8.0 CONSTRUCTION

8.1 Introduction

Concern over construction sites as a major source of sediment and other pollutants is addressed in the federal stormwater regulations, which require a description of a program to implement and maintain structural and nonstructural BMPs to reduce pollutants in storm water runoff from construction sites to the Municipal Storm Drain System.

Such a program is to include procedures for site planning that incorporate consideration of potential water-quality impacts; a description of requirements for nonstructural and structural BMPs; a description of procedures for identifying priorities for inspecting sites and enforcing control measures that consider the nature of the construction activity, topography, and a description of the characteristics of soils and receiving water quality; and appropriate educational and training measures.

In addition to sediment, activities and materials used on construction sites may be a source of pollutants such as paints, lacquers, and primers; herbicides and pesticides; landscaping and soil stabilization residues; soaps and detergents; wood preservatives; equipment fuels, lubricants, coolants, and hydraulic fluids; and cleaning solvents.

These pollutants can leak from heavy equipment, be spilled, or can be eroded by rain from exposed stockpiles. Once released, they may adsorb onto sediment particles and can be transported into the aquatic environment, where they may become available to enter aquatic food chains, cause fish toxicity problems, contribute to algal blooms, impair recreational uses, and degrade drinking water sources.

Sediment controls for construction activity directly impacting a watercourse should address sediment transport issues in the watercourse so that the natural quantity of sediment is not significantly changed. Contaminated sediment must be prevented from reaching the watercourse.

8.2 Regulatory Requirements

The federal stormwater regulations specify that drainage area management plans include a description of a program to implement and maintain structural and nonstructural BMPs to reduce pollutants in storm water runoff from construction sites to the Municipal Storm Drain System.

The First Term Permits stated that "industrial/commercial construction operations that result in a disturbance of one acre or more of total land area...and residential construction sites that result in the disturbance of five acres or more...shall be required to develop and implement BMPs to control erosion and siltation and contaminated runoff from the construction sites."

In 1999, the State General Construction Activity Stormwater Permit (subsequently referred to as the Construction Permit) (SWRCB Order No. 99-08 DWQ, NPDES General Permit No.

CAS000002) was re-issued. Construction activities disturbing one acre or more of land currently are required to comply with this permit.

8.3 Program Development

These regulatory requirements necessitated the development of a construction stormwater program element to ensure that storm water quality is considered during a project's construction phase and include procedures for site planning that incorporate consideration of potential water-quality impacts; a description of requirements for nonstructural and structural BMPs; a description of procedures for identifying priorities for inspecting sites and enforcing control measures that consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and a description of appropriate educational and training measures.

8.3.1 First and Second Term Permit

In 1993, the New Development / Construction Task Force, comprised of representatives from the Principal Permittee, Building Industry Association (BIA), Association of General Contractors (AGC) and Civil Engineers & Land Surveyors of California (CELSOC), completed a report entitled "Best Management Practices For Public Works Construction" (DAMP Appendix H), that provides the basis for requiring the incorporation of structural and non-structural Best Management Practices (BMPs) in order to reduce pollutants in storm water runoff from construction sites to the maximum extent practicable (MEP). Through this process, the Permittees developed an effective and flexible program for public works construction activity.

In 1997 the Permittees certified to the Regional Boards that they were implementing Appendix H. At a minimum, BMP selection for public works projects is required to be consistent with the Green Book standards for site maintenance and environmental protection as well as the General Construction Permit for sites with five (5) acres or more of disturbed land. Exhibit A of Appendix H provides a list of standard practice structural and non-structural BMPs for construction activity, with reference to corresponding documents.

In early 2001, the TAC and the Permittees began the process of re-establishing the Task Force.

Harry Thomas, with the City of Orange, was elected as the Chair of the Task Force and the Task Force members that were identified include the following:

Permittees	Additional Members
County of Orange	Association of General Contractors
City of Anaheim	American Planners Association
City of Brea	American Society of Civil Engineers
City of Huntington Beach	Building Industry Association
City of Irvine	California Association of Community Managers
City of Laguna Beach	Food Sanitation Advisory Council
City of Orange	Irvine Ranch Water District
City of San Clemente	Natural Resources Conservation Service
City of San Juan Capistrano	Orange County Water District
City of Westminster	Orange County Sanitation District
	Rancho Mission Viejo
	South Orange County Wastewater Authority
	The Irvine Company
	Vector Control District
	Western States Petroleum Association
	Non-Affiliated Technical Experts
	Representatives of the Santa Ana and San Diego Regional Water Quality Control Boards as Ex-Officio Members

The Third Term NPDES Municipal Stormwater Permits for Orange County require the Permittees to modify their current Construction Program (Appendix H of 2000 DAMP) to address all phases of construction activity. This will be achieved through the implementation of a program that includes the inventorying of sites, prioritization of sites based on threat to water quality, BMP implementation, inspection, enforcement, reporting of non-compliant sites, and education and training.

The goals of the program are to provide the Permittees with:

- A program framework for reducing the adverse impacts that public and private construction may have on water quality;
- An iterative process by which they can effectively monitor and respond to problems as they are discovered; and
- Methodologies to meet Third Term Permit requirements.

The Model Construction Program is intended to be implemented as described in Section A-8 of each Permittee's Local Implementation Plan (LIP). In developing its LIP, the Permittee may modify the Model Construction Program in response to local conditions. It is not the intent for this Model Construction Program to restrict city or county planning commissions, Building Officials or their governing bodies from imposing additional stormwater management requirements as a condition on construction projects.

8.3.2 Public Works Construction

All public works construction contracts administered by the Permittees are governed by "Standard Specifications for Public Works Construction" (subsequently referred to as the Green Book). Green Book Section 7 - "Responsibilities of the Contractor" imposes specific construction practices, which are included within DAMP Appendix H as Best Management Practices for public works construction. In general, the Green Book requires the Contractor has to keep informed of, and at all times observe and comply with state and federal laws and county and municipal ordinances and regulations.

Certain public works construction contracts administered by the Permittees may include Special Provisions as required by the Permittees and approved municipal sediment control Standard Plans. Applicable Special Provisions and Standard Plans are hereby included as Best Management Practices for public works construction.

Since the problem of construction site erosion and sediment loss has long been recognized by the Permittees, their grading ordinances and codes, the Green Book, and Public Works construction specifications already contain requirements for construction practices for erosion control.

In addition, as a result of the Second Term Permits, if the Permittees have construction projects that may result in the land disturbance of five (5) acres or more (now one acre or more), they must comply with the State General Construction Permit requirements.

During the First Term Permit period the Best Management Practices For Public Works Construction report was developed and incorporated as part of the DAMP (Appendix H). This Appendix applies to Permittee public works construction projects and requires that such activities will implement non-structural and structural BMPs to control contaminated stormwater run-off.

At a minimum BMP selection for public works projects shall be consistent with the Construction Permit and Green Book standards for site maintenance and environmental protection. In 1997 the Permittees certified to the Regional Boards that the Appendix H guidelines or their equivalent were being implemented.

In 1999-00 the Permittees were surveyed regarding the need to revise the grading and erosion control ordinances. As a result of the survey, it was determined that a revised model grading and erosion control ordinance may need to be developed in order to reflect and incorporate the current requirements contained in the State General Construction permit, the adopted Water Quality Ordinances and the Green Book. This will be a focus in the Third Permit Term.

In addition, the Permittees work closely with developers in an effort to reduce pollutants associated with construction, and stress to developers the importance of reducing the loads of sediment, paint, chemicals and other pollutants that are derived from construction sites during precipitation events or general construction activities.

8.3.2 Permittee Oversight of Private Construction Practices

The Permittees enforce grading codes on private construction practices designed to protect slopes from erosion and failure. These codes are also designed to protect watercourses and adjacent property from the effects of eroded soil or blowing dust.

The Permittees also require applicants for grading permits >1 acre to provide proof of coverage under the State General Construction Permit as well as the inclusion of special construction notes on building and grading plans.

8.4 Model Construction Program

8.4.1 Introduction

The Model Construction Program was developed to fulfill the construction activity commitments and requirements of:

- Sections VIII and XV of the Santa Ana Regional Water Quality Control Board (RWQCB) Municipal NPDES Stormwater permit, Order No. R8-2002-0010; and

- Section F.2 of the San Diego Regional Water Quality Control Board Municipal NPDES Stormwater permit, Order No. R9-2002-0001

Many construction projects are also covered under the *State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity.* This permit, also known as the General Permit, applies to a range of construction activity including clearing, grading, or excavation resulting in land disturbance of 5 acres or greater. Additionally, projects that disturb more than 1 acre are also required to obtain coverage under the permit if the project is part of a "larger common plan of development" that will disturb more than exceed one acre.

In late 1999, EPA issued Phase II of the federal stormwater regulations, which lowers the threshold for construction activities that must obtain coverage under a general construction NPDES Permit, from 5 acres to 1 acre. EPA regulations require that, after March 10, 2003, projects with soil disturbance of 1 acre or more be covered under a general construction NPDES Permit. The SWRCB intends to modify the General Permit by the end of 2002 to implement this requirement in California.

This Model Construction Program deals with projects that meet the general definition of a construction project given in section 8.4.2. Covered under this program are private construction projects that are permitted by the City or County, and public works construction projects (except that they do not require a building or grading permit). Public works maintenance activities are not covered under this model program, but under the Model Maintenance Procedures provided in section 5.4, Model Municipal Activities Program of the DAMP.

Examples of these activities are:

- Spill Prevention and Response
- Vehicle and Equipment Storage
- Building Maintenance and Repair
- Vehicle and Equipment Cleaning
- Parking Lot Maintenance
- Material Storage, Handling, and Disposal
- Landscape Maintenance
- Material Loading and Unloading
- Waste Handling and Disposal
- Minor Construction (no soil disturbing activities)
- Fueling
- Over Water Activities
- Equipment Maintenance and Repair
- Roads, Streets, and Highways Operations and Maintenance
- Sidewalk, Plaza, and Fountain Maintenance and Cleaning
- Landscape Maintenance
- Solid Waste Handling
- Water and Sewer Utility O&M
- Drainage System Operations and Maintenance

The relationship between the requirements and responsibilities under the DAMP, local municipal NPDES permits, and the General Permit, are briefly summarized in **Table 8-1**.

