AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE COMPLIANCE PLAN

For

NAVAL AUXILIARY LANDING FIELD SAN CLEMENTE ISLAND

SWRCB RESOLUTION No. 2012-0012

Contract Number N62473-10-D-0814
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ABBREVIATIONS AND ACRONYMS

Accord	Accord Engineering, Inc.
AM8AJV	Accord MACTEC 8A Joint Venture
AMEC	AMEC Environment & Infrastructure, Inc.
ASBS	Area of Special Biological Significance
ASBS Resolution	California State Water Resources Control Board Resolution No. 2012-0012, *Approving Exceptions to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, Including Special Protections for Beneficial Uses, and Certifying a Program Environmental Impact Report,* March 20, 2012
BEQs	bachelor enlisted quarters
Bight '13	Southern California Bight 2013 Regional Marine Monitoring Survey
BLM	(U.S. Department of the Interior) Bureau of Land Management
BMP	best management practice
California Ocean Plan	*Water Quality Control Plan: Ocean Waters of California*, adopted September 15, 2009 (SWRCB)
CEQA	California Environmental Quality Act
EPCRA	Emergency Planning and Community Right-to-Know Act
General Permit	California State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System General Permit No. CAS000001, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, April 17, 1997.
INRMP	Integrated Natural Resources Management Plan
LARWQCB	Los Angeles Regional Water Quality Control Board
LEED	Leadership in Energy and Environmental Design
LID	low-impact development
MEC	munitions and explosives of concern
MS4	municipal separate storm sewer system
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	mean sea level
NALF	Naval Auxiliary Landing Field
NASNI	Naval Air Station North Island
NAVFAC SW	Naval Facilities Engineering Command Southwest
Navy	U.S. Department of the Navy
NEPA	National Environmental Policy Act
nm	nautical mile(s)

ABBREVIATIONS AND ACRONYMS (continued)

NOTS	Naval Ordnance Test Station
NPDES	National Pollutant Discharge Elimination System
NRO	Natural Resources Office
NSDEPP	Non-Storm Water Discharge Elimination and Prevention Program
O&G	oil and grease
OLF	overland flow
PAH	polycyclic aromatic hydrocarbon
PCBs	polychlorinated biphenyls
PEIR	Program Environmental Impact Report
RWQCB	(California) Regional Water Quality Control Board
SAIC	Science Applications International Corporation
SCCWRP	Southern California Coastal Water Research Project
SCI	San Clemente Island
SCORE	Southern California Offshore Range
SIC	Standard Industrial Classification
SPCC	Spill Prevention, Control and Countermeasure Plan
Special Conditions	Attachment B of the ASBS Resolution
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TSS	total suspended solids
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

EXECUTIVE SUMMARY

The Area of Special Biological Significance (ASBS) Compliance Plan for Naval Auxiliary Landing Field (NALF) San Clemente Island (SCI) has been developed in compliance with State Water Resources Control Board (SWRCB) Resolution No. 2012-0012, *Approving Exceptions to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, Including Special Protections for Beneficial Uses, and Certifying a Program Environmental Impact Report,* March 20, 2012 (ASBS Resolution). The ASBS consists of the surrounding waters of NALF SCI to a distance of one nautical mile off-shore or to the 300-foot isobath, whichever is the greater distance. The ASBS Compliance Plan for NALF SCI is a stand-alone document that establishes the procedures by which NALF SCI will maintain natural water quality in the SCI ASBS.

Natural water quality will be maintained by:

- Prohibition of non-authorized non-storm water runoff
- Implementation of best management practices (BMPs) for authorized non-storm water and storm water runoff

The ASBS Compliance Plan further strengthens the U.S. Department of the Navy (Navy) commitment to protection of natural resources on and around SCI. The established environmental compliance, environmental restoration, munitions, industrial and construction storm water, and biological programs augment the ASBS Compliance Plan protection of the ASBS natural water quality.

The ASBS Compliance Plan has been developed under Naval Facilities Engineering Command Southwest (NAVFAC SW) Contract No. N62473-10-D-0814, Task Order No. 0028, by Accord MACTEC 8A Joint Venture (AM8AJV). AM8AJV comprises Accord Engineering, Inc. (Accord) and AMEC Environment & Infrastructure, Inc. (AMEC).

The ASBS Compliance Plan requirements per the ASBS Resolution are organized and addressed as follows.

Section 1—Introduction:

- Provides background on NALF SCI activities and operations, natural resources, geography, topography, geology, and soils.
- Describes California discharge regulations, ASBS specific requirements, compliance actions, and the organization of this ASBS Compliance Plan.

Section 2—Discharges to the SCI ASBS:

- Identifies discharges to SCI ASBS, and specifically addresses the prohibition of non-storm water runoff and the requirement to maintain natural water quality for storm water discharges to an ASBS.
- Describes measures by which all non-authorized, non-storm water runoff has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- Addresses Sections I.A.1, I.B.1, I.A.2.a and I.B.2.b of the ASBS Resolution.

Section 3—Prioritization of Discharges:

- Identifies and prioritizes storm water discharges based on risk to water quality.
- Addresses Section I.A.2.a of the ASBS Resolution.

Section 4—Erosion Potential and Control:

- Addresses erosion control and the prevention of anthropogenic sedimentation in ASBS 23.
- Addresses Section I.A.2.e of the ASBS Resolution.

Section 5—BMP Implementation:

- Describes existing non-structural BMPs, including an education and outreach program.
- Describes existing structural BMPs and the role of structural BMPs.
- Addresses Sections I.A.2.b, I.A.2.c, I.A.2.f, and I.B.2.b of the ASBS Resolution.
- Describes planned and proposed non-structural and structural BMPs, and the role of BMPs in maintaining natural water quality.
- Provides recommended non-structural and structural BMPs.
- Addresses Sections I.A.2.b, I.A.2.d, I.A.2.f, I.A.2.g, and I.B.2.b of the ASBS Resolution.

Section 6—Compliance and Implementation Schedule:

- Provides the compliance schedule, BMP implementation schedule, and mandates submitting a report if receiving water monitoring indicates that discharges are altering natural conditions.
- Describes the procedures for revising the ASBS Compliance Plan to maintain compliance with the ASBS Resolution.
- Addresses Sections I.A.2.g, I.A.2.h, I.A.3, I.B.2.c, and I.B.3 of the ASBS Resolution.

Section 7—References:

- Presents documents referenced in the development of this ASBS Compliance Plan.

1.0 INTRODUCTION

This Area of Special Biological Significance (ASBS) Compliance Plan has been prepared for discharges of storm water and authorized non-storm water from Naval Auxiliary Landing Field (NALF) San Clemente Island (SCI) into a California-designated ASBS. The ASBS Compliance Plan has been developed under Naval Facilities Engineering Command Southwest (NAVFAC SW) Contract No. N62473-10-D-0814, Task Order No. 0028, by Accord MACTEC 8A Joint Venture (AM8AJV). AM8AJV comprises Accord Engineering, Inc. (Accord) and AMEC Environment & Infrastructure, Inc. (AMEC).

This ASBS Compliance Plan for NALF SCI has been developed to meet the requirements of California State Water Resources Control Board (SWRCB) Resolution No. 2012-0012, *Approving Exceptions to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, Including Special Protections for Beneficial Uses, and Certifying a Program Environmental Impact Report*, March 20, 2012 (SWRCB, 2012). This plan establishes the procedures by which NALF SCI will maintain natural water quality in the SCI ASBS.

1.1 SITE DESCRIPTION

NALF SCI is located on SCI in the Pacific Ocean, approximately 70 miles northwest of San Diego, California. SCI is the southernmost Channel Island, covering 57 square miles. The island is approximately 24 miles long and 5 miles across at the widest point. The entire island is under the administration of the U.S. Department of the Navy (Navy). Access to NALF SCI is limited to sea vessels and aircraft with military authorization.

The northern portion of NALF SCI, which is the area covered under this ASBS Compliance Plan, is shown in Figure 1. The figure identifies storm water conveyances, sanitary sewer conveyances and treatment facilities, areas of possible erosion, waste and hazardous material storage areas, industrial storm water buildings, and existing structural best management practices (BMPs).

1.1.1 Facility Operations

Activities at NALF SCI include industrial, municipal, and military operations.

1.1.1.1 Industrial Operations

Industrial operations at NALF SCI are those facilities that are defined by a Standard Industrial Classification (SIC) code that require coverage under the California National Pollutant Discharge

Elimination System Compliance (NPDES) General Permit No. CAS000001, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities* (General Permit) (SWRCB, 1997). The industrial activities comprise facilities to support the airfield operations and fueling, motor pool vehicle maintenance, small outboard engine repair, and the landfill.

1.1.1.2 Municipal Operations

Municipal operations are associated with services such as fire departments, medical clinics, power stations, and wastewater treatment plants. NALF SCI has municipal operations in four areas: Airfield, Landfill, Naval Ordnance Test Station (NOTS) Pier, and Wilson Cove. These operations comprise watercraft maintenance, landfill waste management, and activities associated with lodging, medical treatment, dining, and utilities.

1.1.1.3 Military Operations

Military operations are activities unique to the mission of national defense, such as range and underwater training.

Military operations began in 1934 at NALF SCI, when control of SCI was transferred from the U.S. Department of Commerce to the Navy for the development of fleet training facilities. In 1954, Naval Auxiliary Air Station, San Clemente, was designated as an outlying airfield of Naval Air Station, San Diego. The U.S. Air Force established a radar station with approximately 200 personnel and assumed responsibility for logistics support, utilities, maintenance in the Wilson Cove area, and dining hall operations. This radar station was deactivated in 1961. A new airfield was completed at the north end of the island and the airstrip that was constructed during World War II was deactivated. In 1971, the airfield was established as a Naval Auxiliary Airfield. In 1977, administrative control of the island was transferred to Naval Air Station North Island (NASNI).

Currently, NALF SCI primary operations are to support tactical training of the Pacific Fleet and to serve as a research and development facility. NALF SCI provides the Navy and the Marine Corps a multi-threat land-and-sea warfare training range. A major part of Navy training takes place on the ranges located immediately offshore. The land-and-sea range covers more than 149,000 square miles and is the Navy's busiest fleet airspace. Also included in the offshore training area are two mine exercise areas, the Southern California Anti-Submarine Warfare Range, seven submarine areas, the shallow water Undersea Training Range, and two laser training ranges. In total, SCI is a unique combination of airfields, airspace, and ranges unlike any other facility owned by the Navy. It is the only location in the Pacific where

surface ships, submarines, aircraft, and Navy expeditionary forces can train in all warfare areas simultaneously, using shore gunnery, bombardment, air defense, antisubmarine, and electronic warfare (Navy, 2013a).

Storm water discharges from the range training areas of NALF SCI are not included in this ASBS Compliance Plan.

1.1.2 Natural Resources

SCI is host to diverse terrestrial and marine communities. These natural resources are managed by the NALF SCI Natural Resources Office (NRO) in accordance with the *Integrated Natural Resources Management Plan* (INRMP) (Tierra Data, 2013) with the goal of maintaining the health of SCI ecosystems consistent with U.S. Department of Defense mission requirements. The INRMP provides management strategies for terrestrial and marine habitats; plant, marine and terrestrial animal groups; and threatened and endangered species.

1.1.2.1 Terrestrial Habitats

SCI has 14 unique ecological units and 19 vegetation alliances. Since the final removal of feral goats from SCI in 1992, the previously compromised health of the vegetation alliances has improved through the efforts of NRO staff and others. Currently, management includes seed collection and propagation, site selection and maintenance, and invasive species control. Ongoing monitoring helps the NRO staff identify changing priorities as the various vegetation communities recover.

1.1.2.2 Marine Habitats

The marine habitat categories at SCI are intertidal, subtidal, deep water, and offshore rocks.

Intertidal habitats at SCI are coastal strand and rocky intertidal. Coastal strand habitat is located in the northwestern and southern ends of SCI. This habitat is managed by restoring the coastal strand where possible, preventing construction activities that would undermine both habitat and military training capabilities, and monitoring the health of coastal strands. Rocky intertidal habitat is being managed through intensive biannual monitoring at multiple locations around SCI and through cooperation with other regional stakeholders on initiatives to track trends in intertidal community health. Past data from surveys of intertidal areas around SCI indicate that the marine communities are healthy and diverse (Merkel, 2007).

Subtidal habitats at SCI are soft bottom habitat eelgrass, rocky reef and kelp forests. Soft bottom habitat is primarily located off the eastern and southern shores of SCI. This habitat is managed through

compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the National Environmental Policy Act (NEPA), ASBS requirements, and surveys to monitor the health of subtidal habitat. Eelgrass is primarily located off the eastern shore of SCI. It is managed through conservation, surveys to measure its abundance, mapping of eelgrass habitat, and coordination with other agencies and research institutions. Rocky reef and kelp forests are primarily located off the western and southern shores of SCI, and are managed through long-term monitoring and cooperation in regional planning.

Deep water habitat at SCI includes rocky and soft bottom habitat. The rocky habitat has not been fully characterized, but the Navy is coordinating with the National Marine Fisheries Service and California State University, Monterey Bay, to conduct surveys using remotely operated vehicles. Minimization and mitigation programs have been developed as part of the *Southern California Range Complex Environmental Impact Statement/Overseas Environmental Impact Statement* (Navy, 2008). As more data are generated on the health of rocky habitat around SCI, the need for improving mitigation strategies for the habitat will be evaluated. Soft bottom habitat is managed through compliance with MSA and NEPA, ASBS requirements, and surveys that monitor the health of the deep water habitat.

