Appendix F
Water Quality Management Plan

PROGRAM WATER QUALITY MANAGEMENT PLAN

Project Site:
DANA POINT HARBOR REVITALIZATION PLAN
Dana Point, CA

Prepared for:
PROJECT DEMENSIONS, INC.
3 Park Plaza, Suite 1490
Irvine, CA 92614

Project Manager:
Ian Adam, M.E.S.M

Date Prepared: September 20, 2005
Date Revised: December 20, 2005
JN: 662.01.01

Prepared by:

FUSCOE ENGINEERING
16795 Von Karman Avenue, Suite 100
Irvine, CA 92606
(949) 474-1960
www.fuscoe.com

OWNER'S CERTIFICATION

WATER QUALITY MANAGEMENT PLAN (WQMP)

This Water Quality Management Plan has been prepared for the County of Orange by Fuscoe Engineeing, Inc. It is intended to comply with the requirements of the County of Orange, Resource and Development Management Department (RDMD), Tract/Parcel Map No. _____, Condition Number(s) _____, and/or Site Development Permit/Application Number _____, Condition Number(s) _____, requiring the preparation of a Water Quality Management Plan (WQMP). It is also intended to comply with the requirements of the City of Dana Point Planning Department Condition Number(s)_____, requiring the preparation of a WQMP, as well as the California Coastal Commission (CCC) Coastal Development Permit Number_____.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated cities of Orange County within the San Diego Region Stormwater Runoff Management Program. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved signed copies of this document shall be available on the subject site in perpetuity.

_____ _____
Signature Title

_____ _____
Name Company

_____
Address

_____ _____
Phone Date

POLICY STATEMENT

The description of proposed facilities presented herein provides general and conceptual level of information for the entire Harbor – all 12 Planning Areas that comprise the Dana Point Harbor Revitalization Plan (1-7 are landside and 8-12 are marina). Accordingly, this Program WQMP has been designed to address post-construction storm water runoff management for the Dana Point Harbor in its entirety to satisfy the water quality regulatory requirements of the County of Orange and to address the water quality concerns of other responsible agencies, such as the City of Dana Point and the California Coastal Commission. Development and individual revitalization projects within the Harbor will rely upon a site-specific approach (all or a portion of a Planning Area) for the site design, source control and treatment control Best Management Practices (BMPs) to mitigate storm water runoff pollution conditions.

Dana Point Harbor is a fully developed site. For this reason, the general drainage proposed for the revitalization project will, more or less, remain similar to existing conditions. Where feasible, each Planning Area will design a network of surface water drainage conveyances improvements that will provide water quality treatment opportunities prior to connection with the existing storm drain facilities associated with the Harbor.

This Program WQMP shall recommend categories of treatment BMPs applicable to the specific land use within Planning Areas to be considered at the time of Coastal Development Permit approval. It is presently anticipated that the ultimate build-out condition of Dana Point Harbor will be achieved over a 20-year period following the adoption of this Program WQMP. During this timeframe, regulatory requirements and advancements in the technology and availability of treatment control BMPs to meet these objectives will likely occur. Therefore, site-specific water quality management within each Planning Area shall be addressed and covered by either (1) a future separate project WQMP, or (2) a future amendment to this WQMP, applicable to current Orange County DAMP requirements as amended from time to time.

This Program WQMP recognizes that construction activities associated with the Dana Point Harbor Revitalization Plan may potentially have significant water quality impacts to the Harbor, in particular, the redevelopment of the East and West Marinas, which will be conducted over-water and will lead to direct discharges into the waters of the Harbor. As a post-construction regulatory document, this Program WQMP respectfully and rightfully defers the development and implementation of construction-related water quality mitigation measures (e.g. BMPs) to those regulatory programs, such as the Clean Water Act Section 401 Water Quality Certification Program and the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ), regulating construction-related activities and discharges. This Program WQMP will strictly address the post-construction requirements of the Dana Point Harbor Revitalization Plan.

This Program WQMP also recognizes that opportunities may exist within the Harbor to mitigate upstream (off-site) non-point source pollution draining through the Harbor, such as dry weather nuisance runoff, through the use of structural diversion devices. However, these "end-of-pipe" solutions would not be altogether consistent with the guiding principles of San Diego RWQCB's watershed management approach to improving water quality. "The watershed management approach is based on the premise that many water quality and beneficial use problems are best solved by considering entire watersheds, or portions thereof, rather that considering only individual waters, discharges, discharge types, or political jurisdictions."[1] In other words, water quality problems are best mitigated at

[1] Watershed Management Approach for the San Diego Region (Eighth Version), California Regional Water Quality Control Board San Diego Region (January 25, 2002)

the source and/or on a regional scale. Source investigations upstream of the Harbor must, therefore, be performed to determine whether pollution prevention programs and source controls can be implemented before such end-of-pipe solutions can be considered within the Harbor. For this reason, water quality management within this Program WQMP shall remain site-specific until it is clearly determined that dry weather diversions and other treatment control devices are necessary within the Harbor to mitigate upstream water quality problems. The County of Orange will coordinate with the City of Dana Point in this regard.

TABLE OF CONTENTS

SECTION **PAGE**

INTRODUCTION....1

1.0 DISCRETIONARY PERMIT(S) & WATER QUALITY CONDITIONS....3

1.1 DISCRETIONARY PERMITS 3

1.2 RESOLUTIONS.... 3

1.3 CONDITIONS OF APPROVAL.... 3

1.4 CITY OF DANA POINT LCP-AMENDMENT.... 3

2.0 PROJECT DESCRIPTION....8

2.1 FACILITY DESCRIPTION 8

2.2 PROJECT FEATURES.... 20

2.3 SPECIFIC INDUSTRIAL/ COMMERCIAL DETAILS 25

3.0 SITE DESCRIPTION....27

3.1 WATERSHED 27

3.2 SITE LOCATION 30

3.3 EXISTING WATER QUALITY ISSUES 34

4.0 BEST MANAGEMENT PRACTICES....36

4.1 SITE DESIGN BMPs 36

4.2 SOURCE CONTROL BMPs.... 37

4.3 TREATMENT CONTROL BMPs.... 44

5.0 BMP INSPECTION & MAINTENANCE....48

5.1 MAINTENANCE OF SOURCE CONTROLS.... 49

5.2 MAINTENANCE OF TREATMENT CONTROLS.... 51

6.0 PLOT PLAN AND BMP DETAILS....52

7.0 PUBLIC EDUCATION....53

APPENDICES....55

LIST OF FIGURES

Figure 1.1 Vicinity map. 2
Figure 1.2 Boundary Exhibit 7
Figure 2.1 Dana Point Harbor existing facilities. 10
Figure 2.2 Existing Site Plan 11
Figure 2.3 Proposed Site Plan 19
Figure 2.4 Changes in site drainage and the coefficient of runoff as a result of the proposed improvements. 23
Figure 3.1 Dana Point Coastal Streams Watershed 29
Figure 3.2 Existing Drainage Facilities 32
Figure 3.3 Aerial of Existing Drainage Areas 33

LIST OF TABLES

Table 2.1 Proposed project elements of the Dana Point Revitalization Plan. 12
Table 2.2 Parking summary for the Dana Point Harbor Revitalization Plan. 20
Table 2.3 Boat slip/ dock summary for the Dana Point Harbor Revitalization Plan. 21
Table 2.4 Proposed impervious area summary for the Dana Point Harbor Revitalization Plan. 22
Table 2.5 General categories of anticipated and potential pollutants. 24
Table 2.6 Ownership of general project features in Dana Point Harbor 24
Table 2.7 Building summary for the Dana Point Harbor Revitalization Plan. 25
Table 2.8 Site features summary for the Dana Point Harbor Revitalization Plan. 26
Table 3.1 Summary of 303(d) impairments of downstream water bodies. 28
Table 3.2 Existing storm drain facilities for Dana Point Harbor. 31
Table 4.1 Site design BMPs. 36
Table 4.2 Routine non-structural source control BMPs. 38
Table 4.3 Routine structural source control BMPs. 41
Table 4.4 Treatment control BMPs. 45
Table 4.5 Targeted pollutants of selected treatment control BMPs. 46
Table 5.1 Maintenance frequency matrix of non-structural source control BMPs. 49
Table 5.2 Maintenance frequency matrix of structural source control BMPs. 50
Table 5.3 Maintenance frequency matrix of treatment control BMPs. 51

INTRODUCTION

This Water Quality Management Plan (WQMP) has been prepared to provide specifications for the post-construction management of storm water runoff from the proposed project at Dana Point Harbor. Improperly managed runoff can be a significant source of water pollution causing impacts to aquatic habitat, wildlife, and water-dependent beneficial uses. The implementation of this plan ensures that such impacts are reduced to the Maximum Extent Practicable (MEP).

This WQMP covers the post-construction operations in Dana Point Harbor, located in the City of Dana Point, California (see Figure 1, Vicinity Map). It has been developed as required under State Water Resources Control Board (SWRCB) Municipal NPDES Storm Water Permit for the County of Orange and the Incorporated Cities of Orange County, and in accordance with good engineering practices. This WQMP describes this facility and its operations, identifies potential sources of storm water pollution at the facility, and recommends appropriate Best Management Practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff.

This WQMP is intended to serve as the Master WQMP for the Dana Point Harbor Revitalization Plan. For this reason, this Program WQMP prescribes harbor-wide post-construction BMPs that will be implemented within all applicable Planning Areas (1 through 12) of the Dana Point Harbor Revitalization Plan, as well as those structural treatment BMPs, if any, considered to be a regional approach to water quality management. Site-specific water quality management within each Planning Area shall be addressed and covered by either (1) a future separate project WQMP, or (2) a future amendment to this WQMP; applicable to current Orange County Drainage Area Management Plan (DAMP)[2] requirements as amended from time to time.

The above-mentioned approach to water quality management was chosen for this project due to the fact that, currently, specific improvements have only been projected for each Planning Area of the Dana Point Harbor Revitalization Plan, rather than represented as developed on architectural and engineering site plans. As a result, only narratives of post-construction BMPs exist within this WQMP, since their precise location to be implemented will not be determined until those site plans are furnished for each Planning Area. This WQMP, in essence, serves as the foundation for all future amendments and future separate project WQMPs associated with the Dana Point Harbor Revitalization Plan.

[2] The DAMP serves as the primary policy and implementation document for compliance with the Municipal NPDES Storm Water Permit for the County of Orange and the Incorporated Cities of Orange County, and includes a series of model programs, local implementation plans, and watershed implementation plans.

Figure 1.1 Vicinity map.

1.0 DISCRETIONARY PERMIT(S) & WATER QUALITY CONDITIONS

Dana Point Harbor is located in the City of Dana Point, County of Orange, State of California.

Being portions of the land shown on the maps filed in Book 32, Pages 35 through 40, in Book 68, Pages 40 through 44, and in Book 83, Page 41 all of parcel maps in the Office of the County Recorder of Orange County, California, portions of Dana Point Harbor Drive (formerly Del Obispo Street) and Cove Road, portions of Fractional Section 22, Township 8 South, Range 8 West, San Bernardino Meridian and a portion of the tidelands granted to the County of Orange by legislative grant as shown on a plat recorded in Book 7651, Page 69 of official records in said Office of the County Recorder (see Boundary Exhibit below).

Containing: 276.8 acres (including public streets).[3]

1.1 DISCRETIONARY PERMITS

To be provided by the County of Orange upon project application.

1.2 RESOLUTIONS

To be provided upon project approval by County of Orange Planning Commission.

1.3 CONDITIONS OF APPROVAL

To be provided by the County of Orange upon project application/review.

1.4 CITY OF DANA POINT LCP-AMENDMENT

Pursuant to the City of Dana Point Local Coastal Program Amendment (LCP-A, July 25, 2002), the Dana Point Harbor Revitalization Plan (including all future WQMP amendments and future separate WQMPs associated with the project) shall conform with the California Coastal Commission guidelines, as applicable, provided herein. These guidelines are provided in this section verbatim.

a. Watershed Analysis, Planning, and Permitting

1.1 The City shall promote watershed-wide water quality analysis and planning efforts the results of which will be considered during permitting. Watershed analysis and planning efforts should include:

- Identifying priority watersheds where there are known water quality problems and where development pressures are greatest;

[3] Legal Description provided verbatim from: Boundary Exhibit Dana Point Revitalization Project (RBF Consulting, February 19, 2004).

- In priority areas, assessing land uses that degrade coastal water quality;
- Analyzing suitability of project location, site designs, and storm water management plans for all new development using the watershed analysis information;
- Promoting regional protection of natural drainage, riparian, wetland resources;
- Promoting regional infiltration techniques for stormwater management;
- Ensuring new development does not adversely impact watershed features, including springs, streams (including ephemeral streams), rivers, ponds, estuaries, wetlands, and drainage ways that have habitat value (including constructed) within the coastal watersheds.
- Evaluating all proposed channelization projects for potential benefits and/or adverse impacts on downstream water quality.
- Ensuring full public participation in the plan's development.

b. Development

1.2 Promote pollution prevention and elimination methods that minimize the introduction of pollutants into coastal waters and the generation of polluted runoff and nuisance flows.

1.3 Development shall not result in the degradation of the water quality of coastal surface waters including the ocean, coastal streams, or wetlands and of groundwater basins. To the maximum extent feasible, ensure that pollution from urban runoff not be discharged or deposited such that it adversely impacts groundwater, the ocean, coastal streams, or wetlands.

1.4 Development shall be designed to minimize to the maximum extent feasible, the introduction of pollutants that may result in significant impacts to surface waters, groundwater, or coastal waters. In order to meet these requirements, applicants shall prepare a post-development phase drainage and polluted runoff control plan that incorporates a Best Management Practice (BMP) or the combination of BMPs best suited to reduce pollutant loading to the maximum extent feasible. BMPs may include site design, source control, and treatment control BMPs.

1.5 Post-construction structural BMPs (or suites of BMPs) should be designed to treat, infiltrate, or filter the amount of storm water runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs and/or the 85th percentile, 1-hour storm event (with an appropriate safety factor, i.e. 2 or greater) for flow-based BMPs.

1.6 All structural BMPs shall be inspected, cleaned, and repaired as necessary to ensure proper functioning of the BMPs.

1.7 Promote the maintenance of predevelopment hydrologic conditions where feasible, such that downstream erosion is reduced and groundwater is recharged to a stable state.

1.8 Promote infiltration of runoff, including storm water and nuisance flow runoff, to protect the natural hydrologic cycle. Incorporate site drainage and landscape designs that minimize increases in peak runoff by promoting infiltration, filtration, and attenuation over landscaped areas or through permeable surfaces. Where possible, include infiltration BMPs (e.g. permeable pavements, dry wells, etc.) and apply techniques consistently over drainage areas. Where infiltration of runoff would exacerbate geologic hazards, include equivalent BMPs that do not require infiltration.

1.9 New development shall minimize the development footprint and directly connected impervious surfaces, as well as the creation of and increases in impervious surfaces.

1.10 New development shall protect the absorption, purification, and retention functions of natural systems that exist on the site. Where feasible, drainage plans shall be designed to complement and utilize existing drainage patterns and systems, conveying drainage from the developed area of the site in a non-erosive manner. Disturbed or degraded natural drainage systems should be restored, where feasible.

1.11 New development shall be sited and designed on the most suitable portion of the site while ensuring protection and preservation of natural and sensitive site resources by providing for the following:

- Protecting areas that provide important water quality benefits, areas necessary to maintain riparian and aquatic biota and/or that are susceptible to erosion and sediment loss;
- Analyzing the natural resources and hazardous constraints of planning areas and individual development sites to determine locations most suitable for development;
- Promoting clustering of development on the most suitable portions of a site taking into account geologic constraints, sensitive resources, and natural drainage features;
- Preserving and protecting riparian corridors, wetlands, and buffer zones;
- Minimizing disturbance of natural areas, including significant trees, native vegetation, and root structures;
- Using natural drainage as a design element, maximizing the preservation of natural contours and native vegetation;
- Limiting land disturbance activities such as clearing and grading, limiting cut-and-fill to reduce erosion and sediment loss, and avoiding steep slopes, unstable areas, and erosive soils.

1.12 [This number does not appear in the LCP-Amendment]

1.13 The City shall develop a water quality checklist to be used in the permit review process to assess potential water quality impacts.

1.14 Management practices that enhance infiltration and help maintain the natural hydrologic cycle will be preferred except where site conditions make the use of enhanced infiltration unsafe. In these instances other management practices that provide similar water quality protection shall be used.

1.15 All new development shall meet the requirements of the California Regional Water Quality Control Board San Diego Region's *Waste Discharge Requirements for discharges of urban runoff from Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County, and the Orange County Flood Control District within the San Diego Region* or subsequent versions of this plan.

1.16 New roads, bridges, culverts, and outfalls shall not cause or contribute to streambank or hillside erosion or creek or wetland siltation and shall include BMPs to minimize impacts to water quality including construction phase erosion control and polluted runoff control plans, and soil stabilization practices.' Where space is available, dispersal of sheet flow from roads into vegetated areas or other on-site infiltration practices shall be incorporated into road and bridge design.

1.17 Commercial development shall incorporate BMPs designed to minimize or avoid the runoff of pollutants from structures, landscaping, parking and loading areas.

1.18 Restaurants shall incorporate BMPs designed to minimize runoff of oil and grease, solvents, phosphates, suspended solids, and other pollutants to the storm drain system.

1.19 Gasoline stations, car washes and automotive repair facilities shall incorporate BMPs designed to minimize runoff of oil and grease, solvents, car battery acid, coolant, gasoline, and other pollutants to stormwater system.

1.20 Storm drain stenciling and signage shall be provided for new storm drain construction in order to discourage dumping into drains.

1.21 Permits for new development shall be conditioned to require ongoing maintenance where maintenance is necessary for effective operation of required BMPs.

1.22 The City, property owners, or homeowners associations, as applicable, shall be required to maintain any permitted drainage device to ensure it functions as designed and intended. Owners of these devices shall be responsible for ensuring that they continue to function properly and additional inspections should occur after storms as needed throughout the rainy season. Repairs, modifications, or installation of additional BMPs, as needed, should be carried out prior to the next rainy season.

1.23 The City, property owners, or homeowners associations, as applicable, shall sweep permitted public and private streets frequently to remove debris and contaminant residue.

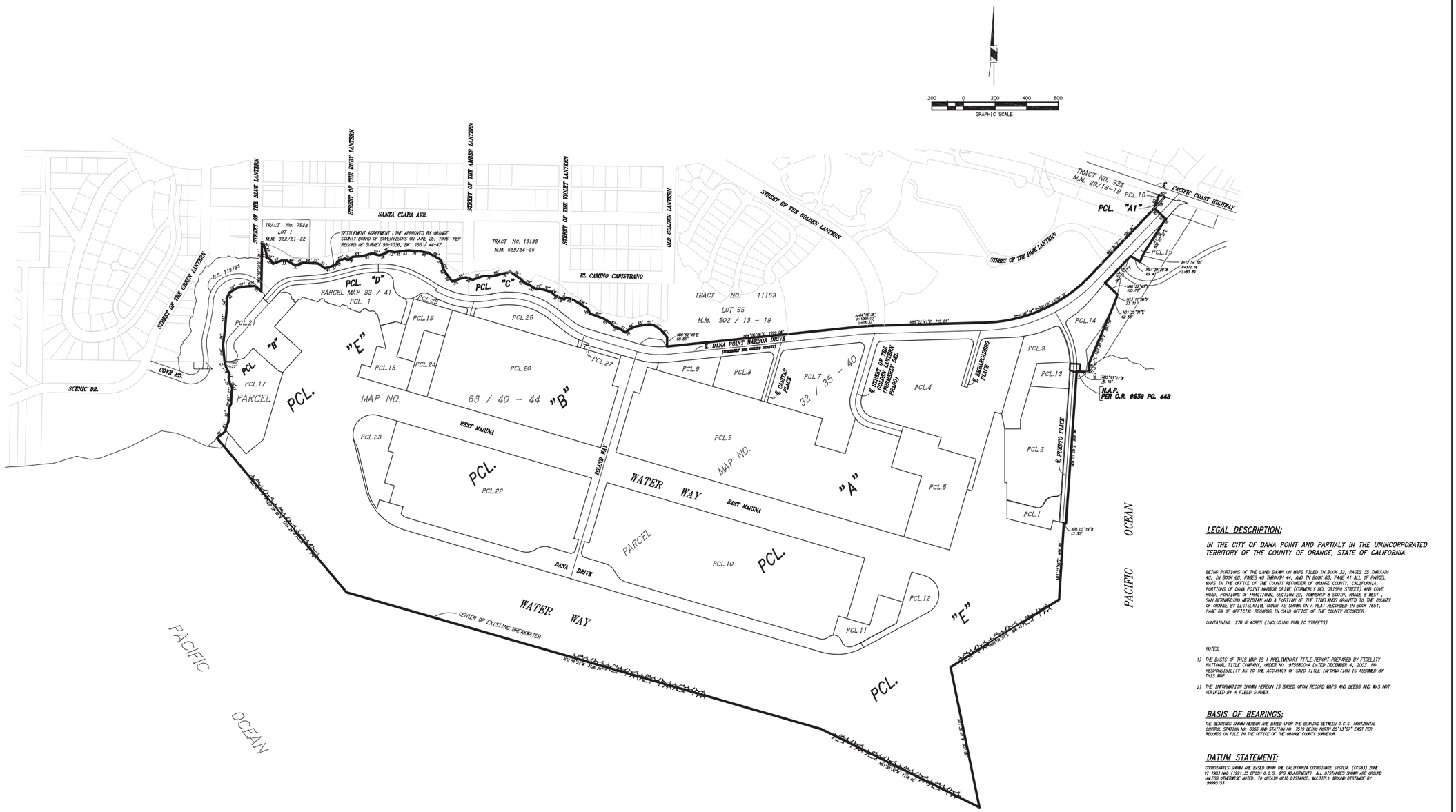
1.24 New development shall include construction phase erosion control and polluted runoff control plans. For example, such plans may include controls on timing of grading, BMPs for storage and disposal of construction materials, or design specifications of sedimentation basins.

1.25 New development that requires a grading/erosion control plan shall include landscaping and re-vegetation of graded or disturbed areas.

1.26 The use of efficient irrigation practices and native or drought-tolerant non-invasive plants to minimize the need for fertilizer, pesticides, herbicides, and excessive irrigation will be recommended.

c. Hydromodification

1.27 Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method of protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or {3} developments where the primary function is the improvement offish and wildlife habitat. (Section 30236)



LEGAL DESCRIPTION:

IN THE CITY OF DANA POINT AND PARTIALY IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF ORANGE, STATE OF CALIFORNIA

BEING PORTIONS OF THE LAND SHOWN ON MAPS FILED IN BOOK 32, PAGES 35 THROUGH 40, IN BOOK 68, PAGES 40 THROUGH 44, AND IN BOOK 83, PAGE 41 ALL OF PARCEL MAPS IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, CALIFORNIA, PORTIONS OF DANA POINT HARBOR DRIVE (FORMERLY DEL OBISPO STREET) AND COVE ROAD, PORTIONS OF FRACTIONAL SECTION 22, TOWNSHIP 8 SOUTH, RANGE 8 WEST, SAN BERNARDINO MERIDIAN AND A PORTION OF THE TIDELANDS GRANTED TO THE COUNTY OF ORANGE BY LEGISLATIVE GRANT AS SHOWN ON A PLAT RECORDED IN BOOK 7651, PAGE 69 OF OFFICIAL RECORDS IN SAID OFFICE OF THE COUNTY RECORDER.

CONTAINING: 276.8 ACRES (INCLUDING PUBLIC STREETS)

NOTES:

1) THE BASIS OF THIS MAP IS A PRELIMINARY TITLE REPORT PREPARED BY FIDELITY NATIONAL TITLE COMPANY, ORDER NO. 9755800-A DATED DECEMBER 4, 2003. NO RESPONSIBILITY AS TO THE ACCURACY OF SAID TITLE INFORMATION IS ASSUMED BY THIS MAP.

2) THE INFORMATION SHOWN HEREON IS BASED UPON RECORD MAPS AND DEEDS AND WAS NOT VERIFIED BY A FIELD SURVEY.

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED UPON THE BEARING BETWEEN O.C.S. HORIZONTAL CONTROL STATION NO. 0055 AND STATION NO. 7519 BEING NORTH 88°13'07" EAST PER RECORDS ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

DATUM STATEMENT:

COORDINATES SHOWN ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM, (CCS83) ZONE VI 1983 NAD (1991.35 EPOCH O.C.S. GPS ADJUSTMENT). ALL DISTANCES SHOWN ARE GROUND UNLESS OTHERWISE NOTED. TO OBTAIN GRID DISTANCE, MULTIPLY GROUND DISTANCE BY .99986153

SURVEYOR'S STATEMENT:

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION

GREGORY A. HELMER, P.L.S. 5134

LICENSED LAND SURVEYOR GREGORY A. HELMER NO. 5134 EXP. 06-30-2005 STATE OF CALIFORNIA

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION

BOUNDARY EXHIBIT

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

Figure 1.2

DECEMBER 23, 2003 JN 10-102529

H:\PDATA\10102529\CADD\MAPPING\CM\2529CONS001.DWG ETORRES 2/19/04 11:18 am

2.0 PROJECT DESCRIPTION

2.1 FACILITY DESCRIPTION

The proposed Dana Point Harbor Revitalization project site is a 276.8-acre facility in the City of Dana Point, CA. More specifically, Dana Point Harbor is a County owned and operated facility located in the southern portion of the City. Vehicles can access the Harbor via Dana Point Harbor Drive, which can be reached primarily via Pacific Coast Highway or the Street of the Golden Lantern. The Harbor is bordered by the Pacific Ocean to the south, Dana Headlands and Dana Point Marine Life Refuge to the west, Doheny State Beach to the east and a variety of commercial, hotel, residential, and park uses to the north. The Interstate-5 freeway is located approximately two miles to the east and provides regional access to Dana Point Harbor.

Originally constructed over 30 years ago (1971), many of the facilities within Dana Point Harbor require extensive renovation and/or reconstruction to be in compliance with current building and safety requirements. Current health and safety issues include asbestos, structural problems, lack of sprinklers and deferred maintenance. Additionally, the Harbor requires vehicular and pedestrian circulation improvements. As a result of these major redevelopment activities planned for the Harbor, this project is considered a Priority Project, according to the Countywide Water Quality Management Plan (WQMP) and NPDES Drainage Area Management Plan (DAMP). The proposed revitalization project entails the phased rehabilitation of significant portions of Dana Point Harbor, which is anticipated to occur over the next 20 or more years.

EXISTING FACILITIES

The general configuration of Dana Point Harbor includes a landside area adjacent to the bluffs, the island area connected by a bridge, and marina area/boat docks. The landside of the Harbor area provides a variety of recreational, commercial/retail, sporting and commercial boating amenities within the Dana Wharf and Mariner's Village. Amenities to the east of Island Way include the Marina Inn (a 136-room hotel), numerous restaurants and small retail and gift shops, while to the west of Island Way includes the Ocean Institute, Baby Beach and the County-operated Youth and Group Facility. The island area is accessed by one bridge extending across the marina area and includes the Dana Point Yacht Club, Dana West Yacht Club, Harbor Lights, parking, boat storage, the Beach House restaurant, commercial fishing fleet area and a harbor patrol facility. The island also includes a linear park with meandering walk, grassy area and park cabanas along the southern edge of the island providing picnicking opportunities for the public. The marina area includes in excess of 2,260 boat slips, a boat launch and storage/maintenance area.

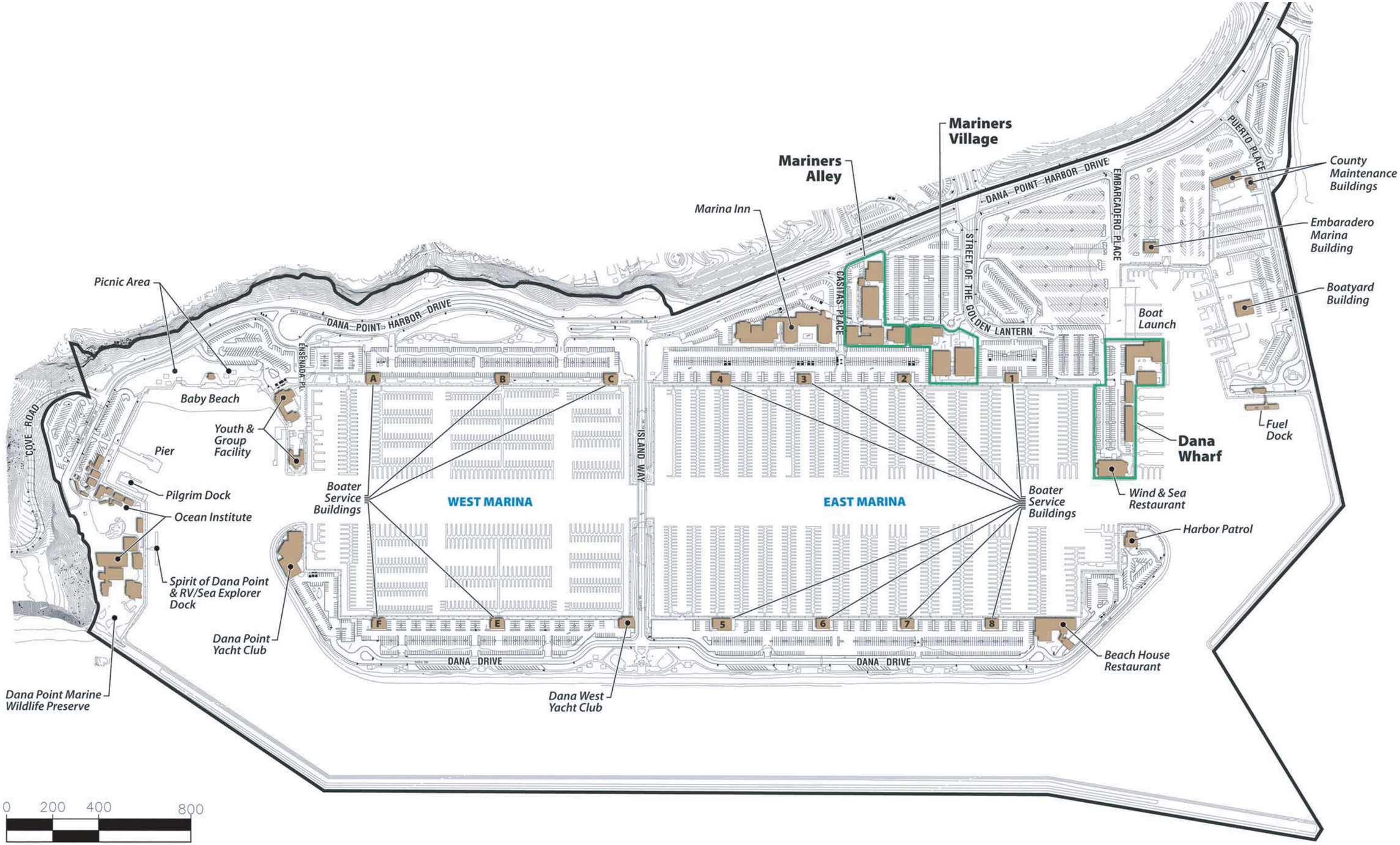
Complete Harbor facilities are provided under the Proposed Facilities sub-section below.

A notable area within the Harbor is named the Commercial Core. The majority of the Commercial Core area is located east of Casitas Place. A total of approximately 75,000 square feet of existing commercial, retail and restaurant uses are located within the Commercial Core. The Commercial Core area includes Mariners Village (directly east of Casitas Place), Mariners Alley (south of Beach Cities Pizza) and Fishermans' Alley (east of the Dana Wharf facilities), which contain a total of 18 restaurants including Harpoon Henry's, El

Torito Grill, Wind & Sea, and The Brig in addition to 25 retail shops. The Dana Wharf Sportfishing and Dana Island Yachts provide boat and fishing charters.

Embarcadero Marina is located east of Embarcadero Place. The Embarcadero Marina includes a public boat launch, non-motorized boat launch, jet ski and boat rentals, a hoist for launching and retrieving boats and 443 dry boat storage spaces. The Dana Point Harbor Shipyard also provides boat services with a repair facility, 73 dry boat storage spaces, marine hardware store and a hoist. In addition, facilities for a high-speed ferry service to Catalina Island are provided.

Figure 2.1 Dana Point Harbor existing facilities.



EXISTING SITE PLAN

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

Figure 2.2

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION

PROPOSED FACILITIES

The Dana Point Harbor Revitalization Plan divides existing facilities in the Harbor into 12 Planning Areas. Of the twelve designated Planning Areas, only Planning Areas 1 and 2, which are primarily comprised of the Commercial Core, have entered the design phase. A full description of the conceptual Project elements is described in the table and subsequent text below. Parking and boat slip/ dock facilities are not included but are discussed in the Section 2.2. The details provided below are subject to change based upon future development plans and subsequent discretionary approvals and will be updated accordingly during the WQMP Amendment Process for each Planning Area.

Table 2.1 Proposed project elements of the Dana Point Revitalization Plan.

FACILITY	EXISTING	PROPOSED	DIFFERENCE
PLANNING AREA 1 - Marine Services (25.2 acres)			
Dry Stack Boat Storage	NA	800 spaces	+800 spaces
Dry Stack Boat Storage Adjacent Buildings ▪ Offices/Boater Lounge ▪ New Marine Retail Store	 NA NA	 5,600 SF 9,100 SF	 +5,600 SF +9,100 SF
Boater Service Buildings (BSB) ▪ BSB X	 5,000 SF	 0 SF	 -5,000 SF
Boat Yard Building	5,000 SF	2,500 SF	-2,500 SF
Lighthouse Facility[1]	NA	2,500 SF	+2,500 SF
County Maintenance Yard Buildings ▪ Offices ▪ Garage ▪ Sheds	 1,800 SF 1,800 SF 520 SF	 0 SF 0 SF 0 SF	 -1,800 SF -1,800 SF -520 SF
Fuel Dock	750 SF	750 SF	0 SF
PLANNING AREA 2 - Day Use Commercial (18.1 acres)			
Boater Service Buildings (BSB) ▪ BSB 1[2]	 4,000 SF	 8,000 SF	 +4,000 SF
Catalina Terminal Building	0 SF	1,000 SF	+1,000 SF
Retail / Restaurant	75,000 SF	100,000 SF	+25,000 SF
PLANNING AREA 3 - Visitor Serving (9.5 acres)			
Hotel	136 rooms	220 rooms	+84 rooms
Meeting Space	2,000 SF	12,000 SF	+10,000 SF
Restaurant	0 SF	2,750 SF	+2,750 SF
Retail	0 SF	500 SF	+500 SF
Fitness Center	450 SF	1,500 SF	+1,050 SF

FACILITY	EXISTING	PROPOSED	DIFFERENCE
Boater Service Buildings (BSB)			
▪ BSB 2[2]	3,600 SF	0 SF	-3,600 SF
▪ BSB 3	3,600 SF	6,600 SF	+3,000 SF
▪ BSB 4	5,000 SF	7,000 SF	+2,000 SF
PLANNING AREA 4 - Marine Commercial (25.6 acres)			
Harbor Patrol Building	6,000	7,500	+1,500 SF
Beach House Restaurant	10,000	15,000	+5,000 SF
Boater Service Buildings (BSB)			
▪ BSB D	3,600 SF	8,600 SF	+5,000 SF
▪ BSB E	3,600 SF	5,600 SF	+2,000 SF
▪ BSB F	3,600 SF	5,600 SF	+2,000 SF
▪ BSB 5	4,000 SF	6,600 SF	+2,600 SF
▪ BSB 6	3,600 SF	6,600 SF	+3,000 SF
▪ BSB 7	3,600 SF	6,600 SF	+3,000 SF
▪ BSB 8	3,600 SF	6,600 SF	+3,000 SF
Dana Point Yacht Club	12,400 SF	18,000 SF	+5,600 SF
PLANNING AREA 5 - Day Use Recreation (20.2 acres)			
Youth & Group Facility	11,000 SF	17,000 SF	+6,000 SF
Boater Service Buildings (BSB)			
▪ BSB A	3,600 SF	5,600 SF	+2,000 SF
▪ BSB B	3,600 SF	5,600 SF	+2,000 SF
▪ BSB C	3,600 SF	5,600 SF	+2,000 SF
PLANNING AREA 6 - Education/Institutional (3.6 acres)			
Ocean Institute	32,000 SF	32,000 SF	0 SF
PLANNING AREA 7 – Conservation (4 acres)			
No Development	0 SF	0 SF	0 SF
PLANNING AREA 8 - Educational Basin (25.8 acres)			
Baby Beach Reconfiguration	0 SF	0 SF	0 SF
PLANNING AREAS 9 and 10 - Western Marina/Eastern Marina (76.2 acres)			
See Table 2.3	--	--	--
PLANNING AREAS 11 and 12 - Marine Services/Harbor Entrance (67.7 acres)			
See Table 2.3	--	--	--

Notes:
1) The lighthouse facility is anticipated to contain a 500 SF light house and up to 2,000 SF of accessory uses that may include a museum, gift shop, administrative office, and meeting room.
2) The Yacht Brokerage in Boater Service Buildings 1 and 2 will be moved into the Commercial Core.
SF = square feet

The conceptual details for each Planning Area are provided below and are subject to change based upon future development plans and subsequent discretionary approvals, and will be updated accordingly during the WQMP Amendment Process for each Planning Area.

PLANNING AREA 1 (MARINE SERVICES) - The Revitalization Plan provides for the reconfiguration of the boatyard area and a dry stacked boat storage facility in the Northeast Boatyard Area (near the intersection of Puerto Place and Dana Point Harbor Drive). Currently, the County of Orange Maintenance Buildings occupies a portion of this site. As part of the Revitalization Plan, the County maintenance Facilities will be moved off-site to a location to be determined at a later date. As the need evolves, the storage area containing several 55-gallon drums for boat wastes would be upgraded to accommodate current technology standards.

The architectural theme for the new/renovated buildings will be California Coastal. The Dana Point Lighthouse Society, a local non-profit organization, has proposed to construct and operate a lighthouse facility in Dana Point Harbor. The County of Orange has agreed in concept, to lease property to the Society for this purpose, but a formal agreement has not been negotiated. The County and Society have selected the area at the south end of Puerto Place to as the preferred location for the potential lighthouse facility. Associated improvements with the lighthouse include a potential museum, a small retail gift shop, meeting room, kitchen, and restroom facilities. Final design and schematics are not yet available, as the lighthouse will require the approval of a Coastal Development Permit upon completion of the final design. For the purposes of this WQMP, the lighthouse is approximately 50 feet high from the base of the tower to the bottom of the lantern deck, with an approximately 15 foot high fixed-lantern, for a total maximum height of 65 feet.

The dry stack facilities would offer enhanced boater services, including valet launch and retrieval services. Access to the boat yard will be via Puerto Place. The first dry stack storage facility would contain approximately 400 spaces and include new offices, boater lounge/restrooms, a hoist, marine store, County Harbor administrative offices, and other support services. Development of this facility will also require the reconfiguration/modification of the wet slip staging area, currently located adjacent to the boat launch ramp area. This area is utilized to moor the vessels for client access and as a drop-off area prior to retrieval to the dry stack building. The exact configuration of this area will be determined during the design and operational analysis phase. The second dry stack building will occupy a portion of the Dana Point Ship Yard. The ship yard will be reconfigured in order to continue operations. The development of the second dry stack facility, which will include approximately 400 spaces, will be subject to market demand conditions. At full buildout, the marine services area parking will include 458 vehicle parking spaces. Additionally, there will be approximately 93 surface boat storage spaces and 230 car with trailer parking spaces. This reallocation results in the addition of 170 parking spaces and 47 car with trailer spaces within Planning Area 1. Note that there will be a decrease of 130 car with trailer spaces within Planning Area 2. Overall, car with trailer spaces will decrease by 83 spaces. Surface boat parking will decrease by approximately 423 spaces, but would be off-set by the dry stack storage.

To improve the pedestrian circulation within the Harbor, a water taxi system is being evaluated. Within Planning Area 1, a station is proposed at the terminus of Puerto Place with a pedestrian link to Doheny State Beach. Additionally, the Revitalization Plan proposes relocation of the Puerto Place turnaround further north, in order to increase the park area, improve the connectivity with the adjacent Doheny State Beach and allow for the relocation of the Puerto Place connection to Dana Point Harbor Drive, along the eastern portion of the Puerto Place parking lot.

PLANNING AREA 2 (DAY USE COMMERCIAL) – The Revitalization Plan will establish a large, centralized outdoor Festival Plaza, located at the southern terminus of Street of the Golden Lantern, within the central portion of the Harbor's Commercial Core. The Festival Plaza will provide direct views across the Commercial Core area to the Harbor, by creating an open plaza area along this section of waterfront. The Festival Plaza will add a central gathering space for Harbor-wide events, activities, and celebrations throughout the year. Currently, events in the Commercial Core area are limited to a small area of lawn adjacent to a restaurant service dock. The Festival Plaza area will be approximately 35,000 square feet with a combination of landscaping, paving and informal seating areas. A Pedestrian Promenade will extend from Casitas Place to the west, to the Dana Wharf facility to the east, and will vary in width from 15 feet to 50 feet. The Festival Plaza will be constructed as an integral part of the new parking and waterfront retail along the Harbor's edge.

The vehicular circulation system throughout the Commercial Core will be significantly enhanced by providing dedicated parking areas to serve the merchants, employees, restaurants, surface boat storage, and boater needs. Additionally, to assist boaters with loading and unloading of supplies and guests, several short-stay boater drop-off areas will be provided in close proximity to the marina's edge.

The Revitalization Plan includes the demolition and relocation of portions of the existing Mariner's Village and Mariner's Alley. The development will occur in the eastern Festival Plaza/Promenade area (to the west of Dana Wharf). The new retail area will improve water orientation and integrate with the Festival Plaza and Promenade.

The development includes renovation and reconstruction of existing retail space, as well as the addition of approximately 25,000 square feet of commercial and restaurant uses for a total of 100,000 square feet. The Revitalization Plan calls for the relocation and consolidation of yacht brokerage space within existing Boater Service Buildings 1 and 2 into the Commercial Core. The yacht brokers will be permanently relocated to the second floor of the new wharf building, which will be covered with a trellis and new roof structure to provide an architectural linkage to other commercial buildings. Additionally, this linkage will also be utilized as a pedestrian bridge to improve pedestrian circulation along the wharf area. Commercial/restaurant uses will be integrated into a podium, which will accommodate 89 parking spaces and contain waterfront retail on the bottom level and additional restaurant and limited parking on the second level. Adjacent to the Podium will be a two-level parking deck. This structure will provide an estimated 610 parking spaces on two levels. The upper level of the parking deck will be set slightly into the ground affording direct access from Street of the Golden Lantern. The lower level will be accessed from Street of the Golden Lantern and Casitas Place. Overall, there will be a net increase of 541 parking spaces within Planning Area 2.

Project Design Features which are being incorporated into the improvements within Planning Area 2 include:

- A ramp structure permitting vehicular access to both levels of the parking deck directly from Dana Harbor Drive and Golden Lantern;
- Separate pedestrian sidewalks as part of ramp design to minimize pedestrians using parking isles to access Commercial Core businesses;
- Creation of pedestrian linkages between Harbor amenities – pedestrian promenade and linear park;

- Elevators between levels of the commercial center;
- Boater drop-off areas, accessible and dedicated boater parking, upgraded boater service buildings and restrooms;
- Convenient delivery and restaurant service areas;
- Upgraded infrastructure/utility connections, including modern water quality Best Management Practices – grease traps, trash storage area enclosures and wash down facilities in restaurant areas and expanded utility service for boat docks;
- Potential water taxi drop-off and pick-up areas along Dana Wharf;
- Structural enhancements of the bulkheads and revetments where needed;
- Reconfiguration of East Marina adjacent to the Commercial Core to provide additional visitor and dingy docks.

PLANNING AREA 3 (VISITOR SERVING) – Currently, the Marina Inn Hotel is a 136-room hotel with limited guest amenities that includes an outdoor pool and deck area, two meeting rooms totaling 2,000 square feet and a small lobby, located at the main entrance, accessed by a driveway from Casitas Place. The Revitalization Plan proposes replacement of the hotel in the present location or closer to the waterfront to promote a stronger pedestrian connection with the promenade and festival plaza in front of the new Commercial Core area. Although not presently designed, the new hotel is planned to provide 220 guest rooms, with expanded lobby area with guest services, food and beverage facilities, function/meeting room areas, ancillary retail, specialty restaurant, health and fitness club, pool and other outdoor activity facilities (sand volleyball court, etc.).

The hotel building design will emphasize providing adequate parking for guests and maintain convenient access to parking areas for boaters. Parking areas will be a combination of at-grade parking lots and some buildings may provide underground parking opportunities allowing direct access to areas of the Harbor and hotel facilities. A parking deck with access directly from Dana Point Harbor Drive may also be considered as part of the overall hotel design to separate the main guest entrances from service and delivery functions.

PLANNING AREA 4 (MARINE COMMERCIAL) – The Revitalization Plan will provide marine commercial land uses geared to enhance the quality of services, access to views, and amenities available in the Harbor. A material disposal station will be installed within Planning Area 4 to facilitate boater drop-off of these materials within designated areas. Plans also include an improved turnaround for the eastern part of the Island, resolving a major visitor and emergency response constraint. Additional parking will be created through the reconfiguration of the existing parking areas, the implementation of a Construction Parking Management Plan and a post-construction Parking Management Plan.

The County Sheriff Harbor Patrol facility is proposed to be expanded from 6,000 square feet to 7,500 square feet. The eastern tip of the Island may be considered for an entry treatment, possibly integrated into the Harbor Patrol building expansion. Additionally, the potential water taxi may have pick-up/drop-off locations along the Harbor Patrol facility, Outlook Park and the Dana Point Yacht Club.

The improvements at the Dana Point Yacht Club and Dana West Yacht Club will provide storage for kayaks, rowboats and other small crafts used by the yacht clubs. A boat hoist and mast-up storage may be provided at the Dana Point Yacht Club. The boater service buildings could be expanded up to an additional 2,000 to 5,000 square feet each.

PLANNING AREA 5 (DAY USE RECREATION) – Planning Area 5 includes an expansion of the Youth and Group Facility, which currently offers meeting rooms for recreational activities, community events and private parties, as well as sailing and ocean-related programs. The Youth and Group Facility will be increased by approximately 6,000 square feet to a total of 17,000 square feet. The potential water taxi may also include a pick-up/drop-off station adjacent to the Youth and Group Facility. Along with the expansion, Dana Point Harbor Drive will be slightly realigned adjacent to the facility to remove the existing traffic circle for improved traffic circulation. Currently, Cove Road provides secondary access to the project site. This roadway is presently striped as two lanes, and is for vehicles only. The pedestrian trails will integrate off-site park spaces with on-site pedestrian circulation. Additional enhancements include picnic area improvements, upgraded restrooms, and reconfigured parking areas.

Planning Area 5 will also take advantage of the educational resources available within the Harbor providing greater access to a growing community, including improved access to the park area and an expanded Harbor trail system. Additionally, the turnaround at Ensenada Place will be removed and reconfigured around the Youth and Group Facility to allow the current park areas to be consolidated and/or enlarged. The Revitalization Plan includes additional upgraded restroom facilities, upgraded picnic areas, reconfigured parking and the expansion of boater service buildings by 2,000 square feet each.

As a condition of approval for the Dana Point Headlands Development and Conservation Plan EIR, a water quality filter is proposed in the parking lot of Planning Area 5. Note that this filtration system is not a component of the Dana Point Harbor Revitalization Project. The proposed filter is one of three proposed for the Headlands development, and is not proposed to treat the entire flow generated from every event but rather the runoff during the early stages of every storm event.

PLANNING AREA 6 (EDUCATIONAL/INSTITUTIONAL) – The Ocean Institute improvements were completed in October 2002, and included a series of marine laboratory buildings that serve as learning centers for the At Sea, Ecology, and SurfScience/Overnight programs. Other support buildings house a bookstore ("Campus Store"), a multipurpose room, and a student services building, housing a main lobby, exhibit area, Student Services, administration, a library/conference room, and other support spaces. Recreational uses within the vicinity of the Ocean Institute include Land's End Park and the Dana Point Marine Life Refuge. To facilitate access to the Ocean Institute, a potential water taxi service is proposed adjacent to the Ocean Institute's Tall Ship Harbor.

PLANNING AREA 7 (CONSERVATION) – The Revitalization Plan will create a separate land use district (Planning Area 7) for the preservation of the coastal bluff-face areas as an important coastal resource. Planning Area 7 includes Coastal Sage Scrub, which is a sensitive plant species that provides habitat for other sensitive plant and animal species. The Dana Point Harbor Planned Community Program Amendment provides regulations establishing adequate setbacks/buffers to ensure protection of Coastal Sage Scrub habitat. To the extent feasible, all permitted plant materials proposed as part of the Project design are non-invasive, native plant materials.

PLANNING AREA 8 (EDUCATIONAL BASIN) – The Revitalization Plan provides the framework for future reconfiguration of the boat docks adjacent to the Ocean Institute, Federal anchorage and renovation of the marine portions of Baby Beach. The non-motorized craft launching area and picnic/park area within Baby Beach will remain. However, due to ongoing water quality issues at Baby Beach, additional water quality projects will be analyzed based on the finding s of the water quality data that have been performed to date, as well as based on other research

that is on-going along the coast of Southern California. The most recent efforts include the design and construction of a treatment approach using trash screening, low flow diversion, and first flush treatment for the flows draining into the Baby Beach are of the Harbor. In addition, a four and a half month pilot circulation project was completed in late 2005, and the results should be available in early 2006. Water quality improvements are on-going and subject to potential future changes in the Regional Board's bacteria total maximum daily load (TMDL) requirements, which may be adopted in early 2006. *Note: water quality improvements at Baby Beach are independent of this WQMP.*

PLANNING AREAS 9 AND 10 (WEST MARINA AND EAST MARINA) – Proposed as part of the Dana Point Harbor Revitalization Plan are provisions for the future reconfiguration and/or reconstruction of east and west marina docks and seawall. The East Marina, located closest to the proposed Commercial Core of the Harbor, is a key component in the Revitalization Plan. Proposed plans for the East Marina include relocating the existing west marina visitor slips into the east marina, improving visitor access, and reducing boater vehicular parking needs in that area. In order to meet future needs, revisions to the existing slips will be made to accommodate larger boats and allow for more direct access to the water from the Festival Plaza and Dana Wharf.

