

San Diego Stormwater Copermittees  
Jurisdictional Urban Runoff Management Program  
(URMP)

Construction Activities  
Model Program Guidance

September 19, 2001



project clean water

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## ***Section I. Background***

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More than 2.9 million people live and work in the eighteen cities and unincorporated portions of San Diego County. To varying degrees, each of these people contributes to existing water quality problems and therefore play a role in solving them. As the population of the County increased, so does the urbanization and the potential for construction related pollutants to be discharged into stormwater conveyance systems and receiving waters.

Order No. 2001-01 (Permit) section F.2. establishes requirements for local jurisdictions to develop and implement a program to reduce contaminants in urban runoff originating from construction activities. It requires that high priority construction activities be identified, that minimum Best Management Practices (BMPs) be established for each priority, and that a process for ensuring the application of BMPs be implemented and enforced by Copermittees. In support of this mandate, this document provides suggested guidance to Copermittees in developing the Construction Activities element of their Jurisdictional Urban Runoff Management Programs<sup>1</sup> as required by Permit section H.1.a (1) to be submitted to the SDRWQCB by February 21, 2002. It does not establish, or promote the establishment of, a particular set of minimum standards or program activities for Copermittee programs. Rather, it provides guidance for establishing individual program priorities and requirements, and a description of viable options and approaches available to Copermittees in lawfully complying with their permit obligations. Recommended activities are based on the consensus of the Model Construction Activities Technical Workgroup.

A second and equally important focus of this guidance is to promote consistency between Copermittee programs. Permit section N.1. specifically requires that Copermittees “collaborate with all other Copermittees regulated under this Order to address common issues, promote consistency among Jurisdictional Urban Runoff Management Programs (Jurisdictional URMPs), and to plan and coordinate activities required under this Order.” Consistency is especially crucial to the citizens, contractors, developers and engineers of San Diego County who must ultimately abide by the standards and requirements set forth in individual jurisdictional programs. This document represents the first phase of Copermittee collaboration with respect to construction activities. It is expected that additional collaboration will be necessary as Copermittees implement programs and evaluate their effectiveness over time.

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<sup>1</sup> Program strategies for addressing the post-construction impacts of new development and significant redevelopment are discussed in a separate model program element.

## ***Section II. Program Objectives***

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The goal of this program is to provide a set of guidelines which will result in practices aimed at minimizing the deleterious impacts of construction activities, on the quality of receiving waters and where possible enhance the environmental resources within the County of San Diego. In support of this goal, this Model Program Guidance addresses the following primary objectives;

1. To support implementation of policies and practices that minimize the impacts of construction activities on the region's receiving waters and other environmentally sensitive areas.
2. To assist Copermitees in maintaining compliance with NPDES permit requirements and other applicable environmental laws and regulations.
3. To provide Copermitees with model guidelines for developing and implementing stormwater management requirements for construction activities.
4. To establish and maintain a viable balance between the region's construction needs and the protection of its environmental resources.

### ***Section III. Implementation Strategy***

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Implementation of a comprehensive program to effectively address stormwater discharges from construction activities will require that Copermittees develop and implement a number of program elements. This section provides an overview of these elements. Specific permit requirements pertaining to each are noted as applicable. Copermittees are also encouraged to continue identifying and implementing other elements not addressed here to augment and improve their programs for construction activities.

#### **A. PRIORITIZATION OF CONSTRUCTION ACTIVITIES, SOURCES AND SITES**

Copermittees must consider the types of construction activities and areas within their jurisdictions and establish their program priorities and requirements accordingly. Permit section F.2.e. establishes the minimum construction activities which must be given high priority status by Copermittees. It additionally establishes seven criteria that must be considered in determining whether other sources should be considered high priority. Copermittee program activities and requirements must be established which appropriately reflect each of these priorities. The establishment of Copermittee program priorities for construction activities is described further in section IV of this document.

#### **B. ESTABLISHMENT AND MAINTENANCE OF LEGAL AUTHORITY FOR DISCHARGE PROHIBITIONS AND MINIMUM BMP REQUIREMENTS**

Copermittees must establish and maintain adequate legal authority to implement the provisions of their urban runoff programs. This generally requires the establishment of two types of requirements; minimum Best Management Practices (BMPs) and discharge prohibitions. Permit section F.2.h. requires Copermittees to enforce their stormwater ordinances, including any new requirements for construction-related BMPs. Copermittees should review and revise these ordinances as necessary to actually implement and enforce their construction activities program. This should include a review of the Copermittee's authority to establish and enforce grading, stormwater and non-stormwater discharge prohibitions related to construction activities within their jurisdiction as per Permit sections A and B.

Permit section F.2.f. requires that Copermittees designate a set of minimum BMPs based on the construction site's threat to water quality. BMPs are required to be implemented year round at all construction sites. The establishment of minimum BMP requirements for construction activities is described further in section IV and V of this document.

Section D.1 of the Permit requires that each Copermittee have adequate authority to, among other things, "carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4." This means the Copermittee must have the authority to enter, sample, inspect, review and copy records, and require regular reports from any facility/site/activity discharging into its MS4, including construction sites".

Municipal police powers are broad, however, inspections and surveillance activities are subject to state and federal constitutional constraints that are tied to expectations concerning privacy. Therefore, it is recommended that each Copermittee amend its relevant ordinances, through a public process, to explicitly set out its inspection authority in terms consistent with the Permit. Explicit inspection authority will make it more likely that an inspection warrant can be obtained if and when necessary. It may also be appropriate to explicitly express that inspections can be conducted by third parties or other Copermittees contracted for that purpose. Ordinance revisions may also be appropriate in many jurisdictions to establish workable and effective enforcement mechanisms, such as administrative penalty programs and civil enforcement remedies that can be pursued by City Attorneys.

### **C. CONDITIONING OF CONSTRUCTION AND GRADING PROJECTS**

In accordance with Permit F.2.c., prior to approval and issuance of local construction and grading permits, each Copermittee is required to develop policies and procedures to require all proposed construction and grading projects to implement measures to ensure that pollutants from the site will be reduced to the maximum extent practicable. This is described further in section V of this document.

### **D. EDUCATION AND OUTREACH**

The cornerstone of any program that focuses on changing the attitudes and behaviors of the public is education. Permit section F.4. requires that Copermittees implement an education component to “(1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMPs for the [construction] target audience; and (2) to measurably change the behavior of [construction] target communities and thereby reduce pollutant releases to the environment”. Permit sections F.2.j. specifies minimum content for these efforts. These requirements are addressed separately in the Copermittees’ Model Outreach Program.

### **E. INSPECTION AND INVESTIGATION**

Copermittees will need to use a combination of inspection and investigation techniques to maintain compliance with the Permit. Construction site inspectors will be the primary source of information, but Copermittees may use other sources to meet their compliance requirements. Below is a list of information sources that Copermittees may choose to use.

#### **1. Construction and Grading Site Inspections**

Each Permittee must develop an inspection program to ensure compliance with its applicable Ordinances, Permits (building, grading, stormwater etc.) and Order 2001-01. Copermittee’s must adopt site inspection procedures, as necessary, to ensure that developers implement an effective combination of BMPs to meet the minimum water quality protection requirements, based upon the sites threat to water quality prioritization. Details of these requirements and possible procedures are described further in Section VI of this document.

## **2. MS4 Inspection**

Permit section F.5.b. requires that Copermittees “investigate and inspect any portion of the MS4 that, based on dry weather analytical monitoring results or other appropriate information, indicates a reasonable potential illicit discharges, illicit connections, or other sources of non-stormwater (including non-prohibited discharge(s) identified in Section B. of this Order).”

## **3. Complaint Response**

Permit section F.5.g. requires that Copermittees “respond to and resolve each reported incident [complaint].” Complaints have traditionally focused on violations of discharge prohibition requirements. However, since Copermittees must now establish minimum BMP requirements, this will now include “BMP violations.” Copermittees should also endeavor to actively use the complaint investigation process as a means of educating construction proponents on water quality issues.

## **4. Municipal Field Staff**

Municipal staff often spend time outdoors during various routine or unscheduled field activities (inspections, maintenance, spill response, vector control, etc.). As such, they may observe sediment discharges related to grading activities, discharges of construction related materials, etc.. These discharges may be a violation of the minimum BMP requirements established pursuant to Permit section F.2.f.. Many Copermittees already provide training to these staff to recognize, report, and/or respond to illicit connections and illegal discharges (IC/IDs) observed during their work activities. However, since this training has typically focused on identifying IC/IDs “after the fact” rather than the activities or practices causing them, Copermittees should also consider expanding their training to include a more proactive “eyes and ears” approach for construction-related activities.

## **F. ENFORCEMENT**

The Permit requires that each Copermittee develop a program to enforce the provisions of their Construction activities program element. Situations requiring enforcement may arise through various types of inspection and investigation activities. Enforcement of stormwater pollution prevention requirements should be conducted by staff with enforcement authority, and if necessary by legal counsel. This is further discussed in Section VII of this document.

## ***Section IV. Establishment of Program Priorities***

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### **A. SOURCE IDENTIFICATION**

As stated in the Permit each “Copermittee shall annually develop and update, prior to the rainy season, a watershed based inventory of all construction sites within its jurisdiction regardless of site size or ownership.” Each Copermittee needs to determine the best way to accomplish this but the use of automated database systems, such as Geographical Information System (GIS) is highly recommended.

Construction sites include any site where an activity such as grading, excavation, clearing, road construction, structure construction, or demolition results in the disturbance of soil. Examples of resources that can be used to assemble an inventory of construction projects include:

- California General Permit for construction activities lists
- Other individual NPDES Permit lists
- Copermittee issued Building Permits
- Copermittee issued Grading Permits
- Copermittee issued Clearing Permits
- Other Copermittee issued construction-related Permits
- Municipal Capital Improvement Projects
- Encroachment Permits
- Municipal Operations and Maintenance Activities

### **B. SITE PRIORTIZATION**

Copermittees must consider the types of construction activities within their jurisdictions and establish their program priorities and requirements accordingly. This section reiterates and discusses mandated priorities and presents a methodology for the establishment of additional priorities.

Permit section F.2.e.(2). establishes the minimum types of construction activities which must be given high priority status by Copermittees. It additionally establishes criteria that must be considered in determining whether other types of construction activities should be considered high priority. For each of these, Copermittee program activities and requirements must be established which appropriately reflect these priorities. BMP requirements are discussed separately in Section IV.

#### **1. MINIMUM HIGH PRIORITIES**

##### **High Priority Sites<sup>2</sup>**

Permit section F.2.d2.(2) identifies two categories of minimum high priority activities. A high priority construction site at a minimum is defined as a site meeting either of the following criteria or equivalent criteria:

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<sup>2</sup> Order No. 2001-01 establishes two separate categories of high priority activity.

***“(a) The site is 50 acres or more and grading will occur during the wet season;***

**OR**

***(b) Construction sites 5 acres or more and tributary to a Clean Water Act Section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly into a coastal lagoon or other receiving water within an environmentally sensitive area (ESA).”***

Copermittees should develop a process to determine whether a construction site is located within (b.) above and therefore defined as a high priority site. A general process for this determination is described below.

A. **Construction activities tributary to 303(d) water bodies.** Permit section F.2.e.(2) requires that any construction site 5 acres or greater and tributary to a Clean Water Act section 303(d) impaired water body<sup>3</sup> listed for sediment be considered high priority. This requires Copermittees to decrease existing loadings from construction activities “tributary to” 303(d) listed waterbodies prior to the establishment of specific load allocations through the Total Maximum Daily Load(TMDL) process. The degree to which such reductions are necessary is not specified, and therefore must be determined by the Copermittee. Rather than attempting to make site-specific estimations of construction related pollutant loadings, it is recommended that Copermittees conduct a general assessment of priorities that includes the following steps:

1. Identify Clean Water Act section 303(d) impaired water bodies and the contaminants causing these impairments. A current listing of 303(d) water bodies in the San Diego Hydrologic Unit (SDHU) is included as Appendix C. This list also identifies the contaminant(s) for each listing. It can be downloaded from the State Water Resources Control Board web site at <http://www.swrcb.ca.gov/>.
2. Determine the construction sites or activities which are “tributary to” the 303(d) listed water body. Since the term “tributary to” is not defined in the Permit, and has no prior Clean Water Act grounding, a reasonable working definition should be adopted by the Copermittee. The following is offered as suggested guidance in making this determination, but Copermittees must ultimately make their own determination and should consider all factors that they consider relevant.

In determining whether a construction project should be high priority, “construction sites tributary to” should be interpreted to include construction projects that discharge runoff: (1) into concrete storm sewers that discharge into the impaired water; or (2) into streams which

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<sup>3</sup> Section 303(d) of the Federal Clean Water Act requires states to develop a list of waterbodies which do not meet water quality standards. The CWA further requires that priority rankings for these waterbodies be established and that Total Maximum Daily Loads (TMDLs) be developed for them. Through the TMDL process the maximum amount of a contaminant which the impaired water body can receive and still meet water quality standards is established. Based on this estimate, pollutant loadings are allocated among the point and non-point sources of the pollutant for which the water body is impaired.

reach the impaired water even during the dry season: or (3) ephemeral streams or other natural channels likely to contribute significant pollutant loads to an impaired water at any time during the year. In the latter instance, Copermittees may consider establishing an upstream distance (e.g., one mile, etc.) which is conservatively inclusive of these discharges.

3. Determine whether the construction site “generates pollutants for which the water body is impaired”. In accordance with the Permit a construction site is considered “high priority” if the discharge from the construction site contains sediment and the 303(d) listed receiving water is listed for sediment. Additionally, since the generation of any pollutant on the 303(d) list is theoretically possible for all construction sites in the County, Copermittees should make a determination that the contaminant is present in discharges in sufficient quantity and/or concentration to have a reasonable potential to cause or contribute to an existing violation of a water quality standard. This interpretation is consistent with receiving water limitations contained in Permit section C. The Copermittee could then use this information to determine whether to prioritize a site that would normally be considered medium or low, to high priority.

In evaluating the potential for causing or contributing to violations of water quality standards, Copermittees should consider the collective impact of all construction sites under consideration (e.g., the total number of sites or units, etc.) for a particular water body or segment.

**B. Construction sites discharging to environmentally sensitive areas.**

Permit section F.2.e.(2) also requires that “any construction site within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (as defined in F.1.b.(2)(a)vii...)” be considered a high priority. Determination of whether individual construction sites are subject to this requirement must be made on a site-by-site basis. This should include the following steps, all of which are most efficiently accomplished using a GIS.

- a. Identify all receiving waters within ESAs. This includes all receiving waters within the following types of Environmentally Sensitive Area (ESA).
  - i. Clean Water Act section 303(d) impaired water bodies. This requirement is similar to that of IV.B.1. above except it applies only to construction sites that meet the stricter criteria of “within or directly adjacent to or discharging directly to.” While it is theoretically included in IV.B.1. above, Copermittees should consider making a distinction in the levels and types of BMP application since construction sites closer or discharging directly to a 303(d) water body may have a greater potential for contributing to water quality impairments than those which are simply “tributary to”.

ii. Areas of Special Biological Significance (ASBS). The San Diego Basin Plan currently lists the following Areas of Special Biological Significance (Hydrologic Units (HUs) discharging to each are indicated).

- o City of Encinitas Marine Life Refuge (HU904.5)
- o Baticuitos Lagoon Ecological Reserve (HU904.5)
- o Blue Sky Ecological Reserve (HU905.5)
- o Buena Vista Ecological Reserve (HU904.2)
- o McGinty Mountain Ecological Reserve (HU909.3)
- o San Dieguito Lagoon Ecological Reserve (HU905.1)
- o San Elijo Ecological Reserve (HU904.6)
- o San Mateo Creek Wetland Natural Reserve (HU901.4)
- o Los Penasquitos Marsh Natural Preserve (HU906.1)
- o Tijuana River National Estuarine Research Reserve (HU911.1)
- o Sweetwater Marsh National Wildlife Refuge (HU909.1)

iii. Water bodies designated with the RARE beneficial use.

