bags shall consist of crushed stone or recycled rubber filled fabric with the following properties :

Diameter (inches)	Weight (minimum) (pounds per foot)
6-8	6
10	10
12	15

Rubber used in bags shall be clean, 95 percent free of metal and particulates.

Crushed stone contained in the aggregate bags shall conform to subsection 703.09, Table 703-7 for Class C.

The aggregate bag shall consist of a woven geotextile fabric with the following properties:

Property	Requirement	Test Method
Grab Tensile Strength	90 lbs. min.	ASTM D4632
Trapezoid Tear Strength	25 lbs. min.	ASTM D4533
Mullen Burst	300 psi	ASTM D3786
Ultraviolet Resistance	70%	ASTM D4355

- (m) *Storm Drain Inlet Protection.* Storm drain inlet protection shall consist of aggregate filled fabric with the following dimensions:

Storm Drain Inlet Protection Properties	Protection Types		
	1Type I	Type II	3Type III
Diameter	4 in.	4 in.	N/A
Minimum Section Length	7 ft.	5 ft.	5 ft.
Apron Insert	---	30 in. or sized to grate	30 in or sized to grate
¹ Type I protection shall be used with Inlet Type R. ² Type II protection shall be used with Combination Inlet. Option A or B ³ Type III protection shall be used with Vane Grate Inlet only. Option A or B Note: Options A and B are shown on Standard Plan M-208-1.			

The Storm Drain Inlet Protection (Type I, II and III) shall consist of a woven geotextile fabric with the following properties:

Property	Test Method	Unit	Requirement
Grab tensile strength	ASTM D4632	lbs.	minimum 350X280
Mullen Burst Strength	ASTM D3786	lbs.	600
Trapezoid Tear Strength	ASTM D4533	lbs.	minimum 110X95
Percent Open Area	COE-22125-86	%	28
Water Flow Rate	ASTM D4491	gal./min./sq. ft.	250
Ultraviolet Resistance	ASTM D4355	%	70

Curb roll for Storm Drain Inlet Protection (Type I and II) shall have an approximate weight of 7 to 10 pounds per linear foot of device. The device shall be capable of conforming to the shape of the curb. Aggregate contained in the storm drain inlet device shall consist of gravel or crushed stone conforming to subsection 703.09, Table 703-7 for Class C.

Storm Drain Inlet Protection (Type III) shall have insert containment (option A) or insert without storage capacity (option B).

CONSTRUCTION REQUIREMENTS

208.03 Project Review, Schedule, and Erosion Control Management. Prior to construction, an on-site Environmental Pre-construction Conference shall be held. The conference shall be attended by:

- (1) The Engineer.
- (2) The Superintendent.
- (3) The Contractor's SWMP Administrator.
- (4) Supervisors or Foremen of subcontractors working on the project.
- (5) The Region Water Pollution Control Manager (RWPCM).
- (6) CDOT personnel (e.g., CDOT Landscape Architect) who prepared or reviewed the Stormwater Management Plan (SWMP).

At this conference, the attendees shall discuss the SWMP, CDPS-SCP, sensitive habitats on site, wetlands, other vegetation to be protected, and the enforcement mechanisms for not meeting the requirements of this specification.

Prior to beginning construction the Contractor shall evaluate the project site for storm water draining into or through the site. When such drainage is identified, BMPs (i.e., Control Measures) shall be used if possible to divert stormwater from running on-site and becoming contaminated with sediment or other pollutants. The diversion may be accomplished with a temporary pipe or other conveyance to prevent water contamination or contact with pollutants. Run-on water that cannot be diverted shall be treated as construction runoff and adequate BMPs shall be employed.

The SWMP Administrator shall evaluate all non-stormwater coming onto the site, such as springs, seeps, and landscape irrigation return flow. If such flow is identified, BMPs shall be used to protect off-site water from becoming contaminated with sediment or other pollutants.

The SWMP Administrator shall review existing inlets and culverts to determine if inlet protection is needed due to water flow patterns. Prior to beginning construction, inlets and culverts needing protection shall be protected and the location of the implemented BMP added to the SWMP site map.

Prior to construction, the Contractor shall implement appropriate BMPs for protection of wetlands, sensitive habitat, and existing vegetation from ground disturbance and other pollutant sources, in accordance with the approved project schedule as described in subsection 208.03(b).

When additional BMPs are required and approved by the Engineer, the Contractor shall implement the additional BMPs and the SWMP Administrator shall record and describe them on the SWMP site map. The approved BMPs will be measured and paid for in accordance with subsections 208.11 and 208.12.

(a) *Project Review.* The Contractor may submit modifications to the Contract's BMPs in a written proposal to the Engineer. The written proposal shall include the following information :

- (1) Reasons for changing the BMPs.
- (2) Diagrams showing details and locations of all proposed changes.
- (3) List of appropriate pay items indicating new and revised quantities.
- (4) Schedules for accomplishing all erosion and sediment control work.
- (5) Effects on permits or certifications caused by the proposed changes.

The Engineer will approve or reject the written proposal in writing within 5 working days after the submittal. The Engineer may require additional control measures prior to approving the proposed modifications. Additional modifications and additional BMPs will be paid for at the Contract Unit Price for the specific items involved. If no items exist, they will be paid for as extra work in accordance with subsection 109.04.

(b) *Erosion and Sediment Control Activities.* The erosion and sediment control activities shall be included in the weekly meeting update. The project schedule shall specifically indicate the sequence of clearing and grubbing, earthwork operations, and construction of temporary and permanent erosion control features and stabilization. The project schedule shall include erosion and sediment control work for haul roads, borrow pits, storage and asphalt or concrete batch sites, and all areas within the project limits. If during construction the Contractor proposes changes which would affect the Contract's BMPs, the Contractor shall propose revised BMPs to the Engineer for approval in writing. If necessary, the SWMP Administrator shall update proposed sequencing of major activities in the SWMP. Revisions shall not be implemented until the proposed measures have been approved in writing by the Engineer.

(c) *Erosion Control Management (ECM).* Erosion Control Management for this project shall consist of Erosion Control Inspection and the Administration of the Stormwater Management Plan (SWMP). All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent will not be permitted to serve in an ECM role. The Erosion Control Inspector and the Stormwater Administrator may be the same person in projects involving less than 40 acres of disturbed area.

1. Stormwater Management Plan (SWMP) Administration. The SWMP Plan shall be maintained by a SWMP Administrator. The SWMP Administrator shall have completed the TECS certification training provided by the

Department. In the case of a project requiring only one TECS, the SWMP Administrator may also be the Erosion Control Inspector for the project. The name of the SWMP Administrator shall be recorded on SWMP Plan Section 3. B. The SWMP Administrator shall have full responsibility to maintain and update the SWMP Plan and identify to the Superintendent critical action items needed to conform to the CDPS-SCP as follows:

- (1) Complete the SWMP Notebook as described in subsection 208.03 (d).
- (2) Participate in the Environmental Pre-construction Conference.
- (3) Attend weekly meetings.
- (4) Attend all Headquarter and Region water quality control inspections. The Contractor and the Contractor's SWMP Administrator will be notified a minimum of five days in advance of each inspection by the region or headquarter water quality staff.
- (5) Coordinate with the Superintendent to implement necessary actions to reduce anticipated or presently existing water quality or erosion problems resulting from construction activities.
- (6) Coordinate with the Superintendent to ensure that all labor, material, and equipment needed to install, maintain, and remove BMPs are available as needed.
- (7) During construction, update and record the following items on the SWMP site map as changes occur:
 - (i) Limits of Construction (LOC).
 - (ii) Areas of disturbance (AD).
 - (iii) Limits of Disturbance (LDA).
 - (iv) Limits of cut and fill.
 - (v) Areas used for storage of construction materials, equipment, soils, or wastes.
 - (vi) Location of any dedicated asphalt or concrete batch plants.
 - (vii) Location of construction offices and staging areas.
 - (viii) Location of work access routes during construction.
 - (ix) Location of borrow and waste.
 - (x) Location of temporary, interim and permanent stabilization.
 - (xi) Location of outfalls.
 - (xii) Arrows showing direction of surface flow.

- (xiii) Structural and non-structural BMPs.
 - (xiv) LDA and LOC lines as defined in subsection 107.25.
- (8) Amend the SWMP whenever there are: additions, deletions, or changes to BMPs. SWMP revisions shall be recorded immediately. Items shall be dated and initialed by the SWMP Administrator. Specifically, amendments shall include the following:
- (i) A change in design, construction, operation, or maintenance of the site which would require the implementation of new or revised BMPs; or
 - (ii) Changes when the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.
 - (iii) Changes when BMPs are no longer necessary and are removed.
- (9) Complete vegetative survey transects when required in accordance with CDOT Erosion Control and Stormwater Quality Guide.
- (10) Start a new site map before the current one becomes illegible. All site maps shall remain in the SWMP notebook.
- (11) Document all inspection and maintenance activities. The SWMP and documentation shall be kept on the project site.
- (12) When adding or revising BMPs on the SWMP, add a narrative explaining what, when, where, why, and how the BMP is being used, and add a detail to the SWMP notebook.
- (i) How to install and inspect the BMP.
 - (ii) Where to install the BMP.
 - (iii) When to maintain the BMP.
- (13) If using existing topography, vegetation, etc. as a BMP, label it as such on the SWMP site map; add a narrative as to when, where, why, and how the BMP is being used.
- (14) Indicate BMPs in use or not in use by recording them on Standard Plans M-208-1, M-216-1, and M-615-1 in the SWMP notebook.
- (15) Record on the SWMP, the approved Method Statement for Containing Pollutant Byproducts.
- (16) Update the potential pollutants list in the SWMP notebook and Spill Response Plan throughout construction.

2. Erosion Control Inspection.

Erosion control inspection shall be performed by TECS certified staff assigned as Erosion Control Inspector (ECI) to the project. One ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04(e). An ECI shall not be responsible for more than 40 acres on the project. Accepted permanent stabilization methods as defined in subsection 208.04(e) will not be included in the 40 acres.

ECI duties shall be as follows:

- (1) Coordinate with the SWMP Administrator on reporting the results of inspections.
- (2) Review the construction site for compliance with the Stormwater Construction Permit.
- (3) Inspect with the Superintendent and the Engineer (or their designated representatives) the stormwater management system at least every seven calendar days. Post-storm event inspections shall be conducted within 24 hours after the end of any precipitation or snow melt event that may cause surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to commencing construction activities, but no later than 72 hours following the storm event. The occurrence of delay in inspections shall be documented in the inspection report. Form 1176 shall be used for all 7 day inspections and inspections following storm events. The Contractor shall notify the Erosion Control Inspector when a storm event occurs. Failure to perform inspections on time will result in liquidated damages in accordance with subsection 208.09.

Inspections are not required at sites when construction activities are temporarily halted, when snow cover exists over the entire site and melting conditions do not pose a risk of surface erosion. This exception shall be applicable only during the period where melting conditions do not exist, and applies to the routine 7 day, Headquarters and Region inspections, as well as the post-storm event inspections. The following information shall be documented on Form 1176 for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began.

The order of precedence for required inspections shall be as follows:

- (i) Headquarter water quality inspections
- (ii) Region water quality inspections

- (iii) Post-storm event inspections
- (iv) 7 day inspections

When one of the listed inspections is performed, the inspections listed below it need not be performed on that day if the required CDOT and Contractor personnel participated in the inspection.

For example: A 7 day inspection is not required on the same day a headquarters or Region inspection is conducted. A sheet shall be placed in the inspections area of the SWMP Notebook to refer to the date inspection was performed.

- (4) Follow all other agency Stormwater requirements and inspections unless a waiver or other agreement has been made.
 - (5) Immediately report to the Contractor's Superintendent and the SWMP Administrator the following instances of noncompliance:
 - (i) Noncompliance which may endanger health or the environment.
 - (ii) Spills or discharges of hazardous substance or oil which may cause pollution of waters of the State.
 - (iii) Discharge of stormwater which may cause an exceedance of a water quality standard.
 - (iv) Upset conditions that occur on site.
 - (6) Document spills, leaks, or overflows that result in the discharge of pollutants on the Form 1176. The ECI shall record the time and date, weather conditions, reasons for spill, and how it was remediated.
- (d) *Documentation Available on the Project.* The following Contract documents and references will be made available for reference at the CDOT field office during construction:
1. SWMP Notebook. The Engineer will provide a SWMP Notebook at the Pre-construction Conference, which is and shall remain the property of CDOT. CDOT will initially provide the documentation for the first four items when available. The Contractor shall provide the contents required for items (5) through (18). The notebook shall be stored in the CDOT field office or at another on-site location approved by the Engineer. The SWMP Administrator shall modify and update the notebook as needed to reflect actual site conditions prior to the change or as soon as practicable, but in no case more than 72 hours after the change. The following Contract documents and reports shall be kept, maintained, and updated in the notebook under the appropriate items by the SWMP Administrator:

- (1) SWMP Plan Sheets – Notes, tabulation, sequence of major activities, area of disturbance, existing soil data, existing vegetation percent cover, potential pollutant sources, receiving water, non-stormwater discharges, and environmental impacts.
- (2) Site Map and Plan Title Sheet – Construction site boundaries, ground surface disturbance, limits of cut and fill, flow arrows, structural BMPs, non-structural BMPs, Springs, Streams, Wetlands, and surface water. Also included on the sheets is the protection of trees, shrubs, and cultural resources.
- (3) Specifications – Standard and project special provisions related to stormwater and erosion control.
- (4) Standard Plans M-208-1, M-216-1 and M-615-1.
- (5) BMP Details not in Standard Plan M-208-1 – Non-standard details.
- (6) Weekly meeting sign in sheet.
- (7) Calendar of Inspections – Calendar of inspections marking when all inspections take place.
- (8) Form 1176 – Weekly meeting notes and inspection report
- (9) Region and Headquarter Water Quality Reports and Form 105(s) relating to Water Quality.
- (10) Description of Inspection and Maintenance Methods – Description of inspection and maintenance methods implemented at the site to maintain all BMPs identified in the SWMP and items not addressed in the design.
- (11) Spill Response Plan – Reports of reportable spills submitted to CDPHE.
- (12) List and Evaluation of Potential Pollutants – List of potential pollutants as described in subsection 107.25 and approved Method Statement for Containing Pollutant Byproducts.
- (13) Other Correspondence e.g., agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List, and other miscellaneous documentation.
- (14) TECS Certifications of the SWMP Administrator and all ECIs, kept current through the life of the project.
- (15) Environmental Pre-construction Conference – Conference agenda with a certification of understanding of the terms and conditions of

the CDPS-SCP and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Environmental Pre-construction Conference has been held.

- (16) All Project Environmental Permits – All project environmental permits and associated applications and certifications, including, CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions, and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete plant, etc.
- (17) Photographs Documenting Existing Vegetation – Project photographs shall be time stamped on paper with a maximum of four colored images per 8 ½ inch by 11 inch sheet and/or a digital copy of all photographs on CD-ROM/Flash Drive in (JPG format), documenting existing vegetation prior to construction commencing. On the bottom of each photograph shall be a description using Station Number or Mile Post where the photograph was taken.
- (18) Permanent Water Quality Plan Sheets – Plan sheets and specifications for permanent water quality structures and riprap.

The Engineer will incorporate the documents and reports available at the time of award. The Contractor shall provide and insert all other documents and reports as they become available during construction. The SWMP Administrator shall finalize the SWMP for CDOT Maintenance use upon completion of the project. SWMP completeness shall be approved by the Engineer. Corrections to the SWMP shall be made at the Contractor's expense.

- 2. Reference Materials. The following Reference materials shall be used:
 - (1) CDOT Erosion Control and Stormwater Quality Guide.
 - (2) CDOT Erosion Control and Stormwater Quality Field Guide.
- (e) *Weekly Meetings*: The Engineer, the Superintendent, and the SWMP Administrator shall conduct a weekly meeting with supervisors involved in construction activities that could adversely affect water quality. The meeting shall follow an agenda prepared by the Engineer, or a designated representative, and have a sign in sheet on which the names of all attendees shall be recorded. The SWMP Administrator shall take notes of water quality comments and action items at each weekly meeting, and place the agenda and sign in sheet in the SWMP notebook. At this meeting the following shall be discussed and documented on Form 1176:

- (1) Requirements of the SWMP.
- (2) Problems that may have arisen in implementing the site specific SWMP or maintaining BMPs.
- (3) Unresolved issues from inspections and concerns from last inspection
- (4) BMPS that are to be installed, removed, modified, or maintained.
- (5) Planned activities that will affect stormwater in order to proactively phase BMPs.
- (6) Recalcitrant inspection findings.

All subcontractors who were not in attendance at the Environment Pre-construction Conference shall be briefed on the project by the Engineer, Superintendent, and the SWMP Administrator prior to start of work. The SWMP Administrator shall record the names of these subcontractors as an addendum to the list of attendees, and add it to the SWMP Notebook.

208.04 Best Management Practices for Stormwater.

The SWMP Administrator shall modify the SWMP to clearly describe and locate all BMPs implemented at the site to control potential sediment discharges.

Vehicle tracking control shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the limits of construction (LOC) of the project site. Access shall be provided only at locations approved by the Engineer. The SWMP Administrator shall record vehicle tracking control pad locations on the SWMP site map.

New inlets and culverts shall be protected during their construction. Appropriate protection of each culvert and inlet shall be installed immediately. When riprap is called for at the outlet of a culvert, it shall be installed within 24 hours of completion of each pipe. The Contractor shall remove sediment, millings, debris, and other pollutants from within the newly constructed drainage system in accordance with the CDPS-SCP, prior to use, at the Contractor's expense. All removed sediment shall be disposed of outside the project limits in accordance with all applicable regulations.

Concrete products wasted on the ground during construction including, but not limited to, excess concrete removed from forms, spills, slop, and all other unused concrete are potential pollutants that shall be contained or protected by an approved BMP at a pre-approved containment area. The concrete shall be picked up and recycled in accordance with 6 CCR 1007-2 (CDPHE Regulations Pertaining to Solid Waste Sites and Facilities) at regular intervals, as directed. The uses of recycled concrete from permitted recycling facilities shall be in accordance with Section 203.

- (a) *Unforeseen Conditions.* The Contractor shall design and implement erosion and sediment BMPs for correcting conditions unforeseen during the design of the project, or for emergency situations, that develop during construction. The Department's Erosion Control and Stormwater Quality Guide shall be used as a reference document for the purpose of designing erosion and sediment

BMPs. Measures and methods proposed by the Contractor shall be reviewed and approved in writing by the Engineer prior to installation.

- (b) *Other Agencies.* If CDPHE, US Army Corps of Engineers (USACE), or the Environmental Protection Agency (EPA) reviews the project site and requires additional measures to prevent and control erosion, sediment, or pollutants, the Contractor shall cease and desist activities resulting in pollutant discharge and immediately implement these measures. If the work may negatively affect another MS4, the Contractor shall cease and desist activities resulting in the discharge and shall implement appropriate measures to protect the neighboring MS4, including installing additional measures. Implementation of these additional measures will be paid for at contract unit prices.
- (c) *Work Outside the Right of Way.* Disturbed areas, including staging areas, which are outside CDOT ROW and outside easements acquired by CDOT for construction, are the responsibility of the Contractor. These areas may be subject to a separate CDPS-SCP or other permits. The Contractor shall acquire these permits and submit copies to the Engineer prior to any disturbance. These permits, shall be acquired and all erosion and sediment control work performed at the Contractor's expense. These areas are subject to inspections by CDOT or any other agency, as agreed upon in writing.
- (d) *Construction Implementation.* The Contractor shall incorporate BMPs into the project as outlined in the accepted schedule.
- (e) *Stabilization.* Once earthwork has started, the Contractor shall maintain erosion BMPs until permanent stabilization of the area has been completed and accepted. Clearing, grubbing and slope stabilization measures shall be performed regularly to ensure final stabilization. Failure to properly maintain erosion control and stabilization methods, either through improper phasing or sequencing will require the Contractor to repair or replace sections of earthwork at his expense. The Contractor shall schedule and implement the following stabilization measures during the course of the project:
 1. *Temporary Stabilization.* At the end of each day, the Contractor shall stabilize disturbed areas by surface roughening, vertical tracking, or a combination thereof. Disturbed areas are locations where actions have been taken to alter the existing vegetation or underlying soil of a site, such as clearing, grading, road bed preparation, soil compaction, and movement and stockpiling of top soils. Other stabilization measures may be implemented, as approved. The maximum area of temporary stabilization shall not exceed 20 acres
 2. *Interim Stabilization.* As soon as it is known with reasonable certainty that work will be temporarily halted for 14 days or more, stockpiles and disturbed areas shall be stabilized using one or more of the specified following methods:

- (1) Application of 1.5 tons per acres of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.
 - (2) Placement of bonded fiber matrix in accordance with Section 213.
 - (3) Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213.
 - (4) Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, shall not be used as a stabilization method.
3. **Summer and Winter Stabilization.** Summer and winter stabilization is defined as stabilization during months when seeding will not be permitted. As soon as the Contractor knows shutdown is to occur, interim stabilization shall be applied to the disturbed area. Protection of the interim stabilization method is required. Reapplication of interim stabilization may be required as directed.
 4. **Permanent Stabilization.** Permanent stabilization is defined as the covering of disturbed areas with seeding, mulching with tackifier, soil retention coverings, and such non-erodible methods as riprap, road shouldering, etc., or a combination thereof as required by the Contract. Other permanent stabilization techniques may be proposed by the Contractor, in writing, and shall be used when approved in writing by the Engineer. Permanent stabilization shall begin within 48 hours after topsoil placement, soil conditioning, or combination thereof starts and shall be pursued to completion.
 5. **Final Stabilization.** Final stabilization is achieved when all ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.
- (f) *Maintenance.* Erosion and sediment control practices and other protective measures identified in the SWMP as BMPs for stormwater pollution prevention shall be maintained in effective operating condition until the CDPS-SCP has been transferred to CDOT. BMPs shall be continuously maintained in accordance with good engineering, hydrologic, and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the height of the erosion control device. When possible, the Contractor shall use equipment with an operator rather than labor alone to remove the sediment.

Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the Contractor and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and

disposal of sediment or addition of aggregate. Damages resulting from failure to maintain BMPs shall be repaired at the Contactors expense.

Complete site assessment shall be performed as part of comprehensive inspection and maintenance procedures to assess the adequacy of BMPs at the site and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs shall be installed to ensure continuous effectiveness. When identified, BMPs shall be maintained, added, modified or replaced as soon as possible, immediately in most cases.

Approved new or replaced BMPs will be measured and paid for in accordance with subsections 208.11 and 208.12. Devices damaged due to the Contractor's negligence shall be replaced at the Contractor's expense.

From the time seeding and mulching work begins until project acceptance the Contractor shall maintain all seeded areas. Damage to seeded areas or to mulch materials shall be immediately restored. Damage to seeded areas or to mulch materials due to Contractor negligence shall be immediately restored at the Contractor's expense. Restoration of other damaged areas will be measured and paid for under the appropriate bid item.

Temporary BMPs may be removed upon completion of the project, as determined by the Water Quality Partial Acceptance walk-through. If removed, the area in which these BMPs were constructed shall be returned to a condition similar to that which existed prior to its disturbance. Removed BMPs shall become the property of the Contractor.

If a project delay occurs, the Contractor shall continue erosion and sediment control operations beyond the original contract time.

Sediment removed during maintenance of BMPs and material from street sweeping may be used in or on embankment, provided it meets the requirements of Section 203 and is distributed evenly across the embankment.

Whenever sediment collects on the paved surface, the surface shall be cleaned. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed.

Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A BMP, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Aggregate bags, erosion logs or other permeable BMPs shall not be used. Residue shall not flow into driving lanes. It shall be removed and disposed of in accordance with subsection 107.25(b)13. Material containment and removal will not be paid for separately, but shall be included in the work.

208.05 Construction of BMPs. BMPs shall be constructed in accordance with Standard Plans M-208-1 and M-216-1 and with the following.

- (a) *Seeding, Mulching, Sodding, Soil Retention Blanket.* Seeding, mulching, sodding, and soil retention blanket installation shall be performed in accordance with Sections 212, 213, and 216.
- (b) *Erosion Bales.* The bales shall be anchored securely to the ground with wood stakes.
- (c) *Silt Fence.* Silt fence shall be installed in locations specified in the Contract prior to any grubbing or grading activity.
- (d) *Temporary Berms.* Berms shall be constructed to the dimensions shown in the Contract, and sufficiently compacted to prevent erosion or failure. If the berm erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
- (e) *Temporary Diversion.* Diversions shall be constructed to the dimensions shown in the Contract and graded to drain to a designated outlet. The berm shall be sufficiently compacted to prevent erosion or failure. If the diversion erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
- (f) *Temporary Slope Drains.* Temporary slope drains shall be installed prior to installation of permanent facilities or growth of adequate ground cover on the slopes. All temporary slope drains shall be securely anchored to the slope. The inlets and outlets of temporary slope drains shall be protected to prevent erosion.
- (g) *Silt Berm.* Prior to installation of silt berms, the Contractor shall prepare the surface of the areas in which the berms are to be installed such that they are free of materials greater than 2 inches in diameter and are suitably smooth for the installation of the silt berms, as approved. Silt berms shall be secured with spikes. The Contractor shall install the silt berm in a manner that will prevent water from going around or under the silt berm. Silt berms shall be installed on top of soil retention blanket.
- (h) *Rock Check Dam.* Rock shall be installed at locations shown on the plans. Rock check dams shall conform to the dimensions shown on the plans.
- (i) *Rip rap Outlet Protection.* Geotextile used shall be protected from cutting or tearing. Overlaps between two pieces of geotextile shall be 1 foot minimum. Riprap size shall be as shown on the plans.
- (j) *Storm Drain Inlet Protection.* Prior to installation, the Contractor shall sweep the surface of the area in which the storm drain inlet protection devices are to be installed such that the pavement is free of sediment and debris. The ends of the inlet protection Type 1 and Type 2 shall extend a minimum of 1 foot past each end of the inlet.

The Contractor shall remove all accumulated sediment and debris from the surface surrounding all storm drain inlet protection devices after each rain event or as directed. The Contractor shall remove accumulated sediment from each Type II and III containment area when it is more than one third full of sediment, or as directed.

The Contractor shall protect storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, sand blasting, or abrasive water jet blasting are to take place.

- (k) *Sediment Trap*. Sediment traps shall be installed to collect sediment laden water and to minimize the potential of pollutants leaving the project site. Locations shall be as shown on the plans or as directed.

Sediment traps shall be constructed prior to disturbance of upslope areas and shall be placed in locations where runoff from disturbed areas can be diverted into the trap.

The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and roots.

Fill material for the embankment shall be free of roots or other vegetation, organic material, large stones, and other objectionable material.

Sediment shall be removed from the trap when it has accumulated to one half of the wet storage depth of the trap and shall be disposed of in accordance with subsection 208.04(f).

- (l) *Erosion Logs*. Erosion logs shall be embedded 2 inches into the soil. Stakes shall be embedded to a minimum depth of 12 inches. At the discretion of the Engineer, a shallower depth may be permitted if rock is encountered.

The Contractor shall maintain the erosion logs during construction to prevent sediment from passing over or under the logs.

- (m) *Silt Dikes*. Prior to installation of silt dikes, the Contractor shall prepare the surface of the areas in which the silt dikes are to be installed such that they are free of materials greater than two inches in diameter and are suitably smooth for the installation of the silt dikes, as approved by the Engineer.

- (n) *Concrete Washout Structure*. The concrete washout structure shall meet or exceed the dimensions shown on the plans and be used in accordance with manufacturer's recommendations. Work on this structure shall not begin until written acceptance is provided by the Engineer.

Concrete washout structure shall conform to Standard Plan M-208-1 and shall meet the following requirements:

- (1) The structure shall contain all washout water.

- (2) Stormwater shall not carry wastes from washout and disposal locations.
- (3) The site shall be located a minimum of 50 horizontal feet from State waters and shall meet all requirements for containment and disposal as defined in subsection 107.25.
- (4) The site shall be signed as “Concrete Washout”.
- (5) The site shall be accessible to appropriate vehicles.
- (6) Freeboard capacity shall be included in the structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
- (7) The Contractor shall prevent tracking of washout material out of the washout structure.
- (8) Solvents, flocculents, and acid shall not be added to wash water.
- (9) The structure shall be surrounded on three sides by a compacted berm.
- (10) The structure shall be fenced with orange plastic construction fencing to provide a barrier to construction equipment and to aid in identification of the concrete washout area.
- (11) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.

Pre-fabricated concrete washout structures shall meet the following requirements:

- (1) Structure shall contain all washout water.
- (2) Structure shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be as approved by the Engineer. The site shall be delineated with orange plastic fence or other means and signed as “Concrete Washout”.
- (3) The site shall be accessible to appropriate vehicles.
- (4) Freeboard capacity shall be included in structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
- (5) Solvents, flocculants, and acid shall not be added to wash water.
- (6) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.

- (7) Prefabricated structures cannot be moved when they contain liquid, unless otherwise approved.
- (8) The concrete washout structure shall be completed and ready for use prior to concrete placement operations.
- (9) Washout areas shall be checked and maintained as required. On site permanent disposal of concrete washout waste is not allowed.

All liquid and solid wastes, including contaminated sediment and soils generated from concrete washout shall be hauled away from the site and disposed of properly at the Contractor's expense.

- (o) *Vehicle Tracking Pad (VTP)*. Vehicle tracking pads shall be constructed to the minimum dimensions shown in the Contract, unless otherwise directed by the Engineer. Construction of approved vehicle tracking pads shall be completed before any disturbance of the area.

The Contractor shall maintain each vehicle tracking pad during the entire time that it is in use for the project. The vehicle tracking pad shall be removed at the completion of the project unless otherwise directed by the Engineer. Additional aggregate may be required for maintenance and will be paid for under Pay Item, Maintenance Aggregate (Vehicle Tracking Pad).

- (p) *Detention Pond*. Permanent detention ponds shown on the construction plans may be used as temporary BMPs if all the following conditions are met:
 - (1) The pond is designated as a construction BMP in the SWMP.
 - (2) The pond outfall and outlet are designed and implemented for use as a BMP during construction in accordance with good engineering, hydrologic, and pollution control practices. The stormwater discharges from the outfall shall not cause degradation or pollution of State waters, and shall have BMPs, as appropriate.
 - (3) All silt shall be removed and the pond returned to the design grade and contour prior to project acceptance.
- (q) *Aggregate Bag*. Aggregate bags shall be placed on a stable surface, consisting of pavement, grass or gravel. Aggregate bags shall be placed to conform to the surface without gaps. Discharge water shall not cause erosion.
- (r) *Surface roughening*. Surface roughening creates horizontal grooves along the contour of the slope. Roughening may be accomplished by furrowing, scarifying, ripping, or disking the soil surface to create a 2 to 4 inch minimum variation in soil surface. Surface roughening will not be paid for separately, but shall be included in the work.
- (s) *Vertical Tracking*. Vertical tracking involves driving a tracked vehicle up and down the soil surface and creating horizontal grooves and ridges along the

contour of the slope. Sandy soils or soils that are primarily rock need not be tracked. Vertical tracking will not be paid for separately, but shall be included in the work.

208.06 Materials Handling and Spill Prevention. The SWMP Administrator shall clearly describe and record on the SWMP, all practices implemented at the site to minimize impacts from procedures or significant material that could contribute pollutants to runoff. Areas or procedures where potential spills can occur shall have a Spill Response Plan in place as specified in subsections 107.25(b) 6 or 208.06(c). Construction equipment, fuels, lubricants, and other petroleum distillates shall not be stored or stockpiled within 50 horizontal feet of any State waters or more if the Contractor determines necessary. Equipment fueling and servicing shall occur only within approved designated areas.

- (a) Bulk storage structures for petroleum products and other chemicals shall have impervious secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State waters. Secondary containment shall be capable of containing the combined volume of all the storage containers plus at least 10 percent freeboard. For secondary containment that is used and may result in accumulation of stormwater within the containment, a plan shall be implemented to properly manage and dispose of all accumulated stormwater which is deemed to be contaminated (e.g., has an unusual odor or sheen).
- (b) *Lubricant Leaks.* The Contractor shall inspect equipment, vehicles, and repair areas daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. The Contractor shall have onsite approved absorbent material or containers of sufficient capacity to contain any POL leak that can reasonably be foreseen. The Contractor shall inform all Spill Response Coordinators in accordance with the Spill Response Plan if unforeseen leakage is encountered. All materials resulting from POL leakage control and cleanup shall become the property of the Contractor and shall be removed from the site. Control, cleanup, and removal of by-products resulting from POL leaks shall be performed at the Contractor's expense.
- (c) *Spill Response Plan.* A spill Response Plan shall be developed and implemented to establish operating procedures for handling potential pollutants and preventing spills.

The Response Plan shall contain the following information:

- (1) Identification and contact information of each Spill Response Coordinator.
- (2) Locations of areas on the project site where equipment fueling and servicing operations are permitted.
- (3) Location of cleanup kits.

- (4) Quantities of chemicals and locations stored on site.
- (5) Label system for chemicals and Safety Data Sheets (SDS) for products.
- (6) Clean up procedures to be implemented in the event of a spill that does not enter State waters or ground water.
- (7) Procedures for spills of any size that enter surface waters or ground water, or have the potential to do so. CDOT's Erosion Control and Stormwater Quality Guide contains spill notification contacts and phone numbers required in the Spill Response Plan.
- (8) A summary of the employee training provided.

Information in items (1) through (8) shall be updated in the SWMP Notebook when they change.

208.07 Stockpile Management. Material stockpiles shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be approved by the Engineer.

Erodible stockpiles (including topsoil) shall be contained with acceptable BMPs at the toe (or within 20 feet of the toe) throughout construction. BMPs shall be approved by the Engineer. The SWMP Administrator shall describe, detail, and record the sediment control devices on the SWMP.

208.08 Limits of Disturbance. The Contractor shall limit construction activities to those areas within the limits of disturbance shown on the plans and cross-sections. Construction activities, in addition to the Contract work, shall include the on-site parking of vehicles or equipment, on-site staging, on-site batch plants, haul roads or work access, and all other activities which would disturb existing soil conditions. Staging areas within the LDA shall be as approved by the Engineer. Construction activities beyond the limits of disturbance due to Contractor negligence shall be restored to the original condition by the Contractor at the Contractor's expense. The SWMP Administrator shall tabulate additional disturbances not identified in the CDPS-SCP application and indicate changes to locations and quantities on the SWMP. The Contractor shall report the changes and additional disturbances to the Engineer, Water Quality Control Division of CDPHE, and all other involved agencies.

