APPENDIX G
WATER QUALITY

This appendix contains the Water Quality Technical Report prepared for the Environmental Impact Statement and Environmental Impact Report.

THIS PAGE INTENTIONALLY LEFT BLANK

Water Quality Technical Report

Gnoss Field Airport
Marin County, California

Prepared for: Landrum & Brown, Incorporated

November 20, 2009

Revised October 12, 2010

Submitted by:

FOOTHILL ASSOCIATES

© 2010

Table of Contents

1.0 Introduction 1

2.0 Regulatory Framework 2

2.1 Federal Regulations 2

2.1.1 Federal Clean Water Act 2

2.1.2 Federal Aviation Administration Order 1050.1E, Environmental Impacts: Policies and Procedures 3

2.1.3 Federal Safe Water Drinking Act 4

2.1.4 Fish and Wildlife Coordination Act of 1980 4

2.2 State Regulations 4

2.2.1 State Water Resources Control Board 4

2.3 Local Regulations 7

2.3.1 Marin County 7

3.0 Environmental Setting 10

3.1 Project Location 10

3.2 Site History 10

3.3 Land Use 10

3.4 Project Description 10

3.5 Physical Features 11

3.5.1 Topography 11

3.5.2 Soils 11

3.5.3 Regional Hydrology 11

3.5.4 Local Hydrology 11

3.5.5 Precipitation and Climate 14

4.0 Water Quality Assessment Methodology 15

4.1 Methodology 15

4.2 Water Quality Parameters of Concern 16

4.2.1 pH 17

4.2.2 Specific Conductance 17

4.2.3 Oil and Grease 17

4.2.4 Total Organic Carbon 18

4.2.5 Biological Oxygen Demand 19

4.2.6 Chemical Oxygen Demand 19

4.2.7 Suspended Sediment 19

4.2.8 Nutrients 20

4.2.9 Trace Metals 21

4.2.10 Pathogens 23

4.2.11 Pesticides 23

4.3 Airport Operations that May Affect Water Quality and Applicable Best Management Practices 24

4.4 Water Quality Parameters of Concern Summary 26

4.5 Stormwater Pollutant Loads 28

4.5.1 The Simple Method 28

5.0 Water Quality Existing Conditions (2008) 29

6.0 Environmental Consequences and Impacts 31

6.1 Alternative A – No Action 33

6.2 Alternative B 34
6.3 Alternative D 35
6.4 Conclusions 35

7.0 References 36

List of Tables

Table 1 — Beneficial Uses Pertinent to the Proposed Project....5
Table 2 — Gnoss Field Airport Operations and Potential Storm Water Pollutants 24
Table 3 — Event Mean Concentrations for Stormwater Runoff by Land Use (mg/l)....27
Table 4 — Gnoss Field Water Quality Pollutant Sampling Data 29
Table 5 — Gnoss Field Existing Conditions (2008) – Estimated Average Annual .... Pollutant Loads 30
Table 6 — Estimated Average Annual Pollutant Loads by Alternative 32
Table 7 — Estimated Annual Pollutant Loading Increase by Alternative Compared to ExistingConditions (2008) Pollutant Loading 33

List of Figures

Figure 1 — Site and Vicinity 39
Figure 2 — Soils 40
Figure 3 — Local Drainage 41
Figure 4 — Site Drainage 42

List of Appendices

Appendix A — Water Resources

1.0 INTRODUCTION

This report presents detailed information on existing conditions (2008) related to water quality associated with implementation of the proposed Gnoss Field Airport Runway Extension Project (proposed project). This report provides data and analysis in support of the Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) for the proposed project.

This Water Quality Technical Report discusses the regulatory setting, describes existing water quality conditions (2008) for the project site and immediate vicinity, and analyzes three project alternatives, including the No Action Alternative (Alternative A), the Preferred Alternative [Proposed Project (Alternative B)] and Alternative D. This report also describes methodology used to assess hydrology and water quality impacts, and the environmental consequences and impacts associated with development of the Proposed Project and alternatives.

2.0 REGULATORY FRAMEWORK

Many federal, state, and local regulatory programs stipulate standards and conditions for the protection, maintenance, and improvement or enhancement of water quality relevant to implementation of the proposed project. Many of these programs build upon or tier off of the federal Clean Water Act (CWA). The primary regulatory provisions applicable to water quality standards relevant to the proposed project site are summarized below.

2.1 Federal Regulations

2.1.1 Federal Clean Water Act

The 1972 Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), establishes the basic structure for the United States Environmental Protection Agency (EPA) to regulate discharges of pollutants into waters of the United States. The CWA's primary intent is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

Section 301 of the CWA prohibits any person to discharge any pollutant unless implemented in a manner compliant with Section 301, and sections 302, 306, 307, 318, 402, and 404 of the CWA. Any discharge to waters of the U.S. requires a federal permit. Under Section 301, effluent guidelines and categorical pretreatment standards regulations have been established for 56 industrial land use categories discharging directly to surface waters

Section 401 of the CWA (33 U.S.C. 1341) requires any federal license or permit applicant to obtain a water quality certification if any proposed project activity may result in a discharge of a pollutants into waters of the United States. This certification assures that the discharge would comply with the applicable effluent limitations and water quality standards. The intent of this regulation is to preserve wetlands, avoid adverse impacts to existing aquatic resources where possible, and to offset unavoidable adverse impacts through mitigation. The overall goal of Section 401 is to achieve no net loss of wetland functions and values.

The CWA was amended in 1987 with the addition of Section 402(p), which established a framework for regulating storm water discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES permit system was established in the CWA to regulate point source pollution such as municipal and industrial discharges to surface waters of the United States. In California, the EPA has given the state authority to administer the NPDES program, which is implemented by the State Water Resources Control Board (SWRCB).

Under the NPDES permit system, the SWRCB adopted the current Industrial Stormwater General Permit (General Industrial Permit) in 1997. The General Industrial Permit regulates discharges associated with 10 broad categories of industrial activities, each of which are identified in the Federal regulations by a Standard Industrial Classification (SIC). The General Industrial Permit identifies effluent limitation guidelines for storm water discharges from facilities in the ten industrial categories. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control

technology (BCT). Gnoss Field currently operates under the current Industrial Permit for Air Transportation Industrial Activities, SIC code 4581, under Waste Discharge Identification Number 221I000647.

Nonpoint pollution sources are defined as those that originate over a wide area, rather than from a definable location or point source. Nonpoint sources of pollution are generally exempt from federal NPDES permit program requirements with the exception of storm water discharges. Stormwater discharges during and after project construction can transport pollutants from impervious surfaces such as roads and parking lots into creeks and streams. NPDES municipal Phase II regulations require jurisdictions to initiate actions to prevent long term non-point pollution through appropriate design. Marin County operates under a General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems and has developed a Stormwater Management Plan (EOA 2005). The goal of the NPDES nonpoint source regulations is to improve the quality of storm water discharged to receiving waters to the "maximum extent practicable" through the use of Best Management Practices (BMPs).

In accordance with NPDES regulations, to minimize the potential effects of construction runoff on receiving water quality, the SWRCB requires that any construction activity affecting one acre or more must obtain coverage under the General Construction Activity Stormwater Permit (Construction General Permit, 99-08-DWQ). Effective July 1, 2010 all Permittees are required to obtain coverage under the new Construction General Permit Order 2009-0009-DWQ adopted on September 2, 2009. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

Additionally, permit applicants are required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies erosion and sediment control BMPs to reduce or eliminate construction-related impacts on receiving water quality. Permit applicants are also required to perform regular inspections of all BMPs.

Examples of construction BMPs identified in SWPPPs include: using temporary mulching, seeding or other stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan, installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw wattles or silt fencing to minimize the amount of uncontrolled runoff that could enter storm drain inlets or surface water.

The effect of this regulatory environment is that projects need to be managed carefully (i.e. BMPs are properly implemented, monitored, and maintained).

2.1.2 Federal Aviation Administration Order 1050.1E, Environmental Impacts: Policies and Procedures

Federal Aviation Administration (FAA) Order 1050.1E provides guidance regarding FAA policies and procedures for achieving compliance with National Environmental Policy Act (NEPA) and regulations issued by the Council on Environmental Quality for all FAA-

administered projects. Appendix A of this order summarizes potential "impact categories" that must be considered during project planning and implementation. Section 17 of Appendix A provides requirements the FAA must meet in respect to analyzing project-related impacts to Water Quality under NEPA and determining whether project-related impacts are significant.

The environmental analyses must contain sufficient description of a proposed action's design, mitigation measures, including best management practices developed for nonpoint sources under Section 319 of the CWA, and construction controls to demonstrate that State or Tribal water quality standards and any Federal, Tribal, State, and local permit requirements will be met. As stated in Section 17, of Appendix A, Significant Impact Thresholds, water quality regulations and issuance of permits will normally identify any deficiencies in the Proposed Project relevant to water quality or any additional information necessary to make judgments on the significance of impacts. When the thresholds indicate that the potential exists for significant water quality impacts, additional analysis in consultation with State or Federal agencies responsible for the protection of water quality may be necessary. The responsible FAA Official must ensure that the applicable water quality certificate is issued before FAA approves the proposed action.

2.1.3 Federal Safe Water Drinking Act

If the potential exists for contamination of an aquifer designated by the EPA as a sole or principal drinking water resource within the project area, the FAA is required to consult with the EPA regional office as required by section 1424(e) of the Safe Drinking Water Act, as amended. Consultation with the Federal, Tribal, State, or local officials will be undertaken if there is the potential for contamination of an aquifer designated by the EPA as a sole or principal drinking water resource for the area pursuant to section l424(e) of the Safe Drinking Water Act, as amended. Consultation

2.1.4 Fish and Wildlife Coordination Act of 1980

If the proposed action would impound, divert, drain, control, or otherwise modify the waters of any stream or other body of water, the Fish and Wildlife Coordination Act is applicable, unless the project is for the impoundment of water covering an area of less than ten acres. The Fish and Wildlife Coordination Act requires the FAA to consult with the U.S. Fish and Wildlife Service and the applicable State agency to identify means to prevent loss or damage to wildlife resources resulting from the Proposed Action.

2.2 State Regulations

2.2.1 State Water Resources Control Board

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Where multiple beneficial uses exist, water quality standards must protect the most sensitive use.

The SWRCB and the nine Regional Water Quality Control Boards (Regional Boards) are responsible for ensuring implementation and compliance with the provision of the federal CWA and California's Porter-Cologne Water Quality Control Act. The project area is situated within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).

The proposed project is located within the Petaluma River Watershed, which has been listed on the current Section 303d list of impaired waterbodies. Water quality pollutants of concern and that require total maximum daily loads (TMDLs) are diazinon, nickel, nutrients, and pathogens.

Section 13260 of the California Water Code requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the State, shall file a Report of Waste Discharge (ROWD) with the appropriate regional board. Section 13260 of the California Water Code requires a ROWD for persons discharging or proposing to discharge waste that could affect the quality of the waters of the State. The Regional Board reviews the applicant's ROWD and may establish Waste Discharge Requirements (WDRs) for the proposed action. WDRs may include effluent limitations, as well as monitoring and reporting requirements.

San Francisco Bay Basin Plan

Regional Boards have the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within their jurisdiction and through multiple enforcement mechanisms. Regional water quality objectives for all water bodies in the Petaluma River watershed (including Black John Slough and its tributaries) are specified in the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin, prepared by the San Francisco Bay RWQCB in compliance with the federal CWA and the State Porter-Cologne Water Quality Control Act. Section III of the Basin Plan contains both narrative and numeric water quality objectives that are intended to protect these beneficial uses. The water quality criteria contained in the Basin Plan have been developed to protect the designated beneficial uses of the area.

The **Table 1** below summarizes the beneficial uses pertinent to the proposed project site.

Table 1 — Beneficial Uses Pertinent to the Proposed Project

County Water Body	Aquatic Life Uses						Wildlife Uses	Recreational Uses		
	COLD	EST	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
Petaluma River	E	E	E	E	E	E	E	E	E	E
San Antonio Creek	E		P		P	E	E	P	P	

*** E = Existing Beneficial Uses, P = Potential Beneficial Uses

1 Cold Freshwater Habitat (COLD)
2 Estuarine Habitat (EST)
3 Fish Migration (MIGR)
4 Preservation of Rare and Endangered
5 Species (RARE)
6 Fish Spawning (SPWN)
7 Warm Freshwater Habitat (WARM)
8 Wildlife Habitat (WILD)
9 Water Contact Recreation (REC1)
10 Noncontact Water Recreation (REC2)
11 Navigation (NAV)
12

California Industrial Activities Storm Water General Permit

The Industrial Storm Water General Permit is an NPDES permit that regulates discharges associated with 10 broad categories of industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The General Industrial Permit also requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution are described. The General Industrial Permit requires that an annual report be submitted each July 1. Facility operators may be able to participate in group monitoring program.

Gnoss Field is a participant in the American Association of Airport Executives and Airport Research and Development Foundation Group Monitoring Plan (GMP) for California Storm Water Monitoring Group Airports. Each airport participating in the GMP is required to collect and analyze two samples every five years. Representative ness of the outfall(s) chosen for sampling at individual facilities is determined by studying the drainage areas discharging to an outfall. The selected sampling outfall(s) discharges runoff repressing all potential pollutants for an individual facility. Sound representative samples of storm water discharges from individual facilities are assured through the implementation of proper sampling protocols outlined by the GMP and defined by the General Permit and the requirements of 40 CFR 136 and 40 CFR 122, as well as selection of the appropriate outfall. Gnoss Field samples at Outfall #1.

Testing parameters to be analyzed for each participating facility are specific to the transportation industry and are specified by Section B(5)(c)(i) of the Industrial General Permit. Section B requires collected storm water samples to be analyzed for total suspended solids (TSS), total organic carbon (TOC) or Oil and Grease, pH, and Specific Conductance. In addition to monitoring collected storm water samples, as required by the General Permit, the following monitoring activities are to be conducted annually:

- **Non-Storm Water Discharge Observations**. Non-storm water discharge visual observations are to be conducted on a quarterly basis.
- **Storm Water Discharge Visual Observations**. Storm water visual observations are to be conducted once during every storm event per month of the wet season and are to be conducted within the first hour of storm water runoff.
- **Annual Comprehensive Site Compliance Evaluation**. An annual comprehensive site compliance evaluation is to be conducted by trained Airport Managers within all areas of Industrial Activity. The Evaluation includes a review of the site-specific SWPPP, visual observations, and a comprehensive review of implemented BMPs for proper implementation, effectiveness, and adequacy. Any new areas of industrial activity are required to be recorded by the Evaluation, and addressed by a modified SWPPP, if applicable. If the facility is found to not be in compliance with the SWPPP or the General Permit conditions, the Inspector is required to document non-compliance specifics and modifications to the facility SWPPP and BMPs may be required.

Annual reporting requirements for each facility will result from a compilation of the forms completed during inspections conducted by the Airport Manager, reviewed by Environmental Compliance Operations, Group Leaders and the American Association of Airport Executives and Airport Research and Development Foundation Group, to be submitted annually to the Regional Water Quality Control Board by July 1st.

In addition to on-site inspections conducted by the Airport Manager, the Group Leader for the Group Monitoring Plan (or Environmental Compliance Options) shall conduct inspections twice within the five-year permit period. As required by the General Permit, the Group Leader will prepare an annual group evaluation report to be submitted to the State Water Resources Control Board by August 1st of each year.

2.3 Local Regulations

2.3.1 Marin County

The following Marin County policies and regulations are relevant to the proposed project:

Marin Countywide Plan

Goal WR-1: **Healthy Watersheds. Achieve and maintain proper ecological functioning of watersheds, including sediment transport, groundwater recharge and filtration, biological processes, and natural flood mitigation, while ensuring high-quality water.**

Policy WR-1.1: Protect Watersheds and Aquifer Recharge. Give high priority to the protection of watersheds, aquifer-recharge areas, and natural drainage systems in any consideration of land use.

Policy WR1.3: Improve Infiltration. Enhance water infiltration throughout watersheds to decrease accelerated runoff rates and enhance groundwater recharge. Whenever possible, maintain or increase a site's predevelopment infiltration to reduce downstream erosion and flooding.

Goal WR-2: **Clean Water. Ensure that surface and groundwater supplies are sufficiently unpolluted to support local natural communities, the health of the human population, and the viability of agriculture and other commercial uses.**

Policy WR-2.3: Avoid Erosion and Sedimentation. Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies. Continue to require grading plans that address avoidance of soil erosion and on-site sediment retention. Require developments to include on-site facilities for the retention of sediments, and, if necessary, require continued monitoring and maintenance of these facilities upon project completion.

Policy WR-2.2: Reduce Pathogen, Sediment, and Nutrient Levels. Support programs to maintain pathogen and nutrient levels at or below target levels set by the Regional Water Quality Control Board, including the efforts of ranchers, dairies, agencies, and community groups to address pathogen, sediment, and nutrient management in urban and rural watersheds.

Policy WR-2.4: Design County Facilities to Minimize Pollutant Input. Design, construct, and maintain County buildings, landscaped areas, roads, bridges, drainages, and other facilities to minimize the volume of toxics, nutrients, sediment, and other pollutants in stormwater flows, and continue to improve road maintenance methods to reduce erosion and sedimentation potential.

Implementation Programs

WR-2.2b: WR-2.b Integrate Bay Area Stormwater Management Agencies Association (BASMAA) Stormwater Quality Protection Guidelines into Permitting Requirements for All Development and Construction Activities. All projects should integrate stormwater pollution prevention design features for water quality protection to the extent feasible, such as those included in the BASMAA Start-at-the- Source manual and the Tools Handbook.

Marin County Code

Chapter 23.09, Floodplain Management

(2A) The County shall restrict uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damage increases in erosion or in flood heights or velocities;

(2B) The County shall require that uses vulnerable to flood, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(2C) The County will control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

(2D) The County shall control filling, grading, dredging and other development which may increase flood damage; and

(2E) The County will prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Chapter 23.18, Urban Runoff Pollution Prevention

The County shall protect and enhance the water quality of our watercourses, water bodies and wetlands in a manner pursuant to and consistent with the Clean Water Act and the Porter-Cologne Water Quality Control Act.

The County shall abide by the previous by:

- Minimizing discharges other than storm runoff to storm drains or watercourses;
- Controlling the discharge to storm drains or watercourses from spills, dumping or disposal of materials other than rain water;
- Reducing pollutants in stormwater discharges to the maximum extent practicable.
- Complying with the County's NPDES permit that require implementation of appropriate source control and site design measures and stormwater treatment measures for projects;
- Maintaining pre-development stormwater runoff rates and preventing nonpoint source pollution whenever possible, through stormwater management controls and ensuring that these management controls are properly maintained (Marin County Board of Supervisors 2008).

3.0 ENVIRONMENTAL SETTING

3.1 Project Location

Gnoss Field Airport (proposed project) is located within the Novato Valley drainage basin approximately one mile north of the City of Novato, California, immediately east of Highway 101 on former Petaluma River tidelands. The proposed project is situated within an un-numbered section, Township 4 North, Range 7 West, of the USGS 7.5-minute series *Petaluma River* quadrangle (**Figure 1**).

The proposed project area consists of ±120 acres of land that is currently composed of developed areas associated with the airfield and annual grassland and wetland communities on the perimeters of the field.

3.2 Site History

Many years ago levees were constructed near the Petaluma River to protect the area behind the levee from tidal action and flooding. This particular site was originally farmed for hay production.

Various structures have been constructed on the site. These structures include ditches, roads, buildings, parking lots, culverts, and levees. All of these structures have affected the flow of surface water on the site. Pumps are used to return surface water from drainage ditches and canals from the airport and adjacent properties to the Petaluma River.

3.3 Land Use

The site is utilized primarily as a municipal airport, with centrally located infrastructure, including a landing strip, hangars, and buildings. The perimeter of the study area is used to graze cattle, and some of the grounds are denoted as a California Department of Fish and Game Wildlife Area. Roads, utilities, fences, levees, and drainage ditches are also found in the study area.

3.4 Project Description

The proposed project would involve the following actions:

- The construction of a 1,100 feet runway extension and runway safety area to the existing Runway 13/31;
- Construction of the corresponding taxiway to the full length of the runway;
- Construction of realigned drainage channel to drain the extended runway and taxiway;
- Construction of the corresponding levee extension to protect the runway and taxiway extensions from flooding; and

- Re-programming of navigational aids that pilots use to land at the Airport to reflect the extended runway.

3.5 Physical Features

3.5.1 Topography

The proposed project landscape is primarily level with elevations ranging from 0 to 15 feet above mean sea level (MSL). The airport is surrounded by a series of levees and rests on fill material and moderately impermeable bay mud. Precipitation falling on the site collects in ditches and topographic depressions, gradually evaporating or draining relatively slowly into larger sloughs and pumped into Black John Slough or the Petaluma River.

3.5.2 Soils

The Natural Resources Conservation Service (NRCS) has mapped three soil units on the proposed project (**Figure 2**). The soil units that occur onsite include **Reyes clay**; **Urban land-Xerorthents complex, 0 to 9 percent slopes**; and **Xerorthents, fill**. General characteristics associated with these soils types are described below.

- **Reyes clay**: This soil type is very deep and somewhat poorly drained. It is found on reclaimed tidelands between 0 and 10 feet above MSL. It formed in alluvium derived from various rock sources. Slopes are generally between 0 and 2 percent. Permeability is slow and runoff is slow. Native vegetation is generally composed of wetland plant communities.
- **Urban land-Xerorthents complex, 0 to 9 percent slopes**: This soil type is found on valley floors, toes of cut slopes, and tidelands covered with fill between 0 and 500 feet above MSL. The soil is composed of 70 percent urban land and 20 percent Xerorthents. The Urban land component consists of areas covered by roads and developed structures. Runoff within this component is rapid. Xerorthents consist of cut or fill areas. The original soils are often graded and contain mixed soil horizons. The characteristics of Xerorthents are highly variable.
- **Xerorthents, fill**: This soil type consists of soil material that has been moved mechanically and mixed. Most of this unit is contained in urban areas. Xerorthents are loamy and well-drained. Permeability and runoff characteristics vary.

3.5.3 Regional Hydrology

The proposed project site is located within the San Francisco Bay Hydrologic Region (HR), as defined by the California Department of Water Resources. Within this HR, Gnoss Field Airport is located in the 146 square mile Petaluma River watershed (Hydrologic Unit Code #18050002). The Petaluma River is the major drainage within this watershed and empties into San Pablo Bay.

3.5.4 Local Hydrology

The existing hydrologic boundaries defining the proposed project water quality extend from the southeastern slope of Burdell Mountain in the west, to the northernmost extent of the Airport

levee in the north, to the levee along Black John Slough in the south, to the easternmost levee between the proposed project site and the adjacent agricultural field.

Surface Waters

Surface water drainage flows on the proposed project site can be delineated into four basic categories:

- Run-on/perimeter flows;
- Runway/taxiway flows;
- Asphalt apron flows; and
- Offsite flows.

Run-On/ Perimeter Flows

Approximately 218 acres drain down the eastern slope of Burdell Mountain into ditches and natural drainage swales (**Figure 3**). These flows continue east under Highway 101 through two culverts to the northwestern corner of the asphalt hangar apron, immediately northwest of the main entrance to the airport. The flows coming from the west join and enter the interior levee drainage through a culvert at the northwestern most corner of the asphalt hangar apron.

Runoff then flows east from the culvert in the vegetated interior drainage channel until it meets the taxiway shoulder. Waters are then directed north parallel to the taxiway. The flows continue north, per the original design via gravity, to the end of the taxiway and runway and then circle around to the east. Runoff continues south to the eastern windsock. From this point waters are conveyed due east along the northeastern property boundary, still inside the Airport levee system, to the confluence with the north flowing vegetated drainage channel along the easternmost property boundary. The two waters converge and then are discharged out of the proposed project boundary through twin culverts. The north flowing vegetated drainage channel originates along the southernmost property boundary, adjacent to Black John Slough (**Figure 4**).

Discharged waters continue to flow east in the vegetated drainage channel within the off-site levee system. These flows continue in the drainage channel until they reach the pump station adjacent to Black John Slough, where the surface waters are pumped into Black John Slough and flow into the Petaluma River (**Figure 3**).

Runway/ Taxiway Flows

Runway and taxiway flows run perpendicular to the operational flow of the structures. The asphalt runway and taxiway were designed with a center crown whereby rainfall would sheet to the shoulders of the runway and the taxiway. Rainfall that flows to the shoulders continues flowing into the vegetated perimeter channel. Stormwater runoff between the taxiway and runway flows together in the center drainage ditch and then flow north into the perimeter drainage channel (**Figure 4**).

Asphalt Apron Flows

Precipitation that falls onto the asphalt hangar and operational aprons on the west side of the airport, flows east into the drainage ditch parallel to the taxiway then north into the vegetated perimeter channel or waters flow directly north into the perimeter channel. Rainfall on the southwestern most portion of the proposed project site flows south into the southern vegetated area, then east, to join the north flowing vegetated perimeter channel on the eastern most property boundary.

Rainfall that reaches the eastern asphalt hangar apron flows northeasterly in the northern portion, easterly from the wash area in the central portion of the eastern apron, and southeasterly in the southern portion. The north and south portions flow into the vegetated perimeter channels immediately adjacent to their locations.

Flows in the central portion of the eastern asphalt apron drain into a subsurface stormwater filtration conveyance system. The flows that enter the wash drain flow through a sediment filter and then through an oil and grease separator before the flows are released into an evaporation basin on the eastern portion of the project boundary. When runoff volumes exceed the capacity of the evaporation basin, the flows will enter the vegetated perimeter channel, prior to offsite discharge (**Figure 4**).

Offsite Flows

Offsite flow is the fourth category of surface water at the Gnoss Field Airport. Due to the Airport Levee System these flows never enter the site unless a levee breach was to occur. These flows originate from Burdell Mountain and Olompali Park to the north. Rainfall from these areas is directed along Highway 101 to culverts that exit on the east side of the Highway and continue east into the tributaries and sloughs adjacent to the Petaluma River. Off-site surface water flows are pumped into the Petaluma River to the northeast (**Figure 3**).

Floodplains

The proposed project lies within the 100 year flood plain according to the Preliminary Design Report and the FEMA hazard area mapping; however, with the current levee system, airport flooding is minimized unless one or more of the following situations occurs:

- The Petaluma River breaches the riverside levee as well as the Airport levee;
- Black John Slough breaches its levee as well as the Airport levee;
- The San Antonio Creek levee is breached and then the north runway levee is breached;
- The drainage pumps fail or are inadequate; and/or
- The drainage channels onsite become clogged or overfilled.

Ground Water

Gnoss Field Airport is located within the northern San Francisco Bay region within the north coast ranges geomorphic province of California. Ground water occurs principally in alluvial deposits of Pleistocene to Holocene age that unconformably overlies non-water bearing rocks of

the Franciscan assemblage (Cardwell 1958). The alluvial deposits are composed of unconsolidated clay, silt, and sand with discontinuous lenses of gravel. The total thickness of the alluvial deposits ranges from 60 feet near the city of Novato to more than 200 feet near San Pablo Bay (DWR 1975). Wells in sand and gravel layers 25 feet to 50 feet deep generally yield an average of 50 gallons per minute (DWR 1975).

Natural recharge occurs principally as infiltration from streambeds that exit in the upland areas within the drainage basin and from direct percolation of precipitation that falls on the basin floor. No published information was found addressing the groundwater storage capacity of the Novato Valley groundwater basin or quantity of groundwater in storage.

Groundwater is typically of the calcium bicarbonate type. Groundwater in the tidal areas of the alluvium is of the sodium chloride type and the total mineral content is greater than in areas farther from the bay (Cardwell 1958; DWR 1975).

3.5.5 Precipitation and Climate

The climate within the Petaluma River watershed is general described as a marine west-coast type climate with cool, wet winters and warm, dry summers with some fog and wind (SSC-RCD, 1999a). Annual temperatures range from 46 degrees Fahrenheit (°F) to 71°F, with a mean annual temperature of 67°F. Localized average annual rainfall is approximately 27.5 inches per year (Novato. 2008).

4.0 WATER QUALITY ASSESSMENT METHODOLOGY

The goal of this water quality assessment is to compare the projected water quality effects for Existing Conditions (2008) to the No Action/ Alternative A and the two build Alternatives, Alternative B and Alternative D. The potential water quality-related effects of all Alternatives were evaluated quantitatively by comparing projected pollutant loads discharged to Black John Slough and the Petaluma River associated with storm water runoff. The pollutant loads associated with storm water are defined as the estimated mass of pollutants of concern delivered to the receiving water body on an average annual basis.

The dry weather flows were evaluated qualitatively by identifying the operational practices that may potentially contribute to offsite flows.

4.1 Methodology

Estimating the mass pollutant load transferred to a water body requires knowledge of surface water volumes, discharge locations, and the pollutant sources for the water body. This analysis assesses pollutant loads transported by stormwater from non-point sources. The most accurate method to estimate a non-point source pollutant load is to collect, analyze, and evaluate samples of stormwater directly from the proposed project site (Camp Dresser and McKee Inc. 2003). Due to the variability in seasonal conditions, direct collection for pollutant loading evaluations requires several years and a large number of samples to provide statistically significant results. In the absence of direct site-specific sampling, pollutant loads are regularly assessed using publicly available water quality data generated from comprehensive stormwater investigations with statistically significant results. Stormwater results regularly are reported as event mean concentrations (EMCs).

The U.S. Environmental Protection Agency (EPA)'s Nationwide Urban Runoff Program (NURP) was the first comprehensive study of urban stormwater pollution presenting the results of extensive stormwater sampling and analysis of over 2,300 separate storm events. The NURP report affirmed that urban pollutant loads can be a function of land use and that EMCs can be used to evaluate loadings. Similar studies have been done by the Federal Highway Administration (FHWA) and jointly by the American Association of Airport Executives (AAAE) and the Airport Research and Development Foundation (ARDF).

Six general land use categories were identified with the proposed project water quality study area: agricultural, airport operations, commercial, industrial, rural, and transportation. To calculate stormwater pollutant loads for these land uses, published stormwater investigations were reviewed for EMCs that could best represent the quality of these land use categories. EMCs from the AAAE/ARDF stormwater investigation were used to represent the quality of runoff from the airport-related land uses and NURP data.

The potential pollutant loads, resulting from the No action / Alternative A, as well as implementation of the two build alternatives, Alternative B and Alternative D were calculated by multiplying each EMC by the average annual runoff volume. The annual runoff volume was

calculated by using the average annual rainfall, the drainage area, the runoff coefficients, and the site impervious percentages.

This water quality analysis compares the estimated pollutant loads conveyed to the receiving waters resulting from the No Action/ Alternative A, as well as implementation of the two runway build alternatives, Alternative B, and Alternative D, to the estimated existing conditions (2008).

4.2 Water Quality Parameters of Concern

Limited information is available regarding the identification of water quality parameters of concern at airports and within the Petaluma River watershed. Four data sources were considered to assist in selecting the water quality parameters of concern:

- The parameters required by the California State Water Resources Control Board (SWRCB) for the Industrial Permit (Industrial Permit) mandated by the National Pollutant Discharge Elimination System (NPDES)*;
- The San Francisco Bay Basin Water Quality Control Plan (Basin Plan);
- The AAAE & ARDF Monitoring Group Stormwater Monitoring Requirements; and
- The California Environmental Protection Agency (CEPA) 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments for San Francisco Bay.

Twenty two pollutants of concern have been identified for the Gnoss Field Airport proposed project and are listed below:

- pH *
- Specific conductance *
- Oil and Grease *
  - Total Petroleum Hydrocarbons (TPH)
    - Diesel
    - Gasoline
    - Motor Oil
- Total Organic Carbon (TOC)
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Sediment
  - Total Suspended Solids (TSS) *
  - Turbidity
- Nutrients
  - Total Nitrogen (TN)
  - Total Kjeldahl Nitrogen (TKN)
  - Total Phosphorous (TP)
- Metals
  - Copper (Cu)
  - Lead (Pb)
  - Nickel (Ni)
  - Zinc (Zn)
- Pathogens
  - Total Coliform
  - Fecal Coliform
- Pesticides
  - Diazinon
  - Glyphosate

Many but not all of these pollutants are generally found in stormwater runoff and airport runoff. The twenty two pollutants of concern identified for the proposed project are summarized below.