Offshore rocks are located off SCI's northern shore, southern shore, and the southern half of the western shore. Offshore rocks are cooperatively managed by the Navy and the Bureau of Land Management (BLM) under the *California Coastal National Monument Resource Management Plan* (BLM, 2005). The Navy has surveyed seabirds to better understand the health of the seabird population within both local and regional contexts. The Navy has also made operational changes to avoid potential impacts on rock habitat off the northern shore of SCI.

1.1.2.3 Threatened and Endangered Species

In 1973, the Endangered Species Act was created to identify and protect imperiled species and the ecosystems in which they thrive. SCI is home to 94 endemic species, as well as 25 species that are federally listed as threatened or endangered (Tierra Data, 2013). NALF SCI has implemented extensive research and conservation to decrease the loss of federally listed species and other negative impacts on its natural resources.

1.1.2.4 Surface Water and Groundwater

SCI contains ephemeral streams that do not maintain constant water flow throughout the year. However, water is held through the dry season in bedrock plunge pools located in the deeper portions of SCI's canyons. During the rainy season, water flow is present in streams and eventually runs through canyons

before reaching the ocean. SCI experiences dramatic fluctuations in annual precipitation, with an average of 6.6 inches annually (California State University Northridge, 1997-2011; Southern California Offshore Range [SCORE], 1997-2011). Most precipitation occurs from October through April. In the dry season (May through September), precipitation is limited, and therefore fog drip is the main source of moisture.

Available information about SCI groundwater resources is limited. There are no aquifers suitable for the drinking water beneficial use; only brackish groundwater has been located (Navy, 2008). The majority of the wetlands and ephemeral pools on SCI are the result of anthropogenic activities, including military operations and pre-military agricultural land uses.

1.1.3 Topography, Geology, and Soils

1.1.3.1 Topography

The topography of SCI includes an escarpment, a plateau, canyons, coastal and upland marine terraces, sand dunes, and sandy beaches. The highest point on NALF SCI is approximately 2,000 feet above mean sea level (MSL), southeast of the center of SCI (Navy, 2008). Elevations gradually slope toward the northern ends of the island (Olmstead, 1958). In the northeastern portion of SCI, the San Clemente escarpment rises sharply from the ocean, contrasting with the gently sloping southwestern portion (USDA, 1982). The plateau is moderately rolling, upland terrain that encompasses roughly the middle one third of SCI. Steep, narrow canyons are located all over SCI, but the majority are located in the southern portion.

The steep, east-facing cliffs in the northeastern portion of SCI are part of the San Clemente escarpment, which borders the entire eastern side of the island. The escarpment extends from Pyramid Head (at the extreme southeastern end of SCI) to Wilson Cove (near its northwestern end), with an isolated segment farther north, between Wilson Cove and Lighthouse Point (Dolphin Bay).

Coastal and upland marine terraces dominate the western, northern, and southern side of SCI. The coastal marine terrace gently slopes from sea level to about 98 feet above MSL, where it meets the upland marine terrace. The latter includes up to 19 marine subterraces in some areas which range up to 394 feet above MSL in the southern portion, up to 1,476 feet above MSL at mid-island, and up to 902 feet above MSL at the southern end of the island.

The oldest sand dunes are most extensive over the north-central part of the island, while active or recently stabilized dunes are located primarily on the north end (Olmstead, 1958). Sandy beaches are near the

island's northwestern and southern ends, and at West Cove, Northwest Harbor (1 BUD/S Beach), Graduation Beach, China Beach, Horse Beach Cove, and Pyramid Cove (Walcott, 1897).

1.1.3.2 Geology and Soils

SCI is the exposed portion of an uplifted fault block composed primarily of stratified submarine volcanic rock. The volcanic rock is overlain and interbedded with local sequences of marine sediments. Many of the soils are finely textured and highly friable. These soils are well-drained, have slow permeability, and are subject to severe shrink-swell characteristics that can damage anthropogenic structures. Soil formation on SCI is rapid, particularly on terraces and alluvial fans (Muhs, 1982). The evidence for this is the well-developed profiles and the high clay content in soils that are less than 3,000 years old. The formation of soils with high clay content from volcanic material that has very little clay derives from a combination of the addition of airborne silts and clays and the mobilization of clay under high-sodium conditions derived from sea spray (Muhs, 1982).

The soil order on SCI is vertisols, alfisols, and eolian dune deposits. Vertisols are heavy, light-colored soils with high clay contents that dominate the older, upper marine terraces and the plateau in the southern portion of SCI. These soils tend to swell with rain and develop deep, wide cracks during dry periods. Alfisols are fine, light-colored soils with subsurface horizons of clay accumulation, but with lower clay content than vertisols; they are the dominant soil on the island's lower, younger marine terraces and alluvial fans.

In the northern portion of SCI, eolian dune deposits of differential age overlie both the lower and upper marine terraces. The dune deposits are highly calcareous, consisting mostly of fragmented marine shell. The older upland dune deposits are characterized by well-developed, reddish alfisols with thick, high-clay subsurface horizons, some containing significant caliche horizons. Dune deposits on the lower, younger terraces exhibit a lesser degree of soil development, and some still exist as active dunes (Navy, 2008).

Soils on the western slopes have a distinctive silt loam surface cap (horizon), which was formed from the windblown transport of airborne dust (Muhs, 1980). This horizon is a thin (2–8-inches [5–20-centimeter (cm)]), light-colored layer with a silt loam texture; judging from its unique mineralogy, it is unrelated to the profile beneath. This silt loam is found on all geomorphic surfaces on the island, from andesitic and dacitic marine terraces and alluvial fans to calcareous dune sand, covering surfaces ranging in age from 2,760 years to greater than 1.2 million years (Muhs, 1980).

1.2 REGULATORY BACKGROUND AND COMPLIANCE

The ASBS Compliance Plan was developed to meet California regulatory requirements for the discharge of storm water and authorized non-storm water discharges from NALF SCI to the SCI ASBS. Sections 1.2.1 through 1.2.3 discuss California discharge regulations, requirements specific to the SCI ASBS, and compliance actions to meet the regulatory requirements.

1.2.1 California Discharge Regulations

Since 1997, storm water discharges associated with industrial activities at NALF SCI have been regulated by the California NPDES General Permit No. CAS000001, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities* (General Permit) (SWRCB, 1997), which authorizes storm water discharges.

Since 2009, discharges to ocean waters off the coast of California have been subject to the SWRCB *Water Quality Control Plan: Ocean Waters of California* (California Ocean Plan) (SWRCB, 2009), which prohibits waste discharges to the SCI ASBS. However, the SWRCB may grant exceptions to the California Ocean Plan for selected discharges if, in compliance with the California Environmental Quality Act (CEQA), the SWRCB has determined that granting the exceptions will not compromise the protection of ocean water beneficial uses. In March 2012, the SWRCB adopted the ASBS Resolution, which granted the Navy such an exception, contingent upon certain limitations (Special Conditions) specified in the resolution's Attachment B.

1.2.2 ASBS Requirements

The Special Conditions of the ASBS Resolution include discharge prohibitions, discharge limitations, and a compliance schedule.

1.2.2.1 Discharge Prohibitions

Section I.A.1 of the Special Conditions prohibits the following:

- Discharges of trash
- New storm water discharges that result in additional pollutant loading to the ASBS
- Non-storm water discharges that are not specifically allowed in Section I.A.1 of the Special Conditions

1.2.2.2 Discharge Limitations

The Special Conditions established limitations on storm water and authorized non-storm water discharges.

Storm water discharges:

- Must be authorized by an NPDES Permit;
- Must comply with the Special Conditions;
- May occur only during wet weather and be composed only of storm water runoff; and
- Must not alter (degrade) the natural water quality in the ASBS.

Authorized non-storm water discharges:

- Must occur naturally or be essential for emergency response purposes, structural stability, or slope stability, and be associated with one of the following:
  - Emergency fire-fighting operations;
  - Foundation and footing drains;
  - Water from crawl space or basement pumps;
  - Hillside dewatering;
  - Naturally occurring groundwater seepage via a storm drain; or
  - Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain (as long as there are no contributions of anthropogenic runoff).
- Must be authorized by an NPDES permitting agency that has determined discharges do not degrade the natural water quality in the ASBS.
- Must not cause, or contribute to, a violation of the water quality objectives in Chapter II of the California Ocean Plan or degrade the natural ocean water quality in an ASBS.

Certain additional provisions apply to authorized non-storm water discharges:

- Discharges associated with military training and research, development, test, and evaluation operations are allowed.
- Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock.
- Discharges must not violate the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

1.2.2.3 Compliance Schedule

To comply with the discharge prohibitions and limitations, Section I.A.3 of the Special Conditions requires dischargers to reach the following milestones:

a. On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) are effectively prohibited.

b. Within eighteen (18) months from the effective date of the Exception, the discharger shall submit a draft written ASBS Compliance Plan to the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that describes its strategy to comply with these Special Conditions, including the requirement to maintain natural water quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these Special Conditions for inclusion in the discharger's SWMP or SWPPP, as appropriate to permit type. The final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, must be submitted within thirty (30) months from the effective date of the Exception.

c. Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these Special Conditions shall be implemented.

d. Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these Special Conditions shall be operational.

e. Within six (6) years of the effective date of the Exception, all dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See attached Flowchart.

f. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may only authorize additional time to comply with the Special Conditions d. and e., above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in d. or e. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

- *For municipalities, a demonstration of significant hardship to discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the discharger's jurisdictional area, and the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or*
- *For other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.*

1.3 COMPLIANCE ACTIONS

Compliance actions that the Navy is required to implement at NALF SCI in order to meet the Special Conditions include development and implementation of an ASBS Compliance Plan, a monitoring and reporting program, and additional monitoring requirements of waterfront operations.

1.3.1 ASBS Compliance Plan

The Special Conditions require that dischargers authorized by statewide permits prepare and submit a Draft ASBS Compliance Plan to the SWRCB Executive Director within 18 months of the adoption of the ASBS Resolution. The ASBS Compliance Plan is required to describe Navy strategy to comply with the Special Conditions at NALF SCI, and must have the following elements:

- Measures that have eliminated the discharge of non-authorized non-storm water runoff, and a description of how these measures will be maintained over time, monitored (inspection frequencies), and documented.
- Non-structural BMPs (including those related to public education and outreach) and an implementation schedule.
- Erosion control and the prevention of anthropogenic sedimentation in developed areas.
- A prioritization of discharges to the SCI ASBS based on threat to water quality.
- Identification of planned or existing structural BMPs, including low-impact development (LID) measures where appropriate, and an implementation schedule.
- A map showing the storm water conveyance system, structural BMPs, sewage system, areas at risk for landslides and erosion, and storage areas for hazardous materials and waste.
- Procedures for updating the ASBS Compliance Plan, as necessary.

The Final ASBS Compliance Plan (this ASBS Compliance Plan) is due to the SWRCB Executive Director in September 2014, and must include a description of structural controls and a final schedule for implementing them. The structural controls are to be based on runoff and monitoring of the receiving water.

1.3.1.1 Monitoring and Reporting Program

The Special Conditions require the Navy to conduct monitoring and report the results of monitoring. The monitoring includes storm event water quality monitoring from outfalls and receiving waters, as well as ambient biological monitoring. Reporting includes the submittal of monitoring reports (as applicable, based on the monitoring results) to the SWRCB and the Los Angeles Regional Water Quality Control Board (LARWQCB) as required by Section I.A.2.h of the Special Conditions.

The Special Conditions:

- Establish minimum inspection frequencies for municipal separate storm sewer systems (MS4s) (Section I.A.2.c).
- Describe how storm event water quality monitoring from outfalls and receiving waters is to be performed, detail additional requirements for dischargers performing individual monitoring, and provide guidelines for regional monitoring programs (Section IV).
- Establish the conditions upon which reporting is required, to whom the reports are to be submitted, the contents of the report, and additional actions after the report is finalized (Section I.A.2.h).

Sections 1.3.1.2 and 1.3.1.3 summarize the monitoring and reporting compliance actions.

1.3.1.2 Required Monitoring

Monitoring comprises storm event water quality monitoring and biological monitoring.

Monitoring Safety. The monitoring requirements in Section IV of the Special Conditions state that safety must be considered when determining appropriate times and locations to collect samples. Sampling may be postponed if hazardous conditions (including high surf, airfield operations, and severe weather) are present.

Storm Event Water Quality Monitoring. Dischargers granted an exception by the ASBS Resolution are required to monitor storm water runoff at outfalls and ocean receiving water.

The NALF SCI ASBS monitoring program began in January 2013 and was required to include samples from three separate storm events in each wet season monitored. The Navy participates in 2013 Southern California Bight Regional Study (Bight '13), a regional monitoring group led by the Southern California Coastal Water Research Project (SCCWRP, 2013). The outfall monitoring requirements in Section IV.A of the Special Conditions that apply to storm water discharges at NALF SCI are those of a regional monitoring participant. For ocean receiving water monitoring, the Navy follows the ASBS Work Plan developed by the Bight '13 ASBS Planning Committee.