The Contractor shall pursue stabilization of all disturbances to completion.

208.09 Failure to Perform Erosion Control. Failure to implement the Stormwater Management Plan is a violation of the CDPS-SCP and CDOT specifications. CDOT is obligated to implement enforcement mechanisms in accordance with CDOT's MS4 Permit COS000005 for Stormwater Management and erosion control Best Management Practices. Penalties may be assessed to the Contractor by the appropriate agencies. Penalties will be assessed by the Department as liquidated damages for failure to meet the Permit. All fines assessed to the

Department for the Contractor's failure to implement the SWMP will be deducted from moneys due the Contractor in accordance with subsection 107.25(d) 2.

The Contractor will be subject to liquidated damages for incidents of failure to perform erosion control as required by the Contract. Liquidated damages will be applied for failure to comply with the CDPS-SCP and these specifications, including the following:

- (1) Failure to include erosion control in the project schedule or failure to include erosion control in each schedule update as specified in subsection 208.03(b).
- (2) Failure of the Contractor to perform the inspections required by subsection 208.03(c) 2.
- (3) Failure of the Contractor to implement necessary actions required by the Engineer as required by subsection 208.03(c).
- (4) Failure to amend the SWMP and implement BMPs as required by subsection 208.04.
- (5) Failure to keep documentation and records current.
- (6) Failure to construct or implement erosion control or spill containment measures required by the Contract, or failure to construct or implement them in accordance with the Contractor's approved schedule as required by subsection 208.06(c).
- (7) Failure to limit temporary stabilization to 20 or fewer acres as required by subsection 208.04 (e).
- (8) Failure to replace or perform maintenance on an erosion control feature after notice from the Engineer or from a water quality inspection as required by subsection 208.04(f).
- (9) Failure to remove and dispose of sediment from BMPs as required.
- (10) Failure to install and properly utilize a concrete washout structure for containing washout from concrete placement operations.
- (11) Failure to perform stabilization as required by subsection 208.04(e).
- (12) Failure of the Superintendent or designated representative to attend inspections as required by subsection 208.03(c) and record findings in the appropriate form.
- (13) Failure to prevent discharges not composed entirely of stormwater from leaving the Construction Site.
- (14) Failure to provide the survey of Permanent Water Quality BMPs when required on the project in accordance with 208.10.

The Engineer will immediately notify the Contractor of each incident of failure to perform erosion control in accordance with the CDPS-SCP and these specifications, including items (1) through (14) above by issuing a Form 105. Correction shall be made as soon as possible but no later than 48 hours from the date of notification to correct the failure. The Contractor will be charged liquidated damages in the amount of \$970 for each day after the 48 hour period has expired that one or more of the incidents of failure to perform the requirements for each Form 105 remains uncorrected. Liquidated damages will begin at Midnight of the date the 48 hours has expired.

This deduction will not be considered a penalty, but will be considered liquidated damages based on estimated additional construction engineering costs. The liquidated damages will accumulate, for each cumulative day that one or more of the incidents remain uncorrected. The number of days for which liquidated damages are assessed will be cumulative for the duration of the project; that is: the damages for a particular day will be added to the total number of days for which liquidated damages are accumulated on the project. The liquidated damages will be deducted from any monies due the Contractor.

If all other failures are not corrected within 48 hours after liquidated damages have begun to be assessed, the Engineer will issue a Stop Work Order in accordance with subsection 105.01. Work shall not resume until the Engineer has approved a written corrective action plan submitted by the Contractor that includes measures to prevent future violations and a schedule for implementation.

If the Contractor requires more than 96 hours to perform the corrective work from the date on the Form 105, the Contractor shall submit a request for deferment. The deferment request shall be in writing and shall include the specific failure, temporary measures until final correction is made, the methodology which will be employed to make the correction, and interim milestones to completing the work. The Region Water Pollution Control Manager (RWPCM), Engineer, the SWMP Administrator, and the Contractor shall concur on this deferral and set a proposed date of completion. If approved, the Contractor shall complete the corrective measures by Midnight of the proposed completion date. If corrective work is not corrected by the completion date the Engineer will issue a Stop Work Order. Liquidated Damages will apply retroactively back to the 48 hours after the Form 105 date of notification. Liquidated Damages will be assessed until the corrective work has been completed and accepted.

Deferment of work to correct failures to perform erosion control will not affect the Contractor's other contractual responsibilities, notifications for other non-compliance, nor the final completion date of the project. Liquidated Damages for other non-compliance notifications will continue to apply during the deferment period in addition to liquidated damages associated with the deferment.

Based on the submittal date of the approved deferment Liquidated Damages and a Stop Work Order may not be mandated to the Contractor.

Disagreements regarding the suggested corrective action for a BMP compliance issue between the Project Engineer, SWMP Administrator, and Superintendent, shall be discussed with the Resident Engineer and Region Water Pollution Control Manager. If after the discussions, the Project Engineer and the Contractor are still

in disagreement and the Contractor believes that additional compensation is owed, the Contractor will follow the decision of the Project Engineer, keep track of the costs and negotiate further with the Project Engineer. If after pursuing the issue, the Contractor is unable to reach agreement with the Project Engineer, then the Contractor can follow the dispute process outlined in subsection 105.22.

If the Contractor's corrective action plan and schedule are not submitted and approved within 96 hours of the initial notice, the Engineer will issue a Stop Work Order and have an on-site meeting with the Superintendent, SWMP Administrator, and the Superintendent's supervisor. This meeting will also be attended by the Resident Engineer, the Region Water Pollution Control Manager, and the Region Program Engineer. This meeting will identify and document needed corrective actions and a schedule for completion. If after the meeting, the unacceptable work is not remedied within the schedule as agreed to in the meeting, the Engineer will take action to effect compliance with the CDPS-SCP and these specifications by utilizing CDOT Maintenance personnel or other non-Contractor forces and deduct the cost from any moneys due or to become due to the Contractor pursuant to subsection 105.17. Delays due to these Stop Work Orders shall be considered non-excusable. The Stop Work Order shall be in place until the project is in CDPS-SCP compliance.

If the Contractor remains non-responsive to requirements of the on-site meeting, the Engineer will start default or Contract termination procedures in accordance with subsections 108.09 and 108.10. CDOT will proceed with corrective or disciplinary action in accordance with the Rules for Prequalification, Debarment, Bidding and Work on Transportation, Road, Highway and Bridge Public Projects.

When a failure meets any one of the following conditions, the Engineer will immediately issue a Stop Work Order in accordance with subsection 105.01 irrespective of any other available remedy:

- (1) It may endanger health or the environment.
- (2) It consists of a spill or discharge of hazardous substances or oil which may cause pollution of the waters of the state.
- (3) It consists of a discharge which may cause a violation of a water quality standards.

208.10 Items to Be Completed Prior to Requesting Partial Acceptance of Water Quality Work.

- (a) *Reclamation of Washout Areas.* After concrete operations are complete, washout areas shall be reclaimed in accordance with subsection 208.05(n) at the Contractor's expense.
- (b) *Survey.* When Permanent Water Quality BMPs (Permanent BMP) are required on the project, the Contractor shall survey the BMPs to confirm that they conform to the configuration and grade shown on the Plans. The survey shall conform to Section 625. The results of the survey shall be submitted as Microstation or AutoCAD drawing files and PDF files, showing both designed and final elevations and configurations. Paper versions of the drawings shall be submitted with the stamp and seal of the Contractor's Surveyor.

The Engineer and the CDOT Hydraulics Engineer for the region will perform a walkthrough of the Permanent BMPs to confirm conformance to material requirements, locations, and dimensions of the Permanent BMPs. Permanent BMPs not meeting the Contract requirements will be identified in writing by the Engineer, and shall be repaired or replaced at the Contractor's expense. Correction surveys shall be performed at the Contractor's expense to confirm the locations and dimensions of each Permanent BMP. Final as-built plans of the Permanent BMPs shall be provided to the Engineer and the CDOT Region and Headquarter Permanent Water Quality Control Specialist for their records.

- (c) *Locations of Temporary BMPs.* The Engineer will identify locations where modification, cleaning, or removal of temporary BMPs are required and will provide these in writing to the Contractor. Upon completion of work required, the SWMP Administrator shall modify the SWMP to provide an accurate depiction of BMPS to remain on the project site.

METHOD OF MEASUREMENT

208.11 Erosion Control Management will be measured as the actual number of days of ECM work performed onsite, regardless of the number of ECIs required, including erosion control inspections, documentation, meeting participation, SWMP Administration, and the preparation of the SWMP notebook.

Erosion bales will be measured by the actual number installed and accepted.

Silt fence, silt berms, erosion logs, aggregate bags, silt dikes, temporary berms, rock check dams, temporary diversions, and temporary slope drains, will be measured by the actual number of linear feet that are installed and accepted. Measured length will not include required overlap.

Concrete washout structure will be measured by the actual number of structures that are installed and accepted.

Storm drain inlet protection will be measured by linear foot or actual number of devices that are installed and accepted.

Sediment trap quantities will be measured by the actual number installed and accepted.

Removal of trash that is not generated by construction activities will be measured by the actual number of hours that Contractor workers actively remove trash from the project. Each week the Contractor shall submit to the Engineer a list of workers and the hours spent collecting such trash.

Removal of accumulated sediment from traps, basins, areas adjacent to silt fences and erosion bales, and other clean out excavation of accumulated sediment, and the disposal of such sediment, will be measured by the number of hours that equipment, labor, or both are used for sediment removal.

Vehicle tracking pads will be measured by the actual number constructed and accepted.

Additional aggregate required for maintaining vehicle tracking pads will be measured as the actual number of cubic yards installed and accepted.

BASIS OF PAYMENT

208.12 ECM and BMPs will be paid for at the Contract unit price for each of the items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Aggregate Bag	Linear Foot
concrete Washout Structure	Each
Erosion Bales (Weed Free)	Each
Erosion Control Management	Day
Erosion Log (Type 1) (___ Inch)	Linear Foot
Erosion Log (Type 2) (____Inch)	Linear Foot
Pre-Fabricated Concrete Washout Structure	Each
Pre-Fabricated Vehicle Tracking Pad	Each
Maintenance Aggregate (Vehicle Tracking Pad)	Cubic Yard
Removal and Disposal of Sediment (Equipment)	Hour
Removal and Disposal of Sediment (Labor)	Hour
Removal of Trash	Hour
Rock Check Dam	Each
Sediment Basin	Each
Sediment Trap	Each
Silt Berm	Linear Foot
Silt Dike	Linear Foot
Silt Fence	Linear Foot
Silt Fence (Reinforced)	Linear Foot
Storm Drain Inlet Protection (Type__)	Linear Foot
Storm Drain Inlet Protection (Type__)	Each
Sweeping (Sediment Removal)	Hour
Temporary Berm	Linear Foot
Temporary Diversion	Linear Foot
Temporary Slope Drain	Linear Foot
Vehicle Tracking Pad	Each

Payment for Erosion Control Management (ECM) will be full compensation for all labor, materials and equipment necessary for the SWMP Administrator and Erosion Control Inspectors to perform all the work described in this specification. This includes assembling items (5) – (18) in subsection 208.03(d)1 and required updates to the SWMP Notebook on site.

The SWMP Administrator and ECI's commute times will not be measured and paid for separately, but shall be included in the work.

Modifications to the SWMP Notebook due to construction errors or survey errors by the Contractor shall be made at the Contractor's expense.

Temporary erosion control will be measured and paid for by the BMPs used. Surface roughening and vertical tracking will not be measured and paid for separately but shall be included in the work. Payment for each BMP item will be full compensation for all work and materials required to furnish, install, maintain, and remove the BMP when directed.

Payment for Removal and Disposal of Sediment (Equipment) will be full compensation for use of the equipment, including the operator. Payment for Removal and Disposal of Sediment (Labor) will be full compensation for use of the labor.

Payment for concrete washout structure, whether constructed or prefabricated, will be full compensation for all work and materials required to install, maintain, and remove the item. Maintenance and relocation, as required, of these structures throughout the duration of the project will not be measured and paid for separately, but shall be included in the work.

Silt berm spikes will not be measured and paid for separately, but shall be included in the work. When required, soil retention blankets will be measured and paid for in accordance with Section 216. Silt dike staples will not be measured and paid for separately, but shall be included in the work.

Spray-on mulch blankets required by the Contract, including those used in both interim and final stabilization, will be measured and paid for in accordance with Section 213.

Payment for storm drain inlet protection will be full compensation for all work, materials, and equipment required to complete the item, including surface preparation, maintenance throughout the project, and removal upon completion of the work. Aggregate will not be measured and paid for separately, but shall be included in the work.

Sweeping, when used as a BMP as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was

used to pick up sediment. The operator will not be measured and paid for separately, but shall be included in the work.

Stakes, anchors, connections, geotextile, riprap, and tie downs used for temporary slope drains will not be measured and paid for separately, but shall be included in the work.

Payment for vehicle tracking pad will be full compensation for all work, materials and equipment required to construct, maintain, and remove the entrance upon completion of the work. Aggregate and geotextile will not be measured and paid for separately, but shall be included in the work. If additional aggregate for maintenance of vehicle tracking pads is required, it will be measured by the cubic yard in accordance with Section 304 and will be paid for under this Section as Maintenance Aggregate (Vehicle Tracking Pad).

Seeding, sod, mulching, soil retention blanket, and riprap will be measured and paid for in accordance with Sections 212, 213, 216, and 506.

Geotextile (Erosion Control) (Class 2) will be measured and paid for in accordance with Section 420.

All work and materials required to perform the permanent BMP survey and furnish the electronic files shall be included in the original unit price bid for surveying. Surveying will be measured and paid for in accordance with Section 625.

Payment will be made for BMPs replaced as approved by the Engineer. Temporary erosion and sediment BMPs required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer or for the Contractor's convenience, shall be performed at the Contractor's expense. If the Contractor fails to complete construction within the contract time, payment will not be made for Section 208 pay items for the period of time after expiration of the contract time. These items shall be provided at the Contractor's expense.

July 3, 2017

REVISION OF SECTION 208
EROSION CONTROL

NOTICE

This is a standard special provision that revises or modifies CDOT's *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT's Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT's Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

Instructions for use on CDOT construction projects:

Use on all projects having erosion control.

REVISION OF SECTION 208
EROSION CONTROL

Section 208 of the Standard Specifications is hereby revised for this project as follows:

In subsection 208.03(c) delete the first paragraph and replace it with the following

Erosion Control Management (ECM). Erosion Control Management for this project shall consist of Erosion Control Inspection and the SWMP Administration. All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent will not be permitted to serve in an ECM role. The Erosion Control Inspector (ECI) and the SWMP Administrator may be the same person in projects involving less than 40 acres of disturbed area.

In subsection 208.03(c)1 delete the first paragraph and replace it with the following:

SWMP Administration. The SWMP shall be maintained by a SWMP Administrator. In the case of a project requiring only one TECS, the SWMP Administrator may also be the ECI for the project. The name of the SWMP Administrator shall be recorded on the SWMP Section 3. B. The SWMP Administrator shall have full responsibility to maintain and update the SWMP and identify to the Superintendent critical action items needed to conform to the CDPS-SCP as follows:

In subsection 208.03(c)2 delete the first paragraph and replace it with the following:

One ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04 (e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04 (e) will not be included in the 40 acres.

In subsection 208.03(d)1 delete item (1) and replace it with the following:

- (1) SWMP Site Maps and Plan Title Sheet - Construction site boundaries, ground surface disturbance, limits of cut and fill, flow arrows, structural BMPs, non-structural BMPs, Springs, Streams, Wetlands and surface water. Also included on the sheets is the protection of trees, shrubs and cultural resources.

In subsection 208.05(n), in the list of requirements for pre-fabricated concrete washout structures, delete item (2) and replace it with the following:

- (2) Structure shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas are as defined in the Contract. Locations shall be as approved by the Engineer. The site shall signed as "Concrete Washout".

In subsection 208.11 delete the first paragraph and replace it with the following:

Erosion Control Management will be measured as the actual number of days of ECM work performed, regardless of the number of personnel required for SWMP Administration and Erosion Control Inspection, including erosion control inspections, documentation, meeting participation, SWMP Administration, and the preparation of the SWMP notebook. If the combined hours of SWMP Administration and Erosion Control Inspection is four hours or less in a day, the work will be measured as ½ day. If the combined hours of SWMP Administration and Erosion Control Inspection is more than four hours in a day, the work will be measured as one day. Total combined hours of ECM work exceeding eight hours in a day will still be paid as one day.

SECTION 212 SEEDING, FERTILIZER, SOIL CONDITIONER, AND SODDING

DESCRIPTION

212.01 This work consists of soil preparation, application of fertilizer, soil conditioners, or both, and furnishing and placing seed and sod. The work shall be in accordance with the Contract and accepted horticultural practices.

MATERIALS

212.02 Seed, Soil Conditioners, Fertilizers, and Sod.

- (a) *Seed.* All seed shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, origin, the percent of weed seed content, the guaranteed percentage of purity and germination, pounds of pure live seed (PLS) of each seed species, and the total pounds of PLS in the container. All seeds shall be free from noxious weed seeds in accordance with current state and local lists and as indicated in Section 213. The Contractor shall furnish to the Engineer a signed statement certifying that the seed is from a lot that has been tested by a recognized laboratory for seed testing within thirteen months prior to the date of seeding. The Engineer may obtain seed samples from the seed equipment, furnished bags, or containers to test seed for species identification, purity, and germination. Seed tested and found to be less than 10 percent of the labeled certified PLS and different than the specified species will not be accepted. Seed which has become wet, moldy, or damaged in transit or in storage will not be accepted.

Seed types and amount of PLS required per acre shall be provided in accordance with the Contract.

Seed and seed labels shall conform to all current State and Federal regulations and will be subject to the testing provisions of the Association of Official Seed Analysis. Computations for quantity of seed required on the project shall include the percent of purity and percent of germination.

The formula used for determining the quantity of PLS shall be:

Bulk Pounds of Seed Species • (%Purity • %Germination) = Pounds of PLS

- (b) *Soil Conditioners and Fertilizer.*

1. Fertilizer: Fertilizer (plant nutrients) shall conform to the applicable State fertilizer laws. It shall be uniform in composition, dry, and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Fertilizer which becomes caked or damaged will not be accepted.

2. Soil Conditioner: Soil conditioner shall consist of compost, biological nutrient, biological culture or humic acid based material.

Humic acid based material (Humate) shall include the following:

- (1) A pH of 3 to 5.
- (2) Maximum 20 percent inert ingredient.
- (3) Minimum 80 percent organic matter with 40 percent minimum humic acid.

Compost shall be weed-free, organic compost derived from a variety of feed stocks including agricultural, biosolids, forestry, food, leaf and yard trimmings, manure, tree wood with no substances toxic to plants. Material shall be aerobically composted in a facility permitted by the Colorado Department of Public Health and Environment (CDPHE) to produce or sell compost in accordance with House Bill (HB) 1181. The Contractor shall submit a copy of this permit to the Engineer for approval and the project records. The compost shall be tested in accordance with the U.S. Composting Council’s Test Methods for Examining of Composting and Compost (TMECC) manual.

The compost manufacturer shall be a participating member of in the U.S. Composting Council’s Seal of Testing Assurance Program (STA). The Contractor shall provide a participation certificate and test data on a Compost Technical Data Sheet.

Compost shall have the following physical properties:

Compost Parameters	Reported as	Requirement	Test Method
pH	pH units	6.0 – 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS m-1 or mmhos cm-1	Maximum 10dS/m	TMECC 04.10-A
Moisture Content	%, wet weight basis	30 – 60%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis	30 – 65%	TMECC 05.07-A
Particle Size (sieve sizes)	%, dry weight basis for each sieve fraction	Passing 1 inch – 100% ½ inch – 95%	TMECC 02.02-B
Man-made Inert Contamination	%, dry weight basis	< 1%	TMECC 03.08-A

Compost Parameters	Reported as	Requirement	Test Method
Stability (Respirometry)	mg CO ₂ -C per g TS per day mg CO ₂ -C per g OM per day	8 or below	TMECC 05.08-B
Select Pathogens	(PASS/FAIL) Limits: Salmonella <3 MPN/4grams of TS, or Coliform Bacteria <1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg kg ⁻¹ , dw basis): As 41, Cd 39, Cu 1500, Pb 300, Hg 17, Ni 420, Se 100, Zn 2800	Pass	TMECC 04.06
Maturity (Bioassay)			
Percent Emergence	%, (average)	> 80%	TMECC 05.05-A
Relative Seedling Vigor	%, (average)	> 80%	
The Contractor shall provide a CTR in accordance with subsection 106.13 confirming that the material has been tested in accordance with TMECC.			

- (c) *Sod*. Sod shall be nursery grown and 99 percent weed free. Species shall be as shown on the plans. Other sod types may be used only if approved in writing by the Engineer. The one percent allowable weeds shall not include any undesirable perennial or annual grasses or plants defined as noxious by current State statute. Soil thickness of sod cuts shall not be less than $\frac{3}{4}$ inch nor more than 1 inch. Sod shall be cut in uniform strips with minimum dimensions of 18 inches in width and 48 inches in length. The Contractor shall submit a sample of the sod proposed for use, which shall serve as a standard. Any sod furnished, whether in place or not, that is not up to the standard of the sample may be rejected. Sod that was cut more than 24 hours prior to installation shall not be used.

Each load of sod shall be accompanied by a certificate from the grower stating

the type of sod and the date and time of cutting.

CONSTRUCTION REQUIREMENTS

212.03 Seeding Seasons. Seeding in areas that are not irrigated shall be restricted according to the following time table and specifications.

Zone	Spring Seeding	Fall Seeding
Areas other than the Western Slope		
Below 6000'	Spring thaw to June 1	September 15 until consistent ground freeze
6000' to 7000'	Spring thaw to June 1	September 1 until consistent ground freeze
7000' to 8000'	Spring thaw to July 15	August 1 until consistent ground freeze
Above 8000'	Spring thaw to consistent ground freeze	
Western Slope		
Below 6000'	Spring thaw to May 1	August 1 until consistent ground freeze
6000' to 7000'	Spring thaw to June 1	September 1 until consistent ground freeze
Above 7000'	Spring thaw to consistent ground freeze	

- (1) "Spring thaw" shall be defined as the earliest date in a new calendar year in which seed can be buried ½ inch into the surface soil (topsoil) thru normal drill seeding methods.
- (2) "Consistent ground freeze" shall be defined as that time during the fall months in which the surface soil (topsoil), due to freeze conditions, prevents burying the seed ½ inch thru normal drill seeding operations. Seed shall not be sown, drilled, or planted when the surface soil or topsoil is in a frozen or crusted state.

Seeding accomplished outside the time periods listed above will be allowed only when ordered by the Engineer or when the Contractor's request is approved in writing. When requested by the Contractor, the Contractor must agree to perform the following work at no cost to the Department: reseed, remulch, and repair areas which fail to produce species indicated in the Contract.

When seeding is ordered by the Engineer outside the time periods listed above, the cost of additional material will be paid for by the Department. The Contractor will not be responsible for failure of the seeded area to produce species indicated in the Contract due to reasons beyond the control of the Contractor.

The seeding, the soil conditioning, and the fertilizing application rate shall be as specified. The Engineer may establish test sections for adjusting the seeding and

the fertilizing equipment to assure the specified rate. The Engineer may order equipment readjustment at any time.

Seed, soil conditioner and fertilizer shall not be applied during inclement weather including rain and high winds, or when soil is frozen or soil moisture is too high to evenly incorporate seed, soil conditioner or fertilizer.

212.04 Lawn Grass Seeding. Lawn grass seeding shall be accomplished in the seeding seasons described in subsection 212.03.

- (a) *Soil Preparation.* Preparatory to seeding lawn grass, irregularities in the ground surface, except the saucers for trees and shrubs, shall be removed. Measures shall be taken to prevent the formation of low places and pockets where water will stand.

Immediately prior to seeding, the ground surface shall be tilled or hand worked into an even and loose seedbed to a depth of 4 inches, free of clods, sticks, stones, debris, concrete, and asphalt in excess of 2 inches in any dimension, and brought to the desired line and grade.

- (b) *Fertilizing and Soil Conditioning.* The first application of fertilizer, soil conditioner, or both shall be incorporated into the soil prior to seeding, and shall consist of a soil conditioner, commercial fertilizer, or both as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the contract. Biological nutrient, culture or humic acid based material called for on the plans shall be applied in a uniform application onto the soil service. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

The second application of fertilizer shall consist of a fertilizer having an available nutrient analysis of 20-10-5 applied at the rate of 100 lbs. per acre. It shall be uniformly broadcast over the seeded area three weeks after germination or emergence. The area shall then be thoroughly soaked with water to a depth of 1 inch.

Fertilizer shall not be applied when the application will damage the new lawn.

- (c) *Seeding.* After the surface is raked and rolled, the seed shall be drilled or broadcast and raked into the top ¼ inch of soil. Seeding shall be accomplished by mechanical landscape type drills. Broadcast type seeders or hydraulic seeding will be permitted only on small areas not accessible to drills. Seed shall not be drilled or broadcast during windy weather or when the ground is frozen or untillable. All loose exposed rock larger than 2 inches shall be removed from slopes that are to be seeded by drilling.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure, unless otherwise directed. The equipment shall have a nozzle adaptable to hydraulic

seeding requirements. Storage tanks shall have a means of estimating the volume used or remaining in the tank.

212.05 Sodding.

- (a) *Soil Preparation.* Preparatory to sodding, the ground shall be tilled or hand worked into an even and loose sod bed to a depth of 4 inches, and irregularities in the ground surface shall be removed. Sticks, stones, debris, clods, asphalt, concrete, and other material more than 2 inches in any dimension shall be removed. Any depressions or variances from a smooth grade shall be corrected. Areas to be sodded shall be smooth before any sodding is done.
- (b) *Sodding.* The sod shall be laid by staggering joints with all edges touching. On slopes, the sod shall run approximately parallel to the slope contours. Where the sod abuts a drop inlet, the subgrade shall be adjusted so that the sod shall be 1½ inch below the top of the inlet.

Within one hour after the sod is laid and fertilized it shall be watered. After watering the sod shall be permitted to dry to the point where it is still wet enough for effective rolling. It shall then be rolled in two directions with a lawn roller weighing at least 150 pounds.

- (c) *Fertilizing and Soil Conditioning.* Prior to laying sod, the 4 inches of subsoil underlying the sod shall be treated by tilling in fertilizer, soil conditioner, or both. The rate of application shall be as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the contract. Biological nutrient, culture or humic acid based material called for on the plans shall be applied uniformly onto the soil surface. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

After laying, the sod shall be fertilized with a fertilizer having an available nutrient analysis of 20-10-5 at the rate of 200 pounds per acre. Fertilizer shall not be applied when the application will damage the sod.

212.06 Native Seeding. Areas that are unirrigated shall be seeded in accordance with subsection 212.03.

- (a) *Soil Preparation.* Slopes flatter than 2:1, shall be tilled into an even and loose seed bed 4 inches deep. Slopes 2:1 or steeper shall be left in a roughened condition. Slopes shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension, and brought to the desired line and grade.
- (b) *Fertilizing and Soil Conditioning.* Prior to seeding, fertilizer, soil conditioner, or both shall be applied. The fertilizer and soil conditioner type and rate of application shall be as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the

contract. Biological nutrient, culture or humic acid based material called for on the plans shall be applied in a uniform application onto the soil service. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil. No measurable quantity of organic amendment shall be present on the surface after incorporation.

- (c) *Seeding.* Seeding shall be accomplished within 24 hours of tilling or scarifying to make special seed bed preparation unnecessary. The seeding application rate shall be as designated in the Contract. All slopes flatter than 2:1 shall be seeded by mechanical power drawn drills followed by packer wheels or drag chains. Mechanical power drawn drills shall have depth bands set to maintain a planting depth of at least $\frac{1}{4}$ inch and shall be set to space the rows not more than 7 inches apart. Seed that is extremely small shall be sowed from a separate hopper adjusted to the proper rate of application.

If strips greater than 7 inches between the rows have been left unplanted or other areas skipped, the Engineer will require additional seeding at the Contractor's expense.

When requested by the Contractor and approved by the Engineer, seeding may be accomplished by broadcast or hydraulic type seeders at twice the rate specified in the Contract at no additional cost to the project.

All seed sown by broadcast-type seeders shall be "raked in" or covered with soil to a depth of at least $\frac{1}{4}$ inch. Broadcasting seed will be permitted only on small areas not accessible to machine methods.

Hydraulic seeding equipment and accessories shall conform to the equipment and accessories described in subsection 212.04(c).

Seeded areas damaged due to circumstances beyond the Contractor's control shall be repaired and reseeded as ordered. Payment for this corrective work, when ordered, shall be at the contract prices.

Multiple seeding operations shall be anticipated as portions of job are completed to take advantage of growing conditions and to comply with Section 208 and subsection 212.03.

METHOD OF MEASUREMENT

212.07 The quantities of lawn seeding and native seeding will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. The quantity of lawn seeding shall include soil preparation, water, fertilizer, and seed, completed and accepted. The quantity of native seeding shall include soil preparation, fertilizer, soil conditioner, and seed applied, completed, and accepted.

The quantity of sod to be measured will be the actual number of square feet,

including soil preparation, water, fertilizer, and sod, completed and accepted.

When soil conditioner is measured and paid for separately, it will be measured by the actual number of acres to which soil conditioner is applied and will be paid for as Soil Conditioning.

The Contractor shall furnish the Engineer with seed certifications and analysis, fertilizer analysis, and bag weight tickets prior to placing any seed or fertilizer. Any seed or fertilizer placed by the Contractor without the Engineer's approval will not be paid for.

Measurement for acres will be by slope distances.

BASIS OF PAYMENT

212.08 The accepted quantities of lawn seeding, native seeding, soil conditioning, and sod will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Seeding (Lawn)	Acre
Seeding (Native)	Acre
Sod	Square Foot
Soil Conditioning	Acre

Soil preparation, water, seed, fertilizer, and soil conditioner, incorporated into the seeding sodding or soil conditioning will not be paid for separately but shall be included in the work.

Adjusting or readjusting seeding or fertilizing equipment will not be paid for separately but shall be included in the work.

SECTION 213 MULCHING

DESCRIPTION

213.01 This work consists of mulching the seeded areas, furnishing and placing wood chip mulch in the planting beds and plant saucers, furnishing and applying hydromulch with tackifier on roadway ditches and slopes, furnishing and placing tackifier on mulch or soil on roadway ditches or slopes, and furnishing and installing metal landscape border for the separation of planting beds, in accordance with the Contract or as directed. Mulching may be accomplished by the crimping method using straw or hay, by the hydraulic method using wood cellulose fiber mulch, or by other approved methods with approved materials. When a specific mulching method is required, it will be designated in the Contract.

This work includes furnishing and applying spray-on mulch blanket or bonded fiber matrix on top of rock cuts and slopes after seeding or as temporary stabilization as shown on the plans or as directed by the Engineer.

MATERIALS

213.02 Materials shall conform to the following requirements.

- (a) *Mulching*. Materials for mulching shall consist of Certified Weed Free field or marsh hay or straw of oats, barley, wheat, rye or triticale certified under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS. Each certified weed free mulch bale shall be identified by one of the following:
- (1) One of the ties binding the bale shall consist of blue and orange twine, or
 - (2) The bale shall have a regional Forage Certification Program tag indicating the Regional Forage Certification Program Number.

Mulch shall be inspected for and Regionally Certified as weed free based on the Regionally Designated Noxious Weed and Undesirable Plant List for Colorado, Wyoming, Montana, Nebraska, Utah, Idaho, Kansas and South Dakota.

The Contractor shall not unload certified weed free mulch bales or remove their identifying twine, wire, or tags until the Engineer has inspected and accepted them.

The Contractor shall provide a transit certificate that has been filled out and signed by the grower and by the Department of Agriculture inspector.

The Contractor may obtain a current list of Colorado Weed Free Forage Crop Producers who have completed certification by contacting the Colorado Department of Agriculture, Division of Plant Industry.

Straw or hay in a stage of decomposition (discolored, brittle, rotten, or moldy) or old, dry mulch which breaks in the crimping process will not be accepted.

The type and application rate of mulch material shall be as designated in the Contract.

- (b) *Wood Cellulose Fiber Mulch.* Wood cellulose fiber mulch shall consist of virgin wood fibers manufactured expressly from clean whole wood chips. The chips shall be processed in such a manner as to contain no growth or germination inhibiting factors. Fiber shall not be produced from recycled materials such as sawdust, paper, cardboard, or residue from pulp and paper plants. The wood cellulose fibers of the mulch must maintain uniform suspension in water under agitation. Upon application, the mulch material shall form a blotter like mat covering the ground. This mat shall have the characteristics of moisture absorption and percolation and shall cover and hold seed in contact with the soil. The Contractor shall obtain certifications from suppliers that laboratory and field testing of their product has been accomplished, and that it meets all of the foregoing requirements pertaining to wood cellulose fiber mulch.

The wood cellulose fiber mulch shall conform to the following specifications:

Property	Requirement
Percent moisture content	10.0% ± 3.0%
Percent Organic Matter* (Wood Cellulose Fiber)	99.3% ± 0.2%
Percent Ash Content*	0.7% ± 0.2%
pH	4.9 ± 0.5
Water Holding Capacity*	1200-1600 grams**
*Oven Dried Basis **Per 100 grams of fiber	

The wood cellulose fiber mulch shall be packaged in units containing current labels, with the manufacturer's name, the net weight, and certification that the material meets the foregoing requirements for wood cellulose fiber mulch.

- (c) *Mulch Tackifier.* Material for mulch tackifier shall consist of a free-flowing, noncorrosive powder produced either from the natural plant gum of *Plantago Insularis* (Desert Indianwheat) or pre-gelatinized 100 percent natural corn starch polymer. The powders shall possess the following properties:

Plantago Insularis (Desert Indianwheat):

Property	Requirement	Test Method
pH 1% solution	6.5 - 8.0	
Mucilage content	75% min.	ASTM D7047

Pre-gelatinized 100 percent natural corn starch polymer:

Property	Requirement
Organic Nitrogen as protein	5.5-7%
Ash content	0-2%
Fiber	4-5%
pH 1% solution	6.5 – 8.0
Size	100% thru 850 microns (20 mesh)
Settleable solids	<2%

All fibers shall be colored green or yellow with a biodegradable dye.

