COLORADO DISCHARGE PERMIT SYSTEM (CDPS) GENERAL PERMIT COR400000

Guidance for Achieving Final Stabilization

Revised January 2021

The Water Quality Control Division (division) prepared this guidance to help clarify final stabilization requirements under the COR400000 General Permit for Stormwater Discharges Associated with Construction Activity.

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Final Stabilization Requirements and Definitions

Final stabilization must be implemented for all construction sites covered under the CDPS General Permit for Stormwater Discharges Associated with Construction Activity (COR400000) (the stormwater permit). Final stabilization is achieved when the following three conditions are met:

1) All construction activities are complete

2) Permanent stabilization methods are complete.

3) All temporary control measures are removed from the site except when the control measure specifications allow the control measure to be left in place.

Final Stabilization must be designed as a permanent feature. Permanent stabilization methods include but are not limited to, permanent pavement or concrete, hardscape, xeriscape, stabilized driving surfaces, vegetative cover, or equivalent permanent alternative stabilization methods.

In accordance with Part 1.E of the CDPS General Permit for Stormwater Discharges Associated with Construction Activity (COR400000) (the stormwater permit):

- **Final Stabilization** - Final Stabilization is the condition reached when construction activities at the site have been completed, permanent stabilization methods are complete, and temporary control measures are removed. Areas being stabilized with a vegetative cover must have evenly distributed perennial vegetation. The vegetation coverage must be, at a minimum, equal to 70 percent of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site.
- **Construction Activity** - Ground surface disturbing and associated activities (land disturbance), 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 the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of routine maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is exposed as part of the repaving operation are considered construction activities. Construction activity is from initial ground breaking to final stabilization regardless of ownership of the construction activities.

Using Vegetative Cover to Achieve Final Stabilization

When vegetative cover is to be used as a permanent feature for final stabilization, it must meet the following criteria:

a. Evenly distributed perennial vegetation, and

b. Coverage, at a minimum, equal to 70 percent of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site

Native Vegetation - In an effort to align with EPA's definition and implementation of natural vegetation the division describes native vegetation as; plant species that are naturally occurring for the particular area (or region) and have adopted to and are well suited for the soil, temperature, nutrients and precipitation of the (region) particular area.

Adequate Reference Site - If information directly related to the pre-disturbance or pre-existing natural vegetation for a site is not known, the permittee may utilize an "adequate reference site" to account for urban areas that may not have a nearby undisturbed area to reference. An adequate reference site should be one that can be demonstrated to naturally support a plant community similar in composition to the permitted site. While the distance to the reference site is not limited by the permit, geographical and ecological considerations should be made to ensure that the reference site could be reasonably expected to support a plant community that is similar in nature to the permitted site prior to any land disturbance. An adequate reference site should have similar soil types, climate, nutrients and precipitation of the construction site.

Stormwater Management Plan Requirements

Implementation of Control Measures (Part I.C.2.a.vi of the permit) – *The SWMP must include design specifications that contain information on the implementation of all the structural and nonstructural control measures in use on the site in accordance with good engineering, hydrologic and pollution control practices; including, as applicable, drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.*

- The requirement applies to any control measure used to achieve final stabilization. Common control measures used to achieve final stabilization that would require a design specifications are seed mix applications, crimp mulch, erosion control blankets and sediment control logs. Design specifications for all landscaping materials may not be necessary. If the construction site is utilizing a landscaping plan to illustrate how final stabilization will be achieved this should be incorporated by reference into the SWMP and also available on site for review during any division inspection.

Site Description (Part I.C.2.a.vii of the permit) – The SWMP must include a site description which includes the following information as it relates to final stabilization.

Phasing (I.C.2.a.vii.b) *The proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (E.g. clearing, grading, utilities, vertical, etc.).*

- Final stabilization should be included as a major phase of construction in this section of the SWMP along with a list of the control measures to be used for achieving final stabilization.

Soils Description (I.C.2.a.vii.d) *A summary of any existing data and sources used in the development of the construction site plans or SWMP that describe the soil types found in the permitted area and the erodibility of the identified soil types.*

- To meet this requirement this section of the SWMP could include a narrative that describes a summary of the soil types found at the construction site, a discussion on the erodibility and potential for soil erosion, as well as reference the source for this information. The source of this information will vary based on project type and location but common sources include Natural Resource Conservation Service data, geotechnical reports and soil conservation mapping.