Storm water runoff monitoring is required at industrial and municipal outfalls that are 18 inches in diameter or greater. Those outfalls are to be monitored for:

- Runoff flow rates (calculated or measured)
- Oil and grease (O&G) and total suspended solids (TSS) during three storm events per monitored season
- Critical-life-stage chronic toxicity in one species at least once during each storm season

For outfalls that are at least 36 inches in diameter, these additional analyses are required:

- California Ocean Plan Table B metals for protection of marine life
- California Ocean Plan polycyclic aromatic hydrocarbons (PAHs)
- Current use pesticides (synthetic pyrethroids and organophosphate pesticides)
- Nutrients (ammonia, nitrate, and phosphates)

Ocean water monitoring is required before and during storm events at ocean sites that are near municipal or industrial outfalls that measure at least 36 inches in diameter (receiving water site) and are located in drainage areas with minimal development (reference water site). Samples from receiving and reference water sites are required to be analyzed for the following constituents:

- O&G
- TSS
- California Ocean Plan Table B metals for protection of marine life
- California Ocean Plan PAHs
- Current-use pesticides
- Nutrients
- Critical life stage chronic toxicity for three species

Biological Monitoring. Dischargers that were granted an exception by the ASBS Resolution are required to survey intertidal benthic marine aquatic life and to study bioaccumulation at least once every five years.

The Navy contracted with the University of California Santa Cruz to perform the intertidal benthic marine aquatic life survey during the spring of 2013. Also in the spring of 2013, the Navy collected samples of mussels for analysis for its bioaccumulation study. Both the intertidal benthic marine aquatic life survey and bioaccumulation study followed the monitoring protocols of the ASBS Work Plan (SCCWRP, 2013) developed by the Bight '13 ASBS Planning Committee.

The intertidal benthic marine aquatic life survey has two components: random point contact and mobile invertebrate surveys (SCCWRP, 2013). Random point contact surveys identify all taxa at 100 sample points in a transect. Mobile invertebrate surveys count mobile invertebrates at three locations within a transect; each location is chosen at random and the three locations together represent the low, middle, and high zones of a transect.

The purpose of the bioaccumulation study is to measure exposure of marine organisms to persistent pollutants (SCCWRP, 2013). Mussels are collected at low tide at a discharge and a reference receiving water site. At each site, samplers collect mussels from three locations. Each mussel is measured and weighed prior to compositing, and the tissue is analyzed for the following analytes:

- California Ocean Plan Table B metals for marine aquatic life
- California Ocean Plan PAHs
- California Ocean Plan chlorinated hydrocarbons (dichlorodiphenyltrichloroethane [DDT]) and polychlorinated biphenyls [PCBs])
- Pyrethroid pesticides
- Lipid content

1.3.1.3 Reporting

The Special Conditions require the Navy to annually report storm water runoff flow from monitored outfalls to the SWRCB and LARWQCB and report to the SWRCB and LARWQCB when the results of receiving water monitoring indicate that storm water runoff is contributing to an alteration of natural water quality.

Section I.A.3.e of the Special Conditions (repeated herein in Section 1.2.2.3) describes the process of identifying an alteration of natural water quality. The reporting requirements are:

- The report shall be submitted to the SWRCB and LARWQCB within 30 days of the Navy receiving the results.
- The report shall identify constituents that alter natural water quality and the sources of those constituents.
- The report shall identify currently implemented BMPs, planned BMPs, and any additional BMPs that are necessary to address the alteration of water quality. A revised BMP implementation schedule is also required.
- Within 30 days of approval of the report by the SWRCB Board Executive Director, the Navy is required to update the ASBS Compliance Plan to incorporate modified and additional BMPs, and to revise the implementation schedule. The Navy could also be required to perform additional monitoring.

1.3.1.4 Monitoring Requirements for Waterfront Operations

The Special Conditions require dry weather monitoring for marina or mooring field operations. The Navy has determined that the pier at Wilson Cove meets the conditions in Section IV.B.3 of the Special Conditions that require sampling. The Navy is participating in the Bight '13 regional monitoring program, with the following waterfront and marine operation sampling requirements:

a. *For all marina or mooring field operators, in mooring fields with 10 or more occupied moorings, the ocean receiving water must be sampled for California Ocean Plan indicator bacteria, residual chlorine, copper, zinc, grease and oil, methylene blue active substances (MBAS), and ammonia nitrogen.*

   - *(2) For mooring field operators opting to participate in a regional integrated monitoring program (Section IV.B.2 above), this sampling must occur monthly from May through October on a high use weekend in each month. The Water Boards may allow a reduction in the frequency of sampling, through the regional monitoring program, after the first year of monitoring.*

b. *For all mooring field operators, the subtidal sediment (sand or finer, if present) within mooring fields and below piers shall be sampled and analyzed for Ocean Plan Table B metals (for marine aquatic life beneficial use), acute toxicity, PAHs, and tributyltin. For sediment toxicity testing, only an acute toxicity test using the amphipod Eohaustorius estuarius must be performed. This sampling shall occur at least three times during a five (5) year period. For mooring field operators opting to participate in a regional integrated monitoring program, the Water Boards may allow a reduction in the frequency of sampling after the first sampling effort's results are assessed.*

1.4 ASBS COMPLIANCE PLAN ORGANIZATION

The remainder of this ASBS Compliance Plan is organized as follows:

Section 2—Discharges to the SCI ASBS:

- Identifies discharges to SCI ASBS, and specifically addresses the prohibition of non-storm water runoff and the requirement to maintain natural water quality for storm water discharges to an ASBS.
- Describes measures by which all non-authorized, non-storm water runoff has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- Addresses Sections I.A.1, I.B.1, I.A.2.a and I.B.2.b of the ASBS Resolution.

Section 3—Prioritization of Discharges:

- Identifies and prioritizes storm water discharges based on risk to water quality.
- Addresses Section I.A.2.a of the ASBS Resolution.

Section 4—Erosion Potential and Control:

- Addresses erosion control and the prevention of anthropogenic sedimentation in ASBS 23.
- Addresses Section I.A.2.e of the ASBS Resolution.

Section 5—BMP Implementation:

- Describes existing non-structural BMPs, including an education and outreach program.
- Describes existing structural BMPs and the role of structural BMPs.
- Addresses Sections I.A.2.b, I.A.2.c, I.A.2.f, and I.B.2.b of the ASBS Resolution.
- Describes planned and proposed non-structural and structural BMPs, and the role of BMPs in maintaining natural water quality.
- Provides recommended non-structural and structural BMPs.
- Addresses Sections I.A.2.b, I.A.2.d, I.A.2.f, I.A.2.g, and I.B.2.b of the ASBS Resolution.

Section 6—Compliance and Implementation Schedule:

- Provides the compliance schedule, BMP implementation schedule, and mandates submitting a report if receiving water monitoring indicates that discharges are altering natural conditions.
- Describes the procedures for revising the ASBS Compliance Plan to maintain compliance with the ASBS Resolution.
- Addresses Sections I.A.2.g, I.A.2.h, I.A.3, I.B.2.c, and I.B.3 of the ASBS Resolution.

Section 7—References:

- Presents documents referenced in the development of this ASBS Compliance Plan.

2.0 DISCHARGE TO THE SCI ASBS

In accordance with the ASBS Resolution, the only permitted point source discharges are those authorized by the ASBS Resolution or by an NPDES permit issued by the SWRCB or the Regional Water Quality Control Board (RWQCB). The only discharges to ASBS allowed are those from existing storm water outfalls, and the discharges must comply with the applicable terms, prohibitions, and special conditions set forth in the ASBS Resolution.

The ASBS consists of the waters surrounding NALF SCI to a distance of one nautical mile off-shore or to the 300-foot isobath, whichever is the greater distance. This ASBS Compliance Plan covers only storm water and non-storm water discharges from the northern portion of NALF SCI, the primary location where there is infrastructure and personnel to support the various training missions at NALF SCI. Discharges associated with military training and research, development, test, and evaluation operations are allowed.

Discharges from the Wastewater Treatment Plant are exempt from the ASBS Resolution (SWRCB, 1977) and are covered under a separate NPDES permit (LARWQCB, 2013).

2.1 ASBS DISCHARGE REQUIREMENTS

Sections I.A.1 and I.B.1 of the Special Conditions require that storm water and non-storm water discharges be authorized by a SWRCB or RWQCB order, comply with the terms of the Special Conditions, and do not alter natural water quality in the ASBS.

The Navy is meeting the requirements of Section I.A.1 and I.B.1 as follows:

- Storm water and non-storm water discharges at NALF SCI are authorized by General Permit.
- The Navy is complying with the terms of special conditions, including required monitoring, this ASBS Compliance Plan, and other required actions.
- Discharges at NALF SCI do not alter natural water quality in the SCI ASBS.

2.2 STORM WATER DISCHARGES

There are 17 ASBS outfalls covered under the ASBS Resolution, and 6 of the 17 outfalls are also covered under the General Permit. Appendix A provides a tabular summary of the ASBS Outfalls, including a description of each outfall, monitoring status, and whether the outfall is also monitored under the General Permit.

2.3 NON-AUTHORIZED NON-STORM WATER DISCHARGES

Non-authorized non-storm water runoff is prohibited by Section I.A.1 of the Special Conditions. To implement this requirement, Section I.A.2.b of the Special Conditions requires the ASBS Compliance Plan to describe (a) the measures by which non-authorized non-storm water runoff has been eliminated, (b) how the measures will be maintained over time, and (c) how the measures are monitored and documented.

In compliance with requirements of the General Permit, the Navy has been implementing a non-storm water discharge elimination and prevention program (NSDEPP) at NALF SCI since 1992. Sections 2.3.1 through 2.3.4 discuss the history of the NSDEPP at NALF SCI, how non-authorized non-storm water runoff has been eliminated at NALF SCI in compliance with the Special Conditions, how the measures will be maintained, and how the measures are monitored and documented.

2.3.1 History of NSDEPP

The NSDEPP for NALF SCI is described in the *2011-2012 Storm Water Discharge Management Plan Update for Naval Auxiliary Landing Field San Clemente Island* (NAVFAC SW, 2012). The ongoing NSDEPP program at NALF SCI includes project plan reviews, preventive maintenance, training, and the visual observation of drainage areas. A program similar to the NSDEPP implemented for the General Permit has been established for compliance with the Special Conditions.

2.3.2 Discharge Elimination

The Navy has identified three types of non-authorized non-storm water discharges that have been eliminated: illicit connections, illicit disposal of waste, and non-storm water discharges not addressed by Section I.A.2 and Section I.B.1.f of the Special Conditions. For each of the eliminated discharge types, the measures that are, or have been, implemented to eliminate the discharges are discussed below.

2.3.2.1 Illicit Connections

An illicit connection is a cross-connection of any non-authorized non-storm water discharge source (such as a sewer conveyance) to the storm water conveyance system. Procedures to identify illicit connections include surveys and routine visual observations, testing, and training. Procedures to prevent and eliminate illicit connections include project plan reviews, preventive maintenance, and training.

Illicit Connection Surveys. In 1995 and 2007, a contractor for NAVFAC SW conducted a survey to identify illicit connections at NALF SCI, but found no evidence of any illicit connections. For more

information about these surveys, refer to the most recent *Storm Water Discharge Management Plan Update* for NALF SCI (NAVFAC SW, 2012).

Routine Visual Observations. Inspections of outfalls and work sites, as required by the Special Conditions, include conducting a visual observation to help identify evidence of illicit connections. Routine visual observations of outfalls and work sites are ongoing at NALF SCI.

Routing Testing. Equipment and systems at NALF SCI that could fail and discharge pollutants to storm water runoff are routinely tested by NAVFAC SW as part of its preventive maintenance program.

Training. Navy personnel at NALF SCI are trained for environmental awareness, hazardous materials management, and other issues that can help them identify potential illicit connections and report these to NAVFAC SW. In response to such a report, NAVFAC SW Environmental personnel would investigate the source of the alleged illicit connection and, if necessary, terminate the connection.

2.3.2.2 Illicit Disposal of Waste

Personnel at NALF SCI have been trained to not dispose waste to the storm water conveyance system or dispose waste in such a manner that waste could come into contact with storm water runoff. Anyone who observes the improper disposal of waste is instructed to report the incident to NAVFAC SW Environmental personnel.

2.3.2.3 Discharges Not Listed in the Special Conditions

Non-storm water discharges not listed in the Special Conditions have been eliminated through adherence to the water conservation program at NALF SCI. SCI has no local source of potable water, so the potable water it uses must be transported to the island by barge from San Diego. To properly manage this scarce resource, NALF SCI has implemented a water conservation program, which emphasizes the minimal use of water. As a result, this program minimizes the potential for non-storm water discharges by limiting the use of potable water to those activities deemed essential to military operations and public safety.

2.3.3 Maintenance

The continued elimination of non-authorized non-storm water runoff is required to comply with the Special Conditions. The Navy's ongoing compliance maintenance program includes visual observation, equipment and systems testing, training, and water conservation.

2.3.3.1 Visual Observations

The elimination of non-authorized non-storm water runoff is aided by ongoing visual observations to identify potential issues and address them before such discharges can occur. Visual observations are made during routine inspections and while conducting other routine tasks at NALF SCI. Visual observations that indicate the potential for non-authorized non-storm water runoff are to be documented and reported immediately to NAVFAC SW Environmental personnel. In response to such a report, NAVFAC SW Environmental personnel investigate the issue and take appropriate action, if necessary, to protect the ASBS.