4.2.1 pH

The pH scale measures how acidic or basic a substance is. Pure water has a neutral pH of 7.0, or a balance between free hydrogen ions (H+) and free hydroxyl ions (OH-). Conditions below neutral are considered to be acidic and have more hydrogen than hydroxyl ions. Conditions above neutral are considered to be basic and have more hydroxyl than hydrogen ions. According to the Basin Plan (SFBRWQCB 2006), pH shall not be decreased below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels. This range is based upon values that are healthy for most aquatic organisms.

The pH of a waterbody is controlled by the concentration of free hydrogen ions that are left in solution after ionic equilibrium is reached with all dissolved ions. The formation of carbonic acid from atmospheric carbon dioxide is one of the largest influences on pH in natural surface waters. However, diurnal fluctuations in pH occur due to photosynthesis of submerged aquatic vegetation. The oxygen produced by photosynthesis disassociates and strips out free hydrogen ions, forming water molecules and causing an increase in pH. Mixing of water tends to minimize the effects of this biogeochemical reaction, whereas in slow moving or isolated waterbodies effects on pH are more dramatic with significant increases throughout the day due to photosynthesis which then drops during the night as respiration drives the reaction in the opposite direction making the water acidic (EPA 1995).

4.2.2 Specific Conductance

Specific conductance, also known as Conductivity, is a measure of the ability for water to conduct or pass electricity. Conductivity increases as temperature or ion concentrations, often measured as Total Dissolved Solids (TDS), increase. However, because individual ions are characterized by unique electrical properties and contributions to conductivity vary, the relationship of TDS with conductivity is not direct. Conductivity is either measured at a standard 25°Celsius (°C) or is temperature corrected to 25°C. Ultimately, conductivity provides an inexpensive and easy field technique for determining changes in a waterbody's total ionic concentration. Conductivity typically ranges from 50 to 1,500 µS/cm (microSiemens/centimeter) in freshwater rivers in the US and 55,000µS/cm in seawater. Tidally influenced areas exhibit fluctuations in conductivities. Conductivity greatly affects aquatic ecosystems and the organisms that inhabit them by playing a role in the formation, or presence, of aquatic layers within a waterbody, and therefore also affects temperatures of these different aquatic layers.

4.2.3 Oil and Grease

Oil and Grease are characterized as high-molecular weight organic compounds. Primary sources of oil and grease are petroleum hydrocarbon products, motor products, esters, oils, fats, waxes, and high molecular weight fatty acids. Oil and Grease are frequently found in urban runoff from roadways, parking lots, and industrial & commercial properties. Oil and grease are visually unappealing and can limit many beneficial uses of a waterbody. The Basin Plan states that "waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses " (SFBRWQCB 2006). Oil and grease are

listed as pollutants in the General Industrial Permit for airport facilities. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for oil and grease.

Total Petroleum Hydrocarbons (TPH)

Diesel

TPH as Diesel is a measurement of the subset of Total Petroleum Hydrocarbons (TPH) within the sample that are of the structure or range of diesel fuel. Diesel is most notably found in road runoff and from leaks or spills associated with heavy construction equipment. TPH in water is a pollutant that can act as a toxin to both aquatic and human health.

Currently there are no threshold limits established for Diesel TPH in the proposed project drainage area and sufficient publicly available data does not exist to facilitate defining limits.

Gasoline

TPH as Gasoline is a measurement of the subset of Total Petroleum Hydrocarbons within the sample that are of the structure or range of gasoline. Gasoline is most notably found in road runoff typically caused by automobiles with leaks and un-combusted fuel in their exhaust. TPH in water is a pollutant that can act as a toxin to both aquatic and human health.

Currently there are no threshold limits established for Gasoline TPH in the proposed project drainage area and sufficient publicly available data does not exist to facilitate defining limits.

Motor Oil

TPH as Motor Oil is a measurement of the subset of Total Petroleum Hydrocarbons within the sample that are of the structure or range of oil. TPH in water is a pollutant that can act as a toxin to both aquatic and human health. Currently insufficient water quality data exists and there are no threshold limits for TPH as Motor Oil in the proposed project drainage area.

4.2.4 Total Organic Carbon

Total Organic Carbon (TOC) represents all organic forms of carbon, the relative amount of which is used to determine the degree of organic pollution of water. Organic carbon comes from natural organic substances, insecticides, herbicides, agricultural chemicals, and domestic and industrial wastewater. A high amount of organic carbon generally means that a higher level of decomposition is occurring and dissolved oxygen is consumed.

Currently, the General Industrial Permit (Water Quality Order No. 97-03-DWQ NPDES General Permit No. CAS000001) does not define benchmarks or limitations for TOC. The General Industrial Permit does require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants to meet water quality standards. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for individual pollutants.

4.2.5 Biological Oxygen Demand

Biological Oxygen Demand (BOD) is a measurement of the amount of oxygen used by the decomposition of organic material, over a certain time period in a sample. BOD only takes into account organic matter, whereas Chemical Oxygen Demand examines organic and inorganic compounds.

Currently the SFRWQCB has not defined BOD thresholds in the proposed project drainage area. The General Industrial Permit does require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants to meet water quality standards. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for individual pollutants.

4.2.6 Chemical Oxygen Demand

Chemical Oxygen Demand (COD) is a measure of the amount of oxygen equivalent needed to completely oxidize a sample. This method is applied to both organic and inorganic compounds, while Biological Oxygen Demand is applied to only organic compounds.

Currently the SFRWQCB has not defined COD thresholds in the proposed project drainage area. The General Industrial Permit does require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants to meet water quality standards. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for individual pollutants.

4.2.7 Suspended Sediment

Total Suspended Solids

Total Suspended Solids (TSS) is the amount of material suspended in a sample that can be filtered out and measured. TSS may include sediment, decaying plant and animal matter, or essentially any material that is suspended within water. According to the Basin Plan, suspended material shall not be present in "concentrations that cause nuisance or adversely affect beneficial uses" (SFBRWQCB 2006). A high amount of suspended solids in water can result in the "abrasion and clogging gills of fish and clams, […] retarded egg development", reduced metabolic function, and reduced survival of young in many species. High concentrations of total suspended solids can affect the temperature of the upper aquatic zone by absorbing heat from sunlight, which can cause the dissolved oxygen content in the water to decrease (Murphy 2007).

Currently the SFRWQCB has not defined TSS quantitative thresholds in the proposed project drainage area and has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit.

Turbidity

Turbidity is a measure of the ability for light to pass through water. It is used as an easy and indirect measurement of suspended material, and often times mistaken to be a direct measurement of sediment. No direct physical relationship exists between turbidity and total suspended solids (TSS), although general site specific relationships can often be derived.

The Basin Plan (SFBRWQCB, 2006) requires that, in waters where natural turbidity is greater than 50 Nephelometric Turbidity Units (NTUs), increases shall not exceed 10 percent. Additionally, the Plan states "waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses" (SFBRWQCB, 2006).

4.2.8 Nutrients

Total Nitrogen

Total Nitrogen represents inorganic nitrogen (NO2-, NO3-, NH4+) and organic nitrogen. Generally, nitrogen is the limiting factor for growth of plant species within terrestrial ecosystems. Organic nitrogen levels are generally influenced by decomposition of aquatic life and sewage runoff, while inorganic nitrogen levels are usually affected by erosion and fertilizer runoff (Colmenares 2006). Nitrogen is often the limiting growth nutrient for saltwater ecosystems.

Nitrate Nitrogen (NO3-N) is the primary form of mineral nitrogen, which is the total available nitrogen for plant uptake. Nitrate (NO3-) that is not incorporated into organic matter either is converted back into nitrogen gas (N2) through the denitrification process or is leached into groundwater or surface water. Nitrate as nitrogen should remain below 10.2 mg/L according to the California Department of Health Services (CDHS) (CCR 2003).

Nitrite Nitrogen (NO2-N) is a minor occurring form of nitrogen in surface waters that is an intermediary step in the nitrification process which converts ammonium (NH4+) to nitrite (NO2-) and then to nitrate (NO3-) through an oxidation reaction. The sum of nitrate plus nitrite represents mineral nitrogen which is the total available nitrogen for plant uptake. Nitrite as nitrogen should remain below 1 mg/L in drinking water according to CDHS Drinking Water Standards (Colmenares 2006).

Ammonia Nitrogen (NH3-N) is formed through the deamination process which is the breaking down of organic nitrogen molecules such as proteins and nucleic acids. Ammonia (NH3) is also the initial form of nitrogen that has been fixed from atmospheric nitrogen gas. Ammonium (NH4+), the ionized form of ammonia, is naturally present in an acid-base equilibrium with ammonia and is the initial form of nitrogen used in the nitrification process which results in nitrate.

Ammonia has a 1.5 mg/L Taste and Odor Threshold and an EPA National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life (EPA 1999a) that varies based on pH and temperature. With a pH of 7.3 and temperatures between 8°C to 22°C, the EPA Continuous Concentration (30-day average) ranges between 3.13 and 7.73 mg/L nitrogen.

Un-ionized ammonia is regulated under the Basin Plan, as it is a demonstrated toxicant. Ammonia discharged in the San Pablo Bay Region shall not cause the receiving waters to exceed the annual median of 0.025mg/L. This level has been established to preclude the build up of ammonia in the receiving waters. The Basin Plan also states "A more stringent maximum objective is desirable for the northern reach of the Bay for the protection of the migratory corridor running through Central Bay, San Pablo Bay, and upstream reaches" (SFBRWQCB 2006).

Total Kjeldahl Nitrogen

Total Kjeldahl Nitrogen (TKN) is the measurement of both organic and ammonia nitrogen. It is measured by converting organic nitrogen into ammonium (NH4+), adding a base, and then measuring the resultant NH3 concentration. By subtracting the initial NH3 concentration from TKN the amount of organic nitrogen in the water can be calculated. Organic nitrogen is the nitrogen that has already been absorbed into and is a part of an amino acid. While organic nitrogen can not be directly taken up by plants, it provides a good indication of how much nitrogen is present in the system but has already been utilized. It is also important to recognize that organic nitrogen will eventually be converted back to mineral nitrogen through the decomposition process, at which point it will be available for plant uptake.

Currently the SFRWQCB has not defined TKN limitations or benchmarks in the proposed project area and has determined that it is not feasible at this time to establish such values.

Total Phosphate

Total Phosphate (TP) represents the amount orthophosphate (PO43-), metaphosphate (PO3-), and organically bound phosphate present in a sample. Phosphate naturally comes from erosion of rocks and decaying plant and animal matter, however it typically, predominantly comes from human derived sources including sewage, and urban and agricultural runoff. Phosphate is typically the main limiting nutrient in freshwater ecosystems. Phosphate Phosphorus (PO4-P) is the dominant and often sole form of phosphorus in natural waters. Phosphorus in general is highly immobile because of its low solubility, which is why the phosphate ion (PO43-) is often the only form found in natural waters. Phosphorus is an essential nutrient for the growth of biological organism and is often times the limiting nutrient for aquatic systems. Because of this, increases of phosphate in surface waters typically indicate a potential for algal growth and possible eutrophication.

Currently the SFRWQCB has not defined TP quantitative thresholds in the proposed project drainage area and has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit.

4.2.9 Trace Metals

Metals may be toxic at low levels, with toxicity varying based upon hardness of the water. Some metals, such as mercury, will bioaccumulate or biomagnify, resulting in increased tissue concentrations higher up in the food web making the consumption of such foods hazardous to human health. Title 22 of the California Code of Regulations outlines primary and secondary

Maximum Contaminant Levels (MCLs) for priority pollutants, including those metals of concern.

Copper

Copper is most often found as a solid or bound to sediment. The major chemical use of copper is in the chemical formulation of pesticides and in brake pads, but it is also widely used in plumbing and irrigation (copper pipes) and as a natural mineral in soils. Ingestion of copper above recommended levels can result in gastrointestinal problems due to short-term exposure and kidney or liver damage with long-term exposure. The Basin Plan establishes the overall objective for the 1 hour average concentration amount of copper at 0.013 mg/L (SFBRWQCB, 2006).

Lead

Lead is most often found as a solid or bound to sediment. Primary sources of lead in the environment are auto emissions and engine exhausts from burning leaded fuels, lead paint, lubricants and batteries. Lead can cause numerous problems in both aquatic and human health including affecting the nervous, reproductive and digestive systems. The Basin Plan establishes the overall objective for the one hour average concentration amount of lead at 0.065mg/L (SFBRWQCB, 2006).

Nickel

Nickel is largely found naturally in rocks, soils, and sediments. It is used to produce multiple types of alloys, stainless steel, chrome plating, fabric dyeing, batteries, foil, permanent magnets, and many more products. Nickel poses a health hazard to human health and has been demonstrated to be toxic to aquatic life. The toxicity of nickel to aquatic life is determined by the level of water hardness (e.g. the softer the water, the more the toxicity of nickel increases). Nickel is a constituent listed on the EPA 303(d) List of Water Quality Limited Segments as occurring within the tidal portion of the Petaluma River (CEPA 2002).

The Basin Plan establishes the overall objective for the amount of nickel in the one hour average concentration at 0.47 mg/L (SFBRWQCB, 2006).

Zinc

Zinc tends to be highly insoluble and immobile except for in flooded soils where reduced oxidation and increased pH conditions allow it to mobilize (Mitsch and Gooselink, 1993). Surface soils tend to have greater concentrations due to plant uptake reducing soil concentrations while organic matter decomposition increases the concentration of immobile zinc on the surface. Anthropogenic zinc (zinc from man-made activities) is a byproduct of tire wear, galvanized metal used to prevent rust (typically on gutters, flashing, and other outdoor metal applications) and the corrosion from galvanized metals and also from motor oils. Zinc acts as a blood, developmental, immune, and reproductive and respiratory system toxicant.

The Basin Plan establishes the overall objective for zinc concentrations to not exceed 0.12 mg/l in a one hour average (SFBRWQCB, 2006).

4.2.10 Pathogens

Total Coliform

Total Coliform is a measure of the amount of coliform bacteria present in a sample. Coliform bacteria are microorganisms that mainly originate in the intestines of warm-blooded animals. Coliform bacteria are indicators of pathogens harmful to human health, because it is difficult to test for pathogen bacteria directly.

The Basin Plan establishes the level of acceptable total coliform bacteria for areas of shellfish harvesting at a median level of less than 70 Most Probable Number (MPN) per 100 milliliters, based on a minimum of five samples collected at equally distributed times over a 30-day period. Additionally, the Basin Plan allows 10 percent of samples collected to exceed 230MPN/100mL, based on a five-tube decimal dilution test or 300MPN/100mL when a three-tube decimal dilution test is used (SFBRWQCB, 2006).

Fecal Coliform

E. coli is sometimes used as a surrogate for fecal coliform, which is bacteria found in feces, because it is the most common fecal species. E. coli and fecal coliform, and associated pathogens, cause many diseases and are considered a health concern. Fecal coliform coming from animal wastes has been identified as one of the main pollutants in the Petaluma River (SSC-RCD 1999).

The Basin Plan allows up to 10 percent of the total number of samples taken during any 30-day period to exceed 43MPN/100ml. The median of samples collected must be below 14MPN/100mL (SFBRWQCB 2006).

4.2.11 Pesticides

Diazinon

Diazinon is a nonsystemic organophosphate insecticide used to control cockroaches, silverfish, ants, and fleas in residential, non-food buildings. It is used on home gardens and farms to control a wide variety of sucking and leaf eating insects. It is used on rice, fruit trees, sugarcane, corn, tobacco, potatoes and on horticultural plants (EXTOXNET 1996). Diazinon is mobile and moderately persistent in the environment. Due to its chemical properties and its widespread use, diazinon is frequently found in wastewater treatment plant effluent and urban and agricultural runoff. Diazinon is toxic to aquatic life, particularly invertebrates (EPA 2006b). Diazinon is a constituent listed on the EPA 303(d) List of Water Quality Limited Segments as occurring within the tidal portion of the Petaluma River.

The Basin Plan requires that dianzinon concentrations in urban creeks shall not exceed 100mg/L as a one hour average (SFBRWQCB 2006).

Glyphosate

Glyphosate is a chemical compound used in numerous types of herbicides to control weed growth. It is domestically and commercially used in many food and non-food crops, lawns, and

roadsides. Glyphosate has been found to cause congestion of the lungs and an increase in breathing rate in humans during short-term exposure, and can cause kidney disease and reproductive effects in humans following long-term exposure. Glyphosate tends to adhere to the sediments when released in water, and typically does not accumulate in aquatic life (EPA 2006a).

The Basin Plan establishes that the level of glyphosate may not exceed 0.7mg/L (SFBRWQCB 2006).

4.3 Airport Operations that May Affect Water Quality and Applicable Best Management Practices

This water quality analysis reviewed airport activities that have the potential to generate pollutants and that could contribute pollutants of concern into the stormwater drainage system and subsequently affect surface water quality in Big John Slough and the Petaluma River. Typical airport operations and the associated potential stormwater pollutants are listed in **Table 2**.

Table 2 — Gnoss Field Airport Operations and Potential Storm Water Pollutants

Current Airport Operations	Potential Storm Water Pollutants
Aircraft, vehicle and equipment maintenance and cleaning	Cleaning solutions, petroleum hydrocarbons, rubber particles, solvents, oils and grease, paint, and metals.
Airport construction activities	Sediment, oil, grease, petroleum hydrocarbons, pH, and pesticides.
Aircraft, vehicle and equipment fueling	petroleum hydrocarbons, rubber particles, oil and grease.
Aircraft runway maintenance	petroleum hydrocarbons, rubber particles, oil and grease, and paint.
Chemical storage and wastewater pretreatment	Cleaning solutions, herbicides, petroleum hydrocarbons, oil, rubber particles, and solvents.
Fire/Department Public Safety training activities	Firefighting foam; petroleum hydrocarbons, rubber particles, and oil and grease.
Fuel storage and transfer	Petroleum hydrocarbons, oil and grease.
Loading/unloading operations	Rubber particles.
Grounds and Building maintenance	Petroleum hydrocarbons, herbicides, fertilizers, paint, and sediment.
Roadway Maintenance	Herbicides and fertilizers.
Outdoor equipment, material and waste storage	Petroleum hydrocarbons, oils, grease, solvents, herbicides, fertilizers, and trash.
Non-allowable non-storm water discharges	Petroleum hydrocarbons, oils, hydraulic fluids, grease, cleaning solutions, Aircraft firefighting foam, herbicides, and paint.
Spill response	
Storm water channel maintenance and rehabilitation	Sediment and herbicides.
Non-Point Source Pollution	Sediment.

Aircraft Washing

Typical contaminants associated with aircraft washing include oil and grease, solvents, petroleum hydrocarbons, sediment (resulting in increased suspended solids), and surfactants (some of which contribute to BODs and phosphates). When the washing activities are performed outdoors, these pollutants must be contained to prevent discharges into the stormwater drainage system. Therefore, DVO has a designated wash area on the southeastern asphalt apron. All planes are washed in this area. The wash area was designed such that all wash waters drain into a subsurface stormwater filtration system. This system is comprised of a sediment filter and an oil separator and then an evaporation basin. Wash waters normally do not enter the perimeter drainage.

Chemical Storage

Appreciable amounts of airport or aircraft related chemicals are not stored onsite. FBO services using chemicals and DVO-related activities using chemicals obtain and use chemicals as they need them.

Airport activities such as herbicide application along runway and taxiway aprons, as well as along the perimeter drainage channels use chemicals that have the potential to pollute stormwaters. Spraying activities are performed by DVO staff and adhere to stringent practices which reduce or eliminate the potential for contact with stormwaters. Some practices that are observed are scheduling spray operations for non-rain days with low to non-existent winds and mixing chemical spray solutions away from storm drainages.

Fire/Department Public Safety Training Activities

Fire department public safety training activities are performed in a manner such that offsite pollutant movement is minimized by directing safety training activities in areas that will not flow directly into the perimeter drainages.

If a fire occurs onsite, there is the potential for firefighting foam, petroleum hydrocarbons, rubber particles, oil and grease to enter the DVO drainage.

Aircraft Fueling

Mobile refuelers are currently utilized at DVO as the means to provide fuel to all general aviation aircraft. Fueling of general aviation aircraft are fueled at their respective hangars or tie downs.

Routine and primary aircraft fueling activities have the potential to cause small leaks and spills that may enter the asphalt hangar and operational apron drainages. Minor spills can occur when fuel tanks are overfilled or when disposing of aircraft sump fuel. These minor spills can become entrained in stormwater runoff and transported into the perimeter stormwater drainage.

The likely stormwater pollutants associated with aircraft fueling are petroleum hydrocarbons. DVO does not currently support self service fueling, and all FBO fueling personnel are trained and required to follow the aircraft fueling BMPs and applicable Spill Prevention, Control, and Countermeasure (SPCC) plans. Onsite personnel have a vast array of spill response materials at

their disposal twenty-four hours a day, seven days a week and FBO personnel promptly clean up spills and leaks to minimize potential impact on stormwater discharges.

Fuel Storage

Fuels are stored outdoors in underground storage tanks (USTs) and in mobile refuelers. All DVO fuel tanks are equipped with leak detection equipment to minimize releases and potential fuel leaks from entering the stormwater drainage system or groundwater, and tanks are subject to daily inspections by airport field crews (Sever 2010). Mobile refuelers, used for aircraft fueling, include uncovered outdoor fuel storage with secondary containment when in a non-operational or non-standby mode. FBO personnel handling fuel are required to follow standard aircraft fueling BMPs and applicable SPCC plans. Pollutants released from fuel storage areas have the potential to discharge through the double culverts on the eastern edge of the proposed project site.

Spill Response

Spill response materials are kept onsite at all times. Spill response materials are kept with DVO personnel performing routine operational activities in case of encountering spills. Oil booms, absorbent pads, absorbent materials, brooms, shovels, waste containers are some of the spill response items immediately available to DVO personnel.

Additionally, the perimeter drainage channel in the project site can be closed with sluice gates at the twin culverts on the east side in case of required spill response activities and subsequent water quality protection.

4.4 Water Quality Parameters of Concern Summary

After reviewing all of the potential pollutants of concern, the Industrial General Permit pollutant parameters, the Group Stormwater Monitoring Plan (GMP), the current water quality sampling data, and all of the airport operational activities that potentially contribute these pollutants, a subset of nine pollutants were identified for the Gnoss Field Airport that could be expected in stormwater runoff and that had useable data for analysis. These nine pollutants of concern include: oil and grease, BOD, COD, TSS, TKN, TP, copper, lead, and zinc. Event Mean Concentrations (EMC) used to represent stormwater runoff quality and their sources are shown in **Table 3**.

Table 3 — Event Mean Concentrations for Stormwater Runoff by Land Use (mg/l)[1]

Pollutant of Concern	Agriculture-Unimproved	Commercial - Improved	Commercial-Unimproved	Rural-Unimproved	Rural-Improved	Industrial-Unimproved	Transportation	Airport
Total Suspended Solids (TSS)[2]	22	22	22	22	22	22	22	22
Total Phosphorous (P)	0.7	.33	0.33	0.49	0.49	0.33	0.33	0.42
Total Kjeldahl Nitrogen (TKN)	3.3	1.66	1.66	3.3	3.3	1.5	2.1	2.2
Total Copper (Cu)	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Total Lead (Pb)	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
Total Zinc (Zn)	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Oil and Grease	0.5	0.5	0.5	0.5	0.5	1.87	3.5	3.5
Biological Oxygen Demand (BOD)	0	10	10	0	0	5	0	10
Chemical Oxygen Demand (COD)	113	65	65	113	113	51	93	93

[1] Sources: Due to limited available water quality data, all data unless otherwise noted is from the United States Environmental Protection Agency, Water Planning Division, Final Report on the National Urban Runoff Program (NURP), December 1983.

[2] Marin County Airport at Gnoss Field. 2009. Attachment 1, Storm Water Sampling Data. Sampled as part of American Association of Airport Executives/ Airport Research and Development Foundation, Airport California Monitoring Group. March 4, 2009.

4.5 Stormwater Pollutant Loads

This water quality analysis calculates pollutant loading by multiplying EMCs by average annual stormwater runoff volumes yielding an annual mass in pounds of discharged pollutants. This method for calculating pollutant loads is based on the Simple Method (Schueler, 1987).

Stormwater pollutant loads for each alternative were calculated for each land use within the Alternative analyzed using the Simple Method. The estimated annual pollutant loadings for each land use within each alternative are summed to yield an annual mass of pollutants discharged.

4.5.1 The Simple Method

The Simple Method estimates stormwater pollutant loads as the product of EMCs and runoff volumes on an annual basis. This report calculates the individual annual pollutant loads using the following equation:

$L = [(P \times P_j \times R_v)/12] \times C \times A \times 2.72$

Where:

L = Pollutant Load in pounds

P = Rainfall inches over desired time interval

P_j = P correction factor for storms that produce no runoff

R_v = Runoff coefficient = Measure of site response to rainfall events = 0.05 + 0.009 (I)

I = percent of site imperviousness

C = Average flow-weighted pollutant concentration

A = Total Site Area (acres)

5.0 WATER QUALITY EXISTING CONDITIONS (2008)

Water quality sampling and testing parameters required by the Industrial General Permit for Gnoss Field are specific to the transportation industry and are specified by Section B(5)(c)(i) of the Industrial General Permit. Section B requires collected storm water samples to be analyzed for total suspended solids (TSS), total organic carbon (TOC) or Oil & Grease, pH, and Specific Conductance. Current GMP sampling results for the Gnoss Field Airport and the relevant regulatory thresholds specified by the California Industrial Activities Storm Water General Permit are shown in **Table 4**.

Table 4 — Gnoss Field Water Quality Pollutant Sampling Data

Pollutant	Objectives [1]	2009 Sampling Results Outfall #1
pH	The San Francisco Bay Basin Plan (Basin Plan) states that pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.	6.1
TSS	The Basin Plan states that waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	22 mg/l
Specific Conductance	The Basin Plan does not define thresholds or limitations for Conductivity. Conductivity typically ranges from 50 to 1,500 µS/cm (microSiemens/centimeter) in freshwater rivers in the US and 55,000µS/cm in seawater. Tidally influenced areas exhibit fluctuations in conductivities.	2800 umhos/cm
Oil and Grease	The San Francisco Basin Plan requires that waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	ND

ND = non detect = resulting data value is below laboratory detection limit

mg/l = milligrams per liter

umhos/cm = micro ohms per centimeter

[1] Parameter benchmarks are not defined by the current General Industrial Permit (Water Quality Order No. 97-03-DWQ NPDES General Permit No. CAS000001). NPDES Permits for storm water discharges must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for individual pollutants.

Nine pollutants have been identified for the Gnoss Field Airport that could be expected in stormwater runoff and that had useable data for analysis. These nine pollutants of concern include: oil and grease, BOD, COD, TSS, TKN, TP, copper, lead, and zinc. Stormwater pollutant loads discharged from the Gnoss Field Airport under existing conditions were estimated using the methods described in **Section 4.5**, *Stormwater Pollutant Loads* and are summarized in **Table 5**.

Table 5 — Gnoss Field Existing Conditions (2008) – Estimated Average Annual Pollutant Loads

Pollutant Load	Annual Pollutant Load (lbs/yr)
Total Suspended Solids (TSS)	13,078
Total Phosphorous (P)	147
Total Kjeldahl Nitrogen (TKN)	808
Total Copper (Cu)	4
Total Lead (Pb)	17
Total Zinc (Zn)	7
Oil and Grease	1,021
Biological Oxygen Demand (BOD)	2,800
Chemical Oxygen demand (COD)	32,705

Source: Foothill Associates, 2009.

6.0 ENVIRONMENTAL CONSEQUENCES AND IMPACTS

Thresholds of Significance

To determine significant impacts, FAA Order 1050.1E states that water quality regulations and issuance of permits will normally identify any deficiencies in the proposal with regard to water quality. It goes on to state that if consultation or analysis shows that there is the potential for exceeding water quality standards, identifies water quality problems that cannot be avoided or mitigated, or indicates difficulties in obtaining permits, then it may be concluded that the project would result in a significant impact.

The following sections present quantitative analyses and discussions pertaining to the potential water quality impacts relevant to development of the No Action, Alternative A, and each runway extension build alternative on water quality. The estimated pollutant loading values were derived from the AAAE/ARDF Monitoring Group Data collected at Gnoss Field and the NURP study EMC data values as a means of analyzing the potential for water quality impacts to result from implementation of the proposed project under the scenarios proposed by Alternatives A, B, and D.

Baseline data for the Petaluma River watershed is currently lacking. Parameters specified for monitoring by the Industrial General Permit include: total suspended solids (TSS), total organic carbon (TOC) or Oil and Grease, pH, and Specific Conductance. However, based on a review of all potential pollutants of concern, the GMP, current water quality sampling data, and all of the airport operational activities that potentially contribute these pollutants, nine pollutants of concern have been identified for the Gnoss Field Airport for the purpose of these analyses. The nine pollutants of concern include: oil and grease, BOD, COD, TSS, TKN, TP, copper, lead, and zinc. Potential sources of annual pollutant loadings within the project area include: agricultural operations/practices surrounding the project site, industrial land uses, urban runoff, historical mining operations on the southeast side of Mount Burdell, State Highway 101, and atmospheric decomposition. As shown in **Table 6**, quantitative water quality objectives are only defined for Cu, Pb, Zn, and BOD. The analyses of potential water quality impacts resulting from implementation of the Proposed Project and the alternatives within this report are based on a comparison of estimated pollutant loading values compared to San Francisco Bay Basin Plan water quality objectives established for these pollutants within the project area. Quantitative objectives relevant to the project area have not been established for TSS, P, TKN, COD, and Oil and Grease relevant to the project.

Aircraft operations are forecasted to increase from 85,500 operations in 2008 to 100,500 in 2018. However, currently there are no methods known to account for changes in the frequency of activities conducted on the existing land uses.

Details on the drainage areas, percent impervious surfaces, and the land use category used to determine pollutant loadings can be found in **Appendix A**.

Table 6 below provides average annual pollutant loads estimated for the No Action Alternative (Alternative A), and the two Build Alternatives (Alternative B and Alternative D).

Table 6 — Estimated Average Annual Pollutant Loads by Alternative

Pollutant	Annual Pollutant Load (lbs/yr)[1]			
	Alternative			Regulatory Threshold[3]
	A	B	D	Basin Plan Water Quality Objectives
Total Suspended Solids (TSS)	13,078	13,346	13,806	[2]
Total Phosphorous (P)	147	151	157	[2]
Total Kjeldahl Nitrogen (TKN)	808	826	857	[2]
Total Copper (Cu)	4	4	4	5
Total Lead (Pb)	17	17	18	23
Total Zinc (Zn)	7	7	7	42
Oil and Grease	1,021	1,048	1,097	[2]
Biological Oxygen Demand (BOD)	2,800	2,878	3,017	10,605
Chemical Oxygen Demand (COD)	32,705	33,443	34,742	[2]

Source: Foothill Associates, 2009.

[1] The methodology used to compute parameter pollutant loadings are based on land use acreages, representative site EMC values, land use imperviousness, and rainfall.

[2] Parameter benchmarks are not defined by the current General Industrial Permit (Water Quality Order No. 97-03-DWQ NPDES General Permit No. CAS000001). NPDES Permits for storm water discharges must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards. However, the State Water Resources Control Board has determined that it is not feasible at this time to establish numeric effluent limitations, nor have benchmarks been established by this permit for individual pollutants.

Additionally, as shown in **Table 7**, comparisons were made for the annual pollutant load yield differences between Existing Conditions 2008 and each Alternative.

Table 7 — Estimated Annual Pollutant Loading Increase by Alternative Compared to Existing Conditions (2008) Pollutant Loading

Pollutant	Existing Conditions (2008)	Alternative			Threshold
		A (No Action)	B	D	
Total Copper (Cu)	4	4	4	4	5[2]
Total Lead (Pb)	17	17	17	18	23[2]
Total Zinc (Zn)	7	7	7	7	42[2]
Biological Oxygen Demand (BOD)	2,800	2,800	2,878	3,017	10,605[2]
Total Suspended Solids (TSS)	13,078	13,078	13,346	13,806	13,078[3]
Total Phosphorous (P)	147	147	151	157	147[3]
Total Kjeldahl Nitrogen (TKN)	808	808	826	857	808[3]
Oil and Grease	1,021	1,021	1,048	1,097	1,021[3]
Chemical Oxygen demand (COD)	32,705	32,705	2,878	3,017	32,705[3]

6.1 Alternative A – No Action

Estimated water quality pollutant loads discharged to receiving waterbodies under Alternative A., the No Action Alternative, would be consistent with those identified for the Existing Conditions (2008). Although it is anticipated that airport operations would increase through time, under Alternative A, no land use changes would be initiated at the Gnoss Field Airport. It is estimated that no changes to the existing water quality and pollutant loadings would therefore result.