The material used for mulch tackifier shall not contain any mineral filler, recycled cellulose fiber, clays, or other substances which may inhibit germination or growth of plants. Water shall conform to subsection 209.02.

- (d) *Wood Chip Mulch.* Wood chip mulch shall consist of fresh, moist pole peelings material having approximate dimensions;

Width: ¼ to ½ inch; Length: 3 to 4 inches

The Contractor shall submit a sample to the Engineer for approval at least 30 days prior to placing on the project.

- (e) *Metal Landscape Border.* The metal landscape border shall consist of a strip of metal such as steel conforming to ASTM A1011 or approved equal.
- (f) *Spray-on Mulch Blanket.* Spray on mulch blanket shall be one of the following, unless otherwise shown on the plans:

- (1) Spray-on Mulch Blanket (Type 1) shall be a hydraulically applied matrix containing organic fibers, water soluble cross-linked tackifier, and reinforcing interlocking fibers. The reinforcing interlocking fibers may be natural or synthetic or a combination thereof. Mulch Blanket (Type 1) shall conform to the following:

Properties	Requirement	Test Method
Organic Fibers	71% Min.	ASTM D2974
Cross linked Tackifiers	10% ± 2% Min.	
Reinforcing Interlocking Fibers	10% ± 1% Min.	
Biodegradability	100%	ASTM D5338
Ground Cover at Application Rate	90% Min.	ASTM D6567
Functional Longevity	12 Months Min.	
Cure Time	< 8 hours	
Application		
Application Rate	3,000 lb./acre	

The organic fiber shall not contain lead paint, printing ink, varnish, petroleum products, seed germination inhibitors, or chlorine bleach. The organic fibers and reinforcing interlocking fibers cannot be produced from sawdust, cardboard, paper, or paper by-products.

- (2) Spray-on Mulch Blanket (Type 2) shall be a hydraulically applied matrix pre-packaged in 50 pound bags containing both a soil and fiber stabilizing compound and thermally processed wood fiber.

The sterilized weed-free wood fiber mulch shall be manufactured through a thermo-mechanical defibrating process containing a specific range of fiber lengths averaging 0.25 inches or longer.

Mulch Blanket (Type 2) shall meet the following requirements:

Property	Requirement	Test Method
Fiber Retention On 28-Mesh Screen	≥ 40%	Tyler Ro-Tap Method
Moisture Content	12% ± 2%	Total Air Dry Weight Basis
Organic Matter	99.2% ± 0.2%	Oven Dry Weight Basis
Ash Content	0.8% ± 0.2%	Oven Dry Weight Basis
pH At 3% Consistency In Water	4.5-7.0 ± 0.5%	
Sterilized Weed-Free	Yes	
Non-Toxic To Plant Or Animal Life	Yes	
Application		
Application rate	3,000 lb./acre	

The soil and fiber stabilizing compound shall be composed of linear anionic copolymers of acrylamide pre-packed within the bag having a minimum content of 1.0 percent. The compound shall conform to the following:

Property	Requirement
Molecular Weight	≥ 12x10 ⁶
Charge Density	> 25%
Non-Toxic To Plant Or Animal Life	Yes

- (g) *Bonded Fiber Matrices (BFM)*. BFM shall consist of hydraulically-applied matrix with a minimum of 70 percent non-toxic thermally processed or refined long strand organic fibers and water soluble tackifier to provide erosion control and shall be designed to be functional for a minimum of 9 months. BFMs form an erosion-resistant blanket that promotes vegetation and

prevents soil erosion. The BFM shall be 100 percent biodegradable. The binder in the BFM shall also be biodegradable. BFMs shall conform to the following requirements:

Property	Requirement	Test Method
Ground Cover (%)	95	ASTM D6567
Bio-degradability (%)	100	ASTM D5338
Functional Longevity (months)	9 month minimum	
Cure Time (hours)	24-48	
Cross-linked Tackifier	10% minimum	
Application		
Application Rate (lbs./Acre)	3000	

The fibers shall not contain lead paint, printing ink, varnish, petroleum products, seed germination inhibitors, or chlorine bleach. Fiber shall not be produced from sawdust, cardboard, paper, or paper by-products.

CONSTRUCTION REQUIREMENTS

213.03

- (a) *Hay or Straw Mulching.* After seeding has been completed or when required for erosion control, hay or straw shall be uniformly applied, with no bare soil showing, at the rate designated in the Contract or as directed. It shall be crimped in with a crimper or other approved equipment. The Engineer may order hand-crimping on areas where mechanical methods cannot be used.

The seeded area shall be mulched and crimped within four hours after seeding. Areas not mulched and crimped within four hours after seeding or prior to precipitation or damaging winds on site shall be reseeded with the specified seed mix at the Contractor's expense, prior to mulching and crimping.

When tackifier is required in the Contract it shall be applied in the following order: (1) mulching, (2) mulch tackifier.

- (b) *Hydraulic Mulching.* Wood cellulose fiber mulch and mulch tackifier shall be added to water to form a homogeneous slurry. The operator shall spray apply the slurry mixture uniformly over the designated seeded area.

Hydraulic mulching shall not be done in the presence of free surface water.

Mixing procedure for the hydraulic mulch and tackifier mixture shall be as follows:

- (1) Fill tank with water approximately ¼ full.
- (2) Continue filling while agitating with engine at full rpm.
- (3) Pour tackifier, at a moderate rate, directly into area of greatest turbulence.
- (4) With the recommended amount of tackifier in solution, add wood cellulose fiber mulch. Do not add fertilizer.

Apply the hydromulch and tackifier mixture at the following rate:

Wood Cellulose Fiber Mulch	Tackifier
2000 lbs./Acre	100 lbs./Acre

(c) *Mulch Tackifier.*

Mixing procedure for mulch tackifier shall be as follows:

- (1) Fill tank with desired amount of water and run engine at full R.P.M.
- (2) Add wood cellulose fiber. Agitate until a homogenous, non-lumpy slurry is formed. Do not add fertilizer
- (3) Slowly sift powdered tackifier into slurry and continue to agitate for at least five minutes.

Mulch tackifier shall be sprayed over hay or straw using a nozzle that will disperse the spray into a mist that will uniformly cover the mulch.

Application Rate: Apply this as an overspray at the following rate or as approved by the Engineer.

Powder	Wood Cellulose Fiber	Water
200 lbs./Acre	300 lbs./Acre	2000 gal./Acre

(d) *General.* Mulch shall be tacked simultaneously or immediately upon completion of mulching and crimping to avoid non-uniform coverage. Areas not properly mulched, or areas damaged due to the Contractor's negligence, shall be repaired and remulched as described above, at the Contractor's expense.

Mulch removed by circumstances beyond the Contractor's control shall be repaired and remulched as ordered. Payment for this ordered corrective work shall be at the contract prices.

The Engineer may order test sections be established for adjusting the mulching equipment to assure conformance with the specified application rate. The Engineer may order equipment readjustment at any time.

(e) *Wood Chip Mulch.* A 4-inch layer, unless otherwise shown in the plans, of

wood chip mulch shall be uniformly applied to all planting beds as shown on the plans or as directed. Wood chip mulch shall be placed in all tree and shrub saucers in seeded areas. Wood chip mulch shall be capable of matting together to resist scattering by the wind.

- (f) *Metal Landscape Border*. Metal landscape border shall be installed along the lines and at the grades shown on the plans by an approved method that will not damage the border. Ends of metal landscape border shall overlap the next adjacent section a minimum of 6 inches. Metal landscape border shall be anchored with wire tie-downs at intervals of approximately 2 feet. Wire tie-downs shall be 9 gage wire at least 14 inches long. Metal landscape border shall be inserted into the ground by driving against the wire tiedowns; ground may be moistened to ease entrance into the ground. Driving on edge of metal landscape border will not be permitted except when the edge is properly shielded. Metal landscape border may be bent for sharp angles, and overlapped at closure of perimeter.
- (g) *Spray-On Mulch Blanket*. Spray-on mulch blanket installation shall strictly comply with the Manufacturer's mixing recommendations and installation instructions. No chemical additives with the exception of fertilizer, soil pH modifiers, extended-term dyes and bio nutrients will be permitted. The spray-on mulch blanket shall be mixed and applied as follows:

The hydromulching vessel shall be filled with water to at least $\frac{1}{3}$ capacity (high enough to cover agitators) prior to adding any material. Continue to fill vessel with water and slowly add the fibers while agitators are in motion. Run agitators at $\frac{3}{4}$ speed. Continue to mix tank a minimum of 10 minutes prior to application.

Apply spray-on mulch blanket in a uniform application using a minimum 22 degree arc type nozzle. Apply hydro slurry in two direction (from top of slope down and from toe of the slope up, as well as, be applied at a minimum of two layers).

Co-polymer shall not be used use in channels, swales, or other areas where concentrated flows are anticipated and should not be used on saturated soils that have groundwater seeps.

- (h) *Bonded Fiber Matrices (BFM)*. Bonded fiber matrices shall strictly comply with the Manufacturer's mixing recommendations and installation instructions. No chemical additives with the exception of fertilizer, soil pH modifiers, extended-term dyes, and bio stimulant materials shall be permitted. BFMs shall be applied in a uniform application using a minimum 22 degree arc type nozzle. BFMs shall be applied in two directions (from top of slope down and from toe of the slope up, as well as, be applied at a minimum of two layers).

Biodegradable BFMs shall not be applied immediately before, during, or immediately after rainfall if the soil is saturated.

BFMs shall not be used use in channels, swales, or other areas where concentrated flows are anticipated and shall not be used on saturated soils that have groundwater seeps.

Foot traffic, mechanical traffic or grazing shall not be permitted on treated areas until vegetated. Treated areas damaged due to circumstances beyond the Contractor’s control shall be repaired or re-applied as ordered. Payment for corrective work, when ordered, shall be at contract unit prices.

METHOD OF MEASUREMENT

213.04 The quantity of hay and straw mulch, wood chip mulch, wood fiber and, spray-on mulch blanket, bonded fiber matrix, and tackifier will not be measured but shall be the quantity designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. Measurement for acres will be by slope distances.

The quantity of mulch tackifier to be measured will be the actual number of pounds of dry tackifier powder used.

Metal landscape border will be measured by the linear foot of completed and accepted metal border. Measured length of metal landscape border will not include required overlap splices.

Spray-on mulch blanket and bonded fiber matrix will be measured by the acre or by the actual pounds of product applied, as shown on the plans. The area will be calculated on the basis of actual or computed slope measurements. The Contractor shall verify, prior to application, weight of spray on mulch blanket and bonded fiber matrix bags for certification of materials and application rate.

BASIS OF PAYMENT

213.05 The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Mulching ()	Acre
Mulching (Hydraulic)	Acre
Mulching (Weed Free Hay)	Acre
Mulching (Weed Free Straw)	Acre
Mulching (Wood Chip)	Cubic Foot
Mulch Tackifier	Pound
Metal Landscape Border Inch	Linear Foot
Spray-on Mulch Blanket	Acre

Spray-on Mulch Blanket	Pound
Bonded Fiber Matrix	Acre
Bonded fiber Matrix	Pound

Water, wood fiber, mixing and application for mulch tackifier will not be measured and paid for separately but shall be included in the work.

Adjusting or readjusting mulching equipment will not be paid for separately but shall be included in the work.

Payment for spray-on mulch blanket and bonded fiber matrix will be full compensation for all work and materials necessary to complete the item.

SECTION 216 SOIL RETENTION COVERING

DESCRIPTION

216.01 This work consists of furnishing, preparing, applying, placing, and securing soil retention blankets and turf reinforcement mats for erosion control on roadway slopes or channels as designated in the Contract.

MATERIALS

216.02 Soil retention covering shall be either a soil retention blanket or a turf reinforcement mat as specified in the Contract. It shall be one of the products listed on CDOT's Approved Products List and shall conform to the following:

- (a) *Soil Retention Blanket.* Soil retention blanket shall be composed of degradable natural fibers mechanically bound together between two slowly degrading synthetic or natural fiber nettings to form a continuous matrix and shall conform to the requirements of Tables 216-1 and 216-2. The blanket shall be of consistent thickness with the fiber evenly distributed over the entire area of the mat.

When specified, lightweight polypropylene netting shall be 1.5 pounds per 1000 square feet; heavyweight netting shall be 2.9 pounds per 1000 square feet.

When biodegradable blanket is specified, the thread shall be 100 percent biodegradable; polypropylene thread is not allowed.

When photodegradable netting is specified, the thread shall be polyester, biodegradable or photodegradable.

Blankets and nettings shall be non-toxic to vegetation and shall not inhibit germination of native seed mix as specified in the Contract. The materials shall not be toxic or injurious to humans. Class 1 blanket shall be an extended term blanket with a typical 24 month functional longevity. Class 2 blanket shall be a long term blanket with a typical 36 month functional longevity. The class of blanket is defined by the physical and performance characteristics.

1. *Soil Retention Blanket (Straw-Coconut).* Soil Retention Blanket (Straw-Coconut) shall be a machine produced mat consisting of 70 percent certified weed free agricultural straw or Colorado native grass straw and 30 percent coconut fiber. The blanket shall be either biodegradable or photodegradable. Blankets shall be sewn together on a maximum 2 inch centers.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a weave unattached at intersections which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom side shall be lightweight polypropylene. The top side shall be heavyweight or lightweight polypropylene.

2. *Soil Retention Blanket (Excelsior)*. Soil Retention Blanket (Excelsior) shall consist of a machine produced mat of 100 percent curled wood excelsior, 80 percent of which shall be 6 inches or longer in fiber length. It shall be either biodegradable or photodegradable. Blankets shall be sewn together at a maximum of 4 inch centers.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a weave unattached at intersections which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom side shall be lightweight polypropylene. The top side shall be heavyweight or lightweight polypropylene.

3. *Soil Retention Blanket (Coconut)*. Soil Retention Blanket (Coconut) shall be a machine produced mat consisting of 100 percent coconut fiber. It shall be either biodegradable or photodegradable.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a weave which is unattached at the intersections, and which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom and top side shall be heavyweight polypropylene.

**Table 216-1
PHYSICAL REQUIREMENTS
FOR SOIL RETENTION BLANKET –
PHOTODEGRADABLE OR BIODEGRADABLE BLANKETS**

Photo/Bio Degradable Class	Minimum Roll Width	Minimum Thickness ASTM D6525	Acceptable Matrix Fill Material	Min. Mass per Unit Area ASTM D6475	Size of Net Opening	
					Photo-degradable	Bio-degradable
1	6.5 ft.	250 mils	Straw/Coconut	8 oz/sy	Minimum: 0.50"x0.50"	Minimum: 0.50"x0.50"
					Maximum: 0.75"x0.75"	Maximum: 0.5"x1.0"
1	6.5 ft.	250 mils	Excelsior	8 oz/sy	Minimum: 0.50"x0.50"	NONE
					Maximum: 1.0"x2.0"	
2	6.5 ft.	200 mils	Coconut	8oz/sy	Minimum: 0.50" x0.5"	Minimum: 0.50"x0.50"
					Maximum: 0.75"x0.75"	Maximum: 0.5"x1.0"

**Table 216-2
PERFORMANCE REQUIREMENTS
FOR SOIL RETENTION BLANKET –
PHOTODEGRADABLE OR BIODEGRADABLE BLANKETS**

Photo/Bio Degradable Class	Slope Application "C" Factor ¹ ASTM D6459	Minimum Tensile Strength MD ² ASTM D6818
1	< 0.10 at 3:1	8.33 lb/in
2	< 0.10 at 3:1	10.42 lb/in
Notes: ¹ "C" Factor is calculated as ratio of soil loss from soil retention blanket protected slope (tested at specified or greater gradient, 3H:1V) to ratio of soil loss from unprotected (control) plot in large-scale testing. ² MD is for machine direction testing (along the length of the roll).		

Blankets shall be tested for physical properties and have published data from an independent testing facility.

Large scale testing of Slope Erosion Protection ("C" factor) shall be performed by an independent testing facility.

- (b) *Turf Reinforcement Mat.* Turf reinforcement mat (TRM) shall be a rolled mat consisting of UV stabilized, corrosion resistant, non-degradable synthetic fibers, filaments, or nets processed into a permanent three-dimensional matrix of the thickness specified in Tables 216-3 and 216-4. TRMs shall provide sufficient thickness, strength and void space to permit soil filling and retention, and the development of vegetation within the matrix. The class of TRM is defined by the physical and performance characteristics as specified in the following tables.

Table 216-3
PHYSICAL REQUIREMENTS¹
FOR TURF REINFORCEMENT MAT

Product Class	Minimum Roll Width	Minimum Thickness ASTM D6525	Acceptable Matrix Fill Material ²	Size of Net Opening ²
1	6.5 ft.	250 mils	Excelsior, Straw/Coconut, Coconut, or Polymer fibers	Minimum: 0.50"x0.50"
				Maximum: 0.75"x0.75"
2	6.5 ft.	250 mils	100% UV Stabilized Synthetic or Coconut Fibers	Maximum 0.50"x 0.50"
3	6.5 ft.	250 mils	100% UV Stabilized Synthetic Fibers	Maximum 0.50"x 0.50"

Notes:

¹ For TRMs containing degradable components, all property values shall be obtained on the non-degradable portion of the matting alone.

² For TRMs with nets and fill material. Netted TRMs shall be sewn together on a maximum 2 inch centers.

**Table 216-4
PERFORMANCE REQUIREMENTS
FOR TURF REINFORCEMENT MAT**

Product Class	Tensile Strength MD ASTM D6818	Minimum UV Stability at 500 Hours ASTM D4355	Minimum Permissible Shear Stress¹ (Unvegetated) ASTM D6460
1	125 lbs/ft	80%	1.8 lbs/sf
2	150 lbs/ft	80%	2.5 lbs/sf
3	175 lbs/ft	80%	3.1 lbs/sf

Notes:

¹ Permissible shear stress is the minimum shear stress that a product must be able to sustain when placed on a channel un-vegetated without physical damage or excess soil loss. Failure is defined as ½ inch of soil loss during a 30 minute flow event in large scale testing.

TRMs shall be tested for physical properties and have published data from an independent testing facility.

Large scale testing of Permissible Shear Stress shall be performed by an independent testing facility.

- (c) *Staples.* Staples shall be made of ductile steel wire, 0.165 inches in diameter, 8 inches long and have a 1 inch crown. “T” shaped staples will not be permitted.

A sample of the staples and a Certificate of Compliance (COC) including the manufacturer's product data showing that the product meets the Contract requirements shall be submitted for approval at the Environmental Pre-construction Conference. Installation of the blanket will not begin until approval has been received from the Engineer in writing.

- (d) *Earth Anchors.* The mechanical earth anchor shall be composed of a load bearing face plate, a tendon rod or wire rope, and a locking head or percussion anchor. Each element of the anchor shall be composed of corrosion resistant materials. The anchor and wire rope shall have a breaking strength of 9,500 pounds utilizing standard tensile testing and ASTM A1007-07. The anchor shall have a minimum 1,000 pounds ultimate holding strength in normal soil and a manufacturer's recommended minimum driven depth of 3.5 feet.

A sample of the anchors and a Certificate of Compliance (COC) including the manufacturer's product data showing that the product meets the Contract requirements shall be submitted for approval at the Environmental Pre-construction Conference. Installation of the blanket will not begin until approval has been received from the Engineer in writing.

CONSTRUCTION REQUIREMENTS

216.03 The Contractor shall install soil retention coverings in accordance with Standard Plan M-216-1 and the following procedure:

- (1) Prepare soil in accordance with subsection 212.06 (a).
- (2) Apply topsoil or soil conditioning as directed in the Contract to prepare seed bed.
- (3) Place seed in accordance with the Contract.
- (4) Unroll the covering parallel to the primary direction of flow.
- (5) Ensure that the covering maintains direct contact with the soil surface over the entirety of the installation area.
- (6) Do not stretch the material or allow it to bridge over surface inconsistencies.
- (7) Staple the covering to the soil such that each staple is flush with the underlying soil.
- (8) Ensure that staples or earth anchors are installed full depth to resist pull out. No bent over staples will be allowed. Install anchor trenches, seams, and terminal ends as shown on the plans.

The Contractor shall install TRMs using the following procedure:

- (1) Place 3 inches of topsoil or soil amended with soil conditioning.
- (2) Apply half of the specified seed at the broadcast rate and rake it into the soil.
- (3) Install TRM.
- (4) Place 1 inch of topsoil or soil amended with soil conditioning into the matrix to fill the product thickness.
- (5) Apply the remaining half of the specified seed at the broadcast rate and rake it into the soil.
- (6) Install soil retention blanket (Photodegradable or Biodegradable Class 1) over the seeded area and TRM.

When applicable, the covering shall be unrolled with the heavyweight polypropylene netting on top and the lightweight polypropylene netting in contact with the soil.

216.04 Slope Application. Soil retention coverings shall be installed on slopes as follows:

The upslope end shall be buried in a trench 3 feet beyond the crest of the slope if possible. Trench depth shall be a minimum of 6 inches unless required by the manufacture to be deeper. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over trench and secured with staples or earth anchors at 1 foot on center.

There shall be an overlap wherever one roll of fabric ends and another begins with the uphill covering placed on top of the downhill covering. Staples shall be installed in the overlap.

There shall be an overlap wherever two widths of covering are applied side by side. Staples shall be installed in the overlap.

Staple checks shall be installed on the slope length at a maximum of every 35 feet. Each staple check shall consist of two rows of staggered staples.

The down slope end shall be buried in a trench 3 feet beyond the toe of slope. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over the trench and secured with staples or earth anchors. If a slope runs into State waters or cannot be extended 3 feet beyond the toe of slope, the end of covering shall be secured using a staple check as described above.

Coverings shall be securely fastened to the soil by installing staples or earth anchors at the minimum rate shown on the Standard Plan M-216-1. Staple or earth anchor spacing shall be reduced where required due to soil type or steepness of slope.

216.05 Channel Application. Soil retention coverings shall be installed as follows on a channel application:

Coverings shall be anchored at the beginning and end of the channel across its entire width by burying the end in a trench. Trench depth shall be a minimum of 6 inches, unless a larger depth is specified by the manufacturer's recommendations. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil and compacted by foot tamping, and seeded. Fabric shall be brought back over the trench and stapled.

Covering shall be unrolled in the direction of flow and placed in the bottom of the channel first. Seams shall not be placed down the center of the channel bottom or in areas of concentrated flows when placing rolls side by side.

There shall be an overlap wherever one roll of covering ends and another begins with the upstream covering placed on top of the downstream covering. Two rows of staggered staples shall be placed.

There shall be an overlap wherever two widths of covering are applied side by side. Staples shall be placed in the overlap.

The covering shall have a channel check slot every 30 feet along the gradient of the flowline. Check slots shall extend the entire width of the channel. The covering shall be buried in a trench. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over the trench and continued down the channel.

Coverings shall be securely fastened to the soil by installing staples at the minimum rate shown on the plans. Staple spacing shall be reduced where needed due to soil type or high flows.

216.06 Maintenance. The Contractor shall maintain the soil retention coverings until all work on the Contract has been completed and accepted. Maintenance shall consist of the repair of areas where damage is due to the Contractor's operations. Maintenance shall be performed at the Contractor's expense. Repair of those areas damaged by causes not attributable to the Contractor's operations shall be repaired by the Contractor and will be paid for at the contract unit price. Areas shall be repaired to reestablish the condition and grade of the soil and seeding prior to application of the covering.

METHOD OF MEASUREMENT

216.07 Soil retention coverings, including staples, complete in place and accepted, will be measured by the square yard of finished surface, excluding overlap, which is installed and accepted. Earth anchors will be measured by the actual number of earth anchors complete in place and accepted.

BASIS OF PAYMENT

216.08 The accepted quantities of soil retention coverings will be paid for at the contract unit price per square yard. The accepted quantities of earth anchors will be paid for at the contract unit price for each installed.

Payment will be made under:

Pay Item	Pay Unit
Soil Retention Blanket (_) (Photodegradable Class _)	Square Yard
Soil Retention Blanket (_) (Biodegradable Class _)	Square Yard
Turf Reinforcement Mat (Class _)	Square Yard
Earth Anchors	Each

Preparation of seedbed, fertilizing, and seeding will be measured and paid for in accordance with Section 212.

Placing and preparation of seedbed, fertilizing, and seeding of soil under the TRM layer will be measured and paid for in accordance with Section 212.

Topsoil or amended soil and seed placed on the TRM will be measured and paid for in accordance with Sections 207 and 212.

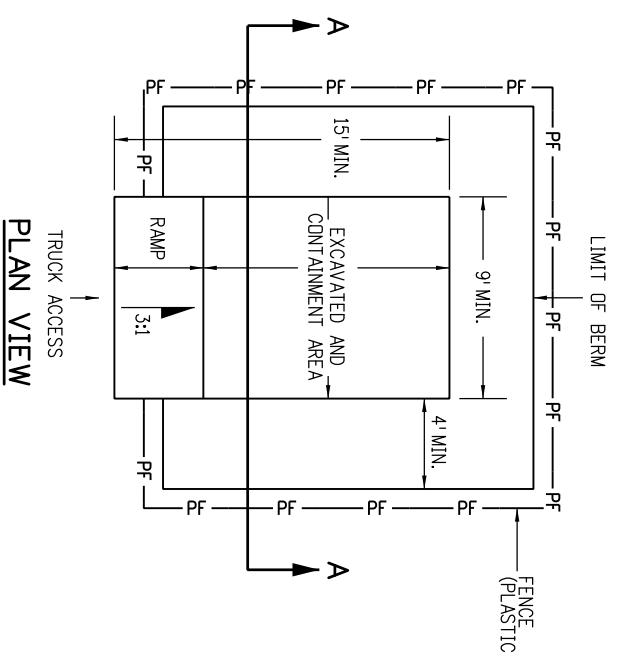
Staples will not be measured and paid for separately, but shall be included in the work.



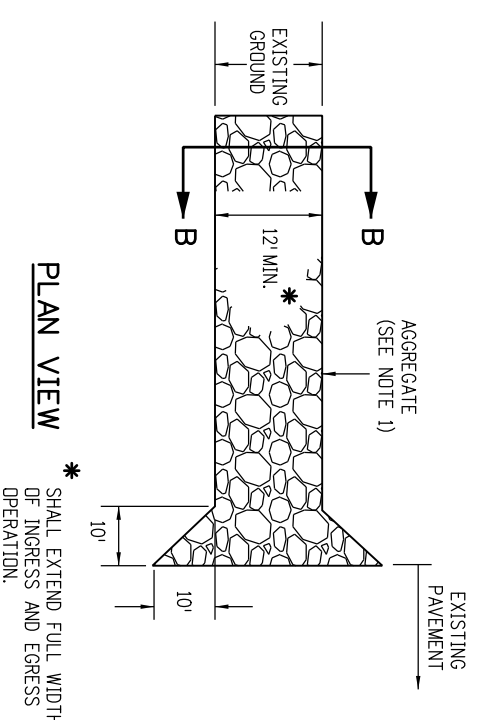
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Transportation

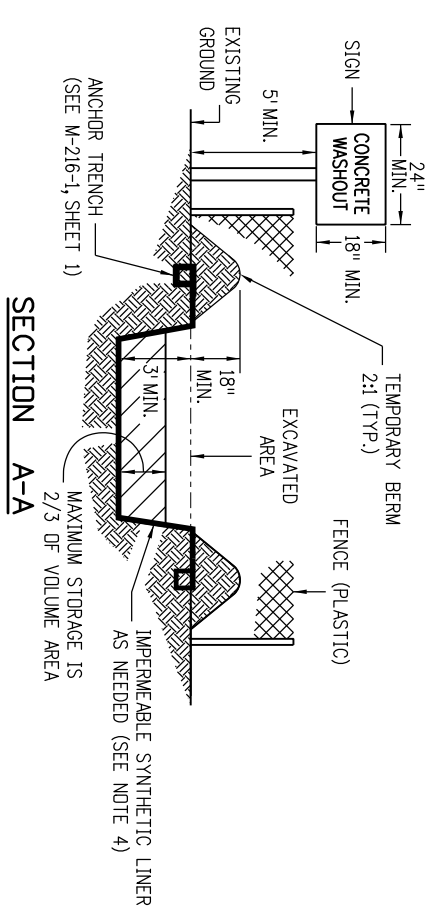
M & S Standards



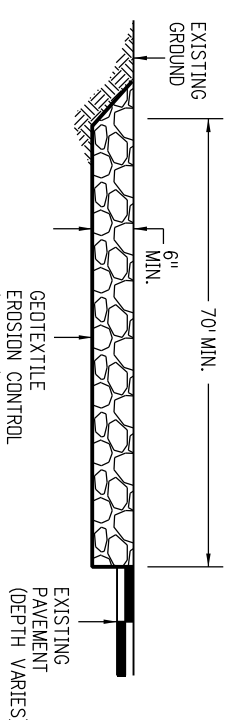
PLAN VIEW



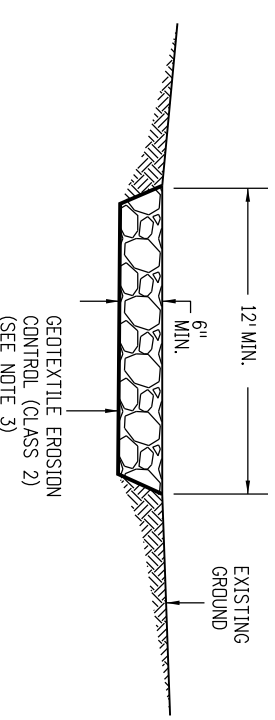
PLAN VIEW



SECTION A-A



ELEVATION SECTION



SECTION B-B

- NOTES:
1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.
 2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.
 3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, IT SHALL BE LINED WITH AN IMPERMEABLE SYNTHETIC LINER THAT IS DESIGNED TO CONTROL SEEPAGE AT A MAXIMUM RATE OF 6 TO 10 CENTIMETERS PER SECOND.
 5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

CONCRETE WASHOUT STRUCTURE

- NOTES:
1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (K).
 2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.
 4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

VEHICLE TRACKING PAD

Computer File Information

Creation Date: 07/04/12	Initials: JBK
Last Modification Date: 03/29/16	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080101011.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
07/16/15	Updated the two Subretention Bracket detail sheets. They are now standard M-216-1 Subretention Covering.
03/29/16	Minor revisions to some dimensions and General Notes.

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TEMPORARY EROSION CONTROL

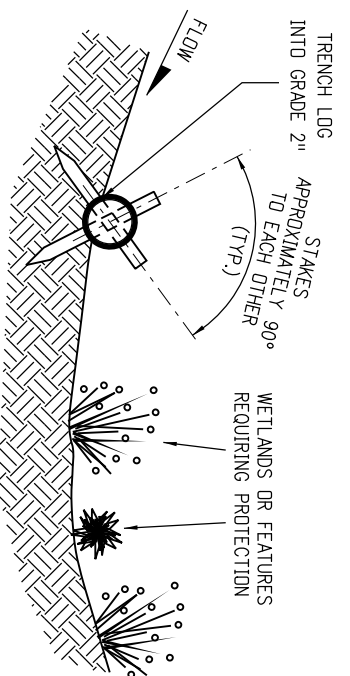
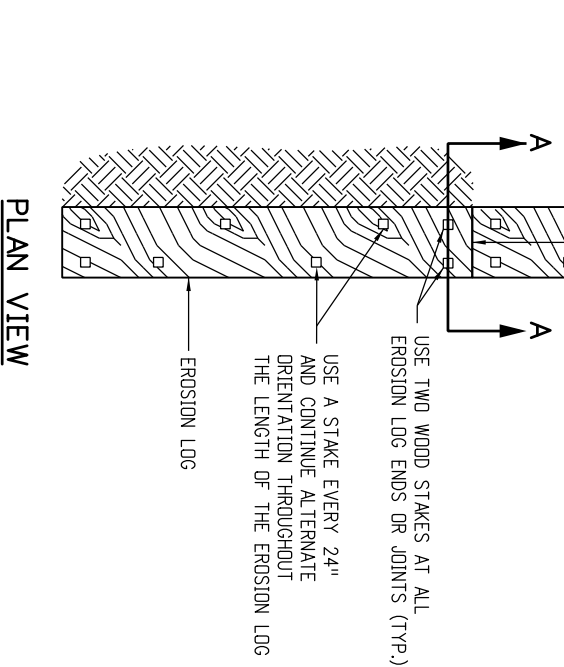
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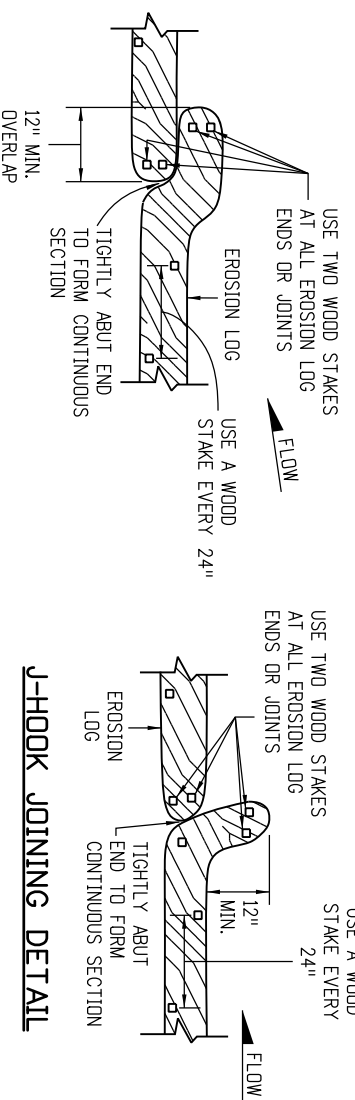
M-208-1

Sheet No. 1 of 11

EROSION LOG ENDS SHALL BE TIGHTLY ABUTTING FOR JOINING LOGS IN OTHER SITUATIONS, SEE THE JOINING EROSION LOG APPLICATIONS.