2.3.3.2 Equipment and Systems Testing

Ongoing equipment and systems testing help to eliminate the discharge of non-authorized non-storm water by preventing the conditions that can result in such discharge. At NALF SCI, equipment and systems that can fail and result in the discharge of pollutants in storm water are routinely tested by NAVFAC SW as part of preventive maintenance. Equipment and systems are also routinely observed for leaks and other indications of the potential for the discharge of pollutants. Corrective maintenance is performed, as necessary, to prevent equipment failure, and pollutant discharge.

2.3.3.3 Training

Training the personnel at NALF SCI helps to eliminate the discharge of non-authorized non-storm water by making personnel aware of the issues and knowledgeable in identifying problems and potential problems with the equipment and systems at NALF SCI. Training also provides personnel with knowledge of the proper procedures for promptly reporting potential problems to NAVFAC SW Environmental personnel for investigation and corrective action.

2.3.3.4 Water Conservation

Water conservation is part of the strategy at NALF SCI to eliminate the discharge of non-authorized non-storm water. The water conservation program at NALF SCI helps minimize the use of this limited resource, particularly in outdoor areas where water could contact pollutants, enter the storm water conveyance system, and discharge to the ASBS. This program provides Navy personnel with simple rules for preventing non-authorized, non-storm water discharges. The effectiveness of water conservation on SCI depends on Navy personnel leveraging their training, their conservation program knowledge, and their awareness to limit water usage wherever possible, test equipment and systems that use water as part of preventive maintenance, identify inefficient uses of water and non-authorized non-storm water discharges, and promptly report these to NAVFAC SW Environmental personnel for investigation and corrective action.

2.3.4 Monitoring and Documenting

NAVFAC SW Environmental personnel routinely visually observe the drainage areas at NALF SCI and document those observations as part of the Navy compliance with the General Permit.

3.0 PRIORITIZATION OF DISCHARGES

The Special Conditions requires the ASBS Compliance Plan to prioritize discharges. Priority discharges are those that pose the greatest threat to water quality and have been identified as requiring the installation of structural BMPs. This section summarizes the results of an initial assessment performed by the SWRCB staff and SCCWRP, identifies the criteria for prioritization of discharges, describes the drainage basins at NALF SCI, and applies the criteria to NALF SCI drainage basins.

3.1 SWRCB STAFF AND SCCWRP ASSESSMENT

SWRCB staff developed a programmatic environmental impact report (PEIR) that included the ASBS Resolution as Appendix 1. Appendix 5 of the PEIR lists drainages and source types, including discharges, outlets, and potential discharges to ASBS. For each drainage, the threat to water quality was rated as low, medium, or high. At NALF SCI, drainages were identified and assessed by SWRCB staff and SCCWRP during a survey conducted in February 2003 and a document review conducted in May 2003. Section 5.7.18 of the PEIR identified storm water and non-point sources from areas of industrial and military activities as high threats (SWRCB, 2012).

3.2 CRITERIA FOR PRIORITIZATION

Criteria for prioritization were developed to address the highest-priority impacts of storm water discharge on the ASBS. These criteria are based on a review of the *Storm Water Discharge Management Plan for Naval Auxiliary Airfield San Clemente Island* (NAVFAC SW, 2012), experience from industrial storm water monitoring at NALF SCI, and knowledge of the environmental conditions of the developed areas of the island. The criteria reflect the unique situation at NALF SCI as a site with many predominantly pervious drainage basins, some very small drainage basins with limited flow potential, and a few drainage basins with higher risk of soil erosion (based on the percentage of sediment that could potentially deposit in the ASBS).

3.3 DRAINAGE BASINS

NALF SCI has four areas with anthropogenic development: Landfill, Airfield, NOTS Pier, and Wilson Cove. These areas have drainage basins of varying size, slope, and anthropogenic development. These factors impact the volume of discharge and runoff concentrations that have been detected at monitored outfalls.

Figure 1 is an NALF SCI site map that shows the overall locations of the storm water conveyance system, structural BMPs, sanitary sewer system, areas at risk for landslides and erosion, and storage areas for hazardous materials and waste. Figures 2–6 are location maps that show each of these four areas in greater detail.

3.3.1 Landfill

Landfill is located east of San Clemente Ridge Road in the central portion of NALF SCI. The landfill area is used for the disposal of non-hazardous solid waste and a staging area for scrap metal. The drainage area of Landfill comprises the landfill and roads. An analysis of the drainage area using recent land cover data found that less than ten percent of the drainage basin was covered by impervious or disturbed surfaces.

Landfill does not include any outfalls that were monitored in accordance with the Special Conditions during the 2012/2013 wet season.

3.3.2 Airfield

Airfield is in the northernmost portion of NALF SCI and comprises an airport, a fueling area, and a perimeter road. Airfield has large portions with vegetative cover and grass, including an infield within the boundaries of the perimeter road. *The San Clemente Island Watershed Erosion and Sediment Yield Assessment*, developed as part of the SCI ASBS Exception Application, found that less than ten percent of land cover in the Airfield area was impervious surfaces (Tierra Data, 2006).

Airfield includes four outfalls (ASBS 001, 002, 003, and 007) that were monitored during the 2012/ 2013 wet season.

3.3.3 NOTS Pier

NOTS Pier is a military diving operations area located on the eastern shoreline of NALF SCI, approximately 4 miles southeast from Wilson Cove. The drainage basins in this area are small and predominantly undeveloped. An analysis of the drainage basins using recent land cover data for NALF SCI found that two of the drainage basins had less than one percent impervious area.

NOTS Pier includes two outfalls (ASBS 008 and 011) that were monitored during the 2012/2013 wet season. Outfalls of drainage basins with less than one percent impervious area were not monitored.

3.3.4 Wilson Cove

Wilson Cove is located in the northern portion of NALF SCI, approximately half-way between the Airfield and NOTS Pier. Wilson Cove includes a barge ramp, a boat maintenance facility, a diesel fuel storage area, a gas station, a facility for storing hazardous waste for less than 90 days, a pier with available areas for mooring boats, roads, a vehicle maintenance facility, and other buildings with activities supporting the mission at NALF SCI (e.g., living quarters, fire department, medical clinic, and a general store). Wilson Cove is the most developed area at NALF SCI. There are several small drainage basins in the vicinity of the pier that are covered primarily by buildings, roadway, and other development. The two largest drainage basins in the Wilson Cove area, those associated with ASBS Outfalls 025 and 030, are predominantly covered by pervious surfaces with impervious clusters. Both drainage basins include impervious development in the vicinity of the pier and in a plateau area that contains the fire department, general store, medical clinic, a vehicle maintenance facility, and other buildings. ASBS Outfall 030 also includes storm water drainage from a housing area.

Wilson Cove includes five outfalls (ASBS 019, 020, 025, 030, and Over Land Flow [OLF] 24) that were monitored during the 2012/2013 wet season.

3.4 HIGH-PRIORITY DISCHARGES

Because development is limited and the sloped areas are steep at NALF SCI, the greatest risk to water quality is not from urban pollutant concentrations, but from soil erosion in certain drainage basins. Soil erosion at NALF SCI is positively associated with the steepness of the slopes (Tierra Data, 2006). Discharges in the Landfill, Airfield, and Wilson Cove were designated "high-priority" for installation of structural BMPs, based on field observations of soil erosion risk, potential impacts of soil erosion on the mission at NALF SCI, and the potential effectiveness of installing structural BMPs.

3.4.1 Landfill

The Landfill is a high-priority discharge because the drainage basin downstream may contain munitions and explosives of concern (MEC). MEC in this drainage basin would be munitions and explosives from historical military training operations and would have the potential to present safety hazards if mobilized. A permanent detention basin implemented at the northern end of the Landfill will reduce runoff and therefore the likelihood of future mobilization of MEC.

3.4.2 Airfield

At the Airfield, the high-priority outfall discharges are ASBS 003 and 007. These outfalls are high-priority because they are associated with drainage basins at greatest risk for soil erosion (the eastern edge of the Airfield, near ASBS 007, and the western edge of the Airfield, near ASBS 003), and because soil erosion has the potential to negatively impact the ability of the airport to support the mission at NALF SCI.

Discharge of sediment from the site can be reduced by installing catch basin risers and sedimentation basins. Catch basin risers reduce sediment loading into the catch basin. Diversion dikes direct runoff towards the infield area, where it could infiltrate and would not be discharged. Sedimentation basins encourage infiltration, and extend the life of the airfield by preventing erosion of the hillsides supporting the airfield. Together these BMPs reduce both the amount of sediment and storm water runoff discharging from outfalls and therefore the potential for pollutant loading into the ASBS.

Recommended structural BMPs for the Airfield are presented in Section 5.5.

3.4.3 Wilson Cove

Wilson Cove drainage basins are predominantly categorized as having very high water erosion risk (Tierra Data, 2006). The pier and areas to the west of the pier are currently impacted by storm water runoff (discharges from ASBS 019 and 020, and OLF 24). Storm water runoff in drainage basins associated with ASBS 020 and OLF 24 contribute to soil erosion impacting these basins.

4.0 EROSION POTENTIAL AND CONTROL

Erosion and sedimentation are the highest risks to ASBS water quality at NALF SCI. As described in Section 1.1.3, the unique geology, vegetation, soils, and climate of SCI present substantial challenges for erosion control and management. The natural topography and soils of NALF SCI are prone to erosion. The high rate of natural erosion is compounded at NALF SCI by anthropogenic alterations to the environment such as roadways and development, which alters the surface flow of drainage areas and increases runoff rates, thus causing additional erosion.

The following section describes soil erosion and soil erosion management at NALF SCI, including the development of a *Soil Erosion Control Plan* (Science Applications International Corporation [SAIC], 2013).

4.1 SOIL EROSION AND SOIL EROSION MANAGEMENT

Soil erosion is a naturally occurring process caused by the action of water and wind wearing away the land surface. Accelerated soil erosion is a net loss of soil beyond the natural background levels due to land use. Under natural conditions in southern California, undisturbed vegetation acts as a check on the erosion process. The onset of autumn rain, with as little as 0.50 to 0.75 inches (1.3-1.9 cm) of rainfall, triggers the germination of seeds from herbaceous species within days. Roots of perennial, shrub, and tree species begin to produce the annual mass of tiny feeder roots just beneath the surface of the soil.

Two major factors that negatively impacted vegetation cover and species composition on SCI are overgrazing and fire. A century of ranching on the island greatly reduced and simplified the natural vegetation cover and composition of the island. With the removal of the feral goat population in 1992, the vegetation cover of the island has recovered remarkably well (Tierra Data, 2013). Fire has become a significant factor in the degree of vegetation cover as a result of military training activities. Both overgrazing and relatively frequent fire events can lead to the invasion of non-native species, especially annual grasses, which do not possess the permanent deep roots typical of native perennial grasses. In a positive feedback loop, annual grasses can make the ecosystem more flammable and more likely to burn in accelerated intervals, suppressing native, deep-rooted species. This is evident on SCI in numerous natural drainages that have eroded into canyons hundreds of feet deep. An estimated 70 percent of eroded soils eventually are transported to the ocean, amounting to 1,428 tons per year for the island (Tierra Data, 2006).

Large and small gullies have been documented across SCI. While gully formation is sometimes natural, gullies on SCI have been attributed to surface runoff from unpaved roads, road maintenance activities, and military vehicle maneuvers without erosion control measures (USDA, 1982), and a soil process known as piping. Piping is concentrated flow, unbroken or continuous from a disturbed point of origin. Notable examples of gullying with at least some active piping are just south of Stone Station. Soils that are high in clay, such as at that in China Point, Eel Point, Lost Point, and NOTS Pier, have a high shrink-swell potential due to the presence of montmorillonite clays. The clay's tendency to shrink and expand is more predominant during periods of light rainfall and therefore more water is absorbed in the soils and less runoff is likely. In contrast during periods of heavy rainfall, the clay's shrink-swell potential is less prevalent and therefore runoff is more free-flowing and allowed to move directly downward. When the free water reaches the bedrock, or about 3 feet deep, it continues laterally. With increasing velocity, the water detaches soil prisms and becomes a pipe-like underground tunnel ranging from 20 to 200 feet long (USDA, 1982). The soil above eventually collapses onto itself, and the pipe continues as a gully with nickpoints creeping upslope each year.

Additionally, the island's constant sea spray adds sodium to most of the soils. Sodium disperses the clays, which impedes drainage and makes soils more vulnerable to the erosive forces of rain (USDA, 1982) and wind; this is most detectable in the west shore soils.

The Navy has employed management techniques to minimize soil erosion on SCI. These efforts include revegetation with native species, road maintenance, and road regulations. The Navy has revegetated areas at the Airfield and in other portions of SCI. Road maintenance has been performed for paved, graveled, and unpaved roads. Soil erosion associated with roads has also been minimized through strict implementation of road-use regulations, an element of the *NALF San Clemente Island Standard Operating Procedure* (Navy, 2013b).

The Navy is developing a soil management strategy, the objective of which is to conserve soil resources, to protect terrestrial natural resources and receiving water quality, and to maintain access for Navy operations throughout the island. The NALF SCI soil management strategy being developed for future implementation includes:

- Development of, and enforcement of, an island-wide erosion control plan
- Continued improvement in the techniques used to implement revegetation
- Implementation of an strategic soil conservation plan
- Long-term monitoring of soil management indicators

4.2 EROSION CONTROL PLAN

The NALF SCI Erosion Control Plan describes the Navy approach for assessing and reducing soil erosion on SCI, as part of an increase in military training and required infrastructure activity to support the Fleet Readiness Training. The Erosion Control Plan addresses soil erosion associated with planned military operations and development on NALF SCI.