Water bodies with a RARE designation support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

A summary of water bodies within the San Diego Regional water Quality Control Board Jurisdiction that are designated with the RARE beneficial use are provided in Appendix D.

iv. Multiple Species Conservation Plan preserves.

Permit Section F.1.b.(a)vii. specifically references “areas designated as preserves or their equivalent under the Multi[ple] Species Conservation Program [MSCP] within the Cities and County of San Diego.” The MSCP is a cooperative effort between the County and twelve other local jurisdictions and agencies such as the U.S. Fish and Wildlife Service and California Department of Fish and Game. The program addresses the potential impacts of urban growth, natural habitat loss and species endangerment and creates a plan to mitigate for the future potential loss of covered species and their habitat due to the direct impacts of future development within the MSCP area.

Areas “equivalent” to MSCP preserves include those designated under the Multiple Habitat Conservation Program (MHCP), a comprehensive habitat conservation planning process that addresses multiple species needs and preservation of native vegetation communities for the cities of

Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach and Vista.

GIS maps of MSCP boundaries can be obtained from the San Diego Association of Governments (SANDAG) at <http://www.sandag.org/>. MHCP boundaries will also be obtainable through SANDAG as they become available.

- v. Any other equivalent environmentally sensitive areas which have been identified by the Copermittee.

The existence of other environmentally sensitive areas should also be considered in determining program priorities, but determination of the specific types of areas that are applicable locally should be left to individual Copermittees.

- b. Map the boundaries of inclusion. This consists of circumscribing a line 200 feet outside of the boundaries of the targeted waterbodies. Any construction site property boundaries within this line are potentially subject to the requirements of this section. The construction site property boundary must within be 200 feet of the receiving water, which is within the ESA.
- c. Characterize the site flow. Regardless of whether a construction site is within the circumscribed area, inclusion as high priority is required if the discharge from the construction site flows directly into the targeted receiving water and the flow is composed entirely of flows from the subject construction project and not commingled with flows from adjacent lands. Depending on the availability of maps, site plans, etc., this determination may require a site visit.

### **C. DETERMINATION OF ADDITIONAL PRIORITIES**

Although the Permit specifies minimum high priority areas and activities, section F.2.e.(1) further requires that prior to the February 21, 2002 submittal of their jurisdictional URMP, Copermittees must conduct an initial prioritization to determine whether additional high priorities should be established. Since the designation of any category as high priority will result in the establishment of minimum requirements, which must in turn, be borne by construction proponents, and minimum inspection requirements by municipal staff, it is crucial that this designation be based on a sound and defensible methodology. Regardless of the methodology chosen by the Copermittee, this process should be repeated periodically to ensure that program priorities continue to reflect the best available data and information. Program priorities can best be tailored over time as a more complete record is established. This may point to three possibilities, (1) continued priority listing, (2) discontinuance of priority listings, or (3) new listings. This section describes the elements that must be reviewed when conducting this evaluation.

Prioritization of sites should consider all factors relevant to potential water quality impacts, but, at a minimum, Order No. 2001-01 requires that the following be considered.

1. Soil Erosion Potential

Each Copermittee will need to evaluate what role soil erosion potential has on the priority of a construction site. Soils in San Diego County are generally highly erosive and therefore the threat caused by the erosion potential is ubiquitous for all sites. However the Copermittee evaluates soil erosion potential in their prioritization scheme, it is recommended that the relationship of site slope and soil erosion potential be addressed.

2. Site Slope

Site slope is directly related to the potential for a construction site to discharge pollutants into conveyances or receiving waters. As the average slope of the site increases, the greater the potential for water leaving the site at a high velocity. When evaluating the relationship of site slope to prioritization, it is recommended that the average slope area of the finished slopes be used.

3. Project Size

The total of the disturbed area of a site is important in determining what priority a Copermittee is going to assign a site. The Permit requires that all projects that are 50 acres or more and grading will occur during the wet season (Oct.-April) must be considered a High priority. The Permit also requires that sites greater than five acres and tributary to a CWA 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an ESA also be considered High priority.

It is recommended that projects with between 1 and 50 disturbed acres may be considered Medium priority depending upon other relevant site factors. Projects that are considered Medium Priority will have to meet the minimum BMP and inspection requirements designated by the respective Copermittee.

It is also recommended that for projects that are relatively small, one acre or less, and pose a minimal threat to water quality, may be considered Low priority. Low priority sites should still required to meet the minimum BMP requirements designated by the respective Copermittee.

4. Project Type

Copermittees will need to determine how project types affect water quality. It is not necessarily the type of project that has a bearing on the potential to degrade water quality. The impact of the construction process and the increase in impervious surfaces is the real factor. It is recommended that the Copermittee's use the "percent impervious surface" when determining the priority in relation to the project type.

Water quality degradation increases with percent imperviousness. The increased volume and velocity of runoff from developed urban areas greatly accelerates the erosion of downstream natural channels. Numerous studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving water quality. Significant declines in

the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. (Developments of medium density single-family homes range between 25 to 60% impervious).

#### 5. Non-Stormwater Discharges

In evaluating the priority that a site should have during construction activities, it is recommended that the Copermittees consider the types of non-stormwater pollutants that have the potential to be discharged during construction activities. Examples of activities or materials that generate non-stormwater pollutants that are commonly found on construction sites are:

- o Soil amendments
- o Fertilizers
- o Concrete waste
- o Wastewater as a result of dewatering activities
- o Construction materials and compounds
- o Types of machinery on site
- o Equipment maintenance (ex. Fueling, lubing etc.) on site
- o Pipelines and irrigation system flushing.

#### 6. Proximity to Water Bodies

At a minimum, high priority sites are those that are (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or (3) is within 200 feet of or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vii of Permit).

When determining the “proximity of waterbodies” criteria, the Copermittee should determine whether the conveyance’s tributary to a water body are lined or unlined. A lined conveyance has the potential to carry water containing construction related pollutants longer distances than an unlined conveyance.

It is recommended that medium priority sites are those that are not located within an area designated as an Environmentally Sensitive Area or adjacent or discharging directly to impaired receiving waters.

Low priority sites are those that pose a minimal risk of discharge to receiving waters and are not directly adjacent or discharging directly to receiving waters or an Environmentally Sensitive area.

#### 7. Sensitivity of Waterbodies

In determining the priority of a construction site Copermittees should determine if the site is within an area with environmentally sensitive waterbodies and that the site has the potential to discharge construction related pollutants into the receiving waters.

As discussed previously, Environmentally Sensitive water bodies may include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas

designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or their equivalent under the Multi Species Conservation Program within the Cities and County of San Diego; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.



## ***Section V. Regulated Construction Activities***

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Since most construction activity involves soil disturbance or potential non-storm water discharges, in accordance with the Permit, Copermittees must incorporate stormwater management conditions into construction projects within their jurisdiction. By amending or conditioning existing permits, procedures and ordinances that are already in place, Copermittees can meet this obligation. To do this efficiently, Copermittees need to identify all the departments within the municipality where construction projects and activities are currently performed, overseen, or inspected (both by the municipality or outside entities). Once identified, a Copermittee can determine how best to incorporate stormwater BMPs into the requirements and conditions of their regulatory permits and processes.

To assist Copermittees in assessing all the departments or units within their municipality for construction permits and procedures, below is a description of typical areas where they are found:

### **A. Municipal Departments**

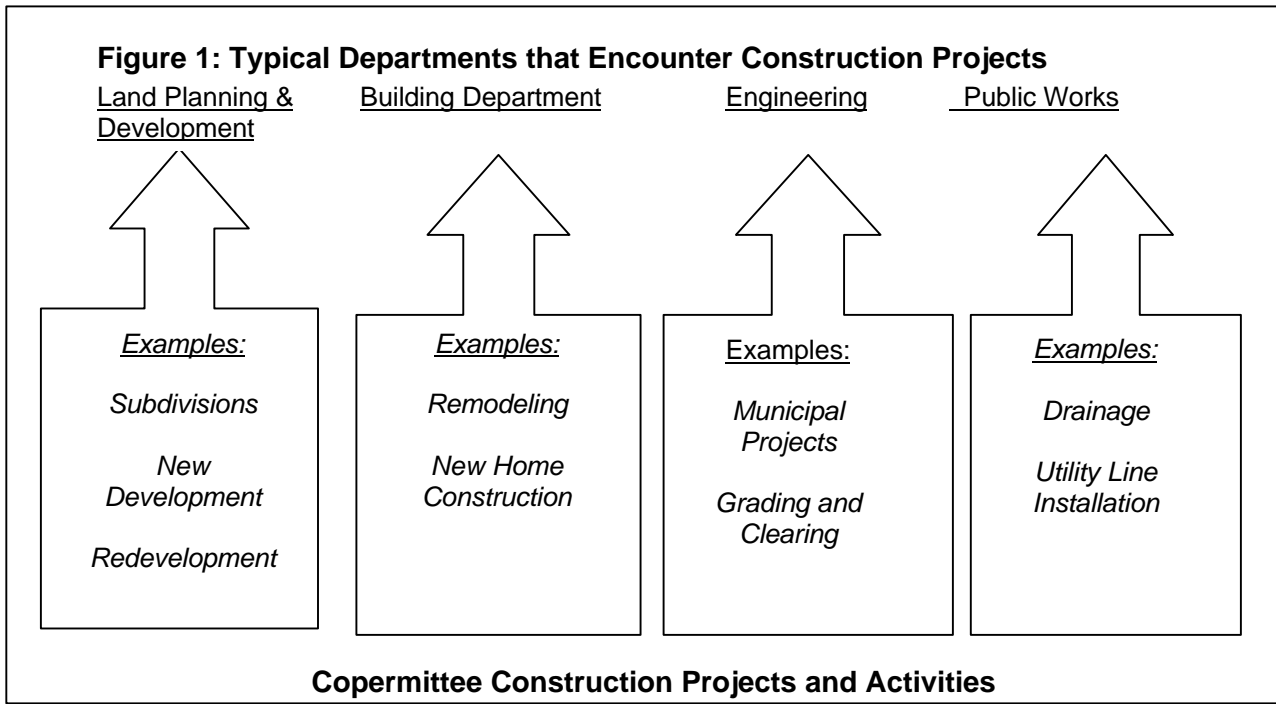
A municipality regulates many different types of construction through many different permits and procedures to ensure the public health and safety within it's community. To manage the multiple permits and procedures, municipalities have organized their staffs into one or more specialized departments. Often the larger the municipality, the greater the number of departments that handle the great variety of construction projects and issues. The primary departments typically involved are a Building Department, Public Works and a Land Planning/Development Department. These departments typically manage the highest volume of construction permitting and inspection responsibilities. The typical Building Department focuses on construction engineering and structural plan reviews and services which are generally ministerial. The typical Land Planning/Development Department manages new construction (and nonconforming and redevelopment projects) at the conceptual stages and generally provides discretionary review.

### **Other Activities and Departments**

While many permits and procedures are managed within the primary building, public works and land planning/development departments, there are also other, less visible, departments or units that regulate construction activities. Some types of construction that are typically handled by these other 'specialty' units include:

- 1) Grading
- 2) Clearing
- 3) Demolition.
- 4) Encroachment projects where construction of all types is requested to be performed on municipal right of way, typically by public and private utilities (e.g. water/ sewer installation and repair) or other agencies (e.g. street traffic loop installation).
- 5) Municipal construction projects (including those initiated by their redevelopment arm). These projects run the gamut of construction activity as well, and can be performed by both municipal employees and by contractors.

Although many municipalities are organized basically the same, there are often great differences in departmental names and the processes managed by each **Figure 1**. The following chart is intended to be an illustration:



## **B. Targeted Construction Activities.**

Because construction projects vary in their potential to contribute to stormwater pollution, Copermittee's should identify and classify construction and grading activities according to categories based on permit type, project size and threat to water quality prioritization. Each Copermittee should develop project requirements for implementation on public and private projects that will reduce pollutant discharges to the maximum extent practicable during construction activities.

### Construction project Approval Process

Copermittees should develop a process to address the following types of Construction activities:

- o Exempt Projects
- o Building Permit Projects
- o Grading/Building Projects not subject to the require an NPDES General Construction Permit
- o Grading/Building Projects that are subject to a NPDES General Construction Permit

### C. Exempt Projects

To qualify for an exclusion from stormwater BMPs and BMP documentation requirements, project proponents should be required to complete a certification of exemption prior to the issuance of any regulatory approval or permit. **Approval of exemptions should be limited to only those projects where ALL activity, including storage and handling of construction-related materials and any wastes or spills, will be completely enclosed (i.e. not exposed to storm water) and no conduit to storm drains or surface waters exist (except for sanitary sewer system).** Each Copermittee may want to consider developing a list of projects that they consider exempt.

Examples of types of activities that could be categorized as exempt:

- o Interior remodeling
- o Mechanical permit work
- o Electrical permit work
- o Tenant improvements
- o Signs
- o Changes of use within an existing building
- o Temporary mobile home and trailer permits and
- o Minor permits accessory to an existing building such as patio covers, decks and carports.
- o Emergency construction activities required for immediate protection of public health and safety.

These exemptions would not relieve the property owners or contractors from preventing any construction-related materials, wastes, spills or residues from entering stormwater conveyance systems.

### D. Projects Requiring a Building Permit

- o For construction activities requiring a building permit, but not exempt, project proponents should be required to comply with minimum BMP requirements established by the Copermittee.
- o Requirements should be directed at site management, construction materials and waste management controls, as well as off-site sediment tracking and transport.
- o Because some activities with the potential to disturb soil (e.g. landscaping, grading less than permit threshold, etc.) may not require grading permits, minimum BMPs should be required to address basic erosion and sediment control practices.

For projects in this category, Copermittees may develop their own stormwater permit or other forms (i.e. checklists) or require property owners to provide the following:

- o A certification of intent to comply with stormwater requirements prior to the issuance of a building permit
- o A site specific stormwater permit
- o A Storm Water Pollution Prevention Plan(SWPPP) or a Caltrans Water Pollution Control Plan(WPCP).

## **E. Projects Not Subject to the State General Construction Permit**

For activities that require a grading permit and where the amount of soil being disturbed is less than 5 acres, project proponents should be required to comply with minimum BMP requirements to be established by the Copermittee and implemented through the Copermittee's grading permit process. The Copermittee should develop and provide guidance materials to project proponents on the selection of appropriate BMPs.

For projects in this category, Copermittees may develop their own stormwater permit or other forms (i.e. checklists) or require property owners to provide the following:

- o A certification of intent to comply with stormwater requirements
- o A checklist of selected BMPs and location of the BMPs on project plans for review by Copermittee staff.
- o A Storm Water Pollution Prevention Plan(SWPPP)
- o A Caltrans Water Pollution Control Plan(WPCP)
- o Certification of intent to maintain selected BMPs.

## **F. Projects Subject to the State General Construction Permit**

For activities that will disturb greater than five acres of soil, project proponents should be required to select and implement erosion control, sediment control and non-stormwater BMPs to prevent the discharge of contaminants off-site or to a stormwater conveyance system. In addition to meeting the Copermittees minimum BMP requirements the project proponent must provide evidence of existing coverage under the State General Construction Permit.