Table 8-1
Construction Program Summary of Requirements & Responsibilities

		Municipal Permittee	Private Owner/Developer	Regional Water Quality Control Board
PRIVATE PROJECTS	**General Permit Projects** (= 1 Acre)	▪ Issue grading or building permit ▪ Require proof of General Permit coverage ▪ Inspect and enforce local permit(s) and ordinances ▪ Notify Regional Board of non-compliance of local ordinances when the violation(s) pose(s) a threat to human or environmental health.	▪ Apply for local grading or building permit ▪ Submit Notice of Intent (NOI) for General Permit Coverage ▪ Comply with grading or building permit and local ordinances ▪ Prepare and implement SWPPP ▪ Submit Notice of Termination (NOT)	▪ Inspect and enforce General Permit on Owner/Developer ▪ Evaluate Permittee's Construction Program for compliance with municipal permit
	Other Projects	▪ Issue grading or building permit ▪ Inspect and enforce local permit(s) and ordinances	▪ Apply for local grading or building permit ▪ Comply with grading or building permit and local ordinances	▪ Evaluate Permittee's Construction Program for compliance with municipal permit
PUBLIC PROJECTS Santa Ana Permit Area	**General Permit Projects** (= 1 Acre)	▪ Submit Notification of Construction to RWQCB ▪ Prepare and implement SWPPP consistent with General Permit ▪ Inspect and enforce contract documents ▪ Notify Regional Board of non-compliance with General Permit ▪ Submit notice of completion	N/A	▪ Inspect and enforce General Permit on Permittee's projects ▪ Evaluate Permittee's Construction Program for compliance with municipal permit
	Other Projects	▪ Inspect and enforce local permit(s) and ordinances	N/A	N/A

Table 8-1
Construction Program Summary of Requirements & Responsibilities

		Municipal Permittee	Private Owner/Developer	Regional Water Quality Control Board
PUBLIC PROJECTS San Diego Permit Area	**General Permit Projects** (= 1 Acre)	▪ Submit Notice of Intent (NOI) for General Permit Coverage ▪ Prepare and implement SWPPP ▪ Inspect and enforce contract documents ▪ Notify Regional Board of non-compliance with General Permit ▪ Submit Notice of Termination (NOT)	N/A	▪ Inspect and enforce General Permit on Permittee's projects ▪ Evaluate Permittee's Construction Program for compliance with municipal permit
	Other Projects	▪ Inspect and enforce local permit(s) and ordinances	N/A	N/A

The objective of the Model Construction Program is to provide the following:

- A program framework for implementation of policies and practices that minimize the impacts of construction activities on the region's receiving waters and other environmentally sensitive areas;

- An iterative process to inventory, prioritize, and inspect construction sites and provide direction to construction contractors to correct problems as they are discovered during construction and enforce applicable laws and regulations; and

- Methodologies to meet NPDES permit requirements and other applicable environmental laws and regulations.

This Construction Model Program presents requirements and guidelines for pollution prevention methods that shall be used by construction site owners, developers, contractors, and other responsible parties, in order to reduce pollutants in stormwater runoff from construction sites to the MS4. Use of this model construction program promotes countywide consistency among Permittees, which provides for uniform receiving water quality protections and program effectiveness assessment.

Model Program Overview

The following definitions are provided for the purposes of this model construction program:

Construction project - Any site for which building or grading permits are issued and where an activity results in the disturbance of soil such as soil movement, grading, excavation, clearing, road construction, structure construction, or structure demolition; and sites where uncovered storage of materials and wastes such as dirt, sand or fertilizer occurs; or exterior mixing of cementaceous products such as concrete, mortar or stucco will occur.

Pollution Prevention - Any practice that reduces or eliminates the creation of pollutants.

Storm Water Pollution Prevention Plan (SWPPP) - Document required to be developed and implemented by the General Permit. The SWPPP emphasizes the use of appropriately selected, correctly installed and maintained pollution reduction BMPs. This approach provides the flexibility necessary to establish BMPs that can effectively address source control of pollutants during changing construction activities.

The Model Construction Program provides the framework and a process for the following key construction program requirements:

- Inventory of construction sites;
- Prioritization of construction sites based upon water quality threat;
- Preparation of Storm Water Pollution Prevention Plans and other documentation;
- Implementation of temporary Best Management Practices (BMPs) for construction sites;
- Inspections of construction sites and enforcement;
- Development of the Annual Status Report, based on the inventory, prioritization, and inspections and enforcement of construction sites; and
- Training for municipal staff.

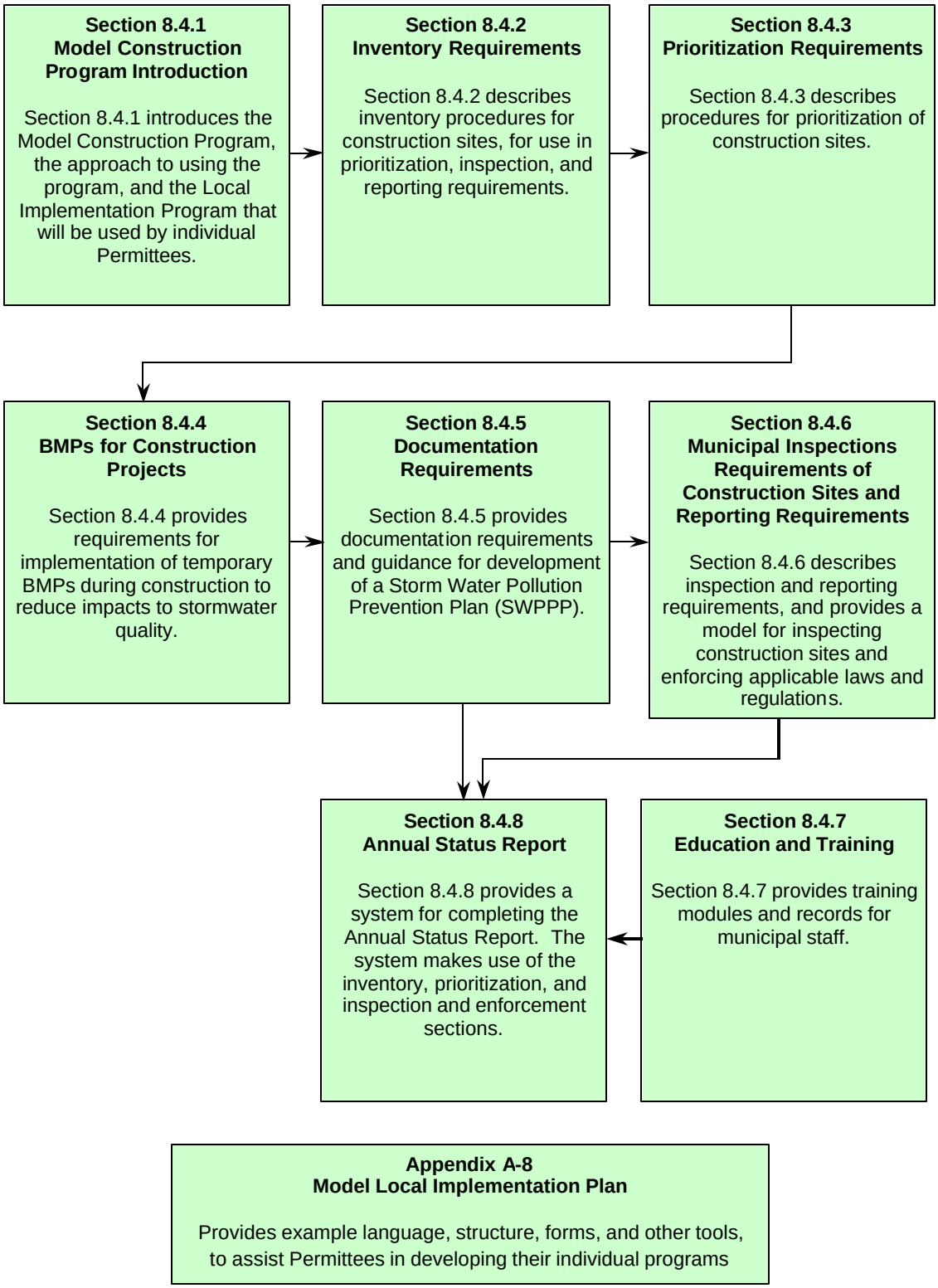
Municipal operations and maintenance activities including minor construction are covered under section 5.4, Model Municipal Activities Program.

This model program provides guidance to Permittees in developing the Construction Activities element of their local storm water programs for Permittees in the Santa Ana RWQCB region, and Jurisdictional Urban Runoff Management Programs (JURMPs) for Permittees in the San Diego RWQCB region, as required by the Permits. **Figure 8-1** represents the flow of the model construction program with a brief description of each section. Information gathered for each section of the model program supports subsequent sections. The flow of the sections eliminates duplication and improves the efficiency of overall program efforts. Arrows represent the flow of information from each chapter.

Model Local Implementation Plan

The Model Local Implementation Plan (LIP) in **Appendix A-8** provides example language and structure, as well as forms and other tools, to assist Permittees in developing individual programs.