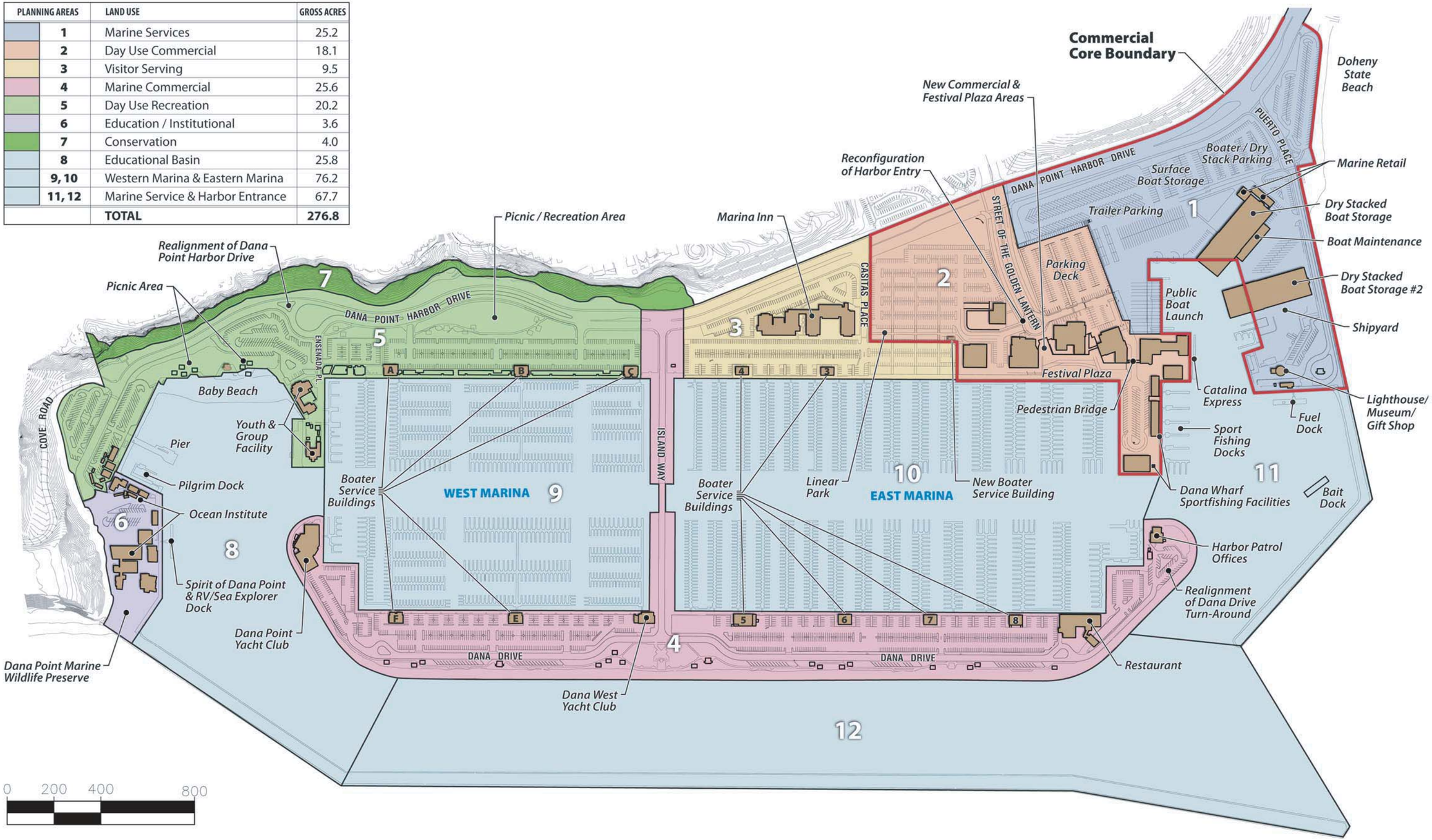
The reconstruction and reconfiguration of the docks will likely require new and/or relocation of the dock system guide piles or construction of new piles. Additionally, as part of the marina work, the docks reconfiguration will include Americans with Disabilities Act (ADA) compliant facilities and will provide for improved lighting, security, signage and utilities. All dock/slip work will be phased to minimize loss or disruption of existing slips. This may involve use of temporary floating, staging and/or imported prefabricated docks to accelerate the construction time. It should be noted that slip space will be supplemented by the dry stack boat storage capacity located within Planning Area 1. In addition, plans for the East and West Marinas will also include a reconfiguration of slips to accommodate for larger boats in response to the current market trends. The slip configurations are conceptual in nature and will be modified through the approval of a Coastal Development Permit by the Coastal Commission.

PLANNING AREAS 11 AND 12 (MARINE SERVICES/HARBOR ENTRANCE) – The Revitalization Plan provides renovations to the Harbor entrance including several changes to improve access to the water and the mobility of boats within the Harbor. The proposed Revitalization Plan increases the safety, efficiency and recreational value of the channel. In order to improve circulation within the Harbor, the Revitalization Plan includes reconstruction of the slips in the shipyard area and sportfishing boat slips, and the potential relocation of the fuel dock facility.

The County received a grant from the Department of Boating and Waterways (DBAW) to make improvements to the boat launch facility (BLF). Currently, the BLF consists of a 225-foot wide boat launching ramp with two boarding floats. The proposed improvements consist of:

- Demolition and reconstruction of the 225-foot wide boat launching ramp;
- Construction of a new ramp apron;
- Installation of three new boarding floats;
- Construction of a boat washdown area that drains to the sanitary sewer system;
- Rehabilitation / reinforcement of the south wharf wall, if needed;
- Installation of slope protection;
- Reinforcement of the cut-off wall on the north side of the ramp, if needed; and
- Installation of lighting, signage, drainage and water quality features.

PLANNING AREAS	LAND USE	GROSS ACRES
1	Marine Services	25.2
2	Day Use Commercial	18.1
3	Visitor Serving	9.5
4	Marine Commercial	25.6
5	Day Use Recreation	20.2
6	Education / Institutional	3.6
7	Conservation	4.0
8	Educational Basin	25.8
9, 10	Western Marina & Eastern Marina	76.2
11, 12	Marine Service & Harbor Entrance	67.7
	TOTAL	**276.8**



PROPOSED SITE PLAN
DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
Figure 2.3

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION

2.2 PROJECT FEATURES

PARKING FACILITIES

As previously described in Section 2.1, parking facilities will be significantly altered in Planning Areas 1 through 3. Parking spaces within Planning Areas 4 through 6 will remain as is. As a result, 754 parking spaces will be added to Dana Point Harbor. Harbor-wide, a total of 5,072 car spaces will be provided once the Revitalization Project is completed.

Table 2.2 Parking summary for the Dana Point Harbor Revitalization Plan.

DANA POINT HARBOR PARKING FACILITIES			
PARKING TYPE	EXISTING SPACE	PROPOSED SPACE	DIFFERENCE
Planning Area 1			
Car	288	458	+ 170
Car with Trailer	183	230	+ 47
Surface Boat Storage	516	93	– 423
Planning Area 2			
Car	900	1,441	+ 541
Car with Trailer	130	0	–130
Planning Area 3			
Car	623	666	+ 43
Planning Area 4			
Car	1,295	1,295	0
Planning Area 5			
Car	725	725	0
Planning Area 6			
Car	487	487	0
TOTAL	*5,147*	*5,395*	*+ 248*
TOTAL CAR SPACES	*4,318*	*5,072*	*+ 754*
TOTAL CAR WITH TRAILER	*313*	*230*	*– 83*
TOTAL BOAT	*516*	*93*	*– 423*

The specific locations of each parking facility within Dana Point Harbor, as well as the type (i.e. surface, garage, underground) and size of the facility, are to be determined by the County of Orange. This information is not available at this time and will be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP, when such project features are proposed within Dana Point Harbor.

BOAT SLIP/DOCK AREAS

In addition to vehicular parking facilities, Dana Point Harbor includes boat parking/docking facilities within its marina area. Facilities include boat slips, ties, docks, a shipyard, and dry stack storage. A summary of existing and proposed facilities is provided in the table below.

Table 2.3 Boat slip/ dock summary for the Dana Point Harbor Revitalization Plan.

DANA POINT HARBOR BOAT SLIP/DOCK FACILITIES						
DOCKING TYPE	EXISTING SLIPS	PROPOSED SLIPS	DIFFERENCE	EXISTING LINEAR FEET	PROPOSED LINEAR FEET	DIFFERENCE
Planning Areas 9 and 10						
Marina Side and End Ties	93	68	– 25	--	--	--
Marina Slips	2,260	1,715	– 545	--	--	--
Visitor Slips	42	66	+ 24	83	83	0
Youth & Group Slips	13	13	0	58	58	0
Commercial Fishing Slips	15	15	0	85	85	0
Dana Point Yacht Club Slips	11	11	0	78	78	0
Harbor Patrol Slips	10	10	0	-	-	-
Dinghy Docks	--	--	--	0	375	+ 375
Planning Areas 11 and 12						
Charter Fishing Slips	15	15	0	190	190	0
Rental Fleet	15	7	-8	340	170	-170
Dry Stack Storage	-	-	-	0	600	+ 600
Shipyard	17	8	-9	230	115	-115
Channel Side Ties	0	76	+ 76	0	2,300	+ 2,300
TOTAL	*2,491*	*2,004*	*– 487*	*1,064*	*4,054*	*+ 2,990*

The specific locations of each boat slip/docking facility within Dana Point Harbor, as well as the type and size of the facility, are to be determined by the County of Orange. This information is not available at this time and will be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP, when such project features are proposed within Dana Point Harbor.

LANDSCAPED AREAS

The specific locations of landscaped areas within Dana Point Harbor, as well as their configuration and size, are not detailed in the Dana Point Harbor Revitalization conceptual plan (see Section 2.1) and is, therefore, not available at this time. Because of the lack of information available (no as-built plans), a digital ortho photo was used (July 2004) to determine the size and location of landscape and open space areas in the Harbor. For the Commercial Core, area calculations are based on schematic plans prepared by ACMP and SWA (described in the Planning Areas 1 & 2 WQMP Amendment).

The County of Orange and/or the Architect of Record will determine the location and arrangement of landscaped areas within Dana Point Harbor. When such project features are proposed within Dana Point Harbor in the future, landscaped areas shall be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP.

IMPERVIOUS AREA COMPOSITION

The entire Dana Point Harbor covers approximately 277 acres consisting of hardscape (parking lots, buildings, sidewalks, etc.), landscaping, open space (recreational grassy areas, natural areas) and open surface water (169 acres). The Harbor is primarily built out and the land portion of the entire site is approximately 95% impervious. Presently, the breakdown of impervious area composition within each of the Planning Areas has not been determined, as illustrated in the table below. As more information is gathered, impervious area composition within each of the Planning Areas will be described in detail in future WQMP Amendments or future separate project WQMPs.

Table 2.4 Proposed impervious area summary for the Dana Point Harbor Revitalization Plan.

PLANNING AREA	STREETS/ PARKING LOTS/ HARDSCAPE (ACRES)	BUILDINGS (ACRES)	TOTALS (ACRES)	LANDSCAPING (ACRES)	TOTAL PLANNING AREA (ACRES)	% IMPERVIOUS SURFACES
1						
2						
3						
4						
5						
6						
7						
8, 9, 10, 11, 12	N/A	N/A	N/A	N/A	N/A	N/A

Considering the entire site is built out and the proposed conditions will maintain or potentially enlarge the open space areas, the impervious condition will either remain the same or slightly decrease, thereby resulting in a similar or reduced amount of storm water runoff. The specific changes to the impervious area composition will be addressed in each of the subsequent Amendments to the WQMP.

Prior to construction, 95% of the site is impervious and the runoff coefficient is 0.86. After completion, the entire site is projected to be 95% impervious and the runoff coefficient will be 0.86.[4] These statistics are summarized in the figure below.

[4] See Appendix 1 for reference tables and figures for the basis of runoff coefficient determinations.

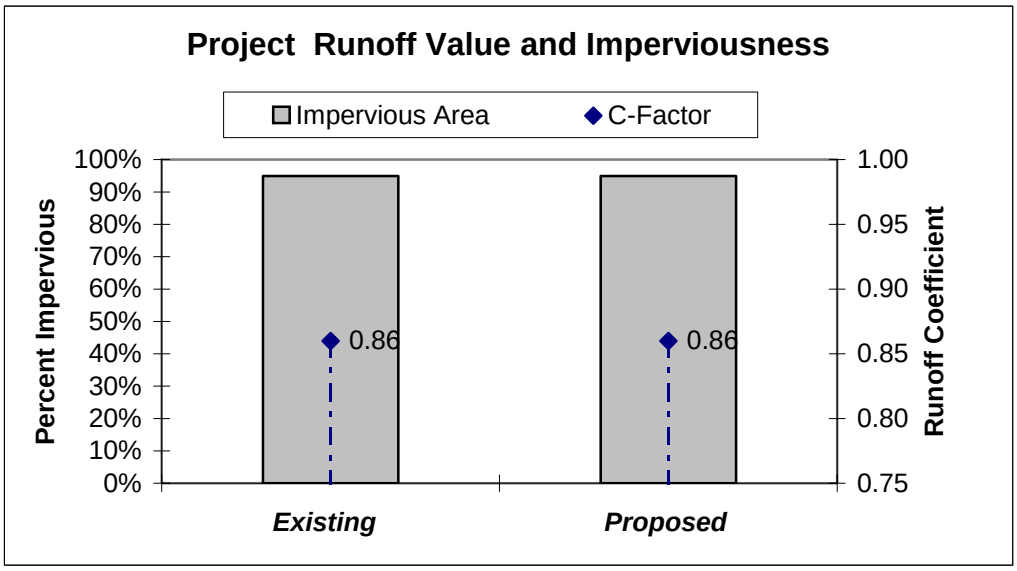


Figure 2.4 Changes in site drainage and the coefficient of runoff as a result of the proposed improvements.

ANTICIPATED AND POTENTIAL POLLUTANTS

The types of anticipated and potential pollutants from the Dana Point Harbor Revitalization Project will be similar to existing conditions, since the site's land uses will remain essentially unchanged. The addition of 25,000 square feet of commercial/restaurant uses in Planning Area 1 and 2 will replace existing hardscape and open space areas. The overall reconfiguration of Planning Areas 3 through 12 has yet to be determined. Despite the similarity to existing uses of the Harbor, the proposed improvements will nevertheless have the potential to generate a different pattern and density of pollutant sources.

In general, typical pollutants generated within commercial/retail areas of the Harbor include trash, sediment, nutrients, bacteria, oil & grease, and pesticides from landscaping activities. Typical pollutants from restaurants in the Harbor include trash, debris, biological oxygen demand (BOD), and oil & grease. From the parking facilities and streets within the Harbor, pollutants generated include sediment, nutrients, trash, debris, heavy metals, oil & grease, and pesticides from landscaping. The proposed Dana Point Harbor Revitalization Project is not expected to generate a significant amount of new or additional pollutants compared with existing uses on site. Anticipated and potential pollutants for the proposed project are listed in Table 2.5 below.

Table 2.5 General categories of anticipated and potential pollutants.

GENERAL POLLUTANT CATEGORIES									
PRIORITY PROJECT CATEGORIES AND/OR PROJECT FEATURES	BACTERIA/VIRUS	HEAVY METALS	NUTRIENTS	PESTICIDES	ORGANIC COMPOUNDS	SEDIMENTS	TRASH & DEBRIS	OXYGEN DEMANDING SUBSTANCES	OIL & GREASE
Commercial/Industrial Development >100,000 ft.^{2}	P (3)	P	P (1)	P (1)	P (5)	P (1)	X	P (1)	X
Restaurants	X						X	X	X
Parking Lots	P (6)	X	P (1)	P (1)	X (4)	P (1)	X	P (1)	X
Streets, Highways & Freeways	P (6)	X	P (1)	P (1)	X (4)	X	X	P (1)	X

Notes:
X = Anticipated
P = Potential
(1) A potential pollutant if landscaping or open area exist on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.
(6) Analyses of pavement runoff routinely exhibit bacterial indicators.

Source: Orange County Stormwater Program, *Exhibit 7.11 Model Water Quality Management Plan, Table 7.II-2*, September 26, 2003.

As a result of the pollutants identified in the table above, along with the water quality impairments identified for Dana Point Harbor (see Section 3.0), bacteria is recognized as the primary pollutant of concern for the project. All other remaining pollutants listed in Table 2.5 are considered "other pollutants of concern".

OWNERSHIP OF SITE

The table provided below describes the ownership of all land space within the project site once the construction of the project has been completed.

Table 2.6 Ownership of general project features in Dana Point Harbor.

SITE FEATURE	OWNER
Public Streets	City of Dana Point/ County of Orange
Private Streets	County of Orange
Landscaped Areas	County of Orange
Open Space	County of Orange

Easements	County of Orange
Parks	County of Orange
Buildings	County of Orange

The County of Orange, Dana Point Harbor Department, will be responsible for inspecting and maintaining all BMPs prescribed for the Dana Point Harbor Revitalization Plan. In instances where the County of Orange elects to assign maintenance responsibilities to a lessee and/or contract the services to another party/agency, the contracted party/agency shall assume all BMP maintenance and the County will remain responsible for all on-going inspections to ensure performance with all applicable requirements and standards.

2.3 SPECIFIC INDUSTRIAL/ COMMERCIAL DETAILS

The Dana Point Revitalization project will include the expansion and/or renovation of a number of buildings with various uses that have yet to be determined, and is limited to the conceptual plan description provided in Section 2.1 of this WQMP. Building specifics, and their planned uses, shall be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP.

Table 2.7 Building summary for the Dana Point Harbor Revitalization Plan.

BUILDING SUMMARY		
BUILDING	USE	FEATURES
- To be determined by Engineer of Architect of Record -	--	--

New developments and significant redevelopments generally incorporate certain site features that may potentially impact storm water runoff quality if proper site design is not considered. These features include, but are not limited to, trash enclosures, loading docks, maintenance bays, vehicle or equipment wash areas (i.e. boat wash down), outdoor processing areas, fueling areas, food preparation areas, and community car wash areas. These site features shall be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP.

Table 2.8 Site features summary for the Dana Point Harbor Revitalization Plan.

SITE FEATURES SUMMARY		
SITE FEATURE	NUMBER	POLLUTANTS OF CONCERN
- To be determined by Engineer and Architect of Record -	SAMPLE	--

The County of Orange has a three-bin recycling program at various public areas and is in the process of adding 16 additional three-bin systems throughout the Harbor. Plastic bottles and aluminum cans are recycled. The recycle bins are serviced by the California Conservation Corps. Trash collected throughout the harbor is sent to CR&R material recovery facility. In addition, the East Basin marina operator hand sorts plastics and aluminum cans from their waste stream. The West Basin marina operator provides recycle bins that are serviced by CR&R the contract hauler. Boaters are reminded to recycle via the east and west basin marina newsletters and merchants are reminded regarding recycling issues at the Merchant's meetings. New signage has also been posted at the trash dumpster locations and in the public parking lots to alert users to the fact that a recycling dumpster is alongside the trash dumpster:

3.0 SITE DESCRIPTION

3.1 WATERSHED

The Dana Point Revitalization project is located within the Dana Point hydrologic sub-area of the San Juan hydrologic unit, which in turn, is within the San Diego Basin. More specifically, the Harbor lies within the Dana Point Coastal Streams Watershed (also referred to as the Salt Creek Watershed), which drains to the Pacific Ocean (DAMP 2003).

The Dana Point Coastal Streams Watershed is located in southern Orange County, approximately 50 miles south of Los Angeles and 65 miles north of San Diego. The main tributary of the Dana Point Coastal Streams watershed is Salt Creek, which ultimately drains into the Pacific Ocean. The 6-square mile watershed is almost fully developed and includes portions of the cities of Dana Point, Laguna Beach, Laguna Niguel, and San Juan Capistrano. Remaining undeveloped areas include open space within the Aliso and Wood Canyons Regional Park in the upper watershed and the Salt Creek Corridor Regional Park in the eastern part of the watershed. Also included in the watershed are a number of coastal drains which discharge to the Pacific Ocean through Dana Point Harbor. A few small, unnamed drainages and larger tributaries (Arroyo Salado Creek and San Juan Canyon Creek) join Salt Creek as it makes its way through the watershed.

Adjacent land uses to the Harbor are the proposed Dana Point Headlands development, which intends to utilize off-site drainage mitigation techniques and the residences immediately north of the harbor on the bluffs, which utilize terrace drains. The most immediate receiving waters for the project site are Dana Point Harbor and the Pacific Ocean. A portion of the Harbor is located adjacent to a State Marine Wildlife Refuge and rocky intertidal area. These areas serve as habitat for several marine species of flora and fauna that are under special protection for their biological significance.

303(d) LISTED WATER QUALITY LIMITED SEGMENTS

According to the California 2002 303(d) list published by the San Diego Regional Water Quality Control Board (RWQCB Region 9), both Dana Point Harbor and the Pacific Ocean in the vicinity of the Harbor are listed as impaired for Bacteria Indicators.

The Dana Point Harbor impairment is located primarily in the area of Baby Beach, and potential sources include urban runoff/storm sewers, marinas and recreational boating, unknown non-point sources and unknown point sources. Approximately 120 acres are affected by the impairment, and the Harbor has been given a "Medium" TMDL priority by the SWRCB, with no proposed completion time determined. However, the Harbor will be subject to a separate bacteria TMDL currently under development that will affect the entire San Diego Region coastline (see TMDL discussion below).

The Pacific Ocean shoreline in the vicinity of Dana Point Harbor is identified as impaired at the following locations: Aliso Beach at West Street, Aliso Beach at Table Rock Drive, 1000 Steps Beach at Pacific coast Highway, Salt Creek, Salt Creek Beach at the Salt Creek service road, and Salt Creak Beach at Dana Strand Road. Approximately 2 miles of shoreline are affected by the impairment, and the shoreline in the vicinity of Dana Point Harbor has been assigned a TMDL priority level of "Medium," with no completion time yet determined. The table below summarizes the receiving waters and their classification by the RWQCB Region 9.

Table 3.1 Summary of 303(d) impairments of downstream water bodies.

RECEIVING WATER	HYDROLOGIC UNIT CODE	303(D) IMPAIRMENT(S)
Dana Point Harbor	901.14	Bacteria Indicators
Pacific Ocean – Dana Point HSA	901.15	Bacteria Indicators

TMDLs

There are currently no TMDLs established for Dana Point Harbor as a receiving water body. However, the TMDL for bacterial indicators in the San Diego region, which includes Dana Point Harbor and the Pacific shoreline in the vicinity of Dana Point Harbor, are currently under development and available for review on the RWQCB Region 9 web page.[5] The TMDL for bacterial indicators for enclosed bays and estuaries, which includes Dana Point Harbor, is currently under development.

ENVIRONMENTALLY SENSITIVE AREAS

Dana Point Harbor is considered an Environmentally Sensitive Area (ESA), based on two attributes that defines what an ESA is, according to the San Diego Region NPDES Permit [Order No. R9-2002-0001, section F.1.b.(2)(a)vi.]. The State Water Resources Control Board has designated the Harbor as a water body with the RARE (rare, threatened, or endangered species) beneficial use. Furthermore, Permittees of the San Diego Region NPDES Permit have designated the Harbor as an estuarine area of Critical Aquatic Resource.

HYDROLOGIC CONCERNS

The overall goal and intent of the Harbor's design, with respect to hydrology and water quality, is to maintain the existing underground storm drain systems conveying upstream off-site runoff from the City of Dana Point through the Dana Point Harbor, while designing an onsite drainage system that will treat storm water runoff from all new facilities prior to discharging directly into the Harbor or connecting to existing offsite storm drain facilities before draining into the Harbor.

There are no significant hydrologic conditions of concern for the proposed Dana Point Harbor Revitalization Plan. Existing conditions of the Harbor are built out and there are no areas that allow for significant infiltration due to environmental constraints such as poor soil conditions and high groundwater tables. By comparing existing and post-construction conditions, the amount of impervious area would not substantially change as the proposed revitalization activities would occur on existing impervious surfaces (see Section 2.2). As a result, runoff volume and velocity is not anticipated to be substantially increased. On-site drainage patterns in areas included as part of the Revitalization Plan improvements will be altered. This modification is principally done to allow for the collection and conveyance of storm water runoff to locations within the project site for water quality treatment. Therefore, downstream receiving waters will not be exposed to any increase in erosion or sedimentation and will ultimately be improved by the increase in the amount of treatment prior to discharging into the receiving water body.

[5] http://www.waterboards.ca.gov/sandiego/tmdls/bacteria.html

Scale: N.T.S.
Source: County of Orange Watershed & Coastal Resources Division, 2003 Drainage Acre Master Plan, 2003.

DANA POINT COASTAL STREAMS WATERSHED

DANA POINT HARBOR REVITALIZATION PROJECT
PROGRAM ENVIRONMENTAL IMPACT REPORT

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION

Figure 3.1

3.2 SITE LOCATION

PLANNING AREA/ COMMUNITY NAME	Dana Point Harbor
GENERAL LOCATION	Dana Point Coastal Streams (Salt Creek) Watershed, San Juan Hydrologic Unit. 50 miles south of Los Angeles and 65 miles north of San Diego. 2 miles west of the I-5 Freeway.
ADDRESS	Dana Point Harbor Drive Dana Point, CA 92629
PROJECT SIZE	276.8 acres

SITE CHARACTERISTICS

EXISTING DRAINAGE – Located at the downstream end of the watershed, Dana Point Harbor collects drainage from existing off-site commercial and residential developments, as well as the Harbor and portions of Street of the Golden lantern, Cove Road, Santa Clara Avenue, Street of the Blue lantern, Harbor Drive, Scenic Drive and the adjoining off-site properties in the vicinity of Harbor Point. Storm drain improvements currently exist on the Street of the Golden Lantern, and Cove Road, which minimize erosion and flooding. A majority of the runoff from the off-site properties above the Harbor is collected within the existing storm drain system. The pipes drain the runoff into an existing v-ditch system that is located at the back of the Harbor parking lots, at the base of the bluffs. Along the way to the outlet location, the pipe accepts runoff from various inlets located in the Harbor parking lots and Dana Point Harbor Drive. A minor portion of sheet flow runoff originating from Dana Point Harbor Drive enters the project site from the streets of Casitas Place, Street of the Golden Lantern and Embarcadero Place but the majority of flows are collected within the curb and gutters of Dana Point Harbor Drive and conveyed into the regional (County) storm drain facilities that run underneath the project site. These improvements also capture any erosion that may arise from the adjoining bluff tops to the east and the west.

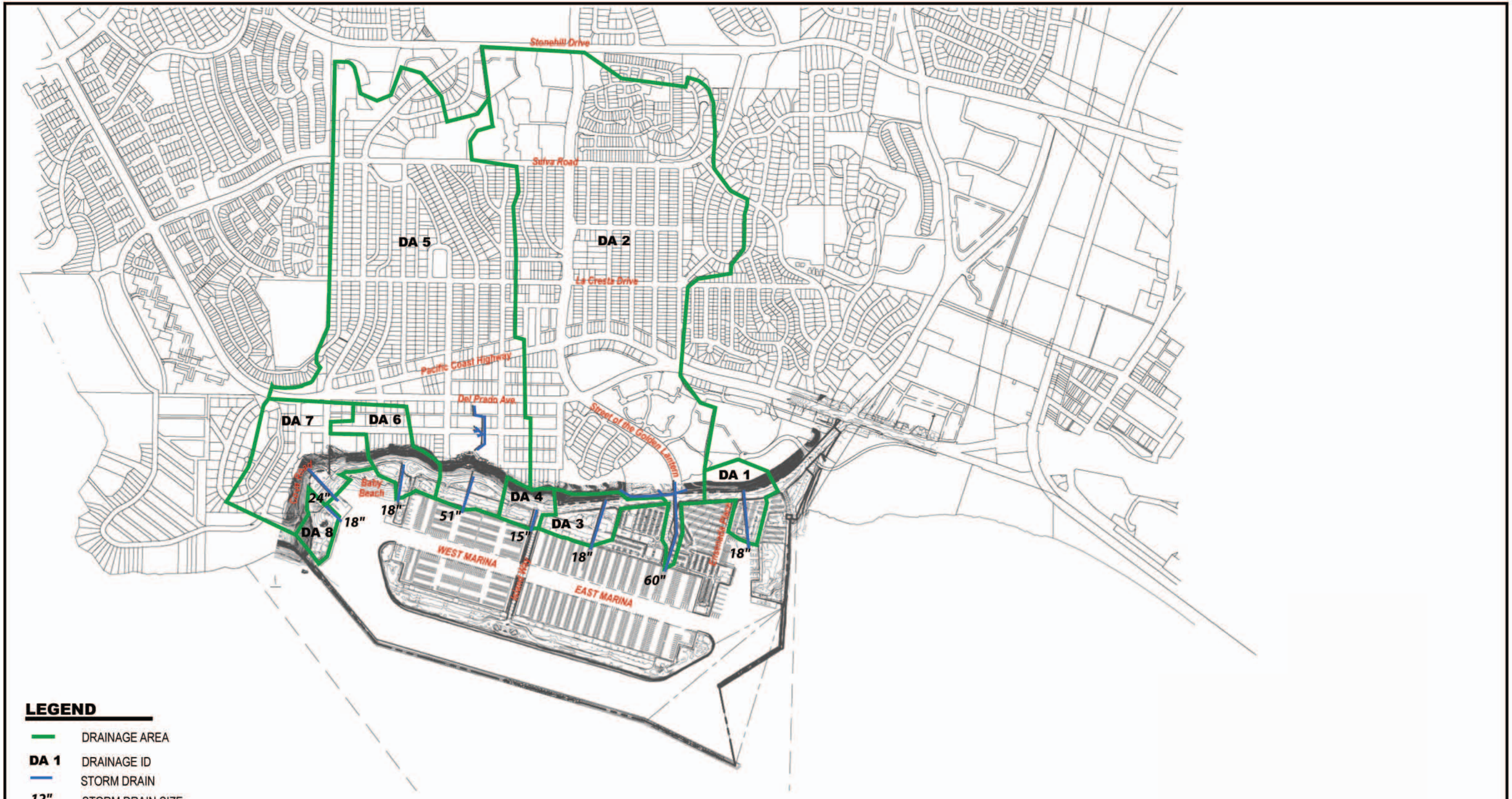
Within the Dana Point Harbor, the majority of on-site runoff from the parking lots and facilities enters a series of drain inlets and catch basins prior to discharging into the Harbor Marinas. Some of these systems tie into the County storm drains running underneath the Harbor while others discharge directly into the Harbor Marinas through smaller pipe outfalls. For instance, runoff from the parking lot located at the southern end of the East Marina within the Commercial Core component of the project enters a 24-inch grate inlet and discharges directly into the East Basin through an outfall adjacent to the County 60-inch reinforced concrete pipe (RCP). This localized drainage system is common for the existing parking lots throughout the Harbor. Rooftop drainage from the existing buildings just north of the boat ramp area are collected by a series of 4 to 6-inch pipes and confluence into a larger pipe that discharges directly into the Harbor. This system is also typical for other rooftop collection systems throughout the Harbor. In summary, all on-site flows and a portion of off-site runoff from the surrounding streets collects into a series of (A) grate inlets, (B) catch basins, and (C) roof drainage pipes and discharge directly into the Harbor through a series of (1) local outfall pipes, (2) County-owned storm drains and/or (3) direct sheet flow from sloped sidewalks and hardscape areas.

The East Basin of Dana Point Harbor receives runoff from three storm water pipes. These pipe outfalls are located in the quay wall about five to ten feet below the water surface. Information pertaining to the existing Harbor storm water pipes can be found in Table 3.2 below. The two smaller pipes discharge runoff from an area near the Harbor and surrounding bluffs. The large pipe (County Facility L00P01), otherwise known as the Golden Lantern Storm Drain, discharges runoff from a storm drain network that extends much further inland and includes part of the surrounding city. The Existing Drainage Facilities exhibit (below) shows the drainage areas tributary to the storm drains discussed above. At the maintenance area and boat holding pens, the runoff sheet flows across this surface and adjacent parking lots and enters Dana Point Harbor at the boat-launching ramp.

The West Basin of Dana Point Harbor receives runoff from four storm water pipes. There are two 18-inch pipes discharge runoff from an area near the Harbor. The large pipe (County Facility L00P03) discharges runoff from a storm drain network that extends further inland and includes part of the surrounding city. A small 15-inch pipe discharges runoff from Dana Point Harbor Drive.

Table 3.2 Existing storm drain facilities for Dana Point Harbor.

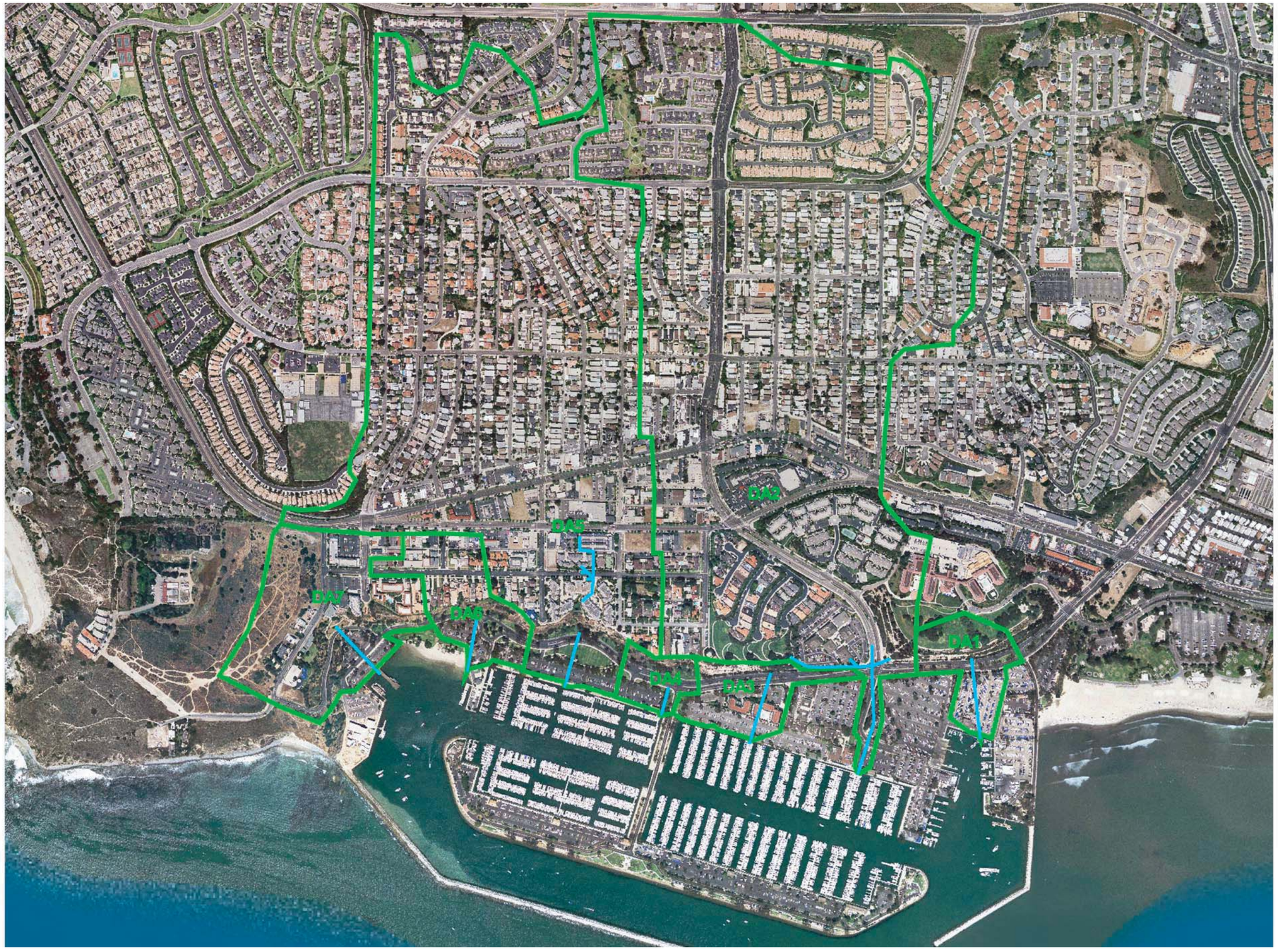
PIPE LOCATION	PIPE SIZE (inches)	WATERSHED AREA (acre)
East Basin		
Boat Launch Ramp	18	10.4
Golden Lantern Storm Drain	60	247
East of Island Way	18	10.7
West Basin		
Ocean Institute Dock	18	4.63
Baby Beach West Storm Drain	24	34.1
Ensenada Place	18	14.7
El Encanto Storm Drain	51	195
West of Island Way	15	5.3



Source: RBF Consulting, *Water Quality Report*, April 23, 2004.

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION

EXISTING DRAINAGE FACILITIES
DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
Figure 3.2



Legend

Drainage Area (DA)

DA1 Drainage Area ID

Storm Drain

N

700 0 700 Feet

AERIAL OF EXISTING DRAINAGE AREAS

DANA POINT HARBOR REVITALIZATION PROJECT

ENVIRONMENTAL IMPACT REPORT

Figure 3.3

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION

PROPOSED DRAINAGE – It is the goal and intent of the proposed Dana Point Harbor Revitalization Plan to maintain the existing off-site storm drain conveyances that run underneath the Harbor and ultimately outlet at the East and West Basins. Moreover, all on-site water quality concerns within the Dana Point Harbor Revitalization Plan will be addressed prior to connection to off-site drainage systems or creating new outlet locations into the East and West Basins. No significant intensification of land uses including major expansions of impervious surfaces and additional runoff quantities are expected throughout the Harbor, and the regional storm drain facilities that collect off-site flows and on-site flows will remain in place. No improvements are expected or required for the regional facilities based on the conceptual Harbor-wide plans. Based on the proposed Harbor-wide improvements, the most intensive alterations to the existing portions of the Harbor are included in Planning Areas 1 and 2 as described in the first Amendment to this WQMP.

Generalized drainage patterns for each of the Planning Areas 1 through 7 have been included in this WQMP. Since Dana Point Harbor is fully developed, general drainage of the proposed project will, more or less, be similar to existing conditions. Where feasible, each Planning Area shall design a network of surface water drainage conveyances improvements that will provide water quality treatment opportunities prior to connection with the existing storm drains associated with that drainage area. In the Planning Areas where sheet flows currently discharge unmitigated into the marina (i.e. Planning Areas 1 and 2 of the East Basin), the drainage shall be redesigned, to the extent feasible, to drain towards areas where storm water runoff can be treated prior to discharge. Project specific drainage shall be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP, as revitalization of each Planning Area is proposed.

LAND USE AND ZONING

The site is located in southern Orange County, and owned by the County of Orange. Dana Point Harbor is approximately half way between Los Angeles and San Diego. It is bordered by the cities of Dana Point, Laguna Niguel and Laguna Beach to the north, San Juan Capistrano to the east, and San Clemente to the south.

The Dana Point Harbor, under the existing conditions, is 276.8-acres of recreational, commercial/retail, sporting and commercial boating area within the Dana Wharf and Mariner's Village. A hotel, numerous restaurants, as well as small retail and gift shops are located to the east of Island Way. To the west of Island Way, the Ocean Institute, Baby Beach and the County-operated Youth and Group Facility are located.

Surrounding land uses include commercial, residential and recreational. Restaurants, multi-family and single-family residences and hotels are located on the top of the bluffs overlooking the site to the northwest and north. The land uses above the site, along the coastal bluffs, can generally be characterized as harbor-oriented commercial and residential properties for which the views of the Pacific Ocean and Dana Point Harbor play an important role. Adjacent land uses, primarily the public County park, the Harbor and the Marine Wildlife Refuge, can generally be characterized as important recreational resources.

3.3 EXISTING WATER QUALITY ISSUES

As a result of the RARE (rare, threatened, or endangered species) beneficial use classification for Dana Point Harbor, the State Water Resources Control Board (SWRCB) has designated

Dana Point Harbor an Environmentally Sensitive Area (ESA). The Dana Point Harbor Revitalization Plan is, therefore, considered a Priority Project since it will redevelop more than 2,500 square feet of impervious surface located within, directly adjacent to, and discharging directly to an ESA. In addition, the Harbor is 303(d) listed as impaired for bacterial indicators. The impairment is located primarily in the area of Baby Beach, and potential sources include urban runoff/storm sewers, marinas and recreational boating, unknown non-point sources and unknown point sources. In conformance with the Countywide Water Quality Management Plan (WQMP) and National Pollutant Discharge Elimination System (NPDES) Drainage Area Management Plan (DAMP), the Dana Point Revitalization Plan will require the incorporation and implementation of site design, source control, and treatment control Best Management Practices (BMPs) to adequately address all anticipated and potential pollutants, if any, within the Harbor, including those water quality issues mentioned above.

Because the Harbor is presently an existing urbanized land use, there is very little pervious surface existing on the property within the concentrated commercial and boat service areas. The underlying soil type found at Dana Point Harbor is classified as Type D soils (Plate-C), according to the Orange County Hydrology Manual. Type D soils generally exhibit a high runoff potential. The soils have a very slow infiltration rate when thoroughly wetted. They chiefly consist of clay soils that have a high swelling potential, soils with a permanent high water table, soils with a clay layer at or near the surface, and shallow soils over nearly impervious material, giving them a very slow rate of water transmission.

As part of an on-going maintenance program, the County of Orange has installed 41 FossilFilters™ throughout the public areas of Dana Point Harbor. The City of Dana Point also has storm drain inserts installed along Dana Point Harbor Drive, between Pacific Coast Highway and Street of the Golden Lantern. The County, through contracted services with Downstream Services, currently inspects and completes preventative maintenance of these storm drain inserts every two weeks and replaces the filter once annually. Fossil Filters are trough type inserts filled with granular amorphous alumina silicate media to remove pollutants by sorption. They are, thus, configured to remove sediment, constituents absorbed to sediment, as well as oil and grease. Gross pollutants, such as trash and green waste, are also captured by the trough design. The use of these filters throughout the various areas of the Harbor provides some treatment of dry nuisance flows and initial storm flows, but the future water quality improvements for each Planning Area will improve this treatment process up to current redevelopment regulatory requirements.

In addition to the County's efforts within the Harbor, The City of Dana Point has also implemented a number of BMPs in the upstream drainage area consistent with their Local Implementation Plan for Urban Runoff. The existing storm drain system along Golden Lantern that enters the Harbor (with a tributary area of 241.2 acres per City of Dana Point Master Plan of Drainage, February 1998), is covered by a variety of routine non-structural and structural source control BMPs. Routine non-structural source control BMPs include: Education (N1), BMP Maintenance (N4), Spill Contingency Plan, coordinated with South Coast Water District and the County of Orange (N7), Common Area Litter Control for Municipal Facilities (N11), Employee Training (N12), Municipal Catch Basin Inspection (N14), and Street Sweeping of Public Streets (N15). Routine structural source control BMPs include: storm drain stenciling and signage of all municipal inlets and implementing diversion of runoff from the City Hall underground parking structure to the sanitary sewer. Treatment control has been implemented at all municipal inlets, consisting of an inlet filter, treating runoff of hydrocarbons, trash and debris and sediments.

4.0 BEST MANAGEMENT PRACTICES

The Program WQMP identifies Best Management Practices (BMPs) that will be used on-site to control predictable pollutant runoff, and shall identify, at a minimum, the measures specified in the Countywide Water Quality Management Plan (WQMP) and NPDES Drainage Area Management Plan (DAMP), the assignment of long-term maintenance responsibilities (specifying the maintenance association, lessee, etc.) and the locations of all structural BMPs.

The Dana Point Harbor Revitalization Plan will incorporate a treatment train approach to water quality management. All new developments and significant redevelopments associated with the Plan will incorporate site design BMPs and source control measures aimed at mitigating and abating storm water runoff pollution at the source. Resultant runoff generated from the site, where feasible, will be pre-treated with a variety of treatment control measures, such as vegetated swales, grassy strips, and bioretention zones. Prior to discharge off-site, the captured runoff will be treated by proposed treatment BMPs adequately sized to filter or treat the Storm Water Quality Design Flow (SQDF) or Storm Water Quality Design Volume (SQDV) of their respective tributary areas.

4.1 SITE DESIGN BMPs

The following table describes the site design BMPs used in the Harbor and the methods used to incorporate them. Careful consideration of site design is a critical first step in storm water pollution prevention from new developments and redevelopments. Site design BMPs help minimize the introduction or generation of potential pollutants from a facility's operations.

Table 4.1 Site Design BMPs.

DESIGN CONSIDERED:	YES	NO	DESCRIPTION
MINIMIZE IMPERVIOUS AREA/ MAXIMIZE PERMEABILITY (C-FACTOR REDUCTION)	☒	☐	Where appropriate, permeable pavement will be incorporated into the project site to increase permeability. Where feasible, landscaping will be maximized, in lieu of hardscape, to reduce impervious surfaces. Surface parking lot areas shall be reduced through the use of multi-level parking structures, where applicable.
MINIMIZE DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIAs) (C-FACTOR REDUCTION)	☒	☐	Where appropriate, permeable pavement will be incorporated into the project site to reduce the amount of directly connected impervious surface. Depressed landscape areas shall be incorporated into surface parking lots. Where feasible, roof runoff will be directed to landscaping prior to discharge to storm drains.

DESIGN CONSIDERED:	YES	NO	DESCRIPTION
CREATE REDUCED OR "ZERO DISCHARGE" AREAS (RUNOFF VOLUME REDUCTION)	☒	☐	Where appropriate, vegetated swales and landscaping will be incorporated into the site to reduce runoff. Depressed landscaped areas for bioretention will be implemented within parking islands and road medians.
CONSERVE NATURAL AREAS (C-FACTOR REDUCTION)	☒	☐	Coastal bluff-face shall be preserved within the Harbor. Adequate setbacks/ buffers will be provided to protect sensitive habitat, such as Coastal Sage Scrub. This will be implemented particularly in Planning Area 7.

As part of the site design BMP consideration process, the idea of implementing green roofs throughout the Harbor was considered. Upon further evaluation, green roofs were ruled out as a feasible site design BMP due to site constraints. Intensive green roofs (consisting of trees, shrubs, and other native drought tolerant vegetation) add considerable load (80-150 lbs/sq. ft.) to a structure and require intensive maintenance, while extensive green roofs (turf cover) require intensive maintenance and possible artificial irrigation needs due to the low frequency, high intensity rain conditions in Southern California. Furthermore, the relatively small building footprints within Dana Point Harbor and the individual lease agreements do not lend themselves for effective implementation and maintenance of green roofs. Though determined not uniformly applicable within this Program WQMP, green roofs may prove feasible for certain proposed buildings and shall be considered at the project-level WQMP process.

4.2 SOURCE CONTROL BMPs

Routine source control BMPs are required to be incorporated in all new development and redevelopment projects unless considered not applicable. Table 4.2 below indicates all routine non-structural source control BMPs to be incorporated as part of the Dana Point Harbor Revitalization Plan. For those designated as not applicable (N/A), a brief explanation is provided.

All source control BMPs listed for a specific land use or type of project in the Countywide Water Quality Management Plan must be discussed and utilized to the extent that they are appropriate for the Harbor. Therefore, if a land use/ project type specific BMP is not used for a particular project, an explanation why the source control BMP is not appropriate for the project will be stated.

All conceptually proposed projects associated with the Dana Point Harbor Revitalization Plan will be required to comply with all applicable routine non-structural and structural source control BMPs, as outlined in the Countywide Water Quality Management Plan. However, since this Program WQMP spans more than 20 years of phased redevelopment, current source control BMPs may not be relevant or may become obsolete for the future proposed redevelopment activities. For this reason, those source control BMPs applicable to future site-

specific development projects will not be addressed in this Program WQMP. They shall be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP. Only those BMPs to be implemented harbor-wide or are considered a regional approach to water quality management are addressed herein (marked "Yes"). ***All other source control BMPs are marked "N/A" until they are determined applicable at the project-level WQMP process.***

The specific source control BMPs for Dana Point Harbor Revitalization Plan include:

Table 4.2 Routine non-structural source control BMPs.

INCORPORATED ROUTINE NON-STRUCTURAL BMP:		YES	N/A	IF N/A, DESCRIBE WHY
N1	BUSINESS OWNER/ TENANT EDUCATION	☒	☐	
N2	ACTIVITY RESTRICTIONS	☒	☐	
N3	COMMON AREA LANDSCAPE MANAGEMENT	☒	☐	
N4	BMP MAINTENANCE	☒	☐	
N5	TITLE 22 CCR COMPLIANCE	☐	☒	This BMP is not applicable because no Title 22 CCR compliance requirements are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
N6	LOCAL WATER QUALITY PERMIT COMPLIANCE	☐	☒	This BMP is not applicable because no local water quality permit compliance requirements are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.