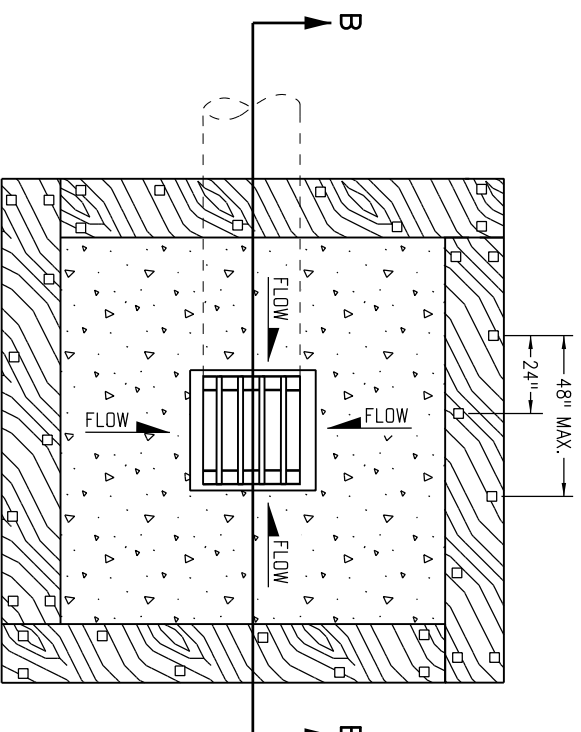


**SECTION A-A
TYPICAL STAKE INSTALLATION**

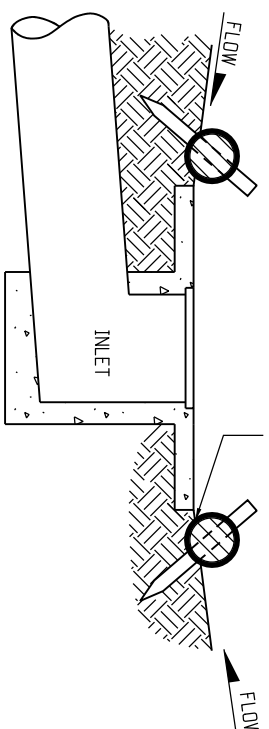


OVERLAP JOINING DETAIL
JOINING EROSION LOG APPLICATIONS

EROSION LOGS PAY ITEMS NUMBER	DESCRIPTION
208-00012	TYPE 1 (9")
208-00002	TYPE 1 (12")
208-00013	TYPE 1 (20")
208-00007	TYPE 2 (8")
208-00008	TYPE 2 (12")
208-00009	TYPE 2 (18")



PLAN VIEW



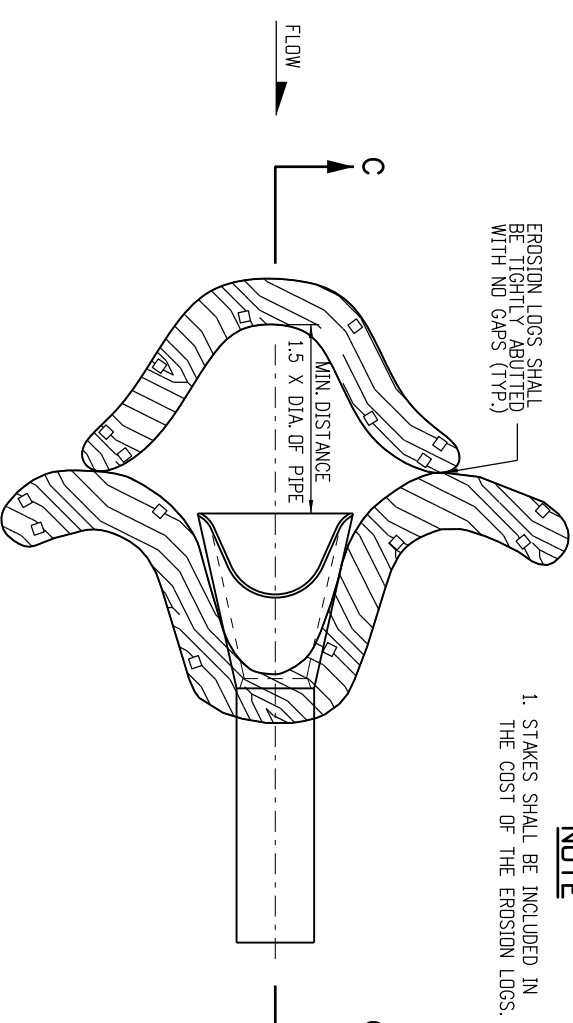
SECTION B-B

NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

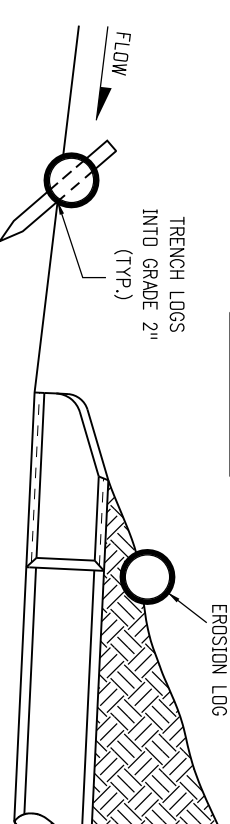
EROSION LOG FILTER AT DROP INLET

EROSION LOG APPLICATIONS

EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS (TYP.)

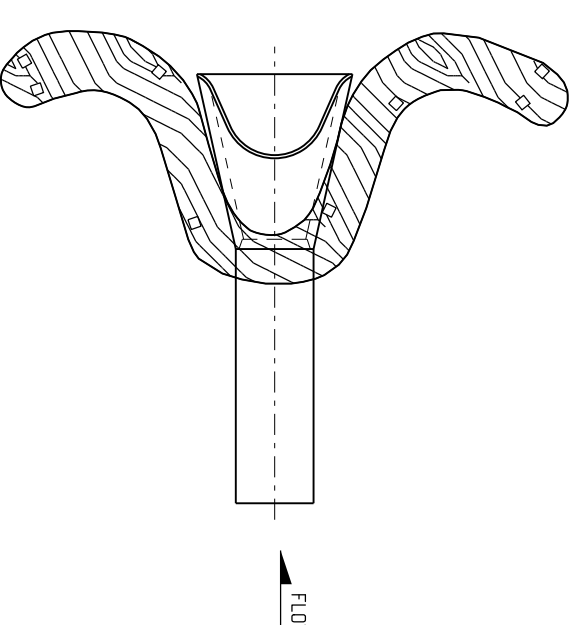


PLAN VIEW



**SECTION C-C
(NOT ALL LOGS SHOWN)**

EROSION LOG CULVERT INLET PROTECTION



EROSION LOG CULVERT OUTLET PROTECTION

Computer File Information

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Sheet Revisions

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03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item labels.

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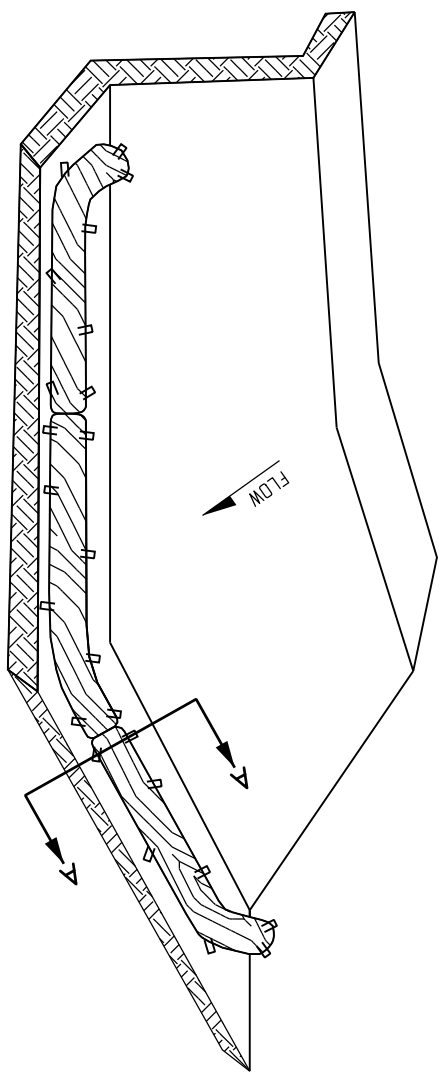
EROSION CONTROL

STANDARD PLAN NO.

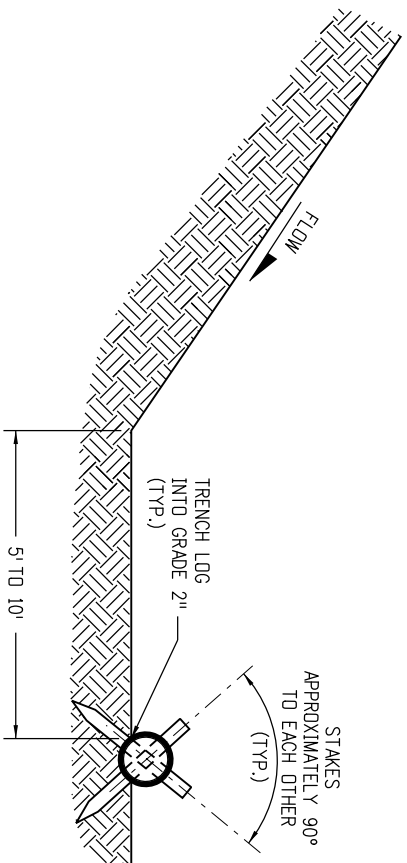
M-208-1

Sheet No. 2 of 11

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ISOMETRIC VIEW



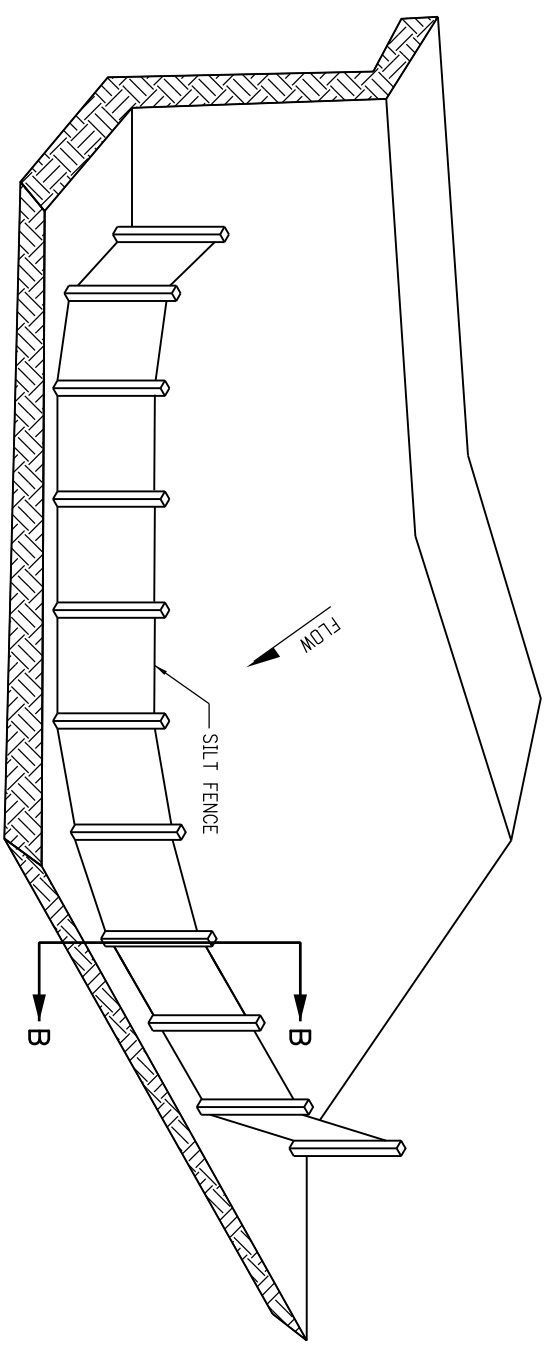
SECTION A-A

- NOTES:**
1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
 2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
 3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

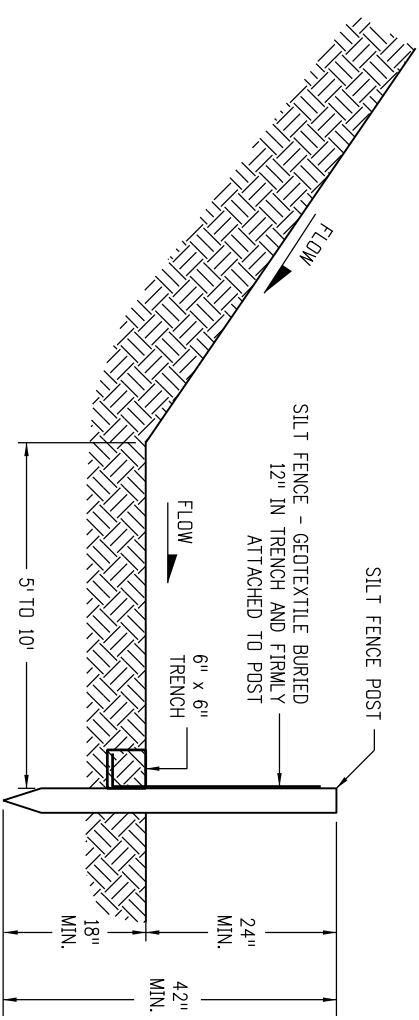
EROSION LOGS PAY ITEMS	NUMBER	DESCRIPTION
	208-00012	TYPE 1 (9")
	208-00002	TYPE 1 (12")
	208-00013	TYPE 1 (20")
	208-00007	TYPE 2 (8")
	208-00008	TYPE 2 (12")
	208-00009	TYPE 2 (18")

EROSION LOG TOE OF SLOPE PROTECTION

- NOTES**
1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET; MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1.
 2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
 3. SILT FENCE SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
 4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



ISOMETRIC VIEW



SECTION B-B

SILT FENCE TOE OF SLOPE PROTECTION

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

TOE OF SLOPE PROTECTION APPLICATIONS

Computer File Information

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Drawing File Name: 2080103011.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale
	Units: English

Sheet Revisions

Date:	Comments
03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item labels.
(R-X)	
(R-X)	
(R-X)	

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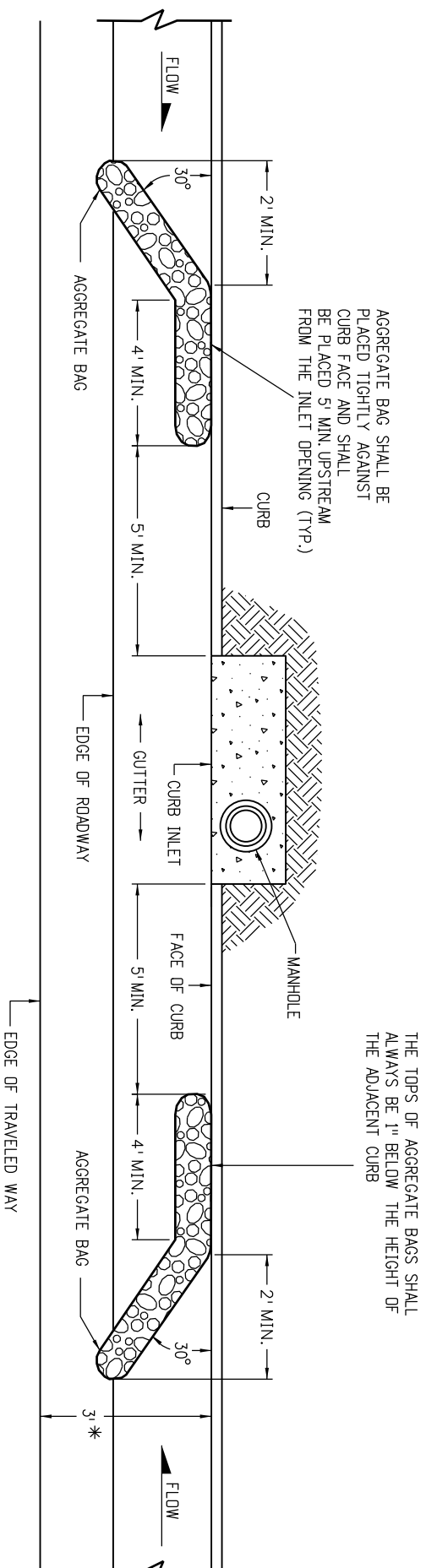
TEMPORARY EROSION CONTROL

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STANDARD PLAN NO.

M-208-1

Sheet No. 3 of 11



AGGREGATE BAG SHALL BE PLACED TIGHTLY AGAINST CURB FACE AND SHALL BE PLACED 5' MIN. UPSTREAM FROM THE INLET OPENING (TYP.)

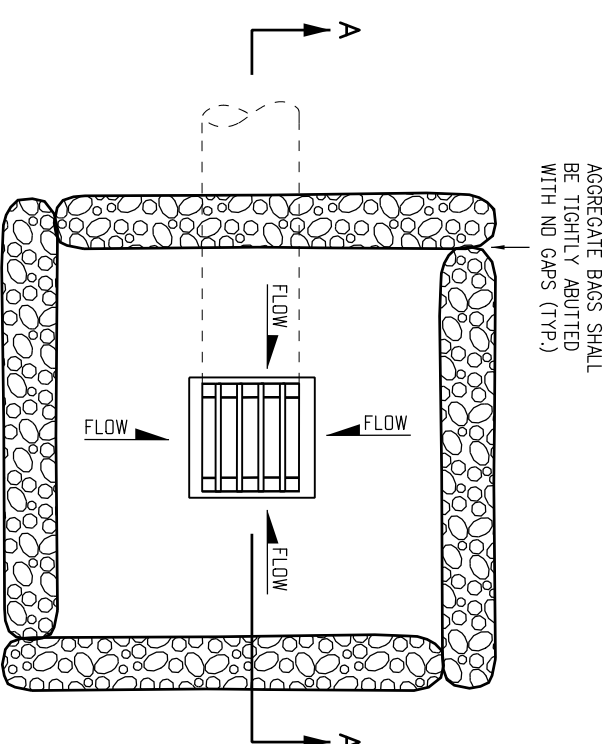
THE TOPS OF AGGREGATE BAGS SHALL ALWAYS BE 1" BELOW THE HEIGHT OF THE ADJACENT CURB

PLAN VIEW

* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB.

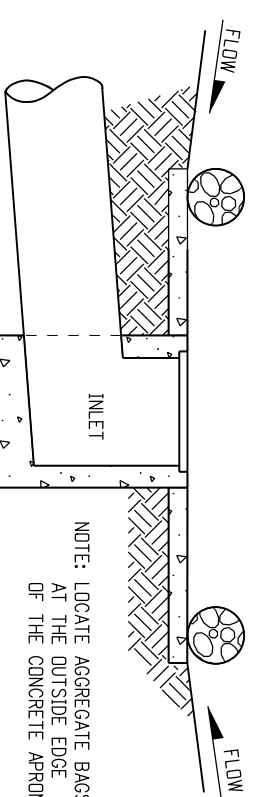
LENGTH OF INLET (L)	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0' - 5'	1
6' - 10'	2
L > 10'	3

AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)



AGGREGATE BAGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS (TYP.)

PLAN VIEW



NOTE: LOCATE AGGREGATE BAGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

SECTION A-A

AGGREGATE BAGS AT DROP INLET

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

AGGREGATE BAG APPLICATIONS

Computer File Information

Creation Date: 07/04/12 Initials: JBK
 Last Modification Date: 03/29/16 Initials: LTA
 Full Path: www.coloradodot.info/business/designsupport
 Drawing File Name: 2080104011.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
03/29/16	Added some dimensions and Note.
(R-X)	
(R-X)	
(R-X)	

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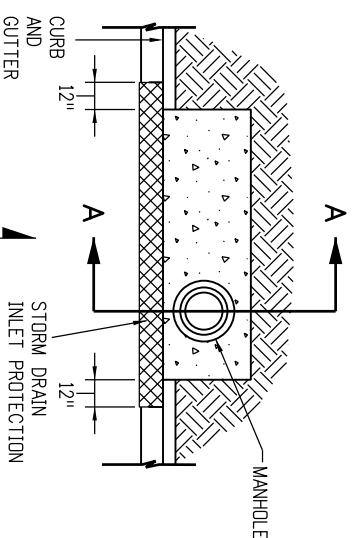
EROSION CONTROL

STANDARD PLAN NO.

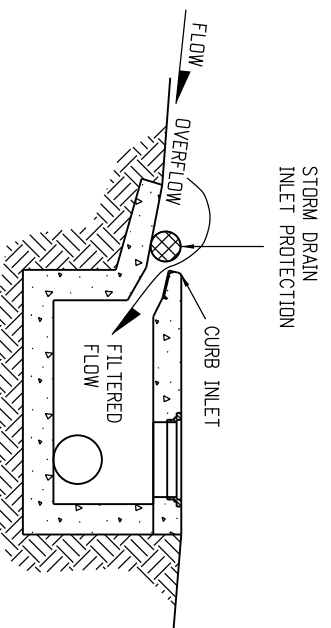
M-208-1

Sheet No. 4 of 11

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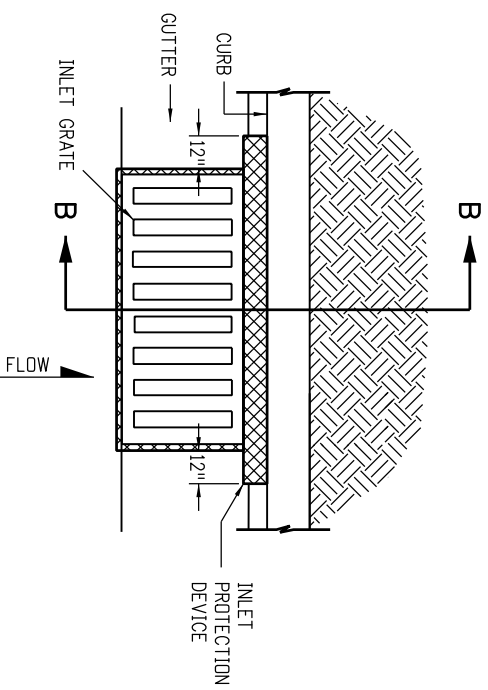
PLAN VIEW



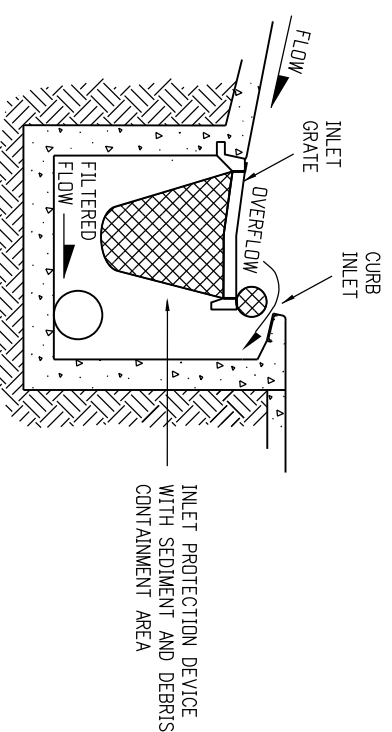
SECTION A-A

STORM DRAIN INLET PROTECTION (TYPE I)

- NOTES**
1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
 2. THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE I) (EACH) IS 208-00051.
 3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.

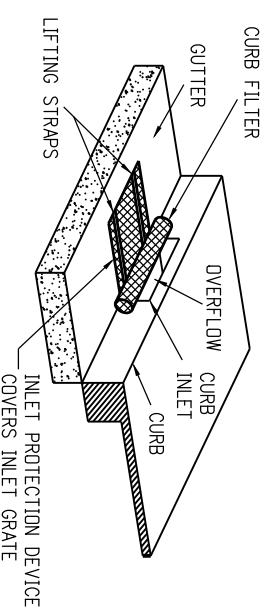


PLAN VIEW



SECTION B-B

STORM DRAIN INLET PROTECTION (TYPE II)

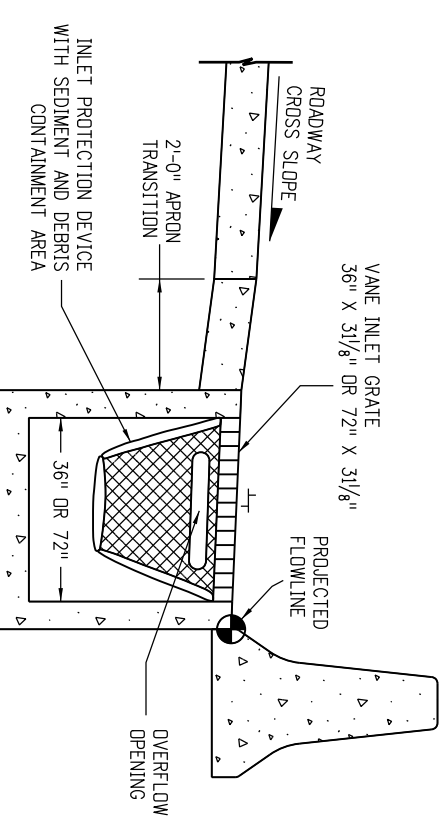


ISOMETRIC VIEW

OPTION B

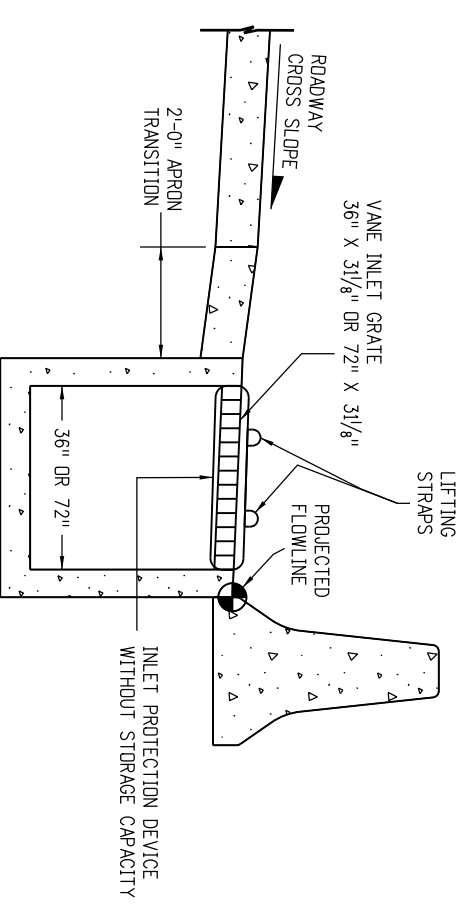
STORM DRAIN INLET PROTECTION (TYPE II)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE II) (EACH) IS 208-00052.



OPTION A

STORM DRAIN INLET PROTECTION (TYPE III)



OPTION B

STORM DRAIN INLET PROTECTION (TYPE III)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

STORM DRAIN INLET PROTECTION TYPES

Computer File Information

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CAD Ver.: MicroStation V8	Scale: Not to Scale
	Units: English

Sheet Revisions

Date:	Comments
03/29/16	Added Note 3.

Colorado Department of Transportation

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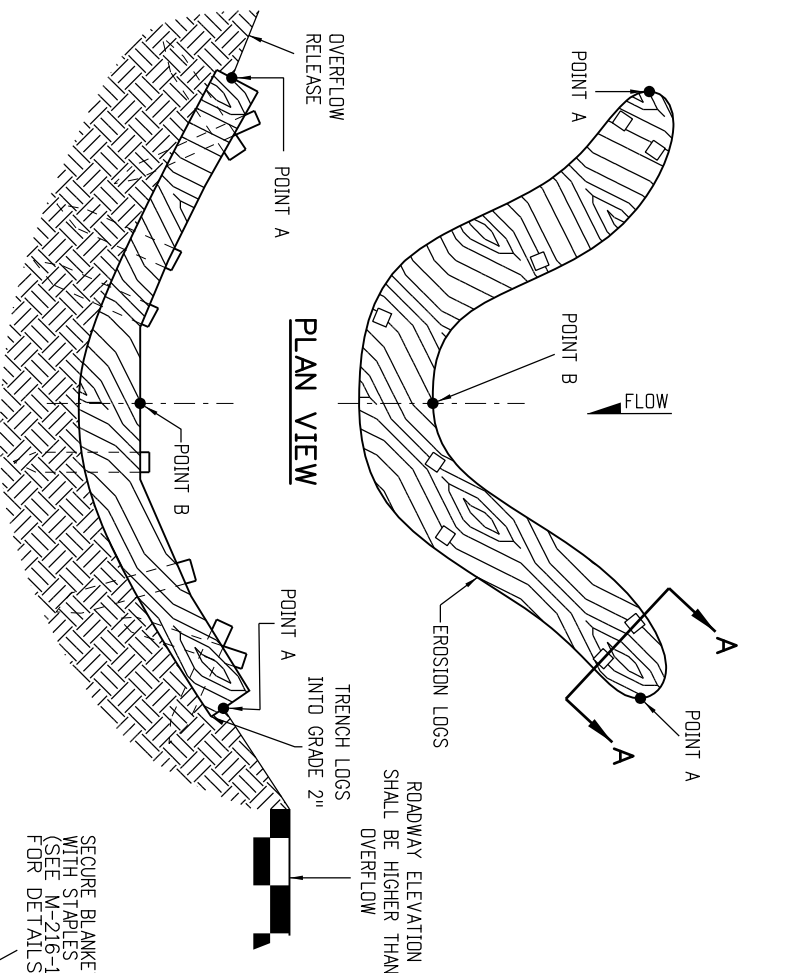
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

STANDARD PLAN NO. M-208-1

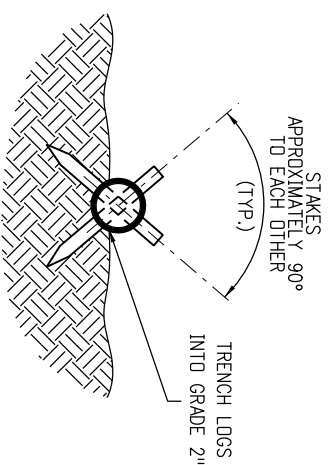
Issued By: Project Development Branch on July 4, 2012

Sheet No. 5 of 11



ELEVATION

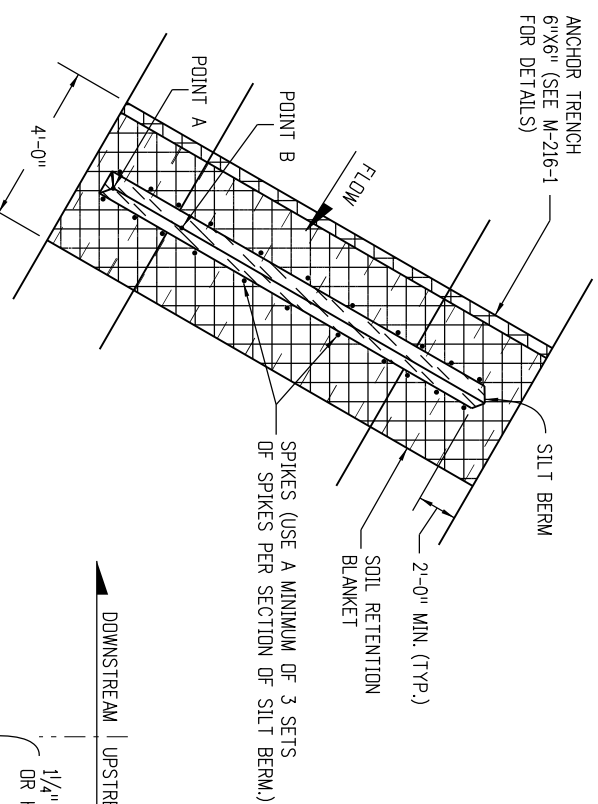
NOTE: POINTS "A" SHALL BE A MINIMUM 4" HIGHER THAN POINT "B". ANCHOR TRENCH 6"x6" (SEE M-216-1 FOR DETAILS)



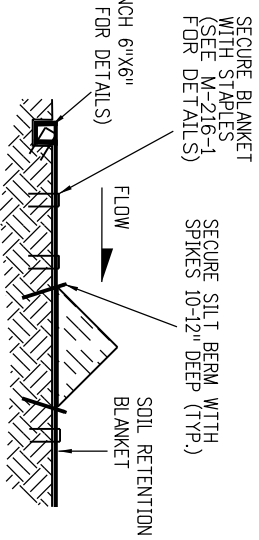
SECTION A-A

- NOTES
1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
 2. STAKES SHALL BE EMBEDDED TO A MINIMUM DEPTH OF 12 INCHES.
 3. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
 4. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHALL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

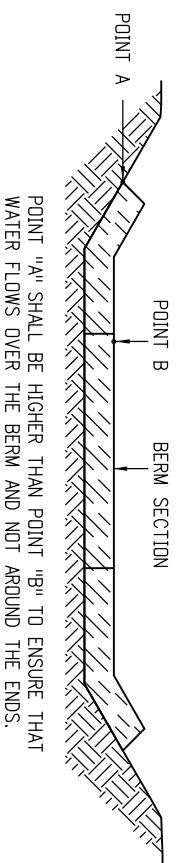
EROSION LOG INSTALLATION



PLAN VIEW



SILT BERM (1) SECTION VIEW

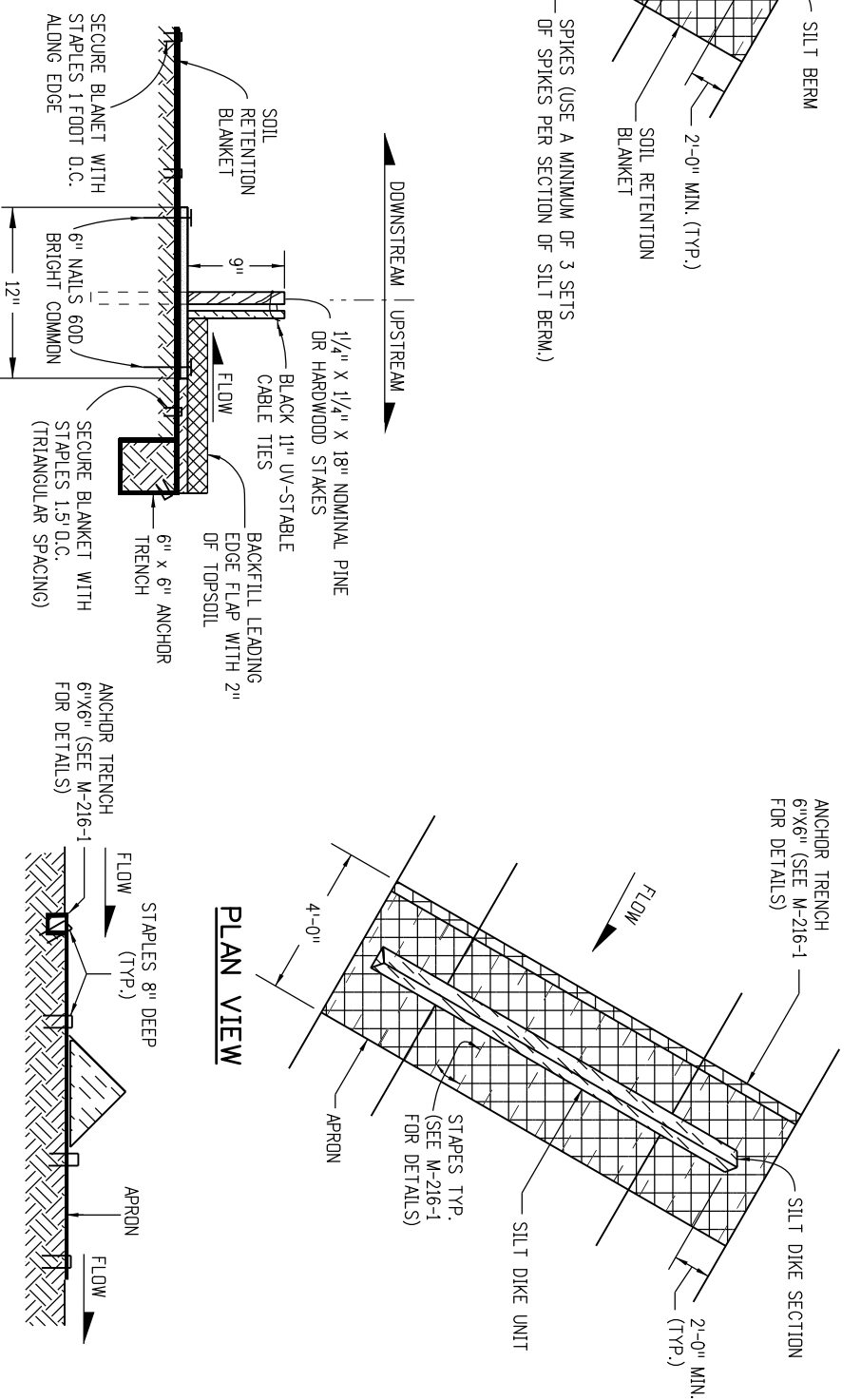


FRONT VIEW

- NOTES
1. ANCHOR SOIL RETENTION BLANKET INTO TRENCH WITH 8 INCHES MIN. STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
 2. FILL AND COMPACT TRENCH.
 3. SECTIONS OF THE SILT BERM SHALL BE OVERLAPPED WITH NO GAPS.
 4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
 5. SOIL RETENTION BLANKET SHALL ALWAYS BE REQUIRED.
 6. THE PAY ITEM NUMBER FOR SILT BERM (LF) IS 208-00004.