Figure 8-1
Model Construction Program Flow



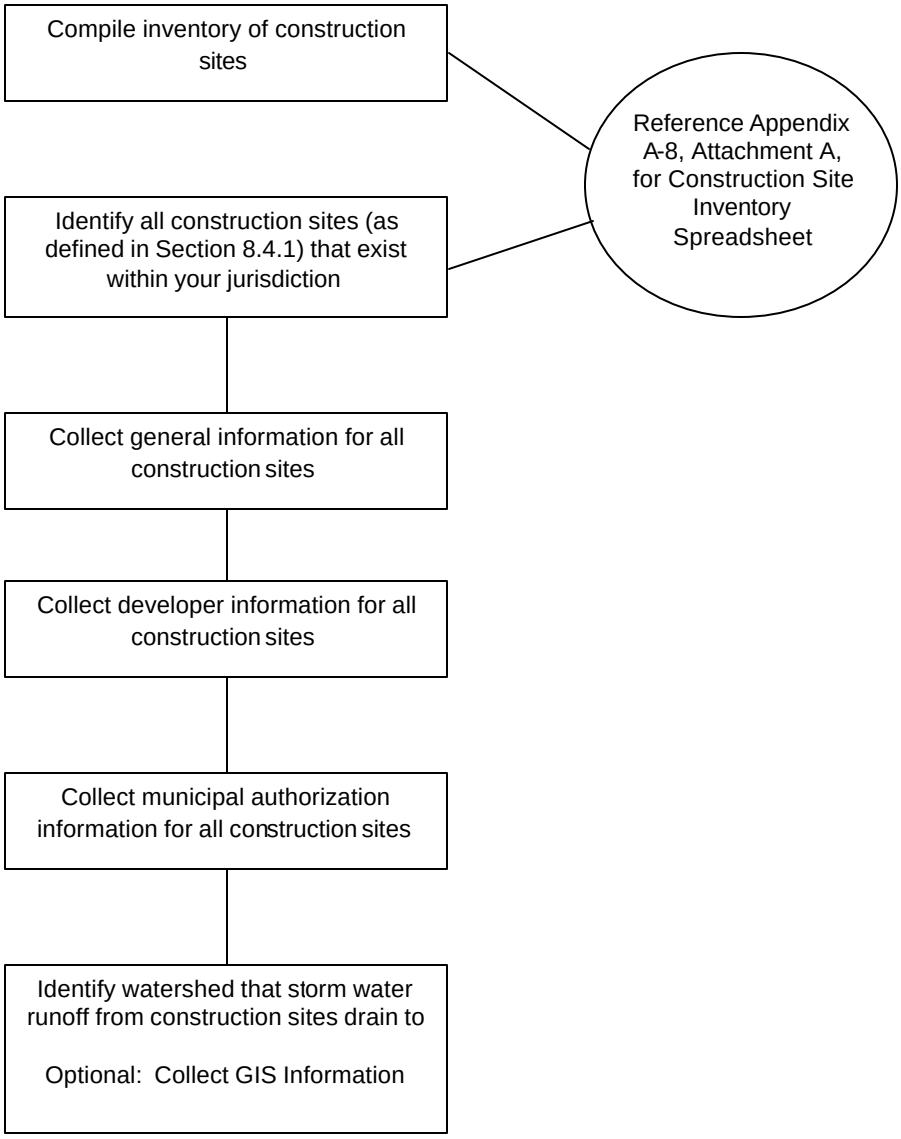
8.4.2 Inventory of Construction Sites

A watershed-based inventory of all construction sites, regardless of site size or ownership, will be developed and updated annually prior to the start of the wet season (October 1). These include all sites meeting the definition of a construction project provided in Section 8.4.1, covered by the General Permit, by a local Grading Permit or a local Building Permit, and public works construction with similar characteristics. This section describes the procedures that will be used to generate and maintain a comprehensive inventory.

This inventory will serve as the basis for prioritization, inspection, enforcement, and reporting elements of the program. Prioritization for construction sites is described in Section 8.4.6.

The flow chart presented in **Figure 8-2** illustrates the process involved in compiling necessary inventory information for construction sites. This section provides necessary guidelines for fully completing the inventories. The Construction Site Inventory Spreadsheet is provided in **Appendix A-8**.

Figure 8-2
Inventory Process for Construction Sites



8.4.2.1 Identification of Construction Sites and General Information

The first step in the inventory process will be to identify all construction sites (as defined in Section 8.4.1) that are within the jurisdiction of the city (county), regardless of site size or ownership. Next, baseline information about each construction site will be collected and entered into the inventory spreadsheet provided in **Appendix A-8**. General relevant construction site information includes:

- Project Name
- Project Location – Full address (if known), City, Zip Code
- Tract Number(s) and Lot number(s)
- Parcel Map Number(s) and Parcel number(s)
- Total site area and Actual Developed (disturbed soil) Project Size (acres)
- General Permit WDID Number (if subject to the General Permit)
- Description of project (i.e., commercial, residential, industrial, etc.)
- Type of project (new or retrofit construction)
- Source Activities (grading and soil movement, uncovered storage of construction materials, etc.)
- Construction start and end dates (if known)
- Developer Information (Name, Address, Phone, Fax, On-site Contact(s)
- Responsible Party or Emergency Contact(s)
- Municipal Grading and / or Building Permit Number(s)
- Comments

Resources used to assemble the information for the inventory spreadsheet include:

- California General Permit for construction activities lists;
- Other individual NPDES Permit lists;
- Building Permits issued;
- Grading Permits issued;
- Clearing Permits issued;
- Other construction-related Permits issued;
- Municipal Capital Improvement Projects with similar characteristics; and
- Encroachment Permits issued with similar characteristics.

8.4.2.2 Watershed Information

For each construction site identified above, the watershed(s) in which the construction site is located can be determined and included in the inventory. Orange County contains thirteen watersheds, which are summarized in **Table 8-2** and illustrated in **Figure 8-3**. It should also be noted that ocean sections along the shore of a watershed are still considered a part of that watershed.

Table 8-2
Orange County Watersheds

Region	Identifier	Watershed
Santa Ana RWQCB (Region 8)	A	Coyote Creek
	B	Carbon Canyon
	C	Westminster
	D	Talbert
	E	Santa Ana River
	F	San Diego Creek
	G	Newport Bay
	H	Los Trancos/Muddy Creek
San Diego RWQCB (Region 9)	I	Laguna Canyon
	J	Aliso Creek
	K	Salt Creek
	L	San Juan Creek
	M	Prima Deshecha and Segunda Deshecha

Figure 8-3
Watershed Boundary Map for Orange County

Collect GIS information (Optional)

Information that can be included in the inventory spreadsheet includes longitude and latitude coordinates measured at the center of the project. This data can aide when databases are added to a Geographic Information System (GIS).

Inventory Update

As a minimum, the inventory will be updated prior to the start of the wet season (October 1). During the update process, projects for which the building or grading permit(s) have expired or have been closed, and projects that have been completed, will be removed from the inventory. New projects will also be added to the inventory.

8.4.3 Prioritization of Construction Sites

This section outlines the procedures for prioritizing construction sites for inspection frequency based on the threat to water quality. Priorities may be high, medium, or low. The complete list of prioritized sites is in **Appendix A-8**.

The procedure for determining construction site priorities is illustrated in **Figure 8-4** and described below.

8.4.3.1 Determination of Mandatory High Priority Construction Sites

High priority construction sites are defined as sites meeting the following criteria:

a) The construction site is 50 acres or more (Santa Ana RWQCB jurisdiction);

OR

b) The construction site is 50 acres or more and grading will occur during the wet season (October 1 – April 30) (San Diego RWQCB jurisdiction);

OR

c) The construction site is 5 acres or more and tributary to a Clean Water Act Section 303(d) water body impaired for sediment or turbidity (see Section 3.2.1.1);

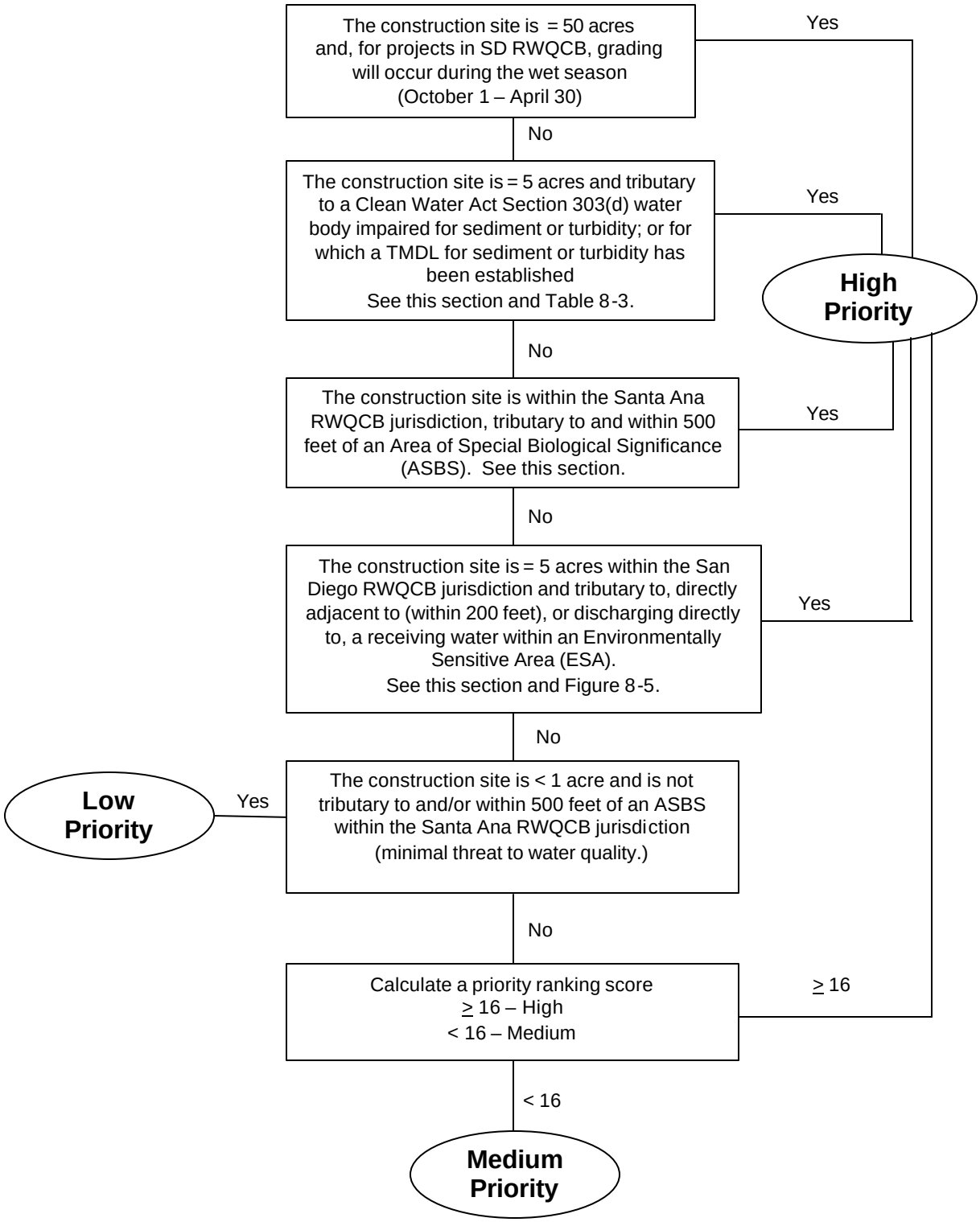
OR

d) The construction site is within the Santa Ana RWQCB jurisdiction and tributary to and within 500 feet of an area defined by the Ocean Plan as an Area of Special Biological Significance (ASBS) – see Section 3.2.1.2;

OR

e) The construction site is 5 acres or more, within the San Diego RWQCB jurisdiction, and tributary to, directly adjacent to (within 200 feet), or discharging directly into, a receiving water within an Environmentally Sensitive Area (ESA) –see Section 3.2.1.3.