The goal of the Erosion Control Plan is to minimize impacts of erosion and sedimentation on ASBS water quality and on endangered and threatened species and their habitat, and to maintain the sustainability of training on NALF SCI. The conservation of soil quality and productivity is an essential component of sustainable military training. Military lands need to be maintained in settings that provide realistic and challenging opportunities to practice battle-focused tasks and missions. Protecting the soil quality, through erosion control and revegetation, improves the ability of finite military lands to sustain training (SAIC, 2013).

5.0 BMP IMPLMENTATION

As identified in Section 2.3, NALF SCI has been implementing BMPs for storm water and water quality since 1992, beginning with the NSDEPP. NALF SCI continues to implement non-structural storm water BMPs as its primary cost-effective and proven strategy for storm water compliance. Existing structural BMPs for erosion control will be augmented by installation of recommended structural BMPs by the Navy prior to September 2018 to reduce erosion risk from both naturally occurring erosion and anthropogenic erosion sources. The schedule for implementation of the proposed structural BMPs in Section 5.6 is provided on the ASBS Compliance Plan Schedule (Figure 7).

This section identifies existing and planned non-structural and structural BMPs at NALF SCI.

5.1 NON-STRUCTURAL BMPS

Non-structural BMPs are policies, practices, and procedures that reduce or prevent pollutants from entering storm water runoff. Non-structural BMPs play a key role in helping the Navy maintain natural water quality in the SCI ASBS. Adherence to non-structural BMPs at NALF SCI is the responsibility of every group that accesses NALF SCI including resident Navy personnel, transient Navy personnel, and contractors. Resident Navy personnel are those who are regularly stationed at NALF SCI for a period of at least one month during a year. Transient Navy personnel are those who visit NALF SCI for up to a month. Contractors are personnel employed by a private entity, with general oversight by the Navywhile at NALF SCI.

Non-structural BMPs at NALF SCI include good housekeeping, material handling, preventive maintenance, recordkeeping, spill response, public outreach and education, and training. These BMPs are described in Sections 5.1.1 through 5.1.7.

Training, reinforcement, and implementation are the elements of non-structural BMP performance at NALF SCI. The procedures for training, reinforcement, and implementation (as described in Section 5.1.7 are generally similar across the groups. —Population-specific procedures" are those that vary by the group type, and are described under specific headings for each group in Section 5.2. Section 5.2 provides the implementation schedule for non-structural BMPs.

Non-structural BMPs cover a broad range of activities that personnel at NALF SCI regularly perform while on the island.

5.1.1 Good Housekeeping

The goal of good housekeeping is for personnel to maintain clean and orderly work areas. Simple actions to help prevent storm water pollution are placing wastes into proper receptacles, cleaning up a work area at the end of a task, covering exposed trash dumpsters and material piles before a rain event, and sweeping up before the end of the work day.

5.1.2 Material Handling

The purpose of good material handling practices is for personnel to properly store, transport, and use raw materials and containers at a work site. Proper labeling and organizing of containers, careful loading and unloading of materials, and storing of materials off the ground and under cover all reduce the risk of a spill and release of pollutants to storm water runoff and non-storm water discharges

5.1.3 Preventive Maintenance

Preventive maintenance aims to avoid equipment breakdowns that can release pollutants to storm water runoff. Regular observation and testing of sewer pipes and other service lines, regular maintenance of equipment by qualified personnel, and regular servicing of vehicles and boats at maintenance facilities all reduce the risk of leaks, ruptures, and other discharge mechanisms that may increase pollutant loading to the ASBS.

5.1.4 Recordkeeping

Recordkeeping tracks the training on and implementation of non-structural BMPs, with the goal of identifying areas of success, areas in need of improvement, and compliance with the Special Conditions. Recordkeeping includes maintaining organized records of all materials at the site, equipment testing and maintenance, and reportable spills.

5.1.5 Spill Response

The goal of spill response is to prevent spills and to promptly contain and dispose of any spilled materials. Proper containment, spill response equipment, and spill response procedures are necessary to minimize the risk of storm water pollution from spills.

5.1.6 Public Outreach and Education

The Navy is in a unique position to protect the NALF SCI ASBS in that, unlike other ASBS stakeholders, the Navy has authority over military and civilian personnel on NALF SCI and has a direct line of communication with island personnel that no other ASBS stakeholder can match.

The NALF SCI public outreach and education program to protect the ASBS water quality benefits from an already strong sense of environmental stewardship from the established natural resources programs on the island. The Navy emphasizes that, without protection of the sensitive environment, training in support of the Navy mission is unsustainable on NALF SCI. Military personnel who work on the island are provided a natural resource briefing that includes storm water and water quality issues. The debriefing identifies the water surrounding NALF SCI as an ASBS that requires protections.

Public outreach and environmental education are passed along to all Navy contractors through the ~~–~~How to do Business Onboard San Clemente Island" standard operating procedures packet, which is distributed to contractors who work on NALF SCI (Navy, 2013b) and serves as a platform for the Navy to communicate its values of environment protection and water quality to contractors.

The Industrial Storm Water Program has an established public outreach and education for industrial activities with Navy and civilian personnel receiving training on storm water quality and associated BMPs for good housekeeping, material handling, and preventative maintenance. Job-specific training provides further education about material handling and pollution prevention to military and civilian contractors who perform municipal operations and maintenance and handle bulk fuel.

The Navy can reach the entirety of the NALF SCI community through daily message boards and posting of information in common areas. The Navy has the ability to enforce environmental policy and restrict access to the island to any individual or contractor who fails to meet the environmental protection standards adhered to by the Navy at NALF SCI.

5.1.7 BMP Training

Before their arrival at NALF SCI, Navy and contractor personnel view a video presentation that educates them on natural resource regulations and policies at NALF SCI (Department of Defense, 2013). Because access to NALF SCI is limited to personnel with a professional interest, NALF SCI personnel have typically been trained on environmental awareness, good housekeeping procedures, pollution prevention, and other topics that can be leveraged to maintain natural water quality in the ASBS. The requirement to never drive off-road is an example of a policy that is common to the training of Navy personnel and contractors. This policy reduces both soil erosion and the risk of contact with MEC.

5.1.7.1 Training of Resident Navy Personnel

The resident Navy personnel population at NALF SCI comprises those who work (a) at facilities covered by the General Permit, (b) at support activities (electric plant, fire department, general store, lodging,

medical clinic, and wastewater plant), (c) in the Environmental Division, and (d) in the Natural Resources Division. Resident Navy personnel work throughout NALF SCI, including the Landfill, the Airfield, NOTS Pier, and Wilson Cove areas.

Training at General Permit facilities focuses on procedures to prevent non-storm water and storm water pollution as part of regular facility activities, environmental training (including good housekeeping, materials handling, and recordkeeping), and specific training on the storm water pollution prevention plan (SWPPP) for their facility. For example, at boat and vehicle maintenance facilities, personnel are trained to perform maintenance indoors. For more information about facility SWPPPs, refer to *Storm Water Discharge Management Plan for Naval Auxiliary Airfield San Clemente Island* (NAVFAC SW, 2012).

Training at support activities focuses on general environmental practices that include storm water pollution prevention; training in good housekeeping and materials handling; and additional training (such as spill response or preventive maintenance) on topics related to specific jobs. The training may use NALF SCI plans such as the Erosion Control Plan; the SPCC Plan; the Hazardous Materials Business Plan; the Hazardous Substance Management System; and the Oil/Hazardous Substance Spill Contingency Plan.

Training in the Environmental Division has educational and professional elements that encompass many of the practices to prevent non-storm water and storm water pollution, as well as additional training to help correct potential storm water pollution issues that may be encountered at a work site. Personnel may also be called upon to train other personnel at NALF SCI.

Training in the Natural Resources Division includes educational and field training on environmental issues that encompass the core goal of preventing non-storm water and storm water pollution, through proper management of the materials and activities that could be exposed to storm water runoff and so alter the natural water quality.

5.1.7.2 Training of Transient Navy Personnel

Transient Navy personnel are typically personnel who are at NALF SCI temporarily for military training and research, or for development, test, or evaluation operation; they may work throughout NALF SCI. These personnel are provided environmental training as part of their overall Navy training. They are also trained on good housekeeping, proper materials handling, preventive maintenance, recordkeeping, and spill response procedures, as applicable to their activities at NALF SCI.

5.1.7.3 Training of Contractors

Contractors' principal functions at NALF SCI are construction and support services throughout NALF SCI, including the Landfill, Airfield, NOTS Pier, and Wilson Cove areas.

The personnel of construction contractors may require training on a construction SWPPP for their project. The SWPPP includes good housekeeping procedures such as covering materials prior to a rain event and preventive maintenance procedures such as repairing or replacing fiber rolls (sediment control BMP) to prevent the discharge of pollutants from the construction site. The company that controls the construction site is responsible for the proper training of personnel who work on the site.

The personnel of support-service contractors typically receive educational or professional training on topics such as pollution prevention and materials handling. For example, a contractor responsible for transferring fuel to above-ground storage tanks at the gasoline station would be trained on how to minimize the chance of a fuel spill, how to monitor the fuel transfer, and (if necessary) how to control and report a spill. The company that employs these support-service personnel is responsible for properly training them. If a subcontractor is used, both the prime and the subcontracting companies are responsible for making sure that all their personnel working at NALF SCI are properly trained on the procedures necessary to prevent storm water pollution.

5.2 ADDITIONAL NON-STRUCTURAL BMPS IMPLEMENTED

NALF SCI implements additional non-structural BMPs not only for storm water quality programs but also other environmental programs that benefit and maintain the water quality of the NALF SCI ASBS. The programs and associated non-structural BMPs protect the ASBS by managing and preventing the release of chemicals to the environment and setting protocols for cleanup of accidental releases from current operations and past uses.

The following are non-structural BMPs with direct impacts on protecting ASBS water quality.

- Industrial Storm Water Monitoring Program: This program implements 54 good housekeeping, material handling, and preventative maintenance BMPs at five industrial facilities and monitors six outfalls for storm water constituents. The program includes a storm water discharge management plan and SWPPP regulating discharge form industrial and non-industrial outfalls.

- Construction Storm Water Program: This program oversees construction activities on NALF SCI and implements non-structural and structural BMPs for discharges from construction activities.

- Low-Impact Development Policy for Storm Water Management: The goal of this policy is "no net increase" in storm water volume or in sediment and nutrient loading as a result of major renovation and construction projects. The policy directs that LID be considered in the design of all projects that have a storm water management element (Navy, 2007).

- Tertiary-Treated Wastewater: The NALF SCI wastewater treatment plant has been upgraded to a tertiary treatment plant. While the NALF SCI wastewater treatment plant discharges into an area excluded from ASBS requirements (SWRCB, 1977), treating wastewater discharges to tertiary standards benefits the ASBS through further elimination of contaminants, and the treated water can be reused, decreasing the amount of wastewater discharged to the ASBS.

- Elimination of Landscape Watering: To conserve water, landscaping watering has been eliminated, which benefits ASBS water quality by eliminating non-storm water discharges and potential contaminants associated with overwatering the landscape.

- Vehicle Maintenance Program: The Navy provides a fleet of vehicles for military and civilian personnel in support of the Navy training mission on NALF SCI. The vehicles are maintained under a rigorous vehicle program that conducts periodic preventative maintenance as well as pulls obsolete and inoperable vehicles from the fleet. The program benefits ASBS water quality by preventing vehicle fluids from coming into contact with storm water discharges.

- No Driving Off-Road: To protect sensitive habitats and prevent erosion of soil, military and civilian personnel are mandated to drive only on improved surfaces.

5.2.1 Environmental Programs

Environmental programs and associated non-structural BMPs protect the ASBS by managing and preventing the release of chemicals to the environmental and setting protocols for cleanup of accidental releases from current operations and past uses.

- NALF SCI Natural Resources Program: The natural resource program benefits ASBS water quality by protecting sensitive habitats, and revegetating with native plants reduces soil erosion.

- Environmental Restoration Program: This program identifies and remediates past chemical and MEC releases and prevents further migration of releases to the ASBS.

- Reporting Under the Emergency Planning and Community Right-to-Know Act (EPCRA): This reporting maintains an inventory of chemical materials, quantities, and locations and ensures that chemical materials are handled properly.

- Spill Prevention, Control and Countermeasure (SPCC) Plan**:** This plan manages bulk fuel storage to prevent and mitigate potential discharges from leaks and spills.

- Facility Response Plan: This plan augments the SPCC Plan by providing guidance to contain and recover discharges of bulk fuel from spills and leaks.

- GIS Mapping: A Storm Water GIS is maintained (and updated annually) to identify the locations of storm water conveyance structures, facilities, and BMPs and compares sampling results by outfall.

5.2.2 Energy Conservation and Sustainability Initiatives

Navy initiatives in accordance with Executive Order 13514 (*Federal Leadership in Environmental, Energy, and Economic Performance*, 2009) and the Department of Defense *Strategic Sustainability Performance Plan, 2012)* serve to protect ASBS water quality through water conservation efforts, reduction in the ultimate discharge of non-storm water runoff and wastewater, and reduced energy demand, and decreases in aerial deposition to the ASBS from diesel power generation. The Navy is implementing the following programs at NALF SCI protect the ASBS through water and energy conservation.

- Reuse of Tertiary Treated Wastewater: Reuse wastewater plumbing is used in new construction and retrofitting of old buildings, which reduces wastewater discharges to the ASBS.