INCORPORATED ROUTINE NON-STRUCTURAL BMP:		YES	N/A	IF N/A, DESCRIBE WHY
N7	SPILL CONTINGENCY PLAN	☐	☒	This BMP is not applicable because no spill contingency plan compliance requirements are currently proposed by the project. When future developments within Dana Point Harbor warrant the implementation of this BMP, this WQMP will be amended to indicate this BMP as "YES", or it will be addressed in subsequent WQMPs for relevant site-specific developments.
N8	UNDERGROUND STORAGE TANK COMPLIANCE	☐	☒	This BMP is not applicable because no underground storage tank compliance requirements are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
N9	HAZ-MAT DISCLOSURE COMPLIANCE	☐	☒	This BMP is not applicable because no haz-mat disclosure compliance requirements are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
N10	UNIFORM FIRE CODE IMPLEMENTATION	☐	☒	This BMP is not applicable because no uniform fire code compliance requirements are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
N11	COMMON AREA LITTER CONTROL	☒	☐	
N12	EMPLOYEE TRAINING	☒	☐	

INCORPORATED ROUTINE NON-STRUCTURAL BMP:		YES	N/A	IF N/A, DESCRIBE WHY
N13	HOUSEKEEPING OF LOADING DOCKS	☐	☒	This BMP is not applicable because no loading docks are currently proposed by the project. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", or it will be addressed in subsequent WQMPs for relevant site-specific developments.
N14	CATCH BASIN INSPECTION	☒	☐	
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS	☒	☐	
N16	COMMERCIAL VEHICLE WASHING	☐	☐	*This is no longer an approved BMP.*
N17	RETAIL GASOLINE OUTLETS	☐	☒	This BMP is not applicable because no retail gasoline outlets are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.

Potential Activity Restrictions (N2) include:

- Use of water to wash any motor vehicle, motorbike, trailer, or other vehicle is prohibited;
- Use of water to wash down buildings or structures for purposes other than immediate fire protection is prohibited;
- Use of water to wash down any sidewalks, walkways, driveways, parking lots, or other hard surfaced areas is prohibited; and
- Vehicle maintenance within parking lots is prohibited.

BMPs N5, N6, N7, N8, N9, N10, N13, and N17 have been indicated as N/A for the Dana Point Harbor Revitalization Plan. However, based on existing uses within Dana Point Harbor, specific project features that warrant these non-structural source control BMPs are anticipated for future proposed site-specific revitalization projects. There is an existing waste material storage area located in the West Basin that will be revitalized in a future site-specific development project, with another to be proposed in an as yet to be determined location. An existing fuel dock is located within Planning Area 11 and will be addressed in its associated site-specific development project. Furthermore, there are loading areas associated with the existing Marina Inn in Planning Area 3 and the existing Marine Services Building in Planning

Area 1 that will be revitalized in future site-specific development projects. The non-structural BMPs mentioned above shall, therefore, be addressed and covered by either (1) a future separate project WQMP or (2) a future amendment to this WQMP, as each specific project is proposed. This protocol will also be followed for the applicable routine structural source control BMPs listed in the table below.

Table 4.3 Routine structural source control BMPs.

INCORPORATED ROUTINE STRUCTURAL BMP:	YES	N/A	IF N/A, DESCRIBE WHY
STORM DRAIN STENCILING AND SIGNAGE	☒	☐	
PROPER OUTDOOR HAZARDOUS MATERIAL STORAGE DESIGN	☐	☒	This BMP is not applicable because no outdoor hazardous material storage areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
PROPER TRASH STORAGE DESIGN	☐	☒	This BMP is not applicable because no trash storage areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN	☒	☐	
PROTECT SLOPES AND CHANNELS	☒	☐	

INCORPORATED ROUTINE STRUCTURAL BMP:	YES	N/A	IF N/A, DESCRIBE WHY
SPECIFIC LAND USE/ PROJECT TYPE BMPs			
LOADING DOCK AREAS	☐	☒	This BMP is not applicable because no loading dock areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
MAINTENANCE BAYS	☐	☒	This BMP is not applicable because no maintenance bays are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
EQUIPMENT WASH AREAS	☐	☒	This BMP is not applicable because no equipment wash areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
VEHICLE WASH AREAS	☐	☒	This BMP is not applicable because no vehicle wash areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.

INCORPORATED ROUTINE STRUCTURAL BMP:	YES	N/A	IF N/A, DESCRIBE WHY
OUTDOOR PROCESSING AREAS	☐	☒	This BMP is not applicable because no outdoor processing areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
FUELING AREAS	☐	☒	This BMP is not applicable because no fueling areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
HILLSIDE LANDSCAPING	☐	☒	This BMP is not applicable because no hillside landscaping is currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
WASH WATER CONTROLS FOR FOOD PREPARATION AREAS	☐	☒	This BMP is not applicable because no food prep areas are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.

INCORPORATED ROUTINE STRUCTURAL BMP:	YES	N/A	IF N/A, DESCRIBE WHY
COMMUNITY CAR WASH RACKS	☐	☒	This BMP is not applicable because no community car wash racks are currently proposed. When future developments within Dana Point Harbor warrant the implementation of this BMP, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.

Though not a standard structural source control BMP, it is important to note that the South Coast Water District (the responsible sewering agency), in conformance with the California Plumbing Code, will require grease trap/ interceptor installation at all newly constructed or significantly remodeled restaurants within Dana Point Harbor. It is widely recognized that food facilities are a significant source and/or generator of fats, oils, and grease that lead to sewer system blockages or prohibited non-storm water discharges into the public storm drain system. For this reason, this WQMP shall recognize grease traps/interceptors as a routine structural source control BMP applicable to the Dana Point Harbor Revitalization Project, but will not be addressed as part of the WQMP, since their installation, operations, and maintenance fall under separate rules and regulations.

4.3 TREATMENT CONTROL BMPs

The following table describes the treatment control BMPs that will be incorporated as part of the Dana Point Harbor Revitalization Plan. The treatment BMPs in this table are included in the project design to mitigate any pollutants of concern that were identified in the water quality planning process. The table also describes why a BMP was not chosen. If necessary, details describing the design of the BMPs will be provided below. It should be noted that treatment BMPs proposed within the Program WQMP are considered a Regional Approach to treatment control BMPs, as defined in Section 7.II – 3.3.3 of the Countywide Model WQMP.

Table 4.4 Treatment control BMPs.

INCORPORATED TREATMENT CONTROL BMP:	YES	NO	IF NO, DESCRIBE WHY
VEGETATED (GRASS) STRIPS	☐	☒	This BMP shall be considered on a project-by-project basis. When such a BMP is incorporated into a future development's project design, this WQMP will be amended to indicate this BMP as "YES", or it will be addressed in subsequent WQMPs/ Amendments.
VEGETATED (GRASS) SWALES	☒	☐	This BMP is a potential BMP that may be used in Planning Areas 1 & 2. This BMP shall be considered on a project-by-project basis for the remaining Planning Areas.
PROPRIETARY CONTROL MEASURES (HYDRODYNAMIC SEPARATOR/ CB INSERTS)	☒	☐	This BMP is a potential BMP that may be used in Planning Areas 1 & 2. This BMP shall be considered on a project-by-project basis for the remaining Planning Areas.
DRY DETENTION BASIN	☐	☒	Due to site constraints, dry detention basins are inappropriate.
WET DETENTION BASIN	☐	☒	Due to site constraints, wet detention basins are inappropriate.
CONSTRUCTED WETLAND	☐	☒	Due to site constraints, constructed wetlands are inappropriate. Wetlands generally require a footprint of 4-6 percent of the treated drainage area.
DETENTION BASIN/SAND FILTER	☐	☒	The originally proposed sand filter as part of the City of Dana Point Headlands Project has been replaced by a media filter unit.
POROUS PAVEMENT DETENTION	☒	☐	This BMP is a potential BMP that may be used in Planning Areas 1 & 2. This BMP shall be considered on a project-by-project basis for the remaining Planning Areas.
POROUS LANDSCAPE DETENTION	☒	☐	This BMP is a potential BMP that may be used in Planning Areas 1 & 2. This BMP shall be considered on a project-by-project basis for the remaining Planning Areas.
INFILTRATION BASIN	☐	☒	Due to site constraints (poor soil conditions, high groundwater table) infiltration basins are inappropriate.

INCORPORATED TREATMENT CONTROL BMP:	YES	NO	IF NO, DESCRIBE WHY
INFILTRATION TRENCH	☐	☒	This BMP shall be considered on a project-by-project basis. When such a BMP is incorporated into a future development's project design, the WQMP will be amended to indicate this BMP as "YES", as addressed in subsequent WQMPs for relevant site-specific development projects.
MEDIA FILTER	☒	☐	This BMP is a potential BMP that may be used in Planning Areas 1 & 2. This BMP shall be considered on a project-by-project basis for the remaining Planning Areas. A media filter is proposed to treat off-site upstream flows as part of the City of Dana Point Headlands Project.

Specific regional treatment facilities have not been selected for this Program WQMP due to a variety of constraints including space limitations, physical conditions, and preservation of existing regional storm drain systems. Future developments associated with the Dana Point Harbor Revitalization Plan shall incorporate project specific treatment BMPs (project-based approach to treatment control BMPs). Upon development within each Planning Area of Dana Point Harbor, the accompanying WQMP Amendments or separate WQMPs shall, at minimum, consider the following treatment control BMPs, where practicable.

Table 4.5 Targeted pollutants of selected treatment control BMPs.

TREATMENT CONTROL BMP	TARGET POLLUTANTS	GENERAL LOCATIONS
VEGETATED (GRASS) SWALES	▪ Sediment/Turbidity ▪ Oil and Grease ▪ Oxygen Demanding Substances ▪ Nutrients ▪ Trash and Debris	Proposed landscape areas of parking lots and project perimeters.
PROPRIETARY CONTROL MEASURES (HYDRODYNAMIC SEPARATOR)	▪ Sediment/Turbidity ▪ Trash and Debris ▪ Oil and Grease ▪ Organics	Upstream of final storm drain outlet points to receiving waters and offsite discharge locations.

TREATMENT CONTROL BMP	TARGET POLLUTANTS	GENERAL LOCATIONS
MEDIA FILTER	▪ Sediment/Turbidity ▪ Organics ▪ Trash and Debris ▪ Oxygen Demanding Substances ▪ Bacteria/Viruses ▪ Oil and Grease ▪ Soluble Nutrients ▪ Soluble heavy metals	Upstream of final outlet points to receiving waters and offsite discharge locations.
POROUS PAVEMENT DETENTION	▪ Sediment/Turbidity ▪ Nutrients ▪ Metals	Vehicle parking lots and dry slip/ mast-up storage areas.

It is inappropriate to assign project specific treatment controls at this time, as regulatory requirements, as well as the technology and menu of treatment BMPs will inevitably advance over the projected 20 years of development associated with the Dana Point Harbor Revitalization Plan. It is, however, safe to assume that the proposed project will continue to maintain their catch basin inserts, such as FossilFilters™ at the 41 existing storm drain inlets where they are currently maintained. In Planning Areas 1 & 2, existing catch basin inserts will be removed to support the proposed drainage and water quality improvement measures as proposed in the Amendment. Future plans for the remaining Planning Areas may also require removal of the inserts for future drainage and water quality improvements.

5.0 BMP INSPECTION & MAINTENANCE

It has been determined that the County of Orange, Dana Point Harbor Department, shall continue to be responsible for all BMP inspection and maintenance responsibilities for the Dana Point Harbor. This responsibility also includes the right to assign maintenance and inspection requirements to lessees, tenants, or contractors for these services to be performed. Moreover, since off-site runoff from the City of Dana Point drains through the project site, via commingling of County and City owned and operated MS4s, the County of Orange will also assume the responsibility of Lead Agency for all water draining through the Harbor. As the Lead Agency, the County of Orange will organize and coordinate the partnerships necessary to adequately address the quality of water draining through the Harbor.

For individual businesses within Dana Point Harbor, routine maintenance of structural BMPs implemented for normal business operations, such as grease traps / interceptors, wash sinks, etc., shall be performed by the business owner / operator through lease language and specified by either (1) a future separate project WQMP, or (2) a future amendment to this WQMP, as applicable.

CONTACT NAME	Sonia Nasser
TITLE	Engineering Manager
COMPANY	County of Orange Dana Point Harbor Department
ADDRESS	24650 Dana Point Harbor Drive Dana Point, CA 92629
PHONE	949.923.3794
FAX	949.496.1220

Should the maintenance responsibility be transferred at any time during the operational life of the Dana Point Harbor Revitalization Plan, a formal notice of transfer shall be submitted to the County of Orange at the time responsibility of the property subject to this WQMP is transferred. The transfer of responsibility shall be incorporated into this WQMP as an amendment.

In addition, the City of Dana Point has developed a Notice of Transfer of Responsibility Form, which serves to facilitate continued implementation of the WQMP and maintenance of the BMPs after a change of ownership of the site, and to inform the City when such a transfer has occurred. For all businesses under the jurisdiction of the City of Dana Point, the Notice of Transfer of Responsibility Form shall be submitted to the City by all owners/developers at the time that ownership of the property subject to the WQMP is transferred and shall be made part of the amended WQMP.

ANNUAL CERTIFICATION OF BMP MAINTENANCE

Annual Certification of BMP maintenance for County owned and operated infrastructure will be certified through the implementation of the Model Maintenance Procedures (Exhibit A-5.III of the County of Orange LIP). For individual businesses within Dana Point Harbor, the County shall verify BMP implementation and ongoing maintenance through inspection, self-certification, survey, or other equally

effective measure. The certification shall verify that, at a minimum, the inspection and maintenance of all structural BMPs including inspection and performance of any required maintenance in the late summer / early fall, prior to the start of the rainy season.

LONG-TERM FUNDING FOR BMP MAINTENANCE

Long-term funding for BMP maintenance shall be funded through operator revenues and the Dana Point Tidelands (Fund 108). The County of Orange, Dana Point Harbor Department, shall oversee that adequate funding for BMP maintenance is realized.

ACCESS EASEMENT FOR CITY/COUNTY INSPECTION

If a private entity retains or assumes responsibility for operation and maintenance of structural BMPs, the County shall require access for inspection through a lease agreement.

5.1 MAINTENANCE OF SOURCE CONTROLS

The post development BMP maintenance responsibility and frequency matrices provided in this section detail the specific party to perform the inspection and maintenance of each BMP for the Dana Point Harbor Revitalization Plan and details the maintenance and inspection activities to be performed, and frequency.

Table 5.1 Maintenance frequency matrix of non-structural source control BMPs.

NON-STRUCTURAL BMPs		RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
N1	TENANT EDUCATION	County of Orange Dana Point Harbor Department	Education materials shall be provided to new and existing tenants upon tenant occupancy of site and annually thereafter, prior to the start of the rainy season.
N2	ACTIVITY RESTRICTIONS	County of Orange Dana Point Harbor Department	Developed upon writing of the lease agreement.
N3	COMMON AREA LANDSCAPE MANAGEMENT	County of Orange Dana Point Harbor Department	Landscape maintenance practices shall be consistent with BMP IC7 and FP-2 in Exhibit A-9.II and Exhibit A-5.III of the County LIP, as applicable. Maintenance shall occur on an on-going basis, a minimum of once per week.
N4	BMP MAINTENANCE	County of Orange Dana Point Harbor Department	Maintenance of structural BMPs shall occur at a minimum frequency prescribed within Section 5.1 and 5.2 of this WQMP.

NON-STRUCTURAL BMPs		RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
N11	COMMON AREA LITTER CONTROL	County of Orange Dana Point Harbor Department	Litter control practices shall be consistent with BMP FF-13 and IC21 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Recycling containers, for public use, shall be provided throughout the project site. Litter control shall occur concurrently with landscape maintenance activities, a minimum of once per week.
N12	EMPLOYEE TRAINING	County of Orange Dana Point Harbor Department	Training will be provided to employees and new hires annually, prior to the start of the rainy season.
N14	CATCH BASIN INSPECTION	County of Orange Dana Point Harbor Department	Catch basin inspection practices shall be consistent with BMP DF-1 in Exhibit A-5.III of the County LIP, as applicable. Inspection / maintenance shall occur at least once in the late summer / early fall, prior to the start of the rainy season.
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS	County of Orange Dana Point Harbor Department	Street sweeping practices shall be consistent with BMP FP-3 in Exhibit A-5.III of the County LIP, as applicable. Sweeping shall occur at least once per week.

At a minimum, the County shall require the annual inspection and maintenance of all structural BMPs including inspection and performance of any required maintenance in the late summer / early fall, prior to the start of the rainy season.

Table 5.2 Maintenance frequency matrix of structural source control BMPs.

STRUCTURAL BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
STORM DRAIN STENCILING AND SIGNAGE	County of Orange Dana Point Harbor Department	The legibility of storm drain stencils and signs shall be maintained. Inspection / maintenance shall occur at least once in the late summer / early fall, prior to the start of the rainy season.

STRUCTURAL BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN	County of Orange Dana Point Harbor Department	Maintenance of landscaped areas and irrigation systems shall be consistent with BMP FF-5, IC7, and FP-2 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur at least once in the late summer / early fall, prior to the start of the rainy season and once prior to the start of the dry season (May 1).
PROTECT SLOPES AND CHANNELS	County of Orange Dana Point Harbor Department	Maintenance of slopes and channels shall be consistent with BMP IC6 and DF-1 in Exhibit A-9.II and Exhibit A-5.III of the County LIP, as applicable. Inspection / maintenance shall occur at least once in the late summer / early fall, prior to the start of the rainy season.

5.2 MAINTENANCE OF TREATMENT CONTROLS

The post development BMP maintenance responsibility and frequency matrix provided in this section detail the specific party to perform the inspection and maintenance of each BMP for the Dana Point Harbor Revitalization Plan and details the maintenance and inspection activities to be performed, and the frequency with which each shall be performed.

Table 5.3 Maintenance frequency matrix of treatment control BMPs.

TREATMENT BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
CATCH BASIN INSERTS	County of Orange Dana Point Harbor Department	Bi-monthly

6.0 PLOT PLAN AND BMP DETAILS

The exhibits provided in this section are to illustrate the post construction BMPs prescribed within this WQMP. Drainage flow information of the proposed project, such as general surface flow lines, concrete or other surface drainage conveyances, and storm drain facilities are also depicted. All structural source control and treatment control BMPs are shown as well.

PLOT PLANS

Since the Dana Point Harbor Revitalization Plan has chosen a project-based approach to treatment control BMPs, plot plans illustrating the locations of structural BMPs shall be provided in either (1) a future separate project WQMP, or (2) a future amendment to this WQMP, as applicable.

BMP DETAILS

Since the Dana Point Harbor Revitalization Plan has chosen a project-based approach to treatment control BMPs, BMP details depicting the designs of structural BMPs shall be provided in either (1) a future separate project WQMP, or (2) a future amendment to this WQMP, as applicable.

7.0 PUBLIC EDUCATION

The educational materials included in this WQMP are provided to inform people involved in future uses, activities, or ownership of the site about the potential pitfalls associated with careless storm water management. "*The Ocean Begins at Your Front Door*" provides users with information about storm water that is/ will be generated on site, what happens when water enters a storm drain, and its ultimate fate, discharging into the ocean. Also included are activities guidelines, such as "Water Quality Guidelines for Landscaping and Gardening", to educate anyone who is or will be associated with activities that have a potential to impact storm water runoff quality. These guidelines generally provide a menu of BMPs to effectively reduce the generation of storm water runoff pollutants from a variety of activities. The educational materials to be used for the Harbor are included in the Appendix of this WQMP and are listed below. Educational materials are also available in Spanish, and can be found at http://www.ocwatersheds.com/PublicEducation/pe_brochures_sp.asp.

In 2002, Dana Point Harbor implemented its Clean Marina Plan, considered an effective tool for staff training, as well as for tenant and boater education. The Clean Marina Plan includes programs for (1) shoreside and in-water litter and trash removal, (2) oil absorbent bilge pad exchange, (3) boater/tenant education via newsletter, (3) staff training in "clean" work practices, (4) Maritime Wharfage Contract (MWC) that includes the marina's clean boating requirements, (5) sewage pump out and management, (6) used oil collection program, (7) spill response, (8) hazardous waste management and prohibition, (9) vessel cleaning and maintenance restrictions, (10) solid waste management, (11) gray water minimization, (12) fish waste management, (13) boat operation, and (14) boater education. This and other marina educational materials are included in the Appendix of this Program WQMP.

EDUCATION MATERIALS

- The Ocean Begins at Your Front Door
- Water Quality Guidelines for Landscaping and Gardening
- Pool Maintenance and the Water Quality Act
- Water Quality Guidelines for Permitted Lot and Pool Drains
- Keeping Pest Control Products Out of Creeks, Rivers, and the Ocean
- Help Prevent Ocean Pollution: A Guide for Food Service Facilities
- Help Prevent Ocean Pollution: Recycle at Your Local Used Oil Collection Center
- Help Prevent Ocean Pollution: Proper Maintenance Practices for Your Business

MARINA SPECIFIC EDUCATION MATERIALS

- The California Clean Marina Toolkit (California Coastal Commission)
- Clean Marina Program (San Diego Region)
- Clean Marina Plan (Dana Point Harbor)

EXISTING PUBLIC EDUCATION PROGRAMS

Orange County and the cities have developed programs to increase public awareness and involve the public in an effort to control non-point source pollution. The public education program consists of development and distribution of public service announcements, brochures and other related materials, the incorporation of storm water pollution prevention features into community outreach events, speaking engagements and the coordination with other agencies running public information programs. Numerous public education events happen all year long in Orange County, providing many opportunities for municipalities to educate the public about trash and debris as pollutants. Some events are primarily for children, while other initiatives provide an opportunity to educate the general public.

The County and Cities have begun the implementation of the public and business education outreach campaign. This includes the completion of a public awareness survey, identification of the program goals, identification of the target audiences, and development of the program strategies. Listed below are several of the outreach programs and efforts that are occurring within and around the Harbor.

THE FESTIVAL OF WHALES – OCEAN AWARENESS DAY: is a non-profit organization comprised of volunteers whose mission is to provide a greater awareness and understanding of the migrating California Gray Whale and the preservation of the ocean environment. Ocean Awareness Day brings together many diverse City, County, State, public and non-profit groups in an effort to educate the community about the many different issues facing our oceans and the environment. The County has participated in the event the last couple of years by setting up an informational booth and using the Enviroscape® Models to teach the public about urban runoff and water quality related issues. In addition, staff also provided brochures and magnets and fielded questions.

OCEAN INSTITUTE: Located in Dana Point, the Ocean Institute is a non-profit organization with a collection of experiences in the form of an educational campus specializing in marine and social sciences. The County is partnering with the Ocean Institute to increase the number of students reached. Ocean Institute teachers/program directors are provided with the identical information used in the Outdoor Science School. Teachers are given an introductory script indicating the importance of educating students on the need to protect our environment from water pollution. The students are shown the "Go With The Flow" video. Following the video, students receive a water pollution fact sheet and checklist to take home.

In January 2004, the Ocean Institute invited 5th grade students for a three-day Kids' Conference on Watersheds. The students presented their findings from their participation in "One Tier Back: A Watershed Education Program," presented by the Ocean Institute and the County of Orange.
The program provides students with the opportunity to study the environmental impact of human behavior on the watershed. "One Tier Back" refers to those communities 5-20 miles from the coast. Nineteen classes of 5th grade students participated. They were taught in Ocean Institute laboratories, as well as on-board the Institute's R/V Sea Explorer. Teachers from the classes participating were trained in in-service classes at the Institute in the summer 2003, and returned to their classrooms to prepare their students for their visit to the Institute.

After their week at the Institute, students returned to their schools and developed their own watershed research projects, which included gathering data in the field. The Kids Conference on Watersheds gives them the chance to demonstrate that knowledge and learn from the work of their fellow students.

ORANGE COUNTY DEPARTMENT OF EDUCATION: With the assistance of the Orange County Department of Education, the video "Everyone's Connected" was sent to every school in Orange County. The "Everyone's Connected" video features students from Dana Hills High School and was produced by the City of Dana Point. The one-minute, 45-second video is a primer that introduces the subject of water pollution prevention to children, and it works well for students of all ages. A copy of the video were distributed to 1,500 schools in Orange County and reached approximately 565,000 students.

COUNTY OF ORANGE LOCAL IMPLEMENTATION PLAN – EXISTING DEVELOPMENT PROGRAM: The County of Orange, as part of its Local Implementation Plan, inspects industrial and commercial businesses on a periodic basis. Materials on pollution control BMPs, including proper housekeeping practices, are provided and enforced during inspections to educate business owners and employees on storm water pollution prevention.

APPENDICES

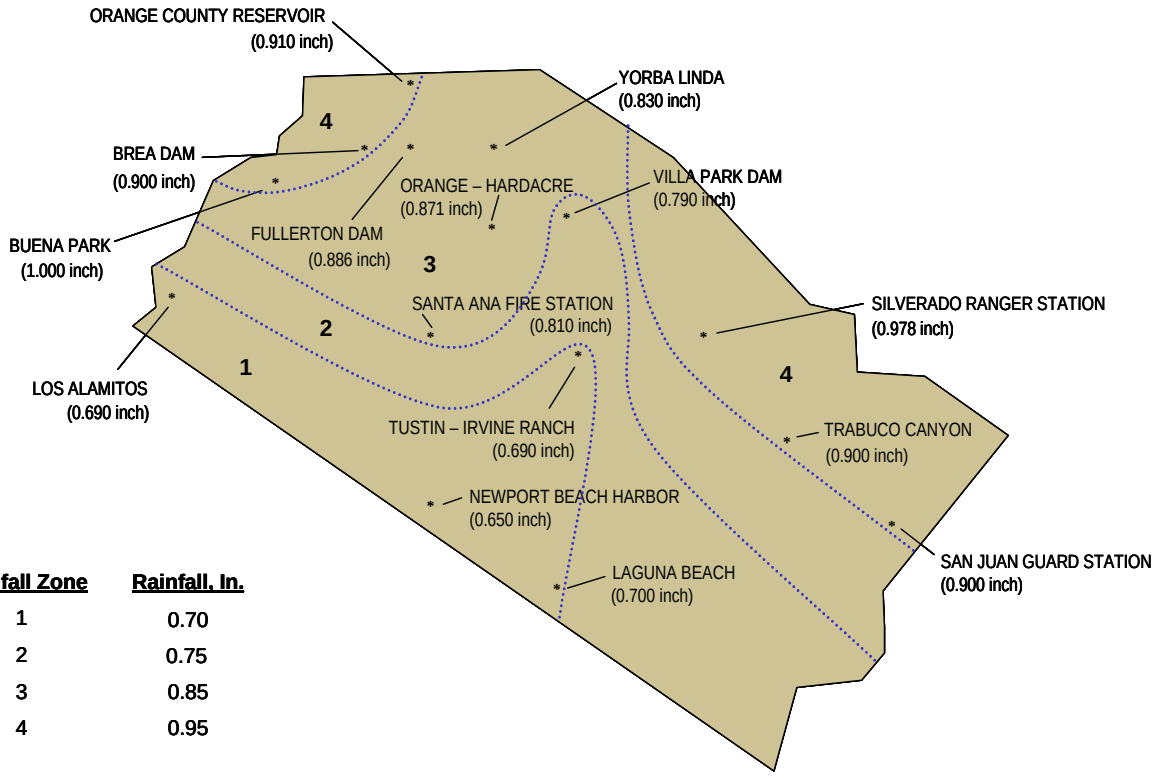
TITLE APPENDIX

Runoff Coefficient References 1
Notice of Transfer of Responsibility 2
Public Education Materials 3
Post-Construction BMP Fact Sheets 4
Final Resolutions / Conditions of Approval 5
WQMP Amendments 6

Appendix 1

Runoff Coefficient References

RUNOFF COEFFICIENT REFERENCES



Rainfall Zone	Rainfall, In.
1	0.70
2	0.75
3	0.85
4	0.95

Figure A-1
Orange County California
Precipitation Stations
24-hour, 85th percentile rainfall

Table A-1

C Values Based on Impervious/Pervious Area Ratios

% Impervious	% Pervious	C
0	100	0.15
5	95	0.19
10	90	0.23
15	85	0.26
20	80	0.30
25	75	0.34
30	70	0.38
35	65	0.41
40	60	0.45
45	55	0.49
50	50	0.53
55	45	0.56
60	40	0.60
65	35	0.64
70	30	0.68
75	25	0.71
80	20	0.75
85	15	0.79
90	10	0.83
95	5	0.86
100	0	0.90

Appendix 2

Notice of Transfer of Responsibility

NOTICE OF TRANSFER OF RESPONSIBILITY

WATER QUALITY MANAGEMENT PLAN

[Type City/County Planning Application Number **HERE**]
[Type Tract/Parcel Map Number **HERE**]

Submission of this Notice Of Transfer of Responsibility constitutes notice to the [Type City/County **HERE**] that responsibility for the Water Quality Management Plan ("WQMP") for the subject property identified below, and implementation of that plan, is being transferred from the Previous Responsible Party (and his/her agent) of the site (or a portion thereof) to the New Responsible Party, as further described below.

I. Previous Owner/ Previous Responsible Party Information

Company/ Individual Name:		Contact Person:	
Street Address:		Title:	
City:	State:	ZIP:	Phone:

II. Information about Site Transferred

Name of Project (if applicable):	
Title of WQMP Applicable to site:	
Street Address of Site (if applicable):	
Planning Area (PA) and/ or Tract Number(s) for Site:	Lot Numbers (if Site is a portion of a tract):
Date WQMP Prepared (and revised if applicable):	

III. New Responsible Party Information

Company/ Individual Name:		Contact Person:	
Street Address:		Title:	
City:	State:	ZIP:	Phone:

IV. Description of Responsibilities Transferred

General Description of Site Transferred:	General Description of Portion of Project/ Parcel Subject to WQMP Retained (if any):
Lot/ Tract Numbers of Site Transferred to New Responsible Party:	
Remaining Lot/ Tract Numbers Subject to WQMP Still Held by Previous Responsible Party (if any):	
Date of Transfer:	

Note: When the Previous Responsible Party is transferring a Site that is a portion of a larger project/ parcel addressed by the WQMP, as opposed to the entire project/parcel addressed by the WQMP, the General Description of the Site transferred and the remainder of the project/ parcel not transferred shall be set forth as maps attached to this notice. These maps shall show those portions of a project/ parcel addressed by the WQMP that are transferred to the New Responsible Party (the Transferred Site), those portions retained by the Previous Responsible Party, and those portions previously transferred by Previous Responsible Party. Those portions retained by Previous Responsible Party shall be labeled as "Previously Transferred".

V. Purpose of Notice of Transfer

The purposes of this Notice of Transfer of Responsibility are: 1) to track transfer of responsibility for implementation and amendment of the WQMP when property to which the WQMP is transferred from the Previous Responsible Party to the New Responsible Party, and 2) to facilitate notification to a transferee of property subject to a WQMP that such New Responsible Party is now the Responsible Party of record for the WQMP for those portions of the site that has been transferred.

VI. Certifications

A. Previous Responsible Party

I certify under penalty of law that I am no longer the Responsible Party of the Transferred Site as described in Section II above. I have provided the New Responsible Party with a copy of the WQMP applicable to the Transferred Site that the New Responsible Party is acquiring from the Previous Responsible Party.

Printed Name of Previous Responsible Party Representative:	Title:
Signature of Previous Responsible Party Representative:	Date:

B. New Responsible Party

I certify under penalty of law that I am the Responsible Party of the Transferred Site, as described in Section II above, that I have been provided a copy of the WQMP, and that I have informed myself and understand the New Responsible Party's responsibilities related to the WQMP, its implementation, and Best Management Practices associated with it. I understand that by signing this notice, the New Responsible Party is accepting all ongoing responsibilities for implementation and amendment of the WQMP for the Transferred Site, which the New Responsible Party has acquired from the Previous Responsible Party.

Printed Name of New Responsible Party Representative:	Title:
Signature:	Date:

Appendix 3

Public Education Materials

PUBLIC EDUCATION MATERIALS

- The Ocean Begins at Your Front Door
- Water Quality Guidelines for Landscaping and Gardening
- Pool Maintenance and the Water Quality Act
- Water Quality Guidelines for Permitted Lot and Pool Drains
- Keeping Pest Control Products Out of Creeks, Rivers, and the Ocean
- Help Prevent Ocean Pollution: A Guide for Food Service Facilities
- Help Prevent Ocean Pollution: Recycle at Your Local Used Oil Collection Center
- Help Prevent Ocean Pollution: Proper Maintenance Practices for Your Business

The Ocean Begins at Your Front Door

For More Information

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - community-specific environmental information
1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
714-433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management/Dept. of Orange County- information on household hazardous waste collection centers, recycling centers and solid waste collection
714-834-6752 or visit www.oclandfills.com

O.C. Agriculture Commissioner
714-447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
714-708-1646 or visit www.uccemg.org

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

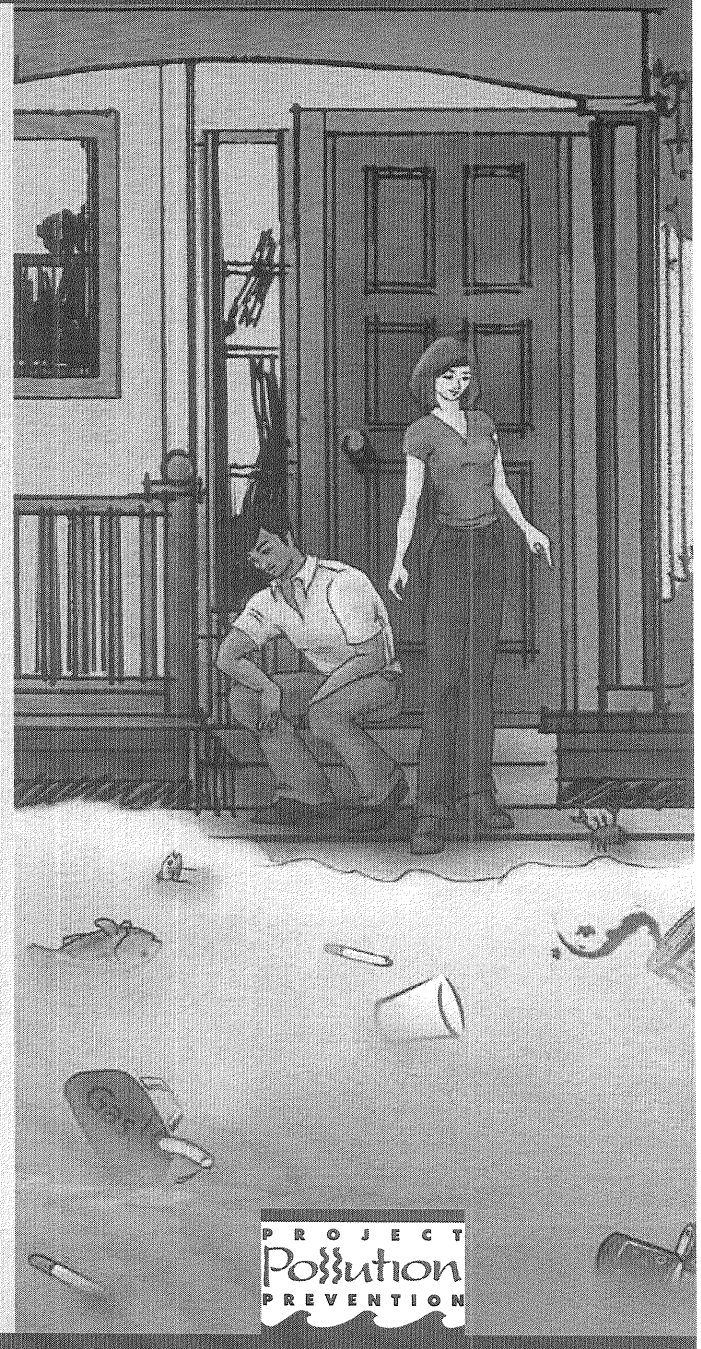
Orange County Stormwater Program

Aliso Viejo	(949) 425-2535
Anaheim Public Works Operations	(714) 765-6860
Brea Engineering	(714) 990-7666
Buena Park Public Works	(714) 562-3655
Costa Mesa Public Services	(714) 754-5323
Cypress Public Works	(714) 229-6740
Dana Point Public Works	(949) 248-3584
Fountain Valley Public Works	(714) 593-4441
Fullerton Engineering Dept	(714) 738-6853
Garden Grove Public Works	(714) 741-5956
Huntington Beach Public Works	(714) 536-5431
Irvine Public Works	(949) 724-6315
La Habra Public Services	(562) 905-9792
La Palma Public Works	(714) 690-3310
Laguna Beach Water Quality	(949) 497-0378
Laguna Hills Public Service	(949) 707-2650
Laguna Niguel Public Works	(949) 362-4337
Laguna Woods Public Works	(949) 639-0500
Lake Forest Public Works	(949) 461-3480
Los Alamitos Community Dev	(562) 431-3538
Mission Viejo Public Works	(949) 470-3056
Newport Beach, Code & Water Quality Enforcement	(949) 644-3215
Orange Public Works	(714) 532-6480
Placentia Public Works	(714) 993-8245
Rancho Santa Margarita	(949) 635-1800
San Clemente Environmental Programs	(949) 361-6143
San Juan Capistrano Engineering	(949) 234-4413
Santa Ana Public Works	(714) 647-3380
Seal Beach Engineering	(562) 431-2527 x317
Stanton Public Works	(714) 379-9222 x204
Tustin Public Works Engineering	(714) 573-3150
Villa Park Engineering	(714) 998-1500
Westminster Public Works Engineering	(714) 898-3311 x446
Yorba Linda Engineering	(714) 961-7138
Orange County Stormwater Program	(714) 567-6363

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
(714)-567-6363

On-line Water Pollution Problem Reporting form
www.ocwatersheds.com

Printed on Recycled Paper



Even if you live miles from the Pacific Ocean, you may be unknowingly polluting it.

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact the largest source of water pollution comes from city streets, neighborhoods, construction sites, and parking lots. This type of pollution is sometimes called "non-point source" pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff refers to runoff resulting from rainfall. It is very noticeable during heavy rainstorms when large volumes of water drain off the urban landscape picking up pollutants along the way.
- Urban runoff can happen anytime of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers, and cleaners – can be blown or washed into the storm drains.
- A little water from a garden hose or rain can also send materials into the storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets) water in the storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

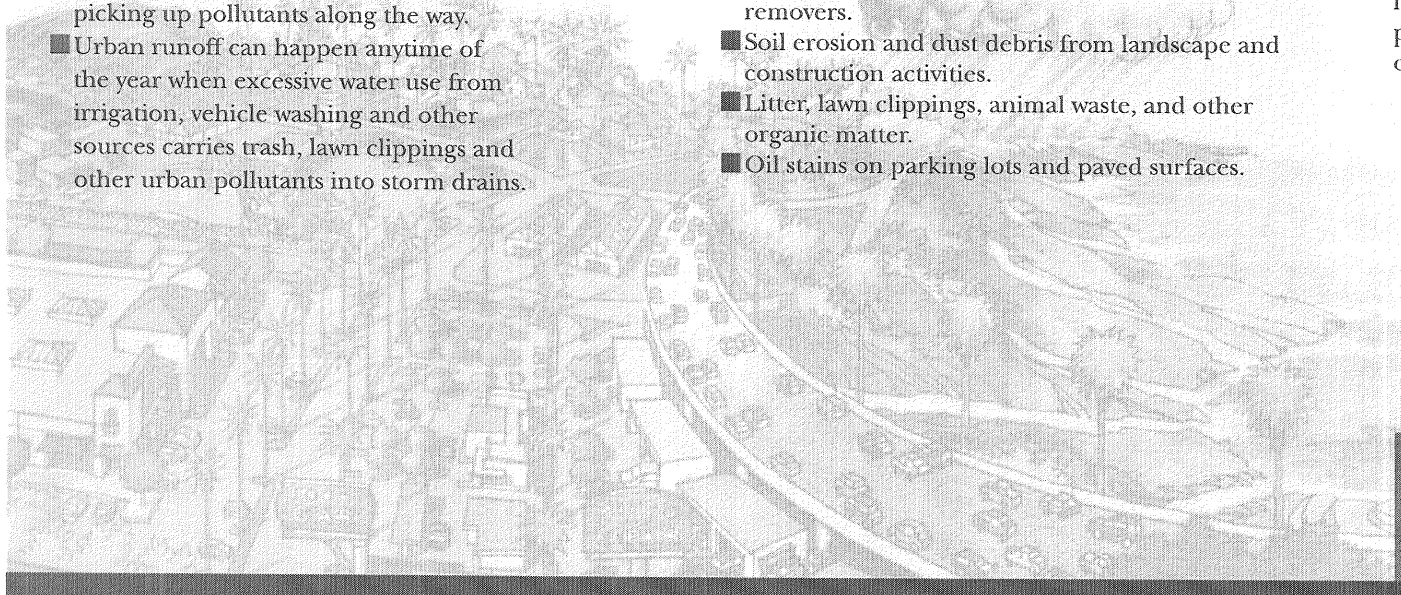
- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating, and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.

The Effect on the Ocean

Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

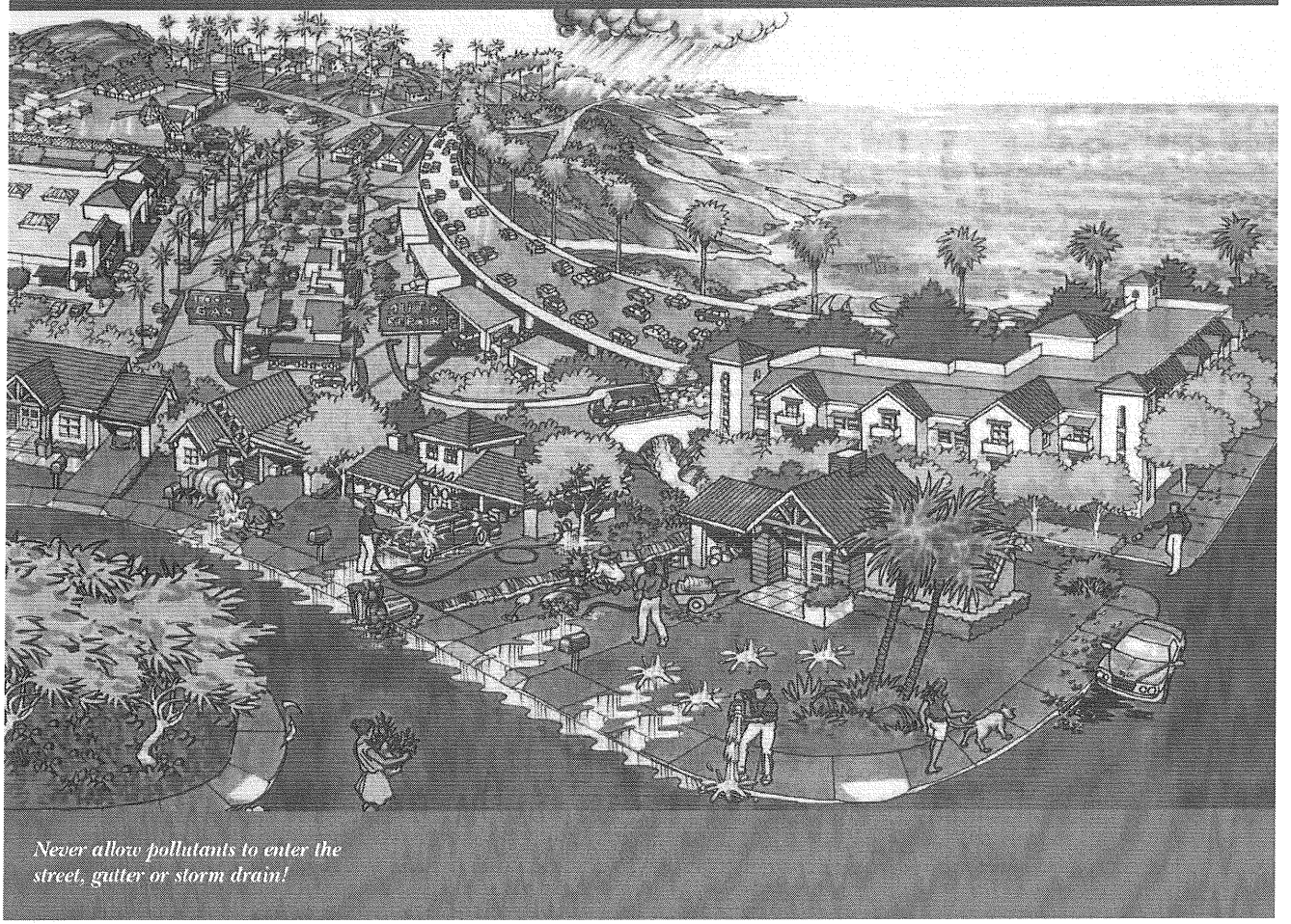
Stormwater quality management programs have been developed by the Orange County Stormwater Program under National Pollutant Discharge Elimination System (NPDES) permits. The program educates and encourages the public to protect water quality, monitor runoff in the storm drain system, manage NPDES permit process for municipalities, investigate illegal disposals, and maintain storm drains.

The support of Orange County residents, businesses and industries is needed to improve water quality and reduce the threat of stormwater and urban runoff pollution. Proper use and disposal of materials we use everyday will help stop this form of pollution before it reaches the storm drain and the ocean.



Dumping one quart of motor oil into a storm drain can contaminate 250,000 gallons of water.

The Ocean Begins at Your Front Door



Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products, and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste collection center.
- For a household hazardous waste collection center near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of in trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor vehicle for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and be free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- Whenever possible, drain dechlorinated pool and spa water directly into the sanitary sewer but only when it is not raining.
- Some cities may have ordinances that do not allow pool water to be disposed into the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted with 48 hours.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. For locations and hours of Household Hazardous Waste Collection Centers call 714-834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a Household Hazardous Waste Collection Center.

Common Pollutants

Home Maintenance
- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden
- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile
- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into the storm drains that flow to the ocean. Overwatering lawns can also send materials into the storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at (714) 567-6363 or visit **www.ocwatersheds.com.**

To report a spill, call the **Orange County 24-Hour Water Pollution Reporting Hotline** at (714) 567-6363.

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Help Prevent Ocean Pollution:

Tips for Landscape & Gardening

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Landscape and Gardening

Never allow gardening products or polluted water to enter the street or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizer, herbicides, and pesticides needed.

- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not over-water. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drains. Instead dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.

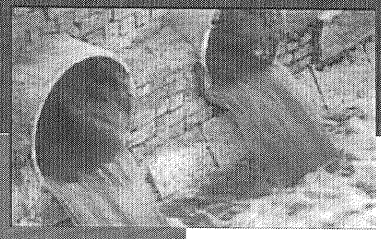
- Use slow-release fertilizers to minimize leaching and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.

- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides and use pesticides specifically designed to control the pest you are targeting. For more information, check www.ipm.ucdavis.edu.
- If fertilizer is spilled, sweep up the spill before applying irrigation water. If the spill is liquid, apply an absorbent material like cat litter and then sweep and dispose in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

Anaheim: 1071 N. Blue Gum St.
Huntington Beach: 17121 Nichols St.
Irvine: 6411 Oak Canyon
San Juan Capistrano: 32250 La Pata Ave.

For more information, call (714) 834-6752 or visit www.ocwatersheds.com



Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Swimming pools and spas are common in Orange County, but they must be maintained properly to guarantee that chemicals aren't allowed to enter the street, where they can flow into the storm drains and then into the waterways. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pool chemicals into the ocean, so don't let it enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at (714) 567-6363
or visit
www.ocwatersheds.com.

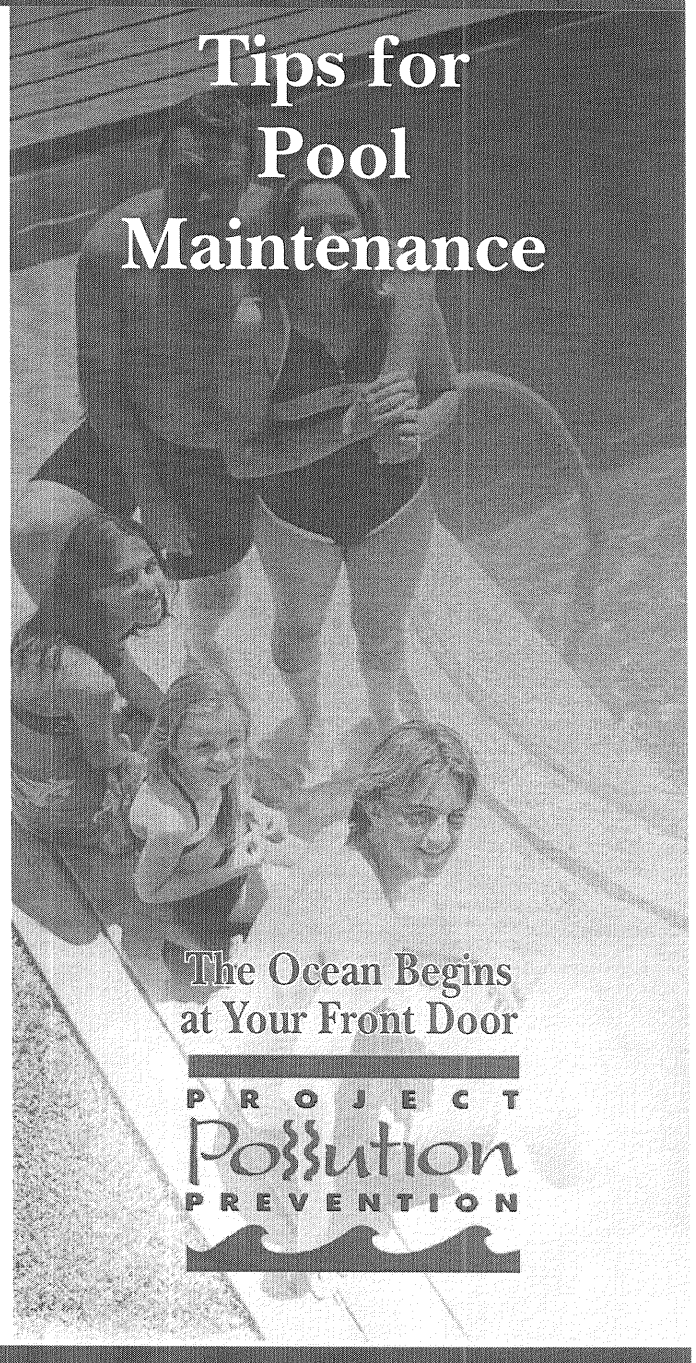
To report a spill,
call the
Orange County 24-Hour
Water Pollution Reporting Hotline
at (714) 567-6363.