Figure 8-4
Prioritization Process for Construction Sites



303(d) Water Bodies Listed for Sediment or Turbidity:

Any construction site 5 acres or greater and tributary to a Clean Water Act section 303(d) impaired water body listed for sediment or turbidity, or for which a TMDL for sediment or turbidity has been established, must be ranked as high priority. A summary of the 2002 303(d) listed water bodies and associated pollutants of concern used as the basis for this program is provided in **Table 8-3**. The 303(d) listing is periodically updated by the State. Consequent adjustments to construction site priority will be updated in the unified Annual Report as needed for those sites still active as of June 30.

After an inventory of construction sites is performed per Section 8.4.2, the watershed in which each construction site is located will have been determined. Currently, San Diego Creek Reaches 1 and 2 in the San Diego Creek watershed and Upper Newport Bay in the Newport Bay watershed are the only water bodies listed for sediment.

A construction site is "tributary to" the 303(d) listed water body if it discharges runoff:

1) Directly into the impaired water body as identified in the Basin Plan;

   OR

2) Into concrete storm sewers that discharge directly into the impaired water body;

   OR

3) Into streams that have water year-round due to groundwater, snow melt or other natural source, which reach the impaired water body even during the dry season.

A construction site 5 acres or larger and tributary to watersheds for which a Total Maximum Daily Load (TMDL) for sediment or turbidity has been established shall be considered a high priority project.

Table 8.3
Summary of the 2002 303(d) Listed Water Bodies and Associated Pollutants of Concern for Orange County

Region	Water Body	Watershed	Pollutant							
			Bacteria Indicators/ Pathogens	Metals	Nutrients	Pesticides	Toxicity	Trash	Salinity/TDS/ Chlorides	Turbidity
Region 8 Santa Ana	Anaheim Bay	C		X		X				
	Bolsa Chica			X						
	Buck Gully Creek	H	X							
	Huntington Beach State Park	C	X							
	Huntington Harbour	D	X	X		X				
	Los Trancos Creek (Crystal Cove Creek)	H	X							
	Newport Bay, Lower	G		X		X				
	Newport Bay, Upper (Ecological Reserve)	G		X		X				
	Santiago Creek Reach 4	E							X	
	San Diego Creek, Reach 1	F	X			X				
	San Diego Creek, Reach 2	F		X			X			
	Seal Beach	A	X							
	Silverado Creek	E	X						X	
Region 9 San Diego	Aliso Creek (Mouth)	J	X							
	Aliso Creek (20 Miles)	J	X		X		X			
	Dana Point Harbor	K	X							
	Pacific Ocean Shoreline, Aliso Beach HSA	J	X							
	Pacific Ocean Shoreline, Dana Point HSA	K	X							
	Pacific Ocean Shoreline, Laguna Beach and San Joaquin Hills HSAs	I	X							
	Pacific Ocean Shoreline, Lower San Juan HSA	L	X							
	Pacific Ocean Shoreline, San Clemente HSA	M	X							
	Prima Deshecha Creek	M			X					X
	San Juan Creek (Lower one Mile)	L	X							
	San Juan Creek (Mouth)	L	X							
	Segunda Deshecha Creek	M			X					X

Areas of Special Biological Significance:

The Water Quality Control Plan for Ocean Waters of California (California Ocean Plan) designates 35 Areas of Special Biological Significance, two of which lie within the Irvine and Newport Coast areas.

- Newport Beach Marine Life Refuge (HU801.110)

- Irvine Coast Marine Life Refuge (HU801.110)

Any construction site within the Santa Ana RWQCB jurisdiction, which is tributary to and within 500 feet of an Area of Special Biological Significance (ASBS), must be ranked as high priority. A third ASBS in Orange County, Heisler Park Ecological Reserve (HU801.110), lies within the San Diego RWQCB. The San Diego Permit includes Areas of Special Biological Significance within the definition of Environmentally Sensitive Area (ESA). See Section 3.2.1.3 below.

Environmentally Sensitive Areas (Applies to San Diego Region Permittees Only):

Any construction site 5 acres or greater located within the San Diego RWQCB jurisdiction, which is tributary to, directly adjacent to (within 200 feet), or discharging directly into a receiving water within an Environmentally Sensitive Area (ESA) must be ranked as high priority.

For the purposes of this model program, the following terms are defined:

> ***Adjacent*** - located within 200 feet of the ESA.
>
> ***Discharging directly to*** - discharge from a drainage conveyance system that is composed entirely of flows from the subject construction site and not commingled with flows from adjacent lands (i.e. discharge from an urban area that co-mingles with downstream flows prior to an ESA is not subject to this requirement)

An ESA exists within the San Diego Region if any of the following designations have been applied to the water body of concern:

- All Clean Water Act 303(d) listed 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);
- Water bodies located within areas designated as preserves or equivalent under the Natural Community Conservation Planning Program;
- Areas designated within Appendix K of the DAMP as Critical Aquatic Resources (CARS); and
- Any other equivalent ESAs that contain water bodies, which have been identified by the Permittee to be of local concern.

The map provided in **Appendix A-8** may be used to assist in the identification and classification of construction sites in order to determine if they potentially impact an ESA. The 303(d) listing is periodically updated by the State. For 303(d) updates finalized prior to June 30, consequent adjustments to ESA mapping and prioritizations will be updated in the subsequent Annual Report.

8.4.3.2 Determination of Low Priority Construction Sites

Low priority construction sites are those that pose a minimal threat to water quality, and a minimal risk of discharge to receiving waters. These are defined as sites that are less than 1 acre and are not tributary to and / or within 500 feet of an ASBS within the Santa Ana RWQCB jurisdiction.

8.4.3.3 Ranking Other Construction Sites

Generally, projects between 1 and 50 disturbed acres are not categorically high or low priority. Construction sites that do not meet the mandatory criteria that automatically designates them as either High or Low priority (section 8.4.3) must be evaluated according to the ranking criteria described below to determine if they will be a medium or high priority site. Prioritization is performed by applying steps A through D. A point value (1, 2, 3, 4, or 5) will be assigned from each step, which will be totaled for a ranking score.

Ranking Criteria:

A. Size

Construction sites less than 50 acres are ranked based upon the size of the area being developed. (1–5 points)

1 = 1 – 10 acres
2 = 11 – 25 acres
3 = 26 – 40 acres
4 = 41 – 49 acres
5 = > 50 acres

B. Proximity to ASBS / ESA

Construction sites are ranked based upon distance from an ASBS or an ESA. (1–5 points)

Santa Ana RWQCB	San Diego RWQCB
1 = > 5,000 feet	1 = > 5,000 feet
2 = 2,001 – 5,000 feet	2 = 1,001 – 5,000 feet
3 = 1,001 – 2,000 feet	3 = 501 – 1,000 feet
4 = 501 – 1,000 feet	4 = 201 – 500 feet
5 = <500 feet	5 = <200 feet

C. Maximum Slopes

Construction sites are ranked based upon the maximum finished slopes within the site. (1–5 points)

1 = Slopes 20: 1 or flatter
2 = Slopes greater than 20:1 but less than 5:1 (20:1 < Slope < 5:1)
3 = Slopes greater than 5:1 but less than 3:1 (5:1 < Slope < 3:1)
4 = Slopes greater than 3:1 but less than 2:1 (3:1 < Slope < 2:1)
5 = Slopes 2: 1 or steeper

D. Non-Stormwater Discharges

Construction sites are ranked based upon potential non-stormwater discharges (1–5 points).

0 = Zero or low potential of non-stormwater discharges
3 = Potential non-stormwater discharges from uncovered construction materials on site (if known)
5 = Potential non-stormwater discharges from dewatering activities or use of soil amendments.

Totals

By totaling the scores determined above (steps A-D) the potential threat to water quality can be determined.

$$\text{Ranking} = A + B + C + D$$

A high priority is assigned if the ranking total is greater than or equal to 16. If the ranking total is less than 16, a medium priority is assigned.

Table 8-4 summarizes the prioritization criteria for construction sites. The prioritization criteria presented in this section will be reviewed once every year 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.

An updated priority list shall be included in each Local Implementation Plan (**Appendix A-8**).

Table 8-4
Prioritization of Construction Sites

High Priority	Medium Priority	Low Priority
The construction site is 50 acres or more [and, for projects in the San Diego RWQCB jurisdiction, grading will occur during the wet season (October 1 – April 30)]; OR	Projects with between 1 and 50 disturbed acres and a prioritization rating less than 16 points	Projects that disturb less than one acre, and are not tributary to and/or within 500 feet of an ASBS within the Santa Ana RWQCB jurisdiction (minimal threat to water quality.)
The construction site is 5 acres or more and tributary to a Clean Water Act Section 303(d) water body impaired for sediment or turbidity; or water bodies for which a TMDL for sediment or turbidity has been established; OR		
The construction site is within the Santa Ana RWQCB jurisdiction, tributary to and within 500 feet of an area defined by the Ocean Plan as an Area of Special Biological Significance (ASBS); OR		
The construction site is 5 acres or more, within the San Diego RWQCB jurisdiction, and tributary to, directly adjacent to (within 200 feet), or discharging directly into, a receiving water within an Environmentally Sensitive Area (ESA); OR		
Construction sites with between 1 and 50 disturbed acres and a prioritization rating equal or greater to 16 points		

8.4.4 Best Management Practices (BMPs) for Construction Projects

This section presents minimum requirements for all projects, temporary BMPs for construction projects, and site management requirements for the various priorities of construction projects. The requirements apply equally to private development and public works projects. Permanent post-construction BMPs are discussed in detail within Section 7, Model New Development / Significant Redevelopment Program.