For projects in this category, Copermittees may develop their own stormwater permit or other forms (i.e. checklist) or require property owners to provide other documentation prior to the commencement of construction. Examples include the following:

- o Notice of Intent (NOI) to comply with the State General Construction Permit and a copy of the SWRCB letter showing the WDID # issued for the project.
- o A checklist of selected BMPs and location of the BMPs on project plans for review by Copermittee staff.
- o A Storm Water Pollution Prevention Plan(SWPPP)
- o A Caltrans Water Pollution Control Plan(WPCP)
- o Certification of intent to maintain selected BMPs.
- o Applicants may elect to substitute their SWPPP for the BMP checklist and project plans

## **G. Permitting**

Copermittees may want to develop their own permit applications and forms or may borrow from existing permits and forms already in use by others.

*[Note: Caltrans SWPPP and WPCP Preparation Manual is a reference for Copermittees to use when developing their own SWPPP documentation requirements. It is a step-by-step SWPPP form that provides BMP lists and allows contractors to incorporate site-specific information and BMPs in both electronic and hard copy formats.]*

When initiating any new or revised application process(es) or introducing new forms, consider the following:

- o Initial contact with project proponents should be made during the permitting process.
- o Applicants for building and or grading permits should receive written information informing them of discharge prohibitions under the Copermitttee's Stormwater and Grading Ordinance, explaining their legal obligation to comply, and discussing the minimum required BMPs they must use to prevent stormwater pollution.
- o The application package should include BMP selection guidance references and a listing and description of the minimum-required-BMPs.
- o The applicant should complete a checklist to indicate the BMPs selected. The selected BMPs should be shown in detail on the grading and or building plans submitted.
- o For projects that are greater than five acres, a SWPPP may be used to substitute for the BMP checklist.
- o The application package may also include a certification form to be completed by the property owner acknowledging their understanding of the requirement to maintain the selected-BMPs during construction and their duty to see that they are implemented and maintained by themselves or their contractors.

#### **H. Minimum Permit requirements**

In accordance with the Permit, Copermitttees must include the following requirements or their equivalent when permitting construction activities:

- a) Require project proponent to develop and implement a plan to manage storm water and non-stormwater discharges from the site at all times;
- b) Require project proponent to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events that may occur.
- c) Require project proponent to emphasize erosion prevention as the most important measure for keeping sediment on site during construction;
- d) Require project proponent to utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;
- e) Require project proponent to minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;
- f) Require project proponent to minimize exposure time of disturbed soil areas;
- g) Require project proponent to temporarily stabilize and reseed disturbed soil areas as rapidly as possible;
- h) Require project proponent to permanently re-vegetate or landscape as early as feasible;
- i) Require project proponent to stabilize all slopes; and

- j) Require project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, to provide evidence of existing coverage under the General Construction Permit.

#### **I. Plan Check**

During plan checks, staff will ensure that the minimum required BMPs are addressed and that the applicant-selected BMPs are reasonable and appropriate according to the construction activities planned for the site. Plan check staff will also serve as a source of information to project proponents on applicable BMPs.

## ***Section VI. Best Management Practice (BMP) Requirements and Recommendations***

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This section provides a description of minimum BMP options. Particular BMPs are not advocated and are not presented here as recommended minimums since their proper application is best determined by each jurisdiction in the context of local program priorities. Copermittees must individually determine the specific BMPs they will use to meet their minimum requirements. To further assist in the selection process, a BMP selection guidance document is included in Attachment C. This document is intended to provide Copermittees with the tools they need to develop a plan for implementing an effective combination of erosion, sediment, and non-stormwater management controls at construction sites.

### **1. INTRODUCTION**

In accordance with Permit Section F.2.f. each Copermittee must designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites to be implemented year round. Minimum BMP implementation requirements can vary based on wet and dry seasons.

If particular minimum BMPs are infeasible at any specific site, each Copermittee will implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with the Permit, including BMPs which are more stringent than those required under the statewide General Construction Permit.

Copermittee's must develop additional controls for construction sites tributary to Clean Water Act section 303(d) water bodies impaired for sediment and construction sites within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas.

### **2. MINIMUM BMP REQUIREMENTS**

In accordance with Permit Section F.2.e., all construction sites must be prioritized and minimum BMP requirements designated for each priority. Because all sites, regardless of the priority, must be protected to prevent discharges to the Maximum Extent Practicable, the minimum BMP requirements are the same for each priority. Each site, at a minimum must be protected by an effective combination of erosion and sediment controls, materials and waste management controls and site management controls.

### **3. PERFORMANCE STANDARDS**

Each Copermittee should establish performance standards for stormwater management at construction sites. Performance standards should be developed to evaluate the adequacy of BMP implementation on site. Some examples of recommended performance standards for construction site(s) include the following:

- A. No measurable sediment pollution in runoff from the site.

- B. Slope erosion; rills and gullies shall not be greater than 3-inches wide or deep and must be repaired as soon as it is safe to do so.
- C. Water velocity moving offsite must not be greater than pre-construction levels.

At any time of year, an inactive site must be fully protected from erosion and discharges of sediment. A site will be considered inactive if construction activities have ceased for a period of 10 or more consecutive days.

It is also the project proponent's responsibility at both active and inactive sites to implement a plan to address all potential non-stormwater discharges.

These performance standards cannot be reached without proper site management and effective BMP's. The following guidelines are intended to assist the Copermitttee's in developing their own minimum BMP requirements:

#### **4. SITE MANAGEMENT REQUIREMENTS**

##### **Dry Season Requirements (May 1 through September 30)**

- A. One hundred percent of all exposed disturbed areas must have erosion protection BMPs properly installed. This would include all building pads, unfinished roads and slopes. The only relief from this requirement for slopes greater than 3:1(Horizontal vs. Vertical) is if the site has properly designed de-silting basins at all discharge points.
- B. Adequate perimeter protection BMP's must be installed and maintained.
- C. Adequate sediment control BMP's must be installed and maintained.
- D. Adequate BMP's to control off-site sediment tracking must be installed and maintained.
- E. A minimum of 125% of the material needed to install standby BMP's necessary to completely protect the exposed portions of the site from erosion, and to prevent sediment discharges, must be stored on site. Areas that have already been protected from erosion using physical stabilization or established vegetation stabilization BMP's as described below are not considered to be "exposed" for purposes of this requirement.
- F. The Project proponent must have an approved "weather triggered" action plan and have the ability to deploy standby BMP's as needed to completely protect the exposed portions of the site within 48 hours of a predicted storm event (a predicted storm event is defined as a forecasted, 50% chance of rain). On request, the project proponent must provide proof of this capability that is acceptable to the Copermitttee(s).
- G. Deployment of physical or vegetation erosion control BMP's must commence as soon as slopes are completed for any portion of the site. The project

proponent may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of slopes that have been completed.

- H. The area that can be cleared or graded and left exposed at one time is limited to the amount of acreage that the project proponent can adequately protect prior to a predicted rainstorm.

This last requirement will require grading to be phased at larger sites. For example, it may be necessary to deploy erosion and sediment control BMP's in areas that are not completed but are not actively being worked before additional grading is done.

### **Rainy Season Requirements (October 1 through April 30)**

In addition to the requirements listed under the Dry Season Requirements:

- A. Perimeter protection and sediment control BMP's must be upgraded if necessary to provide sufficient protection for storms likely to occur during the rainy season.
- B. Adequate physical or vegetation erosion control BMP's must be installed and established for all completed slopes prior to the start of the rainy season. These BMP's must be maintained throughout the rainy season. If a selected BMP fails, it must be repaired and improved, or replaced with an acceptable alternate as soon as it is safe to do so. The failure of a BMP shows that the BMP, as installed, was not adequate for the circumstances in which it was used. Repairs or replacements must therefore put a more robust BMP in place.
- C. The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMP's prior to a predicted rainstorm.
- D. A disturbed area that is not completed but that is not being actively graded must be fully protected from erosion if left for 10 or more days. The ability to deploy standby BMP materials is not sufficient for these areas. BMP's must actually be deployed.

## **5. CONSTRUCTION BMPS**

It is the responsibility of the property owner and permit holder to select, install and maintain appropriate BMP's. BMP's must be installed in accordance with an industry recommended standard (for example: Caltrans or California Stormwater BMP handbooks) or in accordance with the California General Permit for Construction Activities.

At a minimum, the Copermitttee(s) should require that one of the BMP's listed in each subcategory below are installed and maintained for all grading and building projects. Depending on project scope and potential associated discharges, additional BMP's may be needed. If the project proponent proposes to use a BMP not listed below, approval from the Copermitttee is required prior to installation.

## **A. Erosion Control**

Physical Stabilization BMP's, Vegetation Stabilization BMP's, or both, will be required to prevent erosion from exposed slopes. The County will not accept tracking, mulch, non-watered seed mixtures, and jute matting without seed and irrigation as a means to protect exposed slopes from erosion.

BMP's approved for physical and vegetation stabilization are as follows:

- 1) Physical Stabilization
  - a) Geotextiles
  - b) Mats
  - c) Fiber rolls
  - d) Sprayed on binders
  - e) Other material approved by the Copermittee for use in specific circumstances

If physical stabilization is selected, materials must be appropriate to the circumstances in which they are deployed, and sufficient material must be deployed.

- 2) Vegetation Stabilization
  - a) Established interim vegetation (via Hydroseed, seeded mats, etc)
  - b) Established permanent landscaping

If vegetation stabilization is selected, the stabilizing vegetation must be installed, irrigated and established prior to October 1 (Established vegetation is defined as a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on disturbed areas). In the event stabilizing vegetation has not been established by October 1, other forms of physical stabilization must be employed to prevent erosion until the stabilizing vegetation established.

## **B. Sediment Control**

- 1) Perimeter protection. Protect the perimeter of the site or exposed area from sediment ingress/discharge in sheet flows using:
  - a) Silt fencing
  - b) Gravel bag barriers
  - c) Fiber rolls
- 2) Resource protection. Protect environmentally sensitive areas, and watercourses from sediment in sheet flows by using:
  - a) Silt fencing
  - b) Gravel bag barriers
  - c) Fiber rolls

- 3) Sediment Capture. Capture sediments in channeled storm water by using:
  - a) Storm-drain inlet protection measures
  - b) De-silting basins (Designed in accordance with an industry standard such as Caltrans, California Stormwater BMP manual etc. If the project is five acres or greater the desilting basin(s) must be designed in accordance with the State General Construction Permit, Order DWQ 99-08.
- 4) Velocity Reduction. Reduce the velocity of storm water by using:
  - a) Outlet protection (energy dissipater)
  - b) Equalization basins
- 5) Off-site Sediment Tracking. Prevent sediment from being tracked off-site by using:
  - a) Stabilized construction entrances/exits
  - b) Construction road stabilization

### **C. Materials Management**

- 1) Prevent the contamination of storm water by wastes through proper management of the following types of wastes:
  - a) Solid
  - b) Sanitary
  - c) Concrete
  - d) Hazardous
  - e) Equipment – related wastes
- 2) Prevent the contamination of storm water from construction materials by:
  - a) Covering and/or providing secondary containment of storage areas
  - b) Taking adequate precautions when handling materials.

### **RELATIONSHIP BETWEEN PERFORMANCE STANDARDS, SITE MANAGEMENT REQUIREMENTS, AND BMP'S**

Implementation of the site management and BMP measures discussed above will not excuse a failure to meet the performance standards set out above. If a BMP is selected and implemented, but fails in actual use causing sediment or other pollutants to be discharged from the site, applicable regulations will have been violated. Similarly, the ability to deploy standby BMP's within 48 hours does not substitute for actual protection of slopes during storm events. Excessive erosion, and sediment discharges, are prohibited even if they result from a dry season storm that arrives with less than 48 hours notice.

## ***Section VII. Construction Site Inspection***

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### **A. CONSTRUCTION SITE INSPECTION**

Each Copermittee will seek to achieve compliance by project owners, developers and contractors with minimum water quality protection requirements (Table C) and applicable BMPs through site inspections, review of self-audits by developers/contractors, enforcement procedures, and other means as described in this section.

### **B. PERMITTEE SITE INSPECTION RESPONSIBILITIES**

Each Copermittee must develop an inspection program to determine compliance with it's applicable Ordinances, Permits (building, grading, stormwater etc.) and Permit. Permittee's must adopt site inspection procedures, as necessary, to ensure that developers implement an effective combination of BMPs to meet the minimum water quality protection requirements specified by the Copermittee's, based upon the sites threat to water quality prioritization. Each Copermittee shall also develop and implement enforcement procedures to require that corrective actions be undertaken when these requirements are not met. The program should include the following elements:

- a) Copermittee Inspections;
- b) Developer/Contractor Self-Inspection consisting of implementation, maintenance, monitoring and revision of BMPs; and
- c) Enforcement Procedures

### **C. INSPECTION PROCEDURES**

Both public and private construction projects shall be inspected by municipal inspectors or other Copermittee contract staff with enforcement authority to verify that the construction activities are being performed in accordance with the project plans, building and grading permits, and applicable codes, regulations and ordinances. If the inspected site does not meet the Copermittee's minimum water quality protection requirements or there is a discharge related to construction activities, Copermittee inspectors should immediately direct compliance and conduct follow-up inspections as necessary to confirm that compliance is attained. Additional inspections will be conducted as project scope dictates the need for modified and/or additional BMPs.

Each Copermittee will have to develop inspection requirements and procedures. It is recommended that, at a minimum, the following be addressed:

- a) Ensure that the projects proponents are meeting all applicable Permit requirements,
- b) There is an effective combination of erosion, sediment and non-stormwater BMPs implemented and maintained to prevent the discharge of pollutants into stormwater conveyances and receiving waters,

- c) Ensure that the project proponents implement their stormwater management on a year round basis.

The primary mechanism Copermittee inspectors could use to determine if minimum water quality protection requirements and BMPs for construction activities are being met will be to assess the site against the minimum BMP requirements that are designated by the municipality. A list of recommended minimum BMP requirements can be found in Section IV of this document. The minimum BMP requirements are intended to be easy to interpret field observations that allow an assessment of site conditions during both dry and wet conditions. Inspection training should focus on how to recognize whether minimum water quality protection requirements are being achieved at any time during the year.

The inspector may utilize the following framework when conducting an inspection:

- a) Review project proponents self-inspection checklist to determine whether minimum self-inspections have been performed;
- b) Review the site erosion control and BMP implementation plans and determine whether they are being properly implemented;
- c) Determine if BMPs are being used in accordance with the intent of all laws and approved plans;
- d) Determine whether BMPs are effectively being implemented and maintained properly; and
- e) Determine whether owner/developer/contractor are making appropriate adjustment when ineffective BMPs are found.

If BMPs are either lacking or being implemented improperly, Section VIII provides a discussion of appropriate enforcement actions. If the inspected site does not meet the minimum water quality protection requirements, Copermittee inspectors should follow-up within a reasonable time frame to assure that all applicable requirements are implemented.

For projects subject to the Stated General Construction Permit, the Regional Water Quality Control Board is responsible for verifying and enforcing requirements of the General Construction Permit. When Copermittee inspections are conducted at sites covered by the General Construction Permit, the inspector should document observations of potential violations. The Copermittee must notify the Regional Board of the noncompliance in accordance with Order No. 2001-01 Section R.1 (and B.6 of Appendix C) if the noncompliance meets the Copermittee's criteria of posing a threat to human or environmental health. Section VIII of this document explains this requirement in more detail.

#### **D. Copermittee Inspection Frequencies**

Copermittees or their designated agents shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in Section

II. of this document. At a minimum each site that is determined to be High priority must be inspected on a weekly basis and Medium and Low priority projects must be inspected at least twice during the wet season (October 1 through April 30). Construction sites should be inspected as needed during the dry season, at a minimum, it is recommended that they be inspected every other month. The Copermitees should reevaluate inspection frequencies on a regular basis, particularly when grading activities are being conducted during the rainy season. The need for additional inspections may vary depending upon several factors including:

- a) Site conditions;
- b) Previous violations;
- c) History of developer or contractor past performance; and
- d) Weather patterns.