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while maintaining your pool. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Help Prevent Ocean Pollution:

Tips for Pool Maintenance

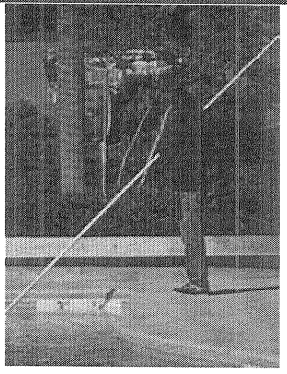


The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Pool Maintenance

Many pools are plumbed to allow the pool to drain directly to the sanitary sewer. If yours is not, follow these instructions for disposing of pool and spa water.



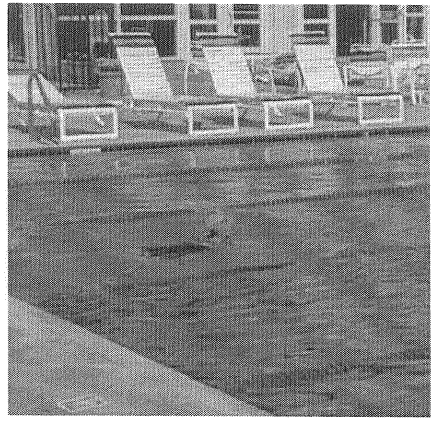
Acceptable and Preferred Method of Disposal

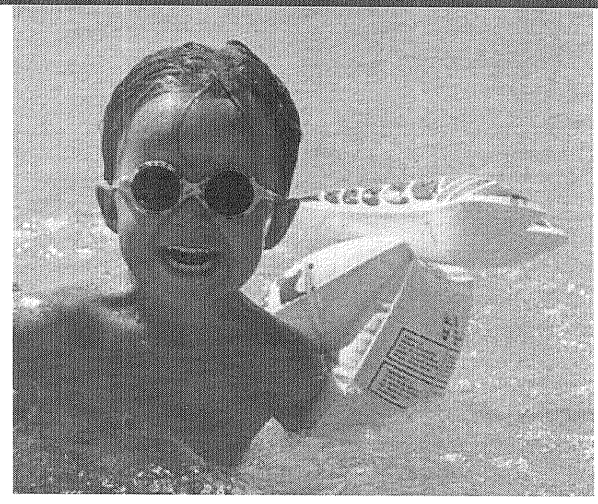
When you cannot dispose of pool water in the sanitary sewer, the release of dechlorinated swimming pool water is allowed if all of these tips are followed:

- The residual chlorine does not exceed 0.1 mg/l (parts per million).
- The pH is between 6.5 and 8.5.
- The water is free of any unusual coloration, dirt or algae.
- There is no discharge of filter media.
- There is no discharge of acid cleaning wastes.
- Some cities may have ordinances that do not allow pool water to be disposed into a storm drain. Check with your city.

How to Know if You're Following the Standards

You can find out how much chlorine is in your water by using a pool testing kit. Excess chlorine can be removed by discontinuing the use of chlorine for a few days prior to discharge or by purchasing dechlorinating chemicals from a local pool supply company. Always make sure to follow the instructions that come with any products you use.



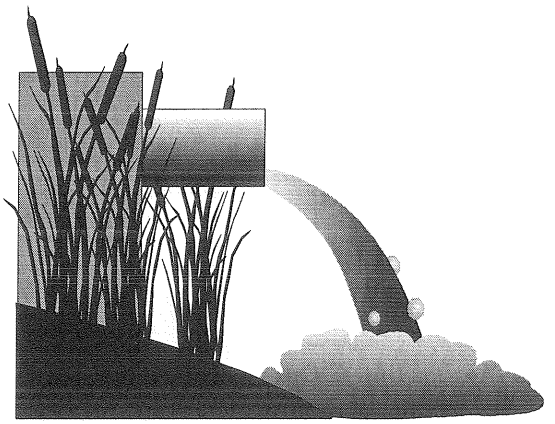


Doing Your Part

By complying with these guidelines, you will make a significant contribution toward keeping pollutants out of Orange County's creeks, streams, rivers, bays and the ocean. This helps to protect organisms that are sensitive to pool chemicals, and helps to maintain the health of our environment.

PROJECT Pollution PREVENTION

Water Quality Guidelines for Permitted Lot & Pool Drains



This guide is intended to explain the water quality issues associated with your permitted lot drain.

If you follow the guidelines outlined on the reverse you will help prevent adverse impacts on our creeks, bays and ocean.

PROJECT Pollution PREVENTION

Pool Maintenance

All pool water discharged to the curb/gutter or to a permitted pool drain in the rear of your property must meet the following water quality criteria:

- The residential chlorine does not exceed 0.1 mg/L (parts per million)
- The pH is between 6.5 and 8.5
- The water is free of any unusual coloration
- There is no discharge of filter media or acid cleaning wastes
- For additional information about obtaining a pool drain permit call (714) 834-6107.

Home Repairs

- Contain all paint. Never wash down or pour paint into a gutter or your lot drain
- Rinse off cement mixers and cement laden tools in a contained washout area that cannot flow to your lot drain. Allow to dry and then discard with your household trash.

Yard Maintenance

- Minimize the use of pesticides and fertilizers and don't apply if it is windy or about to rain
- Conserve water by not over watering lawn areas
- Always pick up pet waste and dispose of properly

For more information and to report any water quality problems call (714) 567-6363

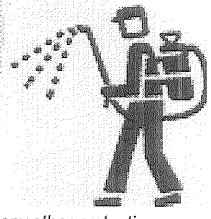
HOMEOWNER TIPS

PROTECTING WATER

Before Buying Pest Control Products

- Identify the pest.
- Decide if pest control products are the best control measure or if there are alternatives available.
- Are integrated pest management guidelines available for this pest?
- Read the product label:
  - Is the pest listed on the label?
  - Is it the best product for the pest?

Before Mixing Your Sprayer



- Read the label carefully.
- Buy only enough pesticide to treat the area affected by the pest.
- Check the weather and don't apply if it's windy or about to rain
- Measure the area you're treating.
- Calculate how much spray to mix.
- Wear long sleeve shirt, long pants, shoes and any other protective equipment listed on the label and follow all the label precautions.
- Be prepared for spills and know how to clean them up.

When You're Ready To Spray

- Mix and load spray in an area where any spilled pesticide will not be able to drain or be washed away into storm drains, ditches, streams, ponds or other bodies of water.
- Mix sprayer on grass, not the sidewalk or driveway.
- Mix only as much as needed.

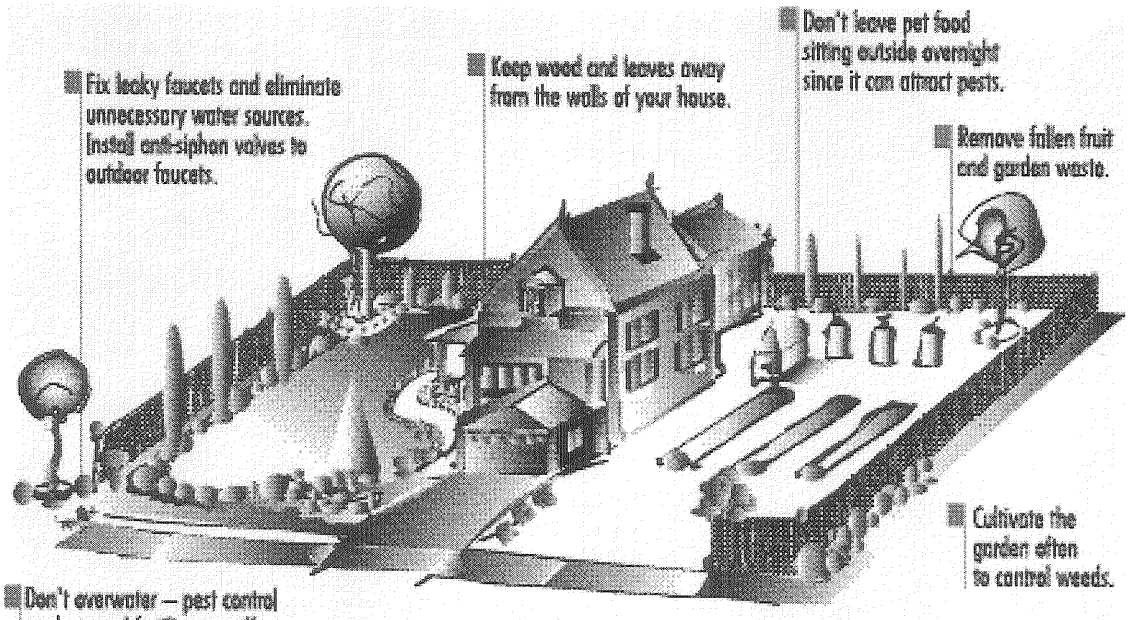
When You're Spraying

- AVOID spraying in or near storm drains, ditches, streams, and ponds!
- Leave an untreated strip around these areas to protect the water.

When You're done

- Never dump leftovers down any drain; Save for a future application.
- Triple-rinse sprayer and apply rinsewater to treated area.
- Take any old or unwanted pesticides to a Household Hazardous Waste Collection Center (714) 834-6752.

Using Pest Control Products. It's Your Responsibility To Do It Right!

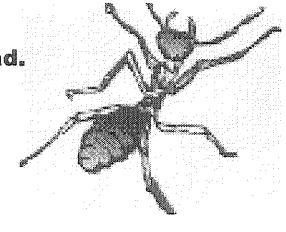


IPM... Outsmarting Pests While Protecting Water

With Integrated Pest Management (IPM), homeowners use common sense and nature to make it difficult for pests to survive. IPM techniques include cultural practices (such as mulching to prevent weeds), encouraging natural enemies (good bugs), and judicious use of pest control products.

- First, identify your pest problem. To find the best solution, you need to pin down the problem. Consult gardening books, your county cooperative extension office or your local nursery.
- Decide how much pest control is necessary. If you can live with some pest damage, you can avoid intensive pest control product treatments.
- Choose an effective option. Try various types of controls first: washing bugs off plants, pruning diseased parts of plants. If you need to use pest control products, choose one that targets the problem and poses the least hazard.
- Finally, it's easier to prevent pests than to control them.

Think ahead.



This brochure is being distributed in order to reduce the impacts of pesticides on water quality. It was produced with support from the Orange County Storm Water Program, the Coalition for Urban/Rural Environmental Stewardship (CURES) and a 319(h) grant from the State Water Resources Control Board.

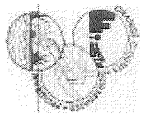
Orange County Storm Water Program Participants:

Anaheim Public Works/Engineering	(714) 765-5176
Brea Engineering	(714) 990-7666
Buena Park Public Works	(714) 562-3655
Costa Mesa Public Services	(714) 754-5248
Cypress Engineering	(714) 229-6752
Dana Point Public Works	(949) 248-3562
Fountain Valley Public Works	(714) 593-4400 x347
Fullerton Engineering Dept	(714) 738-6853
Garden Grove Development Services	(714) 741-5554
Huntington Beach Public Works	(714) 536-5432
Irvine Public Works	(949)724-6515
La Habra Public Services	(562) 905-9792
La Palma Public Works	(714) 523-1140 x102
Laguna Beach Municipal Services	(949) 497-0711
Laguna Hills Engineering	(949) 707-2600
Laguna Niguel Public Works	(949) 362-4337
Lake Forest Public Works	(949) 461-3480
Los Alamitos Community Dev	(562) 431-3538 x301
Mission Viejo Public Works	(949) 470-3095
Newport Beach Public works	(949) 644-3311
Orange Public Works	(714) 744-5551
Placentia Engineering	(714) 993-8131
San Clemente Engineering	(949) 361-6100
San Juan Capistrano Engineering	(949) 493-1171
Santa Ana Public Works	(714) 647-3380
Seal Beach Engineering	(562) 431-2527 x318
Stanton Public Works	(714) 379-9222 x204
Tustin Public Works Engineering	(714) 573-3150
Villa Park Engineering	(714) 998-1500
Westminster Public Works Eng.	(714) 898-3311 x215
Yorba Linda Engineering	(714) 961-7170 x174
O.C. Storm Water Program	(714) 567-6363
24 Hour Water Pollution Hotline	(714) 567-6363 or ashbyk@pfrd.co.orange.ca.us
Chemical and Hazardous Material Spill Emergencies	911

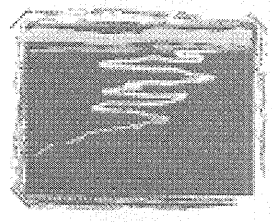
Other Important Phone Numbers:

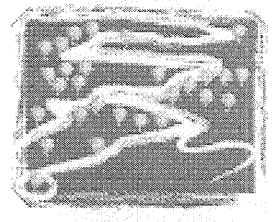
For Additional Brochures	(714) 567-6363
UC Masters & Coop Extension ucmastergardeners@yahoo.com	(714) 708-1646
O.C. Household Hazardous Waste Information or www.oc.ca.gov/IWMD	(714) 834-6752
Information on agriculture chemicals, pesticides and possible alternatives, O.C. Agriculture Commissioner	(714) 447-7115

Original graphics developed with support from:
Coalition For Urban/Rural Environmental Stewardship (CURES)
Western Crop Protection Association (WCPA)
Responsible Industry for a Sound Environment (RISE)



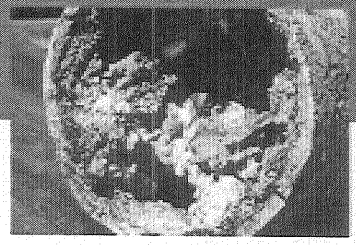
Keeping Pest Control Products Out of Creeks, Rivers and The Ocean





HOMEOWNER TIPS

PROTECTING WATER



Grease blockage in sewer pipe

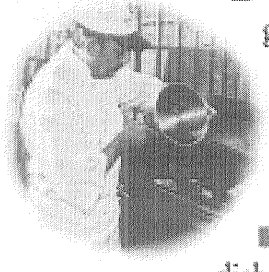
Photo Courtesy of the Monterey Regional Water Pollution Control Agency.

Prevent Fats, Oils, and Grease from Blocking the Sewers

Fats, oils, and grease (FOG) can cause sewer line blockages which can make sewage overflow into your facility and into storm drains that lead to the ocean. To stop the substances from building up in sewer lines, prevent them from entering your drains.

Practices in the Kitchen

- Collect waste cooking oil and grease in portable containers with lids. Transfer into drums or barrels for recycling.



- Do not pour oil or grease down any drain. Recycle or use absorbent materials and dispose of waste in the trash.
- Dry-wipe pots, pans, dishware, and work areas to remove all visible grease before washing. Dispose of waste in the trash.
- Use drain screens to capture food waste and dispose of properly into the trash.
- Train employees about proper grease disposal and post "NO GREASE" signs near all sinks or drains.

Illustrations courtesy of the City of Los Angeles

Maintenance of Grease Traps and Interceptors

- Reduce solids going to the grease trap or interceptor.
- Inspect and clean grease traps frequently to ensure proper operation.
- Have a licensed company inspect and pump out grease interceptors regularly to ensure proper operation.
- Keep maintenance records on-site for reference and regulatory review.

For more information, call the Orange County Stormwater Program at (714) 567-6363 or visit www.ocwatersheds.com.

Report sewage spills and discharges that are not contained to your site to the Orange County 24-Hour Water Pollution Reporting Hotline at (714) 567-6363.

For emergencies call 911.

CALIFORNIA Restaurant ASSOCIATION

Help Prevent Ocean Pollution:

A Guide for Food Service Facilities

The Ocean Begins at Your Front Door

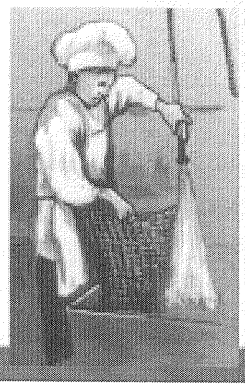
PROJECT Pollution PREVENTION

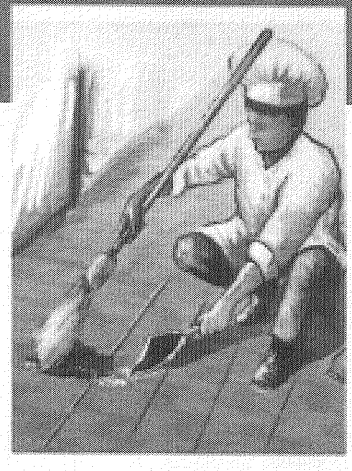
Pollution Prevention

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, allowing debris from your business to enter the gutter and storm drains can lead to water pollution. Storm drains carry rainwater from our streets, and should never contain wash water, trash, grease or other materials. Unlike substances that enter the sanitary sewers (from sinks and toilets), substances that enter the storm drains do not receive treatment before entering our waterways. In addition, blocked sewer lines can cause raw sewage to back up into kitchens, bathrooms, city streets, storm drains, and our waterways.

USE GREASE INTERCEPTORS TO CAPTURE FATS, OILS AND GREASE (FOG).

This brochure will explain steps your food establishment can take to help preserve water quality by keeping debris out of storm drains and by preventing fats, oils, and grease from blocking sewer lines.





Cleaning Spills and Equipment

- **Never hose a spill into a gutter, street or storm drain!**
- Before mopping a wet kitchen spill, absorb it with towels, cat litter or other absorbent materials.
- Sweep up dry spills immediately and dispose of the material in the trash.

ABSORB WET SPILLS WITH CAT LITTER OR TOWELS; DISCARD IN THE TRASH.

- Scrape grease and food waste from floor mats and filters before cleaning. Dispose of scrapings in trash.
- After scraping, clean floor mats, filters, and garbage cans in a mop sink or a designated, curbed area connected to the sanitary sewer. Consider using a cleaning service for these activities.

Dumpster/Grease Bin Area Cleaning

- Keep the area around the dumpster clear of trash and other debris. Do not overfill the dumpster.
- Cover dumpsters to block insects, animals, rainwater and wind.

- Sweep or vacuum up trash and throw it away.
- Absorb wet spills with cat litter, towels or similar materials. Discard in the trash.
- **Do not rinse your dumpster area!** Doing so can cause grease and trash to enter the storm drains.
- Have leaky dumpsters replaced.

USE JANITORIAL MOP SINKS FOR CLEANING MOPS, TOWELS AND FLOOR MATS.

Did you know that just one quart of oil can pollute 250,000 gallons of water?

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, not properly disposing of used oil can lead to water pollution. If you pour or drain oil onto driveways, sidewalks or streets, it can be washed into the storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering the ocean. Help prevent water pollution by taking your used oil to a used oil collection center.

Included in this brochure is a list of locations that will accept up to five gallons of used motor oil at no cost. Many also accept used oil filters. Please contact the facility before delivering your used oil. This listing of companies is for your reference and does not constitute a recommendation or endorsement of the company.

Please note that used oil filters may not be disposed of with regular household trash. They must be taken to a household hazardous waste collection or recycling center in Anaheim, Huntington Beach, Irvine or San Juan Capistrano. For information about these centers, visit www.oclandfills.com.

Please do not mix your oil with other substances!

For more information, please call the Orange County Stormwater Program at (714) 567-6363 or visit www.watersheds.com.

For information about the proper disposal of household hazardous waste, call the Household Waste Hotline at (714) 834-6752 or visit www.oclandfills.com.

RECYCLE USED OIL

For additional information about the nearest oil recycling center, call the Used Oil Program at 1-800-CLEANUP or visit www.cleanup.org.

Help Prevent Ocean Pollution:

Recycle at Your Local Used Oil Collection Center

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

SOUTH COUNTY

Used Oil Collection Centers

ALISO VIEJO

Big O Tires
27812 Aliso Creek Rd, Suite E-100
(949) 362-4225

Econo Lube N' Tune
22932 Glenwood Dr. (949) 643-9667

Jiffy Lube
27832 Aliso Creek Road (949) 362-0005

Pep Boys
26881 Aliso Creek Road (949) 362-9254

DANA POINT

Dana Point Fuel Dock
34661 Puerto Pl. (949) 496-6113

EZ Lube Inc.
34242 Doheny Park Rd. (949) 477-1223

LAGUNA BEACH

USA Express Tire & Service Inc.
350 Broadway (949) 494-7111

LAKE FOREST

Big O Tires
20742 Lake Forest Dr. (949) 443-4155

EZ Lube
26731 Rancho Parkway (949) 465-9912

Firestone Store
24421 Rockfield Blvd. (949) 581-2660

Jiffy Lube
20781 Lake Forest Dr. (949) 583-0470

Kragen Auto Parts
24601 Raymond Way (949) 829-8292

Pep Boys
22671 Lake Forest Dr. (949) 855-9593

Ryan's Foothill Ranch Transmission
20622 Pascal Way (949) 770-6888

USA Express Tire & Service
24561 Trabuco Rd (949) 454-8001

LAGUNA NIGUEL

Econo Lube N Tune
27912 Forbes Rd. (949) 364-5833

Laguna Niguel Auto Center
26042 Cape Dr. #12 (949) 582-2191

LAGUNA HILLS

David J Phillips Buick
24888 Alicia Pkwy. (949) 831-0434

EZ Lube
24281 Moulton Pkwy. (949) 830-9840

EZ Lube
26921 Moulton Pkwy (949) 751-3436

Kragen Auto Parts
26562 Moulton Ave. (949) 831-0434

Firestone Store
24196 Laguna Hills Mall
(949) 581-4700

MISSION VIEJO

AAA Complete Auto Care & Tire
27913 Center Street (949) 347-8200

Autobahn West
25800 Jeronimo Rd. Suite 401
(949) 770-2312

Auto Zone
22942 Los Alisos (949) 830-8181

Econo Lube & Tune
25902 El Paseo (949) 582-5483

Jiffy Lube
27240 La Paz Rd. (949) 455-0470

Kragen Auto Parts
24510 Alicia Pkwy. (949) 951-9175

Mission Viejo Chevron
27742 Crown Vly. Pkwy.
(949) 364-0137

Oilmax 10 Minute Lube
25800 Jeronimo Rd. #300
(949) 859-9271

Ramona Auto Service
27210 La Paz Rd. (949) 583-1233

RANCHO SANTA MARGARITA

Jiffy Lube
23401 Antonio Parkway
(949) 589-7447

SAN CLEMENTE

EZ Lube
525 Avenida Pico (949) 940-1850

Kragen Auto Parts
1113 S. El Camino Real
(949) 492-9850

Kragen Auto Parts
400 Camino de Estrella
(949) 240-9195

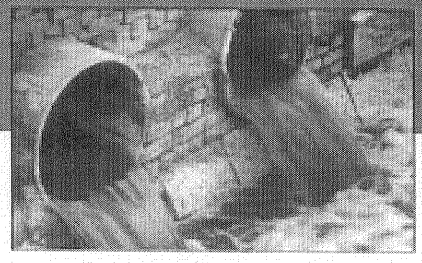
San Clemente Car Wash & Oil
1731 N. El Camino Real
(949) 847-4924

SAN JUAN CAPISTRANO

Saturn of San Juan Capistrano
33033 Camino Capistrano
(949) 248-5411

Texaco Xpress Lube
27201 Ortega Hwy. (949) 489-8008

This information was provided by the County of Orange Integrated Waste Management Department and the California Integrated Waste Management Board (CIWMB).



Preventing water pollution at your commercial/industrial site

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains and streets is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow the easy tips in this brochure to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit www.swrcb.ca.gov/stormwater/industrial.html.

For more information, please call the Orange County Stormwater Program at 714-567-6363 or visit www.ocwatersheds.com.

To report a spill, call the Orange County 24-Hour Water Pollution Reporting Hotline 714-567-6363.

For emergencies dial 911.

RECYCLE USED OIL

Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Storm Drain Awareness and Maintenance Practices

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose at a permitted landfill or in green waste containers. Do not dispose of these materials in streets, waterways or storm drains.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid over-watering.
- Follow label directions for the use and disposal of fertilizers, herbicides and pesticides.
- Do not apply pesticides, herbicides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

- Never allow wash water, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose in the trash.
- If you must wash your building, sidewalk or parking lot, you **must** contain the water. Collect the water with a shop vac, and contact your city or sanitation agency for proper disposal information. Do not let water enter the street or storm drains.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to block insects, animals, rainwater and sand. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain. Even materials that seem harmless—like latex paint or biodegradable cleaners—can damage the environment.

NEVER DISPOSE OF ANYTHING IN THE STORM DRAIN.

- Recycle paints, solvents, lumber and other materials.
- Store materials indoors or under cover and away from storm drains.
- Use chemicals that can be recycled. For more information about recycling and collection centers, visit www.oclandfills.com.
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

Appendix 4

Post-Construction BMP Fact Sheets

POST-CONSTRUCTION BMP FACT SHEETS

BMP
IC6
IC7
IC21
FP-2
FP-3
FF-5
FF-13
DF-1

IC6. CONTAMINATED OR ERODIBLE SURFACES AREAS

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Protect contaminated or erodible surface areas from rainfall and wind dispersal.
- Protect materials from stormwater runoff and runon.
- Conduct routine maintenance.

Stencil storm drains

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. **Protect contaminated or erodible surface areas from rainfall and wind dispersal though one or more of the following:**
   - Preserve natural vegetation.
   - Re-plant or landscaping bare ground surfaces.
   - Use chemical stabilization or geosynthetics to stabilize bare ground surfaces.
   - Remove contaminated soils.
   - Cover materials with a fixed roof or a temporary waterproof covering made of polyethylene, polypropylene or hypalon. Keep covers in place at all times when work is not occurring. If areas are so large that they cannot feasibly be covered and contained, implement erosion control practices at the perimeter of the area and at any catch basins to prevent dispersion of the stockpiled material.
2. **Protect materials from stormwater runoff and runon.** Construct a berm around the perimeter of the area to prevent the runon of uncontaminated stormwater from adjacent areas as well as runoff of stormwater from the material.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

3. **Minimize pooling of water.** Paved areas should be sloped in a manner that minimizes the pooling of water in the area. A minimum slope of 1.5 percent is recommended.
4. **Conduct routine maintenance.** Sweep paved areas regularly to collect loose materials.
    - **DO NOT** hose down area to a storm drain or conveyance ditch.
    - Properly dispose of waste materials.

Training

1. **Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.**
2. **Train employees on proper spill containment and cleanup.**
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - BMP IC17 discusses Spill Prevention and Control in detail.
3. **Establish a regular training schedule, train all new employees, and conduct annual refresher training.**
4. **Use a training log or similar method to document training.**

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

For additional information contact:

County of Orange
Watershed & Coastal Resources
Stormwater Program
(714)567-6363
or visit our website at:
www.ocwatersheds.com

IC7. LANDSCAPE MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Properly store and dispose of gardening wastes.
- Use mulch or other erosion control measures on exposed soils.
- Properly manage irrigation and runoff.
- Properly store and dispose of chemicals.
- Properly manage pesticide and herbicide use.
- Properly manage fertilizer use.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	
Bacteria	x
Oil & Grease	
Organics & Toxicants	
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. **Take steps to reduce landscape maintenance requirements.**
   - Where feasible, retain and/or plant native vegetation with features that are determined to be beneficial. Native vegetation usually requires less maintenance than planting new vegetation.
   - When planting or replanting consider using low water use flowers, trees, shrubs, and groundcovers.
   - Consider alternative landscaping techniques such as naturescaping and xeriscaping.
2. **Properly store and dispose of gardening wastes.**
   - Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage at a permitted landfill or by composting.
   - Do not dispose of gardening wastes in streets, waterways, or storm drainage systems.
   - Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm and/or cover.
3. **Use mulch or other erosion control measures on exposed soils.**

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Managem ent Practices"*

4. **Properly manage irrigation and runoff.**
    - Irrigate slowly or pulse irrigate so the infiltration rate of the soil is not exceeded.
    - Inspect irrigation system regularly for leaks and to ensure that excessive runoff is not occurring.
    - If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area(s).
    - If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
    - Use automatic timers to minimize runoff.
    - Use popup sprinkler heads in areas with a lot of activity or where pipes may be broken. Consider the use of mechanisms that reduce water flow to broken sprinkler heads.
5. **Properly store and dispose of chemicals.**
    - Implement storage requirements for pesticide products with guidance from the local fire department and/or County Agricultural Commissioner.
    - Provide secondary containment for chemical storage.
    - Dispose of empty containers according to the instructions on the container label.
    - Triple rinse containers and use rinse water as product.
6. **Properly manage pesticide and herbicide use.**
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of pesticides and herbicides and training of applicators and pest control advisors.
    - Follow manufacturers' recommendations and label directions.
    - Use pesticides only if there is an actual pest problem (not on a regular preventative schedule). When applicable use less toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible. Use the minimum amount of chemicals needed for the job.
    - Do not apply pesticides if rain is expected or if wind speeds are above 5 mph.
    - Do not mix or prepare pesticides for application near storm drains. Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the targeted pest.
    - Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.
    - Do not apply any chemicals directly to surface waters, unless the application is approved and permitted by the state. Do not spray pesticides within 100 feet of open waters.
    - Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
    - When conducting mechanical or manual weed control, avoid loosening the soil, which could lead to erosion.
    - Purchase only the amount of pesticide that you can reasonably use in a given time period.
    - Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.
7. **Properly manage fertilizer use.**
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers.
    - Follow manufacturers' recommendations and label directions.
    - Employ techniques to minimize off-target application (e.g. spray drift) of fertilizer, including consideration of alternative application techniques. Calibrate fertilizer distributors to avoid excessive application.
    - Periodically test soils for determining proper fertilizer use.
    - Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
    - Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
    - Use slow release fertilizers whenever possible to minimize leaching
    -

8. **Incorporate the following integrated pest management techniques where appropriate:**
    - Mulching can be used to prevent weeds where turf is absent.
    - Remove insects by hand and place in soapy water or vegetable oil. Alternatively, remove insects with water or vacuum them off the plants.
    - Use species-specific traps (e.g. pheromone-based traps or colored sticky cards).
    - Sprinkle the ground surface with abrasive diatomaceous earth to prevent infestations by soft-bodied insects and slugs. Slugs also can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
    - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
    - Small mammals and birds can be excluded using fences, netting, and tree trunk guards.
    - Promote beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species.

Training

1. **Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.**
2. **Educate and train employees on the use of pesticides and pesticide application techniques. Only employees properly trained to use pesticides can apply them.**
3. **Train and encourage employees to use integrated pest management techniques.**
4. **Train employees on proper spill containment and cleanup.**
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - BMP IC17 discusses Spill Prevention and Control in detail.
5. **Establish a regular training schedule, train all new employees, and conduct annual refresher training.**
6. **Use a training log or similar method to document training.**

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

Water Quality Handbook for Nurseries. Oklahoma Cooperative Extension Service. Division of Agricultural Sciences and Natural Resources. Oklahoma State University. E-951. September 1999.

For additional information contact:

County of Orange
Watershed & Coastal Resources
Stormwater Program
(714)567-6363
or visit our website at:
www.ocwatersheds.com

IC21. WASTE HANDLING AND DISPOSAL

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Prevent waste materials from coming in direct contact with wind or rain. .
- Keep waste collection areas clean.
- Secure solid waste containers when not in use.
- Regularly inspect, repair, and/or replace waste containers.
- Use all of a product before disposing of the container.
- Label and store hazardous wastes according to hazardous waste regulations.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. **Prevent waste materials from coming in direct contact with wind or rain.**
   - Cover the waste management area with a permanent roof.
   - If this is not feasible, cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene, or hypalon.
   - Cover dumpsters to prevent rain from washing out waste materials.
2. **Design waste handling and disposal area to prevent stormwater runon.**
   - Enclose the waste handling and disposal area or build a berm around it.
   - Position roof downspouts to direct stormwater away from waste handling and disposal area.
3. **Design waste handling and disposal area to contain spills.**
   - Place dumpsters or other waste receptacles on an impervious surface.
   - Construct a berm around the area to contain spills.
   - Install drains connected to the public sewer or the facility's process wastewater system within these contained areas. **DO NOT** discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. **Keep waste collection areas clean.**
    - When cleaning around waste handling and disposal areas use dry methods when possible (e.g. sweeping, use of absorbents).
    - If water must be used, collect water and discharge to the sewer if permitted to do so. **DO NOT** discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required. If discharge to the sanitary sewer is not allowed, pump water to a tank and dispose of properly.
    - Post "No Littering" signs.
5. **Secure solid waste containers when not in use.**
6. **Regularly inspect, repair, and/or replace waste containers.**
7. **Do not fill waste containers with washout water or any other liquid.**
8. **Use all of a product before disposing of the container.**
9. **Segregate wastes by type and label and date wastes.**
    - Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
    - Ensure that only appropriate solid wastes are added to solid waste containers.
    - Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers.
10. **Label and store hazardous wastes according to hazardous waste regulations.**
    - Consult your local hazardous waste agency or Fire Department for details.
    - Obtain a hazardous waste generator license or permit if necessary.
12. **Minimize waste.**
    - Recycle materials whenever possible.
    - Modify processes or equipment to increase efficiency.
    - Identify and promote use of non-hazardous alternatives.
    - Reduction in the amount of waste generated can be accomplished using many different types of source controls such as:
        - Production planning and sequencing
        - Process or equipment modification
        - Raw material substitution or elimination
        - Loss prevention and housekeeping
        - Waste segregation and separation
        - Close loop recycling
    - Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.

Training

1. **Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.**
2. **Train employees in proper waste handling and disposal.**
3. **Train employees on proper spill containment and cleanup.**
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - BMP IC17 discusses Spill Prevention and Control in detail.

4. **Establish a regular training schedule, train all new employees, and conduct annual refresher training.**
5. **Use a training log or similar method to document training.**

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

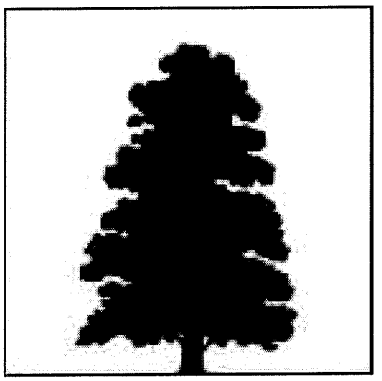
California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

For additional information contact:

County of Orange
Watershed & Coastal Resources
Stormwater Program
(714)567-6363
or visit our website at:
www.ocwatersheds.com



FP-2

LANDSCAPE MAINTENANCE

The model procedures described below focus on minimizing the discharge of pesticides and fertilizers, landscape waste, trash, debris, and other pollutants to the storm drain system and receiving waters. Landscape maintenance practices may involve one or more of the following activities:

1. **Mowing, Trimming/Weeding, and Planting**
2. **Irrigation**
3. **Fertilizer and Pesticide Management**
4. **Managing Landscape Waste**
5. **Erosion Control**

POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for landscape maintenance include:

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools. Refer to Appendix D, Fertilizer and Pesticide Management Guidance for further details.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) will preserve the landscapes water efficiency.
- Once per year, educate municipal staff on pollution prevention measures.

MODEL PROCEDURES:

1. Mowing, Trimming/Weeding, and Planting

Mowing, Trimming/Weeding

✓ Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.

- ✓ When conducting mechanical or manual weed control, avoid loosening the soil, which could erode into streams or storm drains.
- ✓ Use coarse textured mulches or geotextiles to suppress weed growth and reduce the use of herbicides.
- ✓ Do not blow or rake leaves, etc. into the street or place yard waste in gutters or on dirt shoulders. Sweep up any leaves, litter or residue in gutters or on street.
- ✓ Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this procedure sheet).
- ✓ Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- ✓ Where feasible, retain and/or plant selected native vegetation whose features are determined to be beneficial. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting ornamental vegetation.
- ✓ When planting or replanting consider using low water use groundcovers.

OPTIONAL:

- Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.

2. Irrigation

- ✓ Utilize water delivery rates that do not exceed the infiltration rate of the soil.
- ✓ Use timers appropriately or a drip system to prevent runoff and then only irrigate as much as is needed.
- ✓ Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- ✓ Where practical, use automatic timers to minimize runoff.
- ✓ Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- ✓ If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area(s).
- ✓ If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.

3. Fertilizer and Pesticide Management

Usage

- ✓ Utilize a comprehensive management system that incorporates integrated pest management techniques.
- ✓ Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- ✓ Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution.
- ✓ Pesticide application must be under the supervision of a California qualified pesticide applicator.
- ✓ When applicable use the least toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible.
- ✓ Do not mix or prepare pesticides or fertilizers for application near storm drains.
- ✓ Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- ✓ Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- ✓ Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- ✓ Periodically test soils for determining proper fertilizer use.
- ✓ Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- ✓ Inspect pesticide/fertilizer equipment and transportation vehicles daily.
- ✓ Refer to Appendix D for further guidance on Fertilizer and Pesticide management

OPTIONAL:

- Work fertilizers into the soil rather than dumping or broadcasting them onto the surface.
- Use beneficial insects where possible to control pests (green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders prey on detrimental pest species).
- Use slow release fertilizers whenever possible to minimize leaching.

Scheduling

- ✓ Do not use pesticides if rain is expected within 24 hours.
- ✓ Apply pesticides only when wind speeds are low (less than 5 mph).

Disposal

- ✓ Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- ✓ Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- ✓ Dispose of empty pesticide containers according to the instructions on the container label.

4. Managing Landscape Waste

- ✓ Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.

Also see Waste Handling and Disposal procedure sheet

- ✓ Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- ✓ Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.
- ✓ Inspection of drainage facilities should be conducted to detect illegal dumping of clippings/cuttings in or near these facilities. Materials found should be picked up and properly disposed of.
- ✓ Landscape wastes in and around storm drain inlets should be avoided by either using bagging equipment or by manually picking up the material.

5. Erosion Control

- ✓ Maintain vegetative cover on medians and embankments to prevent soil erosion. Apply mulch or leave clippings to serve as additional cover for soil stabilization and to reduce the velocity of storm water runoff.

Also see Waste Handling and Disposal procedure sheet

- ✓ Minimize the use of disking as a means of vegetation management because the practice may result in erodable barren soil.
- ✓ Confine excavated materials to pervious surfaces away from storm drain inlets, sidewalks, pavement, and ditches. Material must be covered if rain is expected.

LIMITATIONS:

Alternative pest/weed controls may not be available, suitable, or effective in every case.

REFERENCES:

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. July 1993.

County of Orange. 2000. Public Facilities and Resources Department, Management Guidelines for the Use of Fertilizers and Pesticides. September.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Los Angeles County Stormwater Quality Model Programs. Public Agency Activities
http://ladpw.org/wmd/npdes/model_links.cfm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

FP-3

ROADS, STREETS, AND HIGHWAYS OPERATION AND MAINTENANCE

Streets, roads, and highways are significant sources of pollutants in storm water discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. O&M practices may involve one or more of the following activities:

1. **Sweeping & Cleaning**
2. **Street Repair & Maintenance**
3. **Bridge and Structure Maintenance**

Streets, roads, and highways are significant sources of pollutants in storm water discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. O&M practices may involve one or more of the following activities:

Pollution prevention measures that should be consider and the minimum required and optional model procedures for each performance standard are provided below.

POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measure for roads, streets, and highways operation and maintenance include:

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Once per year, educate municipal staff on pollution prevention measures.

MODEL PROCEDURES:

1. Sweeping & Cleaning

Sweeping Frequency and Timing

- ✓ Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of streets.
- ✓ Perform street cleaning during dry weather if possible.
- ✓ Avoid wet cleaning or flushing of streets, and utilize dry methods where possible.
- ✓ If flushing of a street is absolutely necessary, sweep and remove debris before flushing. Do not let wash water enter storm drain inlets. Collect wash water and direct to a dirt or vegetated area, pump into a vacuum truck and dispose of properly.

OPTIONAL:

- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc.

Equipment Operation and Selection

- ✓ Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced as needed with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- ✓ Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- ✓ Clean sweepers at a wash rack that drains to the sanitary sewer. The wash rack area should be covered and bermed and wash water should drain to a clarifier prior to entering the sanitary sewer.
- ✓ Regularly inspect vehicles and equipment for leaks, and repair immediately.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

OPTIONAL:

- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).

Management of Material Removed by Sweeping

- ✓ Dispose of street sweeping debris and dirt at a landfill.
- ✓ Do not store swept material along the side of the street or near a storm drain inlet.
- ✓ If dewatering of saturated materials is necessary it should be conducted in a designated area away from storm drain inlets and the water contained for proper disposal.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

✓ If authorized by the local sanitation agency, water may be discharged to the sanitary sewer only after passing through a clarifier. As an alternative, dewatering can be conducted in a containment area in which saturated materials are placed on a tarp and allowed to dry. Dry debris is then disposed of properly.

✓ Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Maximize Access for Sweepers

✓ Keep accurate operation logs to track program.

✓ Properly maintain and operate equipment; which will increase efficiency.

✓ Sweeping should be conducted as close to the curb line as possible.

OPTIONAL:

- Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
- Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
- Develop and distribute flyers notifying residents of street sweeping schedules.

2. Repair and Maintenance

Pavement Marking

✓ Develop paint handling procedures for proper use, storage, and disposal of paints.

✓ Transfer and load paint and hot thermoplastic away from storm drain inlets.

✓ Street or hand sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.

✓ Replace paints containing lead and tributyltin with less toxic alternatives.

✓ Use water based paints. Clean application equipment in a sink that is connected to the sanitary sewer.

✓ Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

✓ See *Spill Control procedure sheet* for guidance on the proper cleanup of paint spills.

Concrete Installation and Repair

✓ Avoid mixing excess amounts of fresh concrete or cement mortar on-site. Only mix what is needed for the job.

✓ Wash concrete trucks off site or in designated areas on site, such that there is no discharge of concrete wash water into storm drain inlets, open ditches, streets, or other stormwater conveyance structures.

- ✓ Store concrete materials under cover, away from drainage areas.
- ✓ Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- ✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- ✓ When washing poured concrete areas to remove fine particles and expose the aggregate, contain the wash water for proper disposal; do not discharge water to the storm drain system.
- ✓ Do not allow excess concrete to be dumped on-site, except in designated areas.
- ✓ Apply concrete, asphalt, and seal coat during dry weather to allow the material to adequately dry prior to a rain event.
- ✓ When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each nearby or appropriate storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small on-site vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.

Patching, Resurfacing, and Surface Sealing

- ✓ Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- ✓ Apply concrete, asphalt, and seal coat during dry weather to allow the material to adequately dry prior to a rain event.
- ✓ Where applicable, cover and seal each nearby or appropriate storm drain inlet (with waterproof material, plastic or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered man holes and storm drain inlets when the job is complete.
- ✓ Use only as much water as necessary for dust control, to avoid runoff.
- ✓ Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.
- ✓ Prior to a rain event or at the completion of a project, sweep the project area by hand or with a street sweeper.

Equipment Cleaning, Maintenance, and Storage

Also see Equipment Repair & Maintenance procedure sheet.

- ✓ Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mudjacking equipment at the end of each day. If equipment can be cleaned and materials reapplied at the job site, do so in compliance with the laws and regulations. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

- ✓ If refueling or repairing vehicles and equipment must be done on-site, conduct the activity away from storm drain inlets and watercourses.
- ✓ Place drip pans or absorbent materials under heavy equipment when not in use.
- ✓ Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

OPTIONAL:

- Conduct cleaning at a corporation or maintenance yard if possible.
- When practical, perform major equipment repairs at the corporation yard.

→ *In addition to the procedures above, review and apply general procedures outlined for Minor Construction activities when conducting street, road, and highway repair and maintenance activities.*

3. Bridge and Structure Maintenance

Painting and Paint Removal

- ✓ Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- ✓ Do not transfer or load paint near storm drain inlets or watercourses.
- ✓ Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- ✓ If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- ✓ If the bridge crosses a watercourse, perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters. If sanding, use a sander with a vacuum filter bag.
- ✓ Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of paint at an appropriate household hazardous waste facility.
- ✓ See Spill Control procedure sheet for guidance on the proper cleanup of paint spills.

Graffiti Removal

- ✓ Avoid graffiti abatement activities during rain events.
- ✓ Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up

afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.

- ✓ Note that care should be taken when disposing of waste since it may need to be disposed of as hazardous waste.
- ✓ When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- ✓ Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area.
- ✓ If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and collect wash water and dispose of properly.

OPTIONAL:

- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Guardrail and Fence Repair

- ✓ When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in the *Sidewalk, Plaza, and Fountain Maintenance and Cleaning* procedure sheet.
- ✓ If painting is conducted, follow the *Painting and Paint Removal* procedures above.
- ✓ If graffiti removal is conducted, follow the *Graffiti Removal* procedures above.
- ✓ If construction takes place, see the procedure sheet for *Minor Construction*.
- ✓ Recycle materials whenever possible.

LIMITATIONS:

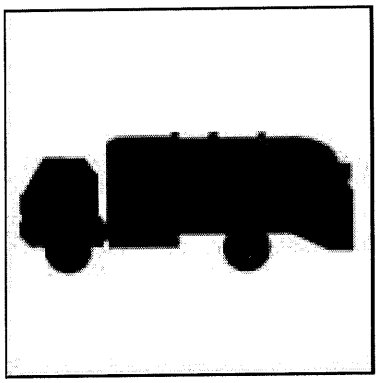
Limitations related to street sweeping may include high equipment costs, the potential inability to restrict parking in urban areas, the need for sweeper operator training, the inability of current sweeper technology to remove oil and grease, and the lack of scientific evidence regarding the expected levels of pollutant removal.

REFERENCES:

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.



FP-5

SOLID WASTE HANDLING

It is important to control litter to eliminate trash and other materials in storm water runoff. Waste reduction is a major component of waste management and should be encouraged through training and public outreach. Management of waste once it is collected may involve reuse, recycling, or proper disposal. Specific solid waste handling activities may include one or more of the following:

1. **Solid Waste Collection**
2. **Waste Reduction and Recycling**
3. **Hazardous Waste Collection**
4. **Litter Control**

Reduce by purchasing only the amount needed.
Reuse products when possible.
Recycle leftover products that are recyclable, and dispose of other wastes safely.

POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for solid waste handling include:

- Reuse products when possible.
- Recycle leftover products that are recyclable.
- Once per year, educate municipal staff on pollution prevention measures.

MODEL PROCEDURES:

1. Solid Waste Collection

✓ Implement procedures, where applicable, to collect, transport, and dispose of solid waste at appropriate disposal facilities in accordance with applicable federal, state, and local laws and regulations. Optional disposal options include the reuse and recycling of appropriate materials (see following sections).

- ✓ Include properly designed trash storage areas.
- ✓ Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.
- ✓ Secure solid waste containers; containers must be closed tightly when not in use.
- ✓ Do not fill waste containers with washout water or any other liquid.
- ✓ Remove all debris from containers prior to cleaning with water. Only clean out containers in a designated area that drains to a landscaped area or a washrack that is connected to a sanitary sewer.
- ✓ Minimize spillage/leaking from solid waste containers. For larger solid waste containers (especially compactors) that utilize a hydraulic fluid pump system, regularly inspect and replace faulty pumps or hoses to minimize the potential of releases and spills.

Also see Emergency Spill Response procedure sheet.

- ✓ Ensure that only appropriate solid wastes are disposed of. Certain wastes such as hazardous wastes, appliances, fluorescent bulbs, pesticides, etc. may not be disposed of in solid waste containers.

2. Waste Reduction and Recycling

Although many types of waste can be recycled, recycling options for each waste type may be limited. All gasoline, antifreeze, waste oil, and lead-acid batteries can be recycled. Latex and oil-based paint can be reused, as well as recycled. Materials that cannot be reused or recycled should be disposed of properly.

- ✓ Provide containers for the collection and storage of recyclable materials.
- ✓ Do not mix liquid wastes, this can cause chemical reactions or make recycling impossible and complicate disposal.
- ✓ Recycle used motor oil. Municipalities are required to have a used oil recycling element within their integrated waste management plan.

> ➔ *The California Integrated Waste Management Board has a Recycling Hotline, (800) 553-2962, that provides information and recycling locations for used oil.*

3. Hazardous Waste Collection

Household hazardous wastes (HHW) are defined as waste materials which are typically found in homes or similar sources, which exhibit characteristics such as: corrosivity, ignitability, reactivity, and/or toxicity, or are listed as hazardous materials by EPA.

List of most common HHW products:
Drain opener
Oven cleaners
Wood and metal cleaners and polishes
Paint Thinners
Automotive oil and fuel additives
Adhesives
Grease and rust solvents Batteries
Herbicides
Paint strippers and removers Pesticides
Fungicides/wood preservatives
Starter fluids
Carburetor and fuel injection cleaners

- ✓ Follow proper storage and disposal measures for hazardous waste materials as identified on packaging or Material Safety Data Sheets.
- ✓ Emergencies related to hazardous waste should be reported to 911

OPTIONAL:

- Identify and promote use of non-hazardous alternatives.
- Promote household hazardous waste (HHW) reuse and recycling.

4. Litter Control

- ✓ Enforce anti-litter laws.
- ✓ Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- ✓ Clean out and cover litter receptacles frequently to prevent overflow.
- ✓ Increase litter control for events generating substantial quantities of litter.

OPTIONAL:

- Post "No Littering" signs
- Place trash receptacles at transit stops and maintain as necessary.
- Participate in and/or organize additional clean up programs (e.g. "Coastal Clean Up Day", "Pride Days", "Volunteer Connection Days").

LIMITATIONS:

Requires continuous public education.

REFERENCES:

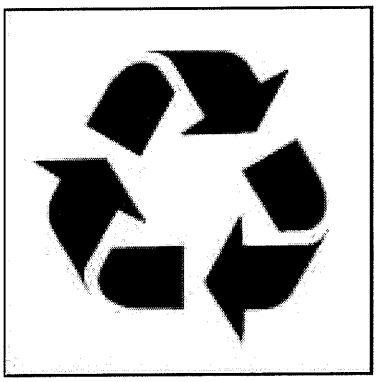
Bay Area Stormwater Management Agencies Association. 1996. Pollution From Surface Cleaning.

California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning

Associates for Stormwater Quality Task Force. March 1993.