All construction projects, regardless of size or priority, must implement BMPs to reduce the discharge of pollutants into the storm drain system or waterbodies. Construction projects will be prioritized as presented in Section 8.4.3 of this document. The basic BMP implementation requirements are shown below in **Table 8-5**. Documentation requirements are further discussed in Section 8.4.5.

Table 8-5
BMP Implementation Requirements for Construction Sites

PRIORITY	SITE AREA	BMP REQUIREMENT
LOW	Total Disturbed Soil Area < 1 Acre	▪ Meet minimum requirements (Table 8-6)
MEDIUM	Total Disturbed Soil Area = 1 Acres (covered by General Permit)[1]	▪ Meet minimum requirements (Table 8-6) ▪ Implement Site Management Requirements ▪ Implement all appropriate Construction BMPs
HIGH	Total Disturbed Soil Area = 5 Acres (covered by General Permit)	▪ Meet minimum requirements (Table 8-6) ▪ Implement Site Management Requirements ▪ Implement all appropriate Construction BMPs
	< 1 Acre and not tributary to and/or within 500 feet of an ASBS within the Santa Ana RWQCB jurisdiction	▪ Meet minimum requirements (Table 8-6) ▪ Implement all appropriate Construction BMPs

8.4.4.1 Minimum Requirements

The minimum requirements apply to all construction projects, regardless of priority. All private and public works construction projects are required, at a minimum, to implement and be protected by an effective combination of erosion and sediment controls and waste and materials management BMPs. These minimum requirements must be conveyed to construction contractors as part of the plan notes and are summarized in **Table 8-6**.

Table 8-6
Minimum Requirements for All Construction Sites

CATEGORY	MINIMUM REQUIREMENTS
Erosion and Sediment Control	Sediments from areas disturbed by construction shall be retained on site using an effective combination of erosion and sediment controls to the maximum extent practicable, and stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
Waste and Materials Management Control	Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented and retained on site to minimize transport from the site to streets, drainage facilities, or adjoining property by wind or runoff.

BMPs that may be used to meet the minimum requirements are described later in this in Section.

8.4.4.2 Site Management Requirements for Medium and High Priority Construction Sites

The following requirements are for deployment of selected construction BMPs and apply to all medium and high priority projects. BMPs that may be used to meet the site management requirements are described later in this Section.

Dry Season Requirements (May 1 through September 30)

A. Wind erosion BMPs (dust control) shall be implemented.

B. Sediment control BMPs shall be installed and maintained at all operational storm drain inlets.

C. BMPs to control off-site sediment tracking shall be implemented and maintained.

D. Appropriate waste management and materials pollution control BMPs shall be implemented to prevent the contamination of storm water by wastes and construction materials.

E. Appropriate non-storm water BMPs shall be implemented to prevent the contamination of storm water from construction activities.

F. There shall be a "weather triggered" action plan and the ability to deploy standby sediment control BMPs 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).

G. Sufficient materials needed to install standby sediment control BMPs (at the site perimeter, site slopes and operational inlets within the site) necessary to prevent

sediment discharges from exposed portions of the site shall be stored on site. Areas that have already been protected from erosion using physical stabilization or established vegetation stabilization BMPs as described in item H below are not considered to be "exposed" for purposes of this requirement.

H. Deployment of permanent erosion control BMPs (physical or vegetation) should commence as soon as practical on slopes that are completed for any portion of the site. Standby BMP materials should not be relied upon to prevent erosion of slopes that have been completed.

Wet Season Requirements (October 1 through April 30)

In addition to the Dry Season Requirements:

A. Where appropriate sediment control BMPs shall be implemented at the site perimeter, at all operational storm drain inlets and at all non-active slopes, to provide sufficient protection for storms likely to occur during the rainy season.

B. Adequate physical or vegetation erosion control BMPs (temporary or permanent) shall be installed and established for all completed slopes prior to the start of the rainy season. These BMPs 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 may indicate that the BMP, as installed, was not adequate for the circumstances in which it was used. Repairs or replacements must result in a more robust BMP, or additional BMPs should be installed to provide adequate protection.

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 BMPs prior to a predicted rainstorm.

D. A disturbed area that is not completed but that is not being actively graded (non-active area) shall be fully protected from erosion with temporary or permanent BMPs (erosion and sediment control). The ability to deploy standby BMP materials is not sufficient for these areas. Erosion and sediment control BMPs must actually be deployed. This includes all building pads, unfinished roads and slopes.

E. Sufficient materials needed to install standby erosion and sediment control BMPs necessary to completely protect the exposed portions of the site from erosion and to prevent sediment discharges shall be stored on site. Areas that have already been protected from erosion using permanent physical stabilization or established vegetation stabilization BMPs are not considered to be "exposed" for purposes of this requirement.

8.4.4.3 Construction BMPs

In order to meet the model construction program requirements, construction contractors must select, install and maintain appropriate BMPs on all construction projects. BMPs must be installed in accordance with an industry recommended standard, or in accordance with the General Permit. BMPs are tools which are use to ensure sites meet the requirements outlined above. Selection of BMPs is a site-specific process and as such, no specific BMPs or number of BMPs are required. Fact sheets are provided to assist site managers in selection of BMPs for compliance with the requirements of the DAMP.

Table 8-7 shows the listing of all construction BMPs from the California Stormwater Best Management Practice Handbook, Construction, 2002 Edition, which has BMP fact sheets for six major categories shown below and guidelines on how to select erosion and sediment controls. Copies of these fact sheets are included in the Local Implementation Plan (**Appendix A-8)**. An updated Construction BMP Handbook is currently under development. The fact sheets in **Appendix A-8** will be replaced when the Construction BMP Handbook is finalized.

- Erosion Control
- Sediment Control
- Wind Erosion Control
- Tracking Control
- Non-Storm Water Management
- Waste Management & Materials Pollution Control

Table 8-7 shows various construction categories or activities and the BMPs that can be implemented to reduce pollutants in storm water runoff from construction sites to the MS4 or receiving waters.

Table 8-7
Construction BMPs

CATEGORY	BMP #	BMP NAME
Erosion Control BMPs	EC-1	Scheduling
	EC-2	Preservation of Existing Vegetation
	EC-3	Hydraulic Mulch
	EC-4	Hydroseeding
	EC-5	Soil Binders
	EC-6	Straw Mulch
	EC-7	Geotextiles, Plastic Covers & Erosion Control Blankets/ Mats
	EC-8	Wood Mulching
	EC-9	Earth Dikes/ Drainage Swales & Lined Ditches
	EC-9	Earth Dikes/ Drainage Swales & Lined Ditches
	EC-10	Outlet Protection/ Velocity Dissipation Devices
	EC-11	Slope Drains
Sediment Control BMPs	SE-1	Silt Fence
	SE-2	Desilting Basin
	SE-3	Sediment Trap
	SE-4	Check Dam
	SE-5	Fiber Rolls
	SE-6	Gravel Bag Berm
	SE-7	Street Sweeping and Vacuuming
	SE-8	Sandbag Barrier
	SE-9	Straw Bale Barrier
	SE-10	Storm Drain Inlet Protection
Wind Erosion Control BMPs	WE-1	Wind Erosion Control
Tracking Control BMPs	TC-1	Stabilized Construction Entrance/ Exit
	TC-2	Stabilized Construction Roadway
	TC-3	Entrance/Outlet Tire Wash
Non-Stormwater Control BMPs	NS-1	Water Conservation Practices
	NS-2	Dewatering Operations
	NS-3	Paving and Grinding Operations
	NS-4	Temporary Stream Crossing
	NS-5	Clear Water Diversion
	NS-6	Illicit Connection/Illegal Discharge Detection and Reporting
	NS-7	Potable Water/Irrigation
	NS-8	Vehicle and Equipment Cleaning
	NS-9	Vehicle and Equipment Fueling
	NS-10	Vehicle and Equipment Maintenance
	NS-11	Pile Driving Operations
	NS-12	Concrete Curing
	NS-13	Concrete Finishing
	NS-14	Material and Equipment Use Over Water
	NS-15	Structure Demolition/Removal Over or Adjacent to Water
	NS-16	Temporary Batch Plants
	NS-17	Streambank Stabilization
Waste Management & Materials Pollution Control BMPs	WM-1	Material Delivery and Storage
	WM-2	Material Use
	WM-3	Stockpile Management
	WM-4	Spill Prevention and Control
	WM-5	Solid Waste Management
	WM-6	Hazardous Waste Management
	WM-7	Contaminated Soil Management
	WM-8	Concrete Waste Management
	WM-9	Sanitary/ Septic Waste Management
	WM-10	Liquid Waste Management

8.4.4.4 Erosion Control

Erosion Control is any source control practice that protects the soil surface and prevents the soil particles from being detached by rainfall or wind. One or more of the following physical and/or vegetation stabilization BMPs, are required to prevent erosion from exposed slopes. Tracking alone is not accepted as a means to protect exposed slopes from erosion.

Physical Stabilization:

EC-3 Hydraulic Mulch
EC-4 Hydroseeding
EC-5 Soil Binders
EC-6 Straw Mulch
EC-7 Geotextiles, Plastic Covers & Erosion Control Blankets/Mats

Other material approved by the Permittee 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. Chemicals that may affect water quality should not be used.

Vegetation Stabilization:

EC-4 Hydroseeding (to establish interim vegetation)

Establish permanent landscaping: If vegetation stabilization is selected, the stabilizing vegetation must be installed, irrigated and established prior to the onset of the storm season (October 1) [2]. In the event stabilizing vegetation has not been established by October 1, other forms of physical stabilization must be employed to prevent erosion during storm events until the stabilizing vegetation is established.

