



# California Regional Water Quality Control Board

## San Diego Region

Linda S. Adams  
Secretary for  
Environmental  
Protection

Over 50 Years Serving San Diego, Orange, and Riverside Counties  
Recipient of the 2004 Environmental Award for Outstanding Achievement from USEPA



Arnold  
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9174 Sky Park Court, Suite 100, San Diego, California 92123-4340  
(858) 467-2952 • Fax (858) 571-6972  
[http:// www.waterboards.ca.gov/sandiego](http://www.waterboards.ca.gov/sandiego)

May 18, 2010

**Certified Mail – Return Receipt Requested**  
Article Number: 7009 1410 0002 2347 4466

**In reply refer to:**  
**749216:jebsen**

Eileen Maher  
San Diego Unified Port District  
3165 Pacific Highway  
San Diego, CA 92101

Dear Ms. Maher:

**SUBJECT: Action on Request for Clean Water Act Section 401 Water Quality Certification for the South San Diego Bay Coastal Wetland Restoration and Enhancement Project, Water Quality Certification No. 10C-011**

Enclosed find Clean Water Act Section 401 Water Quality Certification (Certification) with acknowledgment of enrollment under State Water Resources Control Board Order No. 2003-017 DWQ for Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have received State Water Quality Certification for the South San Diego Bay Coastal Wetland Restoration and Enhancement Project. A description of the project can be found in the project information sheet and on location and site maps compiled by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), which are included as Attachments 1 through 6.

Any petition for reconsideration of this Certification must be filed with the State Water Resources Control Board within 30 days of certification action (23 CCR § 3867). If no petition is received, it will be assumed that you have accepted and will comply with all the conditions of this Certification.

Failure to comply with all conditions of this Certification may subject you to enforcement actions by the San Diego Water Board including administrative enforcement orders requiring you to cease and desist from violations, or to clean up waste and abate existing or threatened conditions of pollution or nuisance; administrative civil liability, referral to the State Attorney General for injunctive relief; and, referral to the District Attorney for criminal prosecution.

***California Environmental Protection Agency***

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.*

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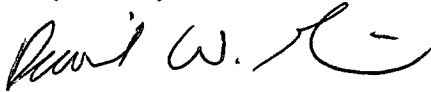
Eileen Maher  
San Diego Unified Port District  
401 Certification 10C-011

- 2 -

May 18, 2010

In the subject line of any response, please include the requested "In reply refer to:" information located in the heading of this letter. If you have any questions regarding this notification, please contact Ms. Jody Ebsen directly at 858-636-3146 or by email via [jebsen@waterboards.ca.gov](mailto:jebsen@waterboards.ca.gov).

Respectfully,



DAVID W. GIBSON  
Executive Officer

Enclosure:

Clean Water Act Section 401 Water Quality Certification No. 10C-011 for the South San Diego Bay Coastal Wetland Restoration and Enhancement Project, with 6 attachments

cc: Refer to Attachment 2 of Certification 10C-011 for Distribution List.

Tech Staff Info & Use	
File No.	10C-011
WDID	9000002030
Reg. Measure ID	372998
Place ID	749216
Party ID	281794, 47621
Person ID	102131, 479414



# California Regional Water Quality Control Board San Diego Region



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Action on Request for  
Clean Water Act Section 401 Water Quality Certification  
and Waste Discharge Requirements  
for Discharge of Dredged and/or Fill Materials

**PROJECT:** South San Diego Bay Coastal Wetland  
Restoration and Enhancement Project,  
Certification No. 10C-011, WDID No. 9000002030

**APPLICANTS:** San Diego Unified Port District  
Eileen Maher  
3165 Pacific Highway  
San Diego, CA 92101

<u>CIWQS</u>	
Reg. Measure ID:	372998
Place ID:	749216
Party ID:	281794
Person ID:	102127

U.S. Fish & Wildlife Service  
San Diego National Wildlife Refuge Complex  
Andy Yuen  
6010 Hidden Valley Road  
Carlsbad, CA 92011

**ACTION:**

<input type="checkbox"/> Order for Low Impact Certification	<input type="checkbox"/> Order for Denial of Certification
<input checked="" type="checkbox"/> Order for Technically-conditioned Certification	<input type="checkbox"/> Waiver of Waste Discharge Requirements
<input checked="" type="checkbox"/> Enrollment in SWRCB GWDR Order No. 2003-017 DWQ	<input type="checkbox"/> Enrollment in Isolated Waters Order No. 2004-004 DWQ

**PROJECT DESCRIPTION:**

The project is to restore and enhance approximately 285 acres of coastal habitat within south San Diego Bay. The areas include the Chula Vista Wildlife Reserve and Western Salt Ponds (Ponds 10, 10A and 11) to support a range of high quality coastal habitats for fish, birds, and other wildlife. The elevation on Chula Vista Wildlife Reserve will be lowered to support low and mid salt marsh habitat creating up to 67,500 cubic yards of fill material. Within Ponds 10, 10A and 11

*California Environmental Protection Agency*

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.*

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elevations to support cordgrass-dominated salt marsh will be achieved through regrading and use of fill generated by grading at Chula Vista Wildlife Reserve.