### **E. Developer/Contractor Self-Inspection Requirements**

Construction is a dynamic operation where changes are expected. BMPs for construction sites are usually temporary measures that require frequent maintenance to maintain their effectiveness and may require relocation, revision and re-installation, particularly as project grading progresses. Therefore, developer/construction self-inspections are required, particularly during the rainy season.

There are four primary purposes of the self-inspections conducted by developers, owners and contractors:

- a) To ensure that the owners/developers/contractors take full responsibility for storm water pollution caused by their activities;
- b) To ensure that BMPs are properly implemented and functioning effectively;
- c) To identify maintenance (e.g., sediment removal) and repair needs;
- d) To ensure that the project proponents implement their stormwater management plans.

When requested, self-inspection forms should be made available to Copermitee inspectors for their review.

Owners, developers and/or contractors of projects subject to the State General Construction Permit are required to perform self-inspections. In addition, self-inspections are required for Construction Priority Projects. At a minimum, a self-inspection checklist, noting date, time, conditions and inspection date, must be kept on-site and made available for inspection, if requested. Self-inspections must be performed according to the following schedule:

- 1) Before every rainfall event that is predicted to produce observable runoff and after every rainfall event that produces observable runoff,
- 2) At 24-hour intervals during extended rainfall events.

More frequent inspections to ensure that project proponents are maintaining BMPs in good condition would be of benefit and Copermittees may elect to require additional inspections by the project proponents. For example, weekly self-inspections could be required to be conducted during the wet season.

## ***Section VIII. Enforcement***

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### **A. PROCEDURES FOR CORRECTIVE AND ENFORCEMENT ACTIONS**

The Copermittee's inspectors and/or other Copermittee staff with enforcement authority will conduct enforcement of stormwater pollution prevention requirements for Development Construction Projects. The inspectors in accordance with the Copermittee's existing procedures for recording violations will document violations observed. Depending on the severity of the violation, enforcement can range from a verbal warning to large fines. It is recommended that the Copermittee's enforcement program implement enforcement actions to accomplish the following goals:

- To educate the regulated community;
- To promote compliance of the laws and regulations within the regulated community;
- To return violators to compliance in a timely manner;
- To initiate and conclude enforcement activities in a timely manner;
- To penalize violators, as appropriate, and to deprive violators of any significant benefit gained from violations;
- To prevent any business from having an unfair business advantage through non-compliance;
- To treat similar facility owners and operators equally and consistently with regard to the same types of violations and
- To deter violators of Unified Program laws and regulations.

Copermittee inspectors will conduct follow-up inspections to determine if corrective actions have been taken in accordance with the Copermittee's ordinances and minimum BMP requirements. Escalating enforcement steps, leading up to the issuance of stop work orders and providing flexibility for the inspectors to establish appropriate compliance time frames on a case-by-case basis, should be used as needed to ensure compliance.

*If a significant and/or immediate threat to water quality is observed by a Copermittee's inspector, action should be taken to require the developer/contractor to immediately cease the discharge.* The threat to water quality shall be assessed by inspectors for runoff from a construction site that will not be reasonably controlled by the protective measures in place or if a failure of BMPs is resulting in the release of sediments or other pollutants to a degree that may be substantially degrading water quality. The typical progressive enforcement steps that each Copermittee should apply to the inspection enforcement program are:

- a) Verbal warnings;
- b) Written warnings;
- c) Enforcement of contracts (Municipal projects);
- d) Stop work orders;
- e) Denial or revocation of permits and
- f) Civil and or criminal Court Actions.

A discussion of these measures is provided below. These are just some of the tools a Copermittee may use to enforce their permit and ordinance requirements.

## **B. Verbal Warnings**

A common initial method of requesting corrective action and enforcing compliance is a verbal warning from the Copermittee's inspector to the private contractor/owner. Verbal warnings are often sufficient to achieve correction of the violation, often while the inspector is present at the construction site. The inspector should notify the owner, developer or contractor of the violation, and document the violation and the notification to the project supervisor in the inspection file. A specific time frame for correcting the problem and a follow-up inspection date should be documented by the inspector. In judging the degree of severity, the Copermittee inspector may also take into account any history of similar or repeated violations by the same developer or contractor at this or other sites.

## **C. Written Warnings**

If the deficiency noted in a verbal warning is not corrected by the next inspection or the severity of the violation is such, that a verbal warning is not strong enough, a written notice of violation shall be issued describing the infraction that is to be corrected and the time frame for correction and for a follow-up inspection. A copy of the notice should be given to the owner, developer or contractor and placed in the active inspection file. If the violation has been corrected to the satisfaction of the inspector, the inspector will document compliance in the inspection file.

## **D. Enforcement of Contracts**

If a contractor or developer is performing construction work for a Copermittee, then the Copermittee can use the provisions within the contract for enforcement of non-compliance. All Copermittees should add language into their construction contracts that give them the right to refuse payment, stop work (without time penalties) or revocation of contracts if the contractors performing the construction activities do not comply with appropriate Permits, laws, regulations and ordinances.

## **E. Stop Work Orders**

If a notice of violation has not been addressed by the next inspection, or if the developer has not complied with their permit requirements, *or if a significant threat to water quality is observed* (such as a failure of BMPs resulting in a significant release of sediment or other pollutants off site), a stop work order may be issued by the appropriate municipal official. Stop work orders prohibit further construction activity until the problem is resolved and provide a time frame for correcting the problem. The stop work order should describe the infraction and specify what corrective action must be taken. A copy of the stop work order should be given to the owner, developer or contractor and placed in the active inspection file. To restart work once a stop work order has been issued, the private contractor's project supervisor must request the inspector to re-inspect the project and verify that the deficiencies have been satisfactorily corrected. If the inspector is satisfied with the corrections, the inspector may sign off on that phase of the project, and work may proceed.

## **F. Denial or Revocation of Permits**

In severe cases of non-compliance or significant discharges, it may be appropriate to revoke the building or grading permits that a contractor or developer is working under or deny future permits on the project. The project proponents would then have to re-apply for permits and meet any requirements that the Copermittee may place on the project. Copermittees would develop criteria and procedures in the permit issuing program to implement this enforcement tool.

## **G. Civil and Criminal Court Actions**

As a final resort, the Copermittee may use Civil and or Criminal court actions under the State Porter Cologne Water Quality Act or the Federal Clean Water Act, which may result in significant fines levied upon the non-compliant responsible parties.

## ***Section IX. Reporting of Non-Compliant Sites***

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### **REPORTING OF NON-COMPLIANT SITES**

Each Copermittee is required to provide oral notification to the San Diego Regional Water Quality Control (SDRWQCB) Board of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of non-compliance. This is required as part of Attachment C (B.6) of Permit. Such oral notification shall be followed up by a written report and submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required as part of Attachment C (B.6) of Permit. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or the Permit exist on the site.

Storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Water quality impairment results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. Erosion, sediment transport, and delivery is the primary pathway for introducing key pollutants such as nutrients (i.e. phosphorus), metals, and organic compounds into aquatic systems. Based on the potential for impacts by sediment transport to human or environmental health, each Copermittee is required to submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. Some criteria to be considered during evaluation of an event producing non-compliance, whether from storm water or non-storm water discharges, are as follows:

- Estimated area of erosion caused by discharge.
- Estimated sediment load discharged from site.
- Were toxic materials discharged from site.
- Proximity of site to sensitive water body (i.e. discharge to ocean, creek, river, etc)
- Proximity of site to impaired water body (303d listed).
- Proximity of site to sensitive habitat/endangered species.
- Estimated volume of discharge.
- Proximity of site to public water supply (well head, monitoring wells)
- Beneficial uses for affected water bodies.
- If discharge to storm drain, condition of storm drain (clog, etc.)
- TSS concentration in discharge and turbidity.
- Other materials discharged from site (concrete washout, sanitary washes, etc.).

## **Section XI. Program Effectiveness**

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Assessing the performance of Copermittee program elements and the specific BMPs that comprise them is crucial to the successful implementation of a comprehensive receiving water pollution reduction program. This concept is addressed in Permit Section F.7.a., which requires that each Copermittee develop a long-term strategy for assessing the effectiveness of its individual Jurisdictional URMP. The effectiveness of each of the Copermittee's individual program elements, including the Construction Component Element, must accordingly be measured, assessed, and reported as part of each Jurisdictional URMP Annual Report. Permit Section J.2.i., further requires that Copermittees collaboratively develop measures for, and track the long-term effectiveness of, the Watershed URMPs in which they participate.

The effectiveness of BMPs whether considered individually or collectively is ultimately measured over time by changes in the pollutant levels found in downstream receiving waters. Information collected through the Copermittees' wet and dry weather monitoring programs will be useful in identifying trends and assessing the effectiveness of their programs. However, Copermittees will likely not be able to rely on this data to assess the effectiveness of individual program elements or BMPs that comprise their overall program. The basis for measuring the overall effectiveness of Copermittee programs must therefore be a collective assessment of the effectiveness of the BMPs implemented within that program. As such, specific measures should be developed and tracked at both the programmatic and specific BMP level. A suite of measures, which allows for assessment on a variety of levels and time frames, should therefore be developed. These measures are generally divided into two types, direct and indirect.

Whether using direct or indirect measures of effectiveness, baseline conditions must be defined. All future comparisons showing improvements will be made relative to these baseline conditions. In addition, the largest incremental improvements in receiving water quality are often realized at the beginning of an implementation program. In the absence of a well-defined baseline, these improvements cannot be adequately measured.

### **A. DIRECT MEASURES**

Direct measures are those that focus on characterizing the quality of water bodies receiving discharges from Copermittee MS4s or on assessing other parameters with an immediate or well-established nexus to changes in the quality of those waters. Examples of direct measurement include receiving waters monitoring, estimation of pollutant loadings from specified areas (catchments, municipalities, watersheds, etc.), and focused evaluations of structural BMPs. Direct measures generally include actual measurement or quantification of pollutants (e.g., reductions in concentrations of chemicals of concern, etc.) or of the amount of materials extracted or diverted by a BMP (e.g, through household hazardous waste collection, etc.). Direct measures can generally be described according to the following categories.

#### **1. Water Quality Measurement**

The direct measurement of water quality, both with respect to receiving waters and discharges from Copermittee MS4s, is addressed through the Copermittees' Receiving

Waters Monitoring Program (Permit Attachment B) and Dry Weather Analytical and Field Screening Monitoring Program (Permit Attachment E). Results of these programs, as well as other relevant data collected by Copermittees or other parties, should be integrated into effectiveness assessment strategies. Permit Section F.7.a. requires that the role of monitoring data in substantiating or refining the Copermittees' Jurisdictional URMP Effectiveness Component be addressed.

## **2. Waste Diversion (Non-Structural BMPs)**

A number of program activities focus on removing or diverting pollutants or materials that might otherwise be introduced to receiving waters via the Copermittee's MS4. Examples include household hazardous waste collection, used oil recycling, street sweeping, and conveyance facility cleaning. Such activities can be directly assessed by estimating or quantifying the contents of wastes collected, but, to be meaningful, evaluations should also consider the level of activity expended or other factors which may be relevant to the interpretation of results. For example, rather than quantifying only the amount of material collected through street sweeping, Copermittees should also report the amount per mile swept, the amount of staff hours spent on the activity, and any other quantifiable measure of effort.

## **3. Pollutant Reduction / Removal (Structural BMPs)**

Copermittees may employ or require the use of a variety of structural controls (e.g., detention ponds, storm drain filters, etc.) to minimize or reduce the concentration of pollutants in discharges to their MS4. Evaluating structural controls may require the collection and analysis of materials collected or diverted from an MS4. For example, a direct measurement technique to assess the performance of a structural treatment BMP such as a detention pond downstream of a construction site would be the collection and analysis of samples for pollutants of concern. Given the expense of collecting and analyzing water samples, most Copermittees will not have sufficient resources to directly measure the performance of all BMPs that are employed. Copermittees should therefore endeavor to develop statistically valid sampling protocols that will provide representative data for each of the BMP types (e.g. retention ponds) that they utilize. In some instances, photographs may also be valuable in documenting the functionality of structural source control BMPs (e.g. slope stabilization BMPs installed at a construction site).

## **B. INDIRECT MEASURES**

Because direct measures can be difficult and expensive to obtain, and because they often require long periods of time to fully assess, a variety of indirect measures are generally used to evaluate stormwater program effectiveness. Indirect measures are based on the assumption that the use of specific program activities is effective in decreasing stormwater pollution, and therefore in protecting water quality. They are typically used to assess the performance of non-structural source control BMPs such as storm drain stenciling and public education programs. As above, tracking the level of effort expended during BMP implementation may often be required. Level of effort can be measured by quantifying the hours spent on a pollution prevention activity, the number of employees trained, the number of times a maintenance activity is conducted or other similar measures.

Indirect measures typically focus on degrees of implementation or comparison to standards or goals rather than actual water quality assessment or measures of pollutant loading. By measuring the degree or success of implementation of BMPs, it may therefore be possible to make inferences about water quality benefits. Indirect measures should be pursued in combination with more broadly focused direct measures to allow Copermittees to prioritize limited resources, to conduct meaningful assessments on intermediate time frames, and to focus their efforts on particular BMPs and program elements.

# Appendices

## **Appendix A. Stormwater Permit Excerpts Relating to Construction Activities**

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### **F.2. Construction Component**

Each Copermittee shall implement a Construction Component of its Jurisdictional URMP to reduce pollutants in runoff from construction sites during all construction phases. At a minimum the construction component shall address:

- F.2.a. Pollution Prevention
- F.2.b. Grading Ordinance Update
- F.2.c. Modify Construction and Grading Approval Process
- F.2.d. Source Identification
- F.2.e. Threat to Water Quality Prioritization
- F.2.f. BMP Implementation
- F.2.g. Inspection of Construction Sites
- F.2.h. Enforcement of Construction Sites
- F.2.i. Reporting of Non-compliant Sites
- F.2.j. Education Focused on Construction Activities

#### **F.2.a. Pollution Prevention (Construction)**

Each Copermittee shall implement pollution prevention methods in its Construction Component and shall require its use by construction site owners, developers, contractors, and other responsible parties, where appropriate.

#### **F.2.b. Grading Ordinance Update (Construction)**

Each Copermittee shall review and update its grading ordinances as necessary for compliance with its storm water ordinances and this Order. The updated grading ordinance shall require implementation of BMPs and other measures during all construction activities, including the following BMPs and other measures or their equivalent:

- (1) Erosion prevention;
- (2) Seasonal restrictions on grading;
- (3) Slope stabilization requirements;
- (4) Phased grading;
- (5) Revegetation as early as feasible;
- (6) Preservation of natural hydrologic features;
- (7) Preservation of riparian buffers and corridors;
- (8) Maintenance of all source control and structural treatment BMPs; and
- (9) Retention and proper management of sediment and other construction pollutants on site.

#### **F.2.c. Modify Construction and Grading Approval Process (Construction)**

Prior to approval and issuance of local construction and grading permits, each Copermittee shall require all individual proposed construction and grading projects to implement measures to ensure that pollutants from the site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality objectives. Each Copermittee shall further ensure that all grading and construction activities will be in compliance with applicable Copermittee ordinances (e.g., storm water, grading, construction, etc.) and other applicable requirements, including this Order.