Wind Erosion (Dust) Control:

Apply water or other dust palliatives as necessary to prevent or alleviate dust nuisance:

WE-1 Wind Erosion Control

In 2003, as required by Santa Ana Region Permit, the Permittees developed a proposal for a study to evaluate the effectiveness of a group of selected BMPs for controlling erosion during construction. The study proposal, a cooperative effort between the Orange County and San Bernardino County Regional Stormwater Programs, identified and prioritized five BMPs for the study, based on those most commonly used in the area and those recommended in the California BMP Handbooks. The five BMPs proposed for monitoring under the study included bonded fiber matrix, hydraulic mulches, hydroseeding, erosion control blankets and blown/tackified straw. Based on the results of the proposed study, which will be conducted

[2] 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

during the term of the Permit, the Counties will identify one or more BMPs as preferred for erosion control during construction. The Erosion Control BMP Effectiveness Study Proposal is presented in **Appendix E3.**

8.4.4.5 Sediment Control

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.

Perimeter Protection:

Protect areas of potential sediment ingress / discharge in sheet flows such as along the perimeter of the site or exposed areas using one or more of the following:

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sand Bag Barrier
SE-9 Straw Bale Barrier

Storm Drain Inlet Protection:

Protect all operational storm drain inlets by using:

SE-10 Storm Drain Inlet Protection

Resource protection:

Protect environmentally sensitive areas (ESAs) and waterbodies from sediment in sheet flows by using one or more of the following:

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sand Bag Barrier
SE-9 Straw Bale Barrier

Sediment Capture:

Capture sediments in channeled storm water by using one or more of the following:

SE-3 Sediment Trap
SE-10 Storm Drain Inlet Protection
SE-2 Desilting Basin (Designed in accordance with an industry standard such as California Stormwater BMP manual, etc.) Desilting basin(s) must be designed in accordance with the General Permit.

Velocity Reduction:

Reduce the velocity of storm water by using one or more of the following:

SE-1 Silt Fence
SE-4 Check Dam
SE-11 Sediment Basin
EC-10 Outlet Protection / Velocity Dissipation Devices

Off-site Sediment Tracking:

Prevent sediment from being tracked off-site by using one or more of the following:

TC-1 Stabilized Construction Entrance / Exit
TC-2 Construction Road Stabilization
TC-3 Entrance / Outlet Tire Wash

8.4.4.6 Waste Management

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

BMPs that must be implemented for handling, storing and disposing of wastes generated by a construction project to prevent or minimize the release of waste materials into stormwater discharges include:

WM-4 Spill Prevention and Control
WM-5 Solid Waste Management
WM-6 Hazardous Waste Management
WM-7 Contaminated Soil Management
WM-8 Concrete Waste management
WM-9 Sanitary / Septic Waste Management
WM-10 Liquid Waste Management
NS-8 Vehicle and Equipment Cleaning
NS-9 Vehicle and Equipment Fueling
NS-10 Vehicle and Equipment Maintenance

8.4.4.7 Materials Management

Prevent or minimize the contamination of storm water from construction materials by covering and/or providing secondary containment of storage areas and/or by taking adequate precautions when handling materials. BMPs to implement for handling, storing and using construction materials to prevent or minimize the release of those materials into storm water runoff are:

WM-1 Material Delivery and Storage
WM-2 Material Use
WM-3 Stockpile Management

8.4.4.8 Non-Storm Water Management

Non-storm water management BMPs limit or reduce potential pollutants at their source before they are exposed to storm water. These BMPs are also referred to as "good housekeeping practices" that involve day-to-day operations of the construction site and are usually under the control of the contractor. BMPs to implement for non-storm water management, depending on the conditions and/or applicability of deployment are:

NS-1 Water Conservation Practices
NS-2 Dewatering Operations
NS-3 Paving and Grinding Operations
NS-4 Temporary Stream Crossing
NS-5 Clear Water Diversion
NS-6 Illicit Connection/Illegal Discharge Detection and Reporting
NS-7 Potable Water/Irrigation
NS-8 Vehicle and Equipment Cleaning
NS-9 Vehicle and Equipment Fueling
NS-10 Vehicle and Equipment Maintenance
NS-11 Pile Driving Operations
NS-12 Concrete Curing
NS-13 Concrete Finishing
NS-14 Materials and Equipment Use Over Water
NS-15 Structure Demolition/Removal Over or Adjacent to Water
NS-16 Temporary Batch Plants
NS-17 Streambank Stabilization

8.4.4.9 BMP Standard Plans

Accepted standard plans for construction BMPs are found in the Orange County Environmental Management Agency Standard Plans, 1996 Edition. The following BMPs standard plans are included in **Appendix A-8**:

- Sandbag Velocity Reducer (No. 1328)
- Temporary Drainage Inlet (No. 1330)

8.4.4.10 Construction BMP References

The main reference for construction, implementation and maintenance of construction BMPs is the California Storm Water Best Management Practice Handbook – Construction. This handbook is presently being revised and the latest version is expected to be published by the end of 2003. Draft BMP Fact Sheets from the 2002-revised version are included in **Appendix A-8**. The current version is dated 1993.

8.4.4.11 Other References

The following sources contain useful information on construction BMPs:

- State of California Department of Transportation (Caltrans), Storm Water Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual, November 2000.

- Urban Runoff Quality Management, Water Environment Federation (WEF) Manual of Practice No.23 / American Society of Civil Engineers (ASCE) Manual and Report on Engineering Practice No. 87, 1998.

- Erosion and Sediment Control Handbook. Goldman, S.J., K. Jackson, and T.A. Bursztynsky. McGraw-Hill, 1986.

- Urban Storm Drainage Criteria Manual, Volume 3 – Best Management Practices, Urban Drainage Flood Control District, Denver, Colorado, September 1999.

- Construction Stormwater Pollution Prevention. Vol. II. Storm Water Management Manual for Western Washington, August 2001. Washington State Department of Ecology.

- Highway Runoff Manual, M31-16. Washington State Department of Transportation, Environmental and Engineering Service Center, February 1995.

- Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, NC Dept. of Natural Resources and Community Development, Raleigh, NC. Smolen, M.D., D.W. Miller, L.C. Wyatt, J. Lichthardt, A.L. Lanier, W.W. Woodhouse, and S.W. Broome, 1988.

- Processes, Procedures, and Methods to Control Pollution Resulting from all Construction Activity, University of Washington, Center for Urban Water Resources Management, by Loren Reinelt, October 1991.

- Virginia Erosion and Sediment Control Handbook, 2nd Edition, 1980.

- Maryland Erosion and Sedimentation Control Manual, 1983.

- Michigan State Guidebook for Erosion and Sediment Control, 1975.

- Designing for Effective Sediment and Erosion Control of Construction Sites, Jerald S. Fifield, Ph.D., CPECS.

- Field Manual on Sediment and Erosion Control Best Management Practices for Contractors and Inspectors, Jerald S. Fifield, Ph.D., CPECS.

- Storm Water Pollution Control, Municipal, Industrial and Construction NPDES Compliance, Second Edition. Roy D. Dodson, P.E., 1999.

8.4.5 Documentation Requirements

This section presents documentation requirements for all projects. The documentation requirements are summarized in **Table 8-8.** These requirements apply equally to private development and public works projects.

Table 8-8
Documentation Requirements for Construction Sites

PRIORITY	SITE AREA	DOCUMENTATION REQUIREMENT	
LOW	Total Disturbed Soil Area < 1 Acre	Minimum Requirements as Standard Conditions in Permit or Plan Notes	
MEDIUM	Total Disturbed Soil Area = 5 Acres (covered by General Permit)	Storm Water Pollution Prevention Plan (SWPPP)	
HIGH	Total Disturbed Soil Area =1 Acre	After General Permit Amendment (March 10, 2003)	Storm Water Pollution Prevention Plan (SWPPP)
	Total Disturbed Soil Area < 1Acre	Minimum Requirements as Standard Conditions or Plan Notes	

8.4.5.1 Requirements for General Permit Sites

Construction sites that are subject to the General Permit are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) meeting the requirements of the General Permit.

Private Construction Projects Covered by the General Permit

For private projects, the project owner, developer or contractor will prepare the Notice of Intent (NOI) and submit it to the State Water Resources Control Board (SWRCB). Before issuing a grading or building permit, the city or county will require proof of General Permit coverage. Before the developer or contractor begins construction, the SWPPP must be prepared and must be implemented year-round throughout the duration of the project's construction.

Once construction begins, the city or county will inspect and enforce local permit(s) and ordinances, and will notify the appropriate RWQCB of any non-compliance with local permits or ordinances when the non-compliant condition meets the criteria of posing a threat to human or environmental health as discussed in Section 8.4.6.

It is important to note that city or county staff is not responsible for reviewing, approving or enforcing the SWPPP; these are responsibilities of the RWQCB. Cities (or county) may elect to have inspector(s) use the SWPPP as an internal tool for on-site inspections. Once project construction is completed and the site fully complies with the final stabilization requirements of the General Permit, the owner/developer will submit a Notice of Termination (NOT) to the SWRCB.

Public Works Construction Projects Covered by the General Permit

For public works projects within the jurisdiction of the San Diego RWQCB, the city or county will prepare the NOI and submit it to the SWRCB. The SWPPP will then be prepared before the contractor is allowed to start construction activities. During construction, the city or county will inspect and enforce the contract documents and will notify the RWQCB of any non-compliance with the General Permit. Once the project is completed, the city or county will submit a Notice of Termination (NOT) to the SWRCB.

For public works projects within the jurisdiction of the Santa Ana RWQCB, the city or county will notify the RWQCB via an informal Notification of Construction Activity. The SWPPP will then be prepared before the contractor is allowed to start construction activities. During construction, the city or county will inspect and enforce the contract documents and will notify the RWQCB of any non-compliance with the General Permit.

It is important to note that city or county inspectors are not responsible for reviewing, approving or enforcing the SWPPP; these are responsibilities of the RWQCB. Inspectors of public works projects will enforce the contract documents and should be familiar with the SWPPP as it is part of the contract documents. Once the project is completed, the city or county will inform the RWQCB when the project is completed.

SWPPP Template

The SWPPP is the document that addresses water pollution control during construction. A SWPPP Template has been developed and is included in the Local Implementation Plan (**Appendix A-8)** as an assistance tool. The template contains all elements required by the General Permit, but individual agencies may develop their own SWPPP template. It is important to note that a SWPPP does not need to match the template provided. The template is directly applicable for public projects subject to the General Permit and is provided as a guidance document that was developed with the following objectives:

(1) Meet the requirements of the General Permit; and

(2) Provide easy data entry for owners, developers and/or contractors to prepare SWPPPs.