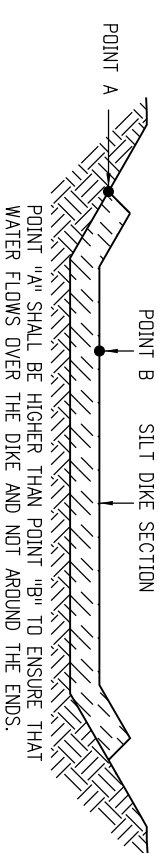
SILT BERM INSTALLATION

DRAINAGE DITCH APPLICATIONS



PLAN VIEW

TYPICAL SECTION



FRONT VIEW

- NOTES
1. ANCHOR APRON INTO TRENCH WITH 8 INCH MINIMUM STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
 2. FILL AND COMPACT TRENCH.
 3. THE APRON SHALL EXTEND A MINIMUM OF 2 FEET BEYOND EACH SIDE OF THE TRIANGLE.
 4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
 5. THE PAY ITEM NUMBER FOR SILT DIKE (LF) IS 208-00001.

SILT DIKE INSTALLATION

Computer File Information

Creation Date: 07/04/12	Initials: JBK
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Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080106011.dgn	
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	Units: English

Sheet Revisions

Date:	Comments
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(R-X)	

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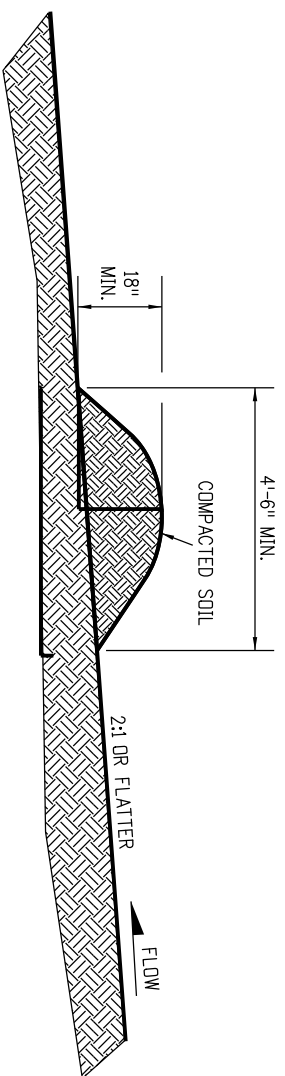
Division of Project Support **JBK/LTA**

TEMPORARY EROSION CONTROL

STANDARD PLAN NO.

M-208-1

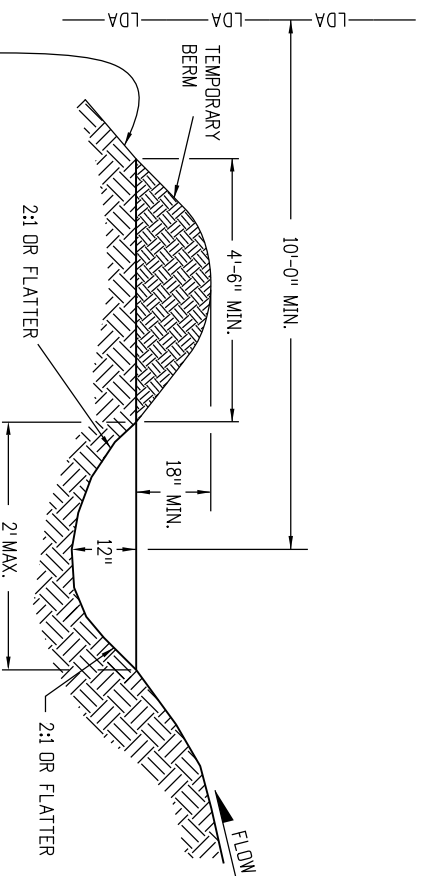
Sheet No. 6 of 11



NOTES:

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4'-6" FEET.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF MATERIAL COMPACTED WITH AT LEAST A MINIMUM OF ONE WHEEL ROLLED COMPACTION.
5. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.
6. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.

TEMPORARY BERM



FOR BERMS TALLER THAN 2:1, INSTALL TOE OF SLOPE BMP. SEE SHEET 3 OF 11 FOR DETAILS.

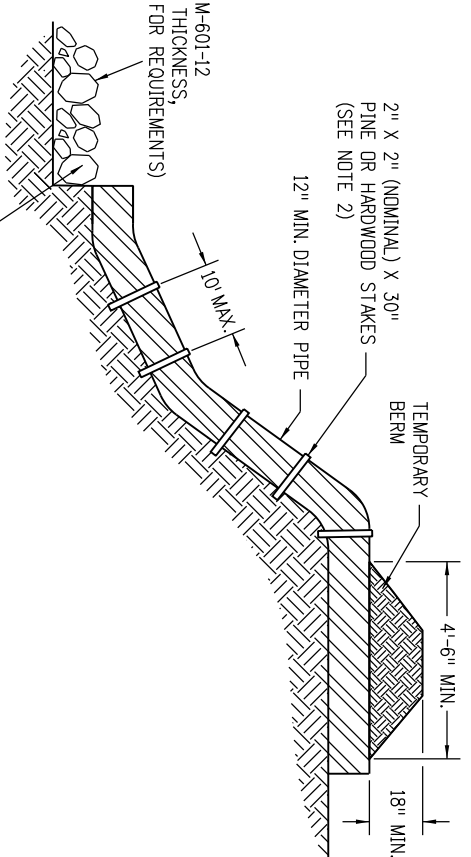
NOTES

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

TEMPORARY DIVERSION

* RIPRAP OUTLET PROTECTION (SEE M-601-12 FOR MIN. HORIZONTAL LAYOUT AND THICKNESS, AND SPECIFICATION 506 "RIPRAP" FOR REQUIREMENTS)

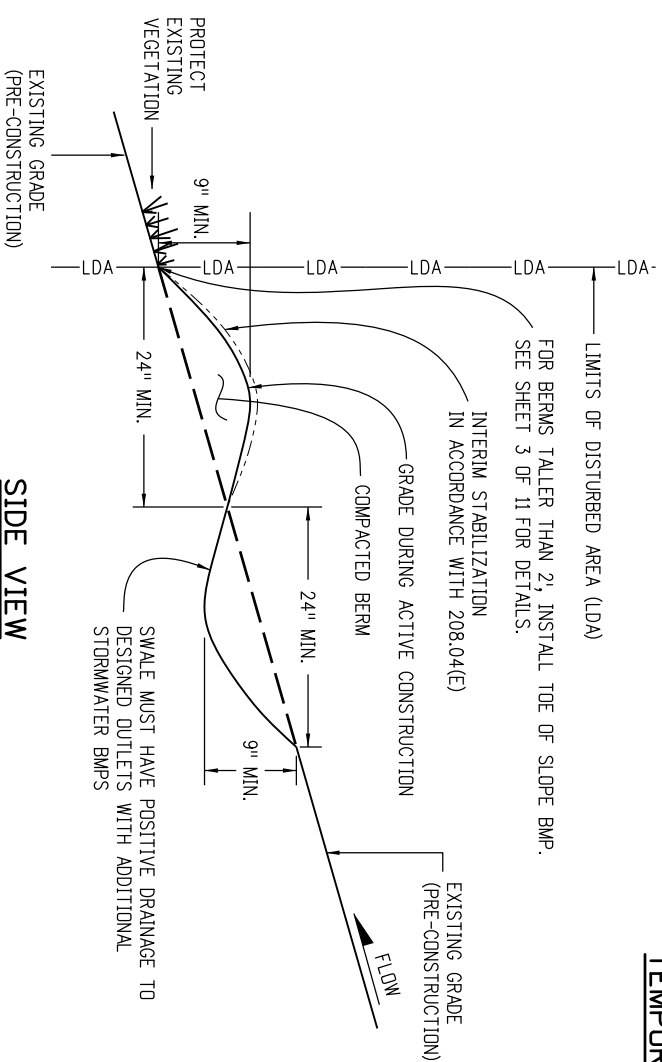
* RIPRAP SIZE $D_{50} = 6$ IN. OR AS SHOWN ON THE PLANS.



NOTES

1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GAUGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

TEMPORARY SLOPE DRAINS



SIDE VIEW

TEMPORARY BERM (AT EDGE OF DISTURBANCE)

- NOTES:**
1. BERMS CAN ONLY BE USED IF CONDITIONS ALLOW UNINTERRUPTED POSITIVE GRADE (MAXIMUM GRADIENT 3% TO AN OUTLET PROTECTED WITH ADDITIONAL BMPs).
 2. MAXIMUM DRAINAGE AREA FOR EACH OUTLET FROM THE SWALE SHALL BE LIMITED TO 2 ACRES.
 3. CONTRACTOR SHALL SALVAGE TOPSOIL AND PLACE AFTER BERM IS REMOVED FOR FINAL SEEDING OF ALL DISTURBED AREAS.
 4. ALL ACTIVITIES REQUIRED TO ACCOMPLISH TEMPORARY BERM (EXCLUDING SURFACE MULCHING) SHALL BE INCLUDED IN THE COST OF WORK AND WILL NOT BE PAID FOR SEPARATELY.
 5. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
 6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

GRADING APPLICATIONS

Computer File Information

Creation Date: 07/04/12	Initials: JBK
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Division of Project Support

JBK/LTA

TEMPORARY

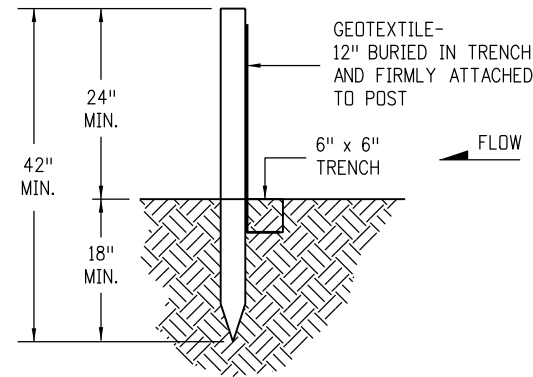
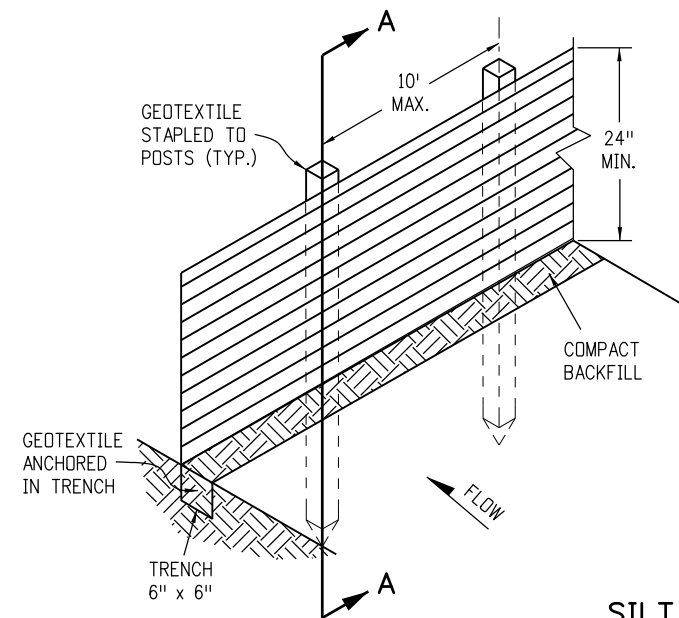
EROSION CONTROL

STANDARD PLAN NO.

M-208-1

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Sheet No. 7 of 11

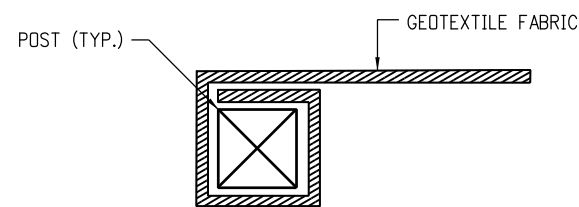


SECTION A-A

SILT FENCE

NOTES

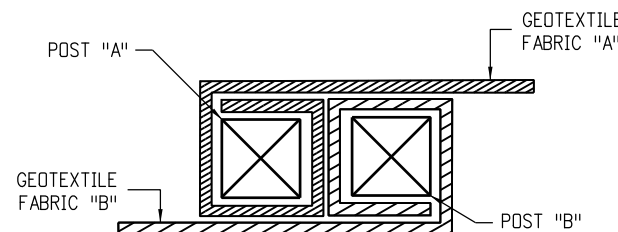
1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1" INCH LONG
2. WOOD POST SHALL BE 1/2" X 1/2" NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION ±6"). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18").



END SECTION DETAIL (PLAN VIEW)

NOTE

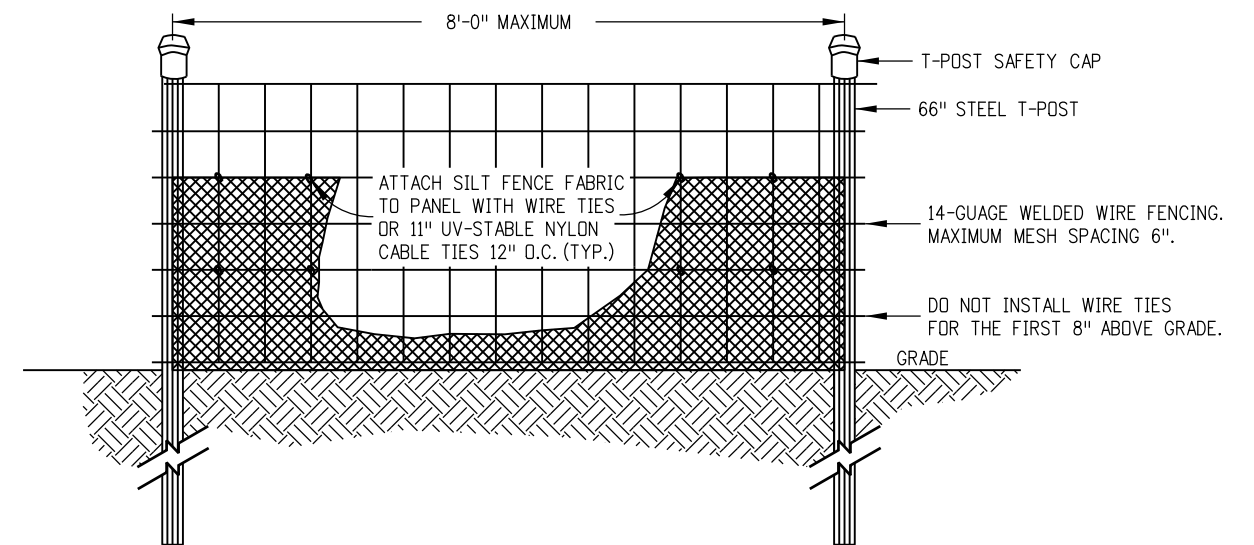
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



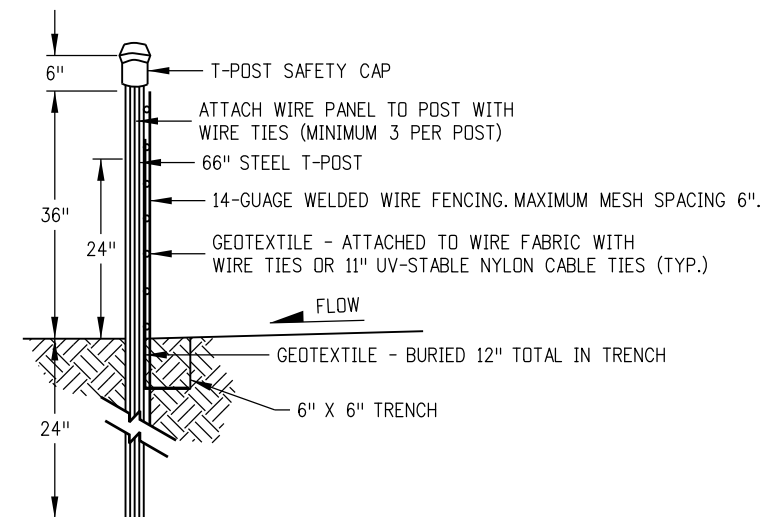
JOINING SECTION DETAIL (PLAN VIEW)

NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



ELEVATION VIEW



SIDE VIEW

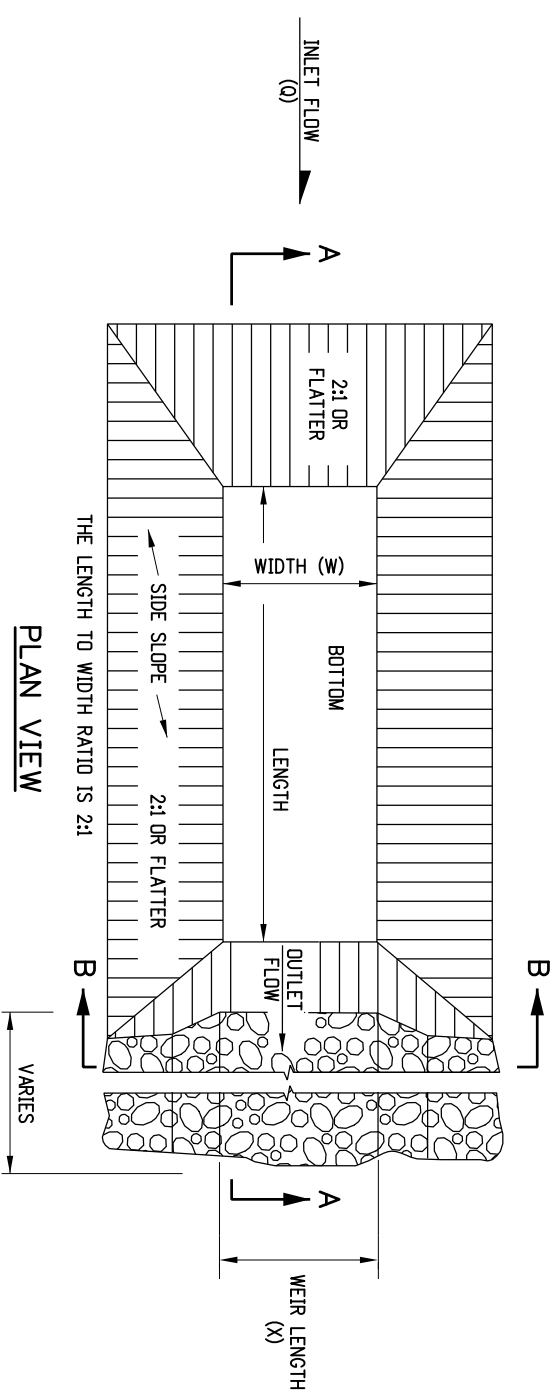
NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
3. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

SILT FENCE (REINFORCED)

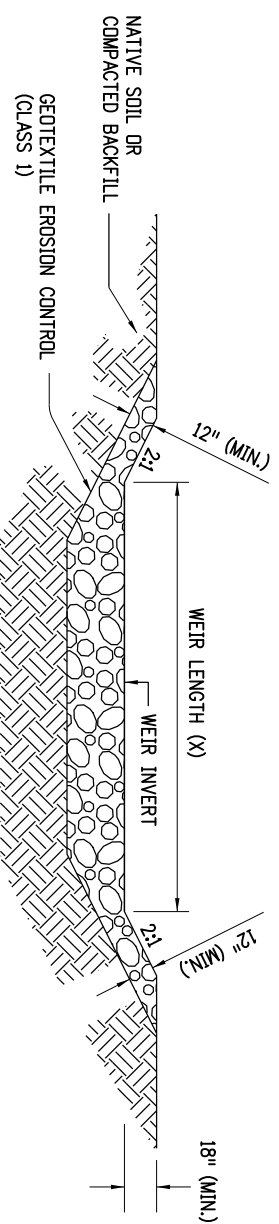
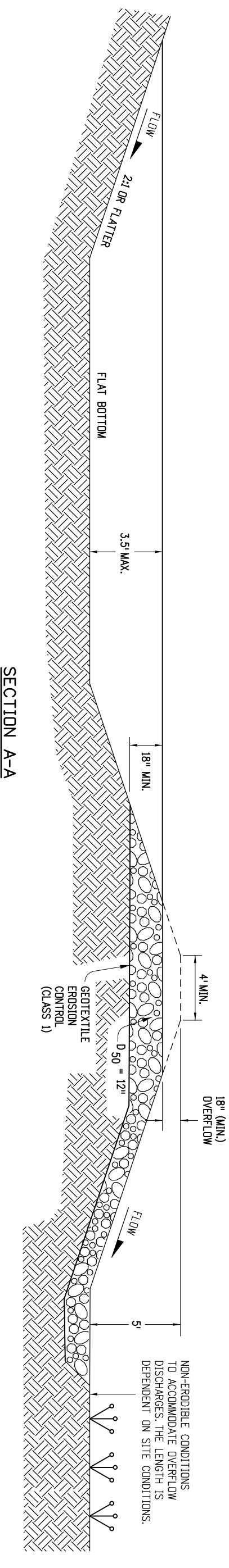
SILT FENCE APPLICATIONS

Computer File Information Creation Date: 07/04/12 Initials: JBK Last Modification Date: 03/29/16 Initials: LTA Full Path: www.coloradodot.info/business/designsupport Drawing File Name: 2080108011.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		Sheet Revisions <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>03/29/16</td> <td>Minor revisions to some dimensions and Notes.</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Date:	Comments	03/29/16	Minor revisions to some dimensions and Notes.							Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA		TEMPORARY EROSION CONTROL Issued By: Project Development Branch on July 4, 2012		STANDARD PLAN NO. M-208-1 Sheet No. 8 of 11	
Date:	Comments																		
03/29/16	Minor revisions to some dimensions and Notes.																		



NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIBLE.
9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.



WEIR LENGTH TABLE

DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

SEDIMENT TRAP

Computer File Information

Creation Date: 07/04/12	Initials: JBK
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(R-X)	
(R-X)	

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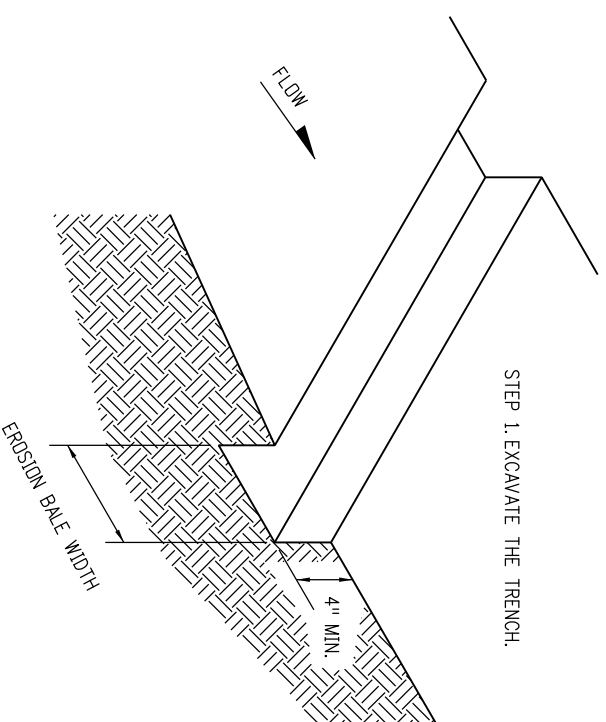
TEMPORARY EROSION CONTROL

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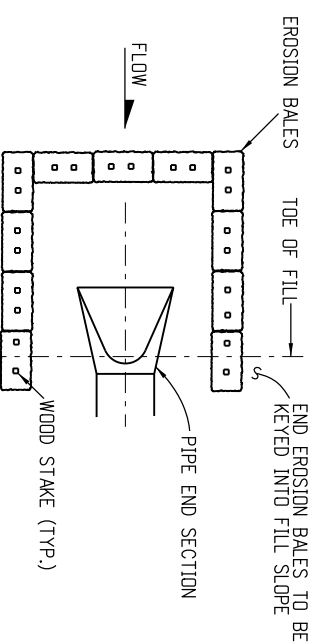
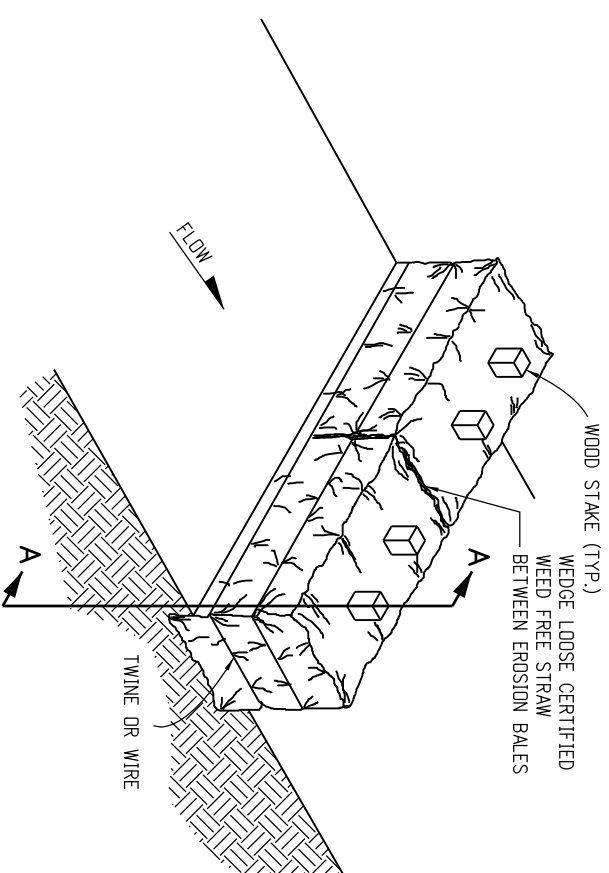
STANDARD PLAN NO.

M-208-1

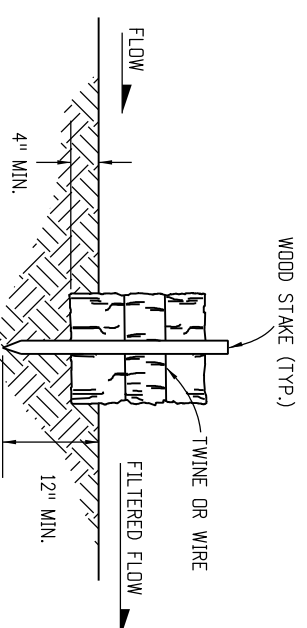
Sheet No. 9 of 11



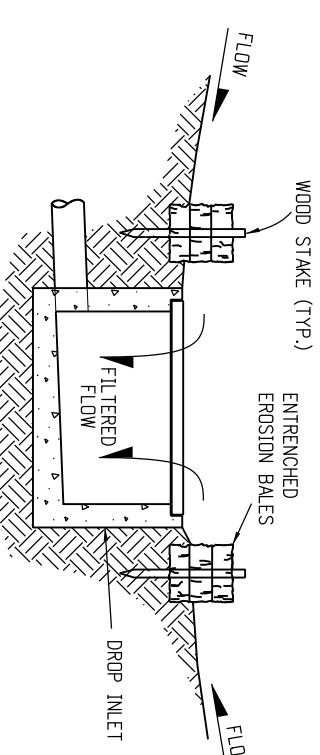
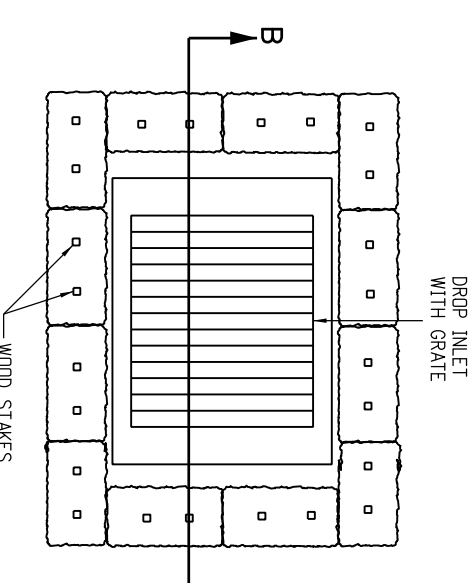
STEP 1. EXCAVATE THE TRENCH.



EROSION BALE CULVERT INLET PROTECTION



EROSION BALE TRENCHING AND STAKING



EROSION BALE FILTER AT DROP INLET


NOTES

1. STAKES SHALL BE WOOD AND SHALL BE 2" X 2" X 30" NOMINAL.
2. EROSION BALES SHALL BE 18" X 18" X 36".
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, TIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.

EROSION BALE APPLICATIONS

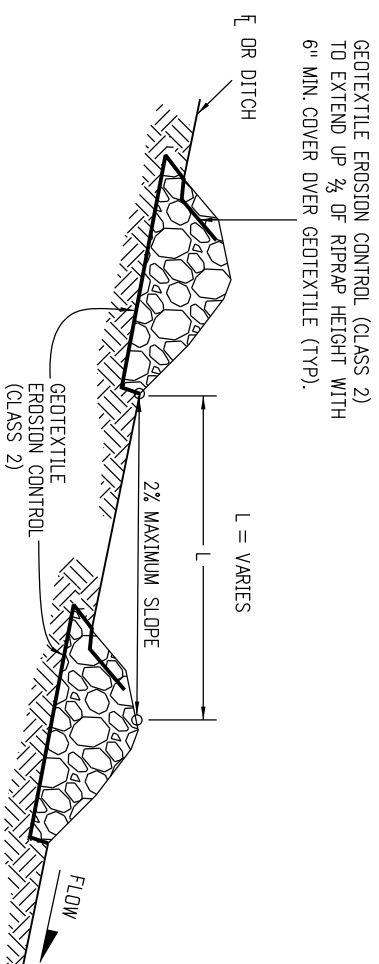
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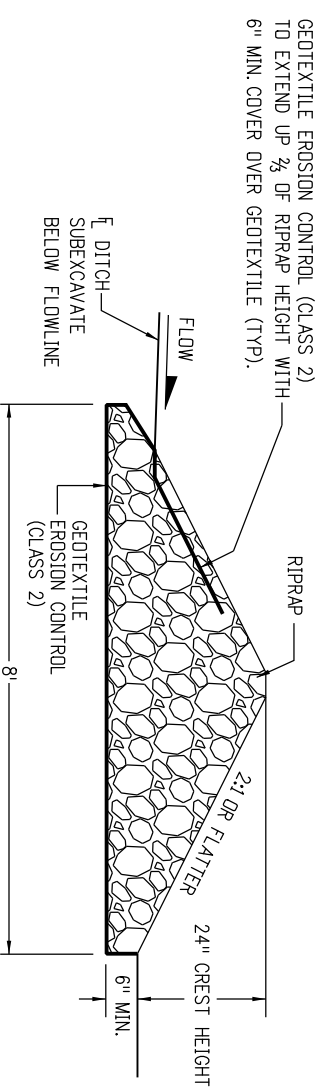
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TEMPORARY EROSION CONTROL
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STANDARD PLAN NO.
 M-208-1
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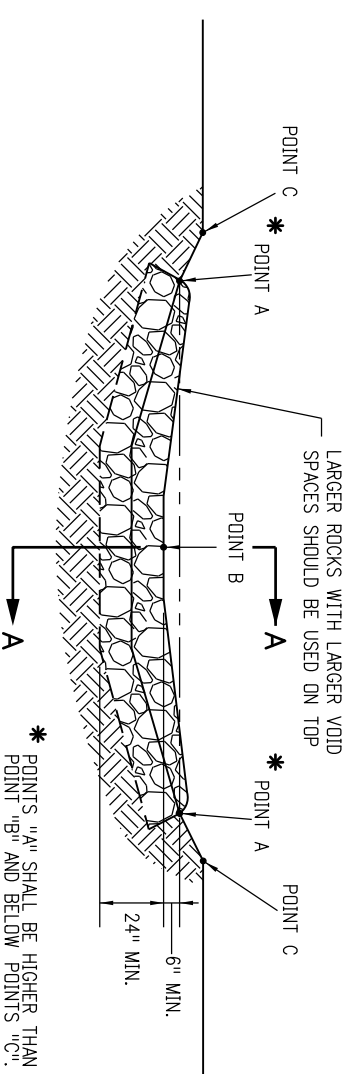


SECTION VIEW ALONG DITCH FLOWLINE



SECTION A-A

- NOTES:
1. RIPRAP SIZE D_{50} = 6" OR AS SHOWN ON THE PLANS.
 2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
 3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
 4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
 5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.