Environmental Protection Agency (EPA). Pollution Prevention and Good Housekeeping for Municipal Operations Storm Water. Pet Waste Collection. Office of Wastewater Management. Online: http://www.epa.gov/npdes/menuofbmps/poll_3.htm

Harvard University. 2002. Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety.



FF-13

WASTE HANDLING AND DISPOSAL

Improper storage of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction and recycling; and preventing run-on and runoff. Proper waste handling and disposal activities include the following:

1. **Litter Control**
2. **Waste Collection**
3. **Spill/Leak Control**
4. **Run-on/Runoff Prevention**

POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for waste handling and disposal include:

- Reuse products when possible.
- Recycle leftover products that are recyclable.
- Once per year, educate municipal staff on pollution prevention measures.

MODEL PROCEDURES:

1. Litter Control

General Guidelines

✓ Enforce anti-litter laws.

✓ Provide a sufficient number of litter receptacles at each fixed facility.

✓ Clean out and cover litter receptacles frequently to prevent spillage.

OPTIONAL:

- Post "No Littering" signs.
- Place trash receptacles at transit stops and maintain as necessary

2. Waste Collection

General Guidelines

- ✓ Keep waste collection areas clean.
- ✓ Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.
- ✓ Secure solid waste containers; containers should be closed tightly when not in use.
- ✓ Do not fill waste containers with washout water or any other liquid.
- ✓ Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).
- ✓ Do not mix liquid wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- ✓ Use the entire product before disposing of the container.
- ✓ The waste management area should be kept clean by sweeping and cleaning up spills immediately.
- ✓ When cleaning around dumpster areas use dry methods when possible (e.g. sweeping, use of absorbents). If water must be used after sweeping/using absorbents, collect water and discharge to landscaped area or discharge through grease interceptor to the sewer if permitted to do so.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

Chemical/Hazardous Waste Management

- ✓ All hazardous waste must be labeled according to hazardous waste regulations. Consult your Fire Department or your local hazardous waste agency for details.
- ✓ Educate/train employees and subcontractors in proper hazardous waste handling management practices.
- ✓ Handle hazardous materials as infrequently as possible. Only properly trained personnel should handle hazardous waste.
- ✓ Select designated hazardous waste collection areas on-site and make sure that hazardous waste is collected, removed, and disposed of only at these authorized disposal areas.
- ✓ Hazardous wastes may only be stored for 90 days or less, unless the facility obtains a permit.

- ✓ Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- ✓ Place hazardous waste containers in secondary containment.
- ✓ Stencil storm drains on the facility's property

Waste Reduction/ Recycling

- ✓ Recycle materials whenever possible.

OPTIONAL:

- Reduce the amount of waste generated by using source controls such as:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.

3. Spill/Leak Control:

Also see Spill Prevention and Control procedure sheet

- ✓ Clean up spills immediately.
- ✓ Spill cleanup materials should be placed where they are easily accessible.
- ✓ Minimize spillage/leaking from solid waste containers. For larger solid waste containers (especially compactors) that utilize a hydraulic fluid pump system, regularly inspect and replace faulty pumps or hoses to minimize the potential of releases and spills.
- ✓ Check waste management areas for leaking containers or spills.
- ✓ Leaking equipment including valves, lines, seals, or pumps should be repaired promptly.
- ✓ Transfer waste from damaged containers into safe containers.
- ✓ Vehicles transporting waste should have spill prevention equipment that can prevent spills during transport. The spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste
- ✓ Special care should be taken when loading or unloading wastes *See Loading and Unloading procedure sheet.*

4. Run-on/Runoff Prevention

- ✓ Prevent stormwater run-on from entering waste management areas by enclosing the area or building a berm around the area.
- ✓ Prevent the waste materials from directly contacting rain.
- ✓ Cover waste areas with a permanent roof if feasible. If not feasible, cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene or hypalon.
- ✓ If possible, move the activity indoors; ensuring first that all safety concerns such as fire hazard and ventilation are addressed.
- ✓ Dumpsters should be covered to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.

OPTIONAL:

- Minimize the runoff of stormwater for land application by:
  - Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, there is a closed drainage system.
  - Avoiding application of waste to the site when it is raining or when the ground is saturated with water.
  - Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site.
  - Maintaining adequate barriers between the land application site and the receiving waters. Planted strips are particularly good.
  - Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins.
  - Performing routine maintenance to ensure the erosion control or site stabilization measures are working.

LIMITATIONS:

Hazardous waste cannot be re-used or recycled; it must be disposed of by a licensed hazardous waste hauler.

REFERENCES:

Bay Area Stormwater Management Agencies Association. 1996. Pollution From Surface Cleaning.

California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning

Associates for Stormwater Quality Task Force. March 1993.

Harvard University. 2002. Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

DF-1
DRAINAGE FACILITY OPERATION AND MAINTENANCE

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and storm water that may contain certain pollutants. Consequently these pollutants may accumulate in the system and must be removed periodically. In addition, the systems must also be maintained to function properly hydraulically to avoid flooding. Maintaining the system may involve the following activities:

1. Inspection and Cleaning of Stormwater Conveyance Structures
2. Controlling Illicit Connections and Discharges
3. Controlling Illegal Dumping

This list of Model Maintenance Procedures can be utilized as an inspection checklist to determine where better compliance with Designated Minimum Best Management Practices (notated with checkmarks and capital letters) is needed, and to recommend Additional Best Management Practices (notated with bullet points and lower case letters) that may be applicable under certain circumstances, especially where there are certain Pollutant Constituents of Concern. BMPs applicable to certain constituents are notated as:

Bacteria (BACT) *Sediment (SED)* *Nutrients (NUT)* *Oil and Grease (O&G)* *Pesticides (PEST)*
OtherToxic Compounds (TOX) *Trash (TRASH)* *Hydrological Impacts (HYD)* *Any/All or General (ANY)*

Program/Facility Being Inspected: _____

Date: _____ Inspector Name: _____

When completed, the checklist should be attached to the General Inspection Form Cover Sheet and copies should be provided to the Supervisor of the Facility/Program being inspected.

MAINTENANCE PROCEDURES:

1. Inspection and Cleaning of Drainage Facilities

Unsatisfactory	OK
☐ _____	☐
☐ _____	☐
☐ _____	☐
☐ _____	☐
☐ _____	☐
☐ _____	☐
☐ _____	☐
☐ _____	☐

General Guidelines

T 1A. Annually inspect and clean drainage structures as needed.

T 1B. Maintain appropriate records of cleaning and inspections.

T 1C. Properly dispose of removed materials at a landfill or recycling facility.

T 1D. Conduct intermittent supplemental visual inspections during the wet season to determine if there are problem inlets where sediment/trash or other pollutants accumulate, and provide for additional cleanouts as appropriate.

T 1E. Prevent or clean up any discharges that may occur during the course of maintenance and cleaning procedures.

T 1F. Verify that appropriate employees or subcontractors are trained in proper conductance of maintenance activities, including record keeping and disposal.

T 1G. Annually inspect and clean v-ditches as needed, prior to the wet season. On shrub-covered slopes, vegetative debris may be placed on the downhill side of the ditch. Trash should be bagged and disposed at a landfill.

Unsatisfactory	OK
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐

General Guidelines (cont.)

- 1a. Remove trash or debris as needed from open channels. It should be noted that major vegetative debris removal may require other regulatory permits prior to completing the work. (TRASH)
- 1b. Consider retrofitting energy dissipaters (e.g. riprap) below culvert outfalls to minimize potential for erosion. (SED)
- 1c. Repair any v-ditches that have cracked or displaced in a manner that accelerates erosion. (SED)
- 1d. If suspicious conditions appear to exist, test selected samples of the removed wastes for compliance with hazardous waste regulations prior to disposal. (TOX)
- 1e. Consider more frequent regular cleaning of selected drainage structures to help address ongoing specific impairments. (SED, BACT, NUT, TRASH)
- 1f. Consider structural retrofits to the MS4 to help address ongoing specific impairments (SED, BACT, NUT, TRASH, O&G)
- 1g. Consider cleaning out pipes at gradient breaks or other in-pipe debris accumulation points as identified/needed. (ANY, BACT, NUT, TRASH)

Storm Drain Flushing

- 1h. Flushing of storm drains or storm drain inlets should only be done when critically necessary and no other solution is practical. (SED, BACT, TRASH).
- 1i. If flushed, to the extent practical the material should be collected (vacuumed), treated with an appropriate filtering device to remove sand and debris and disposed of properly. (SED)

Waste Management

T 1H. Store wastes collected from cleaning activities of the drainage facilities in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.

- 1j. Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device to remove the sand and debris prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not permitted, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream. (SED, TRASH)
- 1k. Provide for laboratory analysis of at least one randomly collected sediment (less the debris) sample per year from the storm drain inlet leaning program to ensure that it does not meet the EPA criteria for hazardous waste. If the sample is determined to be hazardous, the sediment must be disposed of as hazardous waste and the source should be investigated. (TOX).

2. Controlling Illicit Connections and Discharges

Unsatisfactory	OK	General Guidelines
☐	☐	T 2A. Report prohibited discharges such as dumping, paint spills, abandoned oil containers, etc. observed during the course of normal daily activities so they can be investigated, contained, and cleaned up.
☐	☐	T 2B. Where field observations and/or monitoring data indicate significant problems, conduct field investigations to detect and eliminate existing illicit connections and improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)). (Refer to Appendices A-10 and A-11.)
☐	☐	T 2C. Report all observed illicit connections and discharges to the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐	☐	T 2D. Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.
		Storm Drain Stenciling ("No Dumping—Drains to Ocean")
☐	☐	T 2E. Implement and maintain a storm drain stenciling program.
☐	☐	• 2a. Consider adding the hotline number to the storm drain stencils (BACT, TOX, TRASH).

3. Controlling Illegal Dumping

		Field Investigation
☐	☐	T 3A. Report prohibited discharges such as dumpings observed during the course of normal daily activities so they can be investigated, contained and cleaned up.
☐	☐	T 3B. Conduct field investigations to detect and eliminate improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)).
☐	☐	T 3C. Report all observed illegal dumping to the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐	☐	T 3D. Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.
☐	☐	T 3E. If perpetrator can be identified, take appropriate enforcement action.
☐	☐	• 3a. Consider posting "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs could also indicate fines and penalties for illegal dumping. (ANY)

Unsatisfactory	OK	Training/Education/Outreach
☐ _____	☐	T 3F. Verify that appropriate employees and subcontractors are trained to recognize and report illegal dumping.
☐ _____	☐	T 3G. Encourage public reporting of illegal dumping by advertising the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐ _____	☐	• 3b. Take extra steps to educate the public in neighborhoods where illegal dumping has occurred to inform them why illegal dumping is a problem, and that illegal dumping carries a significant financial penalty. (ANY)

LIMITATIONS:

Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.

Appendix 5

Final Resolutions/Conditions of Approval

Appendix 6

WQMP Amendments

WATER QUALITY MANAGEMENT PLAN AMENDMENT FOR THE DANA POINT HARBOR REVITALIZATION PLAN

(PLANNING AREAS 1 & 2)

COUNTY OF ORANGE
PREPARED: SEPTEMBER 20, 2005
REVISED: DECEMBER 20, 2005

PREPARED FOR:

County of Orange
Dana Point Harbor Department
24650 Dana Point Harbor Drive
Dana Point, CA 92629
(949) 923-3794

PREPARED BY:

Fuscoe Engineering, INC.
16795 Von Karman, Suite 100
Irvine CA, 92606
(949) 474-1960

OWNER'S CERTIFICATION
WATER QUALITY MANAGEMENT PLAN AMENDMENT
FOR PERMIT APPLICATION NUMBER _____

This Water Quality Management Plan (WQMP) amendment has been prepared for the County of Orange by Fuscoe Engineering, Inc. It is intended to comply with the requirements of the County of Orange, Planning and Development Services Division (PDSD), Tract/Parcel Map No. _____, Condition Number(s) _____, and/or Site Development Permit/Application Number _____ _____, Condition Number(s) _____ requiring the preparation of a Water Quality Management Plan (WQMP). It is also intended to comply with the requirements of the City of Dana Point Planning Department Condition Number(s) ____, requiring the preparation of a WQMP.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated cities of Orange County within the San Diego Region Stormwater Runoff Management Program. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved signed copies of this document shall be available on the subject site in perpetuity.

_____ _____
Signature Title

_____ _____
Name Company

_____
Address

_____ _____
Phone Date

POLICY STATEMENT

The *Program Water Quality Management Plan* within the City of Dana Point is amended to include the following information regarding Planning Areas 1 and 2 commercial developments for Site Development Permit/Application Number _____.

The Best Management Practices (BMPs) proposed for the area(s) associated with this amendment are in conformance with, or in addition to, the BMPs specified in the *Program Water Quality Management Plan*. Only those that are in addition to the aforementioned WQMP are described herein.

The attached Site Plan exhibit depicts the area(s) associated with this amendment. The attached Water Quality Management Plan exhibit depicts the structural source control and treatment control BMPs to be incorporated in the development/redevelopment of the subject area(s). BMP details for specific land uses are also provided, where applicable.

The County of Orange will be responsible for the implementation, inspection, and maintenance of the structural BMPs for the area(s) associated with this amendment, and in accordance with the *Program Water Quality Management Plan*, unless otherwise specified within this amendment.

TABLE OF CONTENTS

SECTION		PAGE
1.0	DISCRETIONARY PERMIT(S) & WATER QUALITY CONDITIONS	1
1.1	DISCRETIONARY PERMITS	1
1.2	RESOLUTIONS	1
1.3	CONDITIONS OF APPROVAL	1
2.0	PROJECT DESCRIPTION	2
2.1	FACILITY DESCRIPTION	2
2.2	PROJECT FEATURES	7
2.3	SPECIFIC INDUSTRIAL/ COMMERCIAL DETAILS	10
3.0	SITE DESCRIPTION	13
3.1	WATERSHED	13
3.2	SITE LOCATION	13
3.3	EXISTING WATER QUALITY ISSUES	17
4.0	BEST MANAGEMENT PRACTICES	18
4.1	SITE DESIGN BMPs	18
4.2	SOURCE CONTROL BMPs	18
4.3	TREATMENT CONTROL BMPs	20
5.0	BMP INSPECTION & MAINTENANCE	23
5.1	MAINTENANCE OF SOURCE CONTROLS	24
5.2	MAINTENANCE OF TREATMENT CONTROLS	27
6.0	PLOT PLAN AND BMP DETAILS	28
7.0	PUBLIC EDUCATION	34
ATTACHMENTS		35

LIST OF FIGURES

Figure 2.1 Existing Site Plan (RBF) 3
Figure 2.2 Proposed Site Plan (RBF) 5
Figure 2.3 Changes in site drainage and the coefficient of runoff as a result of the proposed improvements. 9
Figure 3.1 Planning Areas 1 & 2 – Existing Drainage 14
Figure 3.2 Project Condition Drainage Key Map 16

LIST OF TABLES

Table 2.1 Planning Area 1 proposed facilities. 6
Table 2.2 Planning Area 2 proposed facilities. 6
Table 2.3 Parking summary for Planning Areas 1 & 2. 7
Table 2.4 Landscaping summary for Planning Areas 1 & 2. 8
Table 2.5 Impervious area summary for designated Planning Areas of Dana Point Harbor. 9
Table 2.6 Building summary for Planning Areas 1 & 2. 10
Table 2.7 Site features summary for Planning Areas 1 & 2. 12
Table 3.1 Proposed storm drain information 15
Table 4.1 Site design BMPs. 18
Table 4.2 Additional routine non-structural source control BMPs. 19
Table 4.3 Additional routine structural source control BMPs. 20
Table 4.4 Summary of approved treatment control BMPs for Planning Areas 1 & 2. 21
Table 4.5 Summary of supplemental treatment control BMPs for Planning Areas 1 & 2. 21
Table 4.6 Water quality treatment calculations. 22
Table 5.1 Maintenance frequency matrix of non-structural source control BMPs 24
Table 5.2 Maintenance frequency matrix of structural source control BMPs. 25
Table 5.3 Maintenance frequency matrix of treatment control BMPs. 27

1.0 DISCRETIONARY PERMIT(S) & WATER QUALITY CONDITIONS

1.1 DISCRETIONARY PERMITS

To be provided by the County of Orange upon project application.

1.2 RESOLUTIONS

To be provided upon project approval by County Planning Commission.

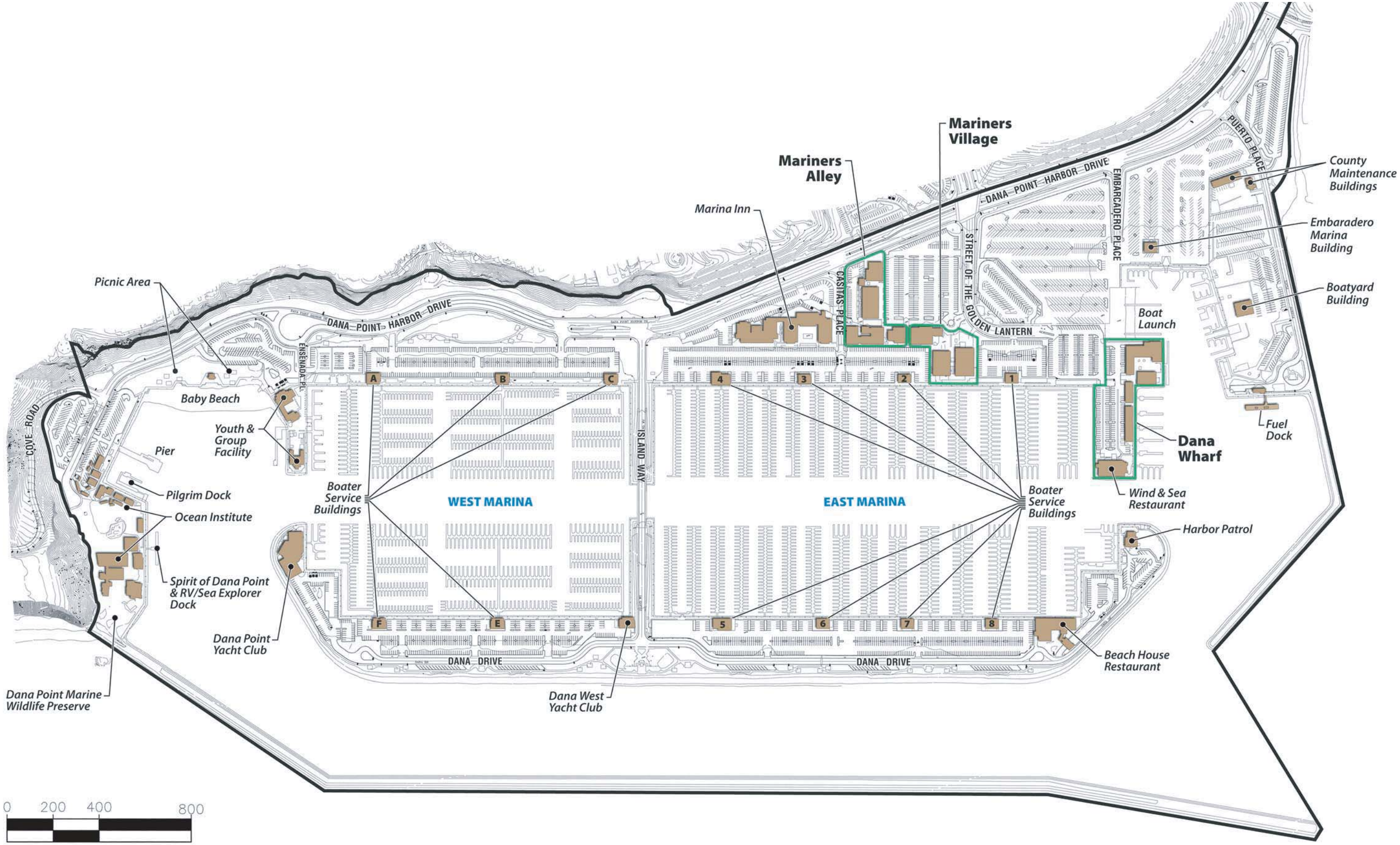
1.3 CONDITIONS OF APPROVAL

To be provided by the County of Orange upon project application/review.

2.0 PROJECT DESCRIPTION

2.1 FACILITY DESCRIPTION

The proposed Planning Areas 1 and 2 project site is a 43.3-acre parcel in the City of Dana Point, CA. The Planning Areas are part of the Dana Point Harbor Revitalization Plan and are owned and operated by the County of Orange. The project site is bounded by Dana Point Harbor Drive to the north and the marina waters to the south. Planning Area 1 extends from Doheny Beach west to Embarcadero Place. From Embarcadero Place, Planning Area 2 continues west past Street of the Golden Lantern where its project limits ends at Casitas Place (see Figure below).



EXISTING SITE PLAN

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

Figure 2.1

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION

PROPOSED FACILITIES

PLANNING AREA 1 (MARINE SERVICES) – The proposed facilities discussed in the *Program Water Quality Management Plan*, of which this WQMP Amendment is a part, has been further detailed in this WQMP Amendment for Planning Area 1. For the square footages of the proposed buildings within Planning Area 1, please refer to the see Section 2.1 of the *Program Water Quality Management Plan for the Dana Point Harbor Revitalization*.

The proposed Marine Services Planning Area 1 is 25.2 acres. Of the total gross acreage of Planning Area 1, approximately 4.4 acres will ***not*** be developed as a part of this WQMP Amendment (see Figure 6.1). Existing facilities will remain, as is, and the proposed redevelopment within the southeastern-most portion of Planning Area 1 (i.e. Dry Stack Boat Storage #2 and Future Lighthouse), as outlined in Section 2.1 of the *Program Water Quality Management Plan*, will be developed as part of a future, separate WQMP. Despite the deferment of redevelopment within this area, existing facilities will nevertheless be subject to the operations and maintenance guidelines (i.e. County BMP Fact Sheets) for source control BMPs prescribed for the remaining 20.8 acres of Planning Area 1, where applicable. For this reason, the existing-to-remain 4.4-acre portion of Planning Area 1 will be included in the discussions of this WQMP Amendment.

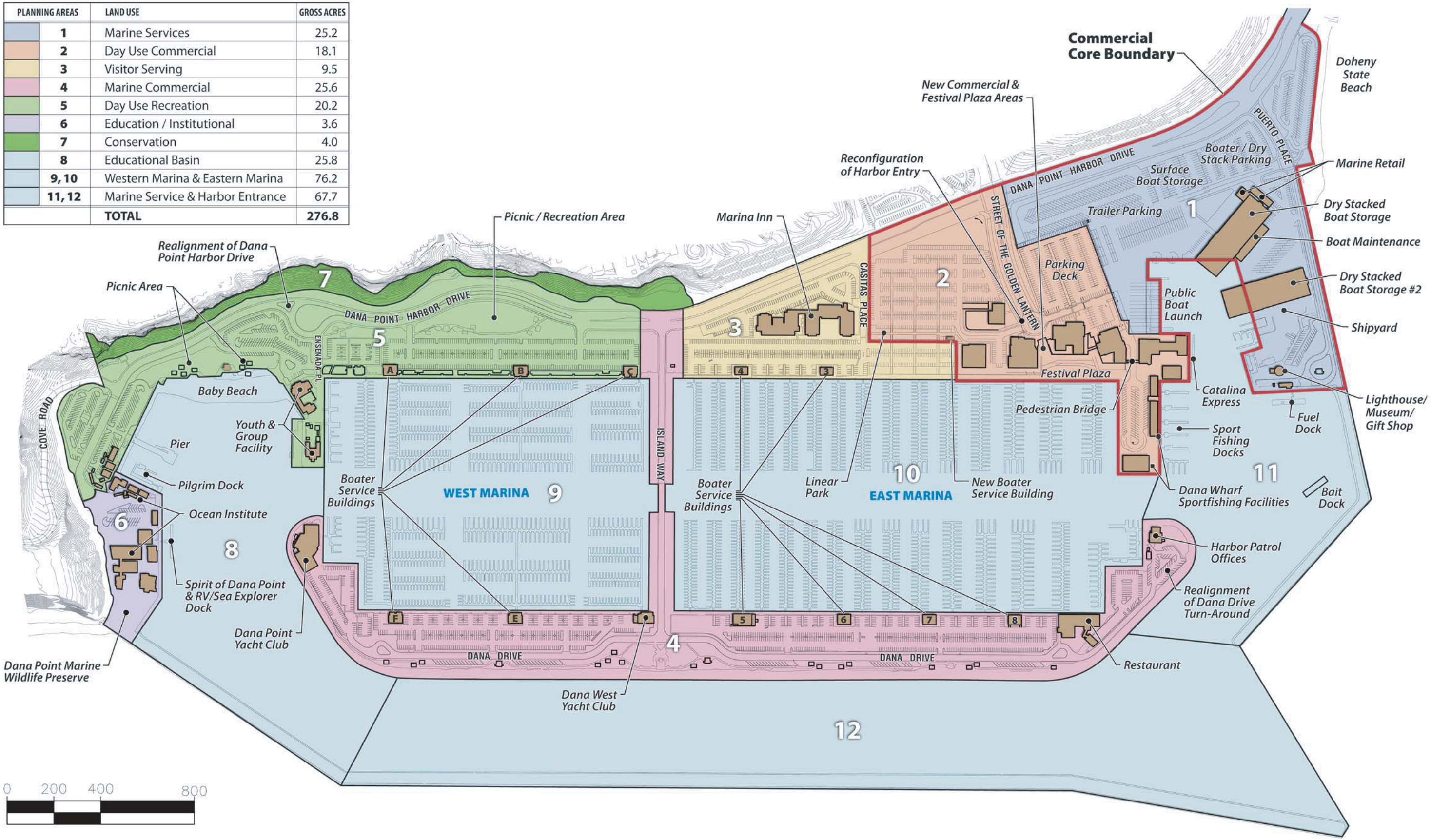
To clarify, the existing fuel dock facility is associated with Planning Area 11 and is not a part of Planning Area 1. The Embarcadero Parking Lot area, southeast portion of Planning Area 1, will remain unchanged (see Figure 2.2).

The County received a grant from the Department of Boating and Waterways (DBAW) to make improvements to the boat launch facility (BLF). Currently, the BLF consists of a 225-foot wide boat launching ramp with two boarding floats. The proposed improvements consist of:

- Demolition and reconstruction of the 225-foot wide boat launching ramp;
- Construction of a new ramp apron;
- Installation of three new boarding floats;
- Construction of a boat washdown area that drains to the sanitary sewer system;
- Rehabilitation / reinforcement of the south wharf wall, if needed;
- Installation of slope protection;
- Reinforcement of the cut-off wall on the north side of the ramp, if needed; and
- Installation of lighting, signage, drainage and water quality features.

With the exception of the washdown area, the proposed BLF is covered under a separate project WQMP, neither directly associated with nor administered under this WQMP Amendment.

PLANNING AREAS	LAND USE	GROSS ACRES
1	Marine Services	25.2
2	Day Use Commercial	18.1
3	Visitor Serving	9.5
4	Marine Commercial	25.6
5	Day Use Recreation	20.2
6	Education / Institutional	3.6
7	Conservation	4.0
8	Educational Basin	25.8
9, 10	Western Marina & Eastern Marina	76.2
11, 12	Marine Service & Harbor Entrance	67.7
	TOTAL	**276.8**



PROPOSED SITE PLAN
DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
Figure 2.2

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION

The proposed Marine Services area will, therefore, include the following new facilities:

Table 2.1 Planning Area 1 proposed facilities.

FACILITY	LOCATION
PLANNING AREA 1 - Marine Services	
Boatyard (future lighthouse + existing buildings)	Marine Services Area
Marine Services Building (Dry Stack Boat Storage #1 & Marine Retail)	Marine Services Area
Dry Stack Storage #2	Marine Services Area
Boat Maintenance Yard and Overflow Parking	Marine Services Area
Secure Boat Storage	North of Marine Services
Boater Parking and Boat Storage	North of Marine Services
Dedicated Launch Ramp Parking	West of Marine Services
Oversize and Overflow Launch Ramp Parking	West of Marine Services
Hoist Operations Area	West of Marine Services
Launch Prep. and Boat Wash Down Area	West of Marine Services

There will be street improvements to Puerto Place, including widening the existing western right-of-way, constructing new entries to the Dry Stack Boat Storage Center, and providing an area on a portion of the County-proposed waterfront promenade overlooking the beach.

PLANNING AREA 2 (DAY USE COMMERCIAL) – Further details for Planning Area 2 has been provided within this WQMP Amendment. For the square footages of the proposed buildings within Planning Area 2, please refer to Section 2.1 of the *Program Water Quality Management Plan*. The proposed Commercial Core area will include the following new or renovated facilities:

Table 2.2 Planning Area 2 proposed facilities.

FACILITY	LOCATION
PLANNING AREA 2 – Day Use Commercial	
Building 1: Existing Restaurant with upgrades	South Wharf
Building 2: Existing Retail with new canopy	South Wharf
Building 3: Existing Retail with new roof	South Wharf
Surface Parking	South Wharf

FACILITY	LOCATION
Building 4: Existing Retail to remain	North Wharf
Building 5: Existing Retail to remain	North Wharf
Building 6: New Retail and Office Building	North Wharf
Building 7: New Retail Shops	Retail Village
Building 8: New Retail Shops	Retail Village
Building 9: New Retail Shops	Retail Village
Building 10: New Restaurant Building	West of Golden Lantern
Building 11: New Boater Locker Rooms	West of Golden Lantern
Building 12: New Restaurant Building	West of Golden Lantern
Parking Structure	East of Golden Lantern
Surface Parking	West of Casitas Place
Boater Parking	West of Casitas Place

Improvements to Street of the Golden Lantern include widening the roadway into the Commercial Core area from the Dana Point Harbor Drive intersection, construction of a new traffic circle link to the Festival Plaza, and construction of a left-turn pocket and additional exit lane from the parking deck and launch ramp area.

2.2 PROJECT FEATURES

PARKING FACILITIES

As discussed in the *Program Water Quality Management Plan*, of which this WQMP Amendment is a part, the proposed Planning Areas 1 and 2 Project will increase the number of parking available at the Harbor. The details are provided below (refer to preceding tables for location of parking).

Table 2.3 Parking summary for Planning Areas 1 & 2.

DANA POINT HARBOR PARKING FACILITIES			
PARKING TYPE	EXISTING SPACE	PROPOSED SPACE	DIFFERENCE
Planning Area 1			
Car	288	458	+ 170
Car with Trailer	183	230	+ 47
Surface Boat Storage	516	93	– 423

Planning Area 2			
Car	900	1,441	+ 541
Car with Trailer	130	0	– 130
TOTAL	*2,017*	*2,222*	*+ 205*

LANDSCAPED AREAS

The proposed project will increase the amount of landscaping into the project design, compared to existing conditions. A significant portion of the landscaped areas within Planning Area 2 will be located along the northern portions of the project site and within the parking lots of Planning Area 2, especially west of Street of the Golden Lantern. Landscaping for surface parking areas are designed as vegetative strips or swales in lieu of standard parking lot islands to provide pre-treatment of storm water runoff. Other minor landscaped areas in Planning Area 2 include lawn areas situated throughout Festival Plaza, particularly along the proposed pedestrian walkway made of interlocking pavers running through the Plaza.

Similar to Planning Area 2, landscaping within Planning Area 1 is primarily located along the Dana Point Harbor Drive. Another area where landscaping is prominently exhibited is around the Marine Services Building west of Puerto Place. And as with the parking lots in Planning Area 2, the parking lot islands in Planning Area are designed as vegetated strips or swales.

Total landscaping for the project site will be approximately 3 acres, whereas existing landscaping comprised roughly 2.3 acres of the existing site. A summary of general land uses area provided in the table below to illustrate the amount of landscaping that is proposed for the project site with respect to proposed impervious surfaces, such as hardscape and buildings.

Table 2.4 Landscaping summary for Planning Areas 1 & 2.

PROPOSED GENERAL LAND USE SUMMARY	
LOCATION	ESTIMATE SIZE (ACRES)
Landscaping / Parkland	3.74
Hardscape / Parking / Streets	32.57
Buildings	7.03

IMPERVIOUS AREA COMPOSITION

Prior to construction, Planning Area 1 is roughly 90% impervious, while Planning Area 2 is approximately 94% impervious. The corresponding runoff coefficients are 0.83 and 0.86, respectively.[1] After completion, the imperviousness of the two Planning Areas will not be substantially altered. Planning Area 1 will remain relatively similar to existing conditions at 91.8% impervious and Planning Area 2 will be slightly reduced to 90.8% impervious, which will net a runoff coefficient of approximately 0.83 in both Planning Areas. These statistics are summarized in the table and figure below.

[1] Runoff coefficients derived from Table A-1 of Attachment A of the Orange County Local WQMP (August 13, 2003).

Table 2.5 Impervious area summary for designated Planning Areas of Dana Point Harbor.

PLANNING AREA	STREETS/ PARKING LOTS/ HARDSCAPE (ACRES)	BUILDINGS (ACRES)	TOTALS (ACRES)	LANDSCAPING (ACRES)	TOTAL PLANNING AREA (ACRES)	% IMPERVIOUS SURFACES
1	19.88	2.91	22.79	2.03	24.82	91.8%
2	12.69	4.12	16.81	1.71	18.52	90.8%
3						
4						
5						
6						
7						
8, 9, 10, 11, 12	N/A	N/A	N/A	N/A	N/A	N/A

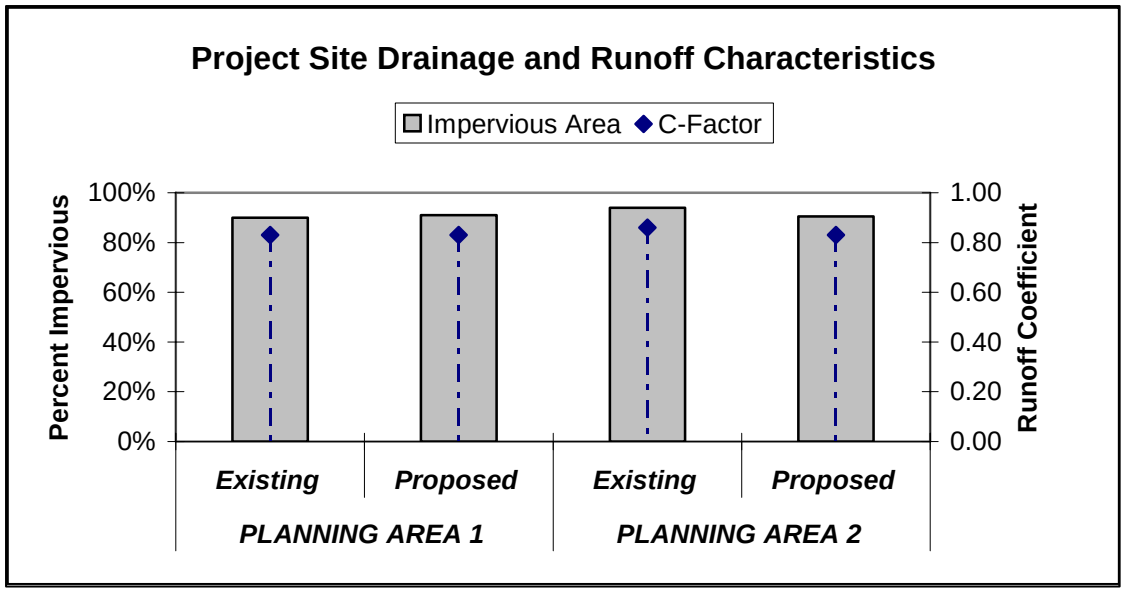


Figure 2.3 Changes in site drainage and the coefficient of runoff as a result of the proposed improvements.

ANTICIPATED AND POTENTIAL POLLUTANTS

No change. Please see Section 2.2 of the *Program Water Quality Management Plan* for details.

OWNERSHIP OF SITE

No change. Please see Section 2.2 of the *Program Water Quality Management Plan* for details.

2.3 SPECIFIC INDUSTRIAL/ COMMERCIAL DETAILS

The Planning Areas 1 and 2 project will include 16 new or renovated buildings with various uses. All of the buildings, and their planned uses, described in the proposed project plan will be addressed in the following table. Specific SIC codes associated with the buildings' uses have not been determined at this time and shall be designated at the time of lease of tenant space. Instead, the existing and projected uses of the proposed buildings are provided as narrative descriptions herein.

Table 2.6 Building summary for Planning Areas 1 & 2.

BUILDING SUMMARY		
BUILDING	USE	FEATURES
Building 1	Restaurant	Existing "Wind and Sea" Restaurant with upgraded restrooms and banquet rooms.
Building 2	Retail Space	Existing to remain.
Building 3	Retail Space	Existing to remain.
Building 4	Retail Space	Existing to remain sport fishing charter and Catalina ferry center.
Building 5	Restaurant and Retail Space	Existing to remain "Jolly Roger" Restaurant, "Harbor Deli", "Jon's Fish Market", Ice Cream, and other retail.

Building 6	Retail Space and Offices	1st Floor – New Retail, restrooms, service and mech. 2nd Floor – New Offices. 3rd Floor – New Offices.
Building 7	Retail Space and Restaurant	1st Floor – New Retail. 2nd Floor – New Restaurant.
Building 8	Retail Space and Restaurant	1st Floor – New Retail and boater locker rooms. 2nd Floor – New Restaurant.
Building 9	Retail Space and Restaurant	1st Floor – New Retail. 2nd Floor – New Restaurant.
Building 10	Restaurant	New Restaurant.
Building 11	Private Boater Locker Rooms	New Locker rooms and restrooms.
Building 12	Restaurant	New Restaurant.
Dry Stack Storage #1 / Marine Services Retail (M1)	Marine Services	New retail, boat storage and maintenance.
Dry Stack Storage #2 (M2)	Marine Services	New boat storage.
Parking Structure (P1)	Public Parking	New vehicle parking.
Lighthouse (L1)	Lighthouse	New future lighthouse.

New developments and significant redevelopments generally incorporate certain site features that may potentially impact storm water runoff quality if proper site design is not considered. These features include, but are not limited to, trash enclosures, loading docks, maintenance bays, vehicle or equipment wash areas, outdoor processing areas, fueling areas, food preparation areas, and community car wash areas. The following table provides a breakdown of specific features proposed for the project site.

Table 2.7 Site features summary for Planning Areas 1 & 2.

SITE FEATURES SUMMARY		
SITE FEATURE	**NUMBER**	**POLLUTANTS OF CONCERN**
Trash enclosures	1	trash and debris
Loading docks	1	organic compounds, trash and debris, oil and grease, heavy metals
Maintenance Bays	1	organic compounds, trash and debris, oil and grease, heavy metals
Vehicle/Equipment Washing Areas	1	sediments, oil and grease, metals
Outdoor Processing Areas	0	--
Food Preparation Areas	>7	oil and grease, bacteria/virus

The Marine Services Area, located in the east portion of Planning Area 1, includes a boat maintenance yard just south of the proposed Marine Services building. The maintenance yard, itself, is uncovered. There is, however, a covered maintenance bay along the southeast side of the Marine Services building. Maintenance services at the boat yard include haul out, mast stepping, engine lifts, bottom painting, topside painting, gel coat repair, full service engine and outdrive repair, boat storage, fiberglass and structural repair, and do it yourself facilities, among others. A loading area for the delivery of goods is also associated with the Marine Services building.

A covered trash enclosure is proposed near retail shops at the southwest corner of the Retail Village in Planning Area 2. The trash enclosure is situated in the parking lot just west of the retail building it will serve. Storm water is excluded from the enclosure by a canopy as well as being walled along three of its sides (door frames comprise the remaining side to fully enclose the trash area). In addition, individual recycling containers will be provided for public use throughout Planning Area 2. The recycling bins will be enclosed to exclude storm water.

A boat washdown/ launch prep area will be situated between the parking structure just east of Golden Lantern and the proposed dedicated boat launch ramp parking area. Wash waters from the boat washdown area will drain and connect to the sanitary sewer system. Food preparation areas will be associated with the restaurant facilities located throughout Planning Areas 1 and 2. There will be 7 proposed buildings with restaurant uses, and hence a minimum of 7 food preparation areas (see Table 2.6). Each facility shall have either contained areas or sinks, per State Health and Safety Code 27520, with sanitary sewer connections for disposal of wash waters containing food and kitchen wastes. If the sink or contained area is situated outdoors, it must be structurally covered to preclude storm water, and not discharge into the storm drain system. Signs shall also be posted prohibiting the discharge of wash waters to the storm drain system.

For the locations of these site features identified above, please refer to the Site Plan exhibit provided in Section 6.0 of this WQMP Amendment. In the event site features are added to Planning Areas 1 & 2 that are not identified in this Amendment, these features will be designed in accordance with the OC DAMP and City of Dana Point LIP requirements and verified during the plan check review process.

3.0 SITE DESCRIPTION

3.1 WATERSHED

No Change. Please see Section 3.1 of the *Program Water Quality Management Plan* for details.

3.2 SITE LOCATION

PLANNING AREA/ COMMUNITY NAME	Dana Point Harbor
GENERAL LOCATION	Dana Point Coastal Streams (Salt Creek) Watershed, San Juan Hydrologic Unit. 50 miles south of Los Angeles and 65 miles north of San Diego. 2 miles west of the I-5 Freeway.
ADDRESS	Dana Point Harbor Drive [East of Casitas Place and west of Puerto Place] Dana Point, CA 92629
PROJECT SIZE	43.3 acres

EXISTING DRAINAGE

There are currently two major pipe outfalls within Planning Areas 1 and 2 of Dana Point Harbor. The easternmost storm drain pipe, an 18-inch reinforced concrete pipe (RCP), discharges runoff from an area near the harbor and its surrounding bluffs. The larger storm drain pipe, a 60-inch RCP (county facility L00P01) discharges runoff from a storm drain network that extends much further inland and includes part of the surrounding city. These two existing storm drains service only a small portion of Planning Areas 1 and 2.

In Planning Area 2, the project area west of Street of the Golden Lantern (Mariner's Village Facilities) sheet flows in a southward direction towards and into the waters of the East Marina. Alternatively, the project area east of Street of the Golden Lantern (Launch Ramp Parking Lot) sheet flows in a southeasterly direction and enters the harbor waters at the boat launch ramp. The area south of the boat launch ramp sheet flows northwest and discharges offsite into the waters of the East Marina.

In Planning Area 1 east of Embarcadero Place, the northeast portion of the project area (Marina Services) sheet flows southwest and discharges into the harbor waters north of the boat launch ramp. The remaining southern portion of Planning Area 1 (Embarcadero Parking Lot) sheet flows northwest and enters into the harbor waters east of the boat launch ramp.

FUSCOE ENGINEERING

PLANNING AREAS 1 & 2 - EXISTING DRAINAGE

DANA POINT HARBOR REVITALIZATION PROJECT

ENVIRONMENTAL IMPACT REPORT

Figure 3.1

PROPOSED DRAINAGE

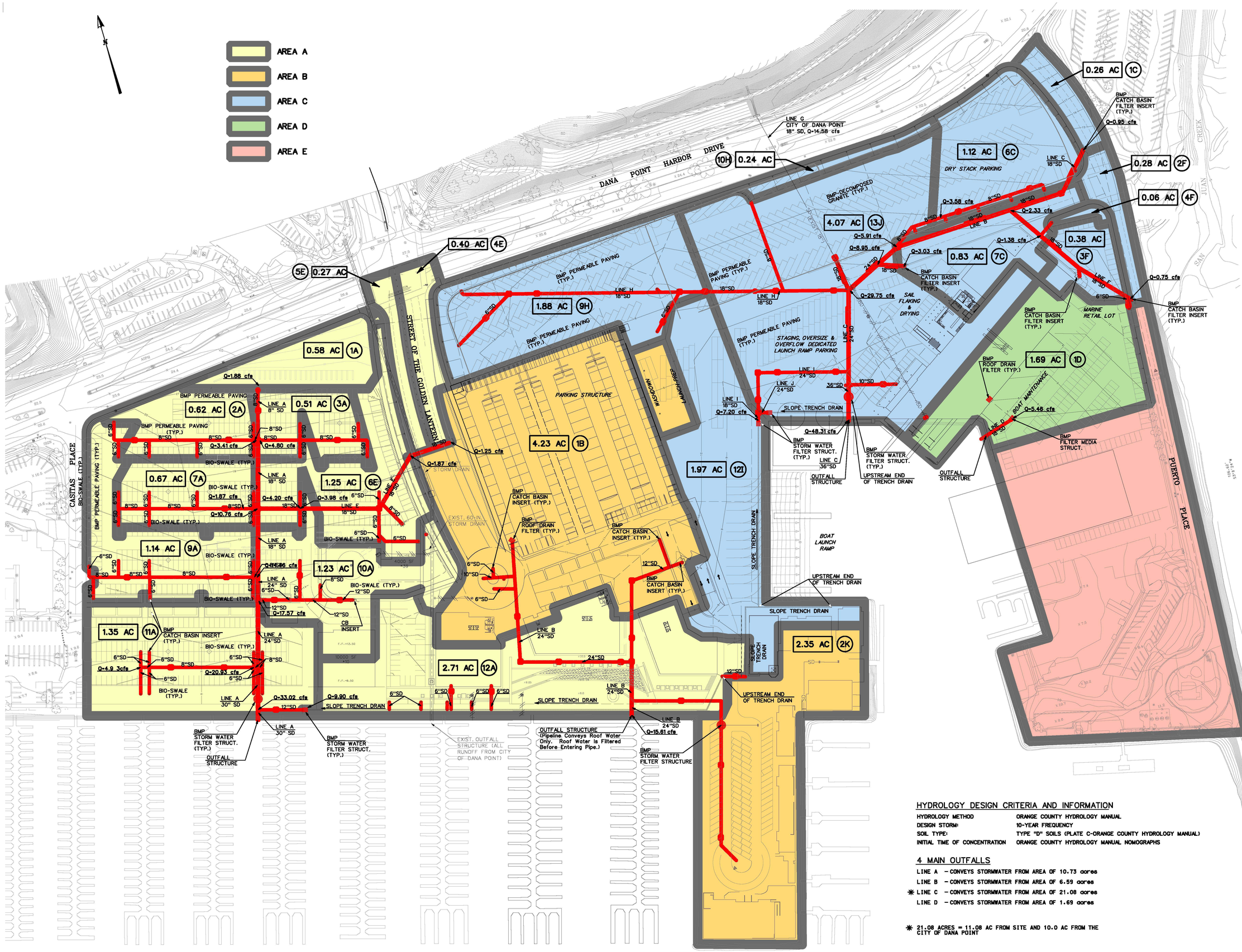
Planning Areas 1 and 2 of the Dana Point Harbor Revitalization Plan proposes upgrades to the storm drain system within the project site. As a result, the project site will be divided into 5 drainage areas shown in the table and figure below. Each drainage area will include treatment BMPs as described in Section 4.3 of this report.

Table 3.1 Proposed storm drain information

DRAINAGE AREA	PIPE SIZE (INCHES)	WATERSHED AREA (ACRE)	FLOW RATE* (CFS)
A	30	10.73	27.50
B	24	6.59	15.61
C	36	21.08	48.31
D	18	1.69	5.46
E	Sheet Flow	4.4	14.25

*Flows based on 10 Year storm event, rational method analysis

As expressed in the table above, Drainage Area A consists of the western 10.73 acres of the project site. The majority of the site is comprised of parking, where surface runoff is conveyed southward via a system of proposed swales, gutters, and underground storm drains, that ultimately discharge into the proposed 30" storm drain that outlets into the East Marina. Drainage Area B totals 6.59 acres that will convey runoff through a system of roof drain collection, catch basins, and storm drain lines. The runoff (composed only of roof runoff) then discharges into a proposed 24" storm drain line that outlets into the East Marina. Drainage Area C is 21.08 acres consisting of car parking, dry stack parking, the boat launch ramp area, the boat maintenance area and off-site runoff from the City of Dana Point. Runoff is conveyed southward through a system of storm drains that connect to a proposed 36" storm drain line discharging into the harbor waters. In Drainage Area D, which is 1.69 acres, a proposed 18" storm drain collects roof runoff and surface flows that are discharged into the harbor waters. Drainage Area E sheet flows over 4.4 acres in a northwest direction and the runoff ultimately enters into the harbor waters to the west.



HYDROLOGY DESIGN CRITERIA AND INFORMATION

HYDROLOGY METHOD	ORANGE COUNTY HYDROLOGY MANUAL
DESIGN STORM:	10-YEAR FREQUENCY
SOIL TYPE:	TYPE "D" SOILS (PLATE C-ORANGE COUNTY HYDROLOGY MANUAL)
INITIAL TIME OF CONCENTRATION	ORANGE COUNTY HYDROLOGY MANUAL NOMOGRAPHS

4 MAIN OUTFALLS

LINE A – CONVEYS STORMWATER FROM AREA OF 10.73 acres
LINE B – CONVEYS STORMWATER FROM AREA OF 6.59 acres
✱ LINE C – CONVEYS STORMWATER FROM AREA OF 21.08 acres
LINE D – CONVEYS STORMWATER FROM AREA OF 1.69 acres

✱ 21.08 ACRES = 11.08 AC FROM SITE AND 10.0 AC FROM THE CITY OF DANA POINT

Source: RBF Consulting, *Water Quality Report*, April 23, 2004.

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION

PROJECT CONDITION DRAINAGE KEY MAP
DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
Figure 3.2

3.3 EXISTING WATER QUALITY ISSUES

No change. Please see Section 3.3 of the *Program Water Quality Management Plan* for details.

4.0 BEST MANAGEMENT PRACTICES

4.1 SITE DESIGN BMPs

Table 4.1 Site design BMPs.