8.4.5.2 Requirements for Other Sites

Private Construction Projects Not Covered by the General Permit

Private construction projects not covered by the General Permit, but covered under a grading permit, are required to develop Erosion and Sediment Control Plans (ESCPs). These ESCPs must show proposed locations of the erosion and sediment control BMPs that will be implemented during the construction project to comply with the minimum requirements listed in **Table 8-5**. Low priority construction sites shall meet the minimum requirements listed in **Table 8-5**.

Public Works Construction Projects Not Covered by the General Permit

Public works construction projects not covered by the General Permit are required to comply with appropriate pollution prevention control practices in accordance with the current edition of the "Green Book" Standard Specifications for Public Works Construction and the provisions of this Section, and shall develop and implement ESCPs. Low priority construction sites shall meet the minimum requirements listed in **Table 8-5**.

8.4.6 Municipal Inspections Requirements of Construction Sites and Reporting Requirements

Inspection Responsibilities

Inspections of construction sites will be performed to verify that the requirements in the Model Construction Program are being implemented and maintained, that they continue to protect water quality, that they appropriately comply with the local permits and ordinances, and, for public works projects covered by the General Permit, that they appropriately comply with the General Permit. Construction sites will be inspected, according to the established priority, until construction activity is complete.

This inspection program and the enforcement procedures have been developed to determine compliance with applicable Ordinances, Permits (building, grading, stormwater, etc.) and NPDES Permits and apply to both private and public construction sites. Site inspections will be carried out to ensure that developers and contractors implement an effective combination of BMPs to meet the minimum requirements and local permit conditions, based upon each site's threat to water quality using the prioritization system described in Section 8.4.3. The inspection program includes inspection frequencies, inspection documentation procedures, municipal inspections of private and public construction sites, enforcement procedures, and non-compliance reporting.

Inspection Frequencies

Inspection of construction sites will be performed based upon the priority of the projects. The frequency of construction site inspections is shown in **Table 8-9** below.

Table 8-9
Inspection Frequency of Construction Projects Based on Construction Site Priority

Construction Site Priority	Rainy Season (October 1 - April 30)		Dry Season (May 1 - September 30)
	Projects within the jurisdiction of the Santa Ana RWQCB	Projects within the jurisdiction of the San Diego RWQCB	
HIGH	Once per month	Once per week *	As needed
MEDIUM	Twice during the season		As needed
LOW	Once during the season	Twice during the season	As needed

* OR

Monthly for any site that the responsible Permittee 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. Permittee has record of construction site's Waste Discharge Identification Number (WDID#) documenting construction site's coverage under the statewide General Construction Permit; and
ii. Permittee has reviewed the constructions site's Storm Water Pollution Prevention Plan (SWPPP); and
iii. Permittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
iv. Permittee finds that the SWPPP is being properly implemented on site.

Inspection Documentation Procedures

In order to properly document all inspection information and gather the necessary information for reporting results of the program, a sample basic construction site inspection checklist is included in **Appendix A-8**.

For public works projects covered by the General Permit, records of all inspections and non-compliance reporting will be retained for a period of at least three years. With the exception of non-compliance reporting, these records need not be submitted to the State.

Municipal Inspections of Construction Sites

Both public and private construction projects will be inspected by municipal inspectors or other Permittee or 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 municipal codes, regulations and ordinances. If the inspected site is in violation of these permits or codes, does not meet the minimum requirements (**Table 8-5**), or there is a prohibited discharge related to construction activities, inspectors will immediately direct compliance and conduct follow-up inspections as necessary to confirm that compliance is attained. Additional inspections will be conducted as the project scope dictates the need for modified and/or additional BMPs.

8.4.6.1 Inspections of Private Construction Projects

Inspections will be conducted at the frequencies shown in **Table 8-9**. At a minimum, inspectors will address the following during inspections:

a. Ensure that the owner/developer/contractor is meeting these construction program requirements;

b. Ensure that there is an effective combination of erosion, sediment and non-stormwater BMPs being implemented and maintained in order to prevent or reduce pollutants in stormwater runoff from construction sites into stormwater conveyances or receiving waters;

c. Ensure that the owner/developer/contractor implements and maintains appropriate BMPs on a year round basis; and

d. Ensure that, if issues are noted during the inspections, appropriate corrective actions are taken.

The primary mechanism that inspectors will use to determine if the minimum requirements and BMPs for construction activities are being met will be to assess the site against the minimum requirements **(Table 8-5)**. The minimum requirements are intended to be easy to interpret field observations that allow an assessment of site conditions during both dry and wet season conditions.

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

a. Review the erosion and sediment control plans (if applicable) and determine whether they are being properly implemented;

b. Determine if BMPs are being effectively implemented and maintained in accordance with the approved erosion and sediment control plans; and

c. Determine whether the owner / developer / contractor is making appropriate adjustment when ineffective BMPs are found.

If BMPs are either not implemented or not being maintained properly, enforcement actions may be imposed on the contractor as discussed later in this Section. If the inspected site does not meet the minimum requirements (**Table 8-5**), inspectors will follow-up within a reasonable time frame to assure that all applicable requirements are implemented.

Inspections of construction sites will be documented using the sample checklists provided in **Appendix A-8**. These forms are provided as guidelines and can be edited by the city or county to meet their own needs.

8.4.6.2 Inspections of Public Works Construction Projects

Inspections will be conducted at the frequencies shown in **Table 8-9**. At a minimum, inspectors will address the following during inspections:

a. Ensure that the contractor is meeting these construction program requirements;

b. Ensure that there is an effective combination of erosion, sediment and non-stormwater BMPs being implemented and maintained in order to prevent;

c. Ensure that the contractor implements and maintains appropriate BMPs on a year round basis; and

d. Ensure that, if issues are noted during the inspections, appropriate corrective actions are taken.

The primary mechanism that inspectors will use to determine if minimum requirements and BMPs for construction activities are being met will be to assess the site against the minimum requirements (**Table 8-5**) and the contract documents. The minimum requirements are intended to be easy to interpret field observations that allow an assessment of site conditions during both dry and wet season conditions.

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

a. Review contractor's self-inspection checklist to determine whether minimum self-inspections have been performed;

b. Review the SWPPP (if applicable), erosion and sediment control plans and contract documents and determine whether they are being properly implemented;

d. Determine if BMPs are being effectively implemented in accordance with the approved plans, and maintained properly; and

c. Determine whether the contractor is making appropriate adjustment when ineffective BMPs are found.

If BMPs are either not implemented or not being maintained properly, contract enforcement actions may be imposed on developers/contractors as discussed later in Section. If the inspected site does not meet the minimum requirements (**Table 8-5**), inspectors will follow-up within a reasonable time frame to assure that all applicable requirements are implemented. Inspections of public works construction sites will be documented using the sample checklists provided in **Appendix A-8**. These forms are provided as guidelines and can be edited by the municipality to meet their own needs.

8.4.6.3 Enforcement Actions

Enforcement of construction projects will be undertaken by the city or county inspectors and/or other staff who possess internal enforcement authority through established policies and procedures. There are several enforcement mechanisms and penalties to ensure compliance with local ordinances and permits. It is important to note that city staff is not responsible for enforcing the SWPPP, these are responsibilities of the SWRCB; but inspectors are required to become familiar with the SWPPP as it is part of the contract documents.

The levels of enforcement and associated penalties are typically issued at the discretion of the authorized municipal officer with consideration of relevant circumstances regarding the violation. Different types of enforcement actions are summarized below.
Table 8-10 outlines the enforcement steps that can be taken by inspectors for private construction projects and for public works construction projects.

Table 8-10
Enforcement Actions for Construction Projects

PRIVATE CONSTRUCTION PROJECTS	PUBLIC WORKS CONSTRUCTION PROJECTS
Verbal Warning	Verbal Warning
Written Warning ▪ Notice of Non-Compliance ▪ Administrative Compliance Order ▪ Administrative Citations or Fines ▪ Cease and Desist Order	Written Warning ▪ Notice of Non-Compliance
Stop Work Order	Enforcement of Contract ▪ Stop Work Order ▪ Withholding of Payment ▪ Bond ▪ Fines ▪ Revocation of Contract
Revocation of Permit(s) and/or Denial of Future Permits	
Civil and Criminal Court Actions	Civil and Criminal Court Actions

Enforcement of Private Construction Projects

Inspectors will enforce compliance with the construction program, grading or building permit and local ordinances such as the Water Quality Ordinance. Depending on the severity of the violation(s), enforcement could range from a verbal warning, to a written notice, revocation of permit(s), stop work order and civil and/or criminal court actions or prosecution.

- Verbal Warnings

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

- Written Warnings

  If a deficiency that was noted in a prior 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 warning will be issued. The written warning will describe the deficiency that is to be corrected, suggested corrective action(s), and the specific time frame for correction and a date for a follow-up inspection.

  A copy of the written warning will be provided to the contractor's project supervisor and another copy will be provided to the owner/developer. A copy will be placed in the active inspection file. Once the violation has been corrected to the satisfaction of the inspector, the inspector will document compliance in the inspection file.