(1) Construction and Grading Project Requirements

Include construction and grading project requirements in local grading and construction permits to ensure that pollutant discharges are reduced to the maximum extent practicable and water quality objectives are not violated during the construction phase. Such requirements shall include the following requirements or their equivalent:

- (a) Require project proponent to develop and implement a plan to manage storm water and non-storm water discharges from the site at all times;
- (b) Require project proponent to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur, as necessary for compliance with this Order;
- (c) Require project proponent to emphasize erosion prevention as the most important measure for keeping sediment on site during construction;
- (d) Require project proponent to utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;
- (e) Require project proponent to minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;
- (f) Require project proponent to minimize exposure time of disturbed soil areas;
- (g) Require project proponent to temporarily stabilize and reseed disturbed soil areas as rapidly as possible;
- (h) Require project proponent to permanently revegetate or landscape as early as feasible;
- (i) Require project proponent to stabilize all slopes; and
- (j) Require project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), to provide evidence of existing coverage under the General Construction Permit.

F.2.d. Source Identification (Construction)

Each Copermittee shall annually develop and update, prior to the rainy season, a watershed based inventory of all construction sites within its jurisdiction regardless of site size or ownership. This requirement is applicable to all construction sites regardless of whether the construction site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities (hereinafter General Construction Permit), or other individual NPDES permit. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.2.e. Threat to Water Quality Prioritization (Construction)

- (1) To establish priorities for construction oversight activities under this Order, the Copermittee shall prioritize its watershed-based inventory (developed pursuant to F.2.d. above) by threat to water quality. Each construction site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) soil erosion potential; (2) site slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors.
- (2) A high priority construction site shall at a minimum be defined as a site meeting either of the following criteria or equivalent criteria:
  - (a) The site is 50 acres or more and grading will occur during the wet season; OR
  - (b) The site is (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vii of this Order).

F.2.f. BMP Implementation (Construction)

- (1) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites (as determined under section F.2.e). BMPs are to be implemented year round.
- (2) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each construction site within its jurisdiction year round. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order, including BMPs which are more stringent than those required under the statewide General Construction Permit.
- (3) Each Copermittee shall implement, or require the implementation of, BMPs year round; however, BMP implementation requirements can vary based on wet and dry seasons.
- (4) Each Copermittee shall implement, or require implementation of, additional controls for construction sites tributary to Clean Water Act section 303(d) water bodies impaired for sediment as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.2.g. Inspection of Construction Sites (Construction)

- (1) Each Copermittee shall conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order. Inspections shall include review of site erosion control and BMP implementation plans.
- (2) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.2.e above. During the wet season (i.e., October 1 through April 30 of each year), each Copermittee shall inspect, at a minimum, each High Priority construction site, either:
  - (a) Weekly
  - OR**
  - (b) Monthly for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):
    - i. Copermittee has record of construction site's Waste Discharge Identification Number (WDID#) documenting construction site's coverage under the statewide General Construction Permit; and
    - ii. Copermittee has reviewed the construction site's Storm Water Pollution Prevention Plan (SWPPP); and
    - iii. Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
    - iv. Copermittee finds that the SWPPP is being properly implemented on site.

At a minimum, Medium and Low Priority construction sites shall be inspected by Copermittees twice during the wet season. All construction sites shall be inspected by the

Copermittees as needed during the dry season (i.e., May 1 through September 30 of each year).

- (3) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.2.h. Enforcement of Construction Sites (Construction)

Each Copermittee shall enforce its ordinances (grading, storm water, etc.) and permits (construction, grading, etc.) at all construction sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.2.i. Reporting of Non-compliant Sites (Construction)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

**Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.**

F.2.j. Education Focused on Construction Activities (Construction)

- (1) Internal: Municipal Staff

Each Copermittee shall implement an education program to ensure that its construction, building, and grading review staffs and inspectors have an understanding of:

- (a) Federal, state, and local water quality laws and regulations applicable to construction and grading activities.
- (b) The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization).
- (c) How erosion can be prevented.
- (d) How impacts to receiving water quality resulting from construction activities can be minimized (i.e., through implementation of various source control and structural BMPs).
- (e) Applicable topics listed in section F.4. of this Order.

- (2) External: Project Applicants, Contractors, Developers, Property Owners, and other Responsible Parties

Each Copermittee shall implement an education program to ensure that project applicants, contractors, developers, property owners, and other responsible parties have an understanding of the topics outlined in section F.2.j.1. above of this Order.

#### ***F.4. Education Component***

Each Copermittee shall implement an Education Component using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum the education component shall address the following target communities:

- Municipal Departments and Personnel
- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public, and School Children
- Quasi-Governmental Agencies/Districts (i.e., educational institutions, water districts, sanitation districts, etc.)

##### **F.4.a. All Target Communities**

At a minimum the Education Program for each target audience shall contain information on the following topics where applicable:

- State and Federal water quality laws
- Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)
- Impacts of urban runoff on receiving waters
- Watershed concepts (i.e., stewardship, connection between inland activities and coastal problems, etc.)
- Distinction between MS4s and sanitary sewers
- Importance of good housekeeping (e.g., sweeping impervious surfaces instead of hosing)
- Pollution prevention and safe alternatives
- Household hazardous waste collection
- Recycling
- BMPs: Site specific, structural and source control
- BMP maintenance
- Non-storm water disposal alternatives (e.g., all wash waters)
- Pet and animal waste disposal
- Proper solid waste disposal (e.g., garbage, tires, appliances, furniture, vehicles)
- Equipment and vehicle maintenance and repair
- Public reporting mechanisms
- Green waste disposal
- Integrated pest management
- Native vegetation
- Proper disposal of boat and recreational vehicle waste
- Traffic reduction, alternative fuel use
- Water conservation

##### **F.4.b. Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (educational institutions, water districts, sanitation districts, etc.) Communities**

In addition to the topics listed in F.4.a. above, the Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (Educational Institutions, Water Districts,

Sanitation Districts) Communities shall also be educated on the following topics where applicable:

- Basic urban runoff training for all personnel
- Additional urban runoff training for appropriate personnel
- Illicit Discharge Detection and Elimination observations and follow-up during daily work activities
- Lawful disposal of catchbasin and other MS4 cleanout wastes
- Water quality awareness for Emergency/First Responders
- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction).
- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities
- SDRWQCB's General NPDES Permit for Groundwater Dewatering
- 401 Water Quality Certification by the SDRWQCB
- Statewide General NPDES Utility Vault Permit (NPDES No. CAG990002)
- SDRWQCB Waste Discharge Requirements for Dredging Activities
- Local requirements beyond statewide general permits
- Federal, state and local water quality regulations that affect development projects
- Water quality impacts associated with land development
- Alternative materials & designs to maintain peak runoff values
- How to conduct a storm water inspection
- Potable water discharges to the MS4
- Dechlorination techniques
- Hydrostatic testing
- Spill response, containment, & recovery
- Preventive maintenance
- How to do your job and protect water quality

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### ***F.5. Illicit Discharge Detection and Elimination Component***

#### ***F.5.a. Illicit Discharges and Connections***

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B of this Order.

#### ***F.5.b. Dry Weather Analytical Monitoring***

Each Copermittee shall conduct dry weather analytical monitoring of MS4 outfalls within its jurisdiction to detect illicit discharges and connections in accordance with Attachment E of this Order.

#### ***F.5.c. Investigation / Inspection and FollowUp***

Each Copermittee shall investigate and inspect any portion of the MS4 that, based on dry weather analytical monitoring results or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in Section B. of this Order). Each Copermittee shall establish criteria to identify portions of the system where such follow-up investigations are appropriate.

F.5.d. Elimination of Illicit Discharges and Connections

Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

F.5.e. Enforce Ordinances

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinances, orders, or other legal authority to eliminate detected illicit discharges and connections to its MS4.

[sections F.5.f through i. not included]

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**F.6. Public Participation Component**

Each Copermittee shall incorporate a mechanism for public participation in the implementation of the jurisdictional URMP.

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**H. SUBMITTAL OF JURISDICTIONAL URMP DOCUMENT**

The written account of the overall program to be conducted by each Copermittee within its jurisdiction during the five-year life of this Order is referred to as the “Jurisdictional URMP Document”.

1. Individual – Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP document which describes all activities it has undertaken or is undertaking to implement the requirements of each component of the Jurisdictional URMP section F. of this Order.
  - a. At a minimum, the individual Jurisdictional URMP document shall contain the following information for the following components:
    - (1) Construction Component
      - (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
      - (b) Updated grading ordinances
      - (c) A description of the modified construction and grading approval process
      - (d) Updated construction and grading project requirements in local grading and construction permits
      - (e) A completed watershed-based inventory of all construction sites
      - (f) A completed prioritization of all construction sites based on threat to water quality
      - (g) Which BMPs will be implemented, or required to be implemented, for each priority category
      - (h) How BMPs will be implemented, or required to be implemented, for each priority category
      - (i) Planned inspection frequencies for each priority category
      - (j) Methods for inspection
      - (k) A description of enforcement mechanisms and how they will be used

- (1) A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites  
A description of the construction education program and how it will be implemented

## **Appendix B BMP SELECTION GUIDANCE**

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This BMP selection guidance is intended to provide Copermitees with the tools they need to develop a plan for implementing an effective combination of erosion and sediment controls at construction sites. Particular BMPs are not advocated and are not presented here as recommended since their proper application is best determined by each jurisdiction in the context of local program priorities. Copermitees must individually determine the specific BMPs they will use to meet their minimum requirements.

It is recommended that Copermitees require the property owner and/or permit holder to select, install and maintain BMPs in accordance with an industry standard (for example: Caltrans Construction Site BMP Manual or the California Construction Stormwater BMP Handbook) (The Caltrans BMP Manual was approved by the SWRCB in May 2001 and is updated periodically. It is available for downloading at “[www.dot.ca.gov/hq/construc](http://www.dot.ca.gov/hq/construc)”. Currently the California Construction Storm Water BMP Handbook (dated 1993) is undergoing extensive review. An updated Handbook should be available in September 2002. The 1993 version is available at [www.stormwatertaskforce.org](http://www.stormwatertaskforce.org)”.

It is anticipated that adopting BMPs from a recognized industry standard resource may be the most effective way for Copermitees to initiate a Construction BMP Program. The benefits of using an industry standard is that detailed BMP descriptions, specifications, maintenance, and limitations for their use are currently available and are known to meet BAT/BCT and MEP performance standards. Training classes and materials on both are readily available for Copermitee employees and construction proponents. Also, these industry standard references are backed by research and development so a BMPs effectiveness is assessed and BMP specifications updated at least annually at no cost to Copermitees.

### **1.0 BMPs Background**

BMPs are designed and implemented to reduce the discharge of pollutants from the Caltrans storm drain system to the “maximum extent practicable” (MEP), and to control the discharge of pollutants from regulated construction projects by employing “Best Conventional Technology (BCT) and “Best Available Technology” (BAT).

Additionally, when it is determined that certain discharges are causing or contributing to an exceedance of an applicable water quality standard, and if waste load allocations (from TMDLs) are not in place, such dischargers will implement the requirements of Provision C of the Permit.

As used in this document, the term BMP refers to operational activities or physical controls that are applied to storm water and other runoff to reduce the discharge of pollutants. Accordingly, the term BMP refers to both structural and nonstructural controls that have direct effects on the release, transport or discharge of pollutants.

## 1.2 Principles Of Erosion And Sediment Control

In planning, implementing, and maintaining an erosion and sediment control system, it is important to understand the difference between erosion control and sediment control. The Order 2002-01 and the California General Construction Activities Permit makes a distinction between the two. To meet the requirements of both Permits, at a minimum the project proponent must implement an effective combination of erosion and sediment control on all disturbed areas during the rainy season.

**Erosion Control** is any practice that protects the soil surface and prevents the soil particles from being detached by rainfall or wind. Erosion control, therefore, is a source control that treats the soil as a resource that has value and should be kept in place.

**Sediment Control** is any practice that traps the soil particles after they have been detached and moved by wind or water. Sediment control measures are usually passive systems that rely on filtering or settling the particles out of the water or wind that is transporting them. Sediment control treats the soil as a waste product that must be removed from where it has been transported and accumulated and disposed of at another location.

### **Which are more effective - erosion or sediment controls?**

Generally speaking, erosion controls are more effective than sediment controls, and are preferred because they keep the soil in place and enhance the protection of the site resources.

**Whenever possible, the primary protection at the site should be erosion controls, with sediment controls used as a secondary system.**

And...

**It is not adequate to rely solely on sediment control measures to keep sediment from leaving a site during the rainy or dry season.**

## 2.0 Timing

What is the optimum grading period? The optimum grading period is the non-rainy season, particularly for the critical areas. If grading extends into the rainy season, the length of time that soils are exposed and the total area of exposure should be minimized.

Materials used for erosion and sediment control should be on site at all times during the rainy season.

The BMPs associated with timing include the following:

- **Minimize** the length of time that soils are left exposed
- **Reduce** the total area of exposed soil during the rainy season
- **Protect** critical areas, such as drainage channels, streams, and natural watercourses
- **Stabilize** exposed areas quickly.

### **3.0 Erosion Control Measures**

#### **3.1 Protect Vegetation**

Wherever possible, existing vegetation should be preserved. Leaving existing vegetation is particularly important along the site perimeter or adjacent to water bodies. Even a narrow buffer strip of vegetation can provide beneficial removal of pollutants through filtering.

In addition to retaining existing vegetation, installing vegetative buffer strips can be an effective, low-cost way to remove pollutants from storm water runoff, particularly if it is sheet flow.

#### **3.2 Soil Roughening**

Soil roughening involves creating soil surface roughness by mechanical means, preferably perpendicular to the direction of runoff, to slow runoff velocities, trap moisture and enhance infiltration, moderate soil temperatures, and help vegetation establish more quickly by assisting in seed germination and root penetration. Soil roughening techniques include the following:

- Scarifying
- Track walking
- Sheepsfoot rolling
- Stair stepping
- Imprinting

#### **3.3 Vegetation**

Vegetation helps prevent erosion by providing root reinforcement of the soil mass; providing leaves and stems to intercept rainfall impact; providing ground cover to slow down runoff and filters out sediment and other particulates; and plants evapo-transpire moisture from soil, thus enhancing overall stability.

Regional differences in weather and soil microclimate affect the available times for planting, and are extremely important to seed and plant success. Altitude and aspect

must also be taken into consideration. Different seed mixtures may germinate at different times of the year. Base seeding recommendations on when the germination is supposed to occur. Irrigation can extend the planting season and ensure plant success without having to depend on natural rainfall and soil moisture.

Plants are very site-specific in terms of their growth requirements, and their success is influenced by soil moisture, soil chemistry, temperature, sunlight, and maintenance.

### **3.4 Mulches**

Mulches are temporary covers that protect the soil surface from erosion until vegetation can become established. Mulches can also be utilized to aid in the establishment of vegetation.

Mulches function by moderating soil temperature, reducing soil moisture loss through evaporation, protecting the soil surface from compaction and increasing infiltration, reducing weed competition for desirable plants, and armoring the soil against rain drop impact and sheet erosion from runoff.

Some typical uses for mulches are:

- As a non-vegetated cover on disturbed sites to temporarily control erosion until permanent vegetation can be established
- In conjunction with seed and soil amendments to establish temporary or permanent vegetative cover
- To add organic matter, fertility, and improve structure on poor soils
- As a long-term, non-vegetative ground cover, usually around existing plants, such as trees or shrubs.

#### **3.4.1 Non-Biodegradable Mulches**

Some mulches can also be used alone as a protective blanket on the soil. Some are temporary and need replacement, while others can provide permanent soil cover. Typical mulches used for this purpose include:

- Gravel
- Cobbles
- Rock
- Asphalt or other pavement
- Plastics

Gravel, cobbles and rock can provide cost-effective soil cover if readily available on-site. They have an advantage over pavement and plastic in that they are permeable, and can

protect the soil yet still allow some slowing of runoff by means of their inherent roughness and reduce by allowing some infiltration.