DESIGN CONSIDERED:	YES	NO	DESCRIPTION
MINIMIZE IMPERVIOUS AREA/ MAXIMIZE PERMEABILITY (C-FACTOR REDUCTION)	☒	☐	Utilization of a multi-level parking structure to park more cars with less impervious area footprint. Permeable pavement will be incorporated into the project site to increase permeability. This site design BMP was implemented in Drainage Areas A, B, C, and D of the project site (see WQMP exhibit).
MINIMIZE DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIAs) (C-FACTOR REDUCTION)	☒	☐	Permeable pavement will be incorporated into the project site to reduce the amount of directly connected impervious surface. This site design BMP was implemented in Drainage Areas A, B, and C of the project site (see WQMP exhibit).
CREATE REDUCED OR "ZERO DISCHARGE" AREAS (RUNOFF VOLUME REDUCTION)	☒	☐	Vegetated swales and landscaping will be incorporated into the site to reduce runoff and provide pre-treatment for water quality purposes. This site design BMP was implemented in Drainage Areas A and C of the project site (see WQMP Exhibit, Section 6).
CONSERVE NATURAL AREAS (C-FACTOR REDUCTION)	☒	☐	Natural areas within the Planning Areas 1 and 2 will be preserved and fall outside the influence of the construction limits. C-factor will be slightly reduced for each Planning Area.

4.2 SOURCE CONTROL BMPs

The following tables prescribe non-structural and structural BMPs for Planning Areas 1 and 2 that were not already addressed in the *Program Water Quality Management Plan*, of which this WQMP Amendment is a part. Those source control BMPs prescribed within the *Program Water Quality Management Plan* are, therefore, applicable to this project. They include:

N1 BUSINESS OWNER/ TENANT EDUCATION
N2 ACTIVITY RESTRICTIONS
N3 COMMON AREA LANDSCAPE MANAGEMENT
N4 BMP MAINTENANCE
N11 COMMON AREA LITTER CONTROL

N12 EMPLOYEE TRAINING
N14 CATCH BASIN INSPECTION
N15 STREET SWEEPING PRIVATE STREETS AND PARKING LOTS

Table 4.2 Additional routine non-structural source control BMPs.

INCORPORATED ROUTINE NON-STRUCTURAL BMP:		YES	N/A	IF N/A, DESCRIBE WHY
N8	UNDERGROUND STORAGE TANK COMPLIANCE	☒	☐	
N10	UNIFORM FIRE CODE IMPLEMENTATION	☒	☐	
N13	HOUSEKEEPING OF LOADING DOCKS	☒	☐	

Tenant education (N1) prescribed in Section 4.2 of the *Program Water Quality Management Plan* shall include the following guidelines, as it pertains to Planning Areas 1 & 2 addressed in this Amendment:

- Commercial businesses operating within Planning Areas 1 & 2 shall be trained and educated on the requirements of the commercial existing development program implemented by the County of Orange. This training shall occur upon first occupancy of lease space. For information regarding program requirements, see Section A-9.2 of the County of Orange Local Implementation Plan.

- Future tenants within Planning Areas 1 & 2 shall be provided proper education and training materials on County approved Industrial/ Commercial BMPs to be implemented by the tenant, as applicable. These materials are available as BMP fact sheets (IC1-IC23), which can be found in Exhibit A-9.II of the County of Orange Local Implementation Plan and are reproduced in Appendix 4 of the *Program Water Quality Management Plan*.

Employee training (N12) prescribed in Section 4.2 of the *Program Water Quality Management Plan* shall include the following guidelines, as it pertains to Planning Areas 1 & 2 addressed in this Amendment:

- County employees responsible for inspection and maintenance shall be educated and trained on the Municipal Activities Program implemented by the County of Orange. This training shall occur, at minimum, once per year. For information regarding program requirements, see Section A-5 of the County of Orange LIP.

- Future municipal employees working in Planning Areas 1 & 2 shall be provided with proper education and training materials on County approved Municipal BMPs to be implemented by municipal field staff. Materials are available as BMP fact sheets (FF-1 through FF-13, FP-1 through FP-7, and DF-1) in Exhibit A-5.III of the County of Orange LIP and are reproduced in Appendix 4 of the *Program Water Quality Management Plan*.

Previously prescribed routine structural source control BMPs include:

- STORM DRAIN STENCILING AND SIGNAGE
- EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN
- PROTECT SLOPES AND CHANNELS

Additional BMPs, not previously prescribed in the *Program Water Quality Management Plan* but are applicable to this Amendment, are identified in the table below.

Table 4.3 Additional routine structural source control BMPs.

INCORPORATED ROUTINE STRUCTURAL BMP:	YES	N/A	IF N/A, DESCRIBE WHY
PROPER TRASH STORAGE DESIGN	☒	☐	
PROTECT SLOPES AND CHANNELS	☒	☐	
SPECIFIC LAND USE/ PROJECT TYPE BMPs			
LOADING DOCK AREAS	☒	☐	
MAINTENANCE BAYS	☒	☐	
VEHICLE WASH AREAS	☒	☐	
WASH WATER CONTROLS FOR FOOD PREPARATIONS AREAS	☒	☐	

Although the fuel dock will not be redeveloped as part of this WQMP Amendment for Planning Areas 1 and 2 (the fuel dock is associated with Planning Area 11), the dock's operations and maintenance will, nevertheless, follow the current operations and maintenance guidelines for Retail Gasoline Outlets, as developed for the County's LIP. Details are provided in Section 5.0 of this WQMP Amendment.

4.3 TREATMENT CONTROL BMPs

The selection, design, and siting of treatment BMPs within a project depend largely on the project-wide drainage plan. BMP alternatives were evaluated for their relative effectiveness for treating potential pollutants from the project site, technical feasibility, relative costs and benefits, and applicable legal, institutional, and other constraints. The table below lists the treatment control BMPs selected for the project site. The layout of Planning Areas 1 and 2 and the proposed locations of the BMPs are illustrated in the WQMP exhibit.

Table 4.4 Summary of approved treatment control BMPs for Planning Areas 1 & 2.

SUMMARY OF APPROVED TREATMENT BMPS			
TREATMENT CONTROL BMP	DRAINAGE AREA*	TARGET POLLUTANTS	GENERAL OPERATION DESCRIPTION
POROUS PAVEMENT DETENTION (PERMEABLE PAVEMENT)	A, B, C	debris, organics, hydrocarbons	Pavers to support parked vehicles.
VEGETATED SWALES	A, C	debris, organics, hydrocarbons, bacteria	Vegetated areas within parking lots and project site perimeter.
PROPRIETARY CONTROL MEASURE (FILTER MEDIA SYSTEM)	A, C, D	sediments, TSS, metals, organics, oil and grease, hydrocarbons, silt, bacteria, nutrients	Larger filter structure with specialized filter media selected for target pollutants.

*Referenced from Section 3.2.

Table 4.5 Summary of supplemental treatment control BMPs for Planning Areas 1 & 2.

SUMMARY OF SUPPLEMENTAL TREATMENT BMPs			
TREATMENT CONTROL BMP	DRAINAGE AREA*	TARGET POLLUTANTS	GENERAL OPERATION DESCRIPTION
TRENCH DRAIN (WITH AND W/OUT FILTERS)	A, C	debris, organics, hydrocarbons, bacteria, nutrients	Trench drains with traffic loading grates and catch basins with replaceable filter cartridges.
CATCH BASIN WITH FILTER INSERT	A, B, C, D	hydrocarbons, organics, silt, debris (metals)	Replaceable filter packs.
DRAINAGE INLETS	A, C	hydrocarbons, debris, silt	First flush flows thru replaceable filter media cartridge.
ROOF DRAINS AND PARKING STRUCTURE	A, B, C, D	organics, debris, bacteria, hydrocarbons, silt	TBD.
WASH WATER SEWER DIVERSION	A, B, C, D	Bacteria, organics	Wash water areas will be designed to collect flows through a clarifier and diverted to the sanitary sewer

*Referenced from Section 3.2.

The proposed project has selected a treatment train approach to mitigate storm water runoff pollution from Planning Areas 1 and 2. This system shall utilize a combination of treatment BMPs recognized and unrecognized by the Countywide Model WQMP. Pervious pavement, vegetated swales, catch basin inserts, trench drains (with filters), roof drains, and drainage inlets (with filters) will be implemented to pre-treat first-flush or low flow storm water runoff generated by the project site. The pre-treated runoff is then treated by a proprietary storm water filter structure such as a Filter Media System prior to discharging into the harbor waters (see WQMP Exhibit). The use of other BMPs such as constructed

wetlands, water quality basins and infiltration basins are prohibited due to site constraints such as space limitations, high groundwater table and salt water intrusion and poor infiltrating soils.

Table 4.6 provides the water quality treatment calculations required prior to discharge into the Harbor in accordance with OC DAMP sizing requirements. Upstream control measures and pre-treatment BMPs may reduce the flow-based treatment requirements of the downstream filter media systems during final design.

Table 4.6 Water quality treatment calculations.

PROJECT NAME:	Dana Point Harbor Revitalization Project Storm Water Quality Design Flow Calculations for Planning Areas 1 & 2				
Drainage Area	Runoff Coefficient	Intensity (in/hr)	Area (acres)	SQDF (cfs)	Proposed BMP
A	0.83	.2	10.73	1.8	Media Filter Treatment System (perlite, zeolite)[1]
B	0.83	.2	6.59	1.1	
C	0.56	.2	21.08	2.36	
D	0.83	.2	1.69	0.3	

Notes: (1) Calculations are based on Per Orange County Drainage Area Management Plan, Table A-1, Exhibit 7.11 – Attachment A.
(2) The intensity is 0.2 inches/hr per OC DAMP.
(3) SQDF = Stormwater Quality Design Flow.
(4) Drainage Area C includes 10 acres of off-site runoff from upstream park area.

[1] Other filter media may be added dependent upon upstream land uses.

Please note that Drainage Area E is not included in the above discussion of treatment control BMPs, since no planned redevelopment activities in this 4.4-acre area will be associated this WQMP Amendment (see Section2.1 and Figure 6.1 of this report for details).

5.0 BMP INSPECTION & MAINTENANCE

It has been determined that the County of Orange, Dana Point Harbor Department, shall assume all BMP inspection and maintenance responsibilities for the Planning Areas 1 & 2. Please see Section 5.0 of the *Program Water Quality Management Plan* for further details.

CONTACT NAME	Sonia Nasser, P.E.
TITLE	Engineering Manager
COMPANY	County of Orange Dana Point Harbor Department
ADDRESS	24650 Dana Point Harbor Drive Dana Point, CA 92629
PHONE	949.923.3794
FAX	949.496.1225

Should the maintenance responsibility be transferred at any time during the operational life of Planning Areas 1 & 2, a formal notice of transfer shall be submitted to the County of Orange at the time responsibility of the property subject to this WQMP is transferred. The transfer of responsibility shall be incorporated into this WQMP as an amendment.

Furthermore, the City of Dana Point has developed a Notice of Transfer of Responsibility Form, which serves to facilitate continued implementation of the WQMP and maintenance of the BMPs after a change of ownership of the site, and to inform the City when such a transfer has occurred. The Notice of Transfer of Responsibility Form shall be submitted to the City by all owners/developers at the time that ownership of the property subject to the WQMP is transferred and shall be made part of the amended WQMP.

ANNUAL CERTIFICATION OF BMP MAINTENANCE

No change. Please see Section 5.0 of the *Program Water Quality Management Plan* for details.

LONG-TERM FUNDING FOR BMP MAINTENANCE

No change. Please see Section 5.0 of the *Program Water Quality Management Plan* for details.

ACCESS EASEMENT FOR CITY/COUNTY INSPECTION

No change. Please see Section 5.0 of the *Program Water Quality Management Plan* for details.

5.1 MAINTENANCE OF SOURCE CONTROLS

The post development BMP maintenance responsibility and frequency matrices provided in this section detail the specific party to perform the inspection and maintenance of each BMP for Planning Areas 1 & 2 and details the maintenance and inspection activities to be performed, and the frequency with which each shall be performed.

Table 5.1 Maintenance frequency matrix of non-structural source control BMPs.

NON-STRUCTURAL BMPs		RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
N5	TITLE 22 CCR COMPLIANCE	County of Orange Dana Point Harbor Department	The proposed project shall comply with all applicable hazardous waste management requirements in Title 22 of the California Code of Regulations.
N6	LOCAL WATER QUALITY PERMIT COMPLIANCE	County of Orange Dana Point Harbor Department	The proposed project shall comply with water quality permits issued to the project site.
N7	SPILL CONTINGENCY PLAN	County of Orange Dana Point Harbor Department	Spill prevention and cleanup practices shall be consistent with BMP IC17 in Exhibit A-9.II of the County LIP, as applicable.
N8	UNDERGROUND STORAGE TANK COMPLIANCE	County of Orange Dana Point Harbor Department	The proposed project shall comply with State regulations dealing with underground storage tanks.
N9	HAZ-MAT DISCLOSURE COMPLIANCE	County of Orange Dana Point Harbor Department	The proposed project shall comply with applicable hazardous materials and hazardous waste handling and disposal regulations.
N10	UNIFORM FIRE CODE IMPLEMENTATION	County of Orange Dana Point Harbor Department	The proposed project shall comply with all applicable regulations under Article 80 of the Uniform Fire Code.
N13	HOUSEKEEPING OF LOADING DOCKS	County of Orange Dana Point Harbor Department	Material loading and unloading practices shall be consistent with BMP FF-6 in Exhibit A-5.III of the County LIP, as applicable.
N17	RETAIL GASOLINE OUTLETS	County of Orange Dana Point Harbor Department	Fueling practices shall be consistent with BMP IC18 and FF-4 in Exhibit A-9.II and Exhibit A-5.III of the County LIP, as applicable.

Table 5.2 Maintenance frequency matrix of structural source control BMPs.

STRUCTURAL BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
PROPER OUTDOOR HAZARDOUS MATERIAL STORAGE DESIGN	County of Orange Dana Point Harbor Department	Maintenance of hazardous material storage areas shall be consistent with BMP FF-13 in Exhibit A-5.III of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
PROPER TRASH STORAGE DESIGN	County of Orange Dana Point Harbor Department	Maintenance of trash storage areas shall be consistent with BMP FP-5, FF-13, and IC21 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
PROTECT SLOPES AND CHANNELS	County of Orange Dana Point Harbor Department	Maintenance of slopes and channels shall be consistent with BMP IC6 and DF-1 in Exhibit A-9.II and Exhibit A-5.III of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
LOADING DOCK AREAS	County of Orange Dana Point Harbor Department	Maintenance of loading dock areas shall be consistent with BMP FF-6 in Exhibit A-5.III of the County LIP, as applicable. Inspection / maintenance shall occur at least once in the late summer / early fall, prior to the start of the rainy season.
MAINTENANCE BAYS	County of Orange Dana Point Harbor Department	Maintenance of maintenance bays shall be consistent with BMP FF-3, FF-12, and IC19 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
EQUIPMENT WASH AREAS	County of Orange Dana Point Harbor Department	Maintenance of equipment wash areas shall be consistent with BMP FF-11 and IC20 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.

STRUCTURAL BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
VEHICLE WASH AREAS	County of Orange Dana Point Harbor Department	Maintenance of vehicle wash areas shall be consistent with BMP FF-11 and IC20 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
OUTDOOR PROCESSING AREAS	County of Orange Dana Point Harbor Department	Maintenance of outdoor processing areas shall be consistent with BMP IC11 in Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
FUELING AREAS	County of Orange Dana Point Harbor Department	Maintenance of fueling areas shall be consistent with BMP FF-4 and IC18 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
WASH WATER CONTROLS FOR FOOD PREPARATIONS AREAS	County of Orange Dana Point Harbor Department	Maintenance of food preparation areas shall be consistent with BMP IC22 in Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.
COMMUNITY CAR WASH RACKS	County of Orange Dana Point Harbor Department	Maintenance of community car wash racks shall be consistent with BMP FF-11 and IC20 in Exhibit A-5.III and Exhibit A-9.II of the County LIP, as applicable. Inspection / maintenance shall occur a least once in the late summer / early fall, prior to the start of the rainy season.

BMP fact sheets for Industrial/ Commercial activities (IC1-IC23) and Model Maintenance procedures for Municipal activities (FF-1 through FF-13, FP-1 through FP-7, and DF-1) can be found in Exhibits A-9.II and A-5.III, respectively, of the County of Orange Local Implementation Plan and are reproduced in Appendix 4 of the *Program Water Quality Management Plan*. Maintenance and inspection frequencies described in the above matrices are cited from the aforementioned guidance documents and are thus consistent with County requirements. The responsible party shall therefore utilize the maintenance procedures and fact sheets for the maintenance and inspection of post-construction BMPs for Planning Areas 1 and 2 of Dana Point Harbor.

5.2 MAINTENANCE OF TREATMENT CONTROLS

The post development BMP maintenance responsibility and frequency matrix provided in this section detail the specific party to perform the inspection and maintenance of each BMP for Planning Areas 1 & 2 and details the maintenance and inspection activities to be performed, and the frequency with which each shall be performed.

Table 5.3 Maintenance frequency matrix of treatment control BMPs.

TREATMENT BMPs	RESPONSIBLE PARTY	MINIMUM MAINTENANCE FREQUENCY
VEGETATED SWALES	County of Orange Dana Point Harbor Department	Remove trash, debris and dead vegetation monthly. Replace plants as necessary. Perform monthly landscape maintenance for aesthetic appearance.
PROPRIETARY CONTROL MEASURES (FILTER MEDIA SYSTEM)	County of Orange Dana Point Harbor Department	Annual inspection, prior to the start of the rainy season. Remove sedimentation and debris. Inspect filter cartridges and replace in accordance with manufacturer's specifications.
POROUS PAVEMENT DETENTION	County of Orange Dana Point Harbor Department	Inspect prior to and after rains. Brush and remove surface residue. Vacuum sweep annually.
TRENCH DRAIN (WITH AND W/OUT FILTERS)	County of Orange Dana Point Harbor Department	Inspection once every six months. Shovel or vacuum, remove sedimentation, trash and foliage. Inspect prior to rainy season and replace filters in accordance with manufacturer's specifications.
CATCH BASIN WITH FILTER INSERT	County of Orange Dana Point Harbor Department	Prior to rainy season, inspect and clean out sedimentation and trash. Inspect prior to rainy season and replace filter in accordance with manufacturer's specifications.
DRAINAGE INLETS	County of Orange Dana Point Harbor Department	Prior to rainy season, inspect and clean out sedimentation and trash. Inspect and replace filter in accordance with manufacturer's specifications.
ROOF DRAINS AND PARKING STRUCTURE	County of Orange Dana Point Harbor Department	Prior to rainy season, inspect and clean out sediment and debris. Inspect and replace filter in accordance with manufacturer's specifications.

6.0 PLOT PLAN AND BMP DETAILS

The exhibits provided in this section are to illustrate the post construction BMPs prescribed within this WQMP. Drainage flow information of the proposed project, such as general surface flow lines, concrete or other surface drainage conveyances, and storm drain facilities are also depicted. All structural source control and treatment control BMPs are shown as well.

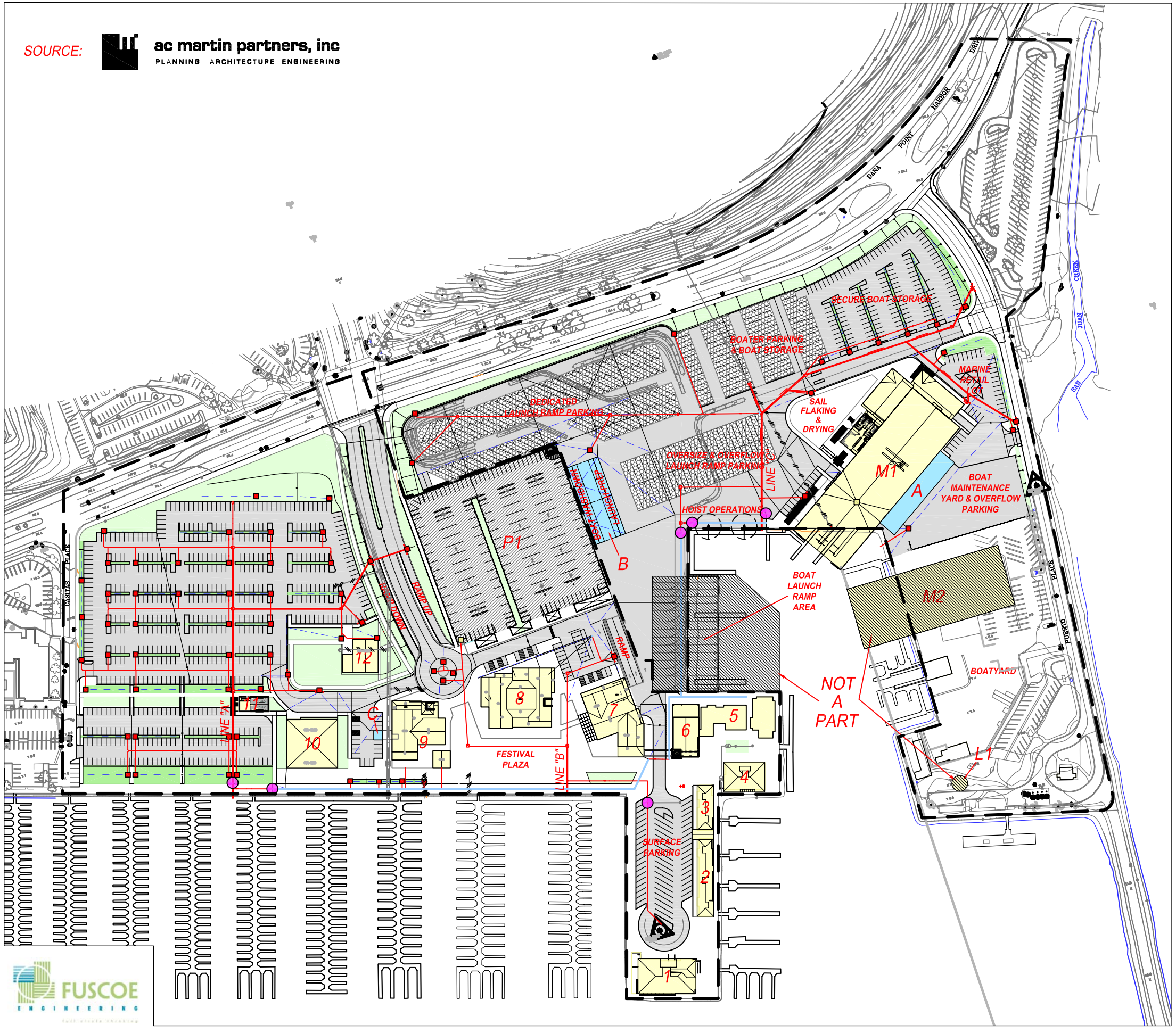
PLOT PLANS

- Site Plan Exhibit
- Water Quality BMP Exhibit – Planning Areas 1 and 2

BMP DETAILS

- Trash Enclosure Details (to be provided by Project Engineer or Architect of Record upon final design/plan check submittal)
- Maintenance Bay Details (to be provided by Project Engineer or Architect of Record upon final design/plan check submittal)
- Loading Dock Area Details (to be provided by Project Engineer or Architect of Record upon final design/plan check submittal)
- Launch Prep. and Boat Wash Down Details (to be provided by Project Engineer or Architect of Record upon final design/plan check submittal)
- Example Proprietary BMPs: Flo-gard+Plus™ Catch Basin Inserts, Vortechnics VortFilter, Stormwater Management StormFilter, Roof/Downspout Filters, Trench Drain Filter System

SOURCE: ac martin partners, inc
PLANNING ARCHITECTURE ENGINEERING



LEGEND

- LANDSCAPE
- GRASSCRETE PARKING
- 1 — BUILDINGS
- PARKING LOT & STREET
- M1 — DRY STACK STORAGE BUILDING
- P1 — PARKING STRUCTURE
- L1 — LIGHTHOUSE
- A — MAINTENANCE BAY
- B — VEHICLE / EQUIPMENT WASH AREA
- C — TRASH ENCLOSURE
- PLANNING AREA BOUNDARY

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

FUSCOE ENGINEERING

N

Scale: 1" = 200'
Exhibit Date: 9-20-05

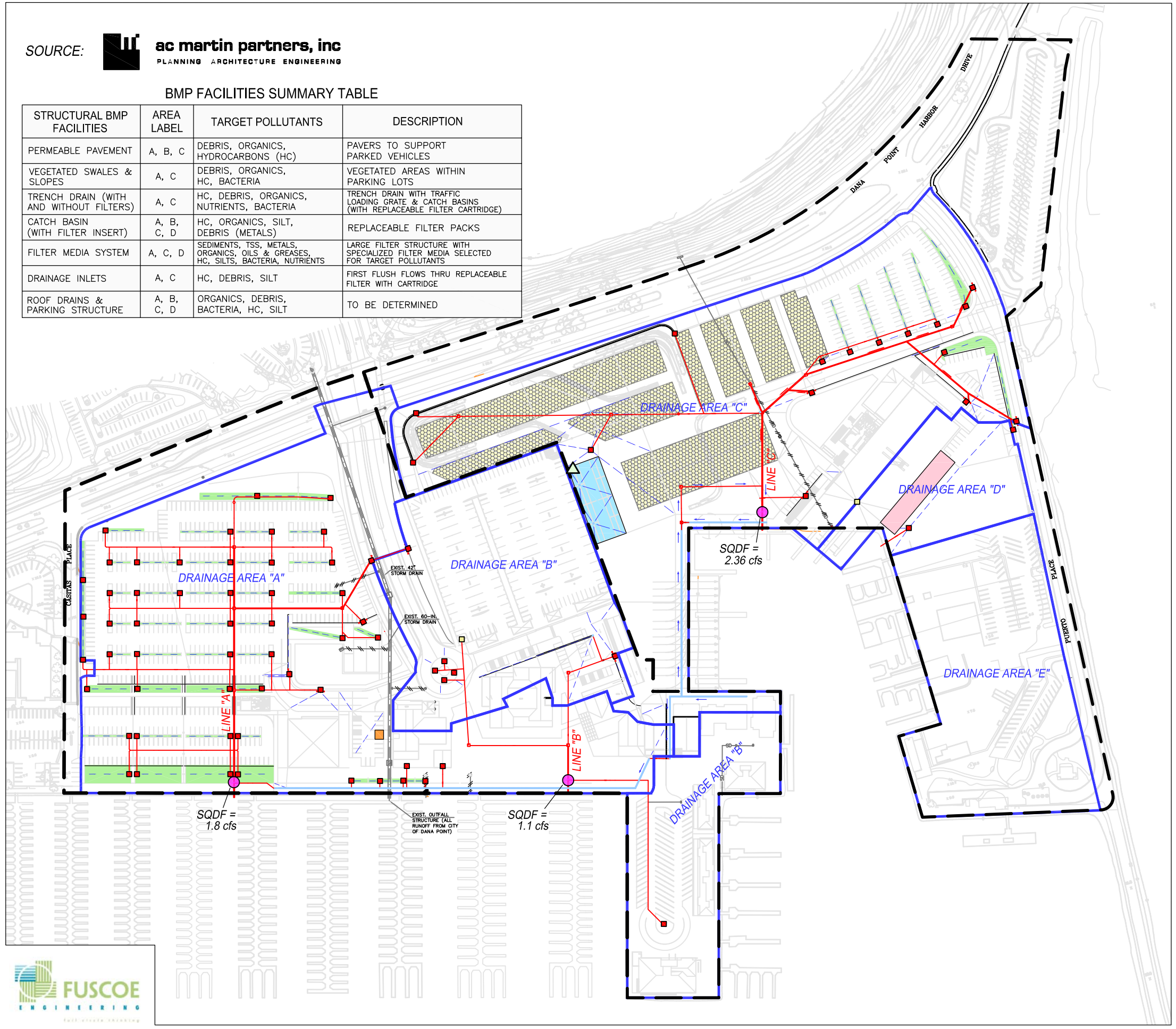
FIGURE 6.1
SITE PLAN
PLANNING AREAS 1 & 2

P:\PROJECTS\662\01\EXHIBITS\SITE-PLAN.DWG (09-21-05 9:42:33AM) Plotted by: Patrick Fuscoe

SOURCE: ac martin partners, inc
PLANNING ARCHITECTURE ENGINEERING

BMP FACILITIES SUMMARY TABLE

STRUCTURAL BMP FACILITIES	AREA LABEL	TARGET POLLUTANTS	DESCRIPTION
PERMEABLE PAVEMENT	A, B, C	DEBRIS, ORGANICS, HYDROCARBONS (HC)	PAVERS TO SUPPORT PARKED VEHICLES
VEGETATED SWALES & SLOPES	A, C	DEBRIS, ORGANICS, HC, BACTERIA	VEGETATED AREAS WITHIN PARKING LOTS
TRENCH DRAIN (WITH AND WITHOUT FILTERS)	A, C	HC, DEBRIS, ORGANICS, NUTRIENTS, BACTERIA	TRENCH DRAIN WITH TRAFFIC LOADING GRATE & CATCH BASINS (WITH REPLACEABLE FILTER CARTRIDGE)
CATCH BASIN (WITH FILTER INSERT)	A, B, C, D	HC, ORGANICS, SILT, DEBRIS (METALS)	REPLACEABLE FILTER PACKS
FILTER MEDIA SYSTEM	A, C, D	SEDIMENTS, TSS, METALS, ORGANICS, OILS & GREASES, HC, SILTS, BACTERIA, NUTRIENTS	LARGE FILTER STRUCTURE WITH SPECIALIZED FILTER MEDIA SELECTED FOR TARGET POLLUTANTS
DRAINAGE INLETS	A, C	HC, DEBRIS, SILT	FIRST FLUSH FLOWS THRU REPLACEABLE FILTER WITH CARTRIDGE
ROOF DRAINS & PARKING STRUCTURE	A, B, C, D	ORGANICS, DEBRIS, BACTERIA, HC, SILT	TO BE DETERMINED



BMP LEGEND

- PLANNING AREA BOUNDARY ZONES 1 & 2
- PROPOSED STORM DRAIN
- DRAINAGE BOUNDARY
- TRENCH DRAIN (WITH FILTERS WHERE APPROPRIATE)
- SD — EXISTING STORM DRAIN
- EXISTING STORM DRAIN DEMO
- FLOW DIRECTION
- VEGETATED SWALE
- PERMEABLE PAVEMENT
- EQUIPMENT WASHDOWN AREA
- MAINTENANCE BAY
- TRASH ENCLOSURE
- CATCH BASIN INSERT
- FILTER MEDIA SYSTEM
- ROOF DRAIN
- CLARIFIER / WASH WATER DIVERSION TO SEWER

STORM WATER QUALITY DESIGN FLOWS

AREA LABEL	AREA (ac)	$Q_{p,sqdf}$*
A	10.73 ac	1.80 cfs
B	6.59 ac	1.10 cfs
C**	21.08 ac	2.36 cfs
D	1.69 ac	0.30 cfs
E	4.4 ac	0.79 cfs

* Qp,sqdf = THE STORM WATER QUALITY DESIGN FLOW IS THE STORM WATER RUNOFF THAT IS REQUIRED TO BE TREATED. CALCULATIONS ARE FROM THE ORANGE COUNTY DRAINAGE AREA MASTER PLAN.

** 21.08 ACRES = 11.08 ACRES FROM SITE AND 10.0 ACRES FROM THE CITY OF DANA POINT (PARK).

See Table 4.6 for Water Quality Treatment Calculations.

GRAPHIC SCALE

200 0 100 200 400

N

Scale: 1" = 200'

Exhibit Date: 11-28-05

FIGURE 6.2
WATER QUALITY BMP EXHIBIT
PLANNING AREAS 1 & 2

FUSCOE ENGINEERING

[INSERT Trash Enclosure Detail Drawings]

[INSERT Maintenance Bay Detail Drawings]

[INSERT Launch Prep. and Boat Wash Down Detail Drawings]

7.0 PUBLIC EDUCATION

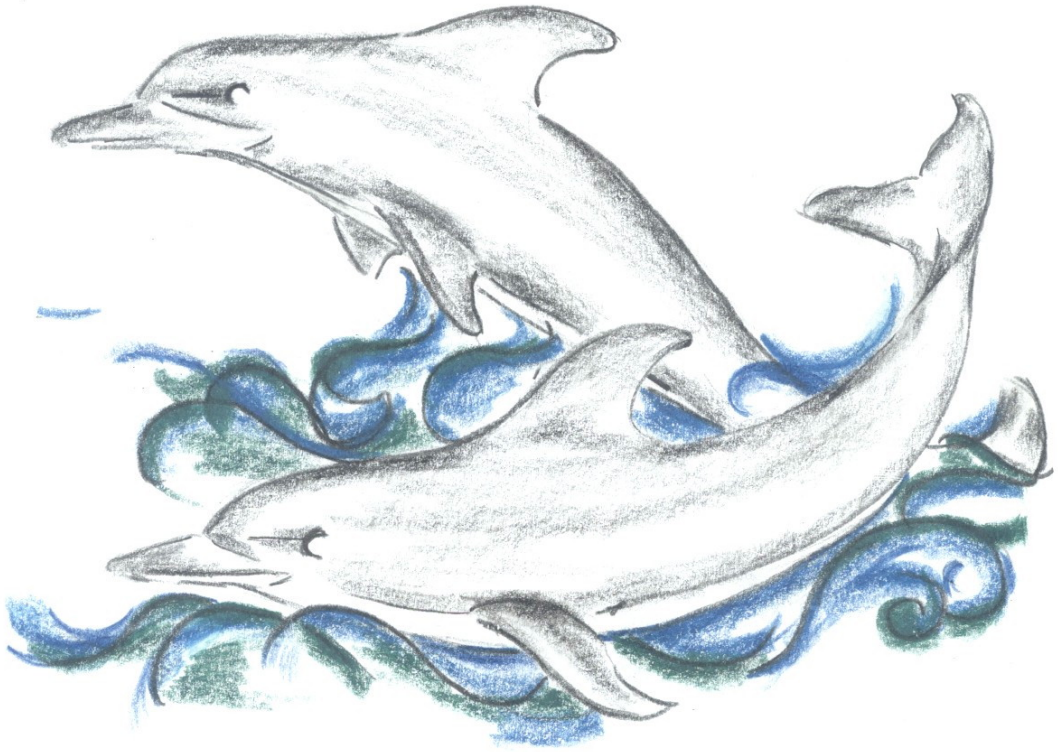
No change. Please see Section 7.0 and Appendix 3 of the *Program Water Quality Management Plan* for details.

ATTACHMENTS

TITLE ATTACHMENT

Final Resolutions / Conditions of Approval 1

Clean Marina Program



San Diego Region

Clean Marina Program – San Diego Region

Mission Statement

An ongoing endeavor, by a marina industry alliance, determined to provide environmentally clean facilities and protect the San Diego region's coastal waters from pollution through compliance of best management practices.

A Sub-Committee of the Environmental Committee
Of The
San Diego Port Tenants Association

****

San Diego Port Tenants Association
2390 Shelter Island Drive, Suite 217
San Diego, CA 92016
619-226-6619

CLEAN MARINA PROGRAM

SAN DIEGO REGION

A partnership of marina operators and yacht club members from Dana Point to Chula Vista developed the *Clean Marina Program* to provide clean facilities and protect the San Diego Region's waterways from pollution. A tremendous effort has gone into the writing of this *Clean Marina Program* and the Best Management Practices (BMPs) outlined in this document.

On behalf of the Clean Marina Team, I want to extend a whole-hearted 'Thank You' to the staff and board members of the San Diego Regional Water Quality Control Board who so graciously agreed to allow our Team to work on the Best Management Practices (BMPs), and incorporate them into a *Clean Marina Program – San Diego Region* as an acceptable method to address the water quality in our marinas and yacht clubs. The Team specifically appreciates the cooperation from John Robertus, Executive Officer, and input from Pete Michael, Staff Environmental Scientist.

A big 'Thank You' also goes to Tim Leathers, Marina Manager for Cabrillo Isle Marina, for chairing the Subcommittee tasked with writing the BMPs, developing the Clean Marina Program's Logo, establishing the point system and setting the guidelines for a 'Clean Marina' Designation. Frank Quan, Facilities Manager for the Department of Harbor & Beaches in the City of Oceanside and Vikki McMillan, Chair of the Community Relations Committee for Southwestern Yacht Club, were active members of the Subcommittee and many thanks goes to them as well for their ongoing dedication to this project. Leigh Taylor Johnson, Marine Adviser for Sea Grant California, was a key advisor to our group as the only non-marina or yacht club person attending most of the meetings. She provided valuable input.

Of course, without the participation, knowledge and expertise of San Diego Region's marina owners/operators and yacht club representatives during our numerous workshops, the Clean Marina Document would not be as comprehensive as it needed to be. Thanks to all of you for your hard work. There were many (too many to list here) from outside our region, even as far as Florida, that had important input into this effort and we thank every one of you.

It is the objective of our partnership that all the marinas in the San Diego Region and beyond obtain 'Clean Marina' designations, proudly fly the 'Clean Marina' burgee and display the 'Clean Marina' Designation Certificate. For administrative purposes, we are a sub-committee of the Environmental Committee of the San Diego Port Tenants Association. All marinas and yacht clubs in the coastal waters off California are encouraged to become certified. The Best Management Practices are written in a clear and concise manner to assist the marina owners/operators and yacht club managers in being designated a 'Clean Marina'.

This joint effort has made *Clean Marina Program – San Diego Region* with it's Best Management Practices a living document being updated periodically that will guide our marinas, yacht clubs and boaters in keeping our boating waters clean and healthy. Working together we will accomplish 'Clean Marina' designations throughout the San Diego Region and beyond.

H.P. "Sandy" Purdon
Chairman, Clean Marina Program Sub-Committee of the Environmental Committee
San Diego Port Tenants Association

Clean Marina Program, San Diego Region Contacts:

H. P. "Sandy" Purdon, Chairman
Clean Marina Program Sub-Committee of the Environmental Committee
San Diego Port Tenants Association
Work Phone: (619) 822-1177
Email: HPPurdon@cox.net

Clean Marina Program - San Diego Region
c/o San Diego Port Tenants Association
Sharon Cloward, Executive Director
2390 Shelter Island Drive, Ste. 217
San Diego, CA 92106
Tel: (619) 226-6619
FAX: (619) 226-6557
Email: sharon@sdpta.com

To schedule a review of your marina, contact:

Tim Leathers
Cabrillo Isle Marina
Tel: (619) 297-6222
Email: tleathers@cabrilloisle.com

Visit the Clean Marina Program – San Diego Region Website at
http://cleanmarinaprogramsd.org/

Version 1.5.5
August 17, 2005

Table of Contents

Table of Contents 1
Purposes & Goals 2
Introduction 3
Clean Marina Review 4
Score Sheets 5
Clean Marina Program – San Diego Region Organization 6
Emergencies 7
Petroleum Containment 8
Topside Boat Maintenance and Cleaning 11
Underwater Boat Hull Cleaning 13
Marina Operations 15
Marina Debris 17
Boat Sewage Discharge 19
Solid Waste 21
Liquid Waste 23
Fish Waste 26
Hazardous Materials 28
Storm Water Runoff 30
Clean Marina Program Score Sheets 32
Appendix A – Regulations 45
Appendix B – Resources 47
Appendix C – Signage Examples 52
Appendix D – Acknowledgements 60
Appendix E - Marinas 61
Appendix F – Yacht Clubs and Other Slips 66

Purposes & Goals

The purpose of the Clean Marina Program is to encourage the marinas and yacht clubs in Region 9 of the California Regional Water Quality Control Board to use Best Management Practices (BMPs) in order to prevent or reduce pollution in our coastal waters.

The program provides a checklist to assist participating marinas and yacht clubs as they educate, train and encourage boaters and employees to protect the environment and water quality through the routine use of these BMPs.

A review of each facility will be performed by an independent team to determine that day-to-day activities and operations are enhancing the environment and water quality. Those meeting the Program standard and implementing a pledge to continue the use of these BMPs will receive a Clean Marina designation.

An important goal of the Program is to achieve 100% Clean Marina Program participation by the marinas and yacht clubs of our region.

Introduction

BEST MANAGEMENT PRACTICES OR BMPs are:

All activities and devices that help prevent or reduce water pollution. Pollution may be carried to the water by storm drains, seeping through the ground, by falling from the air, or by direct spills or dumping. Some BMP examples would be: Good Boat-Keeping Practices, Education, Signs, Notices, Marina Rules and Regulations, Waste Receptacles, Spill Prevention and Rapid Clean-Up plans, to name a few.

This Clean Marina Program is an excellent guide to BMPs that can be used throughout Marinas and Yacht Clubs to keep boating waters clean and healthy.

Clean Marina Review

- Marina review will be conducted by an impartial industry review team comprised of a cross section of professionals in the marina industry and related activities.

- Points required by regulation are in red. 100% of the points are required for designation if appropriate for that facility.

- Additional BMP points are in black and 65% of the total additional points are needed to gain the clean marina designation (see next page for further explanation.)

- A $250.00 Clean Marina Program inspection fee for costs associated with the Clean Marina Program designation including the flag, certificate, electronic logo and administration will be charged to the facility successfully passing the inspection. Please make checks payable to **SDPTA (San Diego Port Tenants Association) Attn: Clean Marina Program.**

- A dolphin flag or pennant award will be given to each marina that becomes designated as a clean marina, after the impartial team's review.

- A designation certificate will also be awarded to each designated clean marina.

- The copyrighted designation logo will be available to be used by any clean marina designated facility for marketing or other materials.

Score Sheets

The score sheets used by the Clean Marina Program are intended to be "living documents". As the program evolves and as regulations change, the methods used to evaluate a marina's performance will need to be revised.

Those elements of marina operations that are mandatory under Federal, State, City or Port regulations will be scored under the expectation that one hundred percent compliance is required. Other elements of marina operations will be scored with the expectation that sixty-five percent compliance is expected. The target of 65% is derived because various components of each of the scoring elements will not be applicable to every marina. Thus, marinas will not be able to score 100% on Additional elements in some areas.

If a certain BMP or function is not applicable to a particular marina or yacht club then you score it N/A (not applicable), you then subtract the point amount assigned to that BMP from the total Additional points at the bottom of the score card. Then divide the actual score by the possible Additional point total (less the N/A's) to derive your percentage score.

The target rate of sixty-five percent was chosen based upon a similar program that is operational in Florida. As the San Diego program matures, this target may be revised so that it conforms to actual results observed after marina reviews are completed.

Because the score sheets are "living documents" they must be retained before and after a marina's designation to serve as a record of the efforts to achieve designation and to keep the designation current. Good faith effort is demonstrated by active and continual progress in achieving the criteria of the Clean Marina Program.

Clean Marina Program – San Diego Region Organization

Governing Body: Clean Marina Program – San Diego Region Committee (CMPSDRC). The duties of the CMPSDRC are to,

- Establish the program.
- Administer the program.
- Update the program as needed.
- Establish Review Teams and Review Team Trainers.

Review Teams (RT) and Review Team Trainers:

- Three-person teams that will visit marinas, complete the checklists and score sheets and recommend that the marina or yacht club earned the Clean Marina designation.

Emergencies

A number of situations may occur in a marina that requires immediate response. Calling 911 may be appropriate in some instances, but additional staff response is also called for in nearly every emergency situation. Without pre-planning, important steps can be overlooked and without a quick reference guide, the best of intentions may not produce the best actions for solving the occasional, but intense problem.

Regional Regulations

Emergency Action Plan (EAP) – San Diego County Code Chapter 6.95, Div. 20.

Marina Best Management Practices

- Have a current and updated map of important shut off valves
- Keep a list of up-to-date Emergency Phone Numbers
- Ongoing Staff Training – Acquaint all employees with the contents of the emergency procedures and responsibilities for each situation as designed by the EAP.

Boater Best Management Practices

- Keep a serviced fire extinguisher available.
- Ensure engines and fluids are cooled before working to avoid burns.
- Keep work area clear of oil and debris.
- Provide continuous ventilation.

Score Sheet – Page 32

Petroleum Containment

Fuel can be easily spilled into surface waters from the fuel tank air vent while fueling a boat, and oil can be easily discharged during bilge pumping. Gasoline spills can be a safety problem because of gasoline's flammability. Hydrocarbons are dangerous to aquatic plants and animals both at and below the water surface.

It is, therefore, necessary to reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

Regional Regulations

It is unlawful to discharge fuel or oil into marina waters.

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
San Diego Port District Code Section 10.03 (a) 1.
City of San Diego Code Article 3, Division 3, Section 43.0304
City of Oceanside Code Chapter 40, Section 40.2.1
County of Orange Code Section 4-13-40 (a) (2)
California Department of Fish & Game Code Section 5650

Vessels 26 feet and longer are required to display an oily waste discharge placard.

Clean Water Act, Section 311

Marina Best Management Practices

- Promote the installation and use of fuel/air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling.

- Initiate an absorbent pad exchange program in which slip holders can exchange used pads for new ones.

Petroleum Containment (cont.)

- Insert a clause in the leasing agreements requesting boaters use oil-absorbing materials in their bilges.

- Prohibit the use of detergents and emulsifiers on fuel spills.

- Provide a collection site for used oily pads and used oil when applicable.

Boater Best Management Practices

- Fill fuel containers on land to reduce the chance of fuel spills into the water.

- Avoid overfilling fuel tanks.

- Perform all major engine maintenance away from surface water. Any maintenance work on engine must be done in compliance with rules and regulations governing the marina.

- Avoid fueling boats from portable fuel containers while in the marina.

- Use petroleum absorption pads while fueling to catch splash back and the last drops when the nozzle is transferred back from the boat to the fuel dock.

- Keep engines properly maintained for efficient fuel consumption, clean exhaust, and fuel economy. Follow all manufacturers' specifications.

- Routinely check for engine fuel leaks and use a drip pan or absorbent pads under engines.

- Do not pump any bilge water that is oily or has a sheen. Use materials that either capture or digest oil in bilges. Examine these materials frequently and replace as necessary.

Petroleum Containment (cont.)

- Exchange used oil absorption pads if possible, or dispose of them in accordance with petroleum disposal guidelines.

- Report oil and fuel spills to the marina office and the U.S. Coast Guard National Response Center immediately. Phone # 1 (800) 424-8802

Score Sheet – Page 33

Topside Boat Maintenance and Cleaning

Use of solvents, paints and varnishes for in-slip boat maintenance can contribute to pollution entering the water. The best way to protect the water is to perform only small maintenance jobs in the slip. Use of a variety of boat cleaners, such as detergents, teak cleaners and fiberglass polishers can also contribute to pollution and nutrients entering the water.

Regional Regulations

Port of San Diego Storm Water Control Article 10, Chapter 5

Boater Best Management Practices

- Ask your marina manager what types of maintenance projects are allowed in the slip.
- Tackle boat projects in the water only if they involve less than 25% of the surface above water line.
- Ask marina manager about rules for do-it-yourself work, contractors or vendors working in the marina
- Drape vessel with tarps to catch wastes from projects.
- Cover the water between boat and dock with visquine or tarps.
- Use a dust-containment bag with sanding equipment.
- Sweep or vacuum all residual sanding dust and put in the trash.
- Plug scuppers to contain dust and debris.
- Ventilate your space to prevent the accumulation of flammable or noxious fumes.

Topside Boat Maintenance and Cleaning (cont.)

- Use eye protection and a respirator when there is the possibility that dust and debris could damage eyes or lungs.
- Remove oil, debris and clutter from your immediate work area.
- Do not sand with steel wool.
- Do not sand in a heavy breeze.
- Mix all solvents, paints and varnishes over a tarp or on land.
- Avoid spills in the water of all solvents, paints and varnishes.
- Use or ask your topside maintenance service to use environmentally friendly cleaning products. Carefully read labels to ensure the products are phosphate free and biodegradable. Use products in moderation, since more of the cleaner product does not automatically mean your topside is cleaner.
- Avoid cleaners that contain ammonia, lye, sodium hypochlorite, chlorine or petroleum distillates.
- Consider allowing teak to fade to gray and rinse it occasionally with salt water to remove the dirt; or, for the look of freshly sanded teak, scrub teak decks with salt water and let the sun bleach them.
- Use teak cleaners sparingly and avoid spilling them or fiberglass polishers in the water.

Score Sheet – Page 34


Underwater Boat Hull Cleaning

Consideration should be given to using bottom paints that do not pollute our environment. Frequent underwater hull cleaning can enhance vessel performance and protect it from the elements such as marine growth and corrosion. Underwater hull cleaning should be guided by BMPs that will clean a vessel in such a way as to protect and preserve the bottom while causing minimal impact to the environment.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Section Article 10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Recommend the use of nontoxic and legal hull paints to reduce the possibility of contamination when performing hull cleaning.

Boater Best Management Practices

- Ensure hull paint is properly applied and maintained to protect the hull from fouling organisms and thus improve your boat's performance.

- Wait 90 days after applying new bottom paint before underwater cleaning.

- Schedule regular hull cleaning and maintenance to reduce the build up of hard marine growth and eliminate the need for hard scrubbing.

- Regularly scheduled gentle cleaning will also increase the effectiveness of the antifouling hull paint and extend its useful life.

Underwater Boat Hull Cleaning (cont.)

- Use, or ask your Hull Cleaning/Maintenance Service to use, Underwater Hull Cleaners' Best Management Practices. Ask your service to monitor the work of the divers that they hire or subcontract to ensure they are using BMPs.

- Repair paint bonding problems at haul out to avoid further chipping and flaking of paint in the water.

- Use, or ask your diver to use, non-abrasive scrubbing agents, soft sponges or pieces of carpet to reduce the sloughing of paint and debris.

- Boaters are encouraged to use boat hull cleaning companies and individuals that practice environmentally friendly methods.

- Encourage divers to use different types of pads when necessary to properly maintain a vessel's bottom paint (example: In many cases surfaces close to the waterline are more susceptible to higher growth rates therefore you need to use different pads in order to properly remove marine growth and corrosion. Likewise, a softer pad can be used for the rest of the vessel to maximize hull performance and optimize the lifespan of the paint.)

- Boater should notify hull cleaner as to what type of bottom paint was used and when the bottom was last painted.