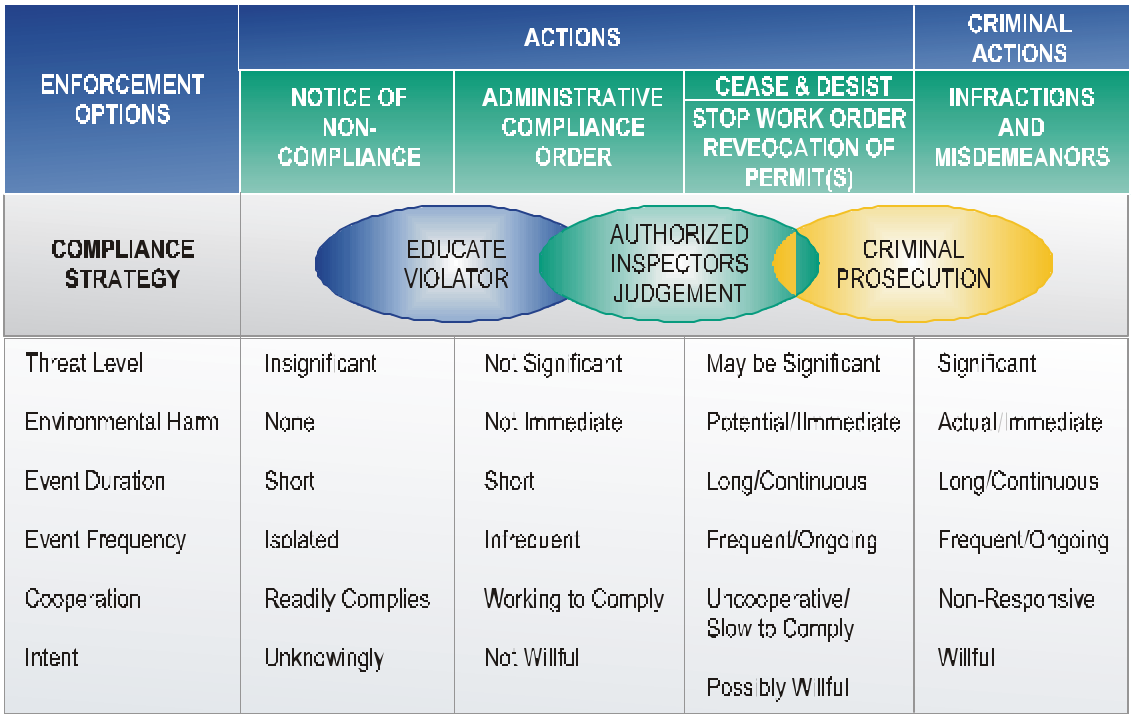
  Depending on the severity of the violation(s), the options for issuing written warnings for enforcement of local ordinances and grading/building permits on private construction projects are illustrated in **Figure 8-7**. Various examples of written warning forms are in **Appendix A-8** (note that use of the specific forms provided as examples is not required).

- Stop Work Orders:

  If a written warning has not been addressed by the next inspection, or if the developer/contractor 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 will be issued by the inspector or the appropriate 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 will describe the infraction and specify what corrective action must be taken. A copy of the stop work order will be given to the contractor's project supervisor and placed in the active inspection file. For a private construction project, a copy of the stop work order will also be sent to the owner/developer. To restart work once a stop work order has been issued, the 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. In severe cases, the building or grading permit may be revoked. A sample Stop All Work notice is provided in **Appendix A-8**.

Figure 8-7
Enforcement of Private Construction Sites



- Revocation of Permit(s) and/or Denial of Future Permits:

  In severe cases of non-compliance or significant discharges, it may be necessary to revoke the grading and/or building permit that a developer/contractor is working under, withhold final approval, or deny future permits on the project. The developer/contractor would then have to re-apply for permits and meet any requirements that the Permittee may place on the project. Criteria and procedures will be developed in the permit-issuing program to implement this enforcement tool. Legal counsel should be sought before proceeding with revocation or denial of permits.

- Civil and Criminal Court Actions:

  In severe cases, the Permittee may also use Civil and or Criminal court actions under local ordinances, such as the Water Quality Ordinance, which may result in significant fines levied upon the non-compliant responsible parties.

Enforcement of Public Works Construction Projects

Authorized inspectors will enforce compliance with the contract documents and local ordinances such as the Water Quality Ordinance. Depending on the severity of the violation(s), enforcement could range from a verbal warning, to a written notice of non-compliance, enforcement of the contract and or criminal court actions or prosecution.

- Verbal Warnings:

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

- Written Warnings:

  Depending on the severity of the violation(s), the options for issuing written warnings for enforcement of public works construction projects are illustrated in **Figure 8-8**.

Figure 8-8
Enforcement of Public Works Construction Sites

ENFORCEMENT OPTIONS	ACTIONS			CRIMINAL ACTIONS
	NOTICE OF NON-COMPLIANCE	CONTRACT REMEDIES		INFRACTIONS AND MISDEMEANORS
COMPLIANCE STRATEGY	INFORM CONTRACTOR	AUTHORIZED INSPECTORS JUDGEMENT	CRIMINAL PROSECUTION	
Threat Level	Insignificant	Not Significant	May be Significant	Significant
Environmental Harm	None	Not Immediate	Potential/Immediate	Actual/Immediate
Event Duration	Short	Short	Long/Continuous	Long/Continuous
Event Frequency	Isolated	Infrequent	Frequent/Ongoing	Frequent/Ongoing
Cooperation	Readily Complies	Working to Comply	Uncooperative/ Slow to Comply	Non-Responsive
Intent	Unknowingly	Not Willful	Possibly Willful	Willful

- Notice of Non-Compliance:

  If a deficiency that was noted in a prior 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 notice of non-compliance will be issued. The Notice of Non-Compliance is given when the violation occurred unknowingly; the threat level is insignificant; there is no environmental harm; the violation was isolated and had a short duration; and the contractor readily complies and corrects the problem. The notice will describe the deficiency that is to be corrected, suggested corrective action(s), and the specific time frame for correction and a date for a follow-up inspection.

- Contract Enforcement Mechanisms:

  If a contractor is performing construction of a public works project, the provisions within the contract will be used for enforcement of non-compliance. Language will be included into construction contracts that give the municipality the right to enforce established policies and procedures such as withhold payment(s), use contractor's bonds, apply fines, stop work (without time penalties) or termination of contracts if the contractor performing the construction activities does not comply with appropriate Permits, laws, regulations and ordinances.

- Civil and Criminal Court Actions:

  As a final resort, the Permittee may use Civil and or Criminal court actions under local ordinances, such as the Water Quality Ordinance, which may result in significant fines levied upon the non-compliant responsible parties.

8.4.6.4 Non-Compliance Reporting

Sites are considered non-compliant when one or more violations of local ordinances, or permits, are observed on the site. If a non-compliant private construction project meets the criteria of posing a threat to human or environmental health as discussed below, then the appropriate RWQCB will be notified by the city or county NPDES Program Manager or NPDES Coordinator as required in this section.

In the case of public works projects subject to the General Permit, the RWQCB will be notified if compliance with the General Permit cannot be certified and/or if there are other instances of non-compliance and if the non-compliance meets the criteria of posing a threat to human or environmental health as discussed below. For public works projects not subject to the General Permit, the NPDES Program Manager or NPDES Coordinator will notify the appropriate RWQCB when the project is found to be in non-compliance with contract requirements and if the non-compliant condition meets the criteria of posing a threat to human or environmental health as discussed below.

Oral notification to the RWQCB of non-compliant private construction sites that are determined to pose a threat to human or environmental health will be provided by the NPDES Program Manager or NPDES Coordinator within 24-hours of the discovery of non-compliance. Such oral notification shall be followed up by a written report and submitted to the RWQCB within 5 days of the incidence of non-compliance. Written notification(s) will identify the type(s) of non-compliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to the modifications by the RWQCB, indicating when compliance will be achieved.

For the purpose of compliance with the NPDES Permits, instances of non-compliance will be summarized and reported in the annual status report. The monitoring records will be kept in the project files on each private and public works project.

<u>Emergency Construction Projects</u>

Emergency Construction Projects are defined here as construction projects deemed necessary for the protection of human health, safety and property. Any and all BMPs described in this section should be deployed to the Maximum Extent Practicable in order to reduce potential harmful effects offsite and/or downstream. If an Emergency Construction Project should arise, notify any all appropriate agencies, such as the SWRCB, Fish & Game, local law enforcement, local fire departments, Orange County Health Care Agency and Orange County PF&RD.

The County will not require a WQMP for public agency projects consisting of routine maintenance or emergency construction activities required to protect public health and safety.

Criteria for Evaluating Potential Impacts to Human or Environmental Health

Erosion and sediment transport are the primary pathways for introducing key pollutants such as nutrients (i.e. phosphorus), metals, and organic compounds into aquatic systems. Release of pollutants through spills, dumping, or other unauthorized non-stormwater discharges can also occur. Based on the potential for impacts by sediment transport to human or environmental health, the inspector will evaluate events of non-compliance to determine whether they pose a threat to human or environmental health.

Threat to water quality will be assessed by inspectors for construction site runoff that will not be reasonably controlled by the BMPs in place or if a failure of BMPs is resulting in the release of sediments or other pollutants. Violations observed will be documented by the inspectors. If a significant and / or immediate threat to water quality is observed by an inspector, action will be taken to require the developer / contractor to immediately cease the discharge.

The criteria to be used during evaluation of an event producing non-compliance, whether from storm water or non-storm water runoff, are as follows:

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

A sample form for evaluating the potential impacts to human or environmental health and sample notice of non-compliance are provided in **Appendix A-8** (note that use of the specific forms provided as examples is not required).

8.4.7 Education and Training

Education and training is one of the keys to a successful stormwater program. To assist responsible municipal and contract staff in understanding the Construction Program, training modules have developed and can be found in **Appendix B, Section B-8**.

- General Program Management training - consists of overall program administration and implementation materials tailored for the NPDES Program Manager(s), NPDES Coordinator(s) and other program management staff. The content of the training will include:

    - Goals and objectives of the revised program;
    - Overview of inventory of construction sites;
    - Overview of construction site prioritization;
    - Overview of BMPs for construction sites;
    - Overview of the SWPPP requirements and SWPPP template; and
    - Overview of the inspection program and reporting requirements, and how inspections are tied to the prioritization of construction projects.

- Construction Inspection Training - will consist of procedure materials for inspecting construction sites and what to look for in the field when inspecting BMPs. This training will be tailored to train building and grading permit inspectors and/or other staff involved in inspections of construction sites.

Non-Permittee Sponsored Training

In addition to the Permittee sponsored training, the City staff may also attend various other workshop or training events as they take place throughout the year. These types of events may include local or national organization sponsored training.

8.4.8 Program Effectiveness Assessment

The overall Program Effectiveness Assessment (PEA) serves as the foundation for the submittal of the annual progress report that is submitted each year to the Principal Permittee and subsequently to the Regional Boards and serves as the basis for evaluating each municipality's individual construction efforts (See **DAMP Appendix C**).

By completing the effectiveness assessment, the Permittees will each have a baseline by which they can compare subsequent evaluations and identify trends. This information can then be used to determine where modifications within the program may be necessary and ensures that the iterative evaluation and improvement process is applied to the program component and used as an effective management tool.