TYPICAL SECTION VIEW

ROCK CHECK DAM

Computer File Information	
Creation Date: 07/04/12	Initials: JBK
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Full Path: www.coloradodot.info/business/designsupport	
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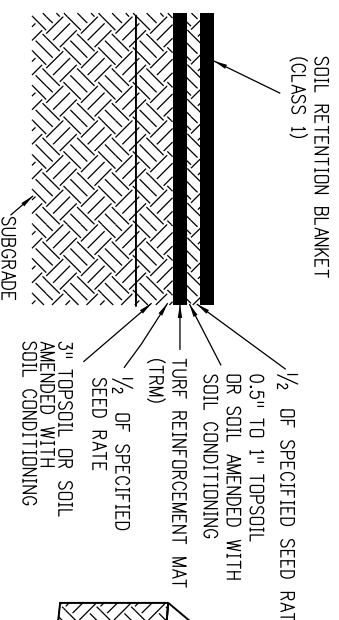
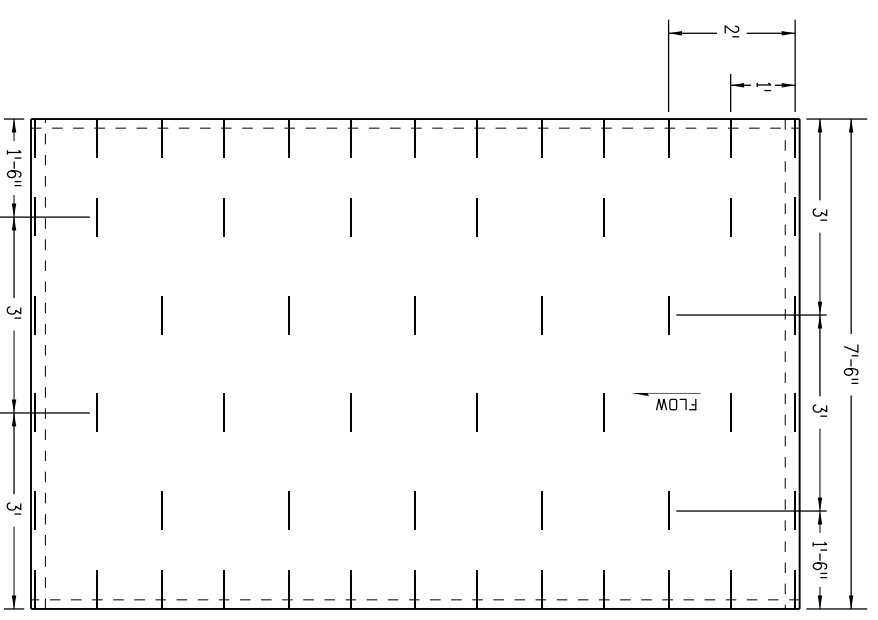
Sheet Revisions	
Date:	Comments
03/29/16	Minor revisions to some Notes.
(R-X)	
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(R-X)	

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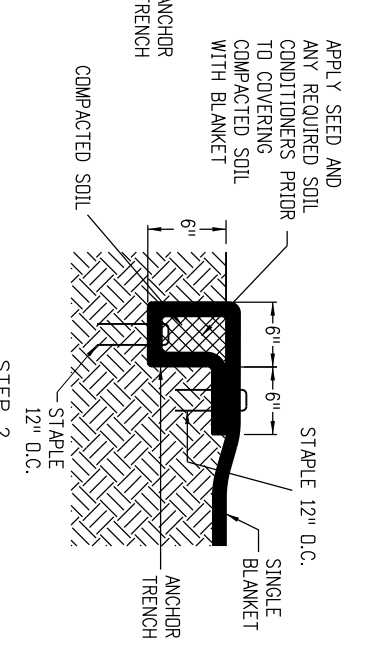
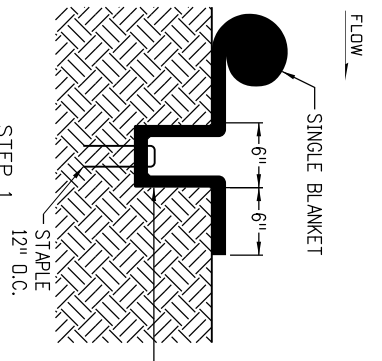
**TEMPORARY
 EROSION CONTROL**

Issued By: Project Development Branch on July 4, 2012

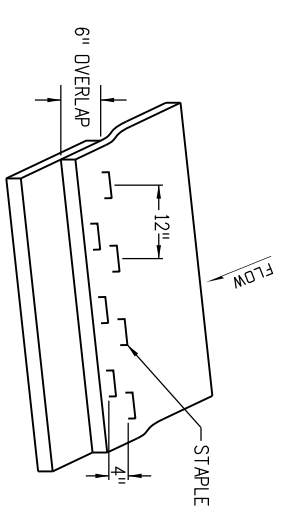
STANDARD PLAN NO.
M-208-1
Sheet No. 11 of 11



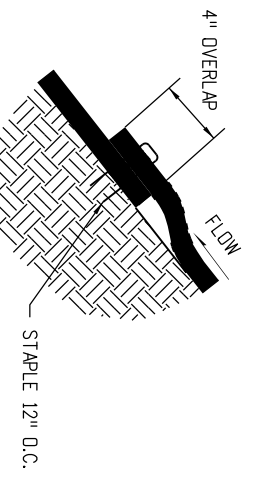
- SOIL FILLED TRM APPLICATION**
1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
 2. APPLY SEED AND RAKE INTO SOIL.
 3. INSTALL TRM.
 4. PLACE 0.5" TO 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
 5. APPLY SEED AND RAKE INTO SOIL.
 6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



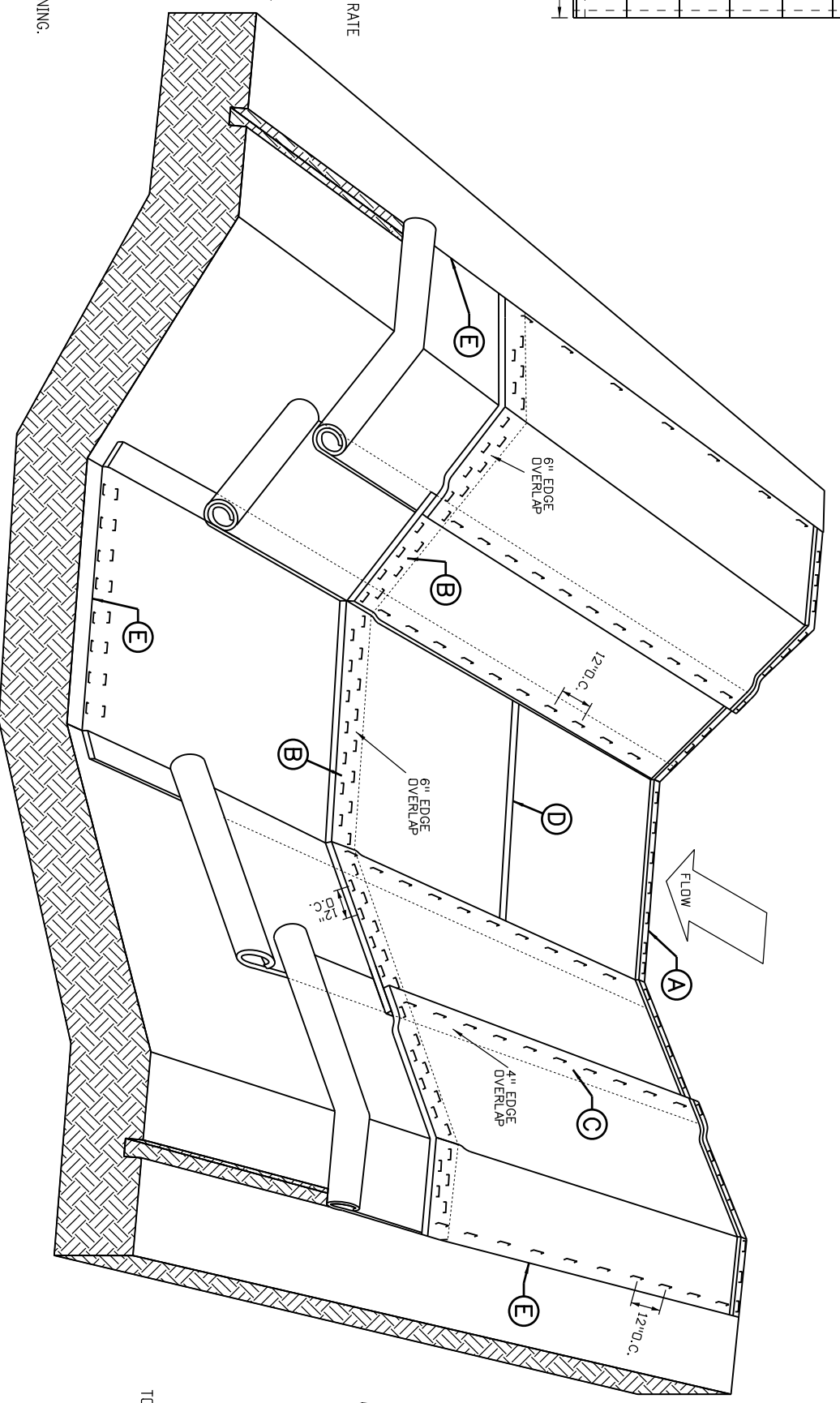
TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS ITS ENTIRE WIDTH.



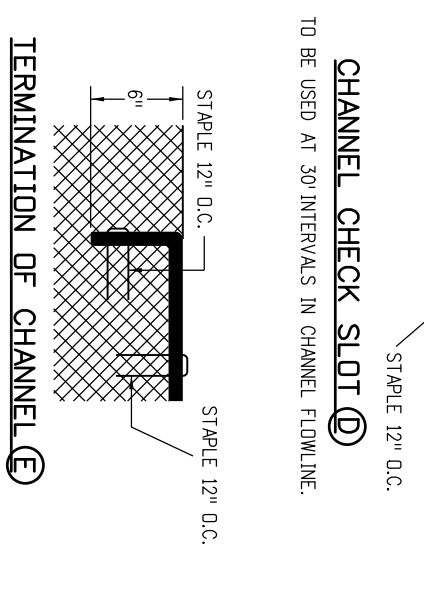
TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.



TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) CHANNEL APPLICATION
IN ACCORDANCE WITH SECTION 216.



- GENERAL NOTES**
1. Z SHAPED FOLD TO BE USED ON SLOPE EVERY 35 FEET MAXIMUM.
 2. STAPLE CHECK LOCATIONS SHOULD BE AT LEAST 15 FEET FROM THE BOTTOM OF SLOPE.

Computer File Information

Creation Date: 07/04/12	Initials: DLM
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FullPath: www.coloradodot.info/business/designsupport	
Drawing File Name: 2016010102.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments:
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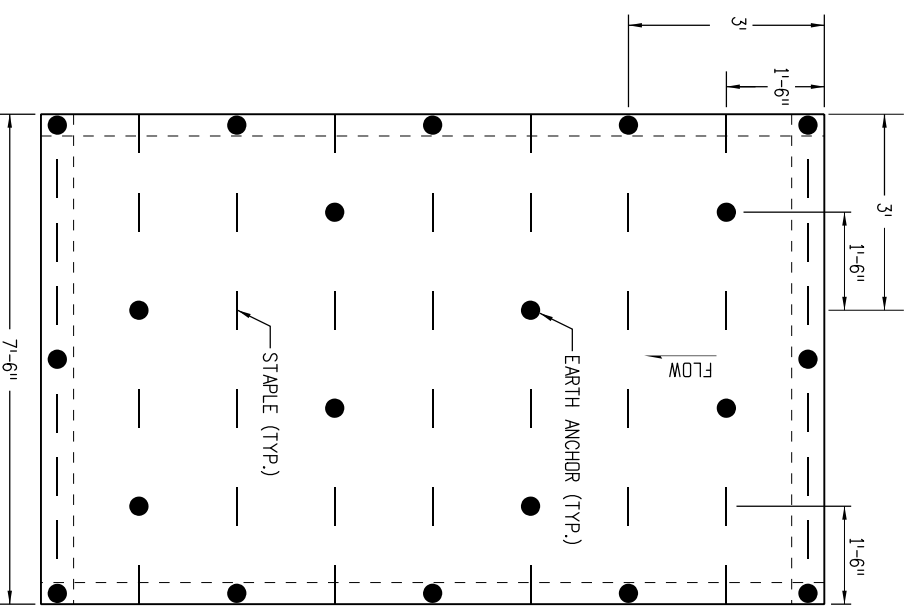
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868

Division of Project Support DLM/LTA

SOIL RETENTION COVERING

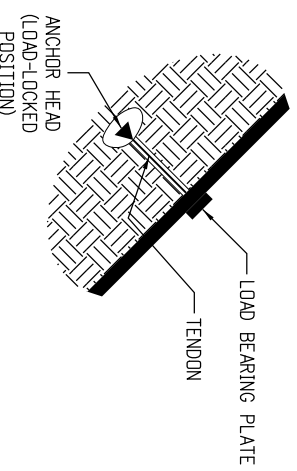
Issued By: Project Development Branch on July 16, 2015

STANDARD PLAN NO.
M-216-1
Sheet No. 1 of 2



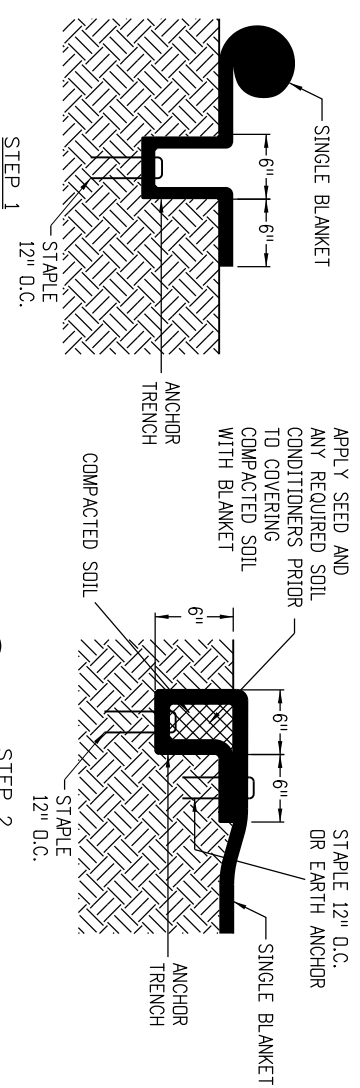
TYPICAL STAPLE OR EARTH ANCHOR PATTERN FOR SLOPE APPLICATION

IF EARTH ANCHORS ARE NOT SPECIFIED ON THE PLANS, ONLY STAPLES SHALL BE USED. SEE SUBSECTION 216.04



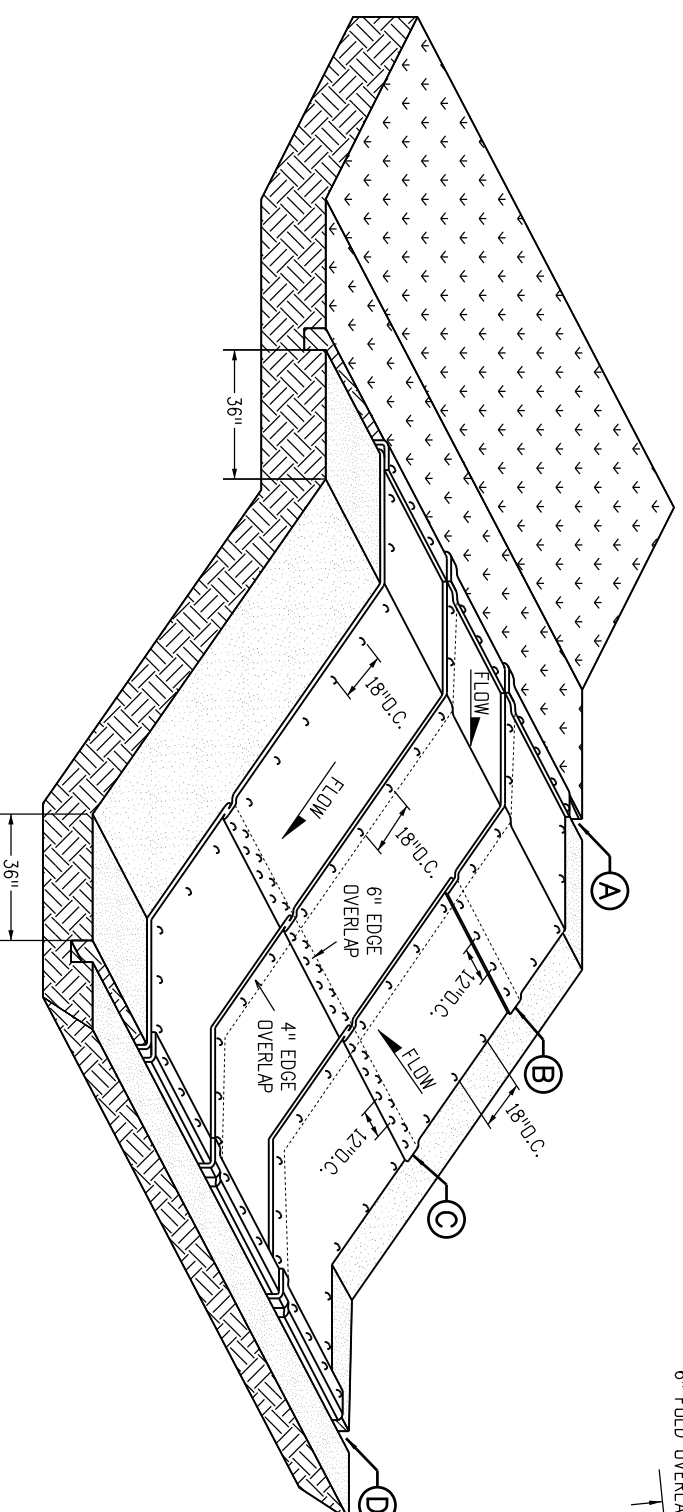
EARTH ANCHOR

- NOTES: 1. EARTH ANCHORS WILL BE USED INSTEAD OF STAPLES WHEN SPECIFIED IN THE PLANS.
2. EARTH ANCHORS SHALL BE PAID FOR SEPARATELY AS SPECIFIED IN SECTION 216.



ANCHOR TRENCH (A)

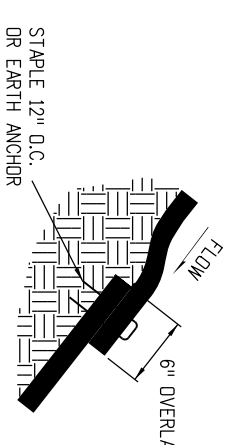
TO BE USED AT THE UPSLOPE AND DOWNSLOPE ENDS OF BLANKET ACROSS THE ENTIRE WIDTH OF SLOPE UNLESS SLOPE RUNS INTO RECEIVING WATER. (SEE DOWNSLOPE END STAPLE CHECK).



SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM)

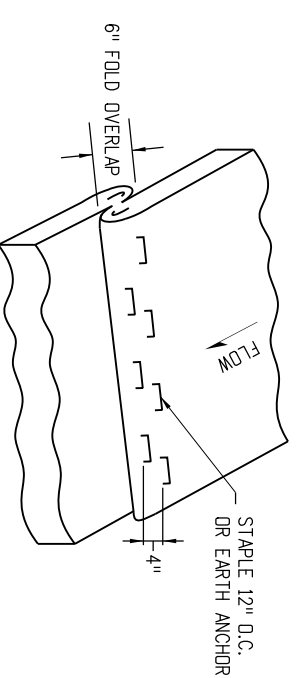
SLOPE APPLICATION

IN ACCORDANCE WITH SECTION 216.

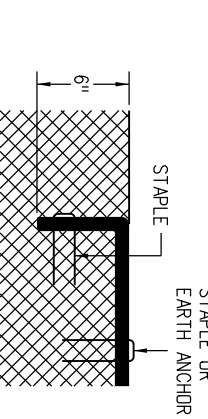


CONSECUTIVE ROLL OVERLAP (B)

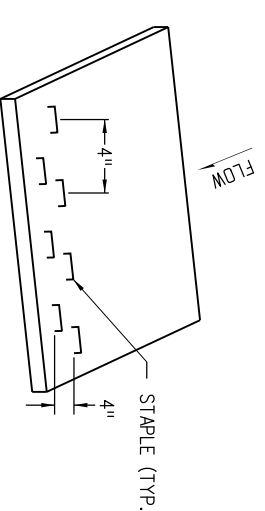
TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



STAPLE CHECK (C)



TERMINATION OF CHANNEL (D)



DOWNSLOPE END STAPLE CHECK

TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.

Computer File Information

Creation Date: 07/04/12	Initials: DLM
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Sheet Revisions

Date:	Comments

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Division of Project Support DLM/LTA

SOIL RETENTION COVERING

M-216-1

STANDARD PLAN NO.

M-216-1

Sheet No. 2 of 2

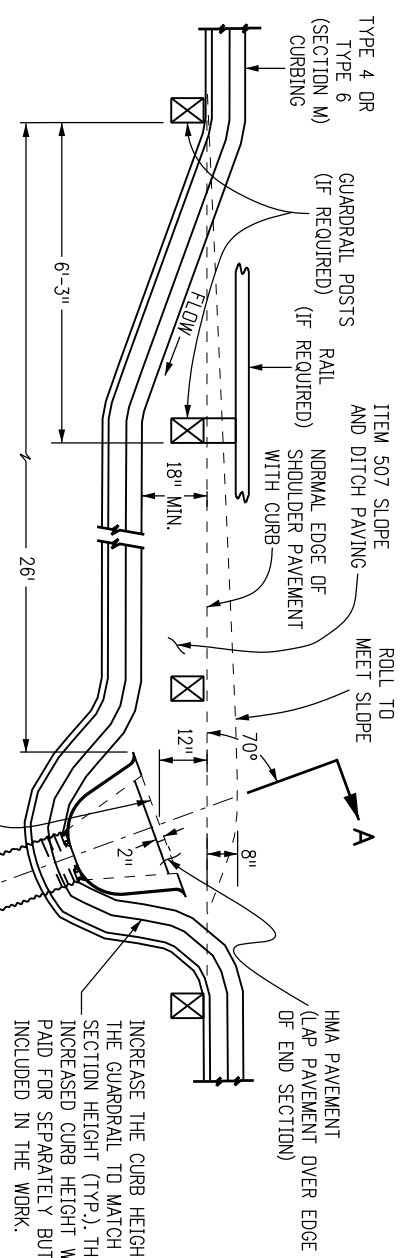
Issued By: Project Development Branch on July 16, 2015

GENERAL NOTES

1. IF THE EMBANKMENT PROTECTOR IS LOCATED IN THE BOTTOM OF A VERTICAL CURVE, FLARE THE CURB ON EACH SIDE OF THE INLET TO ALLOW FOR FLOW FROM BOTH DIRECTIONS.
2. DETAILS OF GUARD RAIL INSTALLATION ARE SHOWN IN STANDARD PLAN M-609-1.
3. THE END SECTION-TO-PIPE STUB JOINT FOR CORRUGATED METAL PIPE SHALL BE IN ACCORDANCE WITH THE TYPE 3 TYPICAL CONNECTION DETAILED IN STANDARD PLAN M-603-10. THE TYPE 1 OR TYPE 2 TYPICAL CONNECTIONS ARE NOT ACCEPTABLE. (AS AN OPTION, THE END SECTION MAY BE CONNECTED DIRECTLY TO A SECTION OF PIPE). JOINTS BETWEEN THE STUB AND PIPE, OR SECTIONS OF PIPE, SHALL BE IN ACCORDANCE WITH SECTION 603.
4. CONNECTIONS FOR PLASTIC PIPE SHALL PROVIDE A FIRM DIRECT CONNECTION SIMILAR TO THE TYPE 3. PLASTIC END SECTIONS ARE NOT ALLOWED. ALL PLASTIC PIPE JOINTS SHALL BE AS RECOMMENDED BY THE PIPE MANUFACTURER AND APPROVED BY THE ENGINEER.
5. PLASTIC PIPE SHALL CONFORM TO AASHTO M 294 TYPE C.
6. DETAILS OF BITUMINOUS CURBING ARE SHOWN IN STANDARD PLAN M-609-1.
7. STRUCTURE BACKFILL MATERIAL SHALL NOT BE USED WITH THE EMBANKMENT PROTECTOR (TYPE 3). EMBANKMENT MATERIAL SHALL BE USED WITH CONSTRUCTION REQUIREMENTS IN ACCORDANCE WITH SECTION 203. PAYMENT FOR THIS EMBANKMENT MATERIAL SHALL BE INCLUDED IN THE PAY ITEM FOR EMBANKMENT PROTECTOR (TYPE 3).

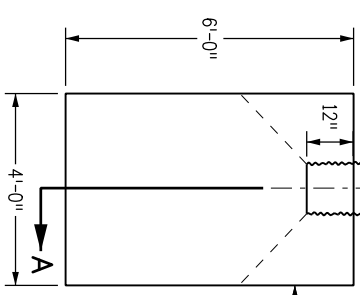
PAYMENT FOR THE QUANTITIES SHOWN ON THE PLANS FOR THIS WORK SHALL BE AS FOLLOWS:

- 506 OR 507 - PAY ITEMS AS SPECIFIED ON THE PLANS.
 - 609 - CURB, TYPE 4 OR TYPE 6 (SECTION M)..... LINEAR FT.
 - 615 - EMBANKMENT PROTECTOR (TYPE 3)..... EACH
- NOTE: THIS PAYMENT INCLUDES THE END SECTION, THE TRASH GUARD (WHEN SPECIFIED ON THE PLANS), PIPE CONNECTION, STRUCTURE EXCAVATION, EMBANKMENT MATERIAL AND ANY EXTRA WORK REQUIRED TO MODIFY OTHER PAY ITEMS.
- 603 - 12 IN. TO 18 IN. PIPE LINEAR FT.



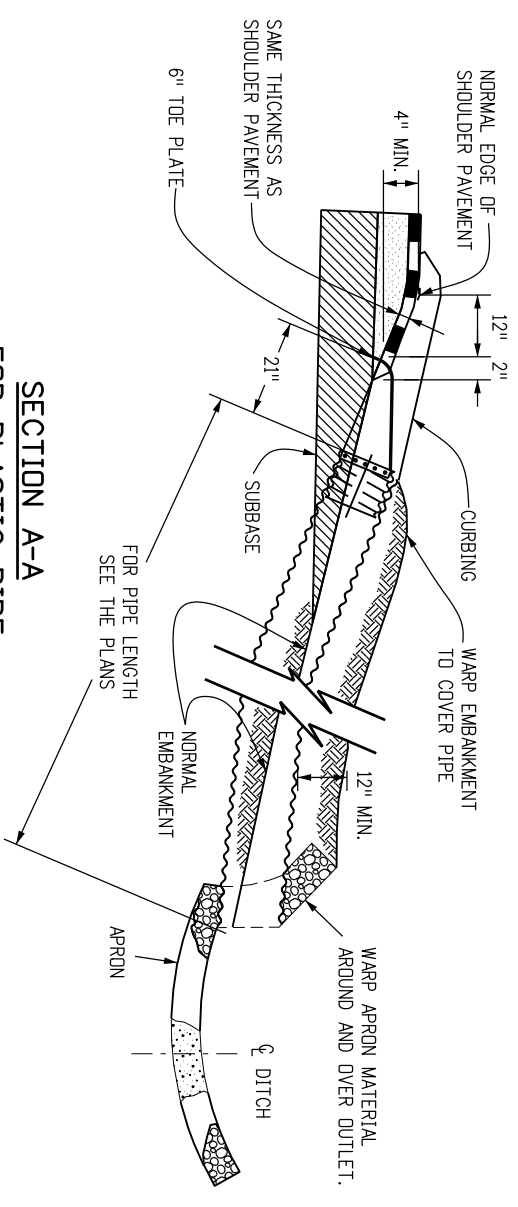
TYPE 3 PLAN VIEW

SHOWING DRAINAGE FLOW FROM LEFT TO RIGHT. REVERSE DETAIL WHEN DRAINAGE FLOW IS RIGHT TO LEFT.

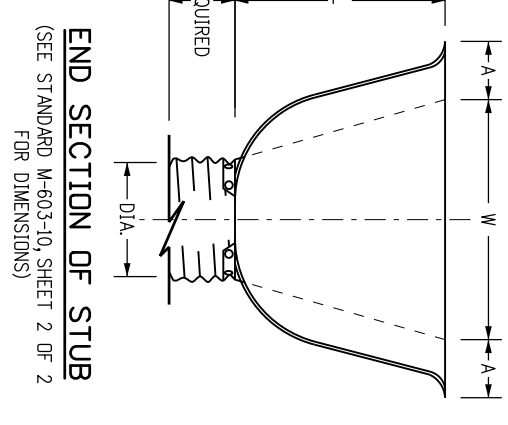
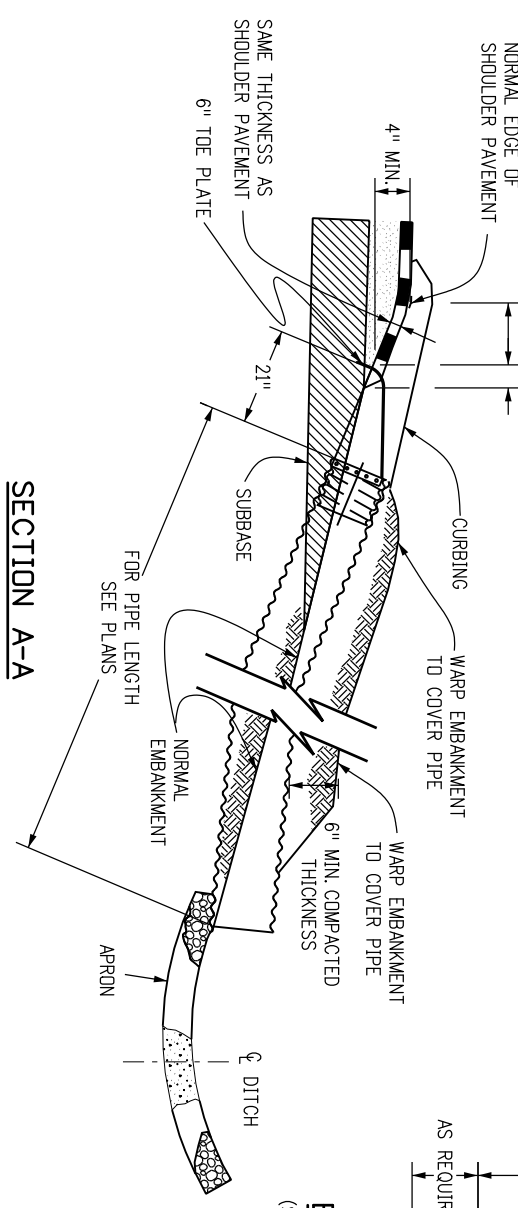


TYPE OF APRON MATERIAL	THICKNESS IN.
SLOPE AND DITCH PAVING (507)	
DRY RUBBLE	6
CONCRETE	4
HMA	4
GRouted RUBBLE	4
RIPRAP (506)	9 (MIN.)