Current Best Management Practices (BMPs) employed at the airport (i.e. the airport levee system, vegetated drainage ditch, oil and grease separator, evaporation basin, spill prevention procedures, and spill clean up products) are sufficient to reduce and maintain concentrations of pollutants of concern to meet the General Industrial Permit requirements and Basin Plan specified objectives.

Current BMPs are adequate to minimize or eliminate stormwater quality impacts from the project site to Black John Slough and the Petaluma River. Potential sources for TKN, copper, lead, and zinc may include agricultural operations/practices, industrial land uses, historical mining operations, urban runoff, State Highway 101, and atmospheric deposition. However, it is anticipated that Gnoss Field Airport operations would remain compliant with the terms and conditions specified by the General Industrial Permit.

Anticipated increases in aircraft operations from 85,500 operations in 2008 to 100,500 in 2018 at the Gnoss Field Airport would result in increased industrial uses within the facility. However, it is anticipated that compliance with the Industrial General Permit as demonstrated through

participation in the GMP will ensure continued compliance with regulatory standards for pollutants of concern through amendments to the facility SWPPP, as well as continued implementation, monitoring and maintenance of on-site BMPs, as amended by modifications to the SWPPP in response to expanded operations.

6.2 Alternative B

Under Alternative B, changes in pollutant loading values are directly attributable to the change in impervious surfaces from the 1,100-foot runway extension. As shown in Table 7, annual pollutant loading estimates (or long-term impacts) under Alternative B would remain below the water quality thresholds for Cu, Pb, Zn, BOD, and COD. Annual pollutant loading values would exceed the thresholds for TSS, TP, TKN, and Oil & Grease; however, thresholds for these pollutants were established by current sampling data in the absence of thresholds established by the Basin Plan. Therefore, although loadings for these pollutants would exceed levels determined through existing sampling data, it is expected that compliance with the Industrial General Permit through participation in the Group Monitoring Plan would ensure that the Airport will continue to meet or exceed regulatory standards. In addition, adherence to or modification of existing SWPPP and future sampling and visual observations if warranted will be employed to minimize or eliminate water quality impacts.

Short-term impacts to water quality may potentially occur during the construction phase of the proposed project. Grading and construction activities typically increase the potential for sediment related pollutants (e.g. TSS, nutrients, metals) to enter waterbodies. Short-term impacts would be minimized through vigilant adherence to construction schedule, the project SWPPP, and BMPs. Construction of Alternative B would require the facility to obtain coverage under the NPDES General Construction Permit for construction activities. As of July 1, 2010, coverage under the newly adopted General Construction Permit must be obtained electronically via the SWRCB.

Implementation of Alternative B would require the fill of jurisdictional waters of the U.S. pursuant to Section 404 of the CWA. Any fill of waters of the U.S. would require authorization from the U.S. Army Corps of Engineers through a Section 404 permit. Pursuant to Section 401 of the CWA, any applicant for a Federal permit or license is also required to obtain and provide to the U.S. Army Corps of Engineers a 401 Water Quality Certification from the state. Therefore, development of Alternative B would require 401 Water Quality Certification through the State Water Resources Control Board. Pollutant loading changes to stormwater runoff will contribute to minor impacts to Black John Slough and the Petaluma River. However, as previously described, implementation of the measures outlined in the SWPPP, in accordance with the NPDES Construction General Permit, and Industrial General Permit coupled with the implementation, monitoring and maintenance of site-specific BMPs, is expected to reduce the potential for impacts to water quality and maintain water quality objectives..

Development of Alternative B would require Marin County to submit a Change of Information (COI) (found on the General Industrial Permit Notice of Intent) to the State Water Resources Control Board. The COI will update the facility information to include a revised site map with drainages, the facility acreages, the new site imperviousness percentage, and any changes that may relate to facility operations (i.e., SIC code changes). If at any time the Airport is found to

not be in compliance with the SWPPP or the Industrial General Permit conditions, the facility inspector is required to document noncompliance specifics and modifications to the facility SWPPP and BMPs may be required. Similarly, if warranted by sampling data analyses, the SWRCB may require modifications to the SWPPP and BMPs.

Based on the current BMPs, SWPPP, and permits that are in place, it is not anticipated that Alternative B would exceed water quality standards, create water quality problems that cannot be avoided or mitigated, or result in difficulties in obtaining permits. Therefore, no significant impacts are anticipated with implementation of Alternative B.

6.3 Alternative D

The activities identified under Alternative B that could result in increased pollutant loadings are the same for Alternative D. The only difference between the two alternatives is that Alternative D has slightly more impervious surface than Alternative B. As a result, the pollutant loadings for some pollutants is slightly higher than Alternative B (see Table 7). However, these increases over Alternative B would not change the discharges to a point where they would not be able to be addressed through the BMPs, SWPP, and permits.

Based on the current BMPs, SWPPP, and permits that are in place, it is not anticipated that Alternative D would exceed water quality standards, create water quality problems that cannot be avoided or mitigated, or result in difficulties in obtaining permits. Therefore, no significant impacts are anticipated with implementation of Alternative D.

6.4 Conclusions

All of the Alternatives will utilize similar BMPs to address potential pollutant impacts as a result of any of the build alternatives. BMPs employed will include levee extensions around the entire project and a slow flowing vegetated internal drainage system that will facilitate pollutant uptake and settlement prior to reaching the Airport discharge point. Additionally, Airport operations assert multiple spill prevention and clean up procedures that protect against potential pollutant impacts

Current Best Management Practices (BMPs) implemented by the facility, combined with the design of proposed improvements are sufficient to maintain concentrations of pollutants of concern below regulatory criteria, and minimize or eliminate the potential for stormwater quality impacts to Black John Slough and the Petaluma River.

7.0 REFERENCES

California Code of Regulations (CCR). 2003. *Title 22, California Code of Regulations Division 4 Chapter 15 Article 4 Section 64331*. September 12, 2003.

California Department of Health Services (CDHS). 2003. *Title 22, California Code of Regulations Division 4 Chapter 15 Article 4 Section 64331*. September 12, 2003.

California Department of Water Resources, Division of Planning and Local Assistance (DPLA). *San Francisco Bay Hydrologic Region, Novato Valley Groundwater Basin, California's Groundwater Bulletin 118. Novato Valley Groundwater Basin Descriptions.* Updated 2/27/2004. Online at: http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/pdfs_desc/2-30.pdf

California Department of Water Resources. 1975. *Sea-Water Intrusion in California Inventory of Coastal Ground Water Basins*. Bulletin 63-5 October 1975.

California Environmental Protection Agency (CEPA). 2002. *2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments, San Francisco Bay Regional Water Quality Control Board*. Online at: http://www.swrcb.ca.gov/water_issues/programs/tmdl/docs/2002reg2303dlist.pdf

California State Water Resources Control Board (SWRCB). 2003. California State Water Resources Control Board Water Quality Criteria, McKee & Wolf (1963, 1978). In: *California Environmental Protection Agency Regional Water Quality Control Board Central Valley Region- A Compilation of Water Quality Goals*. August 2003.

Cardwell, G.T. 1958. *Geology and Groundwater in the Santa Rosa and Petaluma Valley Areas, Sonoma County California*. US geological Survey Water-Supply Paper 1427.

City of Novato (Novato). 2008. *Novato Wants Your Business Location.* May 12, 2008. Online at: http://www.cityofnovato.org/Index.aspx?page=457

Colmenares, Letty. 2006. *MSI-NOAA Water Quality Assessment Project*. Windward Community College. Online at: http://windward.hawaii.edu/Water/Heeia_Data/Heeia%20Spring%2004/totalnitrogenspring_04MR.htm

Eisenberg, Olivieri, & Associates (EOA), 2005. *Marin County Stormwater Pollution Prevention Program, Stormwater Management Plan, Action Plan 2010*. Produced for Marin County Stormwater Pollution Prevention Program (MCSTOPPP), Marin County Department of Public Works by Eisenberg, Olivieri, & Associates (EOA) Inc. May 2005.

Extension Toxicology Network (EXTOXNET). 1996. *Pesticide Information Profiles: Diazinon*. Online at: http://extoxnet.orst.edu/pips/diazinon.htm

Marin County Board of Supervisors. 2008. Ordinance Number 3486, Ordinance of the Marin County Board of Supervisors. An Ordinance of the Marin County Board of Supervisors Amending Marin County Code Chapter 23.18 Urban Runoff Pollution Prevention and Chapter 24.04 Development Standards. Marin County Board of Supervisors. April 15, 2008.

Marin Countywide Plan 2007.

Mitsch, W.J. and Gooselink, J.G. 1993. *Wetlands*, 2nd Edition. Von Nostrand Reinhold, New York, pp. 478-479.

Murphy, Sheila F. 2007. *General Information on Solids*. City of Boulder/USGS Water Quality Monitoring. Boulder Area Sustainability Information Network. Online at: http://bcn.boulder.co.us/basin/data/BACT/info/TSS.html

North Bay Watershed Association. 2003. *North Bay Watershed Stewardship Plan Phase 1*. Appendix A.2 Water Quality. October 2003.

Preliminary Design Report Runway Extension Gnoss Field Marin County, California, December 20, 2002.

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). 2006. *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board San Francisco Bay Region*. Adopted January 18, 2007. Online at: http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml#2004basinplan

Schueler, T.R. 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPS. Publ.NO.87703. Metropolitan Washington Council of Governments, Washington, DC.

Sever 2010. Personal Communication with Vince Sever, Interim Gnoss Field Airport Manager, October 5, 2010.

Southern Sonoma County Resource Conservation District (SSC-RCD). 1999a. *Petaluma Watershed Enhancement Plan*. Online at: http://sscrcd.org/resources/pubs/PWEP/pwep.html

Southern Sonoma County Resource Conservation District (SSC-RCD). 1999b. *Petaluma Watershed Enhancement Plan, Appendix C*. Online at: http://sscrcd.org/resources/pubs/PWEP/pwep.html

Southern Sonoma County Resource Conservation District. 1998 *Draft Water Quality Monitoring Guidelines for the Petaluma Watershed*. June 1998.

U.S. Environmental Protection Agency (EPA). 1983. *Results of the Nationwide Urban Runoff Program (NURP), Volume 1- Final Report.* United States Environmental Protection Agency, Water Planning Division, Washington, D.C., December 1983.

U.S. Environmental Protection Agency (EPA). 1991. *Technical Support Document for Water Quality-Based Toxics Control*. Online at: http://www.epa.gov/waterscience/methods/det/faca/mtg20051208/excerpt-detectionlimits.html

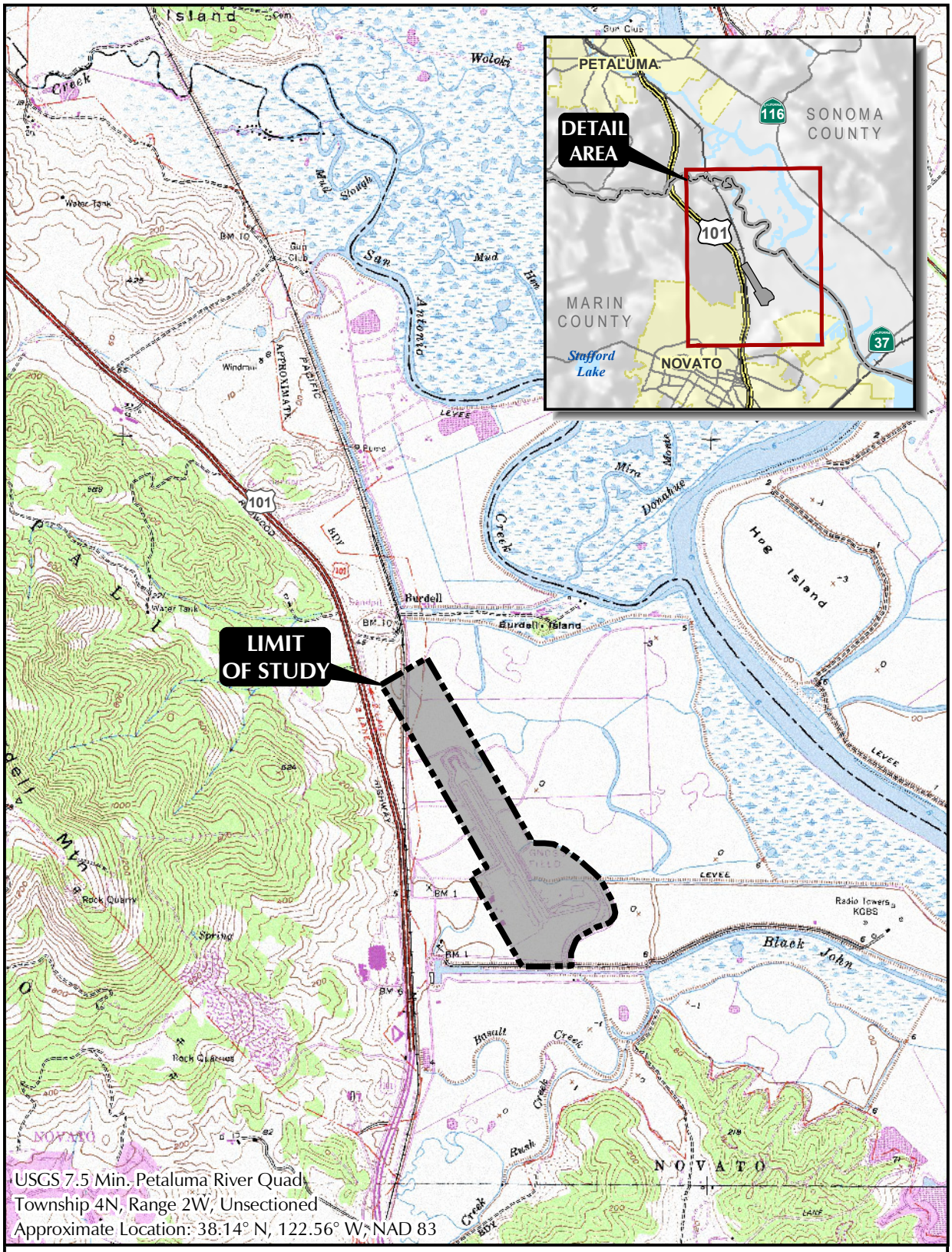
U.S. Environmental Protection Agency (EPA). 1995. *Ecological Restoration: A Tool To Manage Stream Quality (EPA 841-F-95-007)*, Chapter 3. U.S. Environmental Protection Agency , November 1995.

U.S. Environmental Protection Agency (EPA). 1999a. *1999 Update of Ambient Water Quality Criteria for Ammonia. EPA-822-R-99-014*. Online at: http://www.epa.gov/waterscience/criteria/ammonia/99update.pdf

U.S. Environmental Protection Agency (EPA). 1999b. *Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit*, United States Environmental Protection Agency, Office of Water, NPDES Program Branch, Mail Code 4203, 401 M Street S.W., Washington D.C. Online at: http://www.p2pays.org/ref/17/16096.pdf

U.S. Environmental Protection Agency (EPA). 2006a. *Consumer Factsheet on: GLYPHOSATE.* Online at: http://www.epa.gov/ogwdw/contaminants/dw_contamfs/glyphosa.html

U.S. Environmental Protection Agency (EPA). 2006b. *Aquatic Life Criteria for Diazinon.* Online at http://www.epa.gov/waterscience/criteria/diazinon/



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 1500 3000
SCALE IN FEET

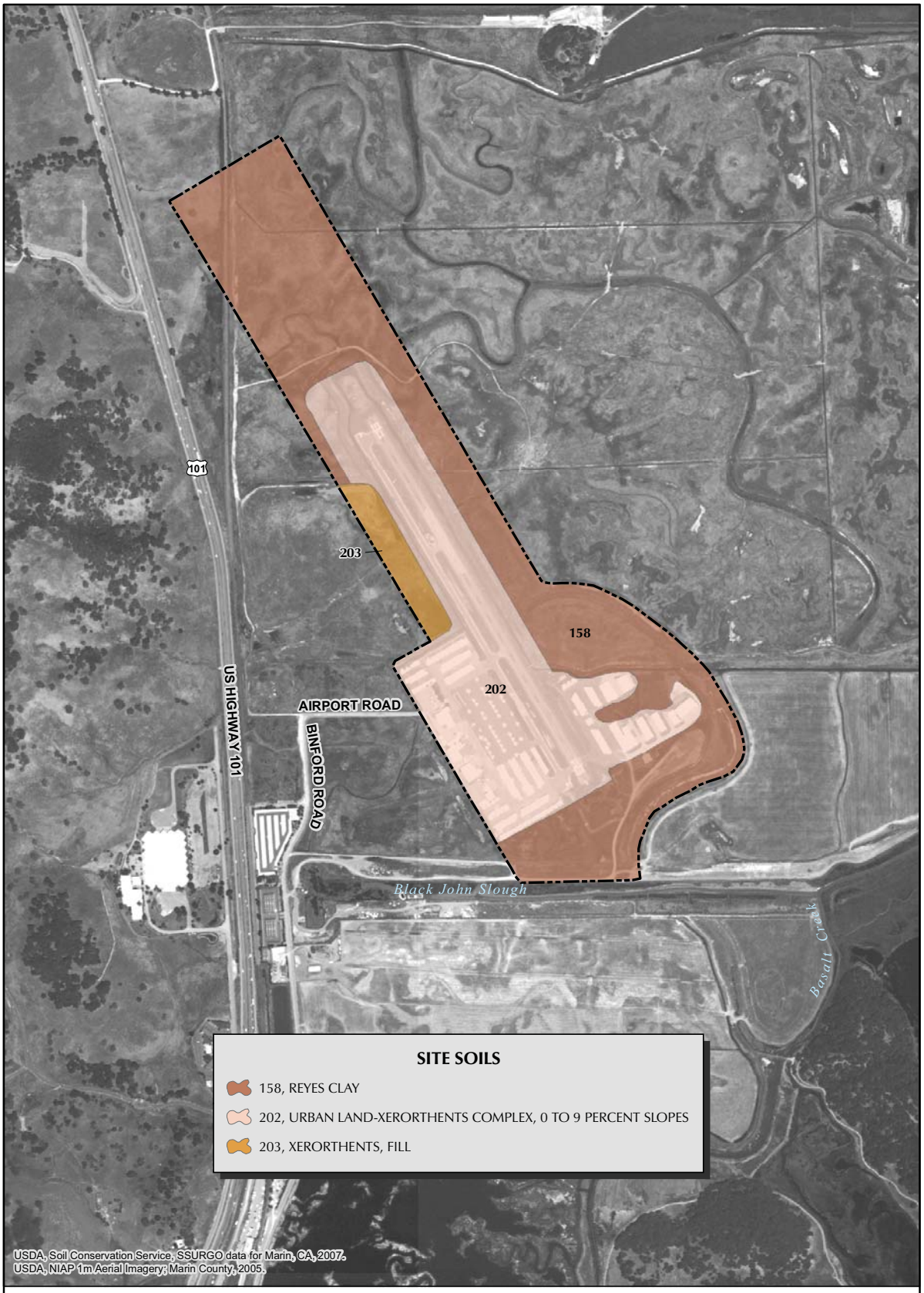
Drawn By: MJ
Date: 04/29/08

FIGURE 1

GNOSS FIELD AIRPORT

site_and_vicinity.mxd

© 2008



SOILS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 800 1600
SCALE IN FEET

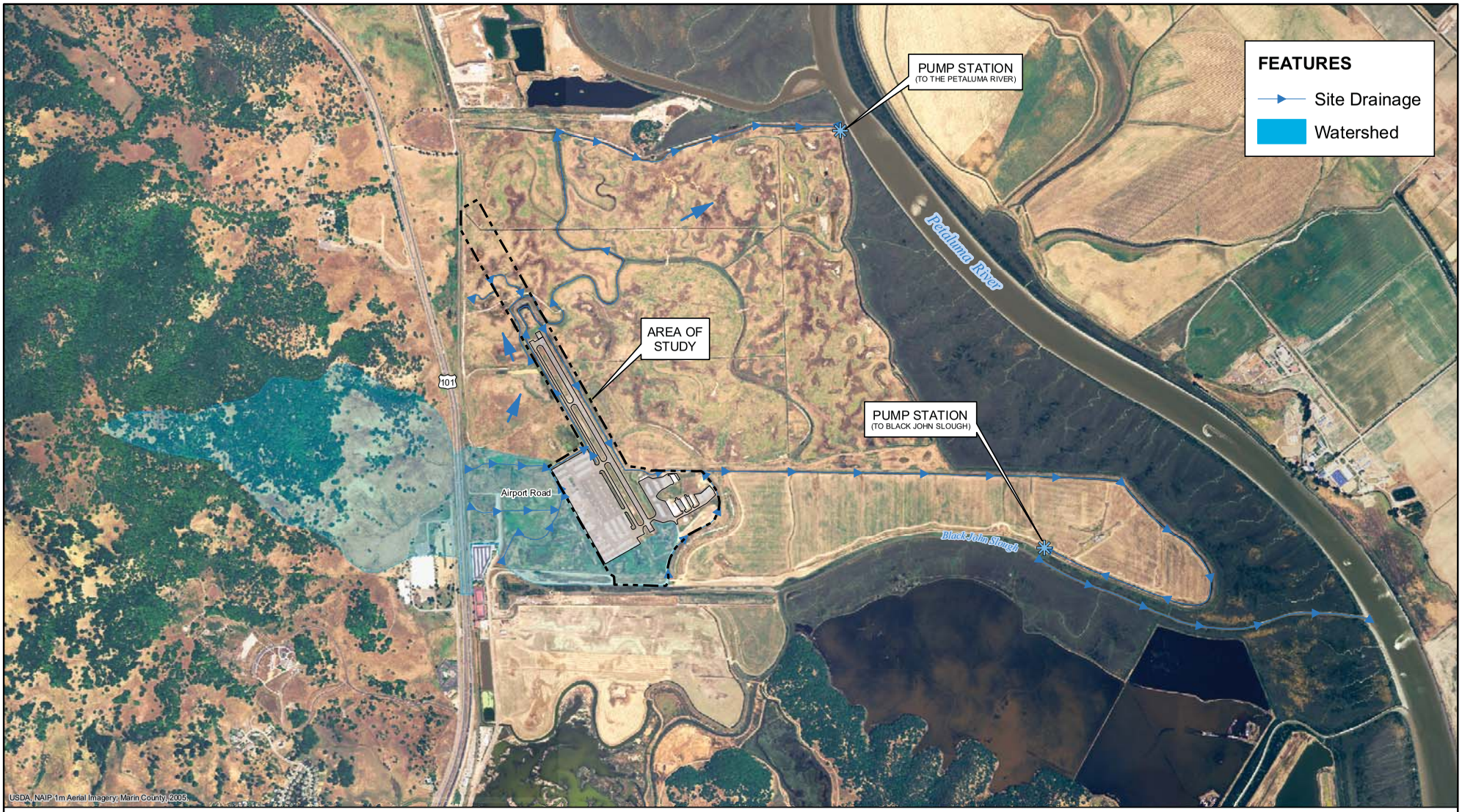
Drawn By: BF/PDL
Date: 03/10/09

FIGURE 2

GNOSS FIELD AIRPORT

soils_11x17.mxd

© 2008



LOCAL DRAINAGE

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 1400 2800
SCALE IN FEET

Drawn By: RJM
Date: 11/19/09

FIGURE 3

GNOSS FIELD AIRPORT

local_drainage.mxd © 2009

GNOSS FIELD MARIN COUNTY AIRPORT - SITE DRAINAGE

FOOTHILL ASSOCIATES ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE	N	0 250 500 SCALE IN FEET	Drawn By: BVDZ, RJM Date: 11/20/09	FIGURE 4

GNOSS FIELD AIRPORT

site_drainage_enlargement.mxd © 2009

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A — American Association of Airport Executives and Airport Research and Development Foundation Group Monitoring Plan

American Association of Airport Executives and Airport Research and Development Foundation

GROUP MONITORING PLAN

For California Storm Water Monitoring Group Airports

February 1998

Introduction

The American Association of Airport Executives (AAAE) and the Airport Research and Development Foundation (ARDF) submit this Group Monitoring Plan (GMP) to the California State Water Resources Control Board (Water Board) for the airports participating in the General Permit monitoring group. The information included in the GMP is based on the requirements outlined in the GMP instructions distributed by the Water Board.

All tables and figures reviewed below are included in this GMP in Appendix A and B respectively.

1. GENERAL INFORMATION PRIVATE

a. Group Name, Address, Contact:
American Association of Airport Executives and Airport Research and Development Foundation (AAAE/ARDF) Monitoring Group.

4212 King Street
Alexandria, Virginia 22302

Carter Morris
703-824-0504 phone
703-820-1395 fax

b. Group Leader, Address, Contact:
The American Association of Airport Executives and the Airport Research and Development Foundation (AAAE/ARDF)

4212 King Street
Alexandria, Virginia 22302

Carter Morris
703-824-0504 phone
703-820-1395 fax

Group Leader, Address, Contact:
Sarah Yount, Environmental Compliance Options Consulting

5525 N.W. Shasta Ave.
Corvallis OR 97330

Sarah Yount
541-745-7233 phone
541-745-7354 fax

c. The total number of airport participants in the AAAE/ARDF Monitoring Group is 90. The airports are located all nine Regional Water Quality Control Boards (Regional Boards). Table 1 lists the airports by alphabetical order according to Region. It can be determined from this table how many facilities are located in each Region.

d. The Standard Industrial Classification Code that is generally applicable to the group's participants is 4581, "Airports, Flying Fields, and Airport Terminal Services".

2. GROUP'S PARTICIPANTS INFORMATION

a. The AAAE/ARDF group site maps are submitted with this GMP document. For the airports to be sampled during the 1997/1998 wet season the sampling locations are indicated on the each airport map. The sampling locations are indicated on the maps with a yellow sticker. The discussion of the sampling outfalls verse non-sampling outfalls will be provided in the letter of intent to comply with the GMP the year that sampling will be conducted at the airport. The letter of intent to comply will be included as part of the Annual Group Evaluation Report (AGER), submitted to the State by the August 1 deadline. The schedule for airport storm water sampling is included in Table 10.

b. The airport group participant information is summarized in the tables described below.

i. The airport's WDID #, and Regional Board distribution is listed on Table 1.

ii. Table 2 contains the airport name, address, contact name, phone number and fax number.

iii. All regulated SIC codes are listed on Table 3.

iv. – vi. Table 3 also lists the airport size, percent of impervious surfaces ,and the number of drainage basins or outfalls for each group airport.

vii. The industrial activities or potential pollutant sources, at each airport, are included in Table 4.

viii. The number and identification of authorized non-storm water discharges will be included in Table 7.

ix. Table 6 lists significant materials at the airport that have the potential to be exposed to storm water.

3. GROUP PROFILE

a. The following section provides a brief narrative description of the industrial activities occurring, the Best Management Practices (BMPs) implemented, and the similarities and differences between the group airports.

i. Baseline Potential Pollutant Sources. All AAAE/ARDF California General Permit airports are categorized in Standard Industrial Classification (SIC) Code 4581, "Airports, Flying Fields, and Airport Terminal Services". The airports are involved in similar industrial activities or potential pollutant sources which include: aircraft fueling and servicing, aircraft and ground vehicle maintenance, and aircraft washing. Table 4 lists industrial activities specific to each airports.

The information provided in Table 4 lists specific airport industrial activities. Each airport has slightly different means of accomplishing these activities. The detailed specifics of each of the 90 airports industrial activities or potential pollutant sources are contained in each Airport Storm Water Pollution Prevention Plan (SWPPP) and can be studied on an individual basis by requesting a copy of the Airport's SWPPP. A baseline description of airport industrial activities is provided in the following paragraphs. Each of the activities listed in Table 4 is described below.

Fueling

Almost all of the airports in the group have fueling operations consisting of storage of fuel in either underground or above ground tanks, and fueling of aircraft either at the fuel pump or by mobile fuel trucks. Fueling operations are confined to the ramp and apron areas. Both AVgas and jet fuel are used and stored. Fueling operations range from no fuel storage (2% of the airports in the group do not have fuel), to multiple storage facilities, pump stations and fueling vehicles operating at a single airport.

Aircraft Maintenance

Aircraft maintenance occurs at 88% of the airports in the group. All major maintenance activities occur indoors, within fixed base operator (FBO) buildings, maintenance hangars and private hangars. Minor maintenance may occur in designated areas on the ramp or apron. Aircraft painting does occur at some of the airports as part of the maintenance. Painting is always accomplished in a very controlled environment limiting any chance of exposure. Any aircraft assembly at the airports occurs indoors.

Aircraft Washing

Aircraft washing occurs at about 71% of the airports in the group. Washing activities range from a hose on the apron area to a number of wash racks located throughout the airport. Wash racks are generally a sloped cement pad area leading to a sanitary sewer inlet. The rack is equipped with a high powered hose and buckets. Most of the airports have designated areas for

washing. Some airports have contracted mobile washing outfits to provide washing services. These wash vehicles are mobile and wash the aircraft where ever it is parked, on the apron or ramp area. The mobile washers wash the aircraft, vacuum the wash water and recycle or dispose of the wash water in the sanitary system.

Vehicle Maintenance
Only about 12% of the group airports have maintenance facilities for ground operation vehicles. When maintenance occurs on airport property it is mostly indoors in vehicle maintenance shops. At the majority of airports the ground vehicles are serviced off airport property.

Material Storage
All airports involved with fueling operations will also have storage of the fuel in some capacity at the airport. Other materials stored are solvents, oil, waste oil, pesticides or herbicides (used only for vegetation control on paved surfaces and around ground lighting), deicing fluids (very few airports), scrap metal and paint. The FBOs are responsible for storage of the materials at most airports. However, waste oil collectors and storage facilities are provided by the airport management at many airports. Other materials stored at the airports are listed in Table 5.

Airline Activities
Airline activity refers to scheduled commercial flights. Only about 18% of the airports in the group have scheduled commercial activities. The rest of the airports are considered General Aviation airports providing service for private hangers, small corporate planes, seasonal commuter flights and some municipal aircraft.

Crop Dusting
Crop dusting operations occur at only 7% of the airports. The pesticides used for dusting are not stored on airport property. Loading of the chemicals takes place in controlled designated areas.

ii. Baseline Significant Materials. The airports are involved in similar operations and industrial activities and therefore deal with similar materials. The most significant material exposure a the airports is related to fueling of aircraft and vehicles. Most other materials are transferred, used and stored indoors. The specific materials at each airport are listed in Table 5.

iii. Baseline Authorized Non-Storm Water Discharges. The airports all have similar authorized non-storm water discharges consisting of fire hydrant flushing, fire line testing, air conditioning condensate, and landscaping irrigation. The site specific non-storm water discharges are compiled in Table 7.

iv. Summary of Similarities. The AAAE/ARDF group airports all have the same main SIC code, 4581, and are involved in similar air side and land side operations. The similar baseline activities are discussed above, the differences in the industrial activities or potential pollutant sources are summarized in Table 4. Any activities conducted at the airports that are not listed as baseline are included in the comments column. The percentages of baseline activity occurrence at each airport is also summarized above in the discussion at 2.i. of this GMP.

The differences and similarities in significant materials used at each airport are summarized in Table 5. The materials that are similar between the airports are typically, fuels, oils, solvents, degreasers, detergents, paints, and some herbicides and pesticides. Very few airports use deicing fluids. Any differences in materials used at the airports is listed in the comments column on Table 5.

There is very little variation concerning the authorized non-storm water discharges at the airports, as listed above the authorized discharges consist of fire systems testing, irrigation and air conditioning condensate. The specifics of which airports have which type of discharge is summarized in Table 7.

b. The following is a summary the baseline BMPs implemented to limit or eliminate exposure to storm water and storm water runoff. The airports have a number of management practices implemented to reduce exposure of storm water to significant materials, industrial activities, and authorized non-storm water discharges.

Overhead Coverage

Overhead coverage typically refers to a roof or shed structure providing coverage in a storage area. Many of the airports provide used oil storage at the site. These storage locations are often covered. Overhead coverage is used to limit storm water exposure to materials stored or transferred outdoors. Some of the airports may list overhead coverage due to the fact that all aircraft maintenance is performed indoors.