Pavement and plastic are less desirable soil cover media because they tend to be both impermeable and smooth, thus increasing the rate and volume of runoff over predevelopment conditions. Care must be taken to not increase the erosion of adjacent areas onto which the increased runoff is directed.

### **Biodegradable Mulches**

Most mulches, however, are biodegradable and are designed to provide temporary cover until permanent vegetation becomes established. Some common types of organic mulch are:

- Green waste or composted organic materials
- Wood or bark chips
- Plant fibers, like straw or hay
- Wood fiber hydraulic mulches
- Recycled paper hydraulic mulches
- Bonded fiber matrices
- Rolled erosion control products

The various types of biodegradable mulches are described below.

#### **Green Waste or Composted Organic Materials**

Green waste or composted organic materials are suitable for slopes flatter than 2:1, and may be used to assist in plant establishment. These materials are typically applied to a depth of 2 to 3 in. (50 – 75 mm).

#### **Wood or bark chips**

Wood or bark chips are suitable for areas where slopes are less than 3:1 and where the practice complements ornamental plantings of shrubs or trees. These types of mulch are typically applied by hand, although recently equipment has been developed to distribute compost, wood chips and green waste. These materials are typically applied to a depth of 50 mm (2 in) to 75 mm (3 in).

#### **Plant Fiber Mulches**

Plant fibers such as straw or hay mulch are hand-spread or “blown” onto the soil with a straw blower. These types of mulches must be anchored in place either by punching or “crimping” them into the soil surface (as on a fill slope), or by holding them in place with a hydraulically-applied adhesive (as on a cut slope). The standard application rate for this practice is 4,500 kg/ha (2 tons/ac) of the straw or hay, such that 80-90% of the ground is covered.

## **Hydraulic Mulches**

Hydraulic mulches may be made from recycled paper, wood fiber, or a combination of the two materials. Hydraulic mulches and hydraulic matrices are applied using standard hydraulic seeding equipment. The equipment usually consists of a large water tank (with some form of agitation that enables the operator to mix seed, soil amendments and mulch in the tank), and a pump that pushes the resulting slurry through a hose or cannon mounted on top of the machine for application to the soil surface.

When using hydraulic mulches, there are requirements for successful vegetation establishment, including:

1. Selection of proper seed mixture adapted to climate;
2. Use of proper soil amendments and/or bio-stimulants to enhance soil fertility;
3. Conduct of the work when there is adequate moisture in the ground to support plant germination and growth, preferably before the wet season, or provide supplemental irrigation;
4. Application of seed, fertilizer and mulch in a two-step process, with seed and fertilizer applied in the first step, and the mulch applied over the seed in a second step;
5. Inclusion of some form of tackifying agent to hold seed and mulches on the soil;
6. Understanding that mulches applied at higher elevations on the north sides of slopes may hold soil temperatures down in the spring and slightly retard germination and growth; and
7. Knowing that re-application may be necessary due to weathering - being prepared to budget for two seasons of inspection and maintenance.

## **Bonded Fiber Matrices**

Bonded fiber matrices are hydraulically-applied erosion control systems composed of long strand mulch fibers joined together by high-strength adhesives, creating a continuous, three dimensional blanket that adheres to the soil surface. The combination of mulch and adhesive creates a continuous, three-dimensional blanket that adheres to the soil surface. The system is applied to the soil as a viscous mixture, and when it dries, creates a high strength, porous and erosion resistant mat. The equipment and application techniques are the same as those described above for hydraulic mulches.

Some characteristics of bonded fiber matrices are:

- They can be applied using standard hydraulic seeding equipment;
- All components (fiber and adhesives) are mixed together in one bag;
- The binder systems do not dissolve or disperse upon rewetting;
- The dried matrix is porous, allowing water to penetrate into the soil;
- They can be applied with or without seed and do not inhibit plant growth.

## **Rolled Erosion Control Products (RECPs)**

There are a variety of rolled erosion control products (RECPs) that can be used for temporary slope protection. Temporary rolled erosion control products are blanket-like materials used to stabilize and protect disturbed soils from rainfall impact and soil erosion, to increase infiltration and conserve soil moisture, keep seed in place and assist in plant germination.

Fully natural materials are initially subject to both biological and photodegradation processes. Synthetic materials are less susceptible to degradation processes.

Common types of RECPs include:

- Jute netting
- Straw blanket
- Wood fiber (excelsior) blanket
- Photosensitive polypropylene blanket
- Straw-coconut fiber blanket
- Coconut fiber blanket
- Coir fiber netting
- Synthetic fiber mats (used more in channels than on slopes)

### **3.5 Hydraulic Soil Stabilizers**

Hydraulic soil stabilizers, also known as soil binders, are materials that are applied to the soil surface for dust control. When used in combination with plant materials (hay/straw) and hydraulic mulches, soil binders glue the mulch fibers together and are effective in controlling water-generated erosion.

Hydraulic soil stabilizers can be used in basically three types of applications:

- As a stand-alone application of liquid that forms a crust on the soil surface by binding soil particles together;
- As a tackifying agent applied over straw or hay mulch as an alternative to crimping;
- In combination with hydraulic mulches to create a hydraulic matrix.

There are basically five (5) common types of hydraulic soil stabilizers. Their use and relative longevity is variable.

1. Plant Material Based – Short Lived (guar, psyllium, starches)

Their typical usage is to tack straw/hay, as a dry component of some hydraulic mulches, as a component of hydraulic matrices, and as a low grade stand-alone dust control.

Their effective longevity is 3-6 months in temperate climates; longer in cold and drier regions. They are biodegradable.

2. Plant Material Based – Long Lived (pitch/rosin emulsion)

Their typical usage is to tack straw/hay, as a dry component of some hydraulic mulches, as a component of hydraulic matrices, and as a stand-alone dust control measure. Their effective longevity is 3-12 months in temperate climates; longer in cold and drier regions. They are biodegradable.

3. Polymeric Emulsion Blends (acrylic copolymers and polymers, polyacrylamides)

Their typical usage is for high performance dust control, as a high strength, long term straw/hay tackifier, and as a component of hydraulic matrices. Their effective longevity is 1-2 years in most applications. They are photo- and chemically degradable.

4. Petroleum and Resin-based Emulsions

Their typical usage is to tack straw or hay, to bond fiber roving, and for dust control. Their effective longevity is 3-12 months in most applications. They are photo- and chemically degradable.

5. Cementitious-based Binders

- Their typical usage is for stand alone dust control, as a component of hydraulic matrices, and to tack straw or hay. Their effective longevity is 3-12 months depending on rate of application. They are biologically and chemically degradable.

### **3.6 Soil Bioengineering**

Soil bioengineering is a technique whereby living vegetation is used to provide structural support to the soil mass, either on a slope or in a channel. A variety of soil bioengineering techniques may be used, including:

- Fascines (contour wattling)
- Wattling
- Brush layering
- Root wads
- Live staking
- Sodding
- Sprigging
- Reed rolls
- Willow barriers/mats

### **3.7 Structural Erosion Control Measures**

Other permanent erosion control measures consist of structural measures that are designed to be left in place to provide structural support and to protect the soil. Most can be used in conjunction with vegetation.

#### **Turf Reinforcement Mats (TRMs)**

Turf reinforcement mats are three-dimensional synthetic mats designed to be filled with soil and provide permanent reinforcement for the vegetation.

#### **Geocomposites**

These materials consist of soil confinement systems, including:

- Porous pavements
- Soil containment systems
- Plastic or concrete turf blocks

#### **Grids**

These devices are two-dimensional and are designed to provide reinforcement of the soil mass, including:

- Biaxial systems
  - Bed reinforcement
  - Road stabilization
- Uniaxial
  - Low profile retaining walls
  - Steep slope reinforcement

#### **Concrete Systems**

Concrete blocks, filled with soil, gravel, or solid, may be used to provide erosion protection in areas subject to concentrated flows, waves, or other high energy environment, including:

- Articulated concrete mattresses
- Interlocking concrete revetment
- Flexible concrete pillow revetment

## **Riprap**

Riprap (interlocking rocks of various sizes) may be used to provide erosion control in areas subject to concentrated flows, waves, or other high energy environment, including:

- Placed or dumped rock riprap
- Grouted riprap
- Revegetated riprap (voids are backfilled with soil and revegetated)

## **Gabions**

Gabions function as porous flexible systems made of wire mesh filled with rock that are typically used in higher energy flow environments, and include:

- Mattresses
- Baskets
- Vegetated
- Un-vegetated
- Galvanized
- PVC coated

## **Retaining Structures**

A variety of retaining structures may be used to flatten slopes, stabilize the toes of slopes, or construct slopes in restricted locations. Some may be combined with vegetation. Types of retaining structures include:

- Railroad tie walls
- Crib walls
- Reinforced earth walls
- Interlocking fascia walls
- Vegetated trough blocks

## **4.0 SEDIMENT CONTROL MEASURES**

### **4.1 Sediment Traps/Basins**

Sediment traps and basins are designed hydraulic controls that function by modifying the storm runoff hydrograph by slowing water velocities, thereby allowing soil particles to settle out of suspension, and attenuating the flood peak by detaining flow and releasing water at a slower rate

Examples include:

- Detention and retention basins
- Check dams
- Weirs
- Debris basins
- Catch basins
- Fibrous dams

All sediment traps require continued maintenance to function properly. Excess sediment not removed reduces the basin capacity and trap efficiency.

#### **4.2 Sediment Barriers**

Barriers are designed to trap sediment-laden water and filter the water, thus retaining the sediment behind the barrier.

Examples include:

- Straw/hay bales
  - perimeter filter
  - stabilize drainage channels
  - inlet protection (on soil only)
- Filter fences
  - perimeter filter
- Gravel bags

#### **4.3 Inlet Filters**

Sediment control measures should be provided at every active storm drain inlet throughout the construction period. Inlet filters are designed to provide inlet protection on soil or pavement. There are several types of inlet filters, but all function approximately the same.

#### **4.4 Slope interrupter devices/techniques**

Other sediment control measures include slope interrupter devices that provide a break in the slope, allowing control of sediment and runoff. These devices or techniques include:

- Benches, terraces and furrows
- Wattles or rolls (fiber-filled netting rolls)

#### **4.5 Temporary Construction Entrances**

To prevent tracking of sediment off site stabilized gravel roadways and stabilized construction entrances should be provided at every point of site ingress/egress.

In clayey soils, where stabilized gravel construction entrances are not adequate to prevent tracking of sediment off site, **wheel wash facilities** should also be considered.

#### **5.0 DRAINAGE CONTROL BMPS**

Even the best erosion and sediment control system cannot perform properly without drainage control measures in place. It is critical that appropriate drainage control measures be in place before the rainy season.

Adequate drainage controls include the following:

- Temporary stream crossings
- Earth dikes, drainage swales and lined ditches
- Slope drains and subsurface drains
- Top and toe of slope diversion ditches and berms
- Outlet protection and velocity dissipation devices
- Flared culvert end sections

#### **6.0 NON-STORM WATER MANAGEMENT BMPS**

##### **6.1 Proper Material Use And Storage**

Many materials used in construction can contribute pollutants to storm water runoff. Examples of such materials include vehicle fuels, oils, paints, solvents, mortar, and cement. Construction materials should be stored in a manner to prevent or minimize contact with storm water. All construction materials should be delivered to and stored in designated areas at the construction site. If deemed necessary, those designated areas should be bermed to reduce the contact of pollutants with storm water.

All materials at the site should be properly labeled, and used in accordance with proper handling procedures to minimize their exposure to storm water runoff.

##### **6.2 Spill Prevention And Control**

Spills and leaks are some of the largest sources of storm water pollutants and are, in most cases, avoidable. Avoiding spills and leaks is preferable to cleaning them up after they occur. Heavy equipment (e.g., bulldozers and other grading equipment) and vehicles should be inspected daily (or as often as possible) for leaks and should be repaired as necessary.

Despite precautions, spills may still occur at the site. Spills should never be cleaned up by hosing off the area. In the event that spills occur, there should be a plan in place for how minor, medium-sized, and significant or hazardous spills will be controlled.

### **6.3 Proper Waste Management**

All sanitary wastes should be collected and managed properly to comply with local waste disposal, sanitary sewer, or septic system regulations. All portable toilet facilities should be transported to and from the construction site by a licensed contractor. No sanitary wastes should be disposed of on site.

Leaks and spills of petroleum products or other construction materials can cause soil contamination. All contaminated soils should be removed and disposed of correctly. In the event that soil contamination is suspected by not confirmed, a sample should be analyzed by a certified analytical laboratory and a decision regarding soil removal and disposal should be based on the results of the analysis. No contaminated soils should be buried or otherwise disposed on site.

### **6.4 Vehicle Cleaning, Fueling, And Maintenance**

Vehicles and heavy machinery are a potential source of pollutants such as petroleum products, antifreeze, and exhaust and waste oil containing heavy metals. Pollutants may enter storm water runoff by means of direct contact with machine parts and by contact with spills on surfaces and on the ground.

Vehicle maintenance and fuel storage should be conducted within a designated maintenance yard or area to enable careful management. During long periods of storage and during routine maintenance, drip pans should be placed under vehicles and equipment to capture lube and engine oils where they are prone to leak. During shorter periods of use or storage, vehicles and equipment that have leaks must have drip pans and should be required to have the leaks repaired immediately. Plastic tarps should be placed over exposed equipment when not in use to prevent contact with storm water. All on site vehicles should be monitored for leaks and receive preventive maintenance to reduce leakage.

If possible, vehicles and equipment should be washed off site at a proper wash facility.

### **6.5 Paving And Concrete Management**

All concrete trucks should be washed out in designated areas where the wash water is contained in a temporary pit (lined, if necessary) or other container designed for that use. Upon completion of the concrete work, the solid concrete that has accumulated in the washout pit should be broken up, removed, and hauled away for proper disposal off site.

To reduce the potential for the transport of pollutants in storm water runoff from paving operations, paving should not take place within 72 hours of a predicted significant storm event.