Score Sheet – Page 35

Marina Operations

Materials, supplies, vehicles and equipment stored outdoors and exposed to rain and runoff can result in storm water pollution. It is not always feasible to store everything indoors or under cover, so marinas and residents must take steps to reduce contaminates from these type storages to the maximum extent practicable. Steps to accomplish this include keeping these items in designated areas that are, where feasible, paved to allow for periodic sweeping, sloped or bermed to limit run-on and located away from the bay and/or storm drains.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Section Article 10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Bicycles, motor scooters or motorbikes are not permitted to be ridden or stored except in designated areas.

- Unattended open containers of paints and other maintenance supplies are not permitted on the docks. Keep all open containers on the boat or on land in a secondary containment. While the material is in use, the open container should be kept in a secondary containment.

- All materials must be stored indoors or in covered containers.

- Secure watertight containers must be used when storing materials and wastes outside.

Marina Operations (cont.)

- Household hazardous materials must be stored in closed labeled containers in a covered area.
- All spills must be cleaned up immediately.
- Use absorbent materials to clean up liquid spills. Do not rinse spill into the water.
- Dry sweeping techniques or vacuuming must be used for the clean up of spills.
- Boaters must properly manage and dispose of all wastes and materials.
- Make storage space available away from the docks for rent or use by boaters.
- Marinas are encouraged to berm all trash and recycling areas to prevent leaks from entering the bay.
- Marinas are encouraged to provide electricity to boaters through sub-meters
- Marina owner/employees and boaters are encouraged to conduct/attend emergency spill response procedures training.
- Encourage boaters to use Household Hazardous Waste facilities and provide locations and times of temporary collection events.
- Boaters should not be allowed to have open fires and barbecues on the docks, unless approved by the marina manager.

Score Sheet – Page 36

Marina Debris

Proper waste handling and disposal are an integral part of the good housekeeping practices that must be implemented at all marinas. Waste should be managed in designated areas that are covered where feasible and/or designed to limit run-on and runoff and/or be located away from the storm water conveyance system. Wastes should also be stored in covered, leak-proof containers.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Section 8.50
City of San Diego Municipal Code Section 63.20.5
City of Oceanside Municipal Code Section 29A.20 (A)
County of Orange Code Section 2-2-163

Marina Best Management Practices

- Require immediate cleanup of spills of chemicals, pesticides, fertilizers and soils.

- Require boaters to use trays for all potted plants set on the docks to prevent watering from entering the bay.

- Recommend mixing fertilizers and potting of plants on land, not on the dock.

- Ensure pets are not permitted to run free within the marina.

- Ensure pet owners clean up after their pets in the marina.

- All pet waste will be properly disposed of in toilet or trash.

Marina Debris (cont.)

- Marinas will be encouraged to provide disposal bags for pet owners to use when disposing of pet waste in the dumpsters.

- Encourage the cleaning of parking areas, especially where deposits have accumulated, with sand or other acceptable material, and then swept up.

Boaters Best Management Practices

- Boaters can prevent overboard disposal by returning everything not eaten to shore for disposal.

- Boaters should remember what is put into the water should be something they would not mind swimming with.

Score Sheet – Page 37

Boat Sewage Discharge

Use of marine sanitation holding tanks in an improper manner can result in sewage entering the water. Both improperly installed marine sanitation devices and improper disposal practices (pumping overboard within three nautical miles of the nearest land) are illegal. Sewage from boats is more concentrated than that from either combined sewer overflows or sewage treatment plants because marine sanitation systems use little water for flushing. Boaters and marinas have a vested interest in clean waters, since the livelihood of marinas and the recreational benefits boaters derive from use of the waters are clearly linked to clean water.

Regional Regulations

U. S. Environmental Agency "No Discharge Zone" includes San Diego Bay, Mission Bay, Oceanside Harbor and Dana Point Harbor.
Federal Clean Water Act Section 312 (f) (3)
San Diego Unified Port District Code Section 8.50
City of San Diego City Code
City of Oceanside City Code Chapter 29A, Article 11, Section 29A.20
County of Orange Code Section 2-2-163
Harbors and Navigation Code, Division 3, Chapter 6, Sections 776,777,780

Marina Best Management Practices

- If a marina operates a pump out facility, install adequate signs to identify the station, its location and hours of operation.
- Provide the service at convenient times and at a reasonable cost.
- Make the pump out station user friendly.
- Develop and adhere to a regular inspection and maintenance schedule for the pump out station.
- Provide educational information about the pump out station to boaters.

Boat Sewage Discharge (cont.)

- Enforce existing local, state and federal regulations pertaining to Marine Sanitation Devices and the illegal discharge of boat sewage.

- Post and make available to boaters a list of local pump out locations.

Boater Best Management Practices

- Boater should report any illegal discharge of boat sewage to the marina office or appropriate agency.
- Marine holding tanks should always be used properly.
- Boaters should use environmentally sensitive cleaning supplies in order to help alleviate gray water concerns.
- Boaters should never pump out any holding tank inside the three nautical mile limit.

Boat Pump out Locations

California Yacht Marina	Chula Vista	619-422-2595
Chula Vista Launching Ramp	Chula Vista	619-691-1860
Chula Vista Marina	Chula Vista	619-691-1860
Loews Coronado Bay Resort	Coronado	619-424-4000
Glorietta Bay Marina	Coronado	619-435-5203
Cabrillo Isle Marina	San Diego	619-297-6222
Cortez Fuel Dock	San Diego	619-291-5985
Harbor Island West Marina	San Diego	619-291-6440
Islandia Hotel Marina	San Diego	619-224-1234
Laurel Street Landing	San Diego	619-686-6332
Marina Village Marina	San Diego	619-224-3125
National City Launching Ramp	San Diego	619-686-6272
Pearsons Marine Service	San Diego	619-222-7084
San Diego Harbor Police	San Diego	619-686-6272
Sea World Marina	San Diego	619-226-3915
Sheraton East Hotel Marina	San Diego	619-291-2900
Sunroad Resort Marina	San Diego	619-574-0736
Oceanside – Coast Guard Dock	Oceanside	760-435-4000
Oceanside –Transient Dock	Oceanside	760-435-4000
Dana Point Fuel Dock	Dana Point	714-496-6113
Dana Point Harbormaster	Dana Point	714-496-1094
Dana Point – West Marina	Dana Point	714-493-6222

Score Sheet – Page 38

Solid Waste

Solid waste can collect at marinas and boat ramp sites if litter is not continuously picked up, if trash receptacles are not provided or conveniently located and/or insufficient attention is given to controlling waste produced during boat cleaning, maintenance and repair activities. Marinas that appear clean are more attractive to customers. Substantial clean up costs can be replaced by small initial investments in trash collection and preventive practices. Providing sufficient waste receptacles, separating waste into classes of recyclables and preventing litter are all accepted practices and are part of customer service and environmentally friendly management at marinas.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Section 8.50
City of San Diego Municipal Code Section 63.20.5
City of Oceanside Municipal Code Section 29A.20(A)
County of Orange Code Section 2-2-163

Marina Best Management Practices

- Keep litter picked up.
- Place trash receptacles and dumpsters in convenient locations for boaters and guests.
- Use covered dumpsters and trashcans so they do not fill up with rainwater, do not blow away in heavy winds and are less likely to be invaded by scavenging mammals and birds.
- Keep trash enclosures clean and free of debris.

Solid Waste (cont.)

- Keep cleanup equipment and materials available.
- Inspect trash storage areas weekly.
- Dispose of all solid wastes in accordance with local, state and federal laws and regulations.
- Provide facilities for the eventual recycling of appropriate materials, such as glass, aluminum, plastic, trash, newspapers and batteries.
- Use pamphlets, flyers, newsletters, inserts and/or meetings to convey the importance of any environmental precautions that the marina has instituted.
- Use signs to inform boaters about equipment, disposal containers, cleaning practices, etc. Special instructions should be clearly noted.

Boater Best Management Practices

- Do not dump plastic or any other trash into the water.
- Use the dumpsters, trash receptacles and other approved containers to dispose of garbage and other waste.
- When conducting in water hull or bottom cleaning, bring or ask your diver to bring the old zinc anodes to the shore for disposal or recycling.

Score Sheet – Page 39

Liquid Waste

Dirty oil can be recycled, cleaned and used again. Recycled used motor oil can reduce the threat of its entrance into storm drains and pollution of groundwater and water bodies and/or it being poured onto the ground or tossed into trash receptacles and polluting the soil. Adequate storage and disposal facilities are important if the used oil and variety of other liquid materials boater use and store on their vessels are to be kept out of the environment.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Article10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Maintain an oil spill response plan and have spill containment/cleanup supplies readily accessible.
- Train marina employees in oil response.
- Provide a waste oil collection site for marina boaters when practicable.
- Maintain a log of the quantities and sources for all waste oil collected.
- Locate the disposal area away from flood areas and fire hazards.
- Provide clearly labeled, separate containers for waste oils and other materials that are collected at the site.
- Accept used oil filters at the waste oil collection site.

Liquid Waste (cont.)

- Drain the used oil filters before disposal by placing the filter in a funnel.

- Use proper signs to direct boaters on the proper handling and disposal of motor oil.

- Encourage boaters to use local Household Hazardous Waste collection sites for all hazardous waste and provide contact information.

- Store minimal quantities of hazardous materials.

- Use alternative environmentally safe liquid materials when possible.

- Insert language into slip lease agreements or yacht club rules requiring the proper disposal of liquid waste.

- Maintain a liquid waste spill plan and update as necessary.

- Keep adequate spill response equipment and materials in strategic locations.

Boaters Best Management Practices

- Dispose of used oil and oil filters in an approved collection station on shore.

- Use oil-absorbent pads to soak up oily bilge water and dispose at an approved collection station.

- Check for traces of oil before pumping out the bilge.

- Encourage boaters to encase replaced oil in a ridged container, oil filters in plastic bags and use drip pans and absorbent pads while doing the replacements.

Liquid Waste (cont.)

- Clean bilges and remove loose containers of paint and oil based products before hauling vessel

- Know where the marina's spill response equipment is stored.

Score Sheet – Page 40

Fish Waste

The amount of fish waste disposed into a small enclosed basin such as a marina can exceed that which exists naturally in the water at any one time. In sufficient quantities where water circulation is restricted, the decomposition of this fish waste can deplete the water of dissolved oxygen, leading to water quality degradation and fish kills. It is therefore necessary to promote sound fish waste management through a combination of fish-cleaning restrictions, public education and proper disposal of fish waste.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Article10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Educate boaters regarding the importance of proper fish cleaning practices.
- Establish fish cleaning stations with trash receptacles.
- Provide signage at fish cleaning stations.
- Encourage boaters to dispose of unwanted bait offshore and to eviscerate (gut) fish and dispose of contents at sea.

Boaters Best Management Practices

- Clean fish only at fish cleaning station.
- Clean fish using proper fish cleaning practices.

Fish Waste (cont.)

- Dispose of unwanted bait offshore.
- Eviscerate (gut) fish and dispose of contents at sea.

Score Sheet – Page 41

Hazardous Materials

Improper handling of hazardous materials can cause harm to human health and the environment and can result in serious penalties and expensive clean-up costs if contaminations occur.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Article10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Develop and maintain a Hazardous Materials Management Plan and maintain waste disposal records for a minimum of three years.
- Store, manage and dispose of hazardous materials and waste legally.
- Store hazardous materials off the ground and covered with an impervious surface (e.g. roof, tarp, etc.).
- Keep hazardous material containers and drums in good condition and closed securely.
- Clean up and dispose of spills and leaks promptly and properly.
- Provide spill control material and empty containers for emergency clean up.
- Contract with an approved hazardous materials hauler for periodic disposal.

Hazardous Materials (cont.)

- Segregate material to ensure that only materials that are hazardous are handled as such.

- Use snap top funnels to ensure that containers and tanks are properly closed after materials are added and clearly label containers and tanks in order to avoid mixing incompatible materials.

- Designate an emergency coordinator and train personnel who handle hazardous materials in proper management procedures and emergency response in case of a fire or spill.

- Post the phone number of the emergency coordinator and the local fire department.

- Follow all emergency procedures to address spills and fires.

Boaters Best Management Practices

- Hazardous wastes generated by recreational boaters are considered household hazardous waste.

- Dispose of household hazardous waste in properly marked containers if provided by the marina or at the nearest appropriate site.

Score Sheet – Page 42

Storm Water Runoff

Marinas should annually conduct a storm water pollution prevention training that focuses on employee responsibility for creating, managing and updating the Best Management Practices that prevent storm water pollution. This training should discuss good housekeeping, preventive maintenance, spill prevention and response and material management practices.

Regional Regulations

SWRCB, San Diego Order No. 2001-01, NPDES No CAS0108758 (Oceanside, Mission Bay, San Diego Bay). Order No R9-2002-000 NPDES No CAS0108740 (Dana Point Harbor).
Port of San Diego Code Article10
City of San Diego Municipal Code Article 3, Div 3, Section 43.0301
City of Oceanside Municipal Code Chapter 40
County of Orange Code Sections 9-1-10 to 9-1-127

Marina Best Management Practices

- Develop a Storm Water Pollution Prevention Plan.

- Maintain materials and equipment such as booms and absorbent pads needed for a storm water spill response and ensure they are readily available.

- Report spills that have entered or have a potential to enter the storm drain system or a water body to appropriate agencies.

- Provide signage adjacent to storm drain inlet to discourage illegal dumping of pollutants.

- Prohibit vehicle maintenance in marina parking lots.

- Prohibit vehicle washing in marina parking lots.

Storm Water Runoff (cont.)

- Provide signs adjacent to parking lots that prohibit littering, dumping and/or vehicle servicing/cleaning.

- Develop and implement regular sweeping/cleaning program.

- Reduce or eliminate landscaping and irrigation runoff into the storm drain or water body.

Score Sheet – Page 43

Clean Marina Program Score Sheets

Emergencies						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Marina has an Emergency Action Plan.	10					
2. Marina prepared for spill cleanups.			10			
3. All staff receives ongoing training regarding emergency procedures.			10			
4. Provides boater education for:						
• Boat fire extinguishers			5			
• Safe boat maintenance			5			
• Continuous ventilation			5			
Emergencies Points	**10**		**35**			

BMPs – Page 7

Clean Marina Program Score Sheet

Petroleum Containment						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Marina has a Fuel & Oil Spill Prevention & Containment Plan	10					
2. Prohibits the use of detergents and emulsifiers on fuel spills.			10			
3. Clause in leasing agreement that requires boaters to use oil-absorbing materials in their bilges.			10			
4. Initiated an absorbent pad exchange program for slip holders.			10			
5. Provides boater education for:						
• Filling fuel containers			5			
• Appropriate engine maintenance			5			
• Appropriate use of oil absorbent materials			5			
• Appropriate bilge pumping			5			
Petroleum Containment Points	10		**50**			

BMPs – Page 8

Clean Marina Program Score Sheet

Topside Boat Maintenance & Cleaning						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Enforces rules and regulations regarding boat maintenance while in the slip.	10					
2. Provides boater education for:						
• Doing only minor maintenance in slips (<25% of deck length)			20			
• Recovering & disposing of sanding dust			10			
• Environmentally safe cleaning & painting			10			
• Spill avoidance			10			
Topside Boat Maintenance & Cleaning Points	**10**		**50**			

BMPs – Page 11

Clean Marina Program Score Sheet

Underwater Boat Hull Cleaning						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Recommends nontoxic and legal hull paint to slip holders.	10					
2. Encourages the use of environmentally friendly hull cleaning companies who use Best Management Practices and monitor their divers.			20			
3. Provides boater education for:						
• Properly applying & maintaining hull paints.			5			
• Waiting 90 days before cleaning.			5			
• Properly repaired bonding problems.			5			
• Regularly scheduled maintenance using BMPs.			5			
• Encourage divers to use least abrasive pads for type of growth.			5			
Underwater Boat Hull Cleaning Points	10		**45**			

BMPs – Page 13

Clean Marina Program Score Sheet

Marina Operations						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Conducts or attends emergency spill response procedures training.	10					
2. Prohibits bicycles, motor scooters and motorbikes on the docks.	10					
3. Prohibits unattended open containers of paints and other maintenance supplies on the docks.	10					
4. Stores liquid marina supplies indoors or in covered containers.	10					
5. Cleans all spills immediately.	10					
6. Uses absorbent materials or other environmentally friendly methods to clean liquid spills.	10					
7. Berms off trash and recycling areas to prevent leaks from entering the waters.			10			
8. Provides boater education for:						
• Proper storage & disposal of materials.			5			
• Emergency spill response.			5			
• Household Hazardous Waste disposal site locations.			5			
Marina Operations Points	**60**		**25**			

BMPs – Page 15

Clean Marina Program Score Sheet

Marina Debris						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Requires immediate cleanup of chemical, pesticide, fertilizer and soil spills.	10					
2. Requires boaters to use trays under all potted plants on the docks.			10			
3. Requires that pets are not allowed to run unleashed in the marina.			10			
4. Requires that pet owners clean up after their pets.	10					
5. Supplies disposal bags for pet owners.			10			
6. Cleans parking lots using dry methods or methods in which wash water is recovered.			10			
7. Requires boaters to throw nothing illegal overboard.			10			
Marina Debris Points	**20**		**50**			

BMPs – Page 17

Clean Marina Program Score Sheet

Boat Sewage Discharge						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Enforces existing local, state and federal regulations pertaining to marine sanitation devices and the illegal discharge of boat sewage.	10					
2. If marina provides onsite pumpout facility, ensure it is user friendly, open at convenient times and at a reasonable cost.			20			
3. Installs adequate signs on the pumpout.			10			
4. Inspects and maintains the pumpout regularly.			10			
5. Posts and makes available to boaters a list of local pumpout locations.			10			
6. Provides boater education for:						
• Proper use of marine sanitation devices.			10			
• Abiding by the Clean Water Act.			10			
Boat Sewage Discharge Points	**10**		**70**			

BMPs – Page 19

Clean Marina Program Score Sheet

Solid Waste						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Disposes of solid wastes in accordance with all local, state and federal laws and regulations.	10					
2. Keeps litter picked up			10			
3. Places trashcans and dumpsters in convenient locations.			10			
4. Covers trashcans and dumpsters.			10			
5. Keeps trash enclosures clean and free of debris.			10			
6. Keeps cleanup equipment and materials available.			10			
7. Conducts periodic inspections of trash storage areas.			10			
8. Provides recycling containers.			20			
9. Provides education to boaters for						
• Prohibition of dumping wastes into water.			10			
• Proper disposal of garbage, recyclables and other wastes.			10			
• Proper disposal of batteries and zinc anodes.			10			
Solid Waste Points	**10**		**110**			

BMPs – Page 21

Clean Marina Program Score Sheet

Liquid Waste						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Maintains an oil spill response plan and has containment /cleanup supplies available.	10					
2. Trains marina employees in oil response.	10					
3. Slip lease agreements contain language requiring the proper disposal of liquid waste.	10					
4. Encourages boaters to use local Household Hazardous Waste collection sites.			10			
5. Uses environmentally safe liquid materials when possible.			10			
6. Provides a waste oil collection site.			20			
7. Maintains a log of all waste oil collected.			10			
8. Accepts used oil filters at the oil collection site.			20			
9. Stores minimal quantities of hazardous materials			10			
10. Provides education to boaters for:						
• Proper disposal of used oil & filters.			5			
• Checking bilge before pumping.			5			
• Proper oil changing techniques.			5			
• Spill response procedures.			5			
Liquid Waste Points	**30**		**100**			

BMPs – Page 23

Clean Marina Program Score Sheet

Fish Waste						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Establishes fish cleaning stations with trash receptacle. (If marina does not have onsite fish cleaning, see #4 below)			10			
2. Provide proper use signs at fish cleaning stations.			10			
3. Provides education to boaters for:						
• Importance of proper fish cleaning techniques.			5			
• Disposal of unwanted bait offshore.			5			
• Eviscerate (gut) fish and dispose of contents at sea.			5			
4. Bans the cleaning of fish in marina, if on-site cleaning station is not provided.			20			
Fish Waste Points	**0**		**55**			

BMPs – Page 26

Clean Marina Program Score Sheet

Hazardous Materials						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Marina has a Hazardous Materials Management Plan and disposal records on file.	20					
2. Has a designated emergency coordinator and trained personnel who handle hazardous materials in proper management procedures and emergency response.			10			
3. Contracts with an approved hazardous materials hauler for periodic disposal.			10			
4. Stores, manages and disposes of hazardous materials and waste legally.			10			
5. Stores hazardous materials off the ground and covered with an impervious surface (e.g. roof, tarp, etc.).			10			
6. Keeps hazardous material containers and drums in good condition and closed securely.			10			
7. Clean up and dispose of spills and leaks promptly and properly.			10			
8. Provides spill control material and empty containers for emergency clean up.			10			
9. Segregates material to ensure that only materials that are hazardous are handled as such.			10			
10. Uses snap top funnels to ensure that containers and tanks are properly closed after materials are added and clearly label containers and tanks in order to avoid mixing incompatible materials.			10			
Hazardous Materials Points	**20**		**90**			

Clean Marina Program Score Sheet

Storm Water Runoff						
	Mandatory		Additional		N/A	Comment
	Points	Score	Points	Score		
1. Marina has a Storm Water Pollution Prevention Plan	10					
2. Maintains materials and equipment needed for storm water spill response.			10			
3. Report spills that have a potential to enter the storm drain system or a water body to the appropriate agencies.			20			
4. Prohibits vehicle washing & maintenance in marina parking lots.	10					
5. Provides signs adjacent to parking lots that prohibit littering, dumping and/or vehicle servicing/cleaning.			10			
6. Developed and implemented a regular sweeping/cleaning program.			10			
7. Provides signage adjacent to storm drain inlet to discourage illegal dumping of pollutants.			10			
8. Reduced or eliminated landscaping and irrigation runoff into the storm drain or water body.			20			
Storm Water Runoff Points	**20**		**80**			

BMPs – Page 30

Clean Marina Program Score Sheet

Category	Section Page #	Mandatory		Additional		N/A	Comment
		Points	Score	Points	Score		
Emergencies	8	10		35			
Petroleum Containment	9	10		50			
Topside Boat Maintenance and Cleaning	12	10		50			
Underwater Boat Hull Cleaning	14	10		45			
Marina Operations	16	60		25			
Marina Debris	18	20		50			
Boat Sewage Discharge	20	10		70			
Solid Waste	22	10		110			
Liquid Waste	24	30		100			
Fish Waste	27	0		55			
Hazardous Materials	29	20		90			
Storm Water Runoff	31	20		80			
TOTAL		**210**		**760**			
POINTS NEEDED		**210**		**494**			
PASS / FAIL							

* Mandatory points needed 100% = 210 points

*Additional points needed 65% = 494 points minimum

*Remember to subtract N/A BMPs from Additional point total before calculating percentage score.

Example:

Mandatory	Additional
210 Total	760 Total Points
210 Pts. Needed	-120 N/A Points (Hypothetical)
	640

Divide total points needed into actual score to obtain percentage.

Appendix A – Regulations

PLEASE NOTE THAT THE LINKS ON THE FOLLOWING PAGES WILL NOT WORK IF DIRECTLY CLICKED ON. PLEASE CUT AND PASTE THE LINKS INTO YOUR BROWSER OR VISIT THE "LINKS TO MARINA & BOATER REGULATIONS & RESOURCES" PAGE ON THE CLEANMARINAPROGRAMSD.ORG WEBSITE.

Pertinent Marina & Boater Codes and Regulations

International Regulations

MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978)
http://www.imo.org/home.asp

United States Federal Regulations

Clean Water Act (U.S. Code, Title33, Chapter 26 Water Pollution Prevention and Control)
http://www4.law.cornell.edu/uscode/33/ch26.html

State of California Regulations

California Harbors And Navigation Code
http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hnc&codebody=

Emergency Action plan – State of California Department of Industrial Relations, Subchapter 7 General Industry Safety Orders, Group 1. General Physical Conditions and Structures Orders, Article 2. Standard Specifications, §3220 http://www.dir.ca.gov/title8/3220.html

Porter-Cologne Water Quality Control Act (Cal. Water Code, Division 7)
http://www.waterboards.ca.gov/water_laws/docs/portercologne.pdf

Department of Fish and Game Code, Section 5650
http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=51128819120+7+0+0&WAISaction=retrieve

Appendix A – Regulations (cont.)

Pertinent Marina & Boater Codes and Regulations

Local Regulations

San Diego Unified Port District various codes
http://www.portofsandiego.org/sandiego_environment/storm_water.asp#ordinance

City of San Diego various codes
http://clerkdoc.sannet.gov/Website/mc/mc.html

City of Oceanside various codes
http://library6.municode.com/gateway.dll/CA/california/171?f=templates&fn=default.htm&npusername=10130&nppassword=MCC&npac_credentialspresent=true&vid=default

County of Orange various codes
http://library6.municode.com/gateway.dll/CA/california/2562?f=templates&fn=default.htm&npusername=11378&nppassword=MCC&npac_credentialspresent=true&vid=default

Appendix B – Resources

Clean Boating and Clean Marinas

- California Department of Boating and Waterways
  www.dbw.ca.gov
  (888) 326-2822

  - California Coastal Commission
    www.coastal.ca.gov/ccbn/ccbndx.html
    (800) COAST4U

    - California Coastal Commission Clean Marina Toolkit
      http://www.coastal.ca.gov/ccbn/toolkit/marina-toolkit.pdf

  - US EPA Marinas Website:
    www.epa.gov/owow/nps/marinas.html

  - National Clean Boating Campaign
    www.cleanboating.org
    (877) 892-0011

  - Northeast Waste Management Officials' Association
    (Additional BMPs)
    http://www.seagrant.sunysb.edu/pages/BMPsForMarinas.htm

  - University of California Sea Grant, San Diego
    http://seagrant.ucdavis.edu/marharboats.htm

  - The Earth's 911/Clean Boating web-page
    www.cleanup.org

  - U.S. Coast Guard Marine Safety and Environmental Protection
    www.auxonline.org/~msep/

  - U.S. Coast Guard, Sea Partners Program
    www.uscg.mil/hq/g-m/nmc/seapart.htm

Appendix B – Resources (cont.)

Underwater Hull Cleaning

- University of California Sea Grant, San Diego
  http://seagrant.ucdavis.edu/hullclean.htm
  (858) 694-2854

Boat Sewage

- California Department of Boating and Waterways
  www.dbw.ca.gov
  www.dbw.ca.gov/Pubs/Sanitation/index.htm
  (916) 263-1331, Toll-free (888) 326-2822

- U.S.EPA Oceans and Coastal Protection Division (OCPD)
  www.epa.gov/owow/oceans/
  (202) 260-1952

- Pumpout Facilities in California
  www.coastal.ca.gov/ccbn/ccbndx.html

Petroleum Containment

- Cleanup facilities
  www.cleanup.org
  www.coastal.ca.gov/ccbn/ccbndx.html
  (800) CLEANUP

- "Stop the Drops" Fuel Spill Prevention Program
  Clean Water Trust/Boat U.S.
  (800) 395-2628

- Small Craft Refueling Facilities Certification Program
  California Department of Fish and Game
  OSPR Outreach Program
  www.dfg.ca.gov/ospr/organizational/admin/outreach.htm
  (916) 323-6286

Appendix B – Resources (cont.)

Hazardous Materials

- List of registered hazardous waste haulers / transporters – available at DTSC Registry
  http://www.dtsc.ca.gov/HazardousWaste/Trans000.cfm

- Questions regarding hazardous waste management
  DTSC regional Public and Business Liaisons
  www.dtsc.ca.gov
  (800) 72TOXIC (1-800-728-6942)

- Location of local business and household hazardous waste disposal facilities
  www.cleanup.org
  (800) CLEANUP

- Courtesy hazardous waste inspections (non-regulatory inspections provided as a courtesy to assist marinas with hazardous waste compliance)
  U.S. Coast Guard Auxiliary- check with your local Auxiliary flotilla
  www.cgaux.org
  (800) 368-5647

Solid Waste

- Marine debris issues
  The Ocean Conservancy
  www.oceanconservancy.org
  (202) 429-5609

- Algalita Marine Research Foundation
  www.algalita.org
  (562) 433-2361

- Locating recyclers or companies to take waste
  California Integrated Waste Management Board

Appendix B – Resources (cont.)

www.calMax.org

- Shrink wrap recycling
  Dr. Shrink, Inc.
  http://www.dr-shrink.com/
  (800) 968-5147

- *Stash Your Trash* –free brochures
  Boat U.S. Foundation
  www.boatus.com
  (800) BOAT-USA

Storm Water Runoff

- *Storm Water Phase II Final Rule Fact Sheet Series*
  U.S. EPA Office of Wastewater Management
  http://www.cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm

- *Storm Water Runoff best Management Practices for Marinas*
  Sea Grant Northeast
  www.seagrant.sunysb.edu/pages/BMPsForMarina.htm

- Regional Water Quality Control Board
  The Board implements storm water and pollution discharge permits and conducts enforcement of water quality laws. Regional Boards also have the authority to require installation and maintenance of sewage pumpouts and to establish regional standards for adequate numbers of pumpouts.

  Region 9 – San Diego Region
  9174 Sky Park Court
  Suite 100,
  San Diego, CA 92123-4340
  (858) 467-2952

- State Water Resources Control Board

Appendix B – Resources (cont.)

The Board regulates discharges of pollutants to state waterways in order to protect water quality and the beneficial uses of the waters of the state. The Board, in partnership with the California Coastal Commission, implement's the state non-point source pollution control program, which includes environmental management measures for marinas and boating. The Board also implements regulations pertaining to vessel fueling facilities design, construction and operation.

1001 I Street
Sacramento, CA 95814
(916) 341-5250
www.swrcb.ca.gov

- U.S. Coast Guard Marine Safety Office
  Marina and boating-related responsibilities of the Coast Guard include providing oil and chemical spill response, enforcing MARPOL, educating boaters about boating safety, and certifying marine sanitation devices and other boat equipment.

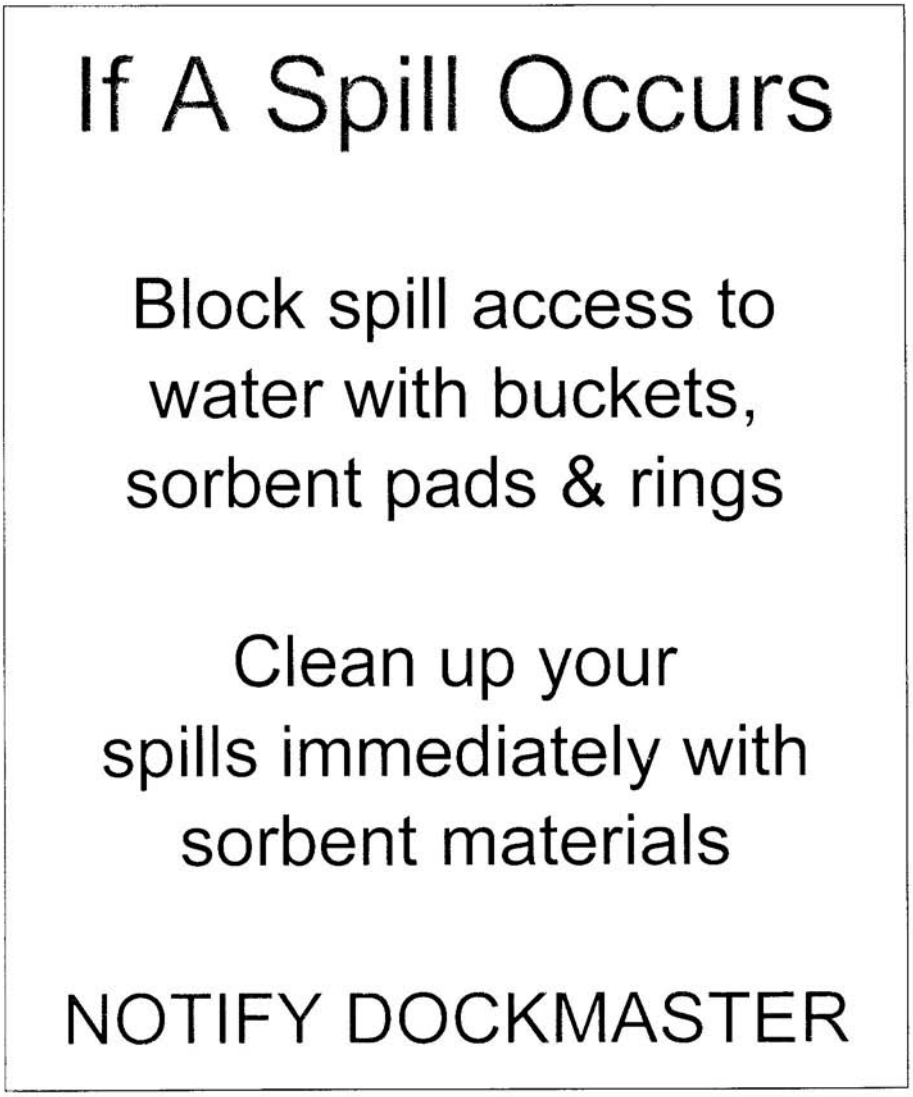
  2710 N Harbor Drive
  San Diego, CA 92101
  (619) 683-6505
  www.uscg.mil/d11/sandiego

- U.S. Environmental Protection Agency
  The U.S. Environmental Protection Agency requires that coastal states implement regulatory programs to control non-point source pollution, including pollution from marinas and boating. Under this program, the EPA has issued guidance regarding the implementation of best management practices at marinas.

  1200 Pennsylvania Avenue, N.W.
  Washington, DC 20460
  (202) 272-0167
  www.epa.gov

Appendix C – Signage Examples

SIGNAGE - PETROLEUM SPILL RECOVERY PLAN

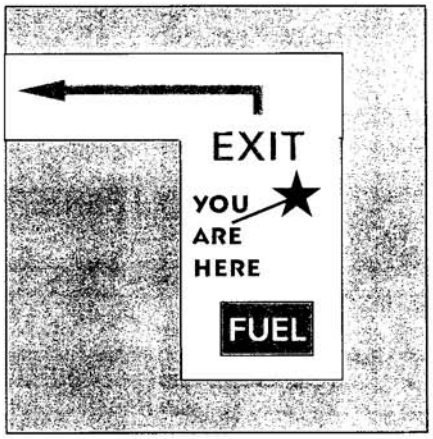


Post signage about how to handle spilled fuel.

Contain oil and diesel and notify appropriate agency, but allow gasoline to gently and rapidly disperse. Call 911 where appropriate.

SIGNAGE - FIRE SAFETY

After Fueling,
Open Hatches,
Ports & Doors
- -
Turn on Bilge Blower
and Ventilate at
Least 5 Minutes



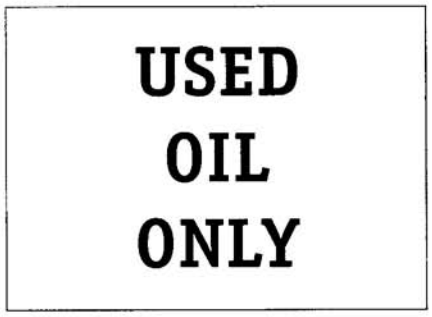
Evacuation plan for people

Signage to prohibit smoking near fueling areas

Post emergency numbers
such as U.S. Coast Guard, local Port Authority
and your local fire department in a visible location

Passengers are
Encouraged to
Disembark Inboard
Gasoline
Powered Vessels
While Fueling

SIGNAGE - FUEL WASTE MANAGEMENT



Label containers used to store petroleum products. This could be stenciled onto existing containers. The container should also have secondary containment.

Label containers used to store petroleum waste. This could be stenciled onto existing containers.

Contact your local DEP District office for information regarding local companies that collect and recycle waste oil, gas, filters, etc.

SIGNAGE - BOAT CLEANING - IN THE WATER

Boat cleaning in the water methods should be posted on signs and prominently displayed for marina customers. These methods should be available to hand out to customers at the ship's store.

NO PLASTIC BAGS ACCEPTED

PLEASE RECYCLE

[List items that your county recycles here]

Provide convenient trash disposal and recycling facilities to marina patrons.

Covered dumpsters or other covered receptacles are preferred. Ensure that an adequate number of clearly marked recepticles are placed in the marina and on the docks.

Implement recycling and trash reduction programs for appropriate materials, such as glass, aluminum, plastic, trash, newspapers, batteries and oil.

WE RECYCLE

PLEASE HELP BY PLACING ALUMINUM CANS IN THE **RED** MARKED RECEPTACLES

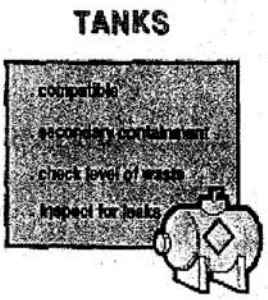
PLEASE DO NO PLACE
HAZARDOUS MATERIALS
(i.e. PAINT, THINNER, SOLVENTS or FLARES)
IN TRASH CANS

SERVICE DEPT --
NOTIFY YOUR EMPLOYER
OF ALL ACCIDENTS

EMERGENCIES
PHONE NUMBERS
All Emergencies:
Bob 555-1234

Fire: 911
Ambulance: 911
Police: 911

Provide signs to help staff determine which waste streams are hazardous using process knowledge, product knowledge or testing.



Provide signs as a reminder that the containers must be compatible for the type of waste stored within.

Have all contractors/mechanics sign an environmental agreement which outlines how all materials are to be handled when on marina property. Do not allow contractors on the property who do not sign or have violated the terms of the agreement.

Post signs by solid waste receptacles that prohibit disposal of hazardous waste

SIGNAGE - SEWAGE AND GRAY WATER

For all marinas with pumpout facilities, post visible signage indicating pumpouts (and dump stations) are available.

Encourage boaters to use shoreside facilities.

ALL PET OWNERS ARE REQUIRED
TO REMOVE PET FECES AND
DEPOSIT CLOSED BAG IN A
TRASH RECEPTACLE.
BAGS PROVIDED FOR YOUR
COMPLIANCE OF
SLIP RENTAL AGREEMENT.

Provide signage for proper disposal of marina patron's animal waste.

Appendix D – Acknowledgements

A special thank you to the many people that helped develop the Clean Marina Program – San Diego Region.

Fabian Arreola	Coronado Yacht Club
Gerard Charest	Marina Village Marina
Bob Evasick	Driscoll Mission Bay Marina
Debra Gilbert	Silvergate Yacht Club
Cleve Hardaker	Silvergate Yacht Club
Tim Leathers	Cabrillo Isle Marina
Bob Lenson	Coronado Yacht Club
Ed Letzrine	San Diego Yacht Club
Leigh Johnson	University of California Seagrant Extension Program
Scott Maclaggan	Sunroad Marina
Deborah Mason	Shelter Island Marina
Vikki McMillan	Southwestern Yacht Club
Ann Miller	Bay Club, Half Moon
Jim Moulton	California Yacht Marinas
Brad Oliver	San Diego Yacht Club
Sandy Purdon	Shelter Cove Marina
Frank Quan	Oceanside Harbor
Lou Schlotter	California Yacht Marinas
John Scott	Coronado Yacht Club
Chip Thompson	Chula Vista Marina
John Witherspoon	Coronado Yacht Club
James Wachtler	Southwestern Yacht Club

Appendix E - Marinas

CHULA VISTA

CALIFORNIA YACHT MARINA
370 Slips
Contact: Jr. Cruz/Jim Moulton
640 Marina Parkway
Chula Vista, CA 92010
Phone: (619) 422-2595
Fax: (619) 422-2696
slips@cymchulavista.com

CHULA VISTA MARINA
552 Slips
Contact: Mick McGuigan
550 Marina Parkway
Chula Vista, CA 91910
Phone: (619) 691-1860
Fax: (619) 420-9667
boatslips@cvmarina.com

CORONADO CAYS

CORONADO CAYS HOMEOWNERS
Antigua Village (114 Slips)
Blue Anchor Cay (223 Slips)
Green Turtle Cay (336 Slips)
Jamaica Village (49 Slips)
Kingston (86 Slips)
Admin (10 Slips)
Contact: Tim Burns
505 Grand Caribe Isle
Coronado, CA 92118
Phone: (619) 423-4353 x20
Fax: (619) 424-3923
cchoaf@hotmail.com

CORONADO CAYS VILLAGE AT MONTEGO BAY
42 Slips
Contact: Jerry Nelson
Applegate Properties
P.O. Box 1110
Meadow Vista, CA 95722
Phone: (800) 244-9593
Phone: (530) 878-9371
Fax: (530) 878-6035
energyequity@yahoo.com

LOEWS CORONADO BAY RESORT
81 Slips
Contact: Fred Clark
4000 Coronado Bay Road
Coronado, CA 92118
Phone: (619) 575-7245
Fax: (619) 424-4456

CORONADO

GLORIETTA BAY MARINA
106 Slips
Contact: Jack Swartz
1715 Strand Way
Coronado, CA 92118
Phone: (619) 435-5203
Fax: (619) 435-5377

SAN DIEGO - DOWNTOWN

SAN DIEGO MARRIOTT MARINA
447 Slips
Contact: Mary Kuhn
333 West Harbor Drive
San Diego, CA 92101
Phone: (619) 230-8955
Fax: (619) 230-8958
mary.kuhn@marriott.com

SAN DIEGO - HARBOR ISLAND

CABRILLO ISLE MARINA
406 Slips
Contact: Tim Leathers
1450 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 297-6222
Fax: (619) 299-8446
tleathers@cabrilloisle.com

HARBOR ISLAND WEST
620 Slips
Contact: Eric Leslie
2040 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 291-6440
Fax: (619) 291-2684
marinaoffice@harborislandwest.com

MARINA CORTEZ
535 Slips
Contact: Carol Pagliuso
1880 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 291-5985
Fax: (619) 291-9136

SUNROAD RESORT MARINA
600 Slips
Contact: Scott MacLaggan
955 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 574-0736
Fax: (619) 574-7603
info@sdmarina.com

SHERATON HARBOR ISLAND
42 Slips
Contact: Eric Holle
1380 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 692-2249
Fax: (619) 718-6887

SAN DIEGO - HARBOR DRIVE MARINAS

DRISCOLL'S WHARF
125 Slips
Contact: Cathy Driscoll
4918 North Harbor Drive Suite 203
San Diego, CA 92106
Phone: (619) 222-4930
cthdrscll@cs.com

SUN HARBOR MARINA
116 Slips
Contact: Mary Lou LoPreste/Brian Peelie
5104 Harbor Drive
San Diego, CA 92106
Phone: (619) 222-1167
Fax: (619) 222-9387
Marylou@sun-harbor.com

SAN DIEGO - SHELTER ISLAND

BAY CLUB/HALF MOON ANCHORAGE
154 slips / 180 Slips
Contact: Saul Ramirez
2131 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-0314
Fax: (619) 224-4984
marina@bayclubhotel.com

SHELTER COVE MARINA
161 Slips
Contact: Shaun McMahon
2240 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 224-2471
Fax: (619) 224-9117
Cell: (619) 847-0599
info@sheltercovemarina.com

SHELTER ISLAND MARINA
188 Slips
Contact: Deborah Pennell
2071 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 223-0301
Fax: (619) 223-2113
dockmaster@islandpalms.com

KONA KAI MARINA
522 Slips
Contact: Jill Wyatt
1551 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 224-7547
Fax: (619) 222-0233
jwyatt@konakaimarina.com

GOLD COAST ANCHRAGE
35 Slips
2353 Shelter Island Drive
San Diego, CA 92106
Phone: (949) 723-7781
Fax: (949) 723-7782
info@bellportgroup.com

SAN DIEGO - MISSION BAY

BAHIA RESORT HOTEL MARINA
76 Slips
Contact: Darius Williams & Jose Garces
998 West Mission Bay Drive
San Diego, CA 92109
Phone: (858) 539-7695
Fax: (858) 539-7674
jgarces@bahiahotel.com

CAMPLAND ON THE BAY
124 Slips
Contact: Dave Rohl
2211 Pacific Beach Drive
San Diego, CA 92109
Phone: (858) 581-4224
Fax: (858) 490-5810

DANA LANDING
90 Slips
Contact: Steve Jarvis
2630 Ingraham Street
San Diego, CA 92109
Phone: (619) 224-2513
Fax: (619) 224-1076

DANA INN & MARINA
143 Slips
Contact: Ted Bremer
1710 West Mission Bay Drive
San Diego, CA 92109
Phone: (619) 222-6440 - x 3146
Fax: (619) 222-5916
dana_marina@danainn.com

SAN DIEGO – MISSION BAY (cont.)

DRISCOLL-MISSION BAY MARINA
206 Slips
Contact: Bob Evasick
1500 Quivira Way
San Diego, CA 92109
Phone: (619) 221-8456
Fax: (619) 221-8458
www.driscollinc.com
info@driscoll-boats.com

ISLANDIA MARINA
187 Slips
Contact: Lee Davis
1441 Quivira Road
San Diego, CA 92109
Phone: (619) 221-4858
Fax: (619) 224-0348

MARINA VILLAGE
634 Slips
Contact: Gerry Charest & Mort McCarthy
1936 Quivira Way
San Diego, CA 92109
Phone: (619) 224-3125
Fax: (619) 222-0634
gerry@marinavillage.net

SEAFORTH MARINA
232 Slips
Contact: Bob Buckman/Jim Curry
1677 Quivira Road
San Diego, CA 92106
Phone: (619) 224-6807

SEA WORLD MARINA
198 Slips
Contact: Andy Schwartz
1660 South Shores Road
San Diego, CA 92109
Phone: (619) 226-3910
Fax: (619) 225-3260
seaworldmarina@seaworld.com

OCEANSIDE

OCEANSIDE HARBOR
950 Slips
Contact: Customer Service
1540 Harbor Drive North
Oceanside, CA 92054
Phone: (760) 435-4000
Fax: (760) 439-3058
harborstaff@ci.oceanside.ca.us

DANA POINT

DANA POINT MARINA COMPANY
1,400 Slips
Contact: Douglas Whitlock
34555 Casitas Place
Dana Point, CA 92629
Phone: (949) 496-6137
Fax: (949) 496-0788
customerservices@danapointmarina.com

DANA WEST MARINA
980 Slips
24500 Dana Point Harbor Dr
Dana Point, CA 92629
Phone: (949) 493-6222
Fax: (949) 493-7531
office@danawestmarina.com
ericl@harborislandwest.com

MILITARY MARINAS

BOATHOUSE
60 Slips
Contact: Hugo Burchartz
MCCS - Recreation Division
Marine Corps Recruit Depot
3800 Chosin Ave. Bldg. #131
San Diego, CA 92140
Phone: (619) 524-5269
Fax: (619) 524-5025

DEL MAR MARINA
52 slips
Contact: Ann Smith
P.O. Box 555020
Camp Pendleton, CA 92055
Telephone: (760) 725-2820
Fax: (760) 725-0299
sailmcss@aol.com

FIDDLER'S COVE MARINA
264 slips, 170 moorings
Contact: Curt Snyder/Brandon Workman
c/o NASNI MWR Code 92
Box 357081
San Diego, CA 92135-7081
Phone: (619) 522-8680
Fax: (619) 522-7969
snyder.curtis@ni.cnrsw.navy.mil
Workman.Brandon@ni.cnrsw.navy.mil

NAVY SAILING CENTER POINT LOMA
87 Slips
Contact: Dave Rose & Brandie Marone
33050 Acoustic Ave, Suite 200
San Diego, CA 92147
Phone: (619) 524-6498
Fax: (619) 524-5299
marone.brandie@ns.cnrsw.navy.mil

Appendix F – Yacht Clubs and Other Slips

YACHT CLUBS

CHULA VISTA YACHT CLUB
Contact: Slips are managed by California Yacht Marina
642 Marina Pkwy #83
Chula Vista, CA 91910
Phone: (619) 422-7888
cvyc@nethere.net

CORONADO CAYS YACHT CLUB
56 Slips
Contact: Port Capt. David Dirkes
Contact: Dockmaster Mike Cox
30 Caribe Cay Blvd.
Coronado, CA 92118
Phone: (619) 429-0133
Fax: (619) 424-5938
ccyc@earthlink.net

CORONADO YACHT CLUB
207 Slips
Contact: Fabian Arreola
1631 Strand Way
Coronado, CA 92118
Phone: (619) 435-1848
Fax: (619) 435-2480
coryclub@sdglobal.net

DANA POINT YACHT CLUB
24399 Dana Drive
Dana Point, CA 92629
Phone: (949) 496-2900
Fax: (949) 496-1603
dpyc@pacbell.net

DANA WEST YACHT CLUB
24601 Dana Drive
Dana Point, CA 92629
Phone: (949) 661-1185
Fax: (949) 661-1583
dwyc@danawest.com

KONA KAI INTERNATIONAL YACHT CLUB
Contact: Located at Kona Kai Marina – no slips
1551 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 223-3138
info@kkiyc.org

LA PLAYA YACHT CLUB
6 Slips
Contact: Bob Kyle, Commodore
2910 Owens Street
San Diego, CA 92106
Phone: (619) 222-1841
Fax: (619) 222-4026
rckyle@aol.com

MISSION BAY YACHT CLUB
148 Slips
Contact: Jim Day, Port Captain
1215 El Carmel Place
San Diego, CA 92109
Phone: (858) 488-0501
Fax: (858) 488-2442
manager@mbyc.org

YACHT CLUBS (cont.)