Vegetation Description (I.C.2.a.vii.e) *A description of the percent cover of native vegetation on the site if the site is undisturbed, or the percent cover of native vegetation in a similar, local undisturbed area or adequate reference area. This should be the criteria by which the permittee judges whether they have achieved at a minimum 70% of what would have been provided by native vegetation. The description in the plan must include the source or methodology for determining the percentage of cover.*

- To meet this requirement this section of the SWMP could include a simple citation to the reference materials used to determine the percentage of cover; either the percent of native vegetation or the adequate reference area. It is not necessary to include a copy of the entire source in the SWMP. It is also the division's intent that, if sampling of plant communities is conducted, the permittee should name or describe the sampling technique used to measure percent cover. The best available sampling methodology can vary based on location and the plant community that is being sampled. If a percent cover is not appropriate for the site location (i.e. arid conditions), describe the technique and justification for the identified cover of native vegetation.

Final Stabilization and Long Term Stormwater Management (Part I.C.2.a.ix of the permit) – The SWMP must include a description of methods used to achieve final stabilization.

Part I.C.2.a.ix.b. *The SWMP must describe and locate the methods used to achieve final stabilization of all disturbed areas at the site, as listed in the permit.*

- The SWMP must have a narrative that includes a description of how final stabilization will be achieved for all areas of disturbance as well as a discussion of the where these methods will be implemented on the site. For example the SWMP could meet this requirement by stating that all areas not built upon will implement the landscape plan for the site or all areas of the site that are not paved or landscaped will be stabilized through the establishment of vegetative cover. The active site map for the construction site must be reflective of current site conditions and therefore if the construction site is in the stages of final stabilizations the site map would locate all areas where the methods used to achieve final stabilization are implemented.

Part I.C.2.a.ix.c. *The SWMP must describe the measures used to establish final stabilization through vegetative cover or the alternative stabilization method and describe and locate any temporary control measures in place during the process of final stabilization.*

- If vegetative cover is to be used, the SWMP narrative should discuss where it will be implemented and how. For example, will vegetation be established through hydro seeding, seed and mulch, or seed and blankets? Consider if there will be areas of the site that will require special techniques or control measures such as stream banks, steep slopes, or areas that may require irrigation and describe the plans to stabilize them. Any alternative stabilization methods implemented such as stabilized access roads should also be discussed. If there will be temporary control measures utilized to achieve final stabilization such as perimeter controls like silt fence, those should also be included in the final stabilization narrative portion of the SWMP.

Part I.C.2.a.ix.d. *The SWMP must describe and locate any planned permanent control measures to control pollutants in stormwater discharges that will occur after construction operations are completed, including but not limited to, detention/retention ponds, rain gardens, stormwater vaults, etc.*

- The SWMP must have a narrative that discusses any permanent control measures that will be installed. The most common permanent control measures are detention and retention ponds but if others are used they also must be addressed in the SWMP. Since these are considered control measures they would need design specifications. Once these control measures are implemented on site they must be located on the active site map.

Inspections at Completes Sites/Areas (Part I.D.4.b of the permit) *- When the site, or portions of a site, are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days (reduced from every 14 days with post storm or every 7 days). Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:*

a) A*ll construction activities resulting in ground disturbance are complete* (See: definition of "Construction Activities").
   - There may be instances where some finishing work on buildings will be occurring but the permittee may still implement a reduced inspection frequency.

b) *All activities required for final stabilization, in accordance with Part I.B.1.a.iii(b) & (c) and 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.*

c) *The SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.*
   - This can be done on the site map.

Alternatives to Using Vegetative Cover for Final Stabilization

The stormwater permit allows the permittee to use alternatives to vegetation to achieve final stabilization. All alternatives to vegetation must meet specific criteria to be considered equivalent to vegetation (see below). Permittees must ensure these criteria are met when planning for final stabilization in the stormwater management plan.

- **Stabilization must be permanent:** All final stabilization methods, whether the permittee implements vegetation or an alternative to vegetation, must be designed and implemented as a permanent feature. Temporary measures, such as erosion control blankets that are designed to be removed or to degrade in place, are not permanent and cannot be used to meet the final stabilization requirements in the permit.
- **All disturbed areas must be stabilized:** Final stabilization is achieved at a facility when **all** disturbed areas are stabilized. Stabilization alternatives must be implemented in all disturbed areas where the permittee will not utilize vegetation to meet the 70% vegetation density

requirement.