- High Efficiency Toilets: Low-flow toilets and water-free urinal upgrades reduce wastewater discharges to the ASBS through water conservation.

- Wind Turbine Generation: This renewable energy source and energy battery storage reduces diesel electricity generation and combustion of diesel fuel at NALF SCI.

- Leadership in Energy and Environmental Design (LEED): This certification for new buildings maximizes building energy efficiency, which reduces wastewater discharges to the ASBS.

- Solar Panel and Small-Scale Wind Turbines: These innovative technologies are implemented for new construction and produce an energy supply that is returned to the grid, which reduces diesel electricity generation.

5.3 NON-STRUCTURAL BMP IMPLEMENTATION

Implementation of non-structural BMPs at NALF SCI is the responsibility of each individual. Implementation of non-structural BMPs is a necessary part of the ongoing process to maintain natural water quality in the ASBS. Implementation requires personnel to use their training to consistently perform their tasks properly, to be cognizant of site conditions which may have the potential to threaten water quality, and to incorporate inspection feedback to identify innovative measures to optimize existing BMPs.

Proper reinforcement links training to the implementation of non-structural BMPs by making sure that the practices and procedures presented in the training are repeatedly and consistently implemented while on the job, and become standard practice. Reinforcement is the responsibility of personnel at a facility or work site. Safety meetings, pre-work meetings, and other settings where job responsibilities, safety, and work procedures are discussed are examples of situations favorable to reinforce the message of storm water pollution prevention. Training reinforcement can also be used in non-job settings, such as posting messages about preventing storm water pollution on bulletin boards in communal areas such as lounges and dining halls.

5.3.1 Implementation for Resident Navy Personnel

When working at facilities covered by the General Permit, resident Navy personnel implement the non-structural BMPs by following the standard procedures they are trained in, including general environmental practices, good housekeeping, and proper materials handling and recordkeeping, as well as the SWPPP requirements for their facility. Examples are keeping boat and vehicle maintenance activities indoors, covering solid waste daily at the landfill, and monitoring fueling operations at the hot fueling area. Facilities covered by the General Permit are visited as part of an annual comprehensive site compliance evaluation. During the visit, the operator is provided feedback on implementation of BMPs, including non-structural BMPs. For more information about BMP implementation, refer to *Storm Water Discharge Management Plan for Naval Auxiliary Airfield San Clemente Island* (NAVFAC SW, 2012).

When working at support activities, resident Navy personnel implement the non-structural BMPs by applying general environmental concepts about good housekeeping and materials handling as well as job-specific instructions to prevent non-storm water and storm water pollution. Many of the procedures

implemented in accordance with NALF SCI plans (such as the SPCC Plan, the Hazardous Materials Business Plan, the Hazardous Substance Management System, and the Oil/Hazardous Substance Spill Contingency Plan) also prevent non-storm water and storm water pollution.

Resident Navy personnel working in the Environmental Division apply their educational and professional training to observe implementation of non-structural BMPs, provide training on non-structural BMPs, and designate corrective actions as necessary at work sites. By observing, training, and correcting implementation at work sites, these personnel improve non-structural BMP performance and contribute to achieving the goal of preventing storm water pollution.

Resident Navy personnel working in the Natural Resources Division apply educational and field training on environmental issues to implement procedures that minimize pollution when managing materials and performing activities that could be exposed to non-storm water discharges and storm water runoff.

5.3.2 Implementation for Transient Navy Personnel

Transient Navy personnel implement non-structural BMPs by practicing the proper procedures for good housekeeping, material handling, preventive maintenance, recordkeeping, and spill response that are associated with their activities, to minimize storm water pollution.

5.3.3 Implementation for Contractors

Contractors must implement non-structural BMPs that are appropriate for their activities. The responsibility to implement non-structural BMPs is delegated in contracts to companies that provide services at NALF SCI.

At construction sites, implementing the non-structural BMPs that are in the construction SWPPP can help prevent storm water pollution at the work sites. Construction contractors involved in construction must, at the minimum, implement the requirements of the construction SWPPP for the work site. Covering materials before rain events and controlling sediment are examples of non-structural BMPs that help prevent storm water pollution. Regular self-inspections and supporting recordkeeping establish a record of contractor actions to prevent storm water pollution.

For support-service contractors, fully implementing a project work plan and/or company or industry standard operating procedures also results in the implementation of non-structural BMPs necessary for storm water pollution prevention. These contractors must, at the minimum, implement the standard operating procedures or project work plan for their particular activities. Implementation of materials handling procedures when transferring fuels to prevent spills and good housekeeping procedures when

disposing of wastes into proper receptacles are examples of non-structural BMPs that help prevent storm water pollution.

5.4 PROPOSED NON-STRUCTURAL BMPS

The following non-structural BMPs are recommended for the Wilson Cove Area to reduce soil erosion from by vehicles operated on unpaved roads without gravel surfaces. The proposed non-structural BMPs will be evaluated in the second year for possible implementing in the third year of this ASBS Compliance Plan:

- Restrict Access to Unimproved Roads: Dirt access roads in the Wilson Cove area are a potential source of erosion and associated sediment discharges to the ASBS. Access roads that are non-essential will be closed to vehicular traffic.

- Restrict Parking on Unimproved Surfaces: Dirt areas used for parking in the Wilson Cove area around housing units are a potential source of soil erosion and associated sediment discharges to the ASBS. Designated parking areas will be established.

The following non-structural BMP is recommended as a procedural improvement to standardize the naming of outfalls and will be implemented for the 2014-2015 storm water season.

- Adopt ASBS Outfall Naming Convention for Industrial Storm Water Program Outfalls: To prevent potential mistakes in monitoring and reporting, the outfalls in the Industrial Storm Water Program will be renamed to match the corresponding ASBS outfall naming convention.

5.5 EXISTING STRUCTURAL BMPS

Structural BMPs are biological, chemical, and physical controls that are installed to infiltrate, retain, or treat storm water runoff. Section I.A.2.f of the Special Conditions requires dischargers to describe in the ASBS Compliance Plan their structural BMPs, including LID measures (both currently employed and planned) for higher-threat discharges, and to include an implementation schedule. Structural BMPs are important to storm water management at NALF SCI to minimize erosion, prevent pollutants from coming in contact with storm water runoff, and prevent storm water discharges.

Implemented structural BMPs include containment berms providing secondary containment for hazardous material, reinforced rip-rap outfall protection to reduce erosion, and LID practices at recently constructed buildings. Sections 5.5.1 through 5.5.3 describes structural BMPs at NALF SCI, including definition of terms, examples of BMPs in use or planned, and BMPs recommended.

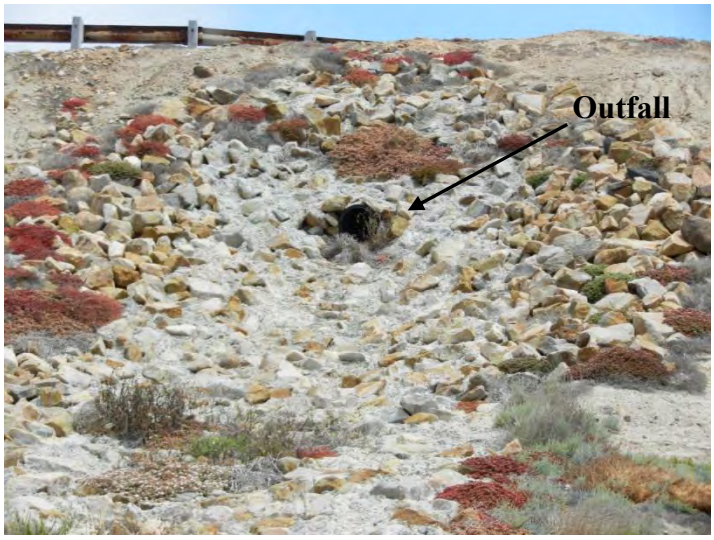
5.5.1 Containment Berms

Containment berms have been installed at several sites in the Airfield and Wilson Cove areas to prevent pollutants from coming into contact with storm water runoff. All bulk fuel storage tanks are located within secondary containment and are managed under the SPCC Plan. The locations of secondary containment berms are presented on Figures 2, 3, and 4 and shown as material storage areas on Figure 1.

5.5.2 Reinforced Rip-Rap Outfall Protection

To prevent erosion and stabilize slopes, reinforced rip-rap outfall protection has been implemented at two Airfield outfalls. These BMPs consist of rock rip-rap that has been reinforced with concrete below the outfalls to protect the perimeter slopes of the Airfield that are prone to erosion due to the high sand content of the soils. Figure 1 presents the locations of the existing structural BMPs. Photograph 5-1 is an example of reinforced rip-rap outfall protection at ASBS Outfall 002.

Photograph 5-1



Reinforced Rip-Rap Outfall Protection at ASBS Outfall 002

5.5.3 Low-Impact Development (LID) BMPs

LID practices are implemented in construction projects at NALF SCI as part of Navy policy. NAVFAC SW policy requires at a minimum a LEED® Silver certification for new construction projects since Fiscal Year 2009 (NAVFAC, 2007). The policy mandates that construction projects have storm water quantity and quality control requirements that meet LEED Silver certification (NAVFAC Atlantic, 2012). The new bachelor enlisted quarters (BEQs), located in Wilson Cove, that were constructed in 2011 and 2012

are examples of recent projects at NALF SCI that have sought LEED certification and incorporated storm water BMPs to reduce runoff from the facilities. Photographs 5-2 and 5-3 are examples of LID storm water BMPs implemented in the new BEQs.

Photograph 5-2

New BEQ Storm Water LID BMP

Photograph 5-3

Rip-Rap Protection at New BEQ

5.6 PROPOSED STRUCTURAL BMPS

The following structural BMPs are proposed for storm water discharge quality, erosion control, infrastructure protection, and elimination of discharges where possible. The Navy implementing structural BMPs to maintain natural ocean water quality of ASBS for future compliance. Receiving water monitoring data at NALF SCI indicates that no alteration of natural ocean water quality in the ASBS would be caused by or contributed to by the storm water runoff or other nonpoint source pollution from Navy.

5.6.1 Airfield Sediment Basin and Outfall Protection BMPs

ASBS Outfalls 002, 003, and 007— Sediment Basin and Outfall Protection BMPs: Sediment basin and outfall protection are proposed for ASBS Outfalls 002, 003, and 007. The proposed locations of the sediment basins are adjacent to the perimeter road of the Airfield, near the current locations of catch basins discharging to the respective outfalls. ASBS Outfalls 002 and 003 are at risk for erosion and potential slope failure from significant storm events because the storm water piping from the catch basins has become disconnected from the outfall headwall, exposing steep and unprotected slopes to storm water discharges. The sediment basins will consist of an infiltration basin set below grade, with a riser plumbed to the outfall location. Rip-rap protection will be placed below the outfalls to stabilize the slope. The

sediment basins will be designed to eliminate discharges from ASBS Outfalls 002, 003, and 007 from all but the most intense and long-duration storm events. The proposed locations of the sediment BMPs and associated piping, outfall, and rip-rap protection are provided on Figure 2. The BMPs will be designed and implemented in the third year of the ASBS Compliance Plan (September 2015 - August 2016) to address the potential risks of a significant storm event damaging the airfield slopes and the perimeter road.

Airfield Infield Sediment Basin BMPs: To further reduce discharges to the ASBS from the Airfield, sediment basins BMPs will be implemented for the interior catch basin draining the infield. The sediment basin will be much smaller than those recommended for Outfalls 002, 003, and 007, will be cost-effective, yet will eliminate discharges from most storm events. The existing catch basin structure will be used; the sediment basin will be excavated around the structures and a riser will replace the catch basin grates. The locations of these recommended sediment basin BMPs are presented in Figure 2. The BMPs will be implemented in the fourth year of the ASBS Compliance Plan (September 2016 – August 2017).

5.6.2 Wilson Cove Sediment Control BMPs

Wilson Cove is on the eastern side of NALF SCI, which has a high natural rate of erosion and sedimentations due to the soil characteristics and the steep terrain that plunges to the Pacific Ocean. The following BMPs are proposed to mitigate erosion of Wilson Cove soils caused by paved surfaces and runoff from buildings.

Roadside Ditch Check Dams: Check dam BMPs are recommended to slow runoff and reduce erosion from the road side drainage ditches within Wilson Cove. Suggested locations of the check dams are presented on Figure 3. The final check dam locations will be chosen based on the slope of the ditch to allow for settling and retention of sediments. The BMPs will be implemented in the fourth year of the ASBS Compliance Plan (September 2016 – August 2017).

Smart V-Ditch BMPs: Smart V-Ditch BMPs are proposed for the ―S curve" linking the top tier of Wilson Cove to the lower tiers. The drainage improvement will collect storm water runoff down the sides of the steep curve and will decrease runoff velocities as well as the runoff volume flowing across the drainage ditches and perpendicular to the hillside which causes rills. The proposed locations of the BMPs are presented on Figure 3. The BMPs will be implemented in the fourth year of the ASBS Compliance Plan (September 2016 – August 2017).

Rip-Rap Outfall Protection: Rip-rap protection is proposed for two 12-inch outfalls in the Wilson Cove area to mitigate erosion of the slopes below the outfalls. The proposed locations of the BMPs are presented on Figure 3. The BMPs will be implemented in the fourth year of the ASBS Compliance Plan (September 2016 – August 2017).