NAVY YACHT CLUB SAN DIEGO
Contact: Located at Fiddler's Cove Marina - 264 slips managed by Curt Snyder and/ or Brandon Workman
C/O NASNI MWR Code 92
Box 357081
San Diego, CA 92135-7081
Phone: (619) 522-8680
Fax: (619) 522-7969
Snyder.curtis@ni.cnrsw.navy,mil
Workman.brandon@ni.cnrsw.navy.mil

OCEANSIDE YACHT CLUB
Contact: OYC Office
1950 Harbor Drive North
Oceanside, CA 92054
Phone: (760) 722-5751
Fax: (760) 722-0239
oceansideyc@earthlink.net

POINT LOMA YACHT CLUB
4 Slips
Contact: Bob Kyle, Commodore
2910 Owen Street
San Diego, CA 92106
Tel: (619) 222-1841
Fax: (619) 222-4026
rckyle@aol.com

SAN DIEGO YACHT CLUB
600 Slips
Contact: Brad Oliver
1011 Anchorage Lane
San Diego, CA 92106
Phone: (619) 758-6308
Fax: (619) 224-3059
Cell: (619) 884-6309
brad@sdyc.org

SANTA MARGARITA YACHT CLUB
Contact: *Located at the Del Mar Marina, MCB Camp Pendleton*
P.O. Box 2043
Oceanside, CA 92054
Phone: (760) 725-2820

SILVER GATE YACHT CLUB
144 Slips
Contact: Terry Brothers
2091 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-1214
Fax: (619) 222-4506
portcaptain@sgyc.org

SOUTHWESTERN YACHT CLUB
385 Slips
Contact: Bob Soderberg & Bill Pattee
2702 Qualtrough Street
San Diego, CA 92106
Phone: (619) 222-0438
Fax: (619) 222-8214
frontoffice@swyc.coxatwork.com

BOATYARDS WITH SLIPS

NIELSEN BEAUMONT MARINE, INC.
15 Slips
Contact: Tom Nielsen
2242 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-4255
Fax: (619) 222-9109
boatyard@nielsenbeaumont.com

DRISCOLL BOATWORKS
Contact: Neil Wilson
2500 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 226-2500
Fax: (619) 224-0280
neil@driscollinc.com

BOATYARDS WITH SLIPS (cont.)

SHELTER ISLAND BOATYARD
50 Slips
Contact: Jan Piercy & Bill Roberts
2330 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-0481
Fax: (619) 222-4327
siboatyard@spamcop.net

SOUTHBAY BOAT YARD
Contact: Barbara Miller
997 “G” Street
Chula Vista, CA 91910
Phone: (619) 427-6767
Fax: (619) 427-0324
barb@southbayboat.com

KOEHLER KRAFT CO., INC.
2302 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-9051
Fax: (619) 222-4332

TRANSIENT FACILITY

HARBOR POLICE DOCKS
31 Slips
1401 Shelter Island Drive
Phone: (619) 686-6272

BROKERAGE MARINAS

GOLD COAST ANCHORAGE
Bellport Group
35 Slips
2353 Shelter Island Drive
San Diego, CA 92106
Phone: (949) 723-7781
Fax: (949) 723-7782
info@bellportgroup.com

CROW’S NEST YACHT BROKERAGE
25 Slips
Contact: Michael Gardella
2515 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-1122
Fax: (619) 222-3851
mgardella@crowsnestcpy.com

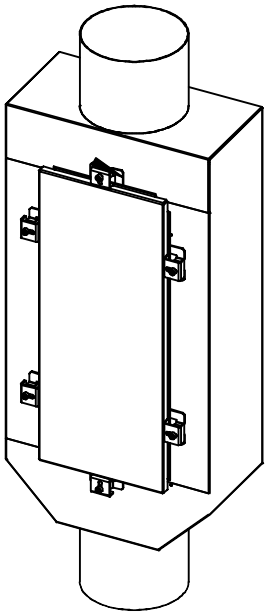
RED SAILS INN
12 Slips
Leased to Cays Yacht Sales
Contact:
2540 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 523-3355

MARLIN CLUB MARINA

SAN DIEGO MARLIN CLUB
6 Slips
Contact: Wayne Slahor, President
2445 Shelter Island Drive
San Diego, CA 92106
Phone: (619) 222-8677

SAN DIEGO MOORINGS (ROADSTEADS)

SAN DIEGO MOORING COMPANY
437 Moorings, 12 Transients
Contact: Karin Phares
2040 Harbor Island Drive Suite B116
San Diego, CA 92101
Phone: (619) 291-0916
Fax: (619) 291-2684
mooringoffice@harborislandwest.com



Flo-Gard™ Downspout Filter

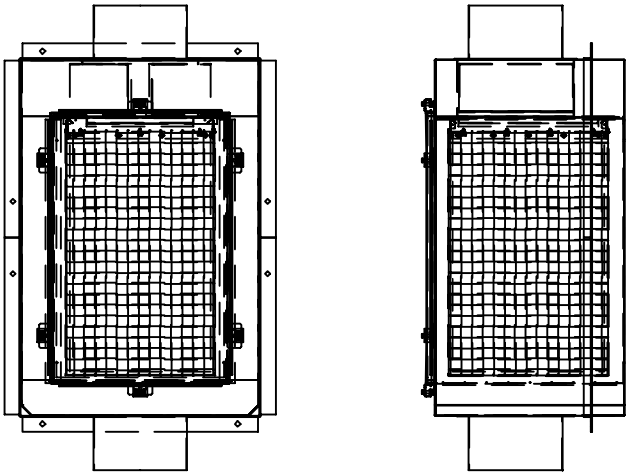
A multi-model building-mounted filter designed to collect particulates, debris, metals and petroleum hydrocarbons from rooftop stormwater runoff.

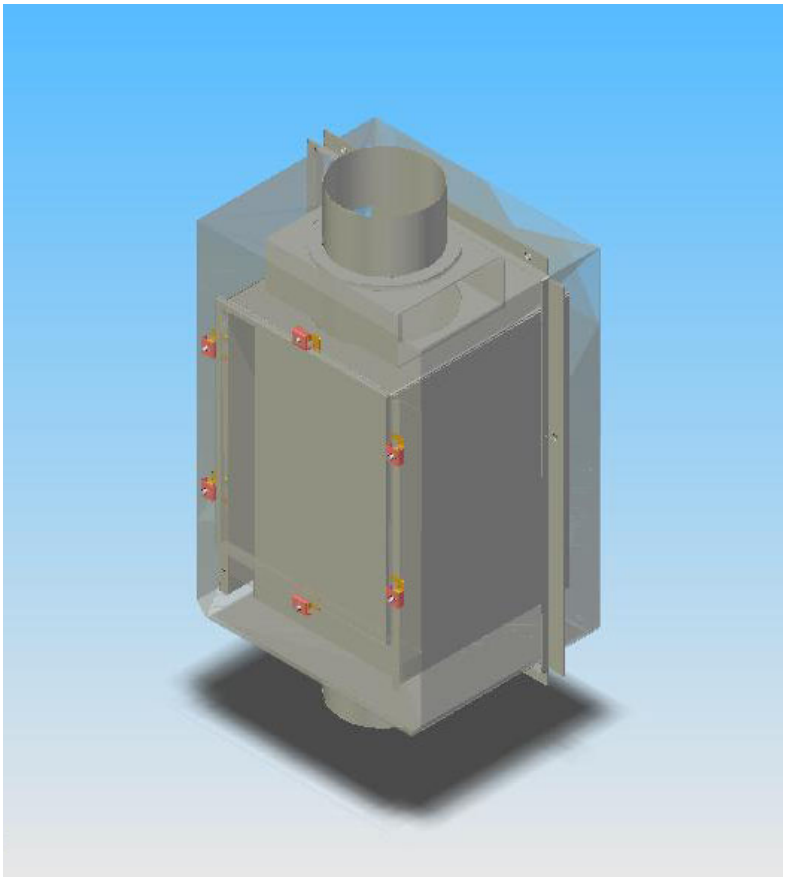
The working chamber of the Downspout Filter is made of a durable dual-wall geotextile fabric liner encapsulating an adsorbent which is easily replaced and provides for flexibility, ease of maintenance and economy. It is designed to collect particulates and debris, as well as metals and petroleum hydrocarbons (oils and greases). As with all Flo-Gard™ filters, the Downspout Filter performs as an effective filtering device at low flows ("first flush") and, because of the built-in high flow bypass, will not impede the system's maximum design flow.

Flo-Gard™ Downspout Filters are available in sizes to fit common sizes of downspouts and may be mounted in (recessed) or on (flush) a wall.

Flo-Gard™ Downspout Filters are recommended for ultra-urban sites with little to no property area outside of the building perimeter. Examples of such areas are downtown buildings and parking garages.

See full specifications for details.





Model No.	Inlet ID (in dia.)	Box Dim. (in x in x in)	Solids Storage Capacity (cu ft)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FG-DS4	4	14 x 24 x 7.5	0.35	0.35	1.15
FG-DS6	6	14 x 24 x 7.5	0.35	0.35	1.15
FG-DS8	8	22 x 28 x 17.5	2.60	1.40	4.35
FG-DS10	10	22 x 51 x 17.5	5.20	2.60	4.35

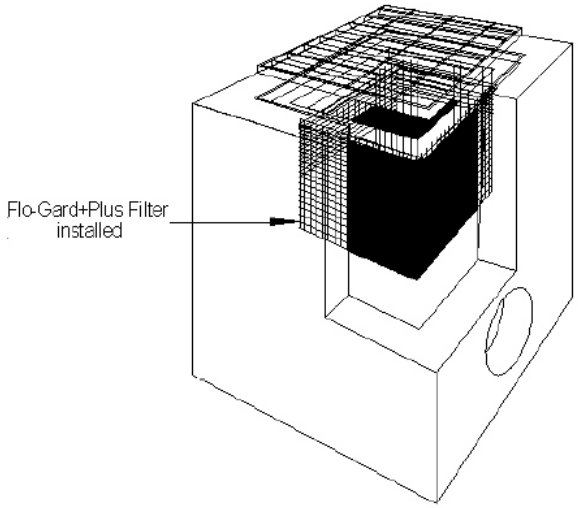
NOTES:

1. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
2. Filtered flow rate includes a safety factor of 2.
3. Flo-Gard Downspout Filters are available with standard Fossil Rock or zeolite adsorbent. Call for details on specialty adsorbents.
4. Flo-Gard+Plus filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.

US PATENT PENDING

FLO-GARD™
DOWNSPOUT FILTER

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819



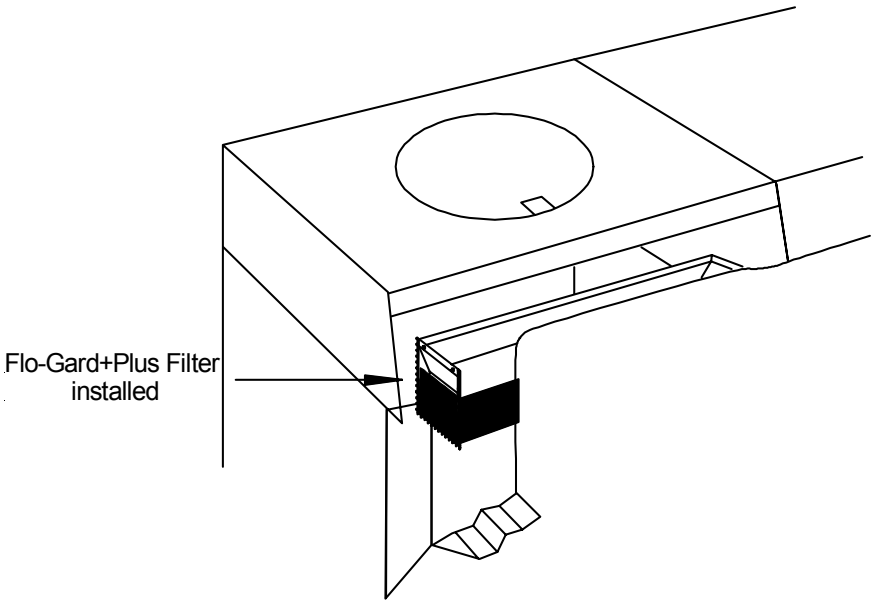
Flo-Gard™ +Plus

A multipurpose catch basin insert designed to capture sediment, debris, trash & oils/grease from low (first flush) flows.

A (dual) high-flow bypass allows flows to bypass the device while retaining sediment and larger floatables (debris & trash) AND allows sustained maximum design flows under extreme weather conditions.

Flo-Gard™ +Plus inserts are available in sizes to fit most industry-standard drainage inlets (...flat grated, combination, curb and round inlets).

Flo-Gard™ +Plus catch basin inserts are recommended for areas subject to silt and debris as well as low-to-moderate levels of petroleum hydrocarbon (oils and grease). Examples of such areas are vehicle parking lots, aircraft ramps, truck and bus storage yards, corporation yards, subdivision streets and public streets.



SPECIFIER CHART

Model No.	Inlet Width (in)	Solids Storage Capacity (cu ft)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FGP-24CI	24	0.9	0.8	5.6
FGP-30CI	30	1.1	1.0	6.7
FGP-36CI	36	1.4	1.2	7.9
FGP-42CI	42	1.6	1.4	8.8
FGP-48CI	48	1.9	1.5	9.9
FGP-5.0CI	60	2.3	1.8	11.6
FGP-6.0CI	72	2.8	2.2	13.8
FGP-7.0CI	84	3.2	2.5	15.9
FGP-8.0CI	96	3.7	2.9	18.0
FGP-10.0CI	120	4.6	3.5	21.9
FGP-12.0CI	144	5.6	4.2	26.2
FGP-14.0CI	168	6.5	4.9	30.1
FGP-16.0CI	192	7.5	5.6	34.4
FGP-18.0CI	216	8.3	6.2	38.2
FGP-21.0CI	252	9.7	7.2	44.3
FGP-28.0CI	336	13.0	9.5	58.6

NOTES:

1. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
2. Filtered flow rate includes a safety factor of 2.
3. Flo-Gard+Plus Catch Basin Filter inserts are available in the standard sizes (see above) or in custom sizes. Call for details on custom size inserts.
4. Available with recessed mount package including fg tray allowing maintenance access from manhole.
5. Flo-Gard+Plus filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.

FLO-GARD™ +PLUS

CATCH BASIN FILTER INSERT

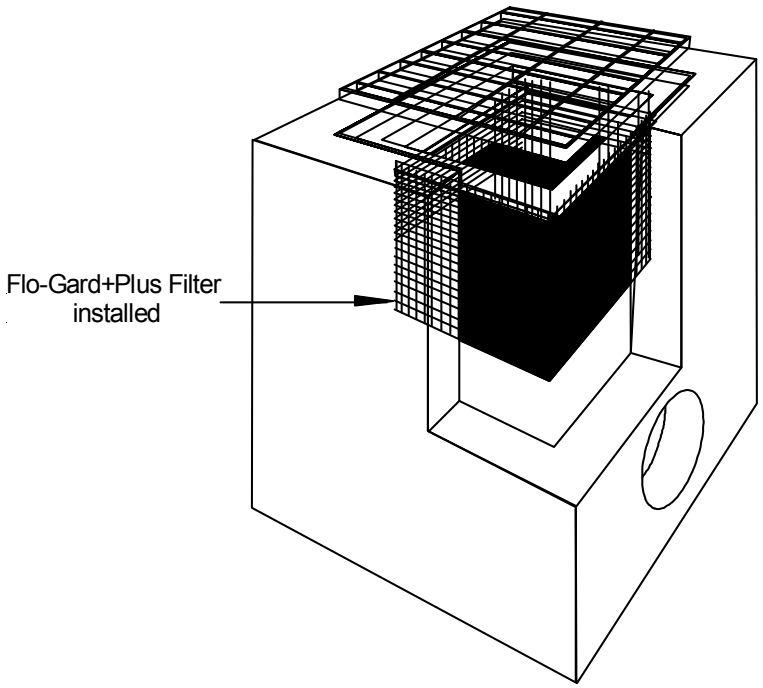
(Curb Mount)

CURB INLET

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819

05/04

US PATENT



Model No.	Inlet ID (in x in)	Grate OD (in x in)	Solids Storage Capacity (cu ft)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FGP-12F	12 x 12	14 x 14	0.3	0.4	2.8
FGP-1530F	15 x 30	16 x 36	2.3	1.6	6.9
FGP-16F	16 x 16	18 x 18	0.8	0.7	4.7
FGP-18F	18 x 18	20 x 20	0.8	0.7	4.7
FGP-1822F	20 x 24	18 x 22	2.1	1.4	5.9
FGP-1824F	16 x 22	20 x 24	1.5	1.2	5.0
FGP-1836F	18 x 36	18 x 40	2.3	1.6	6.9
FGP-2024F	20 x 24	22 x 24	1.2	1.0	5.9
FGP-21F	22 x 22	24 x 24	2.2	1.5	6.1
FGP-2142F	21 x 42	26 x 42	4.3	2.4	9.1
FGP-24F	24 x 24	26 x 26	2.2	1.5	6.1
FGP-2436F	24 x 36	24 x 40	3.4	2.0	8.0
FGP-2445F	24 x 45	26 x 47	4.4	2.4	9.3
FGP-2448F	24 x 48	26 x 48	4.4	2.4	9.3
FGP-28F	28 x 28	30 x 30	2.2	1.5	6.3
FGP-30F	30 x 30	30 x 34	3.6	2.0	8.1
FGP-36F	36 x 36	36 x 40	4.6	2.4	9.1
FGP-3648F	36 x 48	40 x 48	6.8	3.2	11.5
FGP-48F	48 x 48	48 x 52	9.5	3.9	13.2

NOTES:

1. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
2. Filtered flow rate includes a safety factor of 2.
3. Flo-Gard+Plus Catch Basin Filter inserts are available in the standard sizes (see above) or in custom sizes. Call for details on custom size inserts.
4. Flo-Gard+Plus filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.

US PATENT

FLO-GARD™ +PLUS

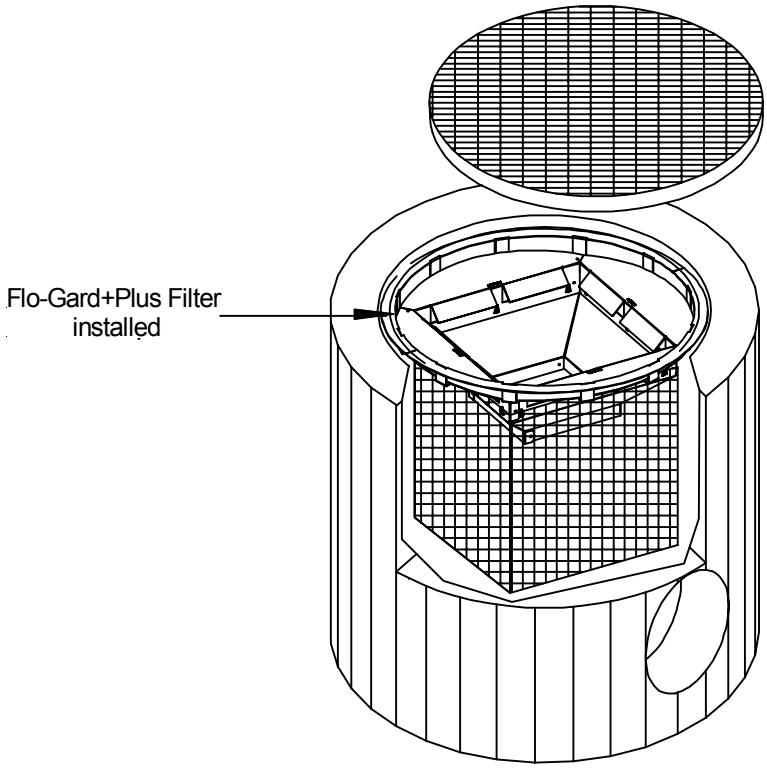
CATCH BASIN FILTER INSERT

(Frame Mount)

FLAT GRATED INLET

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819

05/04



Model No.	Inlet ID (in dia.)	Grate OD (in dia.)	Solids Storage Capacity (cu ft)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FGP-RF15F	16	18	0.3	0.4	2.8
FGP-RF18F	18	19	0.3	0.4	2.8
FGP-RF20F	20	22	0.8	0.7	4.7
FGP-RF22F	22	24	0.8	0.7	4.7
FGP-RF23F	23	25.5	0.8	0.7	4.7
FGP-RF24F	24	26	0.8	0.7	4.7

NOTES:

1. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
2. Filtered flow rate includes a safety factor of 2.
3. Flo-Gard+Plus Catch Basin Filter inserts are available in the standard sizes (see above) or in custom sizes. Call for details on custom size inserts.
4. Flo-Gard+Plus filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.

US PATENT

FLO-GARD™ +PLUS

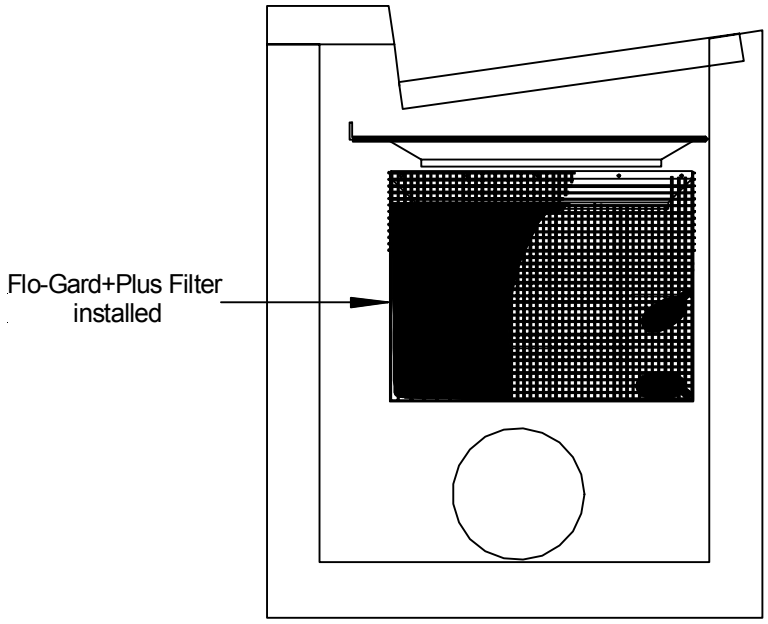
CATCH BASIN FILTER INSERT

(Frame Mount)

ROUND GRATED INLET

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819

05/04



Model No.	Inlet ID min. (in x in)	Inlet ID max. (in x in)	Solids Storage Capacity (cu ft)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FGP-1836W	16 x 33	21 x 39	2.3	1.6	6.7
FGP-24W	22 x 22	26 x 26	2.2	1.5	5.9
FGP-2436W	22 x 33	28 x 38	3.4	2.0	7.7
FGP-2436WE	22 x 35	28 x 39	3.4	2.0	7.7
FGP-28W	26 x 26	30 x 30	2.2	1.5	5.9
FGP-36W	30 x 33	39 x 42	4.6	2.4	8.7

NOTES:

1. **Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.**
2. **Filtered flow rate includes a safety factor of 2.**
3. **Flo-Gard+Plus Catch Basin Filter inserts are available in the standard sizes (see above) or in custom sizes. Call for details on custom size inserts.**
4. **Flo-Gard+Plus filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.**

US PATENT

FLO-GARD™ +PLUS

CATCH BASIN FILTER INSERT

(Wall Mount)

COMBINATION INLET

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819

05/04

STORMWATER MANAGEMENT INC.™

FILTRATION

FEATURES

- Meets the most stringent regulatory requirements
- An array of filtration media targets site specific pollutants
- Designed for maintenance cycles of one year or longer

TARGET POLLUTANTS

- Total suspended solids
- Soluble heavy metals
- Oil and grease
- Total nutrients

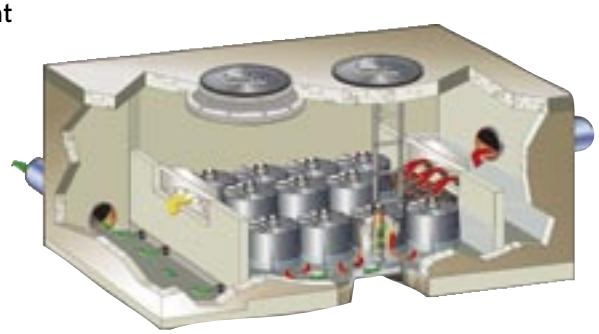
APPLICATIONS

- Commercial and industrial sites
- High-density and single-family residential sites
- Parking lots
- Arterial roads
- Freeways
- Bridges
- Maintenance, transportation and port facilities

The Stormwater Management StormFilter®

Product Highlights

The Stormwater Management StormFilter® is a Best Management Practice (BMP) designed to meet the most stringent regulatory requirements for stormwater treatment. Using a variety of sustainable media, the StormFilter removes the most challenging target pollutants – including total suspended solids (TSS), soluble heavy metals, oil and grease, and total nutrients.



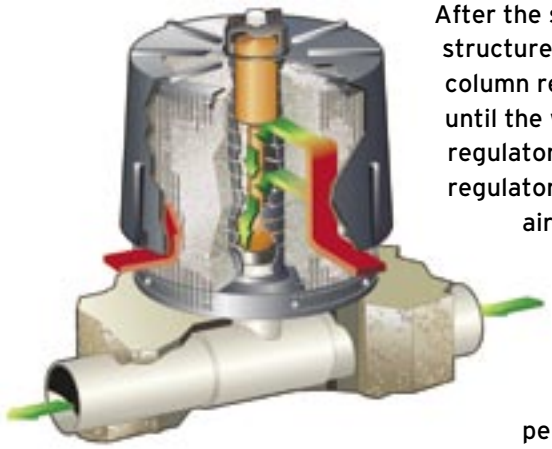
Precast StormFilter Configuration

The field-proven performance of the StormFilter has led to hundreds of stand-alone BMP approvals by regulatory agencies nationwide. The patented filter cartridge's surface cleaning mechanism provides your best long-term solution. The StormFilter is highly reliable and easy to install.

The Technology

The StormFilter design is based on passive, siphon-actuated, filtration media-filled cartridges where particulates and pollutants are trapped and adsorbed.

During a storm, stormwater runoff passes through the filtration media and starts filling the cartridge center tube. Air below the hood is purged through a one way check valve as the water rises. When water reaches the top of the float, buoyant forces pull the float free and allow filtered water to drain.



The StormFilter Cartridge

After the storm, the water level in the structure starts falling. A hanging water column remains under the cartridge hood until the water level reaches the scrubbing regulators. Air then rushes through the regulators releasing water and creating air bubbles that agitate the surface of the filter media, causing accumulated sediment to drop to the vault floor. This patented surface-cleaning mechanism helps restore the filter's permeability between storm events.

Media Options

The StormFilter can be customized using different filter media to target site-specific pollutants. A combination of media is often recommended to maximize pollutant removal effectiveness.

Pollutant	Perlite	CSF	MetalRx	Zeolite	GAC
Sediments	✓	✓			
Oil and Grease	✓	✓	✓		
Soluble Metals		✓	✓	✓	
Organics		✓	✓		✓
Nutrients	✓	✓	✓	✓	
Ammonium				✓	

Perlite is naturally occurring puffed volcanic ash. Its porous, multi-cellular structure and rough edges make it effective for removing TSS, oil and grease.

CSF® Leaf Media and MetalRx™ are created from deciduous leaves processed into granular, organic media. CSF is most effective for removing soluble metals, TSS, oil and grease, and neutralizing acid rain. MetalRx, a finer gradation, is used for higher levels of metal removal.

Zeolite is a naturally occurring mineral used in a variety of water filtration applications. It is used to remove soluble metals, ammonium and some organics.

GAC (Granular Activated Carbon) has a micro porous structure with an extensive surface area to provide high levels of adsorption. It is primarily used to remove oil and grease and organics such as herbicides and pesticides.

Configuration Guide

From small, pre-fabricated catch basins to large box culverts and panel vaults, StormFilter configurations maximize your land use. The compact design also reduces construction and installation costs by limiting excavation.

Use this table to identify the appropriate configuration for your site. Engineers in our Technical Sales department are available to assist with your project.

Products	Regulation Type	Effective Hydraulic Drop	Inlet Type		Internal Overflow	Treatment Capacity
Precast	Flow Based	2.3 ft.	Conveyed Flow	Pipe(s)	Online	1.17 cfs
Large Capacity	Flow Based	2.3 ft.	Conveyed Flow	Pipe(s)	Online	6.0+ cfs
CatchBasin	Flow Based	2.3 ft. from rim	Sheet Flow	Inlet Grate and/or Pipe	Offline	0.13 cfs
Curb Inlet	Flow Based	2.3 ft. from rim	Gutter Flow	Curb Inlet and/or Pipe	Offline	0.50 cfs
Volume	Volume Based	2.3 ft.	Conveyed Flow	Pipe(s)	Online	5,000+ cf
DownSpout	Flow Based	2.3 ft.	Conveyed Flow	Downspout(s)	Online	0.07 cfs

StormFilter Configurations

Precast StormFilter

Treats small to medium conveyed flows. To simplify installation, this configuration arrives on-site fully assembled. The contractor places the unit, lid and risers, then connects the inlet and outlet.

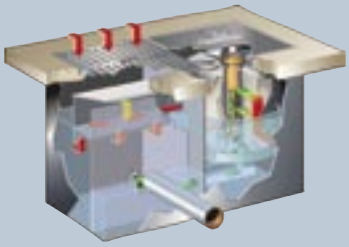
- Site-specific design to treat conveyed stormwater
- Engineered to simplify the entire stormwater system and lower overall cost
- Easy installation – arrives on-site fully assembled

Large Capacity StormFilter

Treats conveyed flow from large sites. The structure consists of large, precast components designed for easy assembly on-site in a single day. For very large projects, the High Flow StormFilter can be cast-in-place.

- Filters high flows in one structure
- One day installation
- Sized to meet the site-specific treatment rate to lower capital, installation and maintenance costs
- Eliminates structural concerns surrounding cast-in-place designs

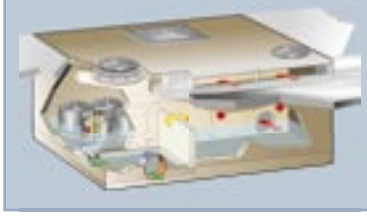
CatchBasin StormFilter



Provides a low cost, low drop, point-of-entry configuration that treats sheet flow from small sites where the structure can be placed in the roadway. Uses the drop from the inlet grate to the conveyance pipe to drive the passive filtration cartridges.

- Low cost
- Low hydraulic profile
- 3-in-1 design: catch basin, high flow bypass, filtration BMP
- Easy installation – arrives on-site fully assembled

Curb Inlet StormFilter



Provides a low drop, point-of-entry configuration that allows curb inlet opening three to ten feet long. Uses the drop from the curb inlet to the conveyance pipe to drive the passive filtration cartridges.

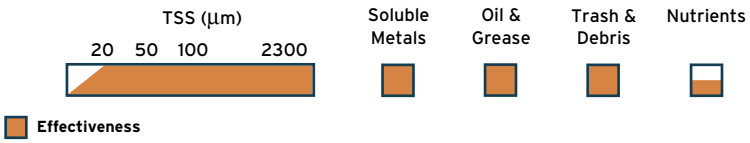
- Low hydraulic profile
- Curb inlet opening three to ten feet long
- 3-in-1 design: curb inlet, high flow bypass, filtration BMP

Volume StormFilter

Meets volume-based stormwater treatment regulations by capturing and treating site specific Water Quality Volume (WQv). StormFilter cartridges provide treatment and control the discharge rate of the WQv. In addition, the Volume StormFilter can be designed to capture all, or a portion, of the WQv.

- Volume-based
- Entire system or partial system (pretreatment, captures the WQv, filtration, flow control)
- Low cost installation – comprised of precast components for one day installation

StormFilter Performance Characteristics



Benefits

- Meets the most stringent regulatory requirements
- Filtration medias target site-specific pollutants
- Designed for maintenance cycles of one year or longer
- H-20 rated, underground BMP maximizes land use
- Low hydraulic head allows use on most sites
- Flow-based and volume-based systems available to meet regulations
- Pre-manufactured design means easy installation for contractors
- Cartridge-based systems provide exact sizing for every project to meet regulatory requirements
- Dry or nearly dry between storm events – no water to remove during maintenance

Accessories

Drain-Down – Provides complete dewatering of the StormFilter vault by gradually removing residual water in the sump after the storm event.

- Aids in vector control by eliminating mosquito-breeding habitat
- Eliminates putrification and leaching of collected pollutants
- Lowers maintenance cost by reducing decanting and disposal volume

Sorbent Hood Cover – Removes free surface oil and grease.

- Instantly adsorbs oil and grease on contact
- Will not release captured oil, even after reaching saturation
- Made from recycled synthetic fiber

Support and Maintenance

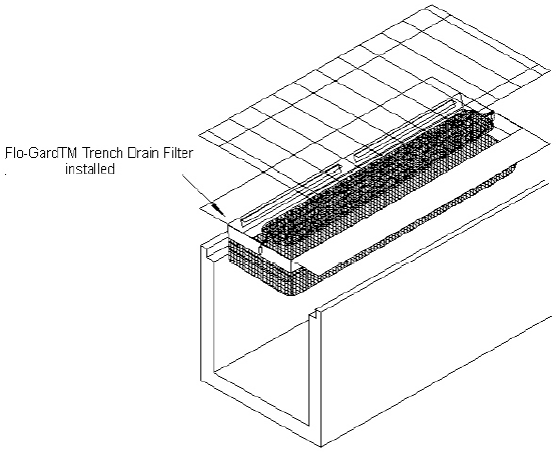
- Drawings and specifications are available at *www.stormwaterinc.com*
- Design support is available from our Technical Sales engineers
- Maintenance services are available to ensure continuous performance

COME RAIN, WE SHINE.®

M-05-04A

12021-B NE Airport Way, Portland, OR 97220 T 800.548.4667 F 800.561.1271 W stormwaterinc.com

STORMWATER™ MANAGEMENT INC.



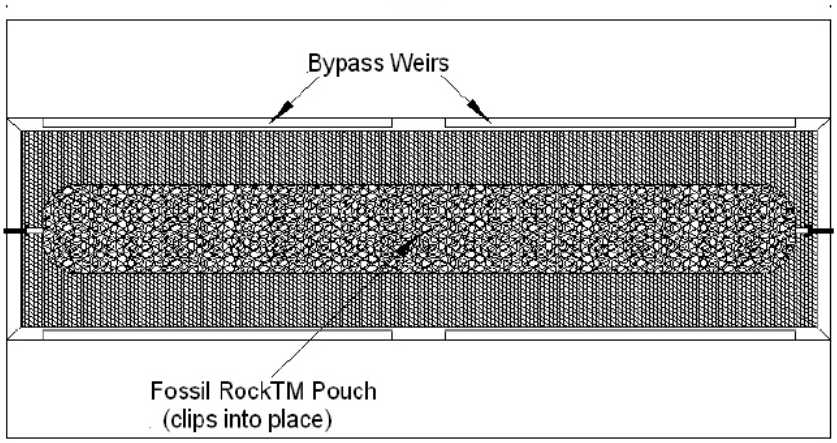
Flo-Gard™ Trench Drain Filter

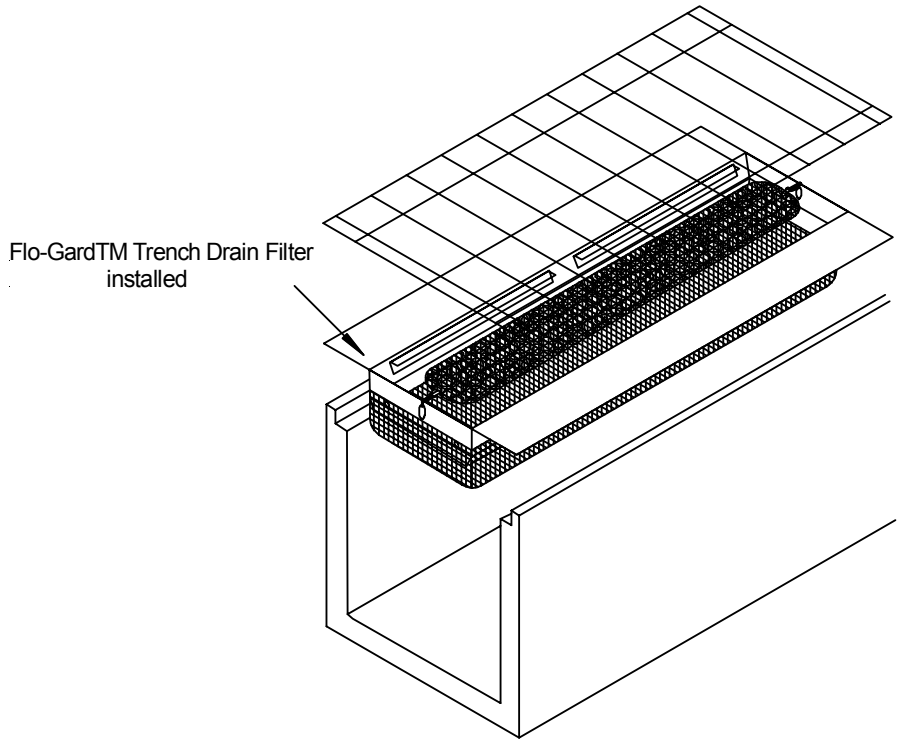
A multi-model trench drain insert designed to collect silt, debris and petroleum hydrocarbons from water runoff.

The working chamber of the Flo-Gard™ Trench Drain Filter is made of durable geotextile fabric which is easily replaced and provides for flexibility, ease of maintenance and economy. It is designed to collect silt and debris, as well as petroleum hydrocarbons (oils and greases). As with all Flo-Gard™ inserts, the Flo-Gard™ Trench Drain Filter performs as an effective filtering device at low flows ("first flush") and, because of the built-in high flow bypass, will not impede the system's maximum design flow.

Flo-Gard™ Trench Drain Filter inserts are available in sizes to fit most standard trench drains.

Flo-Gard™ Trench Drain Filter inserts are recommended for areas subject to silt and debris as well as low-to-moderate levels of petroleum hydrocarbon (oils and grease). Examples of such areas are vehicle parking lots, aircraft ramps, truck and bus storage yards, corporation yards, subdivision streets and public streets.





MODEL NO.	Trench Width (in)	Grate Width (in)	Filtered Flow (cfs)	Total Bypass Cap. (cfs)
FF-TDPC600	Polycast 600	Polycast 600	0.1	0.1
FF-TDPD4	Polydrain 4	Polydrain 4	0.1	0.1
FF-TD8	6	8	0.1	0.1
FF-TD10	8	10	0.3	0.2
FF-TD12	10	12	0.3	0.1
FF-TD14	12	14	0.3	0.2
FF-TD17	14	17	0.7	0.9

NOTES:

1. Storage capacity reflects maximum solids collection prior to impeding filtering bypass.
2. Clean flow rate is the filtering flow rate, without allowance for collecting sediment and debris (recommend applying multiplying factor of 0.50 to 0.75 to clean flow rate to allow for sediment and debris).
3. Flo-GardTM Trench Drain Filter inserts are available in the standard sizes (see above) or in custom sizes. Call for details on custom size inserts.
4. Flo-GardTM filter inserts should be used in conjunction with a regular maintenance program. Refer to manufacturer's recommended maintenance guidelines.

FLO-GARD TM

TRENCH DRAIN FILTER INSERT

KriStar Enterprises, Inc., Santa Rosa, CA (800) 579-8819

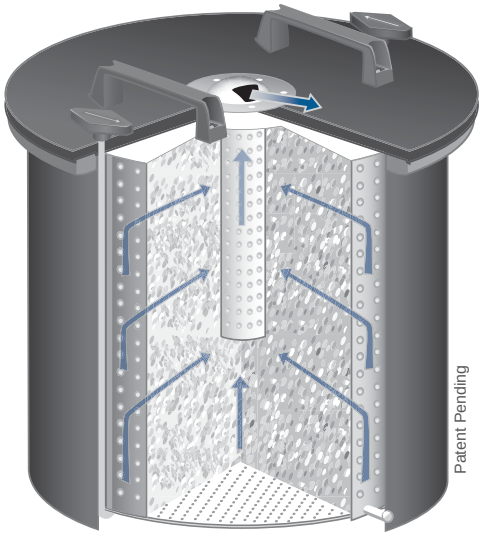
VortFilter™

The new innovation in stormwater filtration technology

Vortechnics®
A CONTECH Company

Stormwater treatment has risen a whole new level with the highly efficient, easy to maintain VortFilter.™

Only Vortechnics helps you meet stringent stormwater requirements this easily.
VortFilter,™ the new innovation in stormwater filtration technology, is engineered to effectively remove very fine particulates, which carry nutrients, metals, hydrocarbons and other contaminants from urban runoff. With a powerful combination of three proven treatment processes in one system, VortFilter™ offers unparalleled effectiveness, cost-efficiency and easy maintenance in one customizable solution. Vortechnics has raised the bar on stormwater treatment ... Again.



Highest Treatment Capacity in the Industry

VortFilter™ offers the greatest surface area per cartridge available in the industry today. Its unique, radial, up-flow pattern increases treatment capacity while decreasing headloss, so fewer cartridges (compared to similar filter products) are required. With customized filter media to target site-specific pollutants, VortFilter™ gives you the superior stormwater treatment you need to cost-effectively meet regulations within one system.

Validated Filtration Technology

Rigorous, full-scale laboratory testing has determined that the VortFilter™ system is capable of removing particles as small as 7 microns in size at flow rates ranging from 7.5 gpm (0.47 l/s) to 20 gpm (1.26 l/s).

Less Frequent, Easy Maintenance

The maintenance frequency of the VortFilter™ is substantially less than similar products – an annual clean-out schedule is typical. Maintaining the system is also made easy with the media release feature of the cartridge, which allows spent media to be deposited in the sedimentation basin prior to removal of the cartridges.

VortFilter™ at a Glance

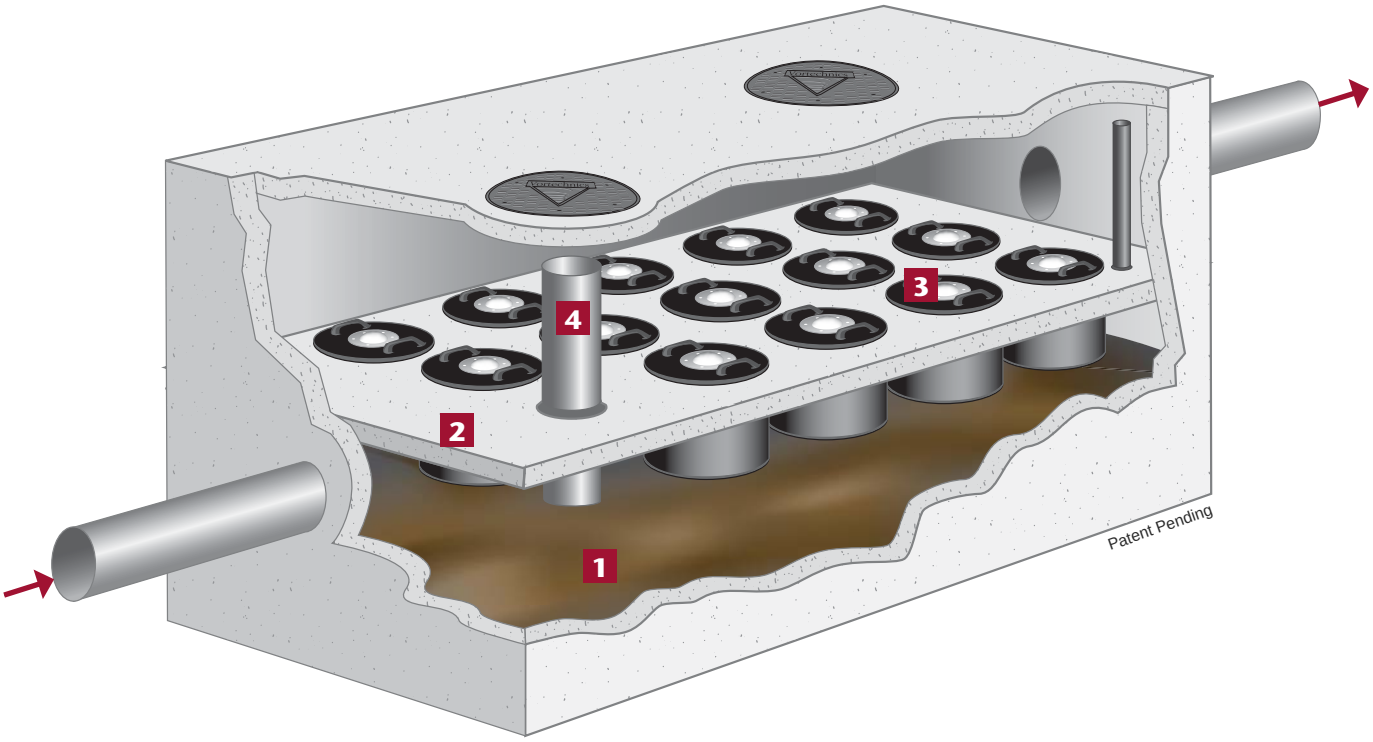
- **Effectively removes very fine particulates and associated pollutants**
- **Incorporates gravitational separation and media filtration within a single below-grade structure**
- **Backed by full-scale laboratory testing**
- **Delivers high treatment capacity with low headloss**
- **Offers easiest and least frequent maintenance schedule in the industry**
- **Provides pretreatment and sediment storage in unique sedimentation basin**
- **Available in standard round and vault precast concrete structures for cost-effective installation**

Committed to Clean Water™

VortFilter™ System – Three proven treatment processes in one unit ensures effective removal of stormwater pollutants.

Unlike any other stormwater filter on the market, VortFilter™ effectively combines the three most common stormwater treatment processes – sedimentation, floatation and filtration – in one water quality device. Offering superior pollutant removal, greater treatment capacity, and longer intervals between maintenance, VortFilter™ is the most cost-efficient choice for the highest level of stormwater treatment.

VortFilter™ Operation



Stormwater enters through the inlet pipe into the **(1) sedimentation basin**, a continuously submerged pretreatment sump where gravitational separation occurs. Coarse sediments settle to the floor, while floatable materials rise to the surface and are contained beneath the **(2) filter basin deck**, a precast concrete, horizontal deck that holds the **(3) VortFilter™ cartridges** in place.

As head builds within the system, stormwater is forced through the **(3) VortFilter™ cartridges**, where fine particulate material is removed by the filter media. Treated water is then discharged from the media cartridge outlets, onto the top of the filter cartridge deck and ultimately out through the vault outlet.

During rain events up to the water quality flow, all runoff is filtered through the cartridges. Once this rate is exceeded, flows will bypass the cartridges through the **(4) stand pipe**.

Visit www.vortechnics.com to see an interactive animation of the VortFilter.™

VortFilter™ Media – With this many choices, pollutants don't stand a chance.

A variety of media is available for the VortFilter™ system to target site-specific pollutants. The media can be used individually or in combination within one cartridge.

Perlite

- Lightweight, inert, porous filter matrix
- Highly effective filter media, commonly used in stormwater applications
- Efficiently removes very fine particles, as well as, associated nutrients, metals, and oil and grease

Granular Activated Carbon (GAC)

- Manufactured, organic material
- Charged, extensive surface area creates one of the most effective filter media available
- Used in the water and wastewater industries to remove organics, pesticides, herbicides, and hydrocarbons
- Effectively removes heavy metals

Zeolite

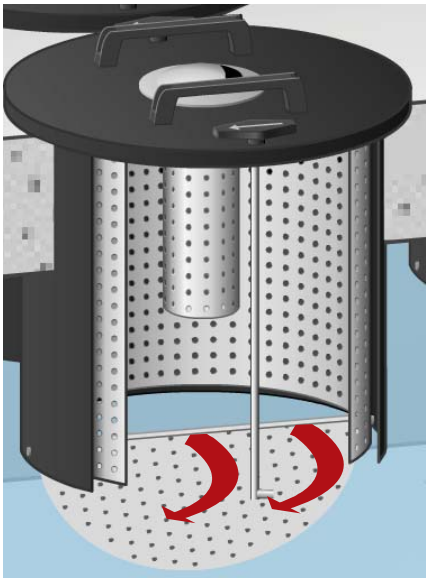
- Porous mineral formed from volcanic ash
- High cation exchange capacity
- Effectively removes both dissolved metals and ammonium

Vortechnics established the treatment capabilities and hydraulic characteristics for each media configuration, of the VortFilter™ with a full-scale, laboratory-testing program. For individual test results, please go to www.vortechnics.com/product_resources or contact Vortechnics at 877.907.8676.

VortFilter™ Maintenance – Engineered to be easy.

Vortechnics is committed to providing stormwater solutions with minimal maintenance cost and labor, so that is how we designed the VortFilter™ system.

The sedimentation basin substantially increases the time between maintenance events. Testing shows that a significant portion of the pollutant load is removed through gravitation separation prior to entering the cartridges. This substantially increases service life. Therefore, the VortFilter™ system will need to be cleaned less often compared to competitive products.



The VortFilter™ cartridge is equipped with a one-of-a-kind media release feature. During a maintenance event, spent media is released into the sedimentation basin prior to removing the cartridges. Empty cartridges weigh substantially less, and with the spent media contained in the sedimentation basin, a vactor truck can easily remove pollutants in one operation.

Maintenance intervals will be site-specific, but typically range from 6 to 18 months.

VortFilter™

The new innovation in stormwater filtration technology

Vortechnics® A CONTECH Company

VortFilter™ – Customized to fit your site-specific needs.

VortFilter™ is engineered to meet the hydraulic requirements on a wide variety of sites. Not only is the system available in both manhole and vault configurations, the number of cartridges contained within the structure is flexible. This allows the VortFilter™ system to be customized to fit into your site.

VortFilter™ design is dictated by site parameters provided by the specifying engineer and local regulatory requirements. Each VortFilter™ is typically designed to treat a water quality flow rate, and bypass up to the peak flow rate for the collection system.

Standard VortFilter™ models and dimensions are listed below. For assistance with a detailed design, please fill out our specifier's worksheet, which is available online at www.vortechnics.com. For custom sizing, please contact your local Vortechnics representative or call 877.907.8676.

VortFilter™ Models and Dimensions

Vault Configuration

Model	Dimensions		Maximum Number of Cartridges
	ft	mm	
VF612	6 x 12	1830 x 3660	11
VF713	7 x 13	2135 x 3965	17
VF816	8 x 16	2440 x 4875	20
VF915	9 x 15	2745 x 4575	23
VF1016	10 x 16	3050 x 4880	27
VF1218	12 x 18	3660 x 5490	34

Manhole Configuration

Model	Diameter		Maximum Number of Cartridges
	ft	mm	
VF4r	4	1200	1
VF5r	5	1500	3
VF6r	6	1800	4
VF7r	7	2100	6
VF8r	8	2400	8