Designated Areas

Designated areas are locations set aside for specific activities. Airports typically indicate designated areas in terms of aircraft washing. Wash pad areas and wash rack areas are designated and aircraft washing only occurs in those defined areas. Typically these areas are contained so that the wash water is collected and sent through a clarifier before release, in most cases, to the sanitary sewer system. Fueling operations also occur in designated areas. Fueling is confined to impervious areas at the airport, usually the ramp or apron area. Some of the smaller airports confine fueling to the fuel pump area. Designated areas are also set aside for aircraft storage and are referred to as tie down areas.

Recycling

Recycling listed as a BMP refers to the recycling of wash water and recycling of waste oil. When wash water is recycled it is done on-site as part of the washing system. Both wash racks and the mobile washing operations can have reclamation systems. Typically the mobile units are equipped with a vacuum cart or truck that collects all of the wash water. The wash water is then dumped at a sanitary sewer site or is recycled. All oil recycling is done off-site. The waste oil is collected by professional waste removal teams and is dealt with off-site. At a few of the airports the indication of recycling may be associated with the recycling of scrape metals. None of the airports have on-site responsibility for industrial or commercial recycling facilities.

Oil/Water Separators

The majority of oil/water separators listed in Table 6 typically are used in conjunction with the aircraft washing systems. Oil water separators have also been installed in inlets near fueling operations, near fuel storage areas, and in maintenance hangers. Separators associated with maintenance hangers are used to clarify the discharge prior to disposal to the sanitary sewer system. Any maintenance hangers in which the drains were originally hooked to the storm sewer have either been redirected of blocked so that no discharge can enter the storm system from the maintenance areas. Separators associated with wash racks also discharge to the sanitary sewer. Oil water separators placed in fuel areas, the ramp, and apron areas are used to clarify any storm water runoff from those surfaces prior to entering the storm water sewer system.

Secondary Containment

Secondary containment is mostly related to material storage, and in particular above ground fuel and waste oil storage areas. Some of the airports indicated secondary containment in reference to below ground tanks that are double walled.

Berms

Berms are used in wash pad or wash rack areas to prevent the wash water from leaving the area. Wash rack areas are almost always sloped to direct the wash water flow down to a specific inlet for processing into the sanitary sewer system. In a few cases the fuel area is bermed on one side to limit the direction of runoff into a specific inlet containing an oil/water separator or in some cases a hook up with the sanitary sewer system.

Drip Pans

The use of drip pans at airports is wide and varied. Almost all maintenance hangers use drip pans throughout indoor maintenance activities. Drip pans are also used when an aircraft is parked or staged in the apron area, or for any small maintenance activities that occur on the apron and ramp areas. Drip pans are used to help keep the impervious airport surfaces free of any leaking aircraft fluids.

Good Housekeeping

Good housekeeping activities include, sweeping of the apron area, sweeping of ramp areas, use of drip pans, and use of adsorbents. The apron and ramp areas are swept and vacuumed routinely and maintenance hangers are keep clean and orderly.

Preventative Maintenance

The preventative maintenance that occurs at the airports includes fueling equipment inspections, oil/water separator cleaning and inspections, apron and ramp tarmac repairs, and inspections of waste oil storage facilities. Some airports perform daily general inspections of the entire airport. Not considered in Table 6 is the annual site inspection that all airports in the group perform. The annual site inspection is an important part of the preventative maintenance procedures.

Absorbents

Absorbent material is on hand at both the fueling island and on the fuel trucks at the majority of the airports. The dry absorbent material is thrown on a small spill or leak and then vacuumed or swept up. Absorbents are an effective way to limit exposure of storm water to substance spills.

Training

All airports have safety meetings throughout the year. Storm water and other environmental issues are often added to the agenda during these meetings. Some airports have specific seminars dedicated to limiting exposure of storm water to significant materials and industrial activities that occur at the airports. Private plane owners are encouraged by airport managers to follow all rules and regulations set by the airports. The indication of training as a BMP in Table 6 does not consider the training provided to all of the airports in the form of AAAE/ARDF sponsored and presented training meetings, training manuals, and video tapes. An indication of training marked on Table 6 refers to specific storm water training activities that are instigated by the airport.

Other BMPs

Other BMPs occurring at the airports include, the use of biodegradable soaps, drain covers on the apron area during fueling, spill mats, catch basins, fuel spill response teams, vapor recovery, and large retention ponds. Some of the airports drain runoff into a retention area. Retention areas are of varied sizes and shapes but are designed not to attract wildlife. Retention areas can be located to collect the ramp and apron runoff or the airfield (runway and taxiway) runoff. In some cases the airport drains entirely to a retention or holding pond where the runoff eventually evaporates or is absorbed.

Table 8 is included as the potential pollutant source / BMP summary information required by the GMP State instructions. This table is similar to Table B of the General Permit.

c. Based on the airport summary information presented above, and below the AAAE/ARDF California General Permit airports are sufficiently similar and can be included in a single group monitoring plan.

i. Airport Potential Pollutant Sources. All of the airports have the same SIC code and as discussed above and demonstrated in Tables 4 and 5 the airports in the group perform similar operations and therefore conduct similar industrial activities.

ii. Airport Materials Used. Material usage at the airports is similar. Review of Table 5 shows that the airports use, store and transfer very similar materials. Ninety eight percent of the group airports conduct fueling. Petroleum products are the most common material in use at the airports and are the materials with the most potential exposure to storm water and storm water runoff. Other materials at the airports are used, and stored indoors, and have much less of a potential impact to storm water quality.

iii. Airport BMPs. It can be seen by review of Table 6 that the implemented airport management controls are very consistent. Because the airports conduct similar operations, and deal with similar materials they are required implement very similar BMPs.

4. GMP Monitoring Plan Requirements

a. The parameters to be analyzed at each sampling airport are determined by the California Industrial Activities Storm Water General Permit (General Permit) Section B (5)(c)(i) and Table D. Section B requires the AAAE/ARDF airports to analyze the collected storm water samples for total suspended solids (TSS), total organics carbon (TOC), pH, and specific conductance. Table D of the General Permit adds the additional parameters of biochemical oxygen demand (BOD), chemical oxygen demand (COD) and ammonium (NH3).

The Table D parameters have been excerpted from the EPA National Multi Sector permit. The multi sector permit only requires sampling at airports where deicing is conducted, and therefore only requires the analysis of parameters BOD, COD, NH3. These parameters are standard analyses used in the study of deicing impacts. They are not intended for storm water analysis at airports that do not conduct deicing.

AAAE/ARDF has been compiling and reviewing storm water sampling data from airports across the country for 6 years. The historical data shows that the analysis of the Table D parameters is only relevant for impact analysis from airport deicing activities. Evaluation of the historical data for these parameters confirms that the storm water runoff from airports does not contain significant amounts of these potential pollutants. Therefore, it is only relevant to conduct Table D parameter analyses at the airports in the group that conduct deicing.

The Section B (5)(c)(i) parameters listed above will be tested for at all the assigned sampling airports for the 1997/1998 wet season. These parameters are specific to the transportation industry and are therefore appropriate for the AAAE/ARDF airports. The only material with significant exposure to the storm water runoff at the airports is fuel products. The analysis of TOC on the collected storm water samples is appropriate for monitoring any potential pollution from the fueling process. Any of the 1997/1998 sampling airports that conduct deicing will also collect and analyze samples for the Table D parameters as well.

i. The test methods to be used are 40 CFR 136 approved methods. These methods have been selected for the purposes of water quality analysis and determined to be the most effective. The methods to be used for each parameter are listed in Table 9.

ii. Method detection limits are determined by the parameter analysis method and the laboratory instrumentation, and are dictated by the federal regulations 40 CFR 136. The detection limit for each parameter is listed in Table 9.

iii. The units used to report the parameter analysis, are again determined by the selected method, the laboratory instrumentation, and the nature of the pollutant analysis. The specific reporting units are listed for each parameter in Table 9.

iv. The selected methods and method limits have again been dictated by the federal regulations and 40 CFR 136. These methods were selected for the purposes of water quality and storm water runoff analysis and have been determined by the federal government to be effective. All methods selected to analyze the AAAE/ARDF storm water samples are NPDES approved, and thus appropriate.

b. The General Permit requires that each airport in the monitoring group collect and analyze two storm water samples throughout the five year permit term. The AAAE/ARDF group contains 94 airports. The group airports have been scheduled to take samples over the permit term so that no two samples are collected from an airport in consecutive wet seasons. The sampling events have been separated as much as possible over the permit term. The developed rotating schedule of sample collection has been compiled into a table and is included as Table 10 of the GMP. Please see Table 9 and Table 10 for analysis details and the AAAE/ARDF sampling schedule.

The AAAE/ARDF sampling schedule for the permit term is presented in Table 10. All group airports will collect samples from one qualifying storm event. Additional analytical monitoring in subsequent wet seasons will only be performed if, in the professional and qualified opinion of the Group Leader, additional analytical data is necessary on a site-specific basis, to evaluate the effectiveness of existing site-specific BMPs, or to identify the need for additional BMPs. On this basis, a modified analytical monitoring schedule for subsequent monitoring periods will be presented in the AGER for the 1998/1999 wet season.

c. Samples are taken from a reduced number of outfalls at the majority of the airports in the group. All the outfalls at the sampling airports are evaluated. The selection of the drainage basin or outfall to sample is completed using the facility site map and information gathered from the airport manager. The AAAE/ARDF Group Leader selects the outfalls to be sampled that represent all the industrial activities and potential pollutants occurring at the airport. The outfall is selected after review of the direction of surface and conveyance flow, and the location of washing activities, fueling activities, BMPs implemented, and material storage and transfer areas. The influence of any offsite run-on is also considered during the selection process.

Airport specific discussions of outfall identification and selection will be provided in the GMP documentation the year that the sampling will be conducted at the airport. Table 10 provides the rotating sampling schedule for all airports in the group. Outfall selections for the airports to sample that year will be made prior to the submission of the AGER. In order for the outfall selection to be the most representative and accurate the selection of the outfall must be made as close to the sample collection time as possible. Therefore, each annual submission of the AGER will include outfall selection discussions for the up coming wet season.

In general the representativeness of the sampling outfall is determined by studying the drainage areas discharging to the outfall. All of the outfalls at the airport will be characterized. The drainage areas are evaluated for industrial activity, potential pollutants and implemented BMPs. The outfall selected to sample, discharges runoff representing all possible pollutants at the airport. The size of the drainage area, the location of the industrial activity within the drainage area, and the distance from the industrial activity to the discharge point are considered during the determination of the representative sampling location.

Outfalls will be excluded on the basis of substantially identical discharges. This determination is made for each airport by carefully analyzing the industrial activities and implemented BMPs present in all areas drained by each outfall. An outfall will be excluded when it is determined that the discharge is identical, i.e. draining the same industrial activity and the same BMPs, as other outfalls to be sampled. Outfalls were only excluded on the basis of substantially identical discharges.

Rationale for the selection or exclusion of each outfall is provided below. The following are the specific reduced sampling location justifications for all AAAE/ARDF samplers for the 1997/1998 season. The airports are listed by Regional Board jurisdiction.

Region 1

<u>Arcata Eureka Airport</u>
There are 3 outfalls discharging storm water runoff from the Arcata Eureka Airport. Two of the outfalls, outfall #1 and outfall #2 will be sampled. These outfalls drain runoff from all the industrial activity occurring at the airport. The

deicing activities at the airport discharge through outfall #2 along with other ramp activity. Outfall #1 discharges runoff from fueling, maintenance, aircraft washing and other ramp activities, as well as a portion of the runway and taxiway. Sample collections at these two outfalls will effectively represent the runoff water quality leaving the airport. Outfall #3 drains only taxiway and runway activity and is not representative of any industrial activity at the airport and, therefore, will not be sampled.

Murray Field

The storm water runoff from Murry field discharges through 3 outfalls. Outfall #1 is the sampling location, this outfall drains runoff from the tie down areas, the fueling areas, the FBO areas, and aircraft maintenance and washing, as well a portion of the taxiway and runway. Outfall #2 drains a portion of the tie down area and taxiway and runway areas, sampling this outfall would provide no further information, the water quality leaving through outfall #2 is effectively represented by the runoff water quality at outfall #1. Outfall #3 drains open space and runway activity only, and, therefore, is represented in the sample taken at outfall #1. Runoff from outfalls #2 and #3 does not represent runoff from industrial activity areas, therefore analysis is not required.

Region 2

Half Moon Bay Airport

All of the storm water runoff at Half Moon Bay airport discharges through one outfall off site. This outfall, outfall #1, will be sampled.

Livermore Municipal Airport

Livermore airport discharges through 6 outfalls. Samples will be collected at outfalls #4 an #5. Outfalls 1-6 are substantially identical. All outfalls at the airport discharge runoff from aircraft fueling, FBO activities, aircraft maintenance, material storage and aircraft washing areas. Analysis of outfalls #4 and #5 will represent the runoff quality from the entire airport.

Petaluma Airport

Petaluma airport discharges into Washington Creek through 3 outfalls. Outfall #10 discharges directly into the creek and is submerged and inaccessible. Outfall #10 only drains runway areas where no industrial activity occurs. Outfalls #2 and #3 also drain into Washington Creek. Outfalls #2 and #3 drain runoff from the main industrial area at the airport, the ramp. The ramp area drainage is split, half the runoff discharges to outfall #3 and half the runoff discharges to outfall #2. The runoff at these outfalls is substantially identical. Outfall #3 will be sampled as the representative runoff.

San Jose Airport

San Jose Airport has 13 outfalls discharging storm water off the airport property. Outfalls A,B,C,D and E discharge runoff along the eastern side of the airport. Outfall D was selected to sample due to the fact that it collects the majority of flow from the southeastern portion of the airport and many of the industrial activities occurring in this section of the airport drain to outfall D. The remaining

outfalls on the eastern side discharge substantially identical runoff from the same industrial activities running off through the sampled outfall. Outfall F also will be sampled. This outfall receives discharges from the western and center portions of the airport, almost 50% of the airport drains through outfall F. The third outfall selected to sample, outfall L, discharges drainage from roughly 40% of the airport, mostly the northern section of the airport. Sampling other outfalls would result in repetitive data. The outfalls selected sample represent the majority of flow from the airport property and all industrial activities.

San Luis Obispo

The storm water runoff from the San Luis Obispo airport discharges through 4 outfalls. The outfalls selected to sample are outfalls #1 and #4. The runoff from these outfalls represent all the types of industrial activities and the BMPs implemented at the airport. The outfall 1 sample is collected after retention in a retention pond. The runoff discharging to outfall #1 includes runoff from tie down areas, ramp activities, hangers, fueling washing areas, and other airport industrial activities, a sample collected here represents the majority of activity occurring at the airport. The second sample will be collected from outfall #4 which also discharges runoff from all types of airport industrial activity, including any deicing activity that occurs. Outfall #2 only discharges a small portion of taxiway and runway runoff and is a non-industrial outfall. Outfall #3 discharges runoff that is substantially identical to that found in the runoff at outfall #1, also passing through a detention system before discharging. The industrial activity and BMPs implemented in the outfall #3 discharge area are represented very effectively by the sample collected at outfall #1.

Santa Maria Airport

The storm water runoff at Santa Maria airport drains through a series of 4 outfalls. 95% of the industrial activity occurring at the airport, and some runway and taxiway runoff drains through outfall #4. Outfall # 4 will be sampled and represents the runoff water quality at the airport from the industrial activities occurring. Outfalls 3,2, and 1 discharge runoff from the infield, taxiway, runway and one maintenance compound only. Sampling these outfalls would not provide any further information about the runoff water quality from the airport, therefore they will not be sampled.

Region 4

Camarillo Airport

There are three outfalls discharging airport runoff. Two of the three drains mix immediately with off site drainage. Samples collected a these outfalls would not be representative of airport runoff. Therefore the sample will be collected at the Wood Road Drain outfall. This outfall represents runoff from airport industrial activities and is not influenced by offsite run-on. This is the only representative location for sample collection at the airport, and it effectively represents the airport's runoff water quality.

El Monte
All the runoff from the El Monte airport discharges through two pipes into the Rio Hondo River. Both of the outfalls are submerged and inaccessible. Therefore the sample will be taken up stream from the outfall in a location where all the ramp runoff drains prior to final discharge offsite. The selected sampling location represents runoff from all the ramp area and includes all the industrial activity occurring at the airport.

Hawthorne Municipal Airport
The runoff from Hawthorne Municipal discharges through 2 outfalls. Outfall #2 does not discharge runoff from any industrial activity and is therefore not required for sampling. The sample collected at Outfall #1 represents all airport industrial activities.

Auburn Airport
The storm water drainage at Auburn mostly leaves the site via sheet flow. The one conveyance system that collects storm water runoff will be sampled. The sheet flow from the tie down, ramp and fueling areas eventually drains into the single system. The sampled collected out of this one system effectively represents the airports industrial storm water runoff.

Calaveras County
The storm water runoff at Calaveras discharges through 3 outfalls. Two outfalls drain the runoff from the ramp area. Outfall #1 drains the majority of runoff from fueling, maintenance and other ramp activities. Outfall #2 drains a portion of the these activities, however is substantially identical to the runoff at outfall #1 and therefore will not be sampled. Outfall #3 drains only taxiway and runway areas where no airport industrial activities occur, and therefore will not be sampled. The sample collected at outfall #1 is representative of the runoff water quality from all impervious areas at Calaveras Airport.

Georgetown Airport
The runoff from Georgetown Airport discharges through 4 outfalls. Outfall #1 is the outfall sampled. Outfall #1 discharges runoff from 45% of the ramp area and half of the runway taxiway area. The runoff at outfall #1 represents runoff from all the industrial activities occurring at the airport. Outfalls #4 and #2 discharge runoff from small portions of ramp however all activities occurring in these areas are also occurring in the areas discharging to Outfall #1. The runoff at #4 #2 are substantially similar to the runoff at Outfall #1 and do not need to be sampled. Outfall #3 discharges runoff from a small non industrial portion at the end of the airport runway and therefore also does not need to be sampled.

Lincoln Airport
There are two outfalls discharging airport runoff from Lincoln airport, samples are collected at both outfalls, completely representing the entire airport runoff.

Minter Field
All the runoff at the airport drains to the southern boarder and discharges into a swale along the highway. The swale eventually discharges to Fraint Kern Canal. The storm water sample is collected from this swale prior to discharge into the canal. Sample collection from the swale represents all airport runoff.

Nevada Co. Airport
Nevada County airport has a total of 4 outfalls draining the 117 airport acres. Outfall #4 is selected for sample collection. This outfall drains a large percentage of the airport and discharges runoff from the following industrial activities occurring at the airport, aircraft maintenance, aircraft fueling, ramp activities, and taxiway and runway activities. Outfall #1 drains only runoff from the northern portion of the runway, making it a non-industrial outfall. Outfalls #2 and #3 drain ramp areas where the same activities are conducted that drain to outfall #4 and are therefore substantially similar. Analysis of samples collected at outfall #4 will effectively represent the entire Nevada County storm water runoff.

Nut Tree
All the airport runoff discharges into Horse Creek and Pine Tree Creek. The majority of airport runoff and runoff representative of all the airports industrial activity discharges into Horse Creek. Two samples will be taken one a the point where Horse creek runs on to airport property, Horse Creek A, and one at the point where Horse Creek discharge off airport property, Horse Creek B. The first sample will serve as a background sample representing the water quality of the creek prior to airport runoff and the second sample will represent the creek quality after airport runoff. In theory the difference between the two samples will represent the airport runoff quality. The runoff from the portion of the airport that discharges to Pine Tree Creek is substantially identical and is effectively represented by the Horse Creek sampling and will therefore not be sampled.

Orlando Haigh Airport
Orlando Haigh Airport runoff discharges through 2 outfalls. Outfall #1 is the sampling location. This outfall discharges runoff from 85% of the airport including runoff from the ramp, tie down, fueling and FBO areas. A sample collected at outfall #1 is fully representative of the industrial storm water discharges leaving the airport, therefore a sample will not be collected at outfall #2. The runoff at outfall #2 is substantially identical to the runoff at outfall #1.

Stockton Airport
The runoff at Stockton airport discharges through 2 outfalls. The sample is collected from outfall #1, this outfall discharges the majority of runoff from airport activity and represents runoff from all industrial activities occurring at the airport. Outfall #2 discharges runoff from the same type of industrial activities and also discharges runoff from a large farming area, therefore sampling outfall #2 is not representative of the airports discharges.

Willows Glen Airport
The Willows Glen airport discharges through one outfall at the southern end of the facility. All the runoff at the airport flows in southern direction to discharge into the Glen Colusa canal. The sample will be collected from the point just before the airport runoff discharges into the canal.

Watts Woodland
The runoff from Watts Woodland Airport discharges through 3 outfalls. Outfall #3 is the sampling location. This outfall drains the majority of the airport property as well as runoff from all industrial activities occurring at the airport. Outfalls #2 and #1 drain runoff from small portions of the ramp, however all industrial activity occurring in these areas is represented in the runoff from the Outfall #3, therefore it is not necessary to sample these outfalls. The runoff at outfalls #2 and #1 is substantially identical to that at outfall #3.

Region 6

Apple Valley
There are three outfalls that drain the runoff from Apple Valley airport. Two of the three outfalls discharge runoff from areas of industrial activities, both of these outfalls will be sampled. The third outfall discharges runoff from the runway and taxiway only and is not representative of any industrial activities occurring at the airport, therefore this outfall will not be sampled.

Barstow Dagget Airport
The Barstow Dagget airport storm water runoff drains through two eastern outfalls at the airport. All industrial activities and roughly 70% of the facility drains through into a ditch system and discharges through outfall #1. Outfall #1 is the selected sampling location. Sampling outfall #2 is not necessary, this outfall picks up only a portion of the airport runway runoff and none of the industrial activities.

Mojave Airport
Mojave airport discharges through two established drainage ditches. The outfall designated as 8a will be sampled. This location drains runoff from the fueling, maintenance, and ramp areas as well as roughly 50% of the airport. The other main drainage system discharges runoff from substantially identical activities. Unfortunately this drainage system receives runoff from offsite. The second main drainage system will not be sampled due to the influence of the offsite runoff and the similarity to the runoff in the drainage system to be sampled.

Region 7

Blythe Airport
The storm water runoff from the Blythe airport sheet flows from areas of impervious surfaces to unpaved sandy areas. There are no defined conveyance systems and potentially no industrial storm water discharges off property. For the purposes of understanding the potential pollutant impact in the Blythe runoff

the sample will be collected from the edge of the ramp, tie down area where the site industrial activities occur.

Imperial County Airport
Three outfalls drain Imperial County airport, Outfall A will be sampled. Outfall C drains the majority of the airport property including runoff from the runway, taxiway and a portion of a ramp area. Unfortunately the Outfall C drainage picks up a substantial amount of off-site runoff from neighboring farming areas, for this reason Outfall C will not be sampled. This outfall drains close to 30% of the airport and the majority of the ramp and hanger area. Outfall A drains runoff from all industrial activities occurring at the airport, therefore a sample collected a this location will be representative of Imperial's industrial runoff. Outfall B only drain a very small section of the ramp area. All of the activities occurring in this drainage area are also conducted in the Outfall A drainage area, for this reason it is not necessary to collect a sample at Outfall B. Outfall B runoff is substantially identical to the runoff at outfall A.

Thermal Airport
Thermal Airport industrial runoff discharges through a cement culvert and then into a soil ditch that discharges into a detention basin. The sample will be collected at the eastern end of the cement culvert prior to discharging to the dirt culvert. The sample collected at this location effectively represents runoff off water quality of all the industrial runoff at the site.

Region 8

Big Bear Airport
There are 4 outfalls draining runoff from Big Bear Airport. The runoff at outfall #4 is the sampling location. Outfall #4 discharges runoff from the ramp and all industrial activities occurring at the airport. The other 3 outfalls discharge portions of the runway, taxiway, and some industrial activity. The activities discharging through these other outfalls is completely and effectively represented by the sample collected at outfall #4, and it would be repetitive to run analyses on the runoff from these outfalls. The runoff from the other 3 outfalls is substantially similar to the runoff sampled at outfall #4.

Cable Airport
There are six outfalls that drain the Cable airport. Outfalls #6 and #4 will be sampled. Outfall # 6 drains the main fueling area and the western portion, roughly 50% of the airport. Outfall #4 drains the main FBO and maintenance activity areas. By collecting samples at these two outfalls all the industrial activities at Cable are represented. Outfalls 1, 2, 3, and 5 will not be sampled and the runoff discharging at these outfalls is substantially similar and effectively represented at the outfalls chosen for sampling.

Corona Municipal
The storm water runoff at Corona airport discharges through 3 outfalls. Outfall #3 discharges runoff from a non-industrial grassy area only and does not need to be considered as a sampling location. The runoff at Corona flows in a south western direction with all the runoff leaving the airport at the western end. The industrial areas at the airport, the ramp, maintenance and fuelling areas discharge through outfalls #1 and #2. Outfall number one is not accessible, therefore outfall #2 will be sampled. The runoff collected at outfall #2 is substantially identical to the runoff at outfall #1 and therefore effectively represents the runoff at the airport.

Flabob Airport
The storm water runoff at the Flabob airport discharges through 2 outfalls. The sampling location is outfall #1. Seventy percent of the airport and all industrial runoff is represented in the water discharging from outfall #1, for this reason, outfall #2 does not need to be sampled. The runoff at outfall #2 is substantially similar to the runoff at outfall #1.

Hemet Ryan Airport
The storm water sample for the Hemet Ryan airport will be collected well within the property boundary. All of the runoff for the Hemet Ryan airport is collected into a large detention basin on the west side of the airport. The basin discharges into a ditch that is influenced by runoff from heavy industrial and residential areas. The sample will therefore be collected "up stream" of the airports discharge to the detention basin, prior to where the earthen ditch starts. The sample is collected at the south west end of a cement channel that collects the runoff from all industrial activity occurring at Hemet Ryan. A sample collected here is representative of the airports industrial site runoff water quality.

Redlands Airport
There are three drainage areas discharging from the Redlands airport. Outfall #1 is the sampling location. This outfall drains all industrial activity and developed areas at the site. The remaining two outfalls drain runoff from undeveloped portions of the site where no industrial activity is conducted. Samples collected at either of these undeveloped locations would not be representative of the airports activity and they will therefore not be sampled.

Region 9

French Valley
Eighty to 90% of the French Valley storm water runoff discharges through outfall #1, outfall #1 is selected as the sampling location. Runoff sampled at this location represents the runoff from all industrial activity occurring at the airport. The only other outfall at the airport discharges runoff from a portion of the runway and taxiway and is also influenced by a large volume of offsite run-on, for these reasons this outfall will not be sampled.

Gillespie Field

Gillespie Field is an unusual site in that the drainage is not well understood and there are countless number of outfall pipes from the property into a drainage channel that runs through the property. Offsite run-on comes onto the site in at least three places and mixes with all airport runoff. Monies have be appropriated to do a complete drainage study and the second set of samples collected at Gillespie may be conducted at different locations based on the results of the drainage study. For the 1997/1998 season samples will be collected at 5 locations, three selected outfalls that drain a representative combinations of all industrial activity occurring at Gillespie and two run on locations. The two run on locations are tested as background samples and will help with the interpretation of the sample data. The three outfall locations are again represent runoff from all outdoor industrial activities at the site, testing more than these three run off sites would be redundant. All other discharges are significantly similar and do need to be sampled.

d. No AAAE/ARDF airports have currently submitted or received Regional Board approval for alternative monitoring procedures.

e. The visual monitoring and sample collection will be conducted by trained airport personnel. Airport personnel will be responsible for conducting the observations for the following reasons airport personnel are the most familiar with daily activities and operations at the airport, airport personnel are the most familiar with the airport property including the drainage areas and locations of outfalls, airport personnel are generally on-site and are more readily available than off-site hired consultants, there is a substantial cost savings involved when airport personnel perform the monitoring.

The following monitoring activities will be conducted each year at the frequencies required by the General Permit.

i. Authorized and unauthorized non-storm water discharge observations will be conducted and documented quarterly. Non-storm water observations will be completed in each of the following periods January – March, April – June, July – September, and October – December, as required by the General Permit. The observations will be completed within 6-18 weeks of each other.

The quarterly non-storm water observations will be conducted on all drainage basins and outfalls discharging runoff from the airports. The observations will be conducted during daylight hours when the airport is operational. Observations will be conducted after three days of dry weather or when the storm drainage system is free of storm water runoff.

The visual observations will document the presence of any non-storm water discharges or evidence of a non-storm water discharge. The non-storm water flow will be observed for color, clarity, odor and floatables. These observations will be documented on the Non-Storm Water Visual Observation Form, Figure 1. The source of the flow and the corrective

action taken will also be recorded. If the flow is an authorized non-storm water discharge or determined to be an authorized non-storm water discharge then the observer will record that information on the form.

Observation for the evidence of a non-storm water discharge will also be completed and documented on the Non-Storm Water Visual Observation Form. Evidence of a non-storm water discharge is documented by observing for discoloration's, stains, odors, sludges and the structural condition at the outfall. Evidence of a non-storm water discharge will be treated the same as the observation of a non-storm water flow, and the source and corrective action will be documented. Also documented on the form will be the name of the person conducting the observation, the outfall location and the date observation was conducted.

The observer will have the responsibly of verifying that the corrective action and authorized non-storm water discharge information is documented in the airport SWPPP. All changes to the SWPPP while be implemented in accordance with Section A of the General Permit.

Complete, step by step instructions for conducting the non-storm water investigations and observation will be provided to the airport personnel in the updated AAAE/ARDF California Storm Water Monitoring Manual (Monitoring Manual)

ii. Storm Water Discharge Visual Observations will be conducted on one storm event per month for each month of the wet season (October 1 – May 30). The observations will be conducted within the first hour of the storm water runoff.

The discharge observed will be preceded by three days without storm water discharges, will occur during daylight hours and will occur during airport operating hours. Only airport outfalls draining runoff from areas of industrial activity will be observed.

Personnel responsible for the storm water visual observation will document the presence of any floating and suspended material, oil and grease, discoloration, turbidity, and odor. The observation record will include the date, name of the person responsible for the observation, outfall location observed and corrective action taken in response to any observation of potential pollution. The Storm Water Visual Observation Form will be completed as the required documentation for the observation. Figure 2 is an example of the Storm Water Visual Observation Form.

The personnel responsible for the observation will also be responsible for verifying that any corrective action or changes in the airport SWPPP are documented and implemented in accordance with section A of the General Permit.

Complete, step by step instructions for conducting the storm water observations and documentation will be provided to the airport personnel in the updated AAAE/ARDF Monitoring Manual. The manual will be distributed at the start of the 1997/1998 wet season.

iii. The Annual Comprehensive Site Compliance Evaluations (ACSCE) will be conducted by trained airport managers in each reporting period (July 1 – June 30). The evaluations will be conducted within 8 –16 months of each other. The evaluation will be documented on a series of forms that will lead the Inspector through the required observations and evaluations. The evaluation will include all of the following inspections and reviews.

a) Visual inspections of all the potential pollutant sources at the airport will be conducted. Potential pollutant sources will be identified as industrial activity areas or locations. Each of the industrial activity areas at the site will be described, and the BMPs implemented in the area documented on the Industrial Activity Area Observation Form, included as Figure 3. The industrial activity areas will also be inspected for any evidence of pollutants entering the storm system from the industrial activity area. Any pollution observations will be recorded on the Industrial Activity Area Observation Form.
b) A review and evaluation of all implemented BMPs to determine whether the BMPs are adequate, properly implemented and maintained will be completed. The review and evaluation will be recorded on the BMP Evaluation and Observation Form, included as Figure 4. A BMP form will be completed for each of the identified industrial activity areas or potential pollutant sources at the site. The review will include an evaluation of both structural and non-structural BMPs. Visual inspections of the BMPs will be conducted when appropriate to determine that the structural BMPs are functioning properly and that all listed pollution control equipment is available and has been maintained.
c) The Inspector will complete the Annual Comprehensive Site Compliance Evaluation Report Summary Form, included as Figure 5. The ACSCE summary will contain the following information: identification of the personnel responsible for the evaluations; the date the evaluation occurred; confirmation of the review of all visual observation records, inspection records and sampling analysis results; a determination as to whether the airport SWPPP requires revision; a schedule for SWPPP revision if required; any incident of non-compliance; and any corrective action required. The entire review and evaluation process will be used to help the Inspector determine whether improvements need to be made to the airport BMPs and thus revisions to the airport SWPPP. Any revisions to the SWPPP will be implemented in accordance to the requirements in the General Permit Section A(10)(e).
d) The review of the monitoring results and the BMP evaluations will be used as a tool to determine whether the airport is in compliance with

the airport SWPPP and the General Permit. Completion and signing of the Annual Comprehensive Site Compliance Evaluation Certification, included as Figure 6, is indication that the Inspector has determined that the airport is in compliance with the General Permit. The signature statement on the certification form is in accordance with Standard Provisions 9 and 10 of Section C of the General Permit.