Rip-Rap Slope Protection: Rip-rap slope protection is proposed for the top tier of the Wilson Cove area to reduce velocities of runoff from the paved surface and buildings of the administrative area, which will reduce rilling and erosion on the steep hillside that transitions to the lower tiers of NALF SCI. The proposed locations of the BMPs are presented on Figure 3. The BMPs will be implemented in the fourth year of the ASBS Compliance Plan (September 2016 – August 2017).

Stabilization of Unpaved and Unimproved Parking and Access Roads: Essential dirt parking and access roads that cannot be eliminated as an administrative non-structural BMP (proposed in Section 5.4) will be improved with gravel or paved to stabilize the surface and prevent an increase in erosion from vehicular traffic. Unpaved and unimproved parking areas and access roads will be assessed, and access will be restricted or improved in the third year of the ASBS Compliance Plan (September 2015 – August 2016).

5.6.3 Wilson Cove Waterfront Improvement BMPs

The waterfront operations area of Wilson Cove has several ASBS outfalls with small associated drainage basins that carry minor sheet flow discharges to the ASBS. The following BMPs are recommended to eliminate discharges from ASBS Outfall 020 and OLF 24.

ASBS Outfalls 019, 020, and OLF 24—Waterfront Improvement: Curbing will be installed along the quay wall around OLF 24 and along the undeveloped edge of ASBS Outfall 020 to eliminate storm water discharges from these outfalls. A roll-over berm will be installed at the entrance of the main pier to prevent diverted storm water from discharging from the pier entrance. The surfaces will be regraded toward the access road, which will direct runoff toward the barge loading ramp. To prevent runoff from flowing across the barge loading and unloading area, a swale will be constructed that creates a new outfall south of the barge loading ramp Outfall 019. Discharge from this outfall will be redirected through trench drains to the new drainage swale and outfall. The proposed BMPs will reduce three outfall discharges to one discharge, and will therefore decrease monitoring requirements and shift some storm water resources from monitoring towards pollution prevention. The BMPs are presented on Figure 4. The BMPs will be implemented in the fifth year of the ASBS Compliance Plan (September 2017 – August 2018).

5.6.4 Landfill Infiltration Basin BMP

The Landfill is designed to divert runoff to a depression at its north end, which serves as an infiltration basin. Final engineering and design of an infiltration basin are proposed to ensure that the retention basin is large enough or to determine whether an outlet is needed to prevent failure during significant storm events. Figure 6 presents the proposed location of the structural BMP. The BMP will be selected and implemented in the fifth year of the ASBS Compliance Plan (September 2017 – August 2018).

6.0 COMPLIANCE AND IMPLEMENTATION SCHEDULE

6.1 BMP IMPLEMENTATION SCHEDULE

Section I.A.3.c of the Special Conditions (presented in Section 1.2.2.3 of this ASBS Compliance Plan) requires implementing non-structural BMPs necessary to comply with the Special Conditions within 18 months of the effective date of the ASBS Resolution, March 20, 2012.

The non-structural BMPs described in Sections 5.1 through 5.3 are currently implemented at NALF SCI.

The BMP Implementation Schedule for recommended non-structural and structural BMPs is discussed in Sections 5.4 and 5.6, and is also presented in Figure 7 as a Gantt Chart.

6.2 REVISION OF ASBS COMPLIANCE PLAN

If monitoring of receiving water indicates that storm water runoff is causing or contributing to an alteration of natural water quality in the ASBS, this ASBS Compliance Plan will be revised.

6.2.1 Revision Criteria

The revision process begins by evaluating the results of storm event monitoring which monitors the quality of receiving water and reference water sites. If exceedances are identified in Steps 1 through 4 of the storm event monitoring process shown below, the ASBS Compliance Plan will be revised as indicated in Step 5. A flow chart from the Special Conditions presenting Steps 1 through 3 in the process is reproduced in Appendix B of this ASBS Compliance Plan.

At NALF SCI, outfalls will be sampled during the same storm events during which the ASBS is sampled (SCCWRP, 2012). Outfall monitoring results will help determine whether storm water runoff is contributing to the alteration of natural water quality in the ASBS.

1. Compare the post-storm concentration for each analyte monitored at the receiving water site to the 85th percentile result for that analyte at reference water sites. If the receiving water site result exceeds the 85th percentile for a given analyte, compare the post-storm and pre-storm receiving water results.
2. If the post-storm receiving water result exceeds the pre-storm receiving water result, resample receiving water pre-storm and post-storm during the next feasible storm event.

3. Using the resampling results, compare the post-storm concentration of each analyte monitored at the receiving water site to the 85th percentile result for that analyte at reference water sites. If the receiving water site result exceeds the 85th percentile for that analyte, compare the post-storm and pre-storm receiving water results.

4. If the post-storm receiving water analytical results exceed the pre-storm receiving water analytical results, submit a report to the SWRCB and RWQCB that includes the following:

   - Identification of storm water constituents that cause or contribute to alteration of the natural water quality and the sources of the storm water constituents.
   - Identification of current, future, and additional BMPs that are necessary to achieve and maintain natural water quality in the ASBS.
   - Updated BMP implementation schedule.

5. After approval of the report by the SWRCB Executive Director, this ASBS Compliance Plan will be revised accordingly.

6.2.2 Revision Procedures

If this ASBS Compliance Plan is revised, the following revision procedures will be used by the Navy:

1. Update Section 3.4 (High-Priority Discharges) to identify the storm water discharges that are associated with the alteration of natural water quality, as determined by monitoring of the receiving water. Discuss potential sources in the drainage areas of the storm water discharges. Evaluate the sources using the following methods, as applicable:

   - Review of records such as storm water analytical results, inspection forms, SWPPPs, and/or other facility plans
   - Interviews with personnel at NALF SCI
   - Analysis of professional storm water literature
   - Field visit

2. If modified or additional non-structural BMPs are necessary, revise Sections 5.1 through 5.4, and update the BMP implementation schedule presented in Figure 7

3. If modified or additional structural BMPs are necessary, revise Section 5.6 and any related figures.

4. Update Table 6-1 (Revisions to the ASBS Compliance Plan) with a description of the revisions.

Table 6-1
Revisions to the ASBS Compliance Plan

Section	Revision	Revised by	Date

7.0 REFERENCES

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FIGURES

Legend

- Figures
- Potential Erosion Area

Storm Water Conveyance System

- Catch Basin
- Storm Drains
- 001 SCI ASBS Outfall
- Drainage Basin Boundary
- Wastewater Treatment Plant
- Sanitary Sewer System

Existing Structural BMP

- Material Storage
- Secondary Containment Berm
- Reinforced Rip-Rap
- Exclusion Zone
- Industrial Buildings
- Buildings
- ASBS

PROJECT NO.:	5023-12-8006
DATE:	August 2013
DRAWN BY:	RMH
CHECKED BY:	JBD

N

0 500 1,000 2,000 3,000 Feet

amec

ASBS Compliance Plan

NALF SCI

SITE MAP

FIGURE 1

Legend

Existing Structural BMP

- Secondary Containment Berm
- Reinforced Rip-Rap

Recommended Structural BMP

- Sediment Basin
- Reinforced Rip-Rap

Storm Drain Features

- Riser
- Catch Basin
- Storm Drains
- 001 SCI ASBS Outfall
- Buildings
- Drainage Basin Boundary

ASBS07

Hot Fueling Area

Fuel Tank

Air Terminal Area

ASBS01

ASBS03

ASBS02

Project No.:	5023-12-8006
DATE:	August 2013
Prepared By:	RMH
Checked By:	JBD

N

0 250 500 1,000 1,500 Feet

amec

ASBS Compliance Plan

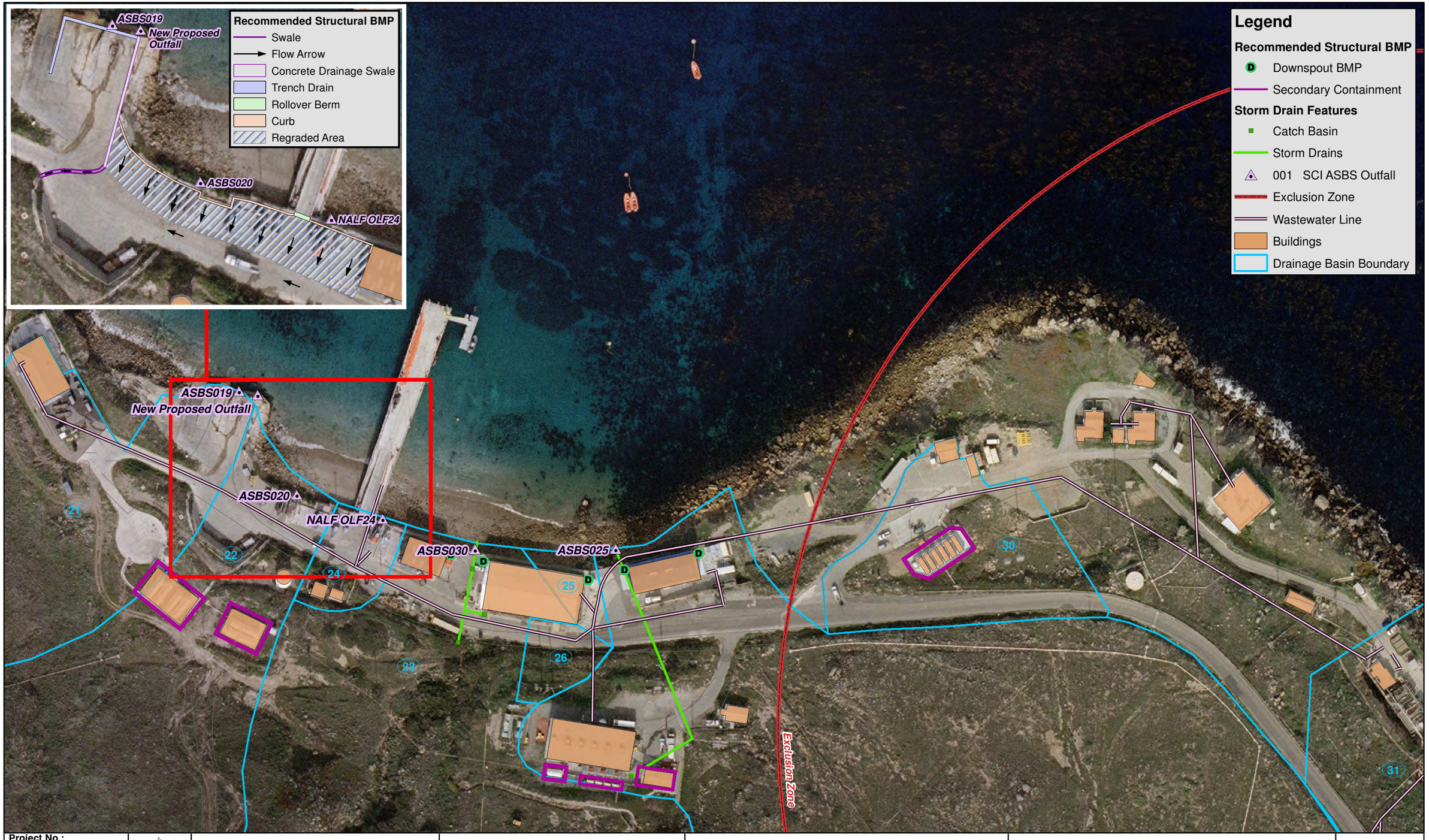
NALF SCI

Airfield
Recommended Structural BMPs

FIGURE

2

Project No.: 5023-12-8006 DATE: August 2013 Prepared By: RMH Checked By: JBD		0 250 500 1,000 1,500 Feet	amec	ASBS Compliance Plan NALF SCI	Wilson Cove - Administrative Area Recommended Structural BMPs	FIGURE 3



Project No.: 5023-12-8006 DATE: August 2013 Prepared By: RMH Checked By: JBD	N	0 250 500 1,000 1,500 Feet	amec	ASBS Compliance Plan NALF SCI	Wilson Cove - Waterfront Area Recommended Structural BMPs	FIGURE 4

Project No.: 5023-12-8006 DATE: August 2013 Prepared By: RMH Checked By: JBD	N	0 250 500 1,000 1,500 Feet	amec	ASBS Compliance Plan NALF SCI	NOTS Pier Area Recommended Structural BMPs	FIGURE 5

Legend

Recommended Structural BMP

Infiltration Basin

Drainage Basin Boundary

Project No.:	**5023-12-8006**
DATE:	**August 2013**
Prepared By:	**RMH**
Checked By:	**JBD**