Table C		BMP Identification Number		Category of Activity																																		
Stormwater Best Management Practices (BMP)				Daily Activity	Site Preparation and Earthmoving			Construction or Relocation of Below Ground Structures and/or Utilities					Construction of Above Ground Structures			Roadways, Walkways, and Parking Lots			Earthwork		Waterways				Planting and Landscaping													
SELECTION GUIDE		Must Be Shown on Plans		Daily Activities	Cleaning and Grubbing	Demolition of Pavement/Structures	Constructing Access Roads	Foundations	Saw Cutting	Trenching	Conduits (Open Cuts)	Drilling	Tunnels	Wood Frame	Structural Steel	Maony and Concrete	Roofing and Coating	Concrete	Asphalt	Base and Subgrade	Grading	Stockpiling	Material Mining (Sand & Aggregate)	Channel Improvement	Water and Sediment Impoundment	Over Crossing	Under Crossing	Waterfront Construction	Irrigation Facilities	Seeding and Sodding	Mulching	Planting	Habitat Restoration					
		CALTRANS Stormwater Quality Handbooks	California Stormwater BMP Handbook (Construction)																																			
<b>GENERAL SITE MANAGEMENT</b>																																						
	Employee & Subcontractor Training		CA40	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Materials Management																																					
	Material Delivery / Storage	*	WM-1 CA10					x			x		x	x	x	x	x	x	x	x				x		x	x	x		x	x	x	x	x	x	x	x	
	Material Use		WM-2 CA11					x			x		x	x	x	x	x	x	x	x				x		x	x	x		x	x	x	x	x	x	x	x	
	Spill Prevention and Control		WM-4 CA12														x	x		x																		
	Waste Management																																					
	Solid Waste Mgmt	*	WM-5 CA20	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Sanitary / Septic Waste Mgmt	*	WM-9 CA24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Concrete Waste Mgmt	*	CA23					x	x	x			x					x						x	x	x	x		x									
	Hazardous Waste Mgmt	*	CA21													x	x	x	x					x	x	x												
	Contaminated Soil Mgmt	*	WM-7 CA22		x	x	x	x		x	x	x	x									x	x	x	x	x												
	Offsite Sediment Tracking Control																																					
	Entrance/Exit Inspection, Cleaning			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Stabilized Construction Entrance	*	TC-1 ESC24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Construction Road Stabilization	*	TC-2 ESC23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Entrance/Exit Tire Wash	*	TC-3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Vehicle & Equipment Management																																					
	Vehicle & Equipment Cleaning	*	NS-8 CA30	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x														
	Vehicle & Equipment Fueling	*	NS-9 CA31	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x														
	Vehicle & Equipment Maintenance	*	NS-10 CA32	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x														
	Construction Practices																																					
	Water Conservation		NS-1	x	x	x	x	x	x	x	x	x	x					x		x	x		x										x	x	x	x		
	Structure Construction & Painting		WM-6 CA03					x					x	x	x	x	x									x	x	x										
	Paving Operations		NS-3 CA02															x	x	x				x														
	Dewatering Operations		NS-2 CA01					x		x	x	x	x											x	x	x	x	x										
<b>EROSION CONTROL</b>																																						
	Site Planning Considerations																																					
	Scheduling		SS-1 ESC01	x	x	x	x		x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	

Table C		BMP Identification Number		Daily Activity	Category of Activity																																
Stormwater Best Management Practices (BMP)					Daily Activities	Site Preparation and Earthmoving		Construction or Relocation of Below Ground Structures and/or Utilities					Construction of Above Ground Structures			Roadways, Walkways, and Parking Lots			Earthwork		Waterways				Planting and Landscaping												
SELECTION GUIDE		Must Be Shown on Plans		CALTRANS Stormwater Quality Handbooks		California Stormwater BMP Handbook (Construction)	Cleaning and Grubbing	Demolition of Pavement/Structures	Constructing Access Roads	Foundations	Saw Cutting	Trenching	Conduits (Open Cuts)	Drilling	Tunnels	Wood Frame	Structural Steel	Masonry and Concrete	Roofing and Coating	Concrete	Asphalt	Base and Subgrade	Grading	Stockpiling	Material Mining (Sand & Aggregate)	Channel Improvement	Water and Sediment Impoundment	Over Crossing	Under Crossing	Waterfront Construction	Irrigation Facilities	Seeding and Sodding	Mulching	Planting	Habitat Restoration		
		SS-2	ESC02		x																															x	x
	Preservation of Exist Vegetation																																				
	Vegetation Stabilization																																				
	Temp Seeding and Planting	SS-4	ESC10			x		x															x	x	x	x	x	x	x								
	Temp Mulching	SS-3,6,8	ESC11			x		x															x	x	x	x	x	x	x								
	Hydroseeding					x		x															x	x	x	x	x	x	x								
	Vegetation Buffer Strips	NA				x		x															x	x	x	x	x	x									
	Physical Stabilization																																				
	Dust Control		ESC21	x		x	x	x	x	x	x	x							x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Geotextiles, Mats, and Fiber Rolls	SS-7	ESC20			x		x															x	x	x	x	x	x	x								
	Soil Stabilizers	SS-5				x		x															x	x	x	x	x	x									
	Temp Stream Crossing	NS-4	ESC22			x	x	x	x		x	x	x	x	x	x					x		x	x	x	x	x	x	x		x	x	x	x	x	x	x
	Diversion of Runoff																																				
	Earth Dikes	SS-9	ESC30			x	x	x		x	x	x											x	x	x	x											
	Ditches and Berms	SS-9				x	x	x		x	x	x											x	x	x	x											
	Temp Drains and Swales	SS-9	ESC31			x	x	x			x	x											x	x	x	x	x										
	Slope Drains	SS-11	ESC32			x	x	x		x	x												x	x	x	x	x										
	Velocity Reduction																																				
	Outlet Protection	SS-10	ESC40			x	x	x		x	x												x	x	x	x	x										
	Check Dams	SC-4	ESC41			x	x	x		x	x												x	x	x	x	x										
	Flared Culvert End Sections	SS-10				x	x	x		x	x												x	x	x	x	x										
	Slope Roughening & Terracing	NA	ESC42			x	x	x		x	x												x	x	x	x	x										
<b>SEDIMENT CONTROL</b>																																					
	Silt Fence	SC-1	ESC50			x	x	x	x			x	x										x	x	x	x	x										
	Straw Bale Barrier	SC-9	ESC51			x	x	x	x			x	x										x	x	x	x	x										
	Sand Bag Barrier	SC-8	ESC52			x	x	x	x		x	x	x										x	x	x	x	x										
	Brush or Rock Filter	NA	ESC53			x	x	x	x			x	x										x	x	x	x	x										
	Storm Drain Inlet Protection	SC-10	ESC54			x	x	x	x		x	x	x										x	x	x	x	x										
	Sediment Trap	SC-3	ESC55			x	x	x	x		x	x	x										x	x	x	x	x										
	Sediment Basin	SC-2	ESC56			x	x	x	x		x	x											x	x	x	x	x										

## Appendix C: Clean Water Act Section 303(d) List

### 1998 CALIFORNIA 303(d) LIST AND PRIORITY SCHEDULE (REGION 9)

Hydrologic Unit	Watershed	Major Water Bodies	Water Body Type	Pollutant / Stressor	Sources	Impaired Beneficial Uses	TMDL Priority
900.00	San Diego Bay	San Diego Bay; Shelter Island Yacht Basin (900.00)	B	Copper	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Near Sub Base (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Near Grape Street (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Downtown Piers (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Near Switzer Creek (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Near Coronado Bridge (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point / Nonpoint	Aquatic life	High
		San Diego Bay; Near Chollas Creek (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point/ Nonpoint	Aquatic life	High
		San Diego Bay; San Diego Naval Station (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point/ Nonpoint	Aquatic life	High
		San Diego Bay; Seventh Street Channel (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point/ Nonpoint	Aquatic life	High
		San Diego Bay; North of 24th Street Marine Terminal (900.00)	B	Benthic Comm. Effects, Sediment Toxicity	Point/ Nonpoint	Aquatic life	High
901.00	San Juan	Aliso Creek, Mouth of (901.13)	E	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Medium
		Aliso Creek (901.13)	R	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Medium
		Pacific Ocean, Laguna Beach HSA (901.12)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Medium
		Pacific Ocean, Aliso HSA (901.13)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
		Pacific Ocean, Dana Point HSA (901.14)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
		San Juan Creek (Mouth) (901.200)	E	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Pacific Ocean, Lower San Juan HSA (901.270)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low

1998 CALIFORNIA 303(d) LIST AND PRIORITY SCHEDULE (REGION 9; Continued)

Hydrologic Unit	Watershed	Major Water Bodies	Water Body Type	Pollutant / Stressor	Sources	Impaired Beneficial Uses	TMDL Priority
901.00 (cont.)		Lower San Juan Creek (901.270)	R	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Pacific Ocean, San Clemente HA (901.30)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
902.00	Santa Margarita	Santa Margarita Lagoon (901.110)	E	Eutrophic	Point/ Nonpoint	Rec-1, Rec-2, Aquatic life	High
		Rainbow Creek (902.200)	R	Eutrophic	Point/ Nonpoint	Aquatic life	High
903.00	San Luis Rey	Pacific Ocean, San Luis Rey HU (903.00)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Guajome Lake (903.110)	L	Eutrophic	Point/ Nonpoint	Aquatic life	Medium
904.00	Carlsbad	Pacific Ocean, Loma Alta HAS (904.10)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Loma Alta Slough (904.100)	E	Eutrophic	Nonpoint	Aquatic life	Low
				High Coliform Count		Rec-1, Rec-2	
		Pacific ocean, Buena Vista HA (904.20)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Buena Vista Lagoon (904.210)	E	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
				Nutrients		Aquatic life	Medium
				Sedimentation/Siltation			
		Agua Hedionda Lagoon (904.310)	E	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
				Sedimentation/Siltation		Aquatic life	Medium
		Pacific Ocean, San Marcos HA (904.50)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
Pacific Ocean, Escondido Creek HA (904.60)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low		
San Elijo Lagoon (904.610)	E	Eutrophic	Point/ Nonpoint	Aquatic life	Low		
		High Coliform Count		Rec-1, Rec-2, Shellfish harvest, Fish consumption			
		Sedimentation/Siltation		Aquatic life		Medium	

1998 CALIFORNIA 303(d) LIST AND PRIORITY SCHEDULE (REGION 9; Continued)

Hydrologic Unit	Watershed	Major Water Bodies	Water Body Type	Pollutant / Stressor	Sources	Impaired Beneficial Uses	TMDL Priority
905.00	San Dieguito	Pacific Ocean, San Dieguito HU (905.00)	C	High Coliform Count	Rec-1, Rec-2, Shellfish harvest	Rec-1, Rec-2, Shellfish harvest	Low
906.00	Mission Bay	Los Penasquitos Lagoon (906.100)	E	Sedimentation/Siltation	Point/ Nonpoint	Aquatic life	Medium
		Pacific Ocean, Scripps HA (906.30)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
		Mission Bay (906.400)	B	Eutrophic	Point/ Nonpoint	Aquatic life	Medium
				High Coliform Count		Rec-1, Rec-2, Shellfish harvest	Low
				Lead		Aquatic life	Medium
		Famosa Slough & Channel (906.400)	E	Eutrophic	Nonpoint	Aquatic life	Medium
		Tecolote Creek (906.500)	R	Cadmium	Point/ Nonpoint	Aquatic life	Medium
				Copper			
Lead							
Zinc							
Toxicity							
High Coliform Count	Rec-1, Rec-2	Low					
907.00	San Diego	Pacific Ocean, San Diego HU (907.00)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
908.00	San Diego Bay (Pueblo San Diego)	San Diego Bay, Lindbergh (908.210)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
		Chollas Creek (908.220)	R	Cadmium	Point/ Nonpoint	Aquatic life	High
				Copper			
				Lead			
				Zinc			
				Toxicity			
High Coliform Count	Rec-1, Rec-2	Low					

1998 CALIFORNIA 303(d) LIST AND PRIORITY SCHEDULE (REGION 9; Continued)

Hydrologic Unit	Watershed	Major Water Bodies	Water Body Type	Pollutant / Stressor	Sources	Impaired Beneficial Uses	TMDL Priority
909.00	San Diego Bay (Sweetwater)	San Diego Bay, Telegraph HAS (909.11)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
910.00	San Diego Bay (Otay)	Pacific ocean, Coronado HA (910.10)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2, Shellfish harvest	Low
911.00	Tijuana	Pacific Ocean, Tijuana HU (911.00)	C	High Coliform Count	Point/ Nonpoint	Rec-1, Rec-2	Low
		Tijuana River Estuary (911.110)	E	Eutrophic	Point/ Nonpoint	Aquatic life	Low
				Lead			
				Nickel			
				Trash			
				Thallium			
				Pesticides			
		Tijuana River (911.110)	R	High Coliform Count	Point/ Nonpoint	Aquatic life, Fish Consumption	Low
				Eutrophic		Rec-1, Rec-2, Fish consumption, Shellfish harvest	
				High Coliform Count		Aquatic life, Fish Consumption	
Org. Enrichment/Low D.O.	Rec-1, Rec-2, Fish consumption						
Tijuana River (911.110)	R	Pesticides	Point/ Nonpoint	Aquatic life	Low		
		Solids		Fish consumption			
		Synthetic Organics		Aquatic life			
		Trace Elements		Aquatic life, Fish Consumption			
Tijuana River (911.110)	R	Trash	Point/ Nonpoint	Aquatic life, Fish Consumption	Low		
				Fish consumption			

Water Body Types

B=Bays and Harbors

G=Ground Water

R=Rivers/Streams

W=Wetlands and Freshwater

C=Coastal Shorelines

L=Lakes/Reservoirs

S=Saline Lakes

E=Estuaries

O=Ocean and Open Bays

T=Wetlands, Tidal

## Appendix D Waterbodies with RARE Beneficial Use Designation

WATERSHED										
San Juan	Santa Margarita	San Luis Rey	Carlsbad	San Dieguito	Penasquitos/ Mission Bay	San Diego River	Pueblo SD	Sweetwater	Otay	Tijuana
INLAND SURFACE WATERS										
San Mateo Creek San Onofre Canyon S. Fork  Las Flores Cr Piedra de Lumbre Canyon Aliso Canyon French Canyon	Santa Margarita River  DeLuz Creek  Pueblitos Canyon	San Luis Rey River  Pilgrim Creek	Buena Vista Creek	Santa Ysabel Creek San Dieguito River  unnamed Trib San Bernardo Valley	Carol Canyon  unnamed Trib San Clemente Canyon	San Diego River  Sycamore Cyn  2 unnamed Tribs  Clark Canyon Spring Canyon Murphy Canyon		Sweetwater River  unnamed Trib	Dulzura Creek Jamul Creek  unnamed Trib  Otay River	Tijuana River Cottonwood Creek
RESERVOIRS AND LAKES										
	O'Neill Lake	Lake Henshaw		Lake Hodges  Sutherland Lake		El Capitan Resivor  Cuyamaca Resivor				Lake Barrett  Morena Resivor
COASTAL WATERS										
Pacific Ocean  Dana Pt. Harbor Aliso Creek mouth San Juan Creek mouth San Mateo Creek mouth San Onofre Creek mouth	Pacific Ocean  Oceanside Harbor Santa Margarita Lagoon	Pacific Ocean S. Luis Rey R. mouth	Pacific Ocean  Batiqitos Lagoon  San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon  Loma Alta Slough	Pacific Ocean  Del Mar Boat Basin San Dieguito Lagoon	Pacific Ocean  Mission Bay L. Penasquitos Lagoon	Pacific Ocean  Mouth of San Diego River	Pacific Ocean  San Diego Bay	Pacific Ocean  San Diego Bay	Pacific Ocean  San Diego Bay	Pacific Ocean  Tijuana Estuary

\* Source: Water Quality Control Plan, San Diego Basin, Region 9, Chapter 2.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **ABBREVIATIONS**

<b>ft</b>	feet
<b>gal</b>	gallon
<b>gpm</b>	gallons per minute

### **ACRONYMS**

<b>BAT</b>	Best Available Technology Economically Achievable
<b>BCT</b>	Best Conventional Pollutant Control Technology
<b>BMP</b>	Best Management Practices
<b>Cal/EPA</b>	California Environmental Protection Agency
<b>Caltrans</b>	California Department of Transportation
<b>CCR</b>	California Code of Regulations
<b>CFR</b>	Code of Federal Regulations
<b>CTR</b>	California Toxics Rule
<b>CWA</b>	Clean Water Act
<b>CZARA</b>	Coastal Zone Act Reauthorization Amendments
<b>DOT</b>	Department of Transportation
<b>DSA</b>	Disturbed Soil Area
<b>DTSC</b>	Department of Toxic Substances Control
<b>EPA</b>	United States Environmental Protection Agency
<b>HAZMAT</b>	Hazardous Materials
<b>IC/ID</b>	Illicit Connection/Illegal Discharge
<b>MEP</b>	Maximum Extent Practicable
<b>MS4</b>	Municipal Separate Storm Sewer System
<b>NOAA</b>	National Organization of Atmospheric Administration
<b>NOV</b>	Notice of Violation
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>OES</b>	Office of Emergency Services
<b>RWQCB</b>	California Regional Water Quality Control Board
<b>SWMP</b>	Storm Water Management Plan

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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<b>SWPPP</b>	Storm Water Pollution Prevention Plan
<b>SWRCB</b>	California State Water Resources Control Board
<b>TMDL</b>	Total Maximum Daily Load
<b>WDR</b>	Waste Discharge Requirements
<b>WLA</b>	Waste Load Allocation
<b>WPCP</b>	Water Pollution Control Program
<b>WQO</b>	Water Quality Objective

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **DEFINITION OF TERMS**

#### **Active Construction Area:**

An area defined by the contractor where the contractor intends to be actively working in the ensuing 21-day period. This may include areas that have not already been cleared and grubbed as well as areas that have already been cleared and grubbed.