Annual Comprehensive Site Compliance Evaluation (ACSCE)
AAAE/ARDF ACSCE Procedures

The airports have qualified personnel that are responsible for completing the annual inspections and certifications. Trained, experienced airport personnel perform the required General Permit ACSCE.

The AAAE/ARDF ACSCE procedures contain all the requirements for the ACSCE as outlined in the General Permit. The ACSCE includes an inspection of all airport areas contributing to a storm water discharge associated with industrial activity, and the storm water management controls in place. The industrial activity areas are inspected to determine that the Best Management Practices (BMPs) are, in place, implemented properly, and adequate.

The inspections are thoroughly documented by the completion of forms designed to contain all the permit required information. These records are signed by the Inspector indicating that the airport is in compliance with the airport SWPPP and permit. A certification page, formatted in accordance with the Standard Provisions 9 and 10 for the General Permit is submitted as part of the annual report to the appropriate Regional Board.

The site Inspector follows the steps outlined below when completing the ACSCE.

1. The Inspector reviews the airport SWPPP to identify and list areas to be inspected. Areas listed are areas of industrial activity, or potential pollution sources, where aircraft washing, maintenance and fueling occurs. Any areas where chemicals, fuels, or solvents are stored, used or transferred are also listed. The list of industrial activities or activity areas is recorded on the Industrial Activity Area Observation Form, Figure 3. The Inspector also reviews the locations of outfalls for these areas.

2. The Inspector lists the BMPs implemented in each of the identified industrial activity areas in accordance with the airport SWPPP. All equipment and containment structures designated for pollution prevention in the above identified areas are listed. The BMP, equipment and containment structures per industrial activity or activity area are recorded on the Industrial Activity Area Observation Form.

3. All current airport operations are reviewed to determine if new areas of activity need to be identified as areas of industrial activity or potential pollutant sources, and addressed in a modification to the SWPPP. Any new

areas of industrial activity are recorded on the Industrial Activity Area Observation Form and listed as a new activity.

4. An airport drainage map is updated to current conditions at the airport. The map is used by the Inspector during the airport inspection.

The airport Inspector completes the initial four steps listed above before continuing with the inspection steps listed below. It is important that all areas of industrial activities or potential pollutants sources are listed.

The Inspector conducts the steps below to complete the ACSCE.

5. The activities or potential pollutant sources listed on the Industrial Activity Area Observation Form are visually inspected for accurate identification and descriptions, implementation of BMPs listed, and any indication of pollutants entering the storm system.

6. The BMPs implemented for each potential pollutant source are then reviewed and visually inspected. All observations are recorded on the BMP Evaluation and Observation Form, Figure 4. The Inspector will determine if the BMPs are adequate and implemented properly.

7. The Inspector certifies, as appropriate, that the airport is in compliance with the airport SWPPP and the General Permit by completing the ACSCE Certification Form, Figure 6.

8. If the airport is not in compliance with the SWPPP or General Permit the Inspector is responsible for documenting the non-compliance on the ACSCE Report Summary Form, Figure 5. Modifications may need to be made to the SWPPP and implementation of the new BMPs may follow.

iv. Annual report preparation and submittal will be accomplished by a cooperative effort between the Group Leaders, AAAE/ARDF Environmental office, Environmental Compliance Options, and the appropriate airport personnel. The trained airport personnel will be responsible for the inspections, observations and the completion of the ACSCE and ACSCE forms. All documentation and reports will be submitted to Environmental Compliance Options for review. Environmental Compliance Options will be responsible for verifying that the airport documentation is complete, finalizing the reports, completing the State annual report forms for each airport, compiling the reports by Regional Boards and submitting the reports by the July 1 deadline. The annual reports will contain all of the information required by the General Permit. The required information will be documented on the forms developed specifically for AAAE/ARDF General Permit compliance. The forms to be used for the non-storm water, storm water and ACSCE observations and evaluations, are listed and described in this GMP.

v. Storm water collection and handling methods. The AAAE/ARDF monitoring group airports complete the sampling objectives by means of manual sampling. Manual collection methods used by the airports are described in full in the following paragraphs. The airport personnel designated to perform the sampling have been and will continue to be thoroughly trained. AAAE/ARDF will conduct training seminars for the sampling personnel this fall at the start of the 1997/1998 wet season. Samplers are provided with a complete instructive sampling manual, a sampling video, and can obtain technical telephone assistance from Environmental Compliance Options.

The laboratory responsible for sample analysis is Industrial and Environmental Analysts (IEA). IEA is a California certified laboratory with extensive storm water sample analysis experience.

The procedures and instructions below will be provided to the airport samplers in the updated Monitoring Manual to be distributed this fall. The procedures below are in compliance with the General Permit and the requirements in 40 CFR 136 and 40 CFR 122.

AAAE/ARDF Sampling Procedures
Sampling Objective

The primary objective of the sampling program is to obtain samples which are representative of the entire storm water discharge from the airport. A combination of proper sampling technique and selection of the appropriate outfall to sample will result in sound representative samples.

Sample Collection

The regulations require that only 1 grab sample is collected from the runoff during the first hour of a storm water discharge. The discharge sampled must be preceded by at least 3 working days of dry weather. The grab sample must be collected within the first hour of discharge, if this is not possible a written explanation must accompany the annual monitoring report.

Once the outfall has been selected, the sampling team should review the field location and determine the easiest, safest route to the outfall. Sampling logistics should be worked out prior to the sampling event. If there is more than one outfall is to be sampled, an efficient route between outfalls should be determined.

The general permit requires that at least three working days of dry weather precede the sampling event. A log book or calendar should be used to record previous rain event information. The information to record includes; the date, duration of the event, and whether any discharge occurred. Samples should not be collected from a discharge if the event was not preceded by 3 days of dry weather.

It will be the responsibility of the sampling team to monitor the weather and be prepared to sample when a storm event occurs. The necessary equipment and containers should be stored in a cool, dry, readily available location. When a storm water discharge, appropriate for sampling occurs, the samplers need to move to the sampling location as soon as possible. Once sample collection has begun, **it is important that the samples are consistently collected from the same point at the sampling location in order maintain sample consistency.**

The protective gloves provided should be worn while sampling.

The pH of the sample will be measured at the site by the sampling team. The pH will be taken directly from the sampling stream or sample discharge at the same point that the samples were collected. To measure, remove the black cap at the electrode end of the pH pen and submerge the pen only as far as the black line on the back of the instrument. Allow the pen a few minutes to register and then record the pH. If the discharge volume is low, collect sample volume in the plastic scoop or a sample container, NOT containing preservative, and use the collected volume to measure the pH.

The TOC sample volume should be collected directly from the sampling stream or flow. If it is not possible to fill the TOC container directly from the flow, then the sampling scoop may be used to collect the volume. The collected volume is then transferred to the sample container. If the scoop is used during the collection of this sample the transfer step must be recorded on the chain of custody (COC) in the remarks section.

The collection of volume for the TSS, and specific conductance analysis does not require any special procedures. The plastic container does not contain any preservative and can be filled directly from the sample stream or by transferring volume from the scoop.

Airports required to collect samples for the BOD,COD and NH3 analysis will be required to fill an additional 3 sample containers. As with the TSS and specific conductance sample collection, there are no special sampling requirements. Simply fill all the containers completely, without overfilling the COD and NH3 containers. The containers for COD and NH3 will contain a small amount of preservative.

Sample Preservation

The sample team is responsible for preserving the integrity of the samples while in transit by ensuring that the samples are packed with ice for the return trip to the laboratory. A source of ice must be located well in advance of sampling. Keeping ice stored at the airport is the best alternative. Once the grab samples are taken it is advisable to cool the samples immediately to 4oC. After sampling, the sample containers will be packed in the cooler and surrounded with ice which is sealed in zip lock bags. The ice must be sealed in the bags to reduce the risk of leakage, damage and contamination to the samples. **The chemical and physical integrity of the samples is dependent on the use of ice during**

storage and shipment. Dry ice should not be used as it may freeze the samples.

Sample Shipment

The samples are to be sent by overnight delivery service to the laboratory. The airport will be provided with a completed United Parcel Service (UPS) label, however it will be the responsibility of sampling personnel to become familiar with the UPS schedule. It is important to know when and where pick-ups are available. Arrangements need to be made prior to the sampling event. Local information can be obtained by calling 1-800-742-5877.

The filled and correctly labeled sample containers must be repacked into the cooler used to ship the sample containers to the airport. The sample container lids should be tightened and sealed with tape to prevent lids from loosening in transit. The glass sample containers will be protected by a layer of bubble wrap. The spaces remaining in the cooler after all the samples and ice have been packed should be filled with bubble wrap or similar shipping material. If the samples leak or break in transit, sampling will have to be repeated.

Storm Water Field Data Form

The Storm Water Field Data Form is a two part, carbonless form. The form should be completed once the sampling is done and the sampler has moved indoors. The previous storm event, sampled storm event, the pH and time of grab sample collection must be recorded. The white copy of the storm water field data form should be sent to Sarah Yount. Figure 7 has been completed as an example.

The top portion of the form requests information about the outfall sampled. The lower portion of the form requests information about the previous storm event and the sampled storm event. Local weather services or weather stations can be called for rainfall information.

Chain of Custody Form

The chain of custody is the only form that the laboratory will receive, it is important that the COC is filed out correctly and completely. Figure 8 has been completed as an example.

DO NOT COMPLETE THE LABORATORY COC THAT WAS SENT WITH THE SAMPLING CONTAINERS - COMPLETE ONLY THE ENVIRONMENTAL COMPLINACE OPTIONS FORMS.

The top left hand portion of the COC requests basic airport information. The right hand side of the form requests basic information about the storm and the destination of the samples. Recording the UPS tracking number is important. The bottom portion will be signed by the sampler before relinquishing the samples to the shipper. The completed top white copy of the form should be

sealed in a zip-lock bag and placed inside the cooler. When the cooler arrives at the laboratory, the sample custodian will sign the COC upon receipt. The shipper does not need to sign the COC.

The yellow copy should be sent with the Storm Water Field Data Form to Environmental Compliance Options at the address below.

The samplers notify Environmental Compliance Options that sampling has been accomplished by calling 541-745-7233.

f. Examples of all forms to be used in the AAAE/ARDF Group Monitoring Program are included in Appendix A and Appendix B. These forms have been specifically developed for use by the AAAE/ARDF samplers and Inspectors. The forms lead the observer or Inspector through the appropriate monitoring process and provide a means of documenting the required monitoring information. The forms contain all the information required for storm water monitoring as established in the General Permit Section B 1-15.

i. Authorized and unauthorized non-storm water discharge visual observations are documented on the Non-Storm Water Visual Observation Form, included as
Figure 1.

ii. Storm water sampling information is recorded on two forms the Storm Water Field Data Form and the Chain of Custody form, these forms are included as Figures 7 and 8 respectively. The sampling analysis data are sent directly to the AAAE/ARDF Group Leader. The data are reviewed and input onto a standard data table format that contains all the General Permit required information. An example of the data table completed is included as Table 11.

iii. The ACSCE observations and evaluations are recorded on a series of forms explained above. The potential pollutant source or industrial activity inspection is recorded on the Industrial Activity Area Observation Form, Figure 3. The BMP inspections and evaluation is recorded on the BMP Evaluation and Observation Form, Figure 4. The ACSCE summary decisions and information is recorded on the ACSCE Report Summary Form, Figure 5. Once the ACSCE is complete and the Inspector has determined that the airport is in compliance with the General Permit and the airport SWPPP the ACSCE Certification Statement, Figure 6, is completed and signed.

iv. The annual report submitted to the Regional Boards will be compiled from all the completed monitoring forms. All the wet season visual observations, the non-storm water observations, and the ACSCE inspections will be compiled along with a completed copy of the State annual report form to represent the annual report for the airport. All required General Permit annual report information and documentation will be represented by the compilation of the above listed forms. The annual report forms are Figures 1-6 and are included in Appendix B of this GMP.

v. The wet season visual observations will be recorded on the Storm Water Visual Observation Form, included as Figure 2.

5. Annual Group Evaluation Report (AGER)

a. The AGER will be compiled by the AAAE/ARDF Group Leaders. All of the AGER elements will be submitted in a single report to the State Board by the August 1 deadline, as required by the General Permit.

i. Analytical Data Summary. All the analytical data is compiled into summary tables at the close of the wet season. The data is then reviewed and evaluated. The data is compared to previous years of sampling data, EPA Bench mark values, and other accepted water quality limits. The data summary tables are submitted to all nine Regional Boards as part of the AAAE/ARDF annual reports by the July 1 deadline each year. The full data comparison and analysis is submitted in the Annual Group Evaluation Report to the State Board by the August 1 deadline each year. An example of the summary data table is included as Table 11.

ii. Visual Observation Summary. The visual observations will be reviewed by the airport personnel responsible for completion of the ACSCE and the AAAAE/ARDF Group Leaders. The visual observations will be review, evaluated and summarized in the AGER. The summary will be in the form of a table that compiles all of the wet season visual observations from each airport. An evaluation of the visual observation summary table will be conducted and included in the AGER.

iii. Corrective Action Summary. The corrective actions implemented by the airports will be documented on both the Non-Storm Water Visual Observation Form and the ACSCE Report Summary Form. Both of these forms will be submitted as part of the annual report to the Regional Boards. The Group Leader inspection documentation will also include any Group Leader inspection corrective actions recommended. The Group Leaders will review the documentation as it is submitted and compile a summary of the corrective action implemented. The summary will be included in the AGER.

iv. GMP Effectiveness Evaluation. Documentation of all inspections, observations and sampling activities provide the data needed to analyze the effectiveness of the GMP and the monitoring group BMPs. A comparison of visual observation records provides a means of measuring improvements in the visual water quality, and thus the effectiveness of the implemented storm water management controls. The analytical data is also evaluated. A comparison of the analytical data from wet season to wet season provides an indication of the quality of control measures being implemented. The completed ACSCE forms provide written documentation of the effectiveness of the monitoring plan and the implemented SWPPP controls. As outlined by the General Permit the

monitoring results are reported to the Regional and the State Water Boards, July 1 and August 1, each year.

The Group Leader inspections to be completed at the scheduled airports each year will be a significant tool for evaluating the effectiveness of the GMP and the airport specific BMPs. The Group Leader inspections provide written documentation of the effectiveness of the monitoring plan and the implemented SWPPP controls. The Group Leader inspections procedures are described in detail below.

The effectiveness of the group monitoring plan over the past 5 years is self evident. The AAAE/ARDF airports have been provided with complete, accurate and technically correct information for compliance guidance. The AAAE/ARDF group participants have completed the sampling, monitoring and SWPPP requirements. The participating airports rely on AAAE/ARDF and Environmental Compliance Options for an interpretation of the regulations and methods for compliance. AAAE/ARDF and Environmental Compliance Options via the group monitoring program have been able to instigate and maintain General Permit compliance for each group member for the previous five years.

The Group Leaders review the sampling parameters each year to ensure that there is no need to change the list of storm water analysis parameters.

v. Evaluation of Performance. The evaluation of overall performance of the participants is conducted by a review of the submitted visual observation information, the ACSCE documentation, the analytical data, and the results of the Group Leader Inspections. All of the above documentation is submitted to the Group Leader for evaluation and compilation in the annual reports and the AGER. The AGER will include a narrative discussion of the group airports overall compliance based on the evaluation of the monitoring materials submitted.

The Group Leader thoroughly reviews all visual observation records and the ACSCE documentation to monitor airport compliance. AAAE/ARDF airports have had excellent compliance records with each airport completing the monitoring requirements.

vi. GMP Revisions. An evaluation of the annual reports, the AGER and the Group Leader airport inspections will help determine if there is a need for GMP or GMP BMP modifications. GMP modifications will be made if improvements to the monitoring plan or procedures are needed. The GMP will also be modified if there is a change in group participation.

Group BMPs will be modified, if warranted, by the evaluation of the sampling results, storm water visual observations, and authorized non-storm water visual observations.

Revisions to the monitoring plan that affect the group participants will be handled by notification of the change by written communication. Extensive or complicated changes will be followed up with a mailed guideline and verbal communication if necessary. Changes will be implemented by the airports as quickly as possible and certainly by any deadlines established. The established communication system is very effective and will continue to be used throughout the following years of General Permit compliance.

b. The GMP instructions require that copies of the Group Leader inspection documentation is attached to the AGER. The inspection documentation is reviewed in the following section of the GMP. All relevant documentation and a summary of the observations and inspections will be included in the AGER submitted to the State Board.

c. The airport ACSCE documentation and the results of the Group Leader inspections will be used to make the following determinations:

i. Participants BMP Status. All the ACSCE documentation and all of the Group Leader documentation will be reviewed to summarize the AAAE/ARDF airport's BMP status. The summarized information will be included in the AGER in a table format.

ii. Alternate BMP Identification. Any airports that have implemented alternative BMPs will be identified through the Group Leader inspection process. Any airports identified as having implemented alternative BMPs will be listed in the AGER.

iii. Alternative BMP Description. A brief description and discussion of the effectiveness of the any alternative BMPs identified in the Group Leader inspection process will be provided in the AGER. This information will be recorded on the forms completed during the Group Leader inspections, and the forms will also be submitted in the AGER.

6. Group Leader Inspections

a. AAAE/ARDF Group Leaders have developed a schedule for Group Leader inspections. The inspections will be conducted during the ACSCE when possible. The inspection schedule is included as Table 12.

b. The AAAE/ARDF Group Leader inspections will be conducted by Environmental Compliance Options or qualified individuals trained by the Group Leaders. The inspections will be conducted according to the Table 12 schedule. All 94 Airports in the group will be inspected twice over the 5 year permit term. The inspections will be completed to evaluate airport compliance with the GMP and the General Permit. The inspections will also be used to recommend BMPs, if necessary, to achieve compliance with the GMP, the airport SWPPP or the General Permit. The inspection process will include the evaluations summarized below. All evaluations conducted will be documented on forms designed to

collect all the Group Leader inspection General Permit required information. The forms are discussed below.

i. Compliance Activity Review. The Inspector will review all storm water visual observation records and non-storm water visual observations records for the 12 month period prior to inspection. The Inspector will verify that the observations have been completed, are documented properly, whether there is any recorded observation of pollution in the discharges, and the corrective actions taken. The review of the compliance material will be documented on the Observation Activity Record Review Form, this form is included as Figure 9.

ii. Airport Visual Inspection. The Inspector will first review the airport visual observation records and the SWPPP document, and then proceed with the site inspection. The site inspection will include an evaluation of all industrial activity areas, or potential pollutant sources, and the BMPs implemented in these areas. The Inspector will visually inspect each area recording, the condition of the area, whether the appropriate BMPs are in place and functioning, and whether there is any evidence of pollutants entering the storm system. All of the above observations will be recorded for each potential pollutant source. The observations and evaluations will be documented on the Visual Inspection Form, Included as Figure 10. Each form allows for the observation of only two areas. A series of Visual Inspection Forms will be completed for the visual evaluation portion of the Group Leader inspections.

An inspection of any airport authorized non-storm water discharges will be conducted as well. The Inspector will observe for implementation of appropriate BMPs as well as any evidence of pollution entering the system via the authorized non-storm water discharge. The authorized non-storm water discharge observations will be documented on the Authorized Non-Storm Water Form, included as Figure 12.

iii. Airport SWPPP Review. The first objective of the Inspector will be to review the airport SWPPP. The review of the SWPPP will provide the Inspector with the information needed to conduct a thorough airport evaluation. The SWPPP review conducted will include an evaluation of whether the plan is current and up to date, contains all the information required in the General Permit, includes a complete facility site map, and includes the August 1, 1997 SWPPP review. The Inspector will also determine whether all the potential pollutant sources and management practices are recorded in the SWPPP. The SWPPP review will be used to make an initial determination as to whether any new BMPs should be recommended or whether the airport implements any alternative BMPs. All the information reviewed and evaluated will be recorded on the SWPPP Review Form, included as Figure 11.

iv. BMP Recommendation. The Inspector will recommend additional BMPs based on the results of the SWPPP review, visual observation records

review, and the airport visual evaluation. Any BMP recommendations will be provided verbally at the time of the inspection, and documented on the inspections forms. The recommended BMPs will also be summarized in the AGER submitted to the State Board.

Any GMP revisions needed will be made by the Group Leaders responsible for compiling the plan. The revisions are conveyed to the airports, the airport managers will be responsible for the implementation of the revisions at the airport.

v. Identification of Alternative BMPs. The Inspector will record and evaluate any alternative BMPs that are identified during the Group Leader inspections. The alternative BMP information resulting from the site evaluation and the SWPPP review will be documented on the Alternative BMP Form, included as Figure 13.

c. The Group Leaders inspection forms and checklists are discussed above and are included in the Appendix B of this GMP, Figures 9-13. These forms will be submitted as part of the AGER for the airports inspected during that compliance year. The forms will also be used to summarize and evaluate the information requested by the Group Monitoring Plan Instructions.

7. Other Group Leader Responsibilities and Activities

a. The Group Leaders are listed above at 1.b. The AAAE/ARDF Environmental Office is the main group leader. AAAE/ARDF is a national trade association with sufficient resources to develop and manage the California Group Program. The AAAE/ARDF Environmental office is capable of managing and implementing the state wide storm water program. AAAE/ARDF has successfully managed and implemented the previous five year storm water program.

The Group Leader, Sarah Yount of Environmental Compliance Options (ECO), is also well qualified for development and implementation of the California Storm Water Group Monitoring Program. Sarah Yount has been working with transportation facilities and storm water compliance six years. She has worked directly with AAAE/ARDF and other transportation companies on California storm water compliance for five years. Sarah was responsible for developing the first permit term compliance program for AAAE/ARDF and other transportation groups.

b. AAAE/ARDF has provided and will continue to provide considerable training and support to the airports in the monitoring group. The training includes multiple training manuals, a sampling training video tape, and training seminars. Written communications containing updated information are sent regularly and Environmental Compliance Options provides continual assistance by telephone to any airport with monitoring, documentation, sampling or compliance questions.

The training support and documentation provided to the airport group members includes, a complete and detailed monitoring and sampling manual, training

seminars held prior to the start of the wet season, a non-storm water guidance manual The Non-Storm Water Discharge Screening and Detection Manual, A complete and detailed SWPPP workbook and document, a BMP manual, and a yearly compliance calendars that highlights compliance efforts required each month.

This fall the storm water compliance training meeting will be day long session covering the ACSCE requirements and forms, storm water visual observation and forms, the non-storm water visual observations and forms, storm water sampling, and the requirements and forms involved in the Group Leader inspections. An overview of the purpose of the storm water program will be discussed. The results of previous years reporting and sampling will be reviewed. The forms to be completed and the documentation of observations are explained and reviewed extensively.

All personnel responsible for making and recording observations are thoroughly trained and are prepared to comply with the storm water monitoring regulations.

c. The Group Leaders have an active role in assisting in the completion of the airport's ACSCE each year. The Group Leaders relay compliance schedules and send continuous fax reminders to the airport personnel responsible for completing the ACSCE. The Group Leaders provide ACSCE training and manuals. Environmental Compliance Options provides constant technical support and assistance to the airport personnel completing the ACSCE.

The observations and evaluation information submitted in the annual reports is completed by trained airport personnel. The documentation is then submitted to the Group Leaders for thorough review. The Group Leaders are responsible for setting internal report submission deadlines. The internal deadlines are set in advance of the July 1 deadline so that the reports can undergo extensive review and the State annual report forms can be completed. Significant communication occurs between the Group Leaders and the airports at this time. The Group Leaders are responsible for final report compilation and submission to the Regional Boards by the July 1 deadline.

d. The Group Leaders procedures for completing and achieving the following California storm water compliance objectives are discussed below.

i. Airport Compliance Activity Review. The Group Leaders will complete the review, evaluation and compilation of the airport compliance documentation as required by the General Permit. As stated above the annual compliance documentation is submitted to the Group Leaders well in advance of permit deadlines so that reviews and evaluations of the submitted material can be conducted. The airports submit the information to Environmental Compliance Options for the review, evaluation, and compilation into the final report submitted to Region.

The airports are notified of any incomplete documentation issues and then given assistance, from the Group Leaders, to complete the requirements.

ii. BMP Recommendation. New BMPs will be developed and recommended based on review of the visual observations, ACSCE results, and the sampling results. If warranted from the review of the above airport information new site specific BMPs will be recommended. The Group Leaders will responsible for any needed BMP research, and development of implementation procedures.

iii. Site Specific Sampling. The sampling parameters are dictated by the General Permit. The parameters for airport storm water sampling analysis are listed in Table 9. The only variation in this list of sampling parameters concerns the analysis required in Table D. The parameters BOD, COD, and NH3 will only be analyzed for at the airports in the group that conduct deicing activities. It can be seen from Table 4 that only 17% of the airports in the group conduct deicing activities. Please see the discussion at Section 4.a. of this GMP, concerning the analysis of these parameters.

The four parameters TSS, pH, specific conductance and TOC are effective for analysis of any potential pollutants that might be present in the storm water runoff from transportation facilities, with SIC code 4581. As discussed in Section 4.a. of this GMP the historical data from storm water sampling at airports has consistently shown no pollutants levels of concern. The above indicators tests will be effective at identifying any potential need to reevaluate the implemented airport BMPs.

The selection of sampling locations at each airport is also site specific information. The Group Leaders are responsible for selecting the representative sampling location for each airport. This information will be provided in the AGER submission to the State. Please see the above GMP section, 4.c., for sampling location selection objectives and details.

iv. Timely Compliance. The Group Leaders work closely with the airports to ensure that they are meeting all the objectives of the storm water program and GMP by the deadlines. AAAE/ARDF Fax communication system allows for constant reminders and assistance with program compliance deadline. Initial written communications outlining form submittal deadlines go out in February of each permit compliance year. Storm Water Alerts and Updates are sent to all airports in the group throughout the monitoring year. Written communications are continually sent until all airports understand permit obligations and have submitted the required compliance information.

AAAE/ARDF has had an excellent compliance record to date and will continue to make sure all the GMP participants conduct the observations, inspections, and evaluations as required by the General Permit.

v. Implementation of Additional BMPs. Group Leaders will follow up with all airports for which BMP recommendations have been made. Recommended BMP implementation will be verified two ways. 1) The airport ACSCE documentation will show whether the BMP has been implemented. 2) When

the second Group Leader inspection is conducted at the airports, the Inspector will complete visual observations to verify that any recommended BMPs have been implemented.

vi. Evaluate Alternative BMPs. The identifications and evaluation of alternative BMPs will be conducted during each airport Group Leader inspection. As explained above, in detail, the Group Leader Inspector will review and document any alternative BMPs encountered during the airport inspection.

vii. Identify Non-compliance. The Group Leaders will identify any airports that are having problems with storm water compliance prior to the occurrence of any non-compliance. Any airports that are identified as having compliance difficulties will be provided with extra assistance and support to avoid any instances of General Permit non-compliance.

Actual non-compliance is not tolerated by the lead organization. Any lack of compliance or incomplete submission is immediately addressed by AAAE/ARDF or Environmental Compliance Options by telephone communications. Any airport missing a deadline by two or more weeks is invoiced according to the new AAAE/ARDF late fee schedule. Communication, assistance, and fee invoicing continues until the airport is in compliance and up to date with all submissions.

APPENDIX A
Tables 1 - 12

List of Tables

Table 1	Regional Distribution of Airports
Table 2	AAAE/ARDF Group Status
Table 3	AAAE/ARDF Group Status
Table 4	Industrial Activities Performed at Each Airport
Table 5	Significant Materials Stored at Each Airport
Table 6	Material Management Practices Employed at Each Airport
Table 7	Airport Authorized Non-Storm Water Discharges
Table 8	AAAE/ARDF Standard Pollutant Sources and BMP Summary Table
Table 9	AAAE/ARDF Parameters and Test Methods
Table 10	AAAE/ARDF Sample Collection Schedule 11997 - 2002
Table 11	Example Annual Report Summary Data Table
Table 12	AAAE/ARDF Group Leader Facility Inspection Schedule 1997 - 2002

Name of Airport	Address	Region
Arcata-Eureka Airport	1106 Second Street, Eureka	1
Murray Field, Humboldt County	1106 Second Street, Eureka	1
Sonoma County Airport	2200 Airport Blvd., Santa Rosa	1
Ukiah Municipal Airport	1411 S. State Street, Ukiah	1
Buchanan Field Airport	510 Sally Ride Drive, Concord	2
Half Moon Bay Airport	Route 1, P. O. Box 46, Half Moon Bay	2
Hayward Air Terminal	20301 Skywest Drive, Hayward	2
Livermore Municipal Airport	636 Terminal Circle, Livermore	2
Marin County Airport/Gnoss Field	351A Airport Road, Novato	2
Napa County Airport	2030 Airport Road, Napa	2
Palo Alto Airport	1925 Embarcadero Road, Palo Alto	2
Petaluma Municipal Airport	601 Sky Ranch Drive, Petaluma	2
Reid-Hillview Airport	2500 Cunningham Avenue, San Jose	2
San Carlos Airport	620 Airport Drive, San Carlos	2
San Jose International Airport	1661 Airport Boulevard, San Jose	2
Hollister Municipal Airport	90 Skylane Drive, Suite 101. Hollister	3
Monterey Peninsula Airport District	Olmsted Road & Highway 68,Monterey	3
Salinas Municipal Airport	30 Mortensen Avenue, Salinas	3
San Luis Obispo County Airport	903-5 Airport Drive, San Luis Obispo	3
Santa Maria Public Airport	3217 Terminal Drive, Santa Maria	3
South County Airport	13030 Murphy Avenue, San Martin	3
Brackett Airport	1615 McKinley Avenue, La Verne	4
Burbank-Glendale-Pasadena Airport	2627 Hollywood Way, Burbank	4
Camarillo Airport	295 Durley Avenue, Camarillo	4
Compton Airport	901 West Alondra Blvd., Compton	4
El Monte Airport	4233 Santa Anita Avenue, El Monte	4
Hawthorne Municipal Airport	12101 S. Crenshaw Blvd., Hawthorne	4
Long Beach Airport	4100 Donald Douglas Drive, Long Beach	4
Oxnard Airport	2889 W. 5th Street, Oxnard	4
Santa Paula Airport	8th St. at Santa Maria St., Santa Paula	4
Torrance Municipal Airport	3115 Airport Drive, Torrance	4
Whiteman Airport	12653 Osborne Street, Pacoima	4
Auburn Municipal Airport	New Airport Road, Auburn	5

Name of Airport	Address	Region
Imperial County Airport	1099-A Airport Drive, Imperial	7
Needles Airport	P.O. Box 784, Highway 95, Needles	7
Palm Springs Regional Airport	3400 E. Tahquitz Canyon Way, Palm Springs	7
Thermal Airport	56-850 Tyler Street, Thermal	7
Twentynine Palms Airport	Star Route 2, Box 688, Twentynine Palms	7
Big Bear City Airport	P.O. Box 755, 501 W. Valley Blvd.,Big Bear City	8
Cable Airport Inc.	1749 West 13th Street, Upland	8
Chino Airport	7000 Merrill Avenue, Box 1, Chino	8
Chiriaco Summit Airport	3499 10th Street, Riverside	8
Corona Municipal Airport	815 West 6th Street, Corona	8
Desert Center Airport	3499 10th Street, Riverside	8
Flabob Airport	4130 Mennes St., Riverside	8
Fullerton Municipal Airport	4011 West Commonwealth Ave.,Fullerton	8
Hemet Ryan Airport	36890 Walden Weaver Rd., Hemet	8
Redlands Municipal Airport	1745 Sessums Drive, Redlands	8
Rialto Municipal/Art Scholl Mem. Airport	150 So. Palm, Rialto	8
Riverside Municipal Airport	6951 Flight Road, Riverside	8
Brown Field Airport	1424 Continental Street, San Diego	9
Fallbrook Community Air Park, Inc.	2141 S. Mission Road, Fallbrook	9
French Valley Airport	37552 Winchester Rd., Murrieta	9
Gillespie Field	1960 Joe Crosson Drive, El Cajon	9
McClellan-Palomar Airport	2198 Palomar Airport Road, Carlsbad	9
Montgomery Field	3750 John J. Montgomery Dr., San Diego	9
Ramona Airport	Montecito Road, Ramona	9
Healdsburg Municipal Airport	401, Grove St., Healdsburg	New Facility