N

0 250 500 1,000 1,500 Feet

amec

ASBS Compliance Plan

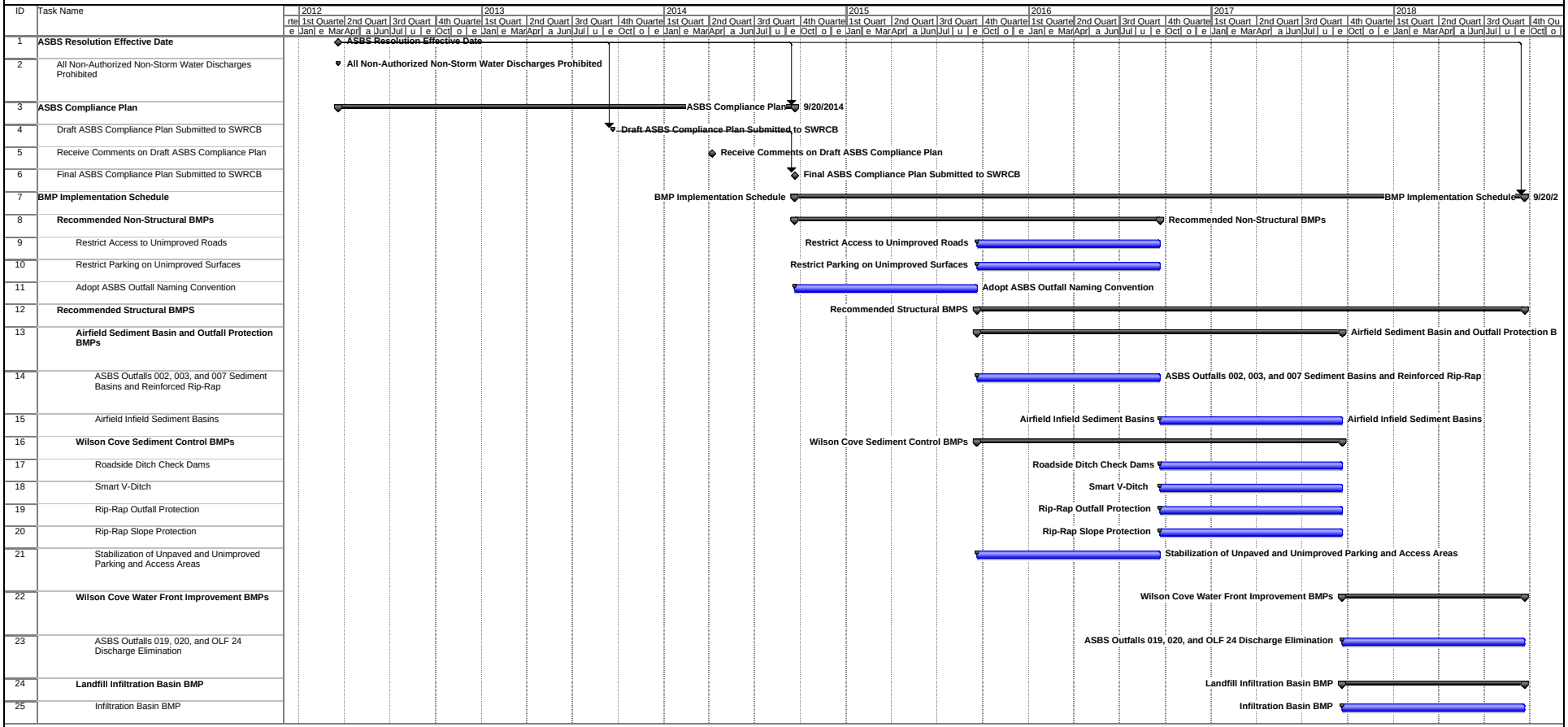
NALF SCI

Landfill Area
Recommended Structural BMPs

FIGURE

6

Figure 7
ASBS Compliance Plan Schedule



APPENDIX A

ASBS OUTFALLS

Table A-1
ASBS Municipal and Industrial Storm Water Discharges at SCI

OUTFALL NUMBERS[1]	DESCRIPTION
SCI001[2][3]	Pipe with 48-inch diameter located where LVT Road joins Perimeter Road, near the south-central portion of the runway.
SCI002[3]	Pipe with 24-inch diameter located in a heavily eroded area, beyond W of runway at the base of Perimeter Road embankment, southwest of road.
SCI003[3]	Pipe with 24-inch diameter located beyond W end of Runway at base of Perimeter Road embankment on north side of road.
SCI004[2][3]	Sheet flow east of the Wilson Cove Pier and west of Building 60177 discharging over the quay wall.
SCI007[2][3]	Pipe with 18-inch diameter located north of Perimeter Road at northeast corner of runway.
SCI008[3]	Concrete pipe with 24-inch diameter on shoreline east of NOTS Pier.
SCI011[3]	Corrugated metal pipe with 24-inch diameter northeast of boat storage in NOTS Pier area.
SCI012	Corrugated metal pipe with 36-inch north of NOTS Pier.
SCI013	Culvert box east of NOTS Pier.
SCI018[2]	Corrugated metal pipe with 18-inch diameter north of Jack Point at the Landfill.
SCI019[3]	Sheet flow discharging from the barge loading ramp area west of the Wilson Cove Pier.
SCI020[3]	Sheet flow discharging from the boat storage area west of the Wilson Cove Pier.
SCI023	Sheet flow through a 12-inch cutout discharging over the quay wall and east of Building 60138.
SCI025[2][3]	Corrugated metal pipe with 24-inch diameter located west of Building 60180. Drains Building 60178 in the Wilson Cove Pier area, and municipal areas including residential areas.
SCI027	Sheet flow discharge with 30-inch width draining the area around the Waste Water Treatment Plant. This discharge is within the area covered by State Water Resources Control Board Resolution 77-11.
SCI028	Sheet flow discharge from an 18-inch wide concrete channel draining the road west of the Waste Water Treatment Plant. This discharge is within the area covered by State Water Resources Control Board Resolution 77-11.
SCI030[2] [3]	Corrugated metal pipe with 48-inch diameter located E of Wilson Cove Pier. Drains Building 60177 in the Wilson Cove Pier area, and municipal areas including residential areas.

Notes:

(1) ASBS Resolution outfalls listed in the table include NALF SCI outfalls with source code designated as "municipal/industrial storm drain" in Appendix 5 – tab "Total Outfalls" of the ASBS Resolution. SCI004 which is a sheet flow discharge located in Wilson Cove that was identified by a Navy contractor. SCI018 was not identified as "municipal/industrial storm drain", but includes the Landfill in the upper reaches of the drainage area. The discharge pipe from the Landfill is being monitored for industrial storm water.

(2) Industrial Outfall.

(3) Monitored for ASBS Resolution during 2012-13 and 2013-14 monitoring years.

Airfield Area

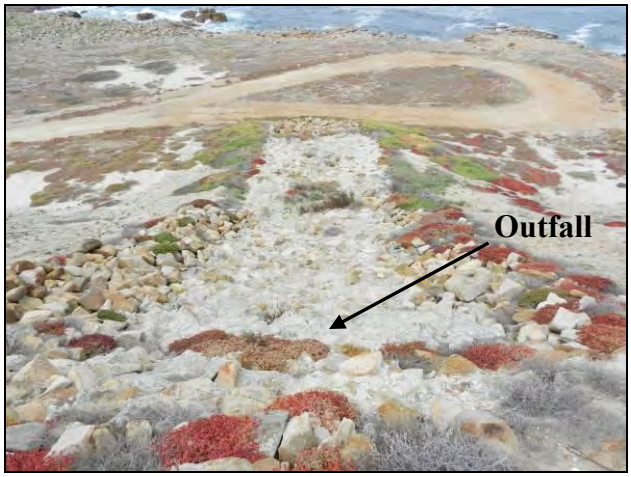
Photographs of SCI001

Downstream end of the outfall

View downstream of the outfall toward the ocean

Photographs of SCI002

Inlet grate and drainage area

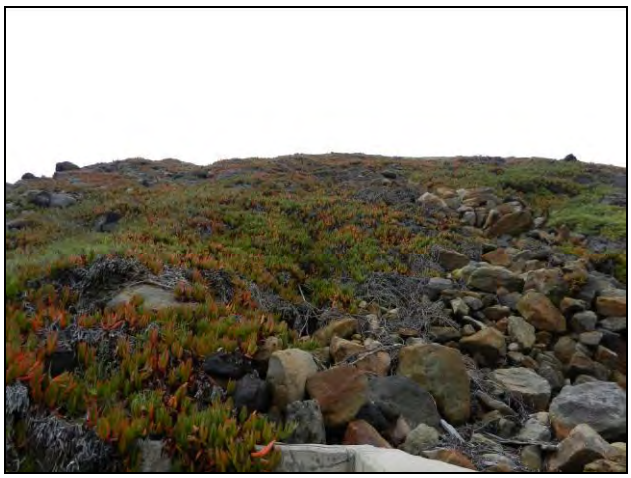


View downstream of the outfall toward the ocean

Airfield Area

Photographs of SCI003

Inlet grate



Slope leading to the headwall

Photographs of SCI007

Area draining to the inlet grate (covered by ice plant)

View downstream of the outfall toward the ocean

NOTS Pier Area

Photographs of SCI008

Outfall

Area above the outfall

Photographs of SCI011

Outfall

Catch basin to the outfall

NOTS Pier Area

Photographs of SCI012

Outfall

Drainage Area

Photographs of SCI013

Discharge Structure

Drainage Area

Landfill Area

Photographs of SCI018

Upstream discharge point at the landfill

Area within the landfill where the inlet pipe is buried

Wilson Cove Area
Photographs of SCI004

Discharge point

Drainage

Photographs of SCI019

Barge loading ramp

Edge of barge loading ramp

Photographs of SCI020

Concrete slab with discharge area

Concrete slab with discharge area

Wilson Cove Area

Photographs of SCI023

Discharge point

Drainage Area

Photographs of SCI025

Outfall extending from the sea wall

Area above the outfall (no inlet grates)

Photograph of SCI027

Discharge point

Wilson Cove Area

Photograph of SCI028

Discharge Point

Photographs of SCI030

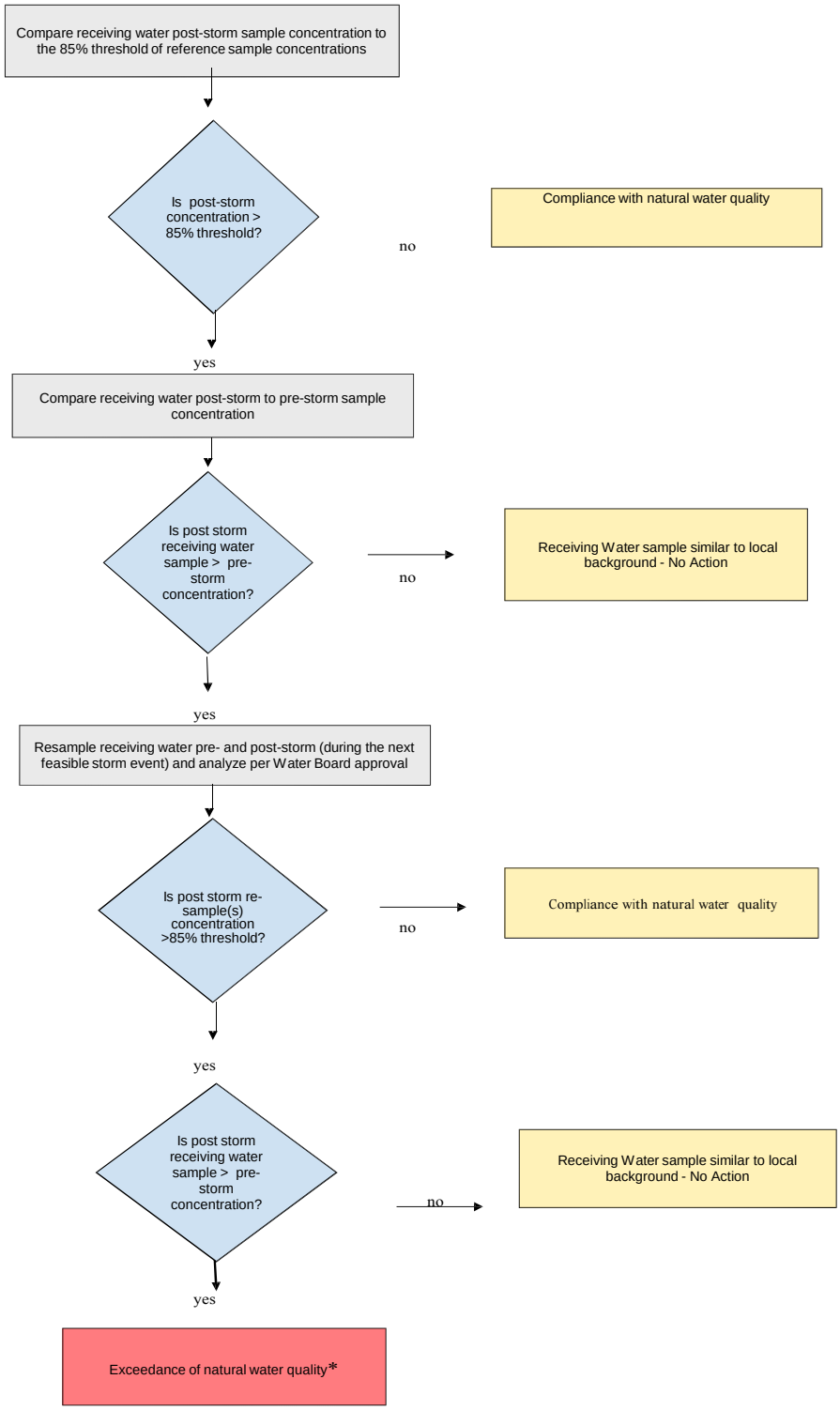
Inlet grate to the outfall

Outfall in the sea wall (view from above)

APPENDIX B

SPECIAL CONDITIONS FLOWCHART TO DETERMINE COMPLIANCE WITH NATURAL WATER QUALITY

Special Protections Sections I(A)(3)(e) and I(B)(3)(e) Flowchart to Determine Compliance with Natural Water Quality



* When an exceedance of natural water quality occurs, the discharger must comply with section I.A.2.h (for permitted storm water) or section I.B.2.c (for nonpoint sources). Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.