- **Alternatives must follow good practices:** All stabilization practices must be selected, designed, installed and maintained following good engineering, hydrologic and pollution control practices. Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:
    a. Are based on basic scientific fact(s)
    b. Reflect best industry practices and standards
    c. Are appropriate for the conditions and pollutant sources
    d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.

  Typically, industry- accepted criteria manuals that document the appropriate use of practices using selection criteria such as slope and slope length, soil type, flow conditions, pollutant sources, etc., will meet this standard. To help ensure that the alternate stabilization practices meet this standard, the Division recommends that a Licensed Professional Landscape Architect or other appropriately trained specialist design them.

  Further, the SWMP must include details specifying how any alternative stabilization practices will be installed and implemented in accordance with those good practices. For example, if landscape gravel cover is implemented, the permittee must rely on good landscaping design practices and specifications for **permanent** rock cover, including proper soil preparation, underlayment, slope limitation, etc. in accordance with the industry-accepted criteria used.

Examples of practices that may be considered for alternative stabilization include:

- **Permanent Pavement and Buildings:** Permanent impervious areas, including roofed buildings, asphalt, and concrete meet the alternative stabilization criteria as long as they are designed and implemented to minimize erosion and are permanent. Note that when permanent impervious areas are part of the overall site plan and not implemented for the purposes of stabilization, it is not necessary to provide specifications for their use in the SWMP. Temporary coverings such as tarps and shelters with roofs that allow precipitation or runoff to contact underlying soils are **not** considered permanent stabilization practices.
- **Hardscape**: May be used where the upper soil profile is not exposed and the materials, including underlayment as necessary, are appropriate for slopes and other conditions. Hardscape must be designed to minimize erosion, e.g. must prevent rill erosion. The SWMP must include the design details including the underlayment type and fasteners. An example of an installation that does not meet the criteria of good engineering practices is spreading rock on a site without determining the necessary depth and underlayment to prevent erosion of the underlying soils.
- **Geogrid**: A geosynthetic material mainly used to permanently reinforce soil by interlocking with the soil to improve stabilization. Geosynthetic material must be designed to minimize erosion, e.g. must prevent rill erosion. Applications include base stabilization in areas slow to vegetate, highly erosive soils, steepened slopes, and embankments constructed over weak soils. A wide variety of such materials are available, for example, products such as Turf Reinforcement Mat (TRM), which provides a permanent alternative to hard armor erosion protection, and can withstand prolonged exposure to UV light with negligible degradation.
- **Landscaped Beds and Xeriscape**: Landscape design using individual plants within a stable bed. The landscaped area must be designed and implemented in such a way that area(s) will not have rill or other erosion between plants, including such practices as providing cover landscaping fabric covered with rocks, much, or bark. The stabilization practice must be appropriate for the slopes present to prevent washing materials off the slopes, which may necessitate terracing.
- **Compacted and Stabilized Unpaved Driving Surfaces**: Includes areas such as stabilized gravel roads and parking areas. Stabilized unpaved surfaces must follow good engineering practices for slopes, preventing concentrated flow, compaction, and surface cover appropriate for traffic, etc. The surface must be designed, graded, compacted and otherwise prepared in such a way as to minimize erosion,
  E.g. prevent rill erosion.

- **Agricultural Land Exemption**: Areas where construction activities have occurred that are returned to agricultural uses are no longer required to maintain coverage under this permit because agricultural storm water discharges are exempted by Section 402(l)(1) of the 1987 Water Quality Act from NPDES permitting requirements. Areas where croplands have been restored and returned to surface owners for agricultural use may be removed from permit coverage.

Permit Termination When Final Stabilization is Achieved

If all the following conditions for final stabilization are met, the permittee may submit a permit termination form online through the Colorado Environmental Online System (CEOS):

- All construction activities are complete
- Permanent stabilization methods are complete
- All temporary control measures are removed from the construction site

The permittee will be required to provide a description of the final stabilization methods employed at the site in order to submit the permit termination. It is a violation of the construction general permit for permit coverage to be terminated at a site prior to all the above conditions being met. In addition, termination prior to meeting the permit conditions may create a scenario in which they are causing a point source discharge to surface waters without permit coverage required by Colorado Water Quality Control Act and the Federal Water Pollution Control Act.