Name of Airport	Address	Region
Benton Airport	2600 Gold Street, Redding	5
Byron Airport	3000 Armstrong Road, Byron	5
Calaveras County Airport	3600 Carol Kennedy Drive, San Andreas	5
Columbia Airport	10723 Airport Road, Columbia	5
Colusa County Airport	Highway 20, P.O. Box 175, Colusa	5
Georgetown Airport	Dry Diggins Road, Georgetown	5
Lincoln Municipal Airport	Flightline Drive, Lincoln	5
Madera Municipal Airport	4020 Aviation Drive, Madera	5
Minter Field Airport District	17879 First Street, Bakersfield	5
Modesto City-County Airport	617 Airport Way, Modesto	5
Nevada County Airpark Airport	12818 Loma Rica Drive, Grass Valley	5
Nut Tree Airport	301 County Airport Road, Vacaville	5
Orland-Haigh Field	Road P at Road 200, Orland	5
Paradise Skypark	4405 Airport Rd., Paradise	5
Pine Mountain Lake Airport	20960 Elderberry Way, Groveland	5
Placerville Airport	3501 Airport Road, Placerville	5
Redding Municipal Airport	6751 Woodrum Circle, Redding	5
Stockton Metropolitan Airport	5000 South Airport Way, Room #202, Stockton	5
Turlock Municipal Airport	13099 N. Newport Road, Ballico	5
Visalia Municipal Airport	9501 Airport Drive, Visalia	5
Watts-Woodland Aviation	Hwy. 16 and Rd. 94B, Woodland	5
Willows-Glenn County Airport	State Route 162 @ Interstate 5	5
Yolo County Airport	625 Court St. Rm. 203, Woodland	5
Yuba County Airport	1482 Sky Harbor Drive, Ste. A, Marysville	5
Apple Valley Airport	21600 Corwin Road, Apple Valley	6
Barstow-Daggett Airport	39500 National Trails, Box 3, Daggett	6
General William J. Fox Field Airport	4555 West Avenue "G", Lancaster	6
Mojave Airport	1434 Flightline, Bldg. #58, Mojave	6
Truckee Tahoe Airport	10356 Truckee Tahoe Airport Rd., Truckee	6
Banning Municipal Airport	200 S. Hathaway P.O. Box 998, Banning	7
Blythe Airport	17710 Hobson Way, Blythe	7
Borrego Valley Airport	Palm Canyon Road, Borrego Springs	7

WDID #	Airport Name	Contact Person	City, State, Zip	Phone	Fax
1B12S000357	Arcata Eureka Airport	Ray Beeninga	Eureka CA 95501	707-839-5401	707-839-3596
1B12S000356	Murray Field	Ray Beeninga	Eureka CA 95501	707-839-5401	707-839-3596
1B49S000836	Sonoma County Airport	David Andrews	Santa Rosa CA 95403	707-524-7243	707-542-5303
1B23S007118	Ukiah Muni Airport	Don Bua	Ukiah CA 95482	707-463-6293	707-463-6204
2 07S002608	Buchanan Field	Brian Horne	Concord CA 94520	510-646-5722	510-646-5731
2 41S002339	Half Moon Bay Airport	Gary Petersen	Half Moon Bay CA 94016	415-573-3700	415-593-3762
2 01S001978	Hayward Air Terminal	Leander Hauri	Hayward CA 94541	510-293-5461	510-783-4556
2 01S001628	Livermore Muni Airport	Gene Maestas	Livermore CA 94550	510-373-5280	510-373-5135
2B21S000647	Marin County Airport	Jimmy Stanfill	Novato CA 94945	415-897-1754	415-897-1264
2 28S001853	Napa County Airport	Leonard Peterson	Napa CA 94558	707-253-4300	707-253-4330
2 43S006211	Palo Alto Airport	Larry Feldman	Palo Alto CA 94303	408-929-1060	408-929-8617
2 49S002311	Petaluma Muni Airport	W.G. Graham	Petaluma CA 94954	707-778-4404	707-778-4405
2 43S006210	Reid-Hillview Airport	Barbie Hill	San Jose CA 95148	408-929-1060	408-929-8617
2 41S001997	San Carlos Airport	Mark Larson	San Carlos CA 94070	415-573-3700	415-593-3762
2 43S006572	San Jose International Airport	Noel Ameele	San Jose CA 95110	408-277-5366	408-277-3191
3 35S004716	Hollister Muni Airport	Allen Ritter	Hollister CA 95023	408-637-7996	408-636-4310
3 27S003323	Monterey Peninsula Airport	Vince Huth	Monterey CA 93940	408-648-7005	408-372-8298
3 27S004751	Salinas Muni Airport	Jim Chappell	Salinas CA 93905	408-758-7214	408-759-2518
3 40S002529	San Luis Obispo Airport	P. Gimer / J. Hulsey	San Luis Obispo CA 93401	805-781-5205	808-781-5985
3 42S002545	Santa Maria Airport	Ray Heath	Santa Maria CA 93455	805-922-1726	805-922-0677
343S006209	South County Airport	June Cramblit/D. Flynn	San Martin CA 95046	408-683-4741	408-929-8617
4B19S004229	Brackett Field	Henry Kras	La Verne CA 91750	909-593-1395	909-593-5224
4B19S003674	Burbank-Glendale-Pasadena Arpt	Victor Globa	Burbank CA 91505	818-840-9456	818-840-0651
4A56S002775	Camarillo Airport	John Dodd	Camarillo CA 93010	805-388-4200	805-388-4366
4B19S004228	Compton Airport	Henry Kras	La Verne, CA 91750	909-593-1395	909-593-5224
4B19S004227	El Monte Airport	Henry Kras	La Verne, CA 91750	909-593-1395	909-593-5224
4B19S002294	Hawthorne Muni Airport	Charles Herbertson	Hawthorne CA	310-970-7033	310-970-7075
4B19S004985	Long Beach Airport	Nancy Trent	Long Beach CA 90803	562-570-2633	582-570-2601
4A56S002776	Oxnard Airport	John Dodd	Camarillo CA 93010	805-388-4200	805-388-4366
4A56S001102	Santa Paula Airport	Roger Harvey	Santa Paula CA 93060	805-933-1155	805-933-3865
4B19S005498	Torrance Muni Airport	Mike Blyleven	Torrance CA 90505	310-618-2861	310-784-7930
4B19S004226	Whiteman Airport	Henry Kras	Pacoima CA 91331	909-593-1395	909-593-5224
5B31S002840	Auburn Muni Airport	Paul Ogden	Auburn CA 95603	916-823-4211	916-885-5508

WDID #	Airport Name	Contact Person	City, State, Zip	Phone	Fax
5A45S002365	Benton Airport	Rod Dinger	Redding CA 96001	916-224-4321	916-224-4318
5B07S002606	Byron Airport	Brian Horne	Concord CA 94520	510-646-5722	510-646-5731
5B05S000894	Calaveras Airport	Doug Farr	San Andreas, CA 95247	209-736-2103	209-736-2402
5B55S001890	Columbia Airport	Mark Bautista	Columbia CA 95310	209-533-5685	209-533-5657
5A06S001560	Colusa County Airport	Harry Krug	Colusa CA 95932	916-458-0580	916-458-5000
5A09S001185	Georgetown Airport	Janet Atwood	Placerville CA 95667	916-622-0459	916-626-0387
5A31S006497	Lincoln Airport	James McLeod	Lincoln CA 95648	916-645-8576	916-645-6152
5B20S002618	Madera Municipal	Sam Scheider	Madera CA 93637	209-661-5490	209-674-7165
5C15S002689	Minter Field Airport	Kirk Nelson	Bakersfield CA 93312	805-393-0402	805-393-3049
5B50S001456	Modesto City-County Airport	Howard Cook	Modesto CA 95353	209-577-5318	209-576-1985
5A29S001722	Nevada County Airpark Airport	Harold Wolfe	Nevada City CA 95959-6100	916-273-3374	916-274-1003
5A48S000962	Nut Tree Airport	John Swizer	Vacaville, CA 95688	707-446-0322	707-451-8529
5A11S001573	Orland-Haigh Field Airport	Gloria Weems	Willows CA 95988	916-934-6530	916-934-6533
5A04S010256	Paradise Skypark	John H. Franklin	Paradise, CA 95969	916-877-8052	916-877-0402
5C54S001891	Pine Mountain Lake Airport	Mark Bautista	Columbia, CA 95310	209-533-5685	209-533-5657
5A09S001215	Placerville Airport	Janet Atwood	Placerville CA 95667	916-622-0459	916-626-0387
5A45S002363	Redding Muni Airport	Doyle Ruff	Redding CA 96001	916-224-4321	916-224-4318
5B39S000174	Stockton Metropolitan Airport	Michael Brooks	Stockton CA 95206	209-468-4700	209-468-4730
5C54S002344	Visalia Municipal Airport	Mario Cifuentez	Visalia CA 93277	209-738-3201	209-738-3581
5B24S001982	Turlock Muni Airport	Ottis Mercer	Turlock CA 95380	209-668-5560	209-668-5107
5A57S002427	Watts-Woodland	Eric Gravink	Woodland CA 95695	800442-1333	916-662-3035
5A11S001601	Willows-Glen County Airport	Gloria Weems	Willows CA 95988	916-934-6530	916-934-6533
5A57S000032	Yolo County Airport	Keith Ott	Woodland CA 95695	916-666-8129	916-666-8112
5A58S001682	Yuba County Airport	Tom Hart	Marysville CA 95901	916-741-6463	916-742-7835
6B36S005142	Apple Valley Airport	Terry Stover	Apple Valley, CA 92327	760-247-5470	760-240-1350
6B36S005140	Barstow-Daggett Airport	Eddie Loera	Daggett, CA 92327	760-254-2511	760-254-3317
6B19S004244	General William J Fox Field	Richard Stonehouse	Lancaster CA 93536	909-593-1395	909-593-5224
6B15S002831	Mojave Airport / East Kern	Bob Houghton	Mojave CA 93502	805-824-2433	805-824-2914
6A29S002871	Truckee Tahoe Airport	Mary Cathern Tennent	Truckee CA 96160	916-587-4119	916-587-2984
7 33S001581	Banning Muni Airport	Paul Toor	Banning CA 92220	909-922-3130	909-922-3128
7 33S006134	Blythe Airport	Ruben Castillo	Riverside CA 92501	760-921-7812	760-922-0278
7 37S004571	Borrego Valley Airport	Jack Miller	El Cajon CA 92020	619-596-3900	619-258-2501
7 13S002770	Imperial County Airport	David Tharp	Imperial CA 92251	760-337-6888	760-339-4372

WDID #	Airport Name	Contact Person	City, State, Zip	Phone	Fax
7 36S005141	Needles Airport	Eddie Loera	Daggett, CA 92327	619-254-2422	760-254-3317
7 33S001282	Palm Springs Regional Airport	Tracy Lincoln	Palm Springs CA 92262	619-323-8161	619-322-4308
7 11S002903	Thermal Airport	Tom Turner	Riverside CA 92501	909-275-6738	909-275-6721
7 36S005139	Twenty-Nine Palms Airport	Eddie Lorea	Daggett, CA 92327	619-254-2422	760-254-3317
8 36S000049	Big Bear City Airport	Dick Lightner	Big Bear City CA 92314	909-585-3219	909-585-2900
8 36S001965	Cable Airport Inc.	Charles Barnett	Upland CA 91706	909-982-6021	909-920-3608
8 36S004096	Chino Airport	James Jenkins	Chino CA 91710	714-597-3910	909-597-0274
8 33S006137	Chiriaco Summit Airport	Keith Downs	Riverside CA 92501	909-275-6738	909-275-6721
8 33S001303	Corona Muni Airport	Brian Raber	Corona CA 91720	909-736-2289	909-735-6955
8 33S006136	Desert Center Airport	Keith Downs	Riverside CA 92501	909-275-6738	909-275-6721
8 33S002955	Flabob Airport	Mike Bogen	Riverside CA 92509	909-683-2309	909-680-0639
8 30S004058	Fullerton Muni Airport	Roland Elder	Fullerton CA 92633	714-738-6323	not available
8 33S006135	Hemet Ryan Airport	Keith Downs	Riverside CA 92501	909-275-6738	909-275-6721
8 36S001707	Redlands Muni Airport	Peter Laaninen	Redlands CA 92373	909-798-7655	909-798-7670
8 36S003361	Rialto Muni Airport/Art Scholl Mem.	Richard Scanlan	Rialto CA 92376	909-820-2622	909-820-2598
8 33S001040	Riverside Muni Airport	John Sabatello	Riverside CA 92504	909-351-6113	909-359-3570
9 37S003024	Brown Field	Bob Philley	San Diego CA 92173	619-690-8355	619-424-0458
9 37S003512	Fallbrook Airport	Larry Lushanko	Fallbrook CA 92028	619-723-3506	619-723-3506
9 33S006139	French Valley Airport	Keith Downs	Riverside CA 92501	909-275-6738	909-275-6721
9 37S004569	Gillespie Field	Jack Miller	El Cajon CA 92020	619-596-3900	619-258-2501
9 37S004570	McClellan-Palomar Airport	Jack Miller	Carlsbad CA 92008	619-596-3902	619-257-2501
9 37S004117	Montgomery Field	Bill Dalby	San Diego CA 92123	619-573-1441	619-279-0536
9 37S004568	Ramona Airport	Jack Miller	El Cajon CA 92020	619-788-6172	619-788-1727
New Facility	Healdsburg Municipal Airport	Kurt Hahn	Healdsburg, CA	707-431-3306	707-431-7283

Region	Name of Airport	SIC Code	Airport Size (Acres)	% Imperviousness	# of Drainage Areas
1	Arcata-Eureka Airport	4581	740	15	4
1	Murray Field, Humboldt County	4581	126	15	3
1	Sonoma County Airport	4581	925	25	4
1	Ukiah Municipal Airport	4581	160	39	3
2	Buchanan Field Airport	4581	494	36	3
2	Half Moon Bay Airport	4581	290	20	1
2	Hayward Air Terminal	4581	521	45	1
2	Livermore Municipal Airport	4581	466	20	6
2	Marin County Airport/Gnoss Field	4581	92	20	3
2	Napa County Airport	4581	800	13	1
2	Palo Alto Airport	4581	102	52	1
2	Petaluma Municipal Airport	4581	220	16	10
2	Reid-Hillview Airport	4581	179	60	2
2	San Carlos Airport	4581	90	75	2
2	San Jose International Airport	4581	1000	50	15
2	South County Airport	4581	179	12	2
3	Hollister Municipal Airport	4581	343	10	1
3	Monterey Peninsula Airport District	4581	494	40	5
3	Salinas Municipal Airport	4581	605	55	4
3	San Luis Obispo County Airport	4581	316	22	4
3	Santa Maria Public Airport	4581	55	99	5
4	Brackett Airport	4581	257	30	3
4	Burbank-Glendale-Pasadena Airport	4581	410	75	3
4	Camarillo Airport	4581	659	25	3
4	Compton Airport	4581	77	10	1
4	El Monte Airport	4581	103	15	7
4	Hawthorne Municipal Airport	4581	80	88	3
4	Long Beach Airport	4581	1160	20	1
4	Oxnard Airport	4581	216	40	1
4	Santa Paula Airport	4581	23	80	4
4	Torrance Municipal Airport	4581	360	30	9

Region	Name of Airport	SIC Code	Airport Size (Acres)	% Imperviousness	# of Drainage Areas
5	Auburn Municipal Airport	4581	125	72	5
5	Benton Airport	4581	67	49	4
5	Byron Airport	4581	1,300	15	1
5	Calaveras County Airport	4581	86	11	4
5	Columbia Airport	4581	368	30	1
5	Colusa County Airport	4581	81	40	14
5	Georgetown Airport	4581	145	6	4
5	Lincoln Municipal Airport	4581	659	6	3
5	Madera Municipal Airport	4581	28	80	1
5	Minter Field Airport District	4581	1230	51	4
5	Modesto City-County Airport	4581	450		4
5	Nevada County Airpark Airport	4581	117	65	4
5	Nut Tree Airport	4581	268	45	2
5	Orland-Haigh Field	4581	390	53	3
5	Paradise Skypark	4581	35	18	1
5	Pine Mountain Lake Airport	4581	52	40	5
5	Placerville Airport	4581	215	10	10
5	Redding Municipal Airport	4581	1279	15	2
5	Stockton Metropolitan Airport	4581	1551	30	2
5	Turlock Municipal Airport	4581	57	45	1
5	Visalia Municipal Airport	4581	722	47	4
5	Whiteman Airport	4581	184	10	4
5	Willows-Glenn County Airport	4581	254	20	8
5	Woodland Aviation	4581	90	10	3
5	Yolo County Airport	4581	424	10	3
5	Yuba County Airport	4581	933	7	9
6	Apple Valley Airport	4581	439	10	2
6	Barstow-Daggett Airport	4581	1087	30	2
6	Fox Field Airport	4581	1145	70	4
6	Mojave Airport	4581	2885	16	10
6	Truckee Tahoe Airport	4581	917	12	3
7	Banning Municipal Airport	4581	127	31	4

Region	Name of Airport	SIC Code	Airport Size (Acres)	% Imperviousness	# of Drainage Areas
7	Blythe Airport	4581	3898	4	6
7	Borrego Valley Airport	4581	154	50	1
7	Imperial County Airport	4581	38	18	1
7	Needles Airport	4581	790	15	2
7	Palm Springs Regional Airport	4581	884	36	1
7	Thermal Airport	4581	2363	2	0
7	Twentynine Palms Airport	4581	480	15	6
8	Big Bear City Airport	4581	115	60	3
8	Cable Airport Inc.	4581	108	85	5
8	Chino Airport	4581	1014	26	1
8	Chiriaco Summit Airport	4581	570	2	2
8	Corona Municipal Airport	4581	96	45	5
8	Desert Center Airport	4581	1129	2	4
8	Flabob Airport	4581			2
8	Fullerton Municipal Airport	4581	84	77	1
8	Hemet Ryan Airport	4581	928	12	1
8	Redlands Municipal Airport	4581	148	30	2
8	Rialto Municipal/Art Scholl Mem. Air.	4581	650	15	6
8	Riverside Municipal Airport	4581	447	25	1
9	Brown Field Airport	4581	900	10	1
9	Fallbrook Community Air Park, Inc.	4581	290	5	3
9	French Valley Airport	4581	265	18	5
9	Gillespie Field	4581	742	50	2
9	McClellan-Palomar Airport	4581	225	50	6
9	Montgomery Field	4581	450	15	6
9	Ramona Airport	4581	342	50	2
new facility	Healdsburg Municpal Airport	4581	40	25	7

INDUSTRIAL ACTIVITIES PERFORMED AT EACH AIRPORT

TABLE 4

NAME OF AIRPORT	Fueling	Aircraft Maintenance	Aircraft Washing	Vehicle Maintenance	Material Storage	Airline Activities	Crop Dusting	Car Rental	OTHER ACTIVITIES
Apple Valley Airport	Yes	Yes	Yes		Yes				
Arcata-Eureka Airport	Yes		Yes		Yes	Yes		yes	U.S. Coast Guard
Auburn Municipal Airport	Yes		Yes	Yes	Yes				Wash rack
Banning Airport	Yes	Yes	Yes		Yes				
Barstow-Daggett Airport	Yes	Yes	Yes		Yes				Wash rack available in 1994
Benton Airport	Yes	Yes	Yes		Yes				
Big Bear City Airport	Yes	Yes	Yes		Yes				
Blythe Airport	Yes				Yes				Vehicle washing, painting
Borrego Valley Airport	Yes				Yes				
Brackett Airport	Yes	Yes	Yes	Yes	Yes				Helicopter maintenance
Brown Field Airport	Yes	Yes			Yes				Mobile Refueling
Buchanan Field Airport	Yes	Yes	Yes		Yes	Yes			Herbicide Application
Burbank-Glendale-Pasadena Apt.	Yes	Yes	Yes	Yes	Yes	Yes			
Byron Airport	Yes	Yes	Yes		Yes				Herbicide Application
Cable Airport Inc.	Yes	Yes	Yes		Yes				Non commercial ramps and hangers
Calaveras County Airport	Yes	Yes			Yes				
Camarillo Airport	Yes	Yes	Yes		Yes				
Chino Airport	Yes	Yes			Yes				Aircraft storage
Chiriaco Summit Airport					Yes				Aircraft landing & takeoff / wrecking yard
Columbia Airport	Yes	Yes	Yes		Yes	Yes			Pesticide App./ Hazardous Waste Storage
Colusa County Airport	Yes	Yes	Yes		Yes		Yes		
Compton Airport	Yes	Yes	Yes		Yes				
Corona Municipal Airport	Yes	Yes	Yes		Yes				Aircraft paint shop
Desert Center Airport					Yes				Aircraft landing, takeoff and storage
El Monte Airport	Yes	Yes	Yes		Yes				
Fallbrook Community Air Park	Yes	Yes	Yes		Yes	Yes			
Flabob Airport	Yes	Yes	Yes	Yes	Yes				Flt. Schl.,plastic mold injection,contractors
Fox Field Airport	Yes	Yes			Yes				Flight school
French Valley Airport	Yes	Yes	Yes		Yes				Fuel Farm/ Fuel Trucks
Fullerton Municipal Airport	Yes	Yes	Yes		Yes				Flight training, Nondestructive testing
Georgetown Airport	Yes	Yes			Yes				

INDUSTRIAL ACTIVITIES PERFORMED AT EACH AIRPORT

TABLE 4

NAME OF AIRPORT	Fueling	Aircraft Maintenance	Aircraft Washing	Vehicle Maintenance	Material Storage	Airline Activities	Crop Dusting		OTHER ACTIVITIES
Gillespie Field	Yes	Yes	Yes		Yes				Painting, FBO under construction
Half Moon Bay Airport	Yes	Yes	Yes		Yes				
Hawthorne Municipal Airport	Yes	Yes	Yes		Yes				Wash rack to sewer
Hayward Air Terminal	Yes	Yes	Yes		Yes				Herbicide Applications/Wash rack
Healdsburg Municipal Airport	Yes	Yes			Yes				Aircraft Painting
Hemet Ryan Airport	Yes	Yes	Yes		Yes				
Hollister Municipal Airport	Yes	Yes	Yes		Yes		Yes		
Imperial County Airport	Yes	Yes	Yes		Yes		Yes		Dry freight loading and unloading
Lincoln Municipal Airport	Yes	Yes			Yes				
Livermore Municipal Airport	Yes	Yes	Yes		Yes	Yes			
Long Beach Airport	Yes	Yes	Yes		Yes	Yes			
Madera Municipal Airport	Yes	Yes	Yes		Yes				
Marin County Airport\Gnoss Fld	Yes	Yes	Yes		Yes				
McClellan-Palomar Airport	Yes	Yes	Yes		Yes				
Minter Field Airport District	Yes	Yes			Yes	Yes	Yes		Herbicide/Pesticide/Shingle Waste Storage
Modesto City-County Airport	Yes	Yes	Yes		Yes	Yes			
Mojave Airport	Yes	Yes	Yes		Yes				
Monterey Peninsula Airport Dist.	Yes	Yes	Yes	Yes	Yes				Woodworking/Vehicle Painting
Montgomery Field	Yes	Yes	Yes		Yes				Flight school, parking
Murray Field	Yes	Yes			Yes				
Napa County Airport	Yes				Yes				
Needles Airport	Yes	Yes			Yes				
Nevada County Airpark Airport	Yes	Yes	Yes		Yes				CA Dept. of Forestry chemical storage
Nut Tree Airport	Yes	Yes			Yes				Fuel Storage/Waste Oil/Herbicide Spraying
Orland-Haigh Field	Yes	Yes		Yes	Yes				Agr. By-products Drying, Agr. chemicals
Oxnard Airport	Yes	Yes	Yes		Yes	Yes	Yes		Helecopter maintanence and storage (2)
Palm Springs Regional Airport	Yes	Yes	Yes	Yes	Yes	Yes			
Palo Alto Airport	Yes	Yes	Yes		Yes				Fuel Farm/Waste Oil Storage/Herb.App.
Paradise Skypark Airport	Yes	Yes		Yes	Yes				
Petaluma Municipal Airport	Yes	Yes	Yes		Yes				No deicing/Aircraft maint. Shops(2)
Pine Mountain Lake Airport	Yes	Yes			Yes				Hazardous Waste Storage/ Pesticides App.
Placerville Airport	Yes	Yes			Yes				Painting, Used oil recovery site

INDUSTRIAL ACTIVITIES PERFORMED AT EACH AIRPORT

TABLE 4

NAME OF AIRPORT	Fueling	Aircraft Maintenance	Aircraft Washing	Vehicle Maintenance	Material Storage	Airline Activities	Crop Dusting		OTHER ACTIVITIES
Ramona Airport	Yes	Yes			Yes				
Redding Municipal Airport	Yes	Yes	Yes		Yes	Yes			
Redlands Municipal Airport	Yes	Yes			Yes				
Reid-Hillview Airport	Yes	Yes	Yes	Yes	Yes				
Rialto Muni/Art Scholl Mem Apt.	Yes	Yes	Yes		Yes				
Riverside Municipal Airport	Yes	Yes	Yes		Yes				aircraft painting
Salinas Municipal Airport	Yes	Yes	Yes	Yes	Yes	Yes			Wash rack
San Carlos Airport	Yes	Yes	Yes		Yes				
San Jose International airport	Yes	Yes	Yes	Yes	Yes	Yes		Yes	CFR Station20,Cargo,Deicing, Waste disp.
San Luis Obispo County Airport	Yes	Yes	Yes		Yes	Yes			
Santa Maria Public Airport	Yes	Yes	Yes	Yes	Yes	Yes			Restaurant,Stripping and Painting
Santa Paula Airport	Yes	Yes			Yes				
Sonoma County Airport	Yes	Yes	Yes		Yes				Deicing
South County Airport	Yes	Yes	Yes		Yes				
Stockton Metropolitan Airport	Yes	Yes	Yes	Yes	Yes				Rental Car Washing/Recycle Oil Center
Thermal Airport	Yes	Yes			Yes				Aircraft Storage
Torrance Municipal Airport	Yes	Yes	Yes		Yes	Yes			
Truckee Tahoe Airport	Yes	Yes	Yes		Yes				Aircraft assembly and storage
Turlock Municipal Airport	Yes	Yes			Yes				
Twentynine Palms Airport	Yes	Yes			Yes				
Ukiah Municipal Airport	Yes	Yes	Yes		Yes		Yes		CA Dept Forestry fire retartdant loading
Visalia Municipal Airport	Yes	Yes	Yes		Yes				
Whiteman Airport	Yes		Yes		Yes				
Willows-Glenn County Airport	Yes	Yes		Yes	Yes		Yes		Concrete Manuf./Agriculture Operations
Woodland Aviation	Yes		Yes		Yes				
Yolo County Airport	Yes	Yes	Yes		Yes		Yes		Aircraft Storage/Herbicide Farming
Yuba County Airport	Yes	Yes	Yes		Yes				

SIGNIFICANT MATERIALS STORED AT EACH AIRPORT

TABLE 5

NAME OF AIRPORT	Solvents	Scrap Metal	Petroleum Products	Plating Products	Pesticides	Hazardous Wastes	Paints	Deicing Fluids	OTHER ACTIVITIES
Apple Valley Airport	Yes		Yes		Yes	Yes	Yes		
Arcata-Eureka Airport		Yes	Yes			Yes			
Auburn Municipal Airport	Yes		Yes						
Banning Airport			Yes						
Barstow-Daggett Airport	Yes	Yes	Yes		Yes	Yes	Yes		
Benton Airport	Yes		Yes			Yes	Yes		Waste Oil
Big Bear City Airport			Yes						
Blythe Airport	Yes		Yes				Yes		
Borrego Valley Airport		Yes	Yes	Yes	Yes				
Brackett Airport			Yes			Yes			
Brown Field Airport	Yes		Yes		Yes		Yes		
Buchanan Field Airport			Yes						
Burbank-Glendale-Pasadena Airport	Yes		Yes		Yes		Yes		
Byron Airport		Yes	Yes	Yes	Yes	Yes			
Cable Airport Inc.		Yes	Yes						
Calaveras County Airport	Yes		Yes				Yes		
Camarillo Airport	Yes		Yes				Yes		
Chino Airport	Yes	Yes	Yes	Yes		Yes	Yes		
Chiriaco Summit Airport		Yes	Yes						
Columbia Airport			Yes		Yes	Yes			Hazardous waste is crankcase oil.
Colusa County Airport			Yes						Aviation Fuel -- low lead 100 & 80 oct.
Compton Airport			Yes			Yes			
Corona Municipal Airport			Yes						
Desert Center Airport									
El Monte Airport			Yes						
Fallbrook Community Air Park, Inc.			Yes		Yes				
Flabob Airport			Yes						
Fox Field Airport			Yes						
French Valley Airport	Yes		Yes				Yes		
Fullerton Municipal Airport	Yes		Yes			Yes	Yes		
Georgetown Airport			Yes						
Gillespie Field			Yes						Lessees responsible for leased parcels

SIGNIFICANT MATERIALS STORED AT EACH AIRPORT

TABLE 5

NAME OF AIRPORT	Solvents	Scrap Metal	Petroleum Products	Plating Products	Pesticides	Hazardous Wastes	Paints	Deicing Fluids	OTHER ACTIVITIES
Half Moon Bay Airport			Yes			Yes			Aviation Fuel & Aircraft Waste Oil
Hawthorne Municipal Airport			Yes						
Hayward Air Terminal		Yes	Yes		Yes				
Healdsburg Municipal Airport			Yes				Yes		
Hemet Ryan Airport	Yes		Yes						
Hesperia Airport			Yes						
Hollister Municipal Airport			Yes						
Imperial County Airport		Yes	Yes			Yes			
Lincoln Municipal Airport			Yes						Group Permit
Livermore Municipal Airport			Yes			Yes			Used Oil
Long Beach Airport			Yes						
Madera Municipal Airport			Yes		Yes				Fertilizer, Herbicides
Marin County Airport/Gnoss Field		Yes	Yes		Yes	Yes	Yes		
McClellan-Palomar Airport			Yes						
Minter Field Airport District			Yes				Yes		
Modesto City-County Airport		Yes	Yes			Yes		Yes	
Mojave Airport		Yes	Yes						
Monterey Peninsula Airport District			Yes						Inert construction
Montgomery Field	Yes		Yes				Yes		
Murray Field Airport, Humboldt Co.		Yes	Yes			Yes			
Napa County Airport	Yes		Yes		Yes	Yes			Waste Oil
Needles Airport			Yes				Yes		
Nevada County Airpark Airport			Yes						
Nut Tree Airport	Yes		Yes			Yes			
Orland-Haigh Field			Yes		Yes				Fruit & vegetable byproducts,brined olives
Oxnard Airport	Yes		Yes				Yes		
Palm Springs Regional Airport	Yes		Yes					Yes	
Palo Alto Airport	Yes		Yes		Yes	Yes	Yes		Herbicides
Paradise Skypark			Yes						
Petaluma Municipal Airport			Yes						
Pine Mountain Airport			Yes		Yes	Yes			Hazardous waste is crankcase
Placerville Airport		Yes	Yes		Yes				
Ramona Airport		Yes	Yes	Yes	Yes				

SIGNIFICANT MATERIALS STORED AT EACH AIRPORT TABLE 5

NAME OF AIRPORT	Solvents	Scrap Metal	Petroleum Products	Plating Products	Pesticides	Hazardous Wastes	Paints	Deicing Fluids	OTHER ACTIVITIES
Redding Municipal Airport	Yes		Yes					Yes	Water Methanol
Redlands Municipal Airport	Yes		Yes				Yes		
Reid-Hillview Airport	Yes		Yes		Yes	Yes	Yes		Herbicides
Rialto Municipal/Art Scholl Mem Airp.			Yes				Yes		
Riverside Municipal Airport	Yes		Yes			Yes	Yes		
Salinas Municipal Airport	Yes		Yes		Yes		Yes		
San Carlos Airport			Yes			Yes			Aviation Fuels & Aircraft Waste oil
San Jose International Airport	Yes		Yes		Yes	Yes	Yes		
San Luis Obispo Count Airport			Yes						
Santa Maria Public Airport	Yes		Yes			Yes	Yes		
Santa Paula Airport	Yes		Yes				Yes		
Sonoma County Airport	Yes		Yes		Yes	Yes	Yes	Yes	Herbicides
South County Airport	Yes		Yes		Yes	Yes	Yes		Herbicides
Stockon Metropolitan Airport	Yes	Yes	Yes						
Thermal Airport	Yes		Yes				Yes		
Torrance Municipal Airport			Yes		Yes				
Truckee Tahoe Airport	Yes		Yes			Yes	Yes		
Turlock Municipal Airport			Yes						
Twentynine Palms Airport	Yes		Yes				Yes		
Ukiah Municipal Airport			Yes						
Visalia Municipal Airport	Yes		Yes		Yes				
Whiteman Airport			Yes						
Willows-Glenn County Airport			Yes		Yes				Precast Concrete Products
Woodland Aviation			Yes						
Yolo Airport			Yes		Yes				
Yuba County Airport	Yes		Yes		Yes	Yes	Yes		