SECTION A-A FOR PLASTIC PIPE



SECTION A-A FOR METAL PIPE



Computer File Information

Creation Date: 07/04/12 Initials: DD
 Last Modification Date: 07/04/12 Initials: LTA
 Full Path: www.coloradodot.info/business/designsupport
 Drawing File Name: 615010101.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

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(R-X)	
(R-X)	
(R-X)	

Colorado Department of Transportation

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 Denver, Colorado 80222
 Phone: (303) 757-9083
 Fax: (303) 757-9820

Project Development Branch DD/LTA

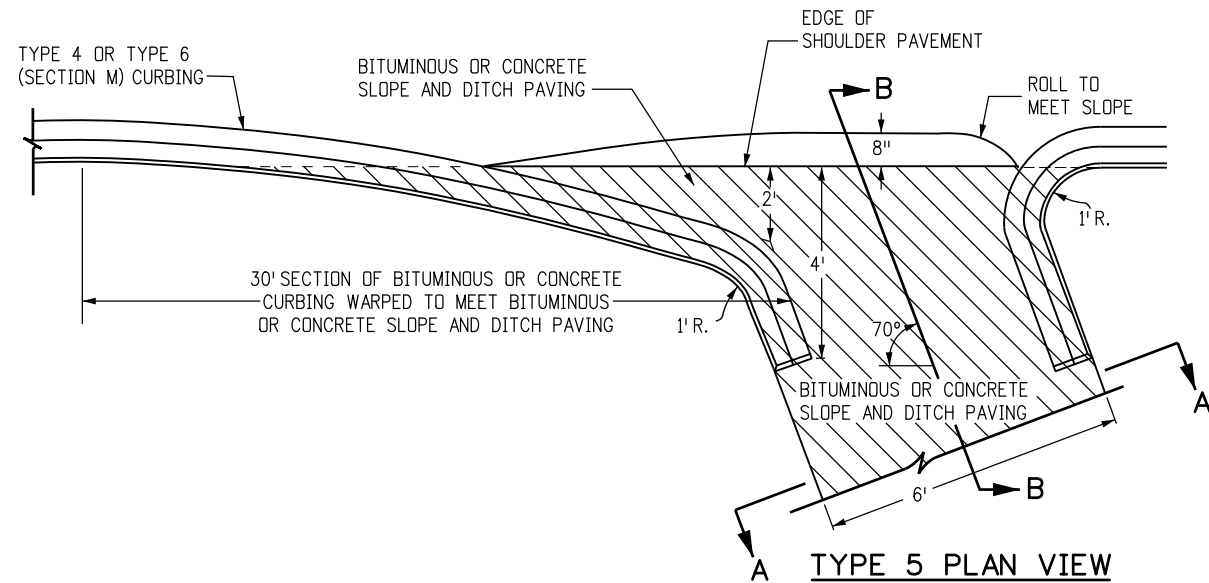
EMBANKMENT PROTECTOR TYPE 3

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

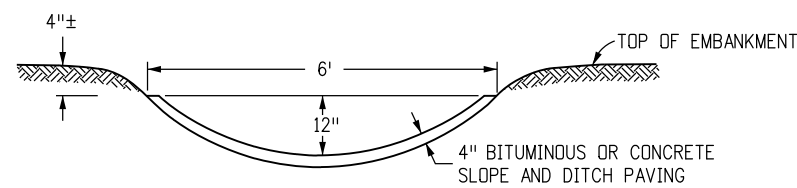
M-615-1

Sheet No. 1 of 1

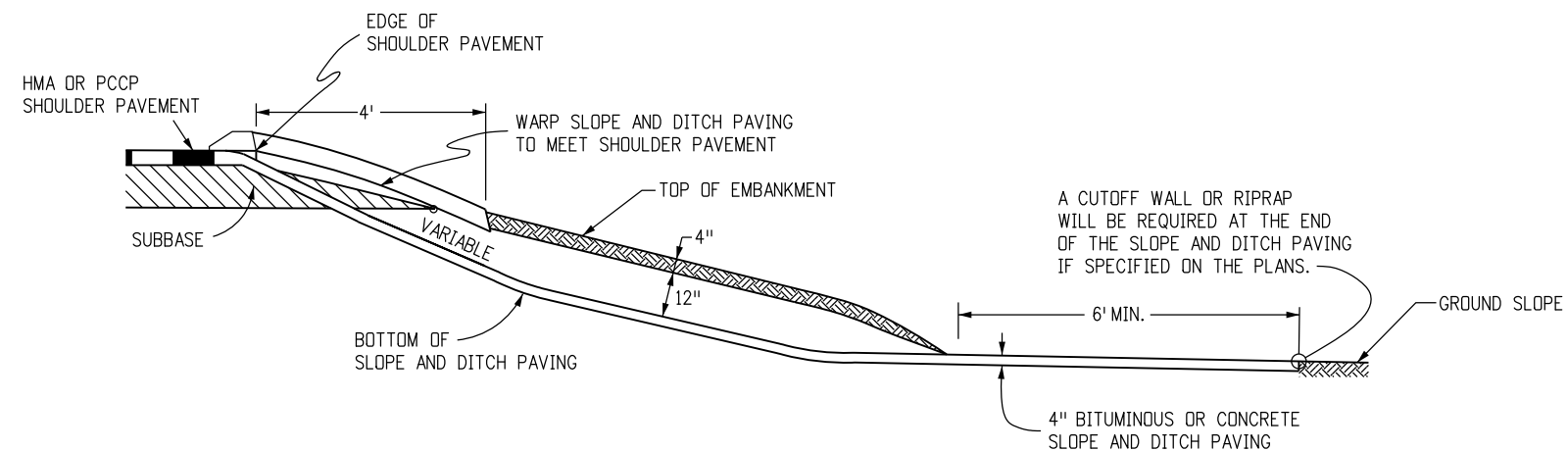


GENERAL NOTES

1. IF THE EMBANKMENT PROTECTOR IS LOCATED IN THE BOTTOM OF A SAG VERTICAL CURVE, FLARE THE CURB ON EACH SIDE OF THE INLET TO ALLOW FOR FLOW FROM BOTH DIRECTIONS.
2. DETAILS OF CURBING ARE SHOWN IN STANDARD PLAN M-609-1.
3. STRUCTURE BACKFILL MATERIAL SHALL NOT BE USED IN THIS WORK. EMBANKMENT MATERIAL SHALL BE USED WITH CONSTRUCTION REQUIREMENTS IN ACCORDANCE WITH SECTION 203. EMBANKMENT MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE PAY ITEM FOR EMBANKMENT PROTECTOR (TYPE 5).
4. PAYMENT FOR THE QUANTITIES SHOWN ON THE PLANS FOR THIS WORK SHALL BE AS FOLLOWS:
 - 507 - BITUMINOUS SLOPE AND DITCH PAVING (ASPHALT) TON
 - 507 - CONCRETE SLOPE AND DITCH PAVING CU. YD.
 - 609 - CURB, TYPE 4 OR TYPE 6 (SECTION M) LINEAR FT.
 - 615 - EMBANKMENT PROTECTOR (TYPE 5) EACH
 NOTE: THIS PAYMENT INCLUDES THE STRUCTURE EXCAVATION, ANY OTHER EARTHWORK, AND ANY EXTRA WORK REQUIRED TO MODIFY OTHER PAY ITEMS.



SECTION A-A



SECTION B-B

(WITH 4 IN. BITUMINOUS OR CONCRETE SLOPE AND DITCH PAVING)

Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 615020101.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

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Date:	Comments
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(R-X)	
(R-X)	

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 Fax: (303) 757-9820

Project Development Branch DD/LTA

**EMBANKMENT
PROTECTOR TYPE 5**

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-615-2
Sheet No. 1 of 1

CDOT Water Quality Contact Sheet

Region 1

Jessica Myklebust: 303.757.9929
Region Environmental Manager (REM)

Steve Mulqueen: 303.757.9138
Regional Water Pollution control Manager (RWPCM)

Brian Reiser: 303.757.9270
Regional Water Pollution Control Manager (RWPCM)

Susie Hagie: 303.757.9932
Landscape Architect (LA)

Basil Ryer: 303.757.9304
Senior Water Quality Specialist

Josh Giovannetti: 303.757.9925
Senior Water Quality Specialist

Region 2

Rob Frei: 719.546.5749
Region Planning and Environmental Manager (RPEM)

Troy Rice: 719.648.3462
Regional Water Pollution Control Manager (RWPCM)

Region 3

Vacant:
Region Planning and Environmental Manager (RPEM)

Jennifer Klaetsch: 970.683.6223
Landscape Specialist (LS)

Leslie Modrick: 970.350.2164
Regional Water Pollution Control Manger (RWPCM)

Region 4

Jim Eussen: 970.350.2167
Region Planning and Environmental Manager (RPEM)

Nicholaus Schipanski: 970.350.2127
Regional Water Pollution Control Manager (RWPCM)

Matthew Malick: 970.350.2264
Regional Water Pollution Control Manager (RWPCM)

Region 5

Tony Cady: 970.385.1430
Regional Planning and Environmental Manager (RPEM)

Danielle Wilkinson: 970.903.0752
Regional Water Pollution Control Manager (RWPCM)

HQ Water Quality

Jean Cordova: 303.512.4053
Water Quality Section Manager

Tripp Minges: 303.757.9788
MS4 Construction Program Manager (MCPM)

Jeremiah Unger: 303.513.3927
MS4 Construction Field Manager (MCFM)

Vacant:
CDOT/CDPHE Liaison

HQ Landscape Architecture

Mike Banovich: 303.7579542
Landscape Architecture Section Manager

Vacant:
Landscape Specialist

Greg Fischer: 303.757.9507
Landscape Architect (LA)

Other HQ MS4 Managers

Robert McDade: 303.757.9127
Wet Weather Monitoring
Pollution Prevention Good Housekeeping

Jeremiah Unger: 303.513.3927
Illicit Discharge
Permanent Water Quality

Jean Cordova: 303.512.4053
Public Education and Outreach
Industrial Facilities

Other Contacts:

Illicit Discharge Hotline:
303.512.4426

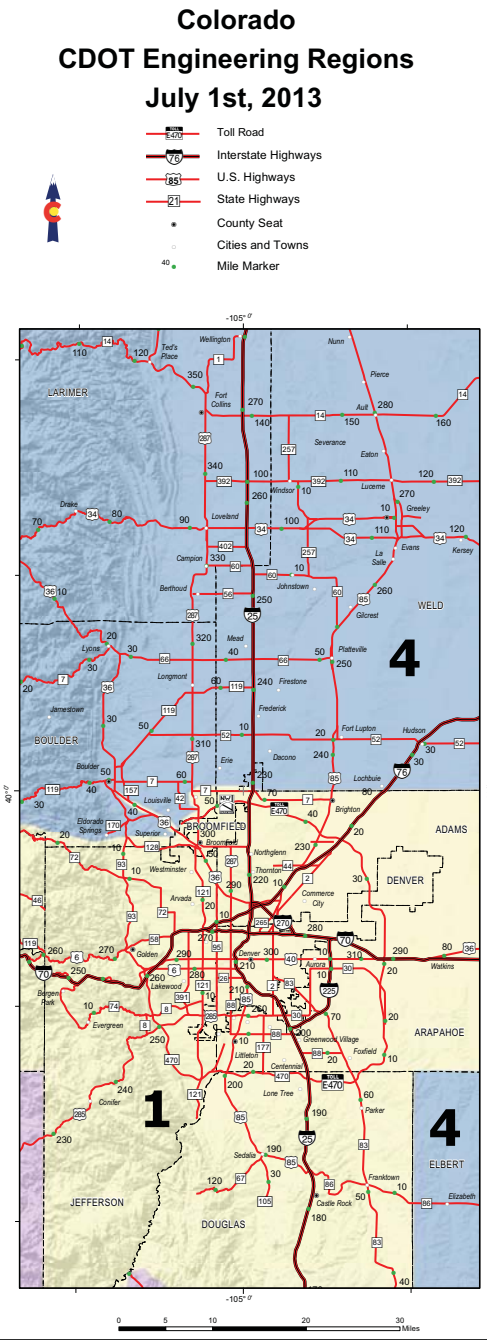
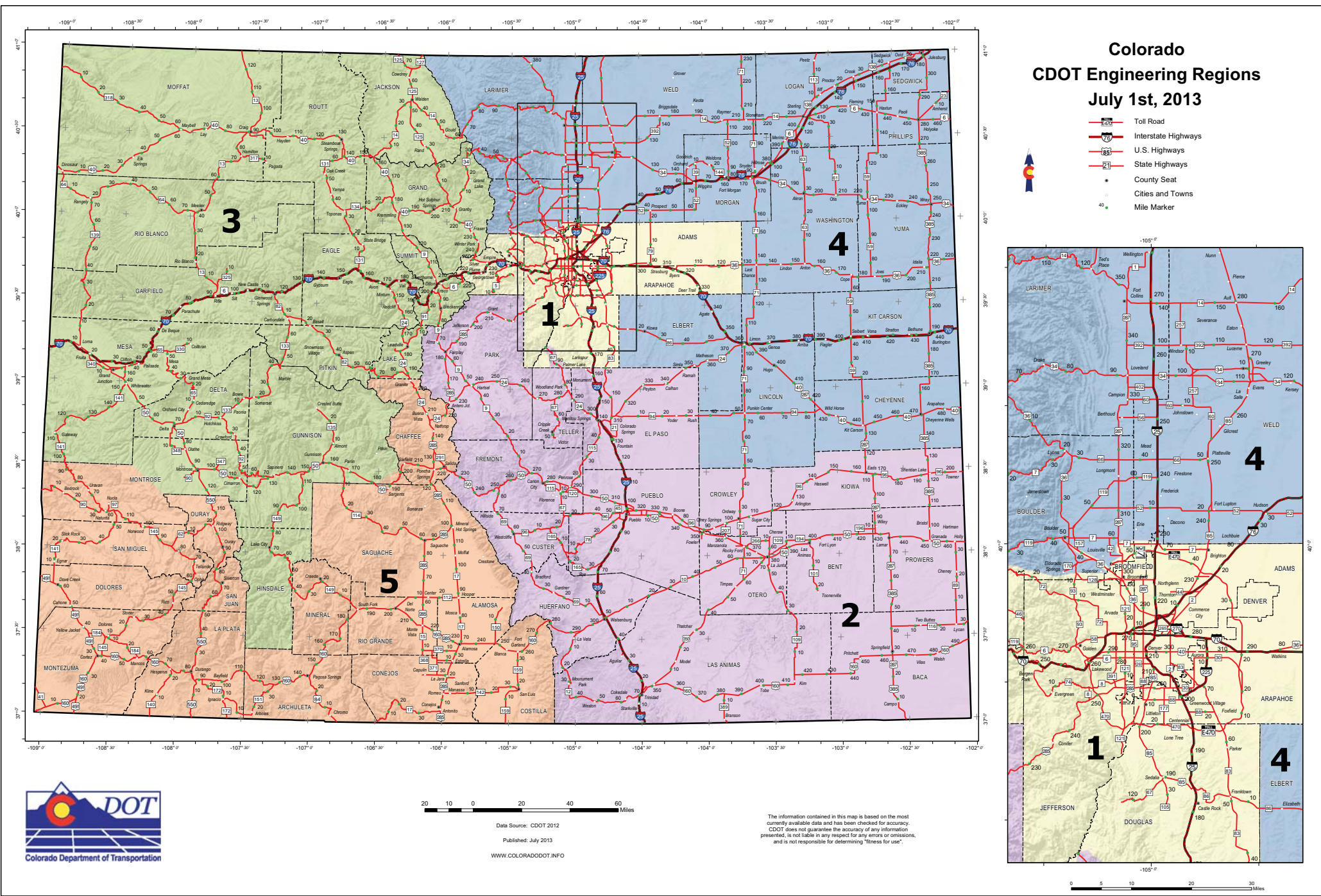
CDPHE Emergency Spill Reporting:
1.877.518.5608

MS4 Construction Program Hotline:
303.512.4426



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Department of
Transportation





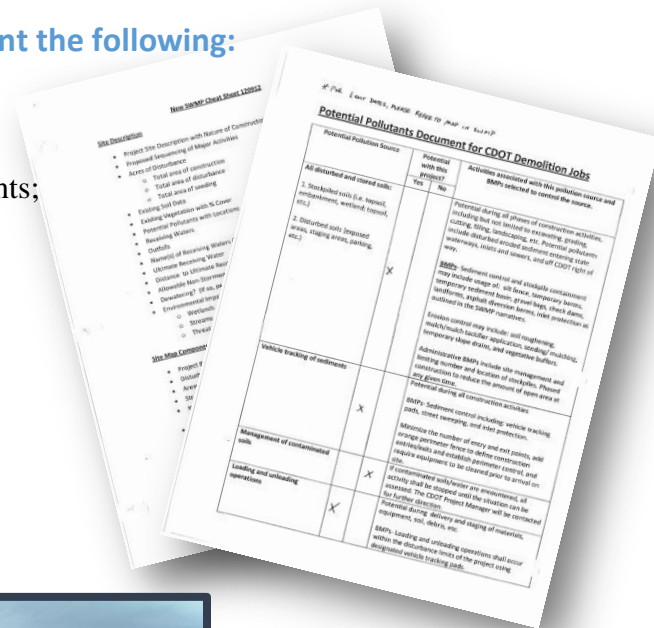
COLORADO
Department of
Transportation

CDOT General TECS Timelines and Phasing Cheat Sheet as defined in Specification 208.03

Coordinate with the Superintendent to implement the following:

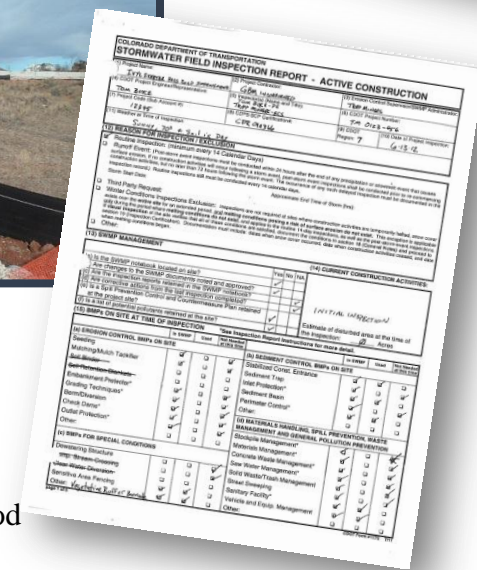
Prior to Construction:

- Review SWMP – verify it meets all requirements; modifying as needed
- Submit list of Potential Pollution Sources
- Submit Spill Response Plan/SPCC
- Present TECS certification at environmental preconstruction conference
- Establish initial work areas
- Get BMPs installed



During Construction:

- Break ground
- Attend meetings
- Perform inspections
- Modify SWMP
- Install, maintain and remove BMPs – phased with construction
- 10 days prior to concrete or saw cuts submit methodology for containing pollutant byproducts
- Temporary, Interim and Permanent Stabilization



Post Construction:

- Complete Permanent stabilization measures
- CDOT punch list
- After CDOT approval, permit transfer





Type of Stabilization measure	When Must it be used	Techniques which may be used	Rational
<p>Temporary Stabilization</p>	<p>At the end of Each Day (Not to Exceeded 20 Acres on the Project)</p>	<p>Surface Roughening</p>	<p>Used to create Micro topography to slow down Stormwater run-off. Temporary Stabilization also reduces the amount of soil loss due to wind. Used at the end of each day because the areas which it is required to be used upon will be worked the following day(s).</p>
		<p>Vertical Tracking</p>	
		<p>Combination of Surface Roughening and Vertical Tracking</p>	
<p>Interim Stabilization</p>	<p>Stockpiles and disturbed areas as soon as known with reasonable certainty that work will be temporarily halted for 14 days or more shall be stabilized</p>	<p>Application of 1.5 tons of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.</p>	<p>Used to prevent soil loss from run off. Interim stabilization is required when an area is no longer going to be worked for an extended duration of time. All interim stabilization methods place a “covering” agent on top of the soil to reduce the amount of soil loss while work is temporarily halted in the area.</p>
		<p>Placement of bonded fiber matrix in accordance with Section 213.</p>	
		<p>Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213</p>	
		<p>Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, will not be permitted as a stabilization method</p>	

<i>Type of Stabilization measure</i>	<i>When Must it be used</i>	<i>Techniques which may be used</i>	<i>Rational</i>
<i>Summer and Winter Stabilization</i>	Months when seeding will not be permitted	Interim stabilization shall be applied to the disturbed area.	See Interim Stabilization
<i>Permanent Stabilization</i>	Shall begin within 48 hours after topsoil placement, soil conditioning, or combination thereof starts and shall be pursued to completion	Seeding	Permanent stabilization is used once all work has been completed in a given area. Permanent stabilization is designed to meet the final design criteria and bring the site up to final stabilization.
		Mulching with tackifier	
		Soil Retention Coverings	
		Non-Erodibles (Riprap, road shouldering, bedrock, asphalt, concrete, Permanent landscaping, SOD, etc...)	
<i>Final Stabilization</i>	Final Stabilization is not used, it is achieved. This is done through the use of permanent stabilization.		This is a permit requirement. In order to close out a permit the site must have achieved "Final Stabilization". Final Stabilization is achieved when: "All ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed." (CDPS-SCP)

Method Statement for Containing Pollutant Byproducts Cheat Sheet
107.25(b)13 – Method for Containing Pollutant Byproducts to Engineer for Approval

Installation of Concrete Washout

- Specify detail used (CDOT M-208-1 specification or modified M-208-1 detail)
- Identify location of concrete washout
 - If additional locations are needed, approval from the Project Engineer will be requested prior to installation.
 - Must be located a minimum of 50 horizontal feet from any Waters of the State.
 - Location of concrete washout must be shown on the SWMP site map when installed and removed.
- Describe how waste/spoils will be disposed of
- Describe how the concrete washout will be maintained (107.25 standard)
- Describe how waste concrete will be disposed of

Saw Cutting Operations

- Use vacuum to clean roadway surface during pavement saw cutting operations
- Description of BMP(s) that will be used

Excess Fill Material

- Describe how excess fill material will be handled

Material Removed from Sediment Traps

- Describe how material removed from sediment traps will be disposed of

Cleaning of all Vehicles and Equipment Statement

- Reference Section 107.25(b)
- State that all equipment and vehicles have been cleaned prior to mobilization on this project
- State that equipment and vehicles are free of soil and debris capable of transporting noxious weeds and/or roots



Help Protect the Water Quality of Our Streams, Wetlands, and Lakes!

Be Alert and Take Action

Report pollution or questionable discharges to highway storm drains or waterways:

CDOT Illicit Discharge Hotline: 303-512-4426 (303-512-4H2O)

CDOT Stormwater Website: www.cdoth2o.com

CDPHE Emergency Spill Reporting: 1-877-518-5608

CDOT Water Quality Program Manager: 303-757-9343



Report spills on CDOT highways:

For hazardous spills, or if not known: CO State Patrol, 24 Hour Dispatch 303-239-4501 and the National Response Center at 800-424-8802

For non-hazardous spills: CDOT Regional Maintenance Superintendent (on back), or CO State Patrol (above)

Reporting Tips

Stay clear of any suspected illicit discharge or polluted flow. To ensure your safety and maintain evidence, only trained personnel should take samples. Note the location/mile marker of the problem, the quantity and nature (color/odor) of the substance, if the discharge is flowing into a waterway, and any information on suspicious activities and the vehicle license number or names of people potentially involved in the spill or dumping.

Regional Maintenance Superintendents

R1 303-365-7100

R2 719-546-5419

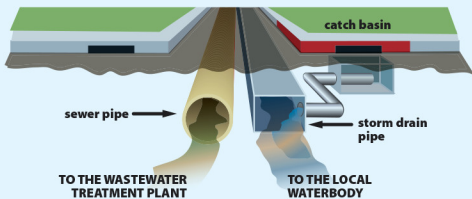
R3 (Sec. 2) 970-826-5162, (Sec. 6) 970-683-6304

R4 970-353-1232

R5 (Sec. 3) 970-385-1650, (Sec. 7) 719-589-3616

R6 303-757-9514

Storm Drain Systems are Separate from Wastewater Systems



What should you report?



Oil, gas, etc. entering a storm drain.



Soap suds exiting a storm sewer pipe.



Chemical spilled on a highway.



Sediment from an unknown source entering a stream.

Fold Along Dotted Line and Place in Visor for Quick Reference



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Section 2: **Blank Templates**



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Stormwater Management Plan (SWMP) Documentation

CDOT - Region ____

Project Name: _____

Project Number: _____

Sub Account: _____

CDPS-SCP Certification Number: _____

Resident Engineer: _____

Contact #'s: _____

Project Manager: _____

Contact #'s: _____

Project Engineer: _____

Contact #'s: _____

SWMP Administrator: _____

Contact #'s: _____

ECS: _____

Contact #'s: _____

Stormwater Management Field Daily Inspection Report

In accordance with the Project Special Provision daily stormwater compliance inspections are required on all projects holding a Colorado Discharge Permit System – Stormwater Construction Permit (CDPS-SCP).

This form is to be used as the daily diary to evaluate BMPs used during construction activities.

See the instructions for more information.

Date:	Project number:	Sub-account number:
-------	-----------------	---------------------

The entire site shall be inspected to determine whether BMPs are being implemented and maintained in accordance with the project's site specific SWMP and the CDPS-SCP. The SWMP Administrator or Erosion Control Inspector (ECI) or Superintendent shall identify if additional BMPs are needed, can be removed, or need maintenance. The **condition** of the currently used BMPs shall be recorded, using one or more of the following letters: **(I)** Incorrect Installation; **(M)** Maintenance is needed; **(F)** BMP failed to operate; **(A)** Additional BMP is needed; **(R)** Remove BMP. Only BMPs with the conditions above need be recorded. (Use the extra page at the end of this form if needed.)

The Project Engineer will approve and the Superintendent shall direct the work associated with any BMPs identified in this daily log to ensure compliance with the site specific SWMP and the CDPS-SCP.

CDPS-SCP States: "BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases."

Location	BMP Type	Condition	Notes/Comments	Date Completed & Initials

** ALL BMPS ARE IN OPERATING CONDITION AND NO MAINTENANCE IS NEEDED. (initial the box to the right when this applies)	
---	--

Comments/General notes:(attach photos if necessary)
--

Inspection signature: SWMP Administrator or ECI or Superintendent

Name:(Print)	Signature:	Date signed:
--------------	------------	--------------

Stormwater Management Field Daily Inspection Report Instructions

Inspect all erosion and sediment control BMPs throughout the entire construction site – observe, record, and determine their effectiveness. If additional BMPs are needed or any BMP is not operating effectively, it shall be recorded on this form and addressed immediately.

Location: Record the site location (e.g., project station number, mile marker, intersection quadrant, etc.).

BMP Type: Indicate the type of BMP at this location that requires attention (e.g., silt fence, erosion logs, soil retention blankets, etc.).

Condition: Identify the condition of the BMP, using one or more of the following letters: **(I)** Incorrect Installation, **(M)** Maintenance is needed (i.e., sediment needs to be removed), **(F)** BMP Failed to operate, **(A)** Additional BMP is needed, **(R)** Remove the BMP.

** If all BMPs are in operating condition and no BMP maintenance is needed, sign and initial the box to the right of the statement.

Notes/Comments: Provide the proposed corrective action needed to bring the area or BMP into compliance.

Date Completed & Initials: Date and initial when the corrective action was completed.

Inspection Signature: Sign the form when the inspection has been completed.

Place the completed daily stormwater log sheet(s) in the SWMP Notebook.

Stormwater Management Field Daily Inspection Report , ADDITIONAL PAGE

Date:	Project number:	Sub-account number:
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The entire site shall be inspected to determine whether BMPs are being implemented and maintained in accordance with the project's site specific SWMP and the CDPS-SCP. The SWMP Administrator or Erosion Control Inspector (ECI) or Superintendent shall identify if additional BMPs are needed, can be removed, or need maintenance. The **condition** of the currently used BMPs shall be recorded, using one or more of the following letters: **(I)** Incorrect Installation; **(M)** Maintenance is needed; **(F)** BMP failed to operate; **(A)** Additional BMP is needed; **(R)** Remove BMP. Only BMPs with the conditions above need be recorded.

The Project Engineer will approve and the Superintendent shall direct the work associated with any BMPs identified in this daily log to ensure compliance with the site specific SWMP and the CDPS-SCP.

CDPS-SCP States: "BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases."

Location	BMP Type	Condition	Notes/Comments	Date Completed & Initials

**COLORADO DEPARTMENT OF TRANSPORTATION
STORMWATER FIELD INSPECTION REPORT AND WEEKLY MEETING NOTES -
ACTIVE CONSTRUCTION**

(1) Project Name:	(2) Project Contractor:	(3) SWMP Administrator:	Erosion Control Inspector:
(4) CDOT Project Engineer/CDOT Designee:	(5) Other Attendee(s) (Name and Title):		
(6) CDOT Project Number:	(7) Project Code (Sub Account #):	(8) CDPS-SCP Certification#:	(9) CDOT Region:
(10) Date of Project Inspection:	(11) Weather at Time of Inspection:		

(12) REASON FOR INSPECTION / EXCLUSION

Routine Inspection: (minimum every 7 Calendar Days)

Runoff Event: (Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection must be documented in the inspection record.) Routine inspections still must be conducted every 7 calendar days.
Storm Start Date: _____ Approximate End Time of Storm (hrs): _____

Third Party Request:

Winter Conditions Inspections Exclusion: Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the **entire site** for an extended period, **and melting conditions posing a risk of surface erosion do not exist**. This exception is applicable only during the period where **melting conditions do not exist**, and applies to the routine 7-day inspections, as well as the post-storm-event inspections. If **visual inspection** of the site verifies that all of these conditions are satisfied, document the conditions in section 18 (General Notes) and proceed to section 19 (Inspection Certification). Documentation must include: dates when snow cover occurred, date when construction activities ceased, and date when melting conditions began.

Other:

(13) SWMP MANAGEMENT

	Yes	No	NA	(g) Reason for N/A
(a) Is the SWMP notebook located on site?				
(b) Are changes to the SWMP documents noted and approved?				
(c) Are the inspection reports retained in the SWMP notebook?				
(d) Are corrective actions from the last inspection completed?				
(e) Is the Spill Response Plan updated in the SWMP notebook?				
(f) Is a list of potential pollutants updated in the SWMP notebook?				

(14) CURRENT CONSTRUCTION ACTIVITIES

(a) Describe current construction Activities

(b) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e):

	Acres	Notes
Temporary Stabilization		
Interim Stabilization		
Permanent Stabilization Completed		

(c) Has the SWMP Phased BMP Implementation Matrix been updated? Yes No

(15) WEEKLY MEETING NOTES

Notes from last meeting (date _____)

Items to discuss at next meeting (date _____)

(16) CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS **Off site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension**

The Construction Site Boundary/Limits of Construction (LOC) , all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the LOC, entering the stormwater drainagesystem, or discharging to State waters. If there is evidence of sediment or other pollutants discharging from the site, see section 17 (Construction Site Assessment).

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the BMP, using more than one letter if necessary: **(I)** Incorrect Installation; **(M)** Maintenance is needed; **(F)** BMP failed to operate; **(A)** Additional BMP is needed; **(R)** Remove BMP. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all BMPs. **BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases.**

Location	BMP	Condition	Comments:	Date Completed & Initials
			Description of Corrective Action and Preventative Measure Taken	

(17) CONSTRUCTION SITE ASSESSMENT: **OFF SITE POLLUTANT DISCHARGES ARE A VIOLATION OF THE PERMIT AND REASON FOR IMMEDIATE PROJECT SUSPENSION**

(a) Is there evidence of discharge of sediment or other pollutants from the site? Yes No
 *If yes, explain the discharge and the corrective actions in section 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).

(b) Has sediment or other pollutants discharging from the site reached State waters? Yes No
 *If yes, see subsection 208.03(c) and Part II A.2 and 3 of the permit for reporting requirements.

(18) GENERAL NOTES

(19) INSPECTION CERTIFICATION

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

Contractor's SWMP Administrator Print Name: _____	Signature Required: _____	Date: _____
Contractor's Erosion Control Inspector (If Needed) Print Name: _____	Signature Required: _____	Date: _____
Contractor's Superintendent/Approved Designee Print Name: _____	Signature Required: _____	Date: _____
CDOT Project Engineer/CDOT Designee Print Name: _____	Signature Required: _____	Date: _____

(20) COMPLIANCE CERTIFICATION

Corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Contractor's SWMP Administrator Print Name: _____	Signature Required: _____	Date: _____
CDOT Project Engineer/CDOT Designee (Signature Required) Print Name: _____	Signature Required: _____	Date: _____

Stormwater Management Field Inspection Report Instructions

State waters are defined to be any and all surface and subsurface waters which are contained in or flow through the state, including, streams, rivers, lakes, drainage ditches, storm drains, ground water, and wetlands, but not including waters in sewage systems, waters in treatment works or disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed. (Per subsection 107.25 and 25-8-103 (19) CRS)

(3) SWMP Administrator and Erosion Control Inspector: Indicate the name(s) of the individual responsible for implementing, maintaining and revising the SWMP. An Erosion Control Inspector(s) may be required see 208.03(c)2. for requirements.

(4) CDOT Project Engineer/CDOT Designee: Indicate the name of the CDOT representative performing the inspection with the SWMP Administrator/Erosion Control Inspector(s). This person should be the Project Engineer or an authorized representative.

(9) CDPS-SCP Certification #: Indicate the Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP) (for Stormwater Discharges Associated with Construction Activities) certification number, issued by CDPHE, for the project which the report is being completed. Certification number can be found on the first page of the SCP.

(12) Reason(s) for Inspection / Exclusion: Indicate the purpose for the inspection or exclusion. These inspections are required to comply with the CDOT Specifications and the CDPS-SCP.

- Routine Inspections. These inspections are required at least every 7 calendar days during active construction. Suspended projects require the 7 calendar day inspection unless snow cover exists over the entire site for an extended period of time, and melting conditions do not exist (see, Winter Conditions Inspections Exclusions).
- Runoff Event Inspection for Active Sites. See page 1 for definition.
- Third Party Request. Indicate the name of the third party requesting the inspection and, if known, the reason the request was made.
- Winter Conditions Inspections Exclusions. See page 1 for definition. An inspection does not need to be completed, but use this form to document the conditions that meet the Exclusion.
- Other. Specify any other reason(s) that resulted in the inspection.

(13) SWMP Management: Review the SWMP records and documents and use a ✓ to answer the question. To comply with CDOT Standard Specifications and the CDPS-SCP, all of the items identified must be adhered to. If No is checked, indicate the necessary corrective action in section 16 (Construction Site Assessment & Corrective Actions).

(a) Is the SWMP notebook located on site? A copy of the SWMP notebook must be retained on site, unless another location, specified by the permit, is approved by the Division.

(b) Are changes to the SWMP documents noted and approved? Indicate all changes that have been made to any portion of the SWMP notebook documents during construction. Changes shall be dated and signed at the time of occurrence. Amendments may include items listed in subsection 208.03(d).

(c) Are the inspection reports retained in the SWMP notebook? The SWMP Administrator shall keep a record of inspections. Inspection reports must identify any incidents of non-compliance with the terms and conditions of the CDOT specifications or the CDPS-SCP. Inspection records must be retained for three years from expiration or inactivation of permit coverage.

(d) Are corrective actions from the last inspection completed? Have corrective actions from the last inspection been addressed? Is a description of the corrective action(s), the date(s) of the corrective action(s), and the measure(s) taken to prevent future violations (including changes to the SWMP, as necessary) documented?

(e) Is a Spill Response Plan retained in the SWMP notebook? Subsection 208.06(c) requires that a Spill Response Plan be developed and implemented to establish operating procedures and that the necessary employee training be provided to minimize accidental releases of pollutants that can contaminate stormwater runoff. Records of spills, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately.

(f) Is a list of potential pollutants retained at the site? Subsection 107.25(b)6 requires the Erosion Control Supervisor to identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharge.

(g) If NA is checked for any of the items (a) through (f), indicate why in the space provided, if additional space is needed indicate in section 18 (General Notes).

Stormwater Management Field Inspection Report Instructions (continued)

(14) Current Construction Activities:

- (a) Provide a short description of the current construction activities/phase at the project site; include summary of grading activities, installation of utilities, paving, excavation, landscaping, etc.
- (b) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e). Estimate the acres of disturbed area at the time of the inspection. Include clearing, grading, excavation activities, areas receiving overburden (e.g. stockpiles), demolition areas and areas with heavy equipment/vehicle traffic, installation of new or improved haul roads and access roads, staging areas, borrow areas and storage that will disturb existing vegetative cover.
- (c) Has the Phased BMP Implementation Matrix on the SWMP been updated? As part of the inspection the Phased BMP Implementation matrix for both the structural and non-structural BMPs found at the beginning of the SWMP sheets must be reviewed to ensure that "In use on site" box is checked for BMPs currently use at the time of the inspection.

(15) **Weekly Meeting Notes:** The SWMP Administrator shall take notes of water quality comments and action items at each weekly meeting. At the meeting the following shall be discussed and documented:

- (1) Requirements of the SWMP.
- (2) Problems that may have arisen in implementing the site specific SWMP or maintaining BMPs.
- (3) Unresolved issues from inspections and concerns from last inspection
- (4) BMPs that are to be installed, removed, modified, or maintained.
- (5) Planned activities that will effect stormwater in order to proactively phase BMPs.
- (6) Recalcitrant inspection findings

(16) **Construction Site Assessment & Corrective Actions:** Inspect the construction site and indicate where BMP feature(s) identified in section 13 (SWMP Management), require corrective action. Erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are operating correctly.