#### **Basin Plan:**

A water quality control plan developed by an RWQCB for a specific geographic area. The Basin Plan identifies beneficial uses of waters, the water quality objectives needed to maintain these beneficial uses, and an implementation plan. A copy of the Basin Plan for a specific region can be acquired from the appropriate Regional Water Quality Control Board or can be reviewed online at <http://www.swrcb.ca.gov/plnspols/index.html>.

#### **Beneficial Uses:**

The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals “Beneficial Uses” of the waters of the State that may be protected against include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. “Beneficial Uses” are equivalent to “Designated Uses” under federal law. [California Water Code Section 13050(f)].

#### **Best Available Technology Economically Achievable (BAT):**

Best Available Technology (BAT) is a term derived from Section 301(b) of the federal CWA and refers to BMPs to reduce toxic and non-conventional pollutants in discharges from construction sites. Toxic pollutants are those defined in Section 307(a)(1) of the CWA and include heavy metals and man-made organics. Non-conventional pollutants are those not covered by conventional and toxic pollutants, such as ammonia, chloride, toxicity and nitrogen.

#### **Best Conventional Pollutant Control Technology (BCT):**

Best Conventional Technology (BCT) is a term derived from Section 301 (B) of the federal CWA and refers to BMPs to reduce conventional pollutants in discharges from construction sites. Conventional pollutants include biochemical oxygen demand, total suspended solids, oil and grease, fecal coliforms and pH.

#### **California Code of Regulations (CCR):**

The regulations that implement California laws. Posted at <http://www.calregs.com/>.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **California Department of Transportation (Caltrans):**

The state government agency responsible for construction, maintenance and operation of state and federal highway in California.

### **California Environmental Protections Agency (Cal/EPA):**

The agency that incorporates the SWRCB, the IWMB, the Air Resources Board, and other agencies with environmental responsibilities.

### **Catch Basin:**

A storm drain inlet having a sump below the outlet to capture settled solids.

### **Causing or Contributing to an Exceedance of Water Quality Standards:**

See "Exceedance of Water Quality Standards."

### **Code of Federal Regulations (CFR):**

Document that codifies all rules of the executive departments and agencies of the federal government. It is divided into fifty volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) lists all environmental regulations. 40 CFR is available from bookstores operated by the Government Printing Office and online at:

<http://www.epa.gov/epahome/cfr40.htm>

### **Construction Contractor:**

Party responsible for carrying out the contract per plans and specifications. The Plans, Standard Specifications and Special Provisions contain storm water protection requirements that the contractor must address.

### **Construction Site:**

The area involved in a construction project as a whole.

### **Contamination:**

As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the state are affected."

### **Conventional Pollutants:**

Those pollutants defined in the federal regulations at 40 CFR 401.16 (pursuant to Section 304(a)(4) of the CWA). These pollutants include biochemical oxygen demand (BOD), total suspended solids (TSS) (non-filterable), pH, fecal coliform, and oil and grease.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Copermittee (or Co-permittee):**

A Permittee to an NPDES permit that is only responsible for permit conditions relating to the discharges from its area of jurisdiction.

### **Department of Toxic Substances Control (DTSC):**

The agency within Cal/EPA that has responsibility for regulating the generation, management and disposal of hazardous wastes.

### **Detention Device:**

Facilities designed to collect and temporarily detain the initial volume of storm water runoff for a specified period of time, to permit settlement of particulate pollutants.

### **Dewatering Operations:**

The removal of groundwater resulting from excavation activities.

### **Disturbed Soil Area (DSA):**

Areas of exposed, erodible soil, including stockpiles, that are within the construction limits and that result from construction activities.

### **Drainage Area:**

That portion of the earth's surface from which precipitation or other runoff flows to a given location. With respect to a highway, this location may be either a culvert, the farthest point of a channel, or an inlet to a roadway drainage system.

### **Drainage Report:**

A report prepared during project design (prior to the start of construction) for reference in showing drainage patterns.

### **Drainage Swale:**

A storm drainage conveyance structure designed to intercept, divert and convey surface runoff, generally sheet flow, to prevent erosion and reduce pollutant loading.

### **Dredge:**

To clean, deepen or widen by removal of sand or mud, especially from the bottom of a body of water.

### **Encroachment:**

Occupancy of project right-of-way by nonproject structures or objects of any kind or character; also, activities of other parties within the operating right-of-way.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Environmental Protection Agency (EPA):**

The federal agency with primary responsibility for implementation of federal environmental statutes, including the CWA, Clean Air Act, Safe Drinking Water Act and Resource Conservation and Recovery Act. California is included within EPA Region IX, headquartered in San Francisco.

### **Erosion:**

When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

### **Erosion Control:**

The stabilization of cut and fill slopes and other areas within a highway right-of-way.

### **Evaluation:**

Refers to the analysis and interpretation of information obtained through monitoring.

### **Exceedance of Water Quality Standards:**

Causing or contributing to an exceedance of water quality standards means that a discharge contains pollutants in concentrations that exceed standards applicable to the given pollutant in the subject receiving water, and either:

- The receiving water is 303(d) listed for the pollutant in question; or
- Direct evidence exists of impairment due to the pollutant.

### **Exempt (from NPDES Permit) Construction Activities:**

Routine maintenance to maintain original line and grade, hydraulic capacity or original purpose of a facility; emergency construction activities required to protect public health and safety; projects such as rehabilitation of highway planting and irrigation.

### **Existing Vegetation:**

Any vegetated area that has not already been cleared and grubbed.

### **Fair Weather Prediction:**

When there is no anticipated precipitation in the forecast for the 24 hours immediately after the close-of-business of a working day (72 hours on Fridays). The forecast should be that of the National Weather Service (NOAA weather radio) or some other agreed upon source of forecasting information.

### **Good Housekeeping:**

A common practice related to the storage, use or cleanup of materials performed in a manner that minimizes the discharge of pollutants.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Groundwater:**

The term usually refers to the “saturated” zone in the ground where all the pore space between the soil particles is occupied by water.

### **Grubbed:**

Vegetation has been removed by mechanical or manual methods.

### **Hazardous Waste:**

Hazardous waste is defined as “any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code.” [CCR Title 22, Division 4.5, Chapter 11, Article 1]

### **Herbicides:**

Chemical compounds that are used to control weeds.

### **Hydraulics:**

The study and technological application of the behavior of fluids.

### **Hydrologic Unit:**

A subunit of a basin as defined by a RWQCB.

### **Illicit (Illegal) Connections:**

Any discharge to a municipal separate storm sewer that is not composed entirely of stormwater and is not authorized by an NPDES permit, with some exceptions (e.g., discharges due to fire-fighting activities).

### **Illicit (Illegal) Discharge:**

Any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

### **Infiltration Device:**

An infiltration basin designed to capture runoff volume from the water quality design storm and infiltrate it to the soil.

### **Irrigated:**

Artificially supplied with water.

### **Maintenance Activities:**

Routine maintenance activities that may require clearing, grading or excavation to maintain original line and grade, hydraulic capacity or original purpose of the facility.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Maintenance Facilities:**

Facilities under Caltrans ownership or control that contain such areas as fueling areas, waste storage or disposal facilities, wash racks, equipment or vehicle storage and materials storage areas.

### **Maximum Extent Practicable (MEP):**

MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water (MS4s) must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices (BMPs). MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their Urban Runoff Management Plan. Their total collective and individual activities conducted pursuant to the Urban Runoff Management Plan becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for municipal separate storm sewer system maintenance). In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB defines MEP.

### **Median Area:**

The portion of a divided highway separating the traveled ways for traffic in opposite directions. Often contains storm drain system facilities, such as ditches and swales.

### **Monitoring:**

Refers to a variety of activities and processes through which Copermittees may obtain information relevant to implementation of their stormwater quality management programs so that the need for and/or opportunities for revision or refinement can be identified.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Municipal Separate Storm Sewer System (MS4):**

MS4 is an acronym for Municipal Separate Storm Sewer System. A Municipal Separate Storm Sewer System is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, natural drainage features or channels, modified natural channels, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting of conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

### **Navigable Water:**

The **waters** of the United States that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; interstate waters; and intrastate lakes, rivers, streams, mudflats, sand flats and wetlands.

### **Non-active Construction Area:**

An area defined as a part of the construction site but not identified by the contractor as being “active” during the rainy season.

### **Non-point Source Discharge:**

Discharge from a diffuse pollution source (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet).

### **Non-Storm Water Discharge:**

Any discharge to a storm drain system or receiving water that is not composed entirely of storm water.

### **Nutrients:**

Any substance assimilated by living things that promotes growth. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements.

### **Office of Emergency Services (OES):**

**California** Agency in the Governor’s Office with responsibility for coordinating responses to emergencies. OES receives initial Hazmat spill reports and sends them onto other involved agencies such as RWQCBs and Department of Fish & Game. (*Note:* the federal National Response Center must be contacted separately.) OES internet page at <http://www.oes.ca.gov/>

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Oil Waste:**

Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged soil.

### **Outfall:**

The point source where a municipal storm sewer discharges to waters of the United States.

### **Peak Flow:**

The highest amount of stream or river flow occurring in a year or from a single storm event.

### **Permanent BMPs:**

BMPs that are installed during construction and designed to provide long-term storm water quality protection following a project's completion.

### **Permanent Soil Stabilization:**

Soil stabilization controls that provide storm water quality management after construction is completed.

### **Permit:**

Refers to the NPDES Municipal Storm Water Permit (Order No. 2001-01) adopted by the RWQCB on February 21, 2001.

### **Pesticide:**

Any material used to control pests. Includes insecticides, herbicides and rodenticides.

### **Point Source**

Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged.

### **Pollutant Loading:**

The quantity of a pollutant found in runoff expressed in mass per unit of time. Pollutant loadings are commonly expressed in units of tons/year or pound/year.

### **Pump Station:**

A complete pumping installation, including a storage box, pump or pumps, standby pumps, connecting pipes, electrical equipment, pumphouse and outlet chamber.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Rainy Season:**

The October 1 through April 30.

### **Receiving water limitations:**

Permit water quality limitations applied to dischargers to prevent violations of water quality standards.

### **Receiving waters:**

All surface water bodies within the permit area into which wastewater or treated effluent is discharged.

### **Regional Water Quality Control Board (RWQCB):**

“**Regional Board**” means any California regional water quality control board for a region as specified in Section 13200 of the California Water Code.

### **Risk Assessment:**

The qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants.

### **Sanitary Sewer:**

Underground pipes that carry off only domestic or industrial waste, not storm water.

### **Sediment:**

Organic or inorganic material that is carried by or is suspended in water and that settles out to form deposits in the storm drain system or receiving waters.

### **Sediment Load:**

Sediment particles maintained in the water column by turbulence and carried with the flow of water.

### **Site:**

The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

### **Slope:**

Any area with a grade of 5:1 or less

### **Soil Stabilization:**

Erosion control measures used to minimize erosion.

**Specific Conductance:**

Rapid method of estimating the dissolved solid content of a water supply by testing its capacity to carry an electrical current.

**Spill:**

An accidental dumping or spilling of a potential pollutant onto the ground or into a waterway.

**State Water Resources Control Board (SWRCB):**

As delegated by EPA, California agency that implements and enforces CWA Section 401(p) NPDES permit requirements, and is issuer and administrator of the Permit. Works with the nine RWQCBs.

**Storm Drain Inlet:**

A drainage structure that collects surface runoff and conveys it not an underground storm drain system.

**Storm Water (or Stormwater):**

“Storm water” is defined as urban runoff and snowmelt runoff consisting only of those discharges which originate from precipitation events. Storm water is that portion of precipitation that flows across a surface to the storm drain system or receiving waters. Examples of this phenomenon include: the water that flows off a building’s roof when it rains (runoff from an impervious surface); the water that flows into streams when snow on the ground begins to melt (runoff from a semi-pervious surface); and the water that flows from a vegetated surface when rainfall is in excess of the rate at which it can infiltrate into the underlying soil (runoff from a pervious surface). When all factors are equal, runoff increases as the perviousness of a surface decreases. During precipitation events in urban areas, rain water picks up and transports pollutants through storm water conveyance systems, and ultimately to waters of the United States.

**Storm Water Drainage (Conveyance) System:**

Streets, gutters, inlets, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained and used for the purpose of collecting, storing, transporting or disposing of storm water.

**Storm Water Pollution Prevention Plan (SWPPP):**

A general description of SWPPPs is provided in the Fact Sheet for the General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 99-08-DWQ (NPDES CAS000002). This Fact Sheet and the permit are posted at:

<http://www.swrcb.ca.gov/stormwtr/docs/constpermit.doc>

**Sump:**

In drainage, any low area that does not permit the escape of water by gravity flow.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Surface Runoff:**

Precipitation, snow-melt or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

### **Temporary Construction Site BMPs:**

BMPs only temporarily required to address a short-term storm water contamination threat.

### **Temporary Soil Stabilization:**

Soil stabilization controls that provide storm water quality management during construction.

### **Toxic Pollutants:**

Those pollutants defined in the federal regulations at 40 CFR 401.15 (pursuant to Section 307(a)(1) of the CWA). These pollutants include copper, lead, zinc many chlorinated organic compounds, including pesticides and other constituents sometimes found in wastewater.

### **Vegetation Control:**

Maintenance of vegetation on facilities owned by Caltrans by a combination of chemical application (herbicides) and mechanical methods (mowing, cutting, etc).

### **Waste Discharge Requirements:**

Permits issued in California for the discharge of wastes to waterways or to land pursuant to the Water Code section 13260. WDRs for discharges to federal waters ("waters of the U.S.") are concurrently NPDES permits.

### **Waste Load Allocation (WLA):**

The maximum load of pollutants each discharger of waste is allowed to release into a particular waterway. Discharge limits are usually required for each specific water quality criterion being, or expected to be, violated. Also, the portion of a stream's total assimilation capacity assigned to an individual discharge.

### **Water Quality Program:**

The Caltrans Headquarters group that assists the Headquarters functional Programs, the Districts and the Department's transportation partners in complying with federal and state laws regarding water pollution. See Statewide SWMP Section 2.3.3 for a more detailed description.

### **Water Quality Standards:**

Are defined as the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of water and the water quality objectives necessary to protect those uses.

## ***Appendix E Abbreviations, Acronyms and Definition of Terms***

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### **Watershed:**

That geographical area which drains to a specified point on a watercourse, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

### **Waters of the State:**

Any water, surface or underground, including saline waters within the boundaries of the State [California Water Code Section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a Municipal Separate Storm Sewer System (MS4) is always considered to be a Waters of the State.

### **Water Pollution Control Program (WPCP):**

A plan to identify water quality management practices to be implemented that must be prepared for all construction projects that do not require preparation of an SWPPP.

### **Water Quality Volume:**

The water quality volume is the volume of runoff produced by the equivalent of, at a minimum, the 1-year, 24-hour storm event.

### **Wetland:**

Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Generally includes playa lakes, swamps, marshes, bogs, mudflats, natural ponds and similar areas.