MATERIAL MANAGEMENT PRACTICES EMPLOYED AT EACH AIRPORT

TABLE 6

NAME OF AIRPORT	Overhead Coverage	Desig. Areas	Recycling	Oil/Water Separator	Secondary Containment	Berms	Drip Pans	Good Hskpng	Prevent Maint.	Absorbants	Training	Other
Apple Valley Airport	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes		Oil reclam.,floor drains into separate contamination area
Arcata-Eureka Airport					Yes				Yes	Yes		
Auburn Municipal Airport	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Contained Wash Area
Banning Airport												
Barstow-Daggett Airport		Yes	Yes		Yes		Yes		Yes	Yes		
Benton Airport		Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Big Bear City Airport	Yes	Yes		Yes	Yes		Yes	Yes		Yes		Spill mats
Blythe Airport		Yes					Yes		Yes	Yes	Yes	
Borrego Valley Airport										Yes		Fire extinguisher,truck hoses
Brackett Airport	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Brown Field Airport	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Vacuum cleaners available for spills,
Buchanan Field Airport	Yes	Yes	Yes	Yes				Yes	Yes	Yes	Yes	Overfill protection, 100% was reclamation
Burbank-Glendale-Pasadena	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Byron Airport					Yes			Yes	Yes	Yes	Yes	Overfill protection
Cable Airport Inc.	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes	
Calaveras County Airport	Yes	Yes					Yes			Yes	Yes	
Camarillo Airport	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		
Chino Airport							Yes		Yes		Yes	Fluid long term storage
Chiriaco Summit Airport		Yes										
Columbia Airport		Yes					Yes			Yes	Yes	
Colusa County Airport	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Pre-washing, gradual pavement slope
Compton Airport		Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	
Corona Municipal Airport	Yes	Yes			Yes		Yes	Yes	Yes	Yes	Yes	Biodegradable soap,spill mats
Desert Center Airport												
El Monte Airport	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes	
Fallbrook Comm. Air Park		Yes				Yes	Yes			Yes	Yes	Wash water used for irrigation
Flabob Airport			Yes									Waste oil placed in approved disposal tank
Fox Field Airport		Yes		Yes			Yes	Yes		Yes	Yes	Leak detection
French Valley Airport	Yes	Yes			Yes		Yes	Yes	Yes	Yes	Yes	Wash rack containment, spill retention
Fullerton Municipal Airport	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Georgetown Airport			Yes				Yes	Yes	Yes	Yes	Yes	
Gillespie Field		Yes			Yes		Yes		Yes	Yes		Fire-extinguishers

MATERIAL MANAGEMENT PRACTICES EMPLOYED AT EACH AIRPORT

TABLE 6

NAME OF AIRPORT	Overhead Coverage	Desig. Areas	Recycling	Oil/Water Separator	Secondary Containment	Berms	Drip Pans	Good Hskpng	Prevent Maint.	Absorbants	Training	Other
Half Moon Bay Airport	Yes	Yes			Yes		Yes	Yes	Yes	Yes	Yes	Biodegradable soap
Hawthorne Muni Airport		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Dbl waste oil tank/fuel leak monitoring/wash rack to sewer
Hayward Air Terminal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Biodegradable soap, waste oil drums
Healdsburg Municipal Airport												
Hemet Ryan Airport	Yes	Yes				Yes	Yes	Yes		Yes	Yes	Ramp drains to underground storage
Hollister Municipal Airport	Yes	Yes			Yes			Yes	Yes	Yes	Yes	Sloped wash rack to sewer, spill monitor
Imperial County Airport	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes		Spill buckets
Lincoln Municipal Airport	Yes	Yes	Yes					Yes		Yes	Yes	Leakage monitoring
Livermore Municipal Airport	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Overfill protection, used oil containment
Long Beach Airport		Yes		Yes		Yes			Yes	Yes		Vapor recovery,Overfill protection
Madera Municipal Airport	Yes				Yes	Yes	Yes		Yes	Yes		Spill recovery,contract oil removal,grease traps,auto shutoff
Marin Cnty Apt./Gnoss Fld		Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Evaporation pond, overfill protection,drain covers
McClellan-Palomar Airport					Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Minter Field Airport District		Yes						Yes		Yes	Yes	Cover Cleaning Operation Areas
Modesto City-County Apt.	Yes	Yes			Yes		Yes	Yes	Yes	Yes	Yes	Overflow protection, floor alarm
Mojave Airport			Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Automatic shutoff, containment basin,sloped surface
Monterey Peninsula Airport	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Overfill protection, auto wash recycled
Montgomery Field	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes		Biodeg. soap,vendor removes waste oils and solvents
Murray Field Airport	Yes	Yes			Yes							
Napa County Airport					Yes					Yes	Yes	Overfill protection
Needles Airport	Yes	Yes	Yes		Yes		Yes			Yes		
Nevada Cnty Airpark Apt.						Yes	Yes	Yes	Yes	Yes	Yes	Biodegradable cleaners
Nut Tree Airport	Yes	Yes	Yes		Yes		Yes		Yes	Yes		24 Hour Alarm
Orland-Haigh Field Apt.	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Daily Inspections
Oxnard Airport	Yes	Yes	Yes			Yes	Yes		Yes	Yes		Used rags,waste oil,oil filters,batteries&solvents removed
Palm Springs Regional Apt.		Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Overflow&leak protection, infiltration basins,drain covers
Palo Alto Airport		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Biodegradable soap,drain covers, grease removal
Paradise Skypark	Yes	Yes				Yes	Yes			Yes		
Petaluma Municipal Airport	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	overfill protection , fill protection
Pine Mountain Lake Airport	Yes		Yes		Yes		Yes			Yes	Yes	No deicing
Placerville Airport	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Annual UST Testing, Vapor recovery
Ramona Airport		Yes			Yes		Yes			Yes		55 gal. drums, leakage monitoring system
Redding Municipal Airport		Yes		Yes			Yes	Yes	Yes	Yes	Yes	Daily fuel inspection by F.D.

MATERIAL MANAGEMENT PRACTICES EMPLOYED AT EACH AIRPORT

TABLE 6

NAME OF AIRPORT	Overhead Coverage	Desig. Areas	Recycling	Oil/Water Separator	Secondary Containment	Berms	Drip Pans	Good Hskpng	Prevent Maint.	Absorbants	Training	Other
Redlands Municipal Airport	Yes	Yes	Yes			Yes	Yes		Yes	Yes		Auto shut off pump
Reid-Hillview Airport	Yes	Yes	Yes		Yes		Yes		Yes	Yes	Yes	Biodeg. soap,drain covers,sump,wipe before washing
Rialto Municipal/Art Scholl		Yes			Yes	Yes	Yes		Yes	Yes		grease traps,spill mats
Riverside Municipal Airport		Yes	Yes		Yes			Yes	Yes	Yes		
Salinas Municipal Airport	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	None
San Carlos Airport	Yes	Yes			Yes		Yes	Yes	Yes	Yes	Yes	Auto fuel shut-off, sumps,biodegradable soap
San Jose Int. Airport	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Test CFR vehicles, spill covers for inlets
San Luis Obispo Cnty Apt.		Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Magnetic mats, response team, biodegradable soap
Santa Maria Public Airport	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Storm drains plugged in wash area, grease traps
Santa Paula Airport		Yes					Yes	Yes		Yes		
Sonoma County Airport	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Daily patrol,deicing fluids placed in sewer
South County Airport	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes		Closed drains,recover vapor,biodeg. soap,fuel shutoff
Stockon Metropolitan Apt.	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Spill mats, portable dikes
Thermal Airport	Yes	Yes					Yes	Yes		Yes	Yes	
Torrance Municipal Airport	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Biodegradable soaps, vapor recovery
Truckee Tahoe Airport	Yes			Yes	Yes					Yes		
Turlock Municipal Airport	Yes	Yes					Yes		Yes	Yes	Yes	Spill mats, Large Retention Basin
Twentynine Palms Airport	Yes	Yes					Yes			Yes		
Visalia Municipal Airport	Yes	yes	Yes		Yes				Yes	Yes	Yes	
Ukiah Municipal Airport	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Sump, separate drainage systems, drain covers
Whitemen Airport	Yes	Yes				Yes		Yes	Yes	Yes	Yes	
Willows-Glenn County Apt.	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes	Casting of concrete indoors
Woodland Aviation	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Leak Detection
Yolo County Airport	Yes	Yes		Yes	Yes			Yes	Yes	Yes		
Yuba County Airport		Yes				Yes	Yes		Yes	Yes	Yes	Drain covers

Region	Name of Airport	Fire System Testing	Hydrant Flushing	Irrigation Drainage	Landscape Watering	AC Condensate	Other
1	Arcata-Eureka Airport	Yes	Yes		Yes		
1	Murray Field, Humboldt County	Yes	Yes				Sea Water
1	Sonoma County Airport			Yes			
1	Ukiah Municipal Airport		Yes		Yes	Yes	Ground water
2	Buchanan Field Airport			Yes	Yes		
2	Half Moon Bay Airport	Yes	Yes	Yes	Yes	Yes	Ground water
2	Hayward Air Terminal				Yes		Ground water
2	Livermore Municipal Airport	Yes	Yes	Yes	Yes		Ground water
2	Marin County Airport/Gnoss Field		Yes		Yes	Yes	Ground water
2	Napa County Airport	Yes	Yes	Yes	Yes		
2	Palo Alto Airport		Yes	Yes	Yes	Yes	
2	Petaluma Municipal Airport		Yes	Yes	Yes		
2	Reid-Hillview Airport				Yes		Ground water
2	San Carlos Airport	Yes	Yes	Yes	Yes	Yes	Ground water
2	San Jose International Airport	Yes	Yes	Yes	Yes	Yes	Ground water
2	South County Airport		Yes	Yes	Yes		Ground water
3	Hollister Municipal Airport		Yes	Yes	Yes		
3	Monterey Peninsula Airport District	Yes	Yes	Yes	Yes		Ground water
3	Salinas Municipal Airport		Yes	Yes	Yes		
3	San Luis Obispo County Airport		Yes		Yes		Ground water
3	Santa Maria Public Airport						
4	Brackett Airport		Yes				
4	Burbank-Glendale-Pasadena Airport	Yes	Yes	Yes	Yes	Yes	
4	Camarillo Airport	Yes	Yes	Yes	Yes		Ground water
4	Compton Airport		Yes				
4	El Monte Airport		Yes				Ground water
4	Hawthorne Municipal Airport		Yes			Yes	
4	Long Beach Airport						None
4	Oxnard Airport		Yes	Yes	Yes		Ground water
4	Santa Paula Airport						
4	Torrance Municipal Airport	Yes	Yes		Yes		

Region	Name of Airport	Fire System Testing	Hydrant Flushing	Irrigation Drainage	Landscape Watering	AC Condensate	Other
5	Auburn Municipal Airport		Yes		Yes		
5	Benton Airport				Yes		Ground water
5	Byron Airport			Yes	Yes		
5	Calaveras County Airport						
5	Columbia Airport				Yes		
5	Colusa County Airport				Yes		Ground water
5	Georgetown Airport						None
5	Lincoln Municipal Airport						
5	Madera Municipal Airport						
5	Minter Field Airport District	Yes	Yes	Yes	Yes		
5	Modesto City-County Airport	Yes	Yes	Yes	Yes	Yes	
5	Nevada County Airpark Airport		Yes		Yes	Yes	
5	Nut Tree Airport			Yes	Yes		
5	Orland-Haigh Field				Yes		
5	Paradise Skypark						
5	Pine Mountain Lake Airport						
5	Placerville Airport						None
5	Redding Municipal Airport	Yes	Yes	Yes	Yes		Ground water
5	Stockton Metropolitan Airport	Yes	Yes	Yes	Yes		
5	Turlock Municipal Airport						None
5	Visallia	Yes	Yes	Yes	Yes		
5	Whiteman Airport		Yes				
5	Willows-Glenn County Airport				Yes	Yes	
5	Woodland Aviation				Yes		
5	Yolo County Airport	Yes					
5	Yuba County Airport		Yes		Yes		
6	Apple Valley Airport						None
6	Barstow-Daggett Airport		Yes		Yes		
6	Fox Field Airport		Yes				
6	Mojave Airport						None
6	Truckee Tahoe Airport		Yes		Yes	Yes	
7	Banning Municipal Airport						

Region	Name of Airport	Fire System Testing	Hydrant Flushing	Irrigation Drainage	Landscape Watering	AC Condensate	Other
7	Blythe Airport	Yes	Yes		Yes	Yes	
7	Borrego Valley Airport						None
7	Imperial County Airport						None
7	Needles Airport		Yes		Yes		
7	Palm Springs Regional Airport						
7	Thermal Airport						None
7	Twentynine Palms Airport				Yes		
8	Big Bear City Airport		Yes				
8	Cable Airport Inc.		Yes				
8	Chino Airport	Yes	Yes	Yes			
8	Chiriaco Summit Airport						None
8	Corona Municipal Airport		Yes				
8	Desert Center Airport						None
8	Flabob Airport		Yes				
8	Fullerton Municipal Airport						
8	Hemet Ryan Airport						
8	Redlands Municipal Airport						
8	Rialto Municipal/Art Scholl Mem. Air.		Yes		Yes		Well flushing
8	Riverside Municipal Airport	Yes					
9	Brown Field Airport			Yes			
9	Fallbrook Community Air Park, Inc.						
9	French Valley Airport				Yes		
9	Gillespie Field				Yes		Ground water
9	McClellan-Palomar Airport	Yes			Yes		
9	Montgomery Field				Yes		
9	Ramona Airport						None
New	Healdsburg Municipal						

Activity	Potential Pollutant Source	Potential Pollutants	Best Management Practices
Aircraft & Vehicle Fueling	Fuel storage and transfer	Jet A Fuel	SPCC Plans
	Aircraft fueling	Avgas	Employee training
	Vehicle fueling	Automobile Fuel	Spill control Kits
	Tanks leaks		Absorbent materials and booms
			Absorbent maps
			Drain cover mats
			Overfill protection
			Leak detection
			Containment barriers for spills
			Tank secondary containment
			Daily / routine inspections
			Fuel transfer self contained
			Spill containment on trucks
			Inventory monitoring
			Shut - off valves
			Fueling area swept and kept clean
			Cement fueling pad
Aircraft Maintenance	Fluid changes	Hydraulic oil	Maintenance conducted indoors
	Battery storage	Waste oil	Maintenance conducted under cover
	Material storage	Antifreeze	Maintenance conducted in designated area
	Painting	Solvents	Drip pans required
	Leaks	Fuels	Routine good housekeeping
		Paint	Inspections of maintenance areas
		Lubricants	Wastes stored indoors and removed by contractor
		Detergents	Wastes recycled off site
		Oil filters	Spill kits
			Employee training
			Drains stenciled
			Materials stored indoors
			Oil water separator in drains
			Batteries recycled
			Tarps
Ramp and Apron Area Activity	Fuel transfer	Avgas	Employee training
	Leaking vehicles and aircraft	Jet A Fuel	Drain cover mats
	Aircraft parking	Leaked fluids	Drain stenciling
			Ramp sweeping
			Spill kits on fuel trucks
			Spill response team
			Absorbents, mats, booms
			Drip pans required
			SPCC plans
			Ramp inspections

Activity	Potential Pollutant Source	Potential Pollutants	Best Management Practices
Aircraft & Vehicle Washing	Aircraft washing	Oil and grease	Contained wash pads
	Vehicle washing	Fuels	Wash water discharges to sanitary
		Metals	Designated washing area
		Detergents	Biodegradable soap
		Degreasers	Wash pads bermed and sloped, runoff to sanitary sewer
			Concrete washing pad - runoff to sanitary sewer
			Employee training
Material Storage	Used material / chemical storage	Waste oil	Secondary containment
	New material / chemical storage	Solvents	Materials stored indoors
		Antifreeze	Materials stored in bermed area
		Paint	Frequent monitoring / Inspection of storage areas
		Oil filters	Employee training
		Lubricants	Proper labeling
		Fuels	Materials stored undercover
			Spill plans
			Absorbents, mats, booms
			Storage areas kept clean
			Limited quantities of materials stored
			Vendors remove waste materials
			Waste materials recycled

Table 9
AAAE/ARDF Monitoring Group
Parameters and Test Methods

Parameter	Method	Reporting Units	Laboratory Detection Limits
Total Organic Carbon	EPA 415.1	milligrams per liter (mg/l)	0.10 mg/l
Total Suspended Solids	EPA 160.2	mg/l	6 mg/l
Specific Conductance	STD M 907A	micro ohms per centimeter (*u*mhos/cm)	1 *u*mhos/cm
pH	pH field meter	pH units	1.0 pH units
Chemical Oxygen Demand	EPA 410.1	mg/l	5.0 mg/l
Biochemical Oxygen Demand	EPA 405.1	mg/l	2.0 mg/l
Ammonia	EPA 350.2	mg/l	0.10 mg/l

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
1	Arcata-Eureka Airport	X		X		
1	Murray Field, Humboldt County	X			X	
1	Sonoma County Airport		X			X
1	Ukiah Municipal Airport			X		X
2	Buchanan Field Airport		X		X	
2	Half Moon Bay Airport	X		X		
2	Hayward Air Terminal			X		X
2	Livermore Municipal Airport	X			X	
2	Marin County Airport/Gnoss Field		X			X
2	Napa County Airport		X		X	
2	Palo Alto Airport			X		X
2	Petaluma Municipal Airport	X		X		
2	Reid-Hillview Airport		X		X	
2	San Carlos Airport			X		X
2	San Jose International Airport	X			X	
2	South County Airport		X			X
3	Hollister Municipal Airport			X		X
3	Monterey Peninsula Airport District		X		X	
3	Salinas Municipal Airport		X		X	
3	San Luis Obispo County Airport	X		X		
3	Santa Maria Public Airport	X			X	
4	Brackett Airport		X			X
4	Burbank-Glendale-Pasadena Airport			X		X
4	Camarillo Airport	X		X		
4	Compton Airport		X		X	
4	El Monte Airport	X		X		
4	Hawthorne Municipal Airport	X			X	
4	Long Beach Airport		X			X
4	Oxnard Airport			X		X
4	Santa Paula Airport		X		X	
4	Torrance Municipal Airport			X		X

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
5	Auburn Municipal Airport	X			X	
5	Benton Airport		X			X
5	Byron Airport			X		X
5	Calaveras County Airport	X		X		
5	Columbia Airport		X		X	
5	Colusa County Airport		X		X	
5	Georgetown Airport	X				X
5	Lincoln Municipal Airport	X			X	
5	Madera Municipal Airport		X		X	
5	Minter Field Airport District	X		X		
5	Modesto City-County Airport		X			X
5	Nevada County Airpark Airport	X			X	
5	Nut Tree Airport	X		X		
5	Orland-Haigh Field	X				X
5	Paradise Skypark		X		X	
5	Pine Mountain Lake Airport			X		X
5	Placerville Airport		X		X	
5	Redding Municipal Airport			X		X
5	Stockton Metropolitan Airport	X			X	
5	Turlock Municipal Airport		X		X	
5	Visallia		X			X
5	Whiteman Airport			X		X
5	Willows-Glenn County Airport	X		X		
5	Woodland Aviation	X			X	
5	Yolo County Airport		X		X	
5	Yuba County Airport			X		X
6	Apple Valley Airport	X			X	
6	Barstow-Daggett Airport	X		X		
6	Fox Field Airport		X		X	
6	Mojave Airport	X				X
6	Truckee Tahoe Airport		X		X	
7	Banning Municipal Airport		X			X

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
7	Blythe Airport	X			X	
7	Borrego Valley Airport		X			X
7	Imperial County Airport	X		X		
7	Needles Airport		X		X	
7	Palm Springs Regional Airport		X		X	
7	Thermal Airport	X		X		
7	Twentynine Palms Airport		X			X
8	Big Bear City Airport	X		X		
8	Cable Airport Inc.	X		X		
8	Chino Airport		X		X	
8	Chiriaco Summit Airport			X		X
8	Corona Municipal Airport	X			X	
8	Desert Center Airport		X		X	
8	Flabob Airport	X		X		
8	Fullerton Municipal Airport		X		X	
8	Hemet Ryan Airport	X				X
8	Redlands Municipal Airport	X		X		
8	Rialto Municipal/Art Scholl Mem. Air.					
8	Riverside Municipal Airport		X		X	
9	Brown Field Airport		X		X	
9	Fallbrook Community Air Park, Inc.	X				X
9	French Valley Airport	X		X		
9	Gillespie Field	X			X	
9	McClellan-Palomar Airport		X		X	
9	Montgomery Field			X		X
9	Ramona Airport			X		X
New	Healdsburg Municipal		X			X

Table 11

Los Banos Community Airport — WDID# 5B24S001188
1ST SAMPLE 96/97

Grab sample collected: 1/15/97 9:20 am
Sampler and Collection site(s): Joe Sousa, outfall # 01

Parameter	Results 1st sample Outfall #01	Detection limit(lab)
pH	8.8	NA
TSS	ND	6.0 mg/l
specific conductance	218 umhos/cm	1.0 umhos/cm
oil & grease	ND	10.0 mg/l
TEPH	ND	.50 mg/l
TOX	0.025 mg/l	0.010mg/l
Cadmium	ND	.010 mg/l
Copper	0.02 mg/l	.025 mg/l
Nickel	0.05 mg/l	.010 mg/l
Lead	0.008 mg/l	.010 mg/l
Zinc	0.07 mg/l	.010 mg/l

1/15 runoff began 7:00 am

ND = non detect = resulting data value is below laboratory detection limit
mg/l = milligrams per liter
ug/l = micrograms per liter
umhos/cm = micro ohms per centimeter

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
1	Arcata-Eureka Airport			X		X
1	Murray Field, Humboldt County			X		X
1	Sonoma County Airport			X		X
1	Ukiah Municipal Airport			X		X
2	Buchanan Field Airport			X		X
2	Half Moon Bay Airport			X		X
2	Hayward Air Terminal			X		X
2	Livermore Municipal Airport			X		X
2	Marin County Airport/Gnoss Field			X		X
2	Napa County Airport			X		X
2	Palo Alto Airport			X		X
2	Petaluma Municipal Airport			X		X
2	Reid-Hillview Airport			X		X
2	San Carlos Airport			X		X
2	San Jose International Airport			X		X
2	South County Airport			X		X
3	Hollister Municipal Airport			X		X
3	Monterey Peninsula Airport District			X		X
3	Salinas Municipal Airport			X		X
3	San Luis Obispo County Airport			X		X
3	Santa Maria Public Airport			X		X
4	Brackett Airport			X		X
4	Burbank-Glendale-Pasadena Airport			X		X
4	Camarillo Airport			X		X
4	Compton Airport			X		X
4	El Monte Airport			X		X
4	Hawthorne Municipal Airport		X		X	
4	Long Beach Airport		X			X
4	Oxnard Airport		X			X
4	Santa Paula Airport		X		X	
4	Torrance Municipal Airport		X			X

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
5	Auburn Municipal Airport		X		X	
5	Benton Airport		X			X
5	Byron Airport		X			X
5	Calaveras County Airport		X			
5	Columbia Airport		X		X	
5	Colusa County Airport		X		X	
5	Georgetown Airport		X			X
5	Lincoln Municipal Airport		X		X	
5	Madera Municipal Airport		X		X	
5	Minter Field Airport District		X			
5	Modesto City-County Airport		X			X
5	Nevada County Airpark Airport		X		X	
5	Nut Tree Airport		X			
5	Orland-Haigh Field		X			X
5	Paradise Skypark		X		X	
5	Pine Mountain Lake Airport		X			X
5	Placerville Airport		X		X	
5	Redding Municipal Airport		X			X
5	Stockton Metropolitan Airport		X		X	
5	Turlock Municipal Airport		X		X	
5	Visallia Municipal Airport		X			
5	Whiteman Airport		X			X
5	Willows-Glenn County Airport		X			
5	Woodland Aviation		X		X	
5	Yolo County Airport		X		X	
5	Yuba County Airport		X			X
6	Apple Valley Airport	X			X	
6	Barstow-Daggett Airport	X			X	
6	Fox Field Airport	X			X	
6	Mojave Airport	X			X	
6	Truckee Tahoe Airport		X		X	
7	Banning Municipal Airport	X			X	

Region	Name of Airport	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
7	Blythe Airport	X			X	
7	Borrego Valley Airport	X			X	
7	Imperial County Airport	X			X	
7	Needles Airport	X			X	
7	Palm Springs Regional Airport	X			X	
7	Thermal Airport	X			X	
7	Twentynine Palms Airport	X			X	
8	Big Bear City Airport	X			X	
8	Cable Airport Inc.	X			X	
8	Chino Airport	X			X	
8	Chiriaco Summit Airport	X			X	
8	Corona Municipal Airport	X			X	
8	Desert Center Airport	X			X	
8	Flabob Airport	X			X	
8	Fullerton Municipal Airport	X			X	
8	Hemet Ryan Airport	X			X	
8	Redlands Municipal Airport	X			X	
8	Rialto Municipal/Art Scholl Mem. Air.	X			X	
8	Riverside Municipal Airport	X			X	
9	Brown Field Airport	X			X	
9	Fallbrook Community Air Park, Inc.	X			X	
9	French Valley Airport	X			X	
9	Gillespie Field	X			X	
9	McClellan-Palomar Airport	X			X	
9	Montgomery Field	X			X	
9	Ramona Airport	X			X	
New	Healdsburg Municipal			X		X

APPENDIX B
Figures 1 - 13

List of Figures

Figure 1	Non Storm Water Visual Observation Form
Figure 2	Storm Water Visual Observation Forms
Figure 3	Industrial Activity Area Observation Form
Figure 4	BMP Evaluation and Observation Form
Figure 5	ACSCE Report Summary Form
Figure 6	ACSCE Certification
Figure 7	Storm Water Field Data Form
Figure 8	Storm Water Chain of Custody Form
Figure 9	Observation Activity Record Review Form – Group Leader Inspection
Figure 10	Facility Visual Inspection Form – Group Leader Inspection
Figure 11	Facility SWPPP Review – Group Leader Inspection
Figure 12	Authorized Non-Storm Water Inspection Form – Group Leader Inspection
Figure 13	Alternative BMP Inspection Form – Group Leader Inspection

NEW INDUSTRIAL ACTIVITY FORM

Date: _____

Inspector(s): _____

_____

List and Describe New or Substantially Changed Industrial Activity: _____

List BMPs to be Implemented: _____

List Equipment to be Designated: _____

List Any Containment Structures to be Implemented: _____

List and Describe New or Substantially Changed Industrial Activity: _____

List BMPs to be Implemented: _____

List Equipment to be Designated: _____

List Any Containment Structures to be Implemented: _____

Figure 2

STORM WATER VISUAL OBSERVATION FORM

Airport & WDID#: _____

Outfall Identification #: _____

Date: _____

Date Previous Storm Water Runoff: _____

Time Discharge Began: _____

Time Observation Conducted: _____

Inspector Name & Title: _____

WATER QUALITY OBSERVATIONS

ODOR ☐ None ☐ Musty ☐ Sewage ☐ Rotten Eggs
Other, describe: _____

COLOR ☐ Clear ☐ Red ☐ Yellow ☐ Brown ☐ Green
Other, describe: _____

CLARITY ☐ Clear ☐ Cloudy ☐ Opaque ☐ Suspended Solids
Other, describe: _____

FLOATABLES ☐ None ☐ Garbage ☐ Sewage
Other, describe: _____

OILY SHEEN ☐ Yes ☐ No
Other, describe: _____

Comments or Corrective Action: _____

_____

_____

If No Discharge Observation Was Conducted – Complete Information in Box

Month No Significant Discharge Occurred: _____

Comments on Monthly Weather Conditions: _____

_____

Name: _____

Title: _____

Date: _____

Signature: _____

Figure 1

NON – STORM WATER VISUAL OBSERVATION FORM

(Please circle or enter a description for each item.)

Airport & WDID#: _____

Inspectors Name & Title: _____

Date & Time: _____ Outfall No.: _____

Jan. – March April – June July – Sept. Oct. – Dec.

Time Since Last Rain: >72 hrs. <72 hrs.

FOW DESCRIPTION:

Flow Observed YES NO

Odor: None Musty Sewage Rotten Eggs Sour Milk
Other _____

Color: Clear Red Yellow Brown Green Grey
Other: _____

Clarity: Clear Cloudy Opaque Slightly Turbid

Floatables: None Oily FilmGarbage Sewage
Other: _____

EVIDENCE OF NON-STORM WATER DISCHARGE

Deposits/Stains: None Oily Sediments Rust Garbage
Other: _____

Structural Condition: Normal Concrete Cracking Metal Corrosion
Other: _____

Vegetation: None Normal Excessive Inhibited

CORRECTIVE ACTION

List source of flow: _____

Is discharge an authorized non-storm water discharge? Yes No

If no, list corrective action: _____

_____

_____

Comments:

_____

_____

Figure 4

BMP EVALUATION AND OBSERVATION FORM

COMPLETE ONE FORM FOR EACH ACTIVITY AREA

Airport Name & WDID #: _____

Date: _____

Inspector(s): _____

Industrial Activity or Activity Area to be Inspected: _____

Is the activity identified accurately and in accordance with the SWPPP ?

☐ YES ☐ NO

If No, list changes that have occurred: _____

_____

Best Management Practices Status

BMP	Description	BMP in Place	BMP Functioning Properly	BMP Adequate
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Any "No" responses must be documented below with an explanation and a schedule for corrective action or completion:

_____

_____

_____

_____

_____

Figure 5

ACSCE REPORT SUMMARY FORM

Airport name & WDID #: _____

Inspectors: _____

Date: _____

Are all the Storm Water Visual Observation Forms for the wet season months complete?
Yes ☐ No ☐
If No complete observations.

Where any pollutants observed in the storm water discharges? Yes ☐ No ☐
If Yes, list corrective action taken: _____

_____

Are all the Non-Storm Water Visual Observations complete?
Yes ☐ No ☐
If No, complete observations.