- Location. Site location (e.g., project station number, mile marker, intersection quadrant, etc.).
- BMP. Indicate the type of BMP at this location that requires corrective action (e.g., silt fence, erosion logs, soil retention blankets, etc.).
- Condition. Identify the condition of the BMP, using more than one letter (identified in section 16) if necessary.
- Description of Corrective Action and Preventative Measure Taken. Provide the proposed corrective action needed to bring the area or BMP into compliance. Once corrective actions are completed, state the measures taken to prevent future violations and ensure that the BMPs are operating correctly, including the required changes made to the SWMP.
- Date Completed & Initials. Date and initial when the corrective action was completed and the preventative measure statement finished.

(17) **Construction Site Assessment:** Was there any off site discharge of sediment at this site since the last inspection?

(a) Is there evidence of discharge of sediment or other pollutants from the site? **Off site pollutant discharges are a violation of the permit.** The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to State water.

(b) Has sediment or other pollutants discharging from the site reached State waters? **Off site pollutant discharges are a violation of the permit.** If off site discharge has occurred, explain the discharge and the corrective actions in section 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).

(18) **General Notes:** Indicate any additional notes that add detail to the inspection; this may include positive practices noted on the project.

(19) **Inspection Certification:** In accordance with Part I, F.1.c of the CDPS-SCP, all reports for submittal shall be signed and certified for accuracy.

(20) **Compliance Certification:** In accordance with Part I, D.6.b.2.viii of the CDPS-SCP, compliance shall be certified through signature.

COLORADO DEPARTMENT OF TRANSPORTATION SPEED MEMO	Project No.:	Project Code (SA#):
	Location:	
MESSAGE		Date:
To:		
Subject:		
Signed (CDOT)		Title:
By Signing Below I Acknowledge Receipt of This Document		
Signed:		Title:
REPLY		Date:
To:		
Signed:		Title:

Distribution:

- Contractor
- Resident Engineer
- Project Engineer

Inspection Calendar Instruction

Per 208.03.(d).(8) Calendar for marking when all inspections except the daily inspections take place.

Instructions:

- Use the calendar to track 7 day inspections (1176), Monthly Audit Reports (MAR), RECATs and runoff event inspections.
- Design a legend to delineate the 4 different inspections noted.
 - a. 7 day inspections (1176)
 - b. Runoff Events
 - c. Monthly Audit Reports (MAR)
 - d. Regional Environmental Construction Assessment Team (RECAT)
- When an inspection is conducted, fill out the calendar showing dates and type of inspection per legend noted above.
- Daily inspections (1388) do not need to be shown on calendar.

Calendar for Year 2017 (United States)

<p>January</p> <table border="1"> <thead> <tr><th>Su</th><th>Mo</th><th>Tu</th><th>We</th><th>Th</th><th>Fr</th><th>Sa</th></tr> </thead> <tbody> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr> <tr><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td><td></td></tr> <tr><td>5:☉</td><td>12:☽</td><td>19:☾</td><td>27:☿</td><td></td><td></td><td></td></tr> </tbody> </table>	Su	Mo	Tu	We	Th	Fr	Sa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					5:☉	12:☽	19:☾	27:☿				<p>February</p> <table border="1"> <thead> <tr><th>Su</th><th>Mo</th><th>Tu</th><th>We</th><th>Th</th><th>Fr</th><th>Sa</th></tr> </thead> <tbody> <tr><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr> <tr><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> <tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>26</td><td>27</td><td>28</td><td></td><td></td><td></td><td></td></tr> <tr><td>3:☾</td><td>10:☽</td><td>18:☿</td><td>26:☿</td><td></td><td></td><td></td></tr> </tbody> </table>	Su	Mo	Tu	We	Th	Fr	Sa				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28					3:☾	10:☽	18:☿	26:☿				<p>March</p> <table border="1"> <thead> <tr><th>Su</th><th>Mo</th><th>Tu</th><th>We</th><th>Th</th><th>Fr</th><th>Sa</th></tr> </thead> <tbody> <tr><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr> <tr><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> <tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td></td></tr> <tr><td>5:☉</td><td>12:☽</td><td>20:☾</td><td>27:☿</td><td></td><td></td><td></td></tr> </tbody> </table>	Su	Mo	Tu	We	Th	Fr	Sa				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		5:☉	12:☽	20:☾	27:☿										
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Holidays and Observances:

Jan 1 New Year's Day	May 14 Mother's Day	Nov 10 Veterans Day (observed)
Jan 2 'New Year's Day' observed	May 29 Memorial Day	Nov 11 Veterans Day
Jan 16 Martin Luther King Jr. Day	Jun 18 Father's Day	Nov 23 Thanksgiving Day
Feb 14 Valentine's Day	Jul 4 Independence Day	Dec 24 Christmas Eve
Feb 20 Presidents' Day	Sep 4 Labor Day	Dec 25 Christmas Day
Apr 13 Thomas Jefferson's Birthday	Oct 9 Columbus Day (Most regions)	Dec 31 New Year's Eve
Apr 16 Easter Sunday	Oct 31 Halloween	

Calendar for Year 2018 (United States)

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Holidays and Observances:

Jan 1 New Year's Day	May 28 Memorial Day	Nov 12 Veterans Day (observed)
Jan 15 Martin Luther King Jr. Day	Jun 17 Father's Day	Nov 22 Thanksgiving Day
Feb 14 Valentine's Day	Jul 4 Independence Day	Dec 24 Christmas Eve
Feb 19 Presidents' Day	Sep 3 Labor Day	Dec 25 Christmas Day
Apr 1 Easter Sunday	Oct 8 Columbus Day (Most regions)	Dec 31 New Year's Eve
Apr 13 Thomas Jefferson's Birthday	Oct 31 Halloween	
May 13 Mother's Day	Nov 11 Veterans Day	

Calendar generated on www.timeanddate.com/calendar

Calendar for Year 2019 (United States)

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Holidays and Observances:

Jan 1 New Year's Day	May 12 Mother's Day	Oct 31 Halloween
Jan 21 Martin Luther King Jr. Day	May 27 Memorial Day	Nov 11 Veterans Day
Feb 14 Valentine's Day	Jun 16 Father's Day	Nov 28 Thanksgiving Day
Feb 18 Presidents' Day	Jul 4 Independence Day	Dec 24 Christmas Eve
Apr 13 Thomas Jefferson's Birthday	Sep 2 Labor Day	Dec 25 Christmas Day
Apr 21 Easter Sunday	Oct 14 Columbus Day (Most regions)	Dec 31 New Year's Eve

Calendar generated on www.timeanddate.com/calendar

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Environmental Pre-construction Meeting Attendance and Certification of Understanding

Date:

Project Name, Number, and Sub-account:

The following individuals were in attendance at the Environmental Pre-construction meeting and hereby understand the terms and conditions of the CDPS-SCP, the site's associated SWMP.		
Name:	Signature:	Company and Title:

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Environmental Pre-construction Meeting Certification of Understanding

The following individuals have been updated on the items discussed at the Environmental Pre-construction meeting and hereby understand the terms and conditions of the CDPS-SCP, the site's associated SWMP.

Date:	Name:	Signature:	Company and Title:

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1. Introductions

	Name	Phone number	Email Address
Project Engineer			
Superintendent			
Contractor's SWMP Administrator			
Supervisors or Foremen			
RWPCM			
CDOT SWMP Preparer or Reviewer			

2. Purpose of the Environmental Pre-construction Conference

- To discuss the terms and conditions of the Stormwater Management Plan (SWMP). Review the regulatory enforcement mechanisms outlined in 208.09 Failure to Perform.
- Project site review.
- At the conclusion of the Environmental Preconstruction Conference, each attendee is required to sign the Certificate of Understanding acknowledging that they understand the terms and conditions of the SWMP and the Permit. Any other individuals that comes onto the project site during construction (including sub-contractors and suppliers) shall also be made aware of these requirements and they are required to sign the Certification of Understanding. This Agenda and the Certification of Understanding must be included in Tab 15 of the SWMP Notebook.

3. Concept, Goal and Compliance

- Basic concept is that stormwater runoff caused by precipitation is OK. It's the pollutants collected in the runoff as it is conveyed through our construction site that is the problem.
- Our goal is to contain, reduce or eliminate the pollution to the stormwater runoff that is caused by the project's construction activities be it grading, paving, painting, or simply where we park our vehicles and dispose of our trash.
- This project has a Permit from the Colorado Department of Public Health and Environment (CDPHE). Under this Permit, facilities are granted authorization to discharge stormwater associated with construction activities into State waters of Colorado; however, there are regulatory requirements that we need to comply with to protect water quality as defined in the Permit.
- The SWMP must include a description of all stormwater management controls that will be implemented as part of the construction activity to control pollutants in stormwater discharges such as sediment, chemicals and trash.
- The Contractor is responsible for making their own determination as to the adequacy and locations of BMP types, and shall amend the SWMP in accordance with Section 208.

4. Project Start Date

- Prior to construction the Region Water Pollution Control Manager (RWPCM) and the contractor's SWMP Administrator shall:

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- Evaluate the project site for stormwater draining into or through the site.
- Evaluate the project site for non-stormwater coming onto the site.
- Review existing inlets and determine if protecting is needed.
- Review and identify sensitive habitats on site, wetlands and other vegetation (including trees) to be protected.

The anticipated start of construction is: _____

5. Inspections

- **7-day and post-storm event inspections** by the SWMP Administrator and Erosion Control Inspector (if required), Superintendent and Project Engineer per specification 208.03 (c) 2.
- **Headquarter and Region water quality inspections** performed by the RWPCM per CDOT's Municipal Separate Storm Sewer System (MS4) permit. Attendees can include the RWPCM, the Project Engineer, the Superintendent, SWMP Administrator and Erosion Control Inspector (ECI) (if needed). Inspections with aforementioned representatives will perform an audit of the SWMP notebook and a MS4 compliance site inspection. The concept of these inspections is to initially assess each project for their level of environmental risk to adversely impact State waters, and then continually reassess the project's performance throughout the duration of the project. Environmental risk is based upon factors such as proximity to State waters, amount of acres of disturbance, type of project, soil classification, slopes and type of "findings" identified during the inspection. The findings identified in the inspection that need to be corrected must be documented within ESCAN.
- **Local Jurisdictional and Qualifying Local Program inspections** may also be required per Part 1, A.1 of the Permit unless a waiver or other agreement has been made.

6. Failure to Perform Erosion Control

- Failure to implement the SWMP is a violation of the Permit and CDOT specifications. Penalties will be assessed to the Contractor by the appropriate agencies. Any penalties (including monetary fines) assessed to the Department for the Contractor's failure to implement the SWMP will be deducted from moneys due the Contractor in accordance with subsection 107.25 (c) 2. See subsection 208.09 for further information about notifying Contractor for incidences of failure to perform, liquidated damages, and stop work orders.
 - **First Engineer Response** – The Engineer will provide immediate verbal notification to Contractor accompanied by a Form # 105 to the Contractor requiring immediate compliance with the Permit. The Contractor has 48 hours from 11:59 p.m. of the day the Form 105 was issued to complete the work. Compliance must be documented by a reply to the Form 105 of the corrected items. Documentation must be submitted to the Engineer by the following business day after the 48 hour period.
 - **Second Engineer Response** – If required work is not completed within 48 hours of the issued Form 105, the Engineer will assess the appropriate liquidated damages. Liquidated damages will continue to accumulate for each calendar day until all corrections are completed as stipulated under revised subsection 208.09.
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- **Third Engineer Response** – If the Contractor fails to correct compliance failures within 48 hours without acceptable justification, once liquidated damages are applied, the Engineer will issue a Stop Work Order in accordance with subsection 105.01.
- **Fourth Engineer Response** – If the Contractor's deferment request including the corrective action plan and schedule are not submitted within 96 hours of the initial notice, the Engineer will schedule an on-site meeting with the Resident Engineer, RWPCM, Superintendent, SWMP Administrator, and the Superintendent's supervisor.
- **Fifth Engineer Response** – If the Contractor remains non-responsive to requirements of the on-site meeting, the Engineer will start default and Contract termination procedures in accordance with section 108.8 of the Construction Manual.

The Contractor's deferment request shall be in writing and include the specific failure, temporary measures until final correction is made, the methodology which will be employed to make the correction and interim milestones to completing the work. The Region Water Pollution Control Manager (RWPCM), Engineer, the SWMP Administrator and the Contractor shall concur on this deferral and set a proposed date of completion. Based on the submittal date of the approved deferment Liquidated Damages and a Stop Work Order may not be mandated to the Contractor.

When a failure meets any one of the following conditions, the Engineer may immediately issue a Stop Work Order in accordance with subsection 105.01 irrespective of any other available remedy:

- It may endanger health or the environment.
- It consists of a spill or discharge of hazardous substances or oil which may cause pollution of the waters of the state.
- It consists of a discharge of stormwater which may cause an exceedance of a water quality standard.

7. Key Submittals

- SWMP Notebook will be provided to the Contractor at the time of the Environmental Pre-construction Conference. Notebook is and shall remain the property of CDOT. The notebook will be stored in the CDOT field office or at another on-site location approved by the Engineer. Notebook will include the first 4 items per specification 208.03 (d) 1:
 1. SWMP Plan Sheets.
 2. SWMP Site Map(s) and Project Plan Title Sheet.
 3. Copies of subsection 107.25, and Sections 207, 208, 212, 213, and 216 of the Standard Specifications, and the standard and project special provisions that modify them.
 4. Standard Plan M-208-1, M-216-1 and M-615-1.
- Certification that the contractor's appointed SWMP Administrator and ECI (if needed) has completed the Transportation Erosion Control Supervisor (TECS) training program. The SWMP Administrator and ECI shall be a person other than the

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Superintendent. The SWMP Administrator shall be responsible for developing, implementing, maintaining and revising the SWMP for the duration of the project.

- “Spill Response Plan” completed prior to the Environmental Pre-construction Conference. Work shall not be started until the plan has been submitted to and approved by the Engineer. Specification 107.25 (b) 6 and 208.06 (c).
- “List of Potential Pollution Sources” completed prior to the environmental preconstruction conference per specification 107.25 (b) 6.
- “Method Statement for Containing Pollutant Byproducts” statement submitted to the Engineer a minimum of ten days prior to the start of the construction activity per specification 107.25 (b) 13.
- “Clean Equipment Certification” submitted to the Engineer that construction equipment has been cleaned prior to initial site arrival. Vehicles shall be free of soil and debris. Specification 107.25 (b) 20.
- “Construction Dewatering Permit” (CDW) prior to dewatering operations (if any) per specifications 106.02 (b) and 107.25 (b) 8.
- Written notification to downstream owners of water supply at least 15 days prior to dredging or fill operations (if any) per specification 107.25 (b) 9.
- Soil Retention Blankets (Subsection 216.02): A sample of the staples and a copy of the manufacturer's product data showing that the product meets the Contract requirements shall be submitted to the Engineer for approval.

8. SWMP Notebook:

This is for the SWMP Administrator to update and revise as needed. Read all areas prior to the start of construction to make sure they are correct and apply to this project.

208.03 (d) The following Contract documents and reports shall be kept, maintained, and updated in the notebook by the SWMP Administrator:

- (1) SWMP Plan Sheets - Notes, tabulation, sequence of major activities, area of disturbance, existing soil data, and existing vegetation percent cover, potential pollutant sources, receiving water, non-stormwater discharges and environmental impacts.
- (2) Site Map and Plan Title Sheet - Construction site boundaries, ground surface disturbance, limits of cut and fill, flow arrows, structural BMPs, non-structural BMPs, Springs, Streams, Wetlands and surface water. Also included on the sheets is the protection of trees, shrubs and cultural resources.
- (3) Specifications - Standard and Project special provisions related to Stormwater and Erosion Control.
- (4) Standard Plans M-208-1, M-216-1 and M-615-1
- (5) BMP Details not in Standard Plan M-208-1 or M-216-1 (Non-standard details).
- (6) Weekly meeting sign in sheet.
- (7) Calendar of Inspections -Calendar of inspections marking when all inspections take place.
- (8) Form 1176, Weekly meeting notes and inspection report
- (9) Region and Headquarter Water Quality Reports and Form 105(s) relating to Water Quality.
- (10)Description of Inspection and Maintenance Methods –

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- (11) Spill Response Plan - Reports of reportable spills submitted to CDPHE
- (12) List and Evaluation of Potential Pollutants -
- (13) Other Correspondence e.g., agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List and other miscellaneous documentation.
- (14) TECS Certifications of the SWMP Administrator and all ECIs, keep current through the life of the project.
- (15) Environmental Pre-construction Conference – Conference agenda with a certification of understanding of the terms and conditions of the CDPS-SCP and SWMP.
- (16) All Project Environmental Permits - All project environmental permits and associated applications and certifications, including, CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete plant, etc.
- (17) Photographs Documenting Existing Vegetation –
- (18) Permanent Water Quality Plan Sheets - Plan sheets and specifications for permanent water quality structures, riprap.

The Contractor shall provide and insert all other documents and reports as they become available during construction. The Region or HQ Environmental staff may need to be contacted to acquire some of the information (e.g., SB 40 reports, 404 permits, etc).

9. Environmental issues:

- SWMP should include practices to ensure that existing vegetation is preserved where possible – see 101.78 and Part 1.C.3.c.2 of the Permit.
- SWMP should include practices to ensure protection of existing wetlands – see 101.78.
- Protection of threatened and endangered species (T&E habitat) (Biological Resources Report).

10. New requirements from specification updates (includes but not limited to):

- Stabilization is now defined as temporary, interim, permanent and final. The maximum area of temporary stabilization shall not exceed 20 acres.
- One Erosion Control Inspector is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures. The Erosion Control Inspector and the Stormwater Administrator may be the same person in projects involving less than 40 acres of disturbed area.
- The SWMP Site Maps must show the Areas of Disturbance (AD). This is the location where any activity has altered the existing soil cover or topography, including vegetative and non-vegetative activities during construction.
- Replaced the daily inspection requirement with a 7-calendar-day minimum inspection frequency.
- Vehicle Tracking Pad aggregate may be required for maintenance and will be paid for under a new Pay Item, Maintenance Aggregate (Vehicle Tracking Pad).

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11. Additional Project Specific Notes:

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Environmental Preconstruction Conference Agenda [For Attendees]

- 1. Introductions**

- 2. Purpose of Preconstruction Conference**

- 3. Project Schedule/Start Date/Key Submittals**

- 4. SWMP Notebook**

- 5. New in the 101, 107, 208 Water Quality Control Specification**

- 6. Soil Retention Blankets (Subsection 216.02)**

- 7. Additional items, as required**

- 8. Failure to Implement Stormwater Management Plan**

- 9. Inspections**

- 10. Environmental issues**

- 11. Certificate of Understanding**

- 12. Site Review, if needed**

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Potential Pollutants List for CDOT Projects

POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
<p>All disturbed and stored soils</p> <ul style="list-style-type: none"> • Stockpiled soils (i.e. topsoil, embankments, wetland, spoils, etc) • Disturbed soils (exposed areas, staging areas, parking, etc) 			<p>Potential during all phases of construction activities, including but not limited to excavating, grading, cutting, filling, landscaping, etc. Potential pollutants include disturbed eroded sediment entering state waterways, inlets and sewers, and off CDOT right of way.</p> <p><u>BMPs</u></p> <p>Sediment control and stockpile containment may include usage of: silt fence, temporary berms, temporary sediment basin, gravel bags, check dams, landforms, asphalt diversion berms, and inlet protection as outlined in the SWMP narratives.</p> <p>Erosion Control may include: soil roughening, mulch/mulch tackifier application, seeding/mulching, temporary slope drains, and vegetative buffers.</p> <p>Administrative BMPs include site management and limiting number and locations of stockpiles. Phased construction to reduce the amount of open area at any given time.</p>
<p>Vehicle tracking of sediments</p>			<p>Potential during all construction activities.</p> <p><u>BMPs</u></p> <p>Sediment control including: vehicle tracking pads, street sweeping, and inlet protection.</p> <p>Minimize the number of entry and exit points, add orange perimeter fence to define construction entries/exits and establish perimeter control, and require equipment to be cleaned prior to arrival on site.</p>
<p>Management of contaminated soils</p>			<p>If contaminated soils/water are encountered, all activity shall be stopped until the situation can be assessed. The CDOT Project Manager will be contacted for further direction.</p>
<p>Loading and unloading operations</p>			<p>Potential during delivery and staging of materials, equipment, soil, debris, etc.</p> <p><u>BMPs</u></p> <p>Loading and unloading operations shall occur within the disturbance limits of the project using designated vehicle tracking pads.</p> <p>Administrative controls include site management to minimize the number of areas at which loading/unloading occurs. Education as to where access points are on the project to prevent vehicle tracking.</p>

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POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
Outdoor storage activities (building materials, fertilizers, chemicals, etc)			<p>Potential during all phases of construction activities including delivery, staging/storage and use of various materials.</p> <p><u>BMPs</u></p> <p>Containment of the storage or staging areas using temporary berms. Use of secondary containment device for storage of chemicals and petroleum products. Chemicals shall not be used, stored or stockpiled within 50 feet of state waters.</p> <p>Administrative controls including site management to ensure limited amount of materials are stored on site and are placed in proper designated areas.</p>
Vehicle and equipment maintenance and fueling			<p>Fueling of equipment or vehicles and equipment or vehicle repair activities may occur during all phases of construction activity.</p> <p><u>BMPs</u></p> <p>Limit areas where fueling occurs (no less than 50 feet from any state water, inlet, flow line). Ensure Spill Response kit is accessible where fueling is taking place. Use of plastic sheeting, drip pans, dirt berms and other measures to contain fluids. Immediate clean-up and disposal of spoils as detailed in the Spill Prevention, Control and Countermeasure Plan.</p> <p>Administrative controls include site management to limit equipment and vehicle maintenance that occurs on site.</p>
Significant dust or particulate generating processes			<p>Potential during clearing and grubbing, cut/fill activities, sawcutting/sanding work and final stabilization.</p> <p><u>BMPs</u></p> <p>Water truck on site for use as needed to minimize dust production. Use of pickup broom or vacuum during or immediately following sawcutting projects.</p>
Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.			<p>Very few routine maintenance activities will occur on site. See Vehicle and Equipment maintenance for activities associated with those items.</p> <p><u>BMPs</u></p> <p>See Vehicle and Equipment Maintenance</p>

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POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)			<p>All activities including clear and grubbing, demolition activities, et.</p> <p><u>BMPs</u></p> <p>Trash receptacles will be placed on site and garbage disposed of when full. Public trash will be routinely picked up around the site (daily) and disposed of in proper containers. Wastepiles shall be placed a minimum of 50 feet from state waters, contained by earthen berms, silt fence, erosion logs, and landforms. Wastepiles shall be placed in areas where stormwater runoff would not result in contamination of state waters.</p> <p>Liquid wastes will be contained and removed from site and properly disposed of by the subcontractors/contractor generating wastes in accordance with the Spill Prevention, Control and Countermeasure Plan.</p>
Non-industrial waste sources such as worker trash and portable toilets			<p>Potential throughout construction.</p> <p><u>BMPs</u></p> <p>See onsite waste management.</p> <p>Cleanup of trash will occur daily. A dumpster will be placed on site, at our office trailer. This will be emptied on a weekly basis, and more often, if waste amounts warrant extra pick-ups. Portable toilets will be located a minimum of 50 feet from state waters.</p> <p>They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills. Administrative controls will include site management practices to ensure workers are placing trash in the appropriate dumpsters. Monitoring to ensure trash dumpsters are removed from the site when full. Monitoring to ensure portable toilets are cleaned as needed, and repaired or removed if found to be leaking.</p>
Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment			<p>Activities associated with this pollution source are concrete pours.</p> <p><u>BMPs</u></p> <p>Dedicated concrete washout areas that are clearly marked and maintained.</p>
Dedicated asphalt and concrete batch plants			<p>Activities associated with asphalt and concrete batch plants.</p> <p><u>BMPs</u></p> <p>Perimeter controls, concrete washout area, and vehicle tracking pad.</p>
Other areas or procedures where spills can occur			<p>Any additional potential pollutants shall be identified below.</p>

Note: If "Yes" is marked, identified items/products will be used on site during construction and therefore have the potential for being a pollution source if not properly handled.

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Provide Sketch of Non-Standard BMP Detail

Created By: _____ Date: _____

Engineer Approval Through Form 105? YES NO

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Company Name

Name of BMP

What:	
When:	
Where:	
Why:	
How:	

Submitted By: _____ Date: _____

Engineer Approval Through Form 105?

YES

NO

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Spill Response Plan

Introduction

In accordance with CDOT Standard Specification subsection 208.06;
_____ has developed this Spill Response Plan to establish standard operation procedures and the necessary employee training to minimize the likelihood of accidental releases of pollutants that can contaminate stormwater runoff.

1. Identification and contact information of each Spill Response Coordinator

All responsible personnel and their corresponding contact information are presented in the table below.

Name and Title	Phone Number

2. Locations of areas on project site where equipment fueling and servicing operations are permitted

3. Location of cleanup kits

The kit will contain an absorbent boom, absorbent rags, absorbent litter and an over-pack drum to store the material.

Type of spill kit	Location(s)

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4. Quantities of chemicals and locations stored on site

The following is a table of chemical quantities and where they are located on site.

Material	Quantity	Staging/Storage Location

5. Label system for chemicals and Safety Data Sheets (SDS) for products

Any products/chemicals that are located or stored onsite shall be properly labeled as to the contents of the material. The Safety Datasheets for all products/chemicals utilized onsite can be found in a notebook onsite.

6. Notification and cleanup procedures to be implemented in the event of a spill for spills which do not enter state waters or are under reporting limits of the chemical of concern (diesel fuel, hydraulic fluid, motor oil, used hydraulic fluid and motor oil, tack oil)

- Immediately notify onsite Spill Cleanup Coordinator (see table above)
- Immediately notify CDOT Project Engineer
- Under the direction of Spill Cleanup Coordinator; contain the spill with spill cleanup kit, remove and dispose of debris properly offsite

7. Procedures for spills of any size that enter surface waters or ground water, or have the potential to do so

For non-hazardous materials, the following measures shall be implemented:

- Contact the CDPHE Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event. A written notification to the CDPHE-EMP is necessary within 5 days.
- Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
- Report spill to the Project Engineer and CDOT maintenance personnel on patrol.
- Call the CDOT illicit discharge hotline (303 - 512 - 4H2O (4426)) if spilled material spreads to a CDOT storm drain or a waterway adjacent to CDOT right-of-way.

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For spills involving **hazardous** materials, the following measures shall be implemented:

- Contact the local emergency response team by dialing 911.
- Contact the CDPHE Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event. A written notification to the CDPHE-EMP is necessary within 5 days.
- Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
- Report spill to Project Engineer and CDOT maintenance personnel on patrol.
- Call the CDOT illicit discharge hotline (303 - 512 - 4H2O (4426)) if spilled material spreads to a CDOT storm drain or a waterway adjacent to CDOT right-of-way.

8. Spill Prevention and Response Training

Prior to project startup, _____ personnel have been trained in the following spill control procedures:

- Spill control
- Containment
- Spill response, containment and clean-up
- Company policies on reporting and responding to spills
- Protection of environmentally sensitive areas

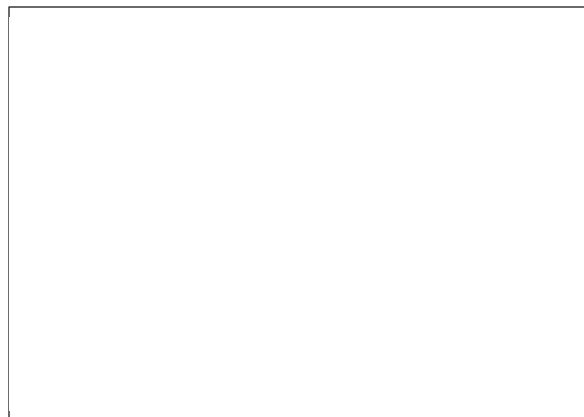
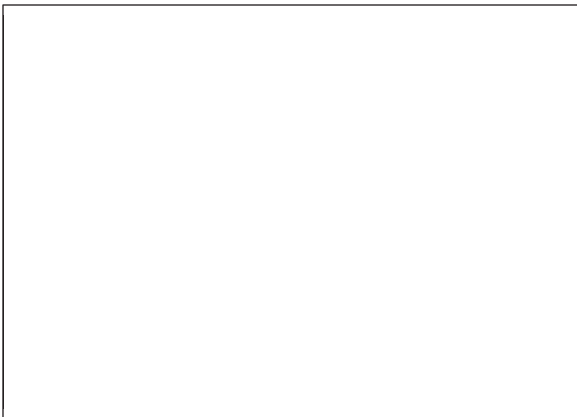
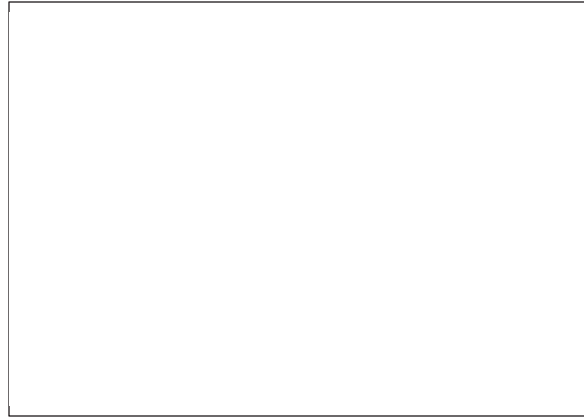
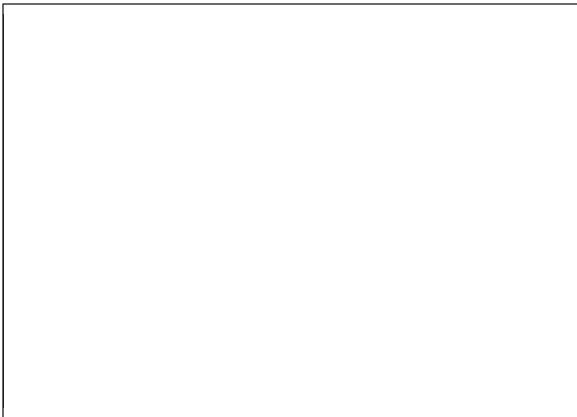
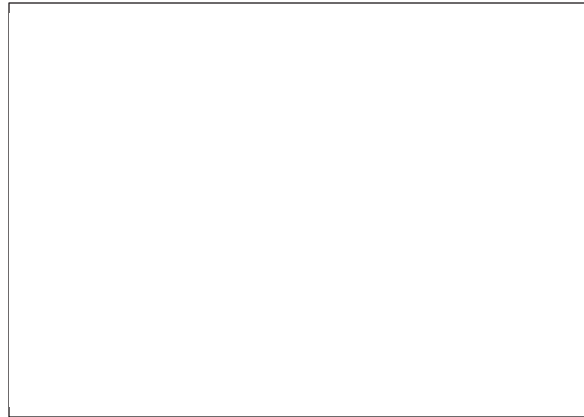
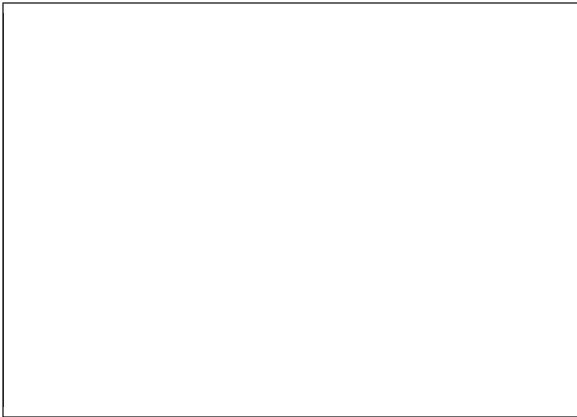
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Photographs Documenting Existing Vegetation

Project: _____

Date of photos: _____

Photos taken by: _____



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Water Quality Permit Transfer to Maintenance Punchlist

<u>Item</u>	<u>Additional Actions Needed?</u>	<u>Location</u>	<u>Comments</u>
<u>Erosion and Sediment Sources</u>			
Are there signs of erosion ?			
Are there signs of sedimentation ?			
Do the outfalls need to be cleaned?			
Is there sediment in the inlets ?			
<u>Pollutants and Controls (BMP)</u>			
Is the particular pollutant missing a BMP?			
Has the BMP(s) been maintained properly?			
Has an incorrect BMP been used for the particular pollutant?			
Are there stockpiles needing to be removed?			
Does the concrete washout need to be removed?			
Are there signs of spills (including stains) on site that are not controlled?			
Are there signs of concrete, trash/debris or other pollutants not belonging on site?			
<u>BMPs</u>			
Are there any non-standard BMPs ? If so, is there a non-standard spec available?			
Do the perimeter controls need to be maintained or removed?			
Do the BMPs within channelized flows need to be maintained or removed?			
Do the BMPs on sheet flows need to be maintained or removed?			
Do the inlet protectors need to be maintained or removed?			
Are additional BMPs needed?			
Are there BMPs that need to be removed ?			
Are there any vehicle tracking pads that need to be removed?			
Are the permanent water quality features functioning incorrectly?			

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<u>Stabilization Methods</u>	
Are there any areas on site that do not have final stabilization methods applied?	
Are the outfalls lacking stabilization?	
Are there any areas that appear to need rework or additional work ?	
Are there areas that that the soil is compacted and need the soil loosened or roughened to promote vegetation growth?	
Is the stabilizer (Ex. mulch, tackifier, etc.) in need of repair?	
Are there areas with the soil stabilizer (Ex. mulch, tackifier, etc.) disturbed that needs to be reapplied?	
<u>Questions for PE/ECS</u>	
Are there any wetlands on or adjacent to site?	
Are there any areas with special maintenance needs?	
Are there any problem areas that will need extra attention under maintenance control?	
Is there any advice that PE or ECS can give about project?	
Are there any sensitive areas?	
Are there any endangered or threatened species noted on or adjacent to the site?	
Is there any specific information on particular BMPs on site, including soil binders, tackifiers and/or sprayon products?	
Are there any major areas of site run on, ground water or seasonal flows on site?	
Is there any additional work to be conducted after today?	
<p>Note: For successful project permit transfer from Engineering to CDOT Maintenance, all answers (except those listed under Questions for PE/ECS) should be answered "no" or have a corrective action associated in the comment section.</p>	