Where any unauthorized non-storm water discharges observed? Yes ☐ No ☐
If Yes, list source or discharge and corrective action taken: _____

_____

Where all Site BMPs in place and determined to be adequate?
Yes ☐ No ☐
If No, List corrective action taken: _____

_____

Does the above information or the results of the ACSCE inspections warrant changes to the Airport SWPPP? Yes ☐ No ☐
If Yes, Summarize SWPPP changes to be made: _____

_____

_____

If the SWPPP is to be revised, please list revision schedule: _____

_____

Based on the above information and the results of the ACSCE are there any incidents of Airport non-compliance? Yes ☐ No ☐

If Yes, List corrective action taken: _____

_____

_____

Summarize any Airport corrective action taken based on the ACSCE results: _____

_____

_____

Figure 6

ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION CERTIFICATION

Airport and WDID #: _____

Name: _____

Title: _____

Certification -

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature: _____

Date: _____

Figure 7

STORM WATER FIELD DATA FORM

FILL OUT FOR EACH OUTFALL SAMPLED

OUTFALL I.D.: _____

SAMPLE NO.'S: _____

OUTFALL SAMPLING POINT DESCRIPTION

CHECK ONE BOX:

- ☐ PIPE CULVERT
- ☐ CURB INLET
- ☐ DITCH / CHANNEL
- ☐ GRATE INLET
- ☐ SWALE
- ☐ OTHER _____
- ☐ BOX CULVERT

PRIOR STORM EVENT DATE & TIME ENDED: _____ ☐ AM ☐ PM

SAMPLED EVENT

DATE & TIME OF BEGINNING OF RAINFALL EVENT: _____ ☐ AM ☐ PM

DATE & TIME OF END OF RAINFALL EVENT: _____ ☐ AM ☐ PM

TIME DISCHARGE BEGAN: _____ ☐ AM ☐ PM

TIME DISCHARGE ENDED: _____ ☐ AM ☐ PM

TIME GRAB SAMPLE WAS COLLECTED: _____ ☐ AM ☐ PM

pH OF GRAB SAMPLE: _____

COMMENTS: _____

_____

_____

Figure 8

STORM WATER CHAIN OF CUSTODY FORM

OFFICE USE ONLY	
INITIATE LAB ANALYSIS	APPROVED BY: _____
☐ YES	LAB I. D. _____
☐ NO	DATE : _____

ECO Consulting
5525 NW Shasta Ave.
Corvallis, OR 97330

Phone : 541-745-7233
Fax: 541-745-7354

Facility ID Code : _____

Facility : _____

Address : _____

City/State : _____

Phone : ( ) _____

Sample Date & Time

Begin : _____

End : _____

Completed By : _____

SHIPPED TO : _____

SHIPPING CARRIER : _____

AIR BILL NO. : _____

DATE SHIPPED : _____

OUT FALL I.D.#	SAMPLE NO.	# OF BOTTLES	ANALYSIS CODE

	DATE	TIME		DATE	TIME	REMARKS
RELINQUISHED BY :			RECEIVED BY :			
RELINQUISHED BY :			RECEIVED BY :			
RELINQUISHED BY :			RECEIVED BY :			
RELINQUISHED BY :			RECEIVED BY :			

FIELD REPORT CARBONS : WHITE - LAB COPY
PINK - ECO Consulting
YELLOW - ECO Consulting

Figure 9

OBSERVATION ACTIVITY RECORD REVIEW FORM

GROUP LEADER INSPECTION

Airport name & WDID #: _____

Inspectors: _____ Title: _____

Date: _____

Are all the Storm Water Visual Observation Forms for the last 12 months complete and accurate?
Yes ☐ No ☐
If No, explain: _____

_____

Have any visual observations of pollutants in the storm water runoff been recorded? Yes ☐ No ☐
If Yes, list corrective action taken: _____

_____

_____

Are all the Non-Storm Water Visual Observations for the last 12 months complete and accurate?
Yes ☐ No ☐
If No, explain: _____

_____

Are there any recorded incidents of unauthorized or illicit discharges recorded? Yes ☐ No ☐
If Yes, list sources and corrective action taken: _____

_____

_____

Has the ACSCE documentation been completed in the last 12 months? Yes ☐ No ☐
If No, explain: _____

_____

_____

Based on the above information and the results of the ACSCE are there any incidents of airport non-compliance? Yes ☐ No ☐

If Yes, summarize corrective action taken: _____

_____

_____

_____

_____

Figure 10

AIRPORT VISUAL INSPECTION FORM

GROUP LEADER INSPECION

Airport name & WDID #:_____

Inspector name & Title: _____

Date: _____

Describe Industrial Activity Area Inspected: _____

Are the SWPPP listed BMPs implemented? Yes ☐ No ☐
If No, explain:_____

_____

Do the implemented BMPs appear to be effective? Yes ☐ No ☐
If No, list BMPs recommended for implementation in the area:_____

_____

Is there any evidence of pollutants entering the storm system from the area? Yes ☐ No ☐
If Yes, list corrective action taken: _____

_____

Describe Industrial Activity Area Inspected: _____

Are the SWPPP listed BMPs implemented? Yes ☐ No ☐
If No, explain:_____

_____

Do the implemented BMPs appear to be effective? Yes ☐ No ☐
If No, list BMPs recommended for implementation in the area:_____

_____

Is there any evidence of pollutants entering the storm system from the area? Yes ☐ No ☐
If Yes, list corrective action taken: _____

_____

Figure 11

AIRPORT SWPPP REVIEW
GROUP LEADER INSPECTION

Airport Name & WDID #: _____

Inspector Name & Title: _____

Date: _____

Has the airport SWPPP been updated to meet New General Permit requirements?
Yes ☐ No ☐
If No, explain: _____

_____

Is there a completed SWPPP review checklist & Attachments? Yes ☐ No ☐
If No, explain: _____

_____

Does the SWPPP address all industrial activities and potential pollutant sources at the airport?
Yes ☐ No ☐
If No, explain: _____

_____

Does the SWPPP address all the BMPs implemented at the airport? Yes ☐ No ☐
If No, explain: _____

_____

Is the airport site map update with current conditions at the site? Yes ☐ No ☐
If No, give schedule for map update: _____

Does the airport site map contain all the permit required information? Yes ☐ No ☐
If No, give schedule for map update: _____

List suggested SWPPP revisions: _____

_____

_____

List SWPPP revision schedule: _____

List Group Leader recommended BMPs based on document review: _____

_____

_____

List recommended BMP schedule: _____

_____

Figure 12

AUTHORIZED NON-STORM WATER INSPECTION FORM

GROUP LEADER INSPECTION

Airport Name & WDID #: _____

Inspector Name & Title: _____

Date: _____

List authorized non-storm water discharges inspected: _____

Are there any visible signs of pollutants in the authorized non-storm water discharge? Yes ☐ No ☐
If Yes, list corrective action: _____

_____

Are there authorized non-storm water BMPs listed in the Airport SWPPP? Yes ☐No ☐
If No, explain: _____

_____

List authorized non-storm water discharge BMPs recommended: _____

_____

List authorized non-storm water discharges inspected: _____

Are there any visible signs of pollutants in the authorized non-storm water discharge? Yes ☐ No ☐
If Yes, list corrective action: _____

_____

Are there authorized non-storm water BMPs listed in the Airport SWPPP? Yes ☐No ☐
If No, explain: _____

_____

List authorized non-storm water discharge BMPs recommended: _____

_____

Figure 13

ALTERNATIVE BMP INSPECTION FORM

GROUP LEADER INSPECTION

Airport Name & WDID #: _____

Inspector Name & Title: _____

Date: _____

List any alternative BMPs implemented at site: _____

_____

_____

_____

Are the alternative BMPs effective ? Yes ☐ No ☐

If No, explain: _____

_____

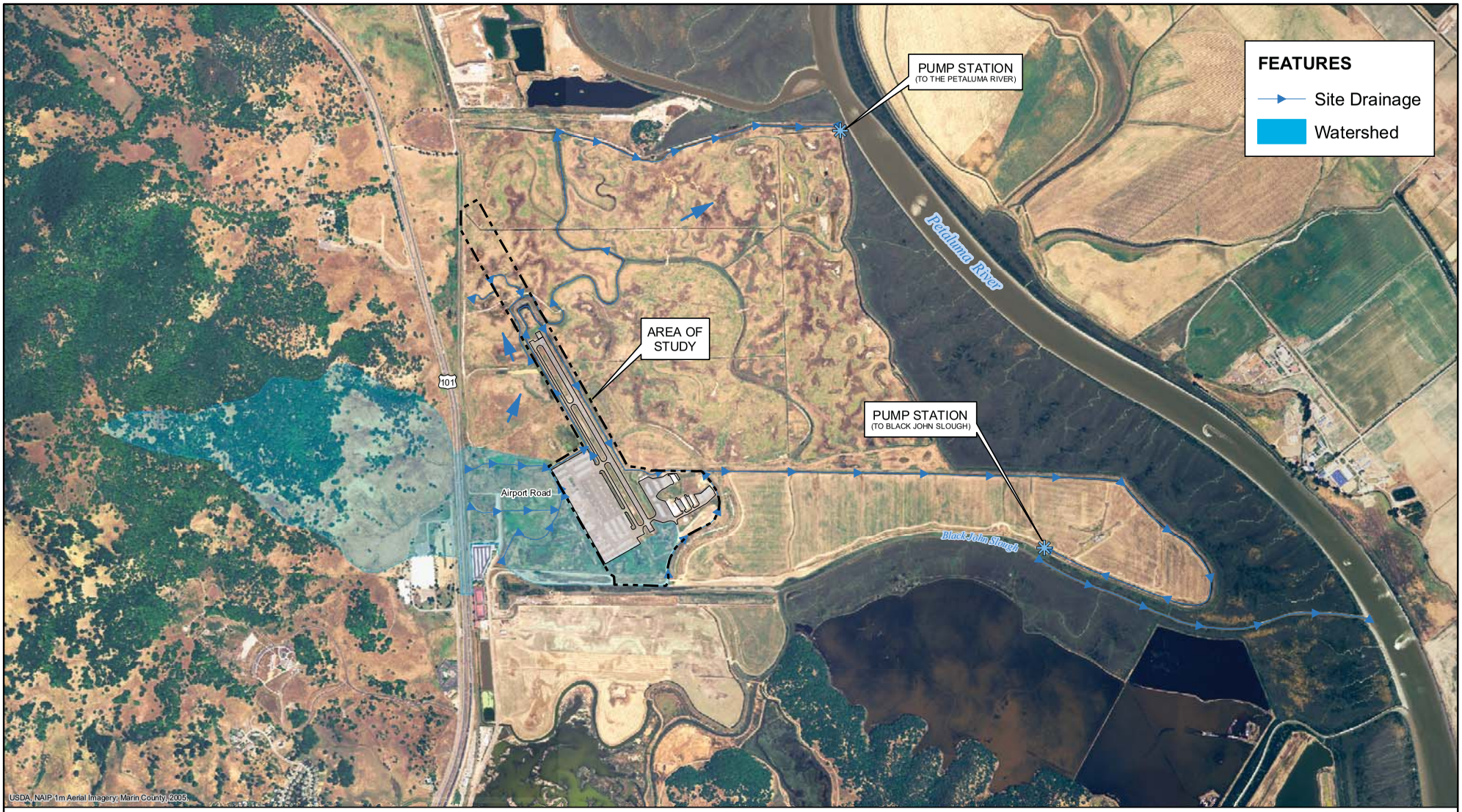
List BMPs recommended to take the place of any ineffective alternative BMPs:

_____

_____

_____

Appendix B — Water Resources



ALTERNATIVE A: DRAINAGE

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

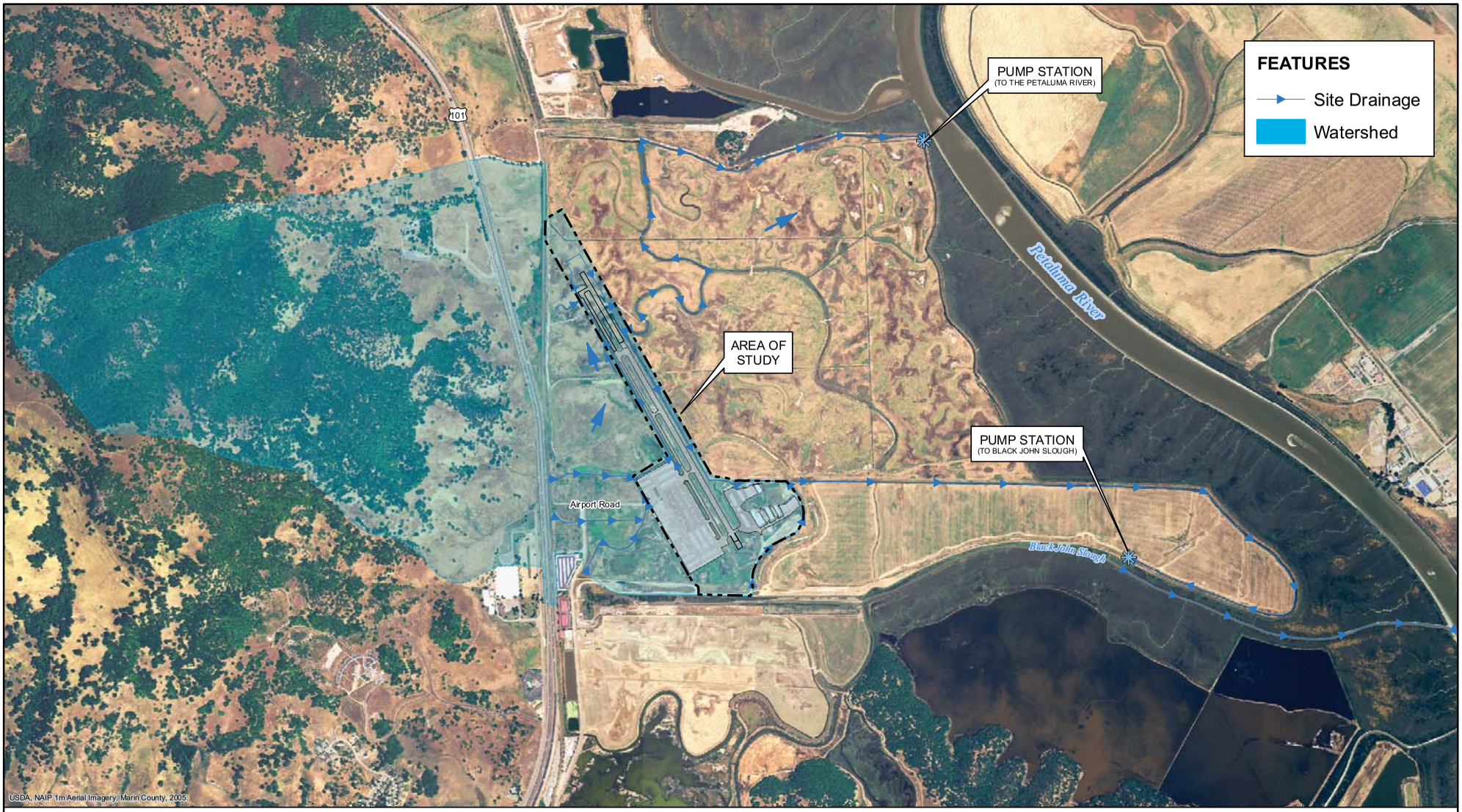
0 1400 2800
SCALE IN FEET

Drawn By: RJM
Date: 11/16/09

FIGURE B-1

GNOSS FIELD AIRPORT

alternative_a_drainage.mxd © 2009



ALTERNATIVE B: DRAINAGE

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

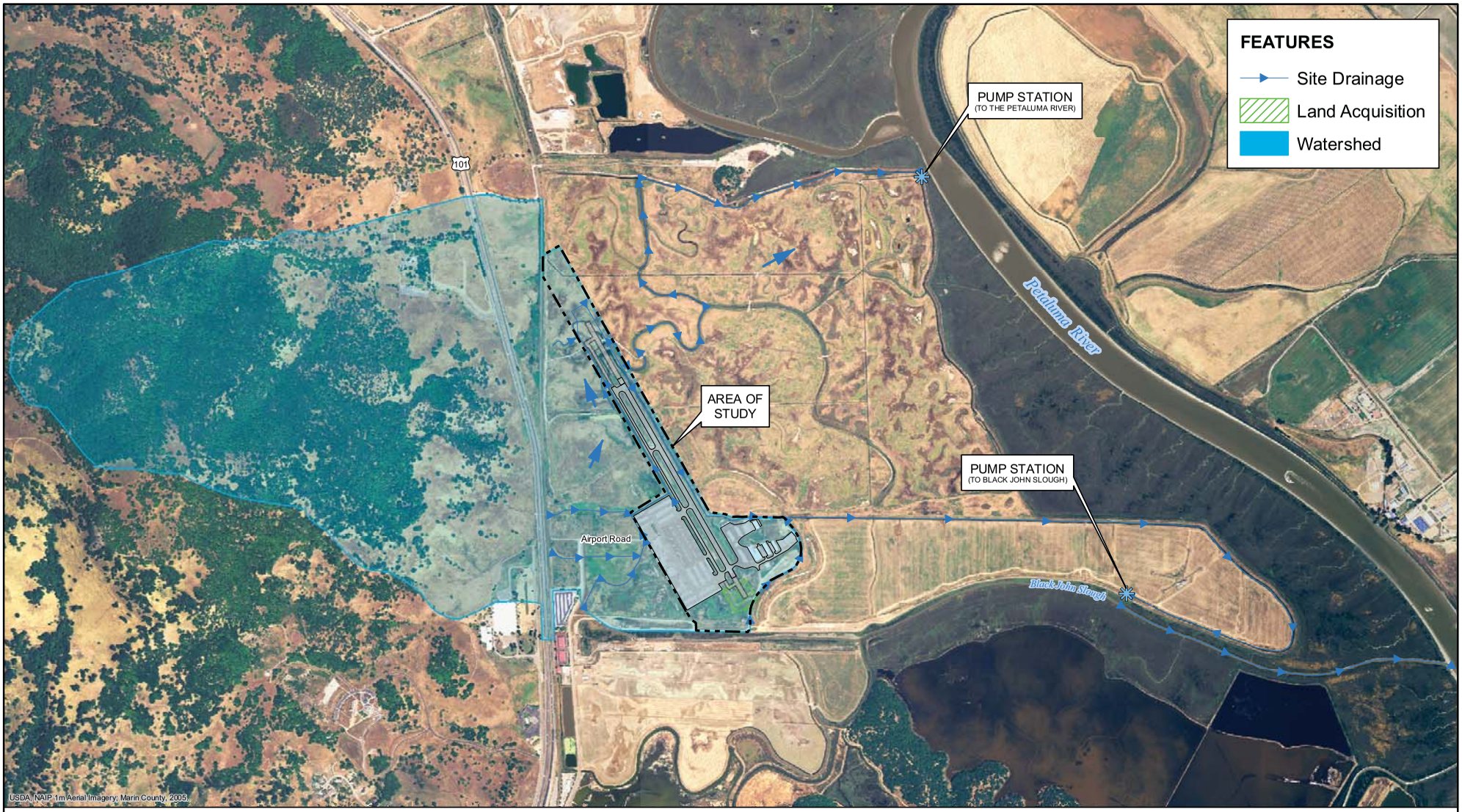
0 1400 2800
SCALE IN FEET

Drawn By: RJM
Date: 11/16/09

FIGURE B-2

GNOSS FIELD AIRPORT

alternative_b_drainage.mxd © 2009



ALTERNATIVE D: DRAINAGE

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

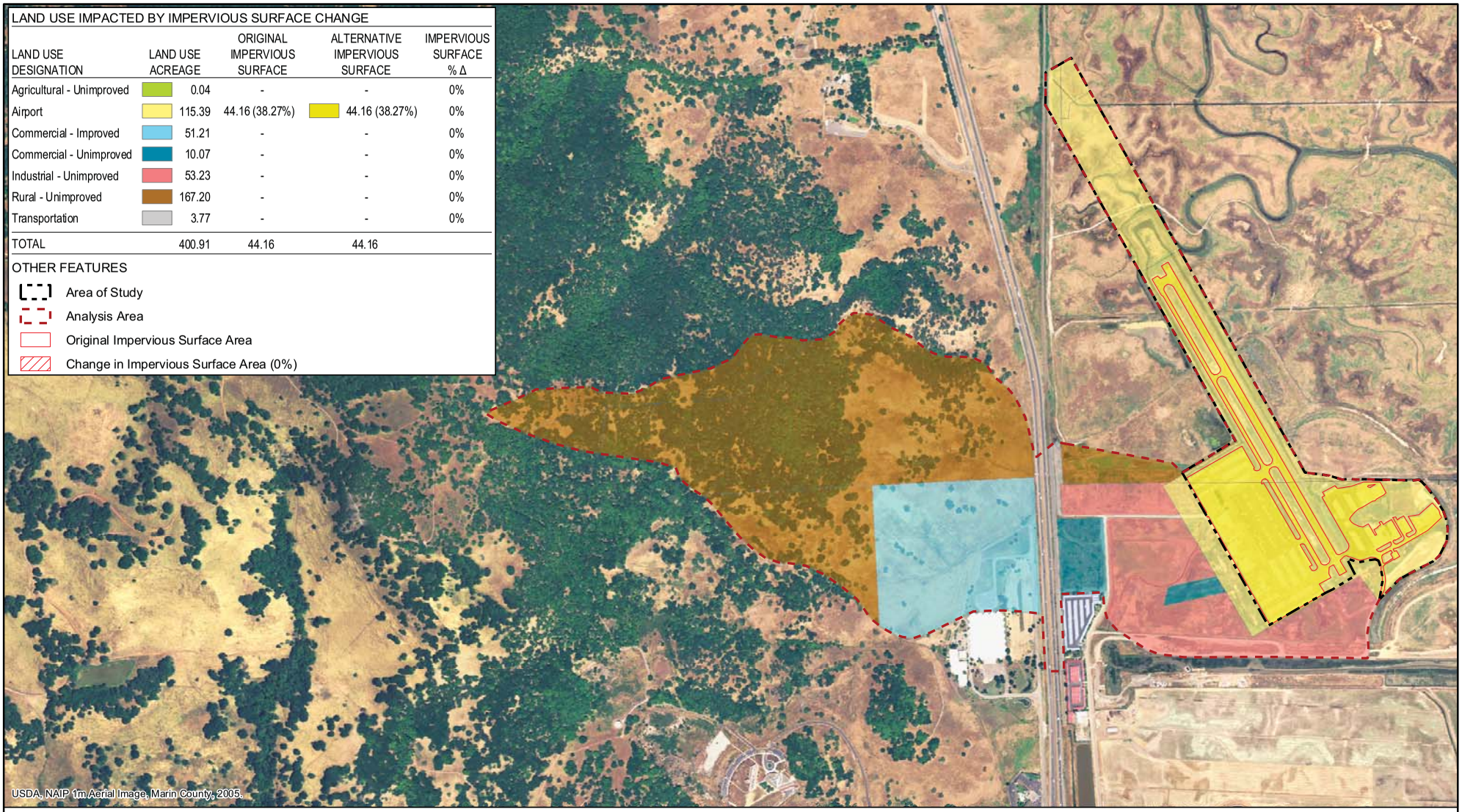
0 1400 2800
SCALE IN FEET

Drawn By: RJM
Date: 11/16/09

FIGURE B-3

GNOSS FIELD AIRPORT

alternative_d_drainage.mxd © 2009



LAND USE IMPACTED BY IMPERVIOUS SURFACE CHANGE

LAND USE DESIGNATION	LAND USE ACREAGE	ORIGINAL IMPERVIOUS SURFACE	ALTERNATIVE IMPERVIOUS SURFACE	IMPERVIOUS SURFACE % Δ
Agricultural - Unimproved	0.04	-	-	0%
Airport	115.39	44.16 (38.27%)	44.16 (38.27%)	0%
Commercial - Improved	51.21	-	-	0%
Commercial - Unimproved	10.07	-	-	0%
Industrial - Unimproved	53.23	-	-	0%
Rural - Unimproved	167.20	-	-	0%
Transportation	3.77	-	-	0%
TOTAL	400.91	44.16	44.16	

OTHER FEATURES

- Area of Study
- Analysis Area
- Original Impervious Surface Area
- Change in Impervious Surface Area (0%)

ALTERNATIVE A: LAND USE IMPACTS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

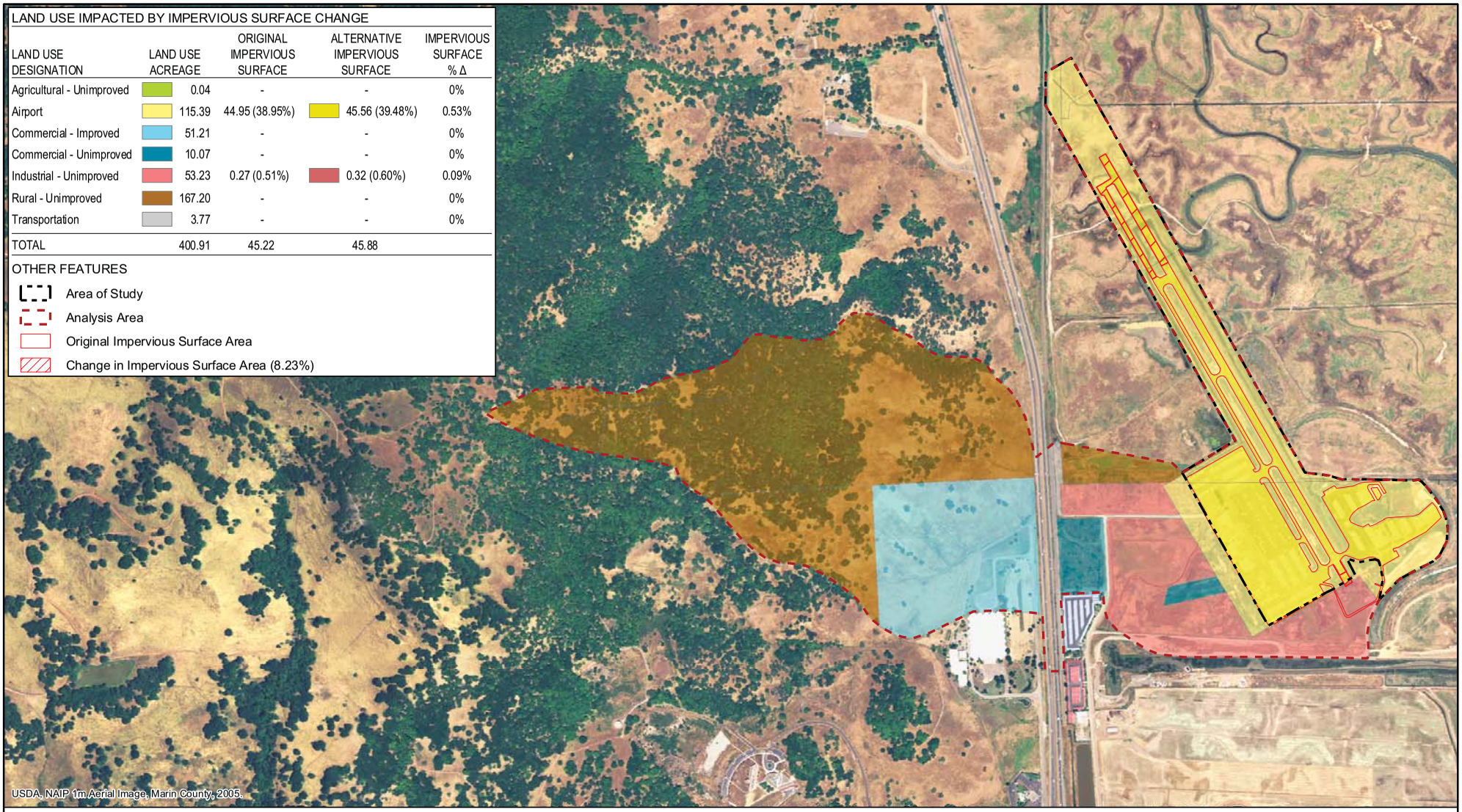
0 900 1800
SCALE IN FEET

Drawn By: RJM
Date: 11/13/09

FIGURE B-4

PROJECT NAME

lu_alt_a.mxd © 2009



LAND USE IMPACTED BY IMPERVIOUS SURFACE CHANGE

LAND USE DESIGNATION	LAND USE ACREAGE	ORIGINAL IMPERVIOUS SURFACE	ALTERNATIVE IMPERVIOUS SURFACE	IMPERVIOUS SURFACE % Δ
Agricultural - Unimproved	0.04	-	-	0%
Airport	115.39	44.95 (38.95%)	45.56 (39.48%)	0.53%
Commercial - Improved	51.21	-	-	0%
Commercial - Unimproved	10.07	-	-	0%
Industrial - Unimproved	53.23	0.27 (0.51%)	0.32 (0.60%)	0.09%
Rural - Unimproved	167.20	-	-	0%
Transportation	3.77	-	-	0%
TOTAL	400.91	45.22	45.88	

OTHER FEATURES

- Area of Study
- Analysis Area
- Original Impervious Surface Area
- Change in Impervious Surface Area (8.23%)

ALTERNATIVE B: LAND USE IMPACTS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 900 1800
SCALE IN FEET

Drawn By: RJM
Date: 11/13/09

FIGURE B-5

GNOSS FIELD AIRPORT

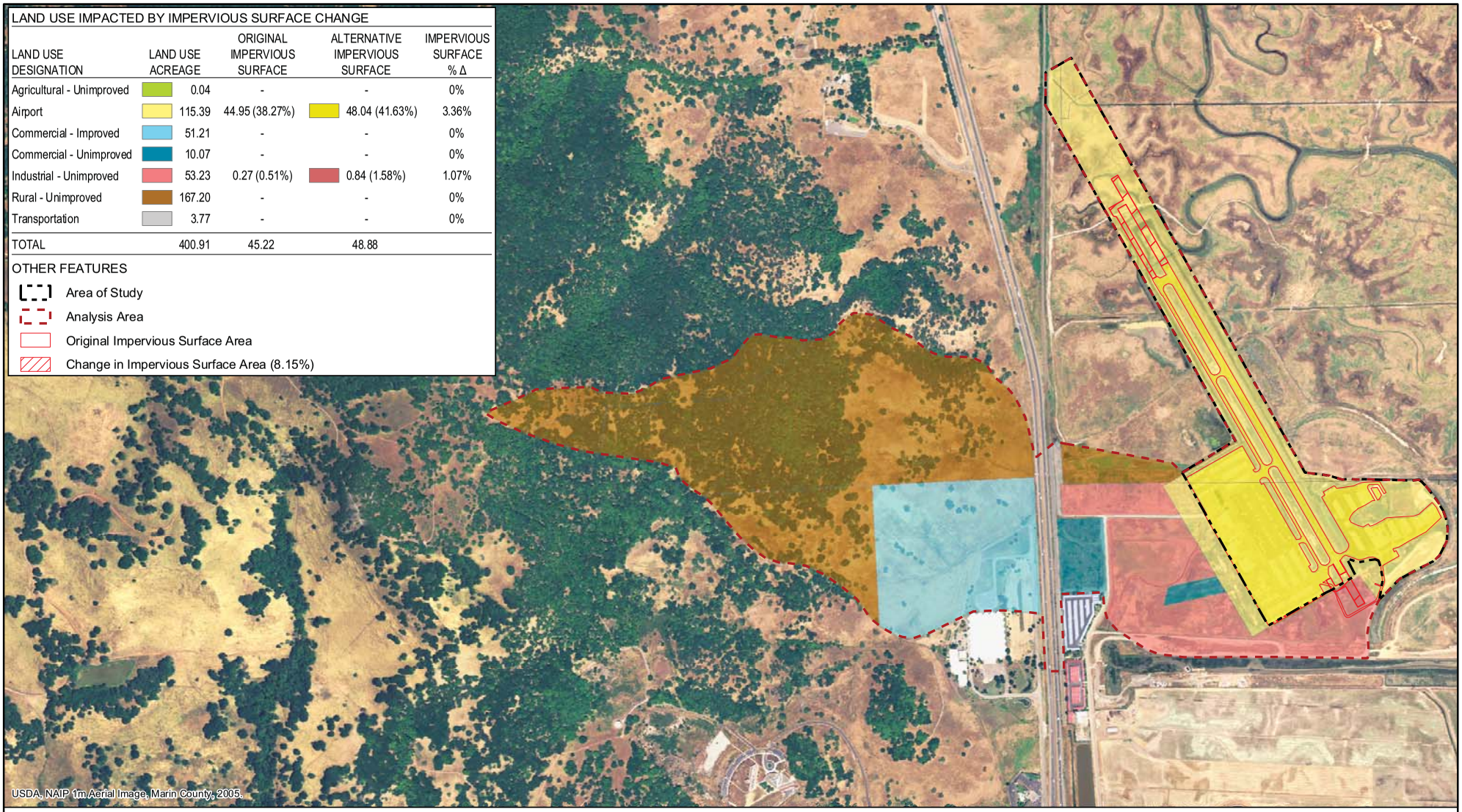
lu_alt_b.mxd © 2009

LAND USE IMPACTED BY IMPERVIOUS SURFACE CHANGE

LAND USE DESIGNATION	LAND USE ACREAGE	ORIGINAL IMPERVIOUS SURFACE	ALTERNATIVE IMPERVIOUS SURFACE	IMPERVIOUS SURFACE % Δ
Agricultural - Unimproved	0.04	-	-	0%
Airport	115.39	44.95 (38.27%)	48.04 (41.63%)	3.36%
Commercial - Improved	51.21	-	-	0%
Commercial - Unimproved	10.07	-	-	0%
Industrial - Unimproved	53.23	0.27 (0.51%)	0.84 (1.58%)	1.07%
Rural - Unimproved	167.20	-	-	0%
Transportation	3.77	-	-	0%
TOTAL	400.91	45.22	48.88	

OTHER FEATURES

- Area of Study
- Analysis Area
- Original Impervious Surface Area
- Change in Impervious Surface Area (8.15%)



ALTERNATIVE D: LAND USE IMPACTS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 900 1800
SCALE IN FEET

Drawn By: RJM
Date: 11/13/09

FIGURE B-6

GNOSS FIELD AIRPORT

lu_alt_d.mxd © 2009