**STANDARD CONDITIONS:**

The following three standard conditions apply to all Certification actions, except as noted under Condition 3 for denials (Action 3):

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This Certification action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. The validity of any non-denial Certification action (Actions 1 and 2) must be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

**ADDITIONAL CONDITIONS:**

In addition to the three standard conditions, the San Diego Unified Port District and U.S. Fish & Wildlife Services must satisfy the following:

**A. GENERAL CONDITIONS:**

1. Water Quality Certification No. 10C-011 (Certification) is only valid if the project begins no later than 5 (five) years from the date of issuance. If the project has not begun within 5 years from the date of issuance, then this Certification expires.
2. The San Diego Unified Port District and U.S. Fish & Wildlife Service must, at all times, fully comply with the engineering plans, specifications and technical reports submitted to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), to support this Certification and all subsequent submittals required as part of this Certification and as described in Attachment 1. The conditions within this Certification must supersede conflicting provisions within such plans submitted prior to the Certification

action. Any modifications thereto, would require notification to the Regional Board and reevaluation for individual Waste Discharge Requirements and/or Certification amendment.

3. During construction the San Diego Unified Port District and U.S. Fish & Wildlife Service must maintain a copy of this Certification at the project site so as to be available at all times to site personnel and agencies.
4. San Diego Unified Port District and U.S. Fish & Wildlife Service must permit the San Diego Water Board or its authorized representative at all times, upon presentation of credentials:
  - a. Entry onto project premises, including all areas on which wetland fill or wetland mitigation is located or in which records are kept.
  - b. Access to copy any records required to be kept under the terms and conditions of this Certification.
  - c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Certification.
  - d. Sampling of any discharge or surface water covered by this Order.
5. The San Diego Unified Port District and U.S. Fish & Wildlife Service must notify the San Diego Water Board within 24 hours of any unauthorized discharge, including hazardous or toxic materials, to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional best management practice (BMPs) or other measures that will be implemented to prevent future discharges.
6. The San Diego Unified Port District and U.S. Fish & Wildlife Service must, at all times, maintain appropriate types and sufficient quantities of materials onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the U.S. and/or State.
7. This Certification is not transferable to any person except after notice to the Executive Officer of the San Diego Water Board. San Diego Unified Port District and U.S. Fish & Wildlife Service must notify the San Diego Water Board of any change in ownership of the project area. Notification must include, but not be limited to, a statement that the property owner has provided the purchaser with a copy of the Section 401 Water Quality Certification and that the purchaser understands the permit requirements and must implement them; the seller and purchaser must sign and date the notification. The notification for transfer of mitigation responsibility shall include a signed statement from the new party demonstrating acceptance and understanding of the responsibility to meet the mitigation conditions and

applicable requirements of the Certification. Notification must be provided within **10 days** of the sale of the property.

8. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation must be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.
9. In response to a suspected violation of any condition of this Certification, the San Diego Water Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the San Diego Water Board deems appropriate, provided that the burden, including costs, of the reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
10. In response to any violation of the conditions of this Certification, the San Diego Water Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.
11. San Diego Unified Port District and U.S. Fish & Wildlife Service and successor owners must submit annual progress reports describing status of compliance with all requirements of this Certification to the San Diego Water Board prior to **August 1** of each year following the issuance of this Certification until the project has reached completion.
12. Grant funding is being utilized to implement the project, therefore the restored areas will not be allowed to be used as compensatory mitigation for future projects.

**B. PROJECT CONDITIONS:**

1. Prior to the start of the project, and annually thereafter, the San Diego Unified Port District and U.S. Fish & Wildlife Service must educate all personnel on the requirements in this Certification, pollution prevention measures, spill response, and BMP implementation and maintenance.
2. San Diego Unified Port District and U.S. Fish & Wildlife Service must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, Statewide General Waste Discharge Requirements for discharges of dredged or fill material that have received State Water Quality Certification. These General Waste Discharge

Requirements are accessible at:

[http://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/general\\_orders/go\\_wdr401regulated\\_projects.pdf](http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/general_orders/go_wdr401regulated_projects.pdf)

3. San Diego Unified Port District and U.S. Fish & Wildlife Service must comply with the requirements of State Water Resources Control Board Water Quality Order No. 99-08-DWQ (for construction started prior to July 1, 2010) and Order No. 2009-0009-DWQ (for construction started on or after July 1, 2010), the NPDES General Permit for Storm Water Discharges Associated with Construction Activity.
4. All debris generated from this project shall be prevented from entering San Diego Bay. Any debris discharged into the bay shall be collected and removed from the bay and disposed of properly.
5. Substances hazardous to aquatic life including, but not limited to, petroleum products, raw cement/concrete, asphalt, and coating materials, must be prevented from contaminating the soil and/or entering waters of the United States and/or State. BMPs must be implemented to prevent such discharges during each project activity involving hazardous materials.
6. Any plant palette designed for project revegetation must only include native species appropriate for the area.

**C. BAY PHOTO DOCUMENTATION:**

1. San Diego Unified Port District and U.S. Fish & Wildlife Service must conduct photo documentation of the project site, including all areas of permanent and temporary impact, prior to and after project construction. Photo documentation must be conducted in accordance with the State Water Resources Control Board Stream Photo Documentation Procedures, included as Attachment Number 6. In addition, photo documentation must include Geographic Positioning System (GPS) coordinates for each of the photo points referenced. San Diego Unified Port District and U.S. Fish & Wildlife Service must submit this information in a photo documentation report to the San Diego Water Board with the final project report. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

**D. GEOGRAPHIC INFORMATION SYSTEM REPORTING**

1. San Diego Unified Port District and U.S. Fish & Wildlife Service must submit Geographic Information System (GIS) shape files of the impact and mitigation areas within the final report. All impact and mitigation areas shapefiles must be polygons. Two GPS readings (points) must be taken on each line of the

polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.

**E. R E P O R T I N G:**

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by the San Diego Water Board for failure to furnish requested information pursuant to CWC section 13268.
2. All reports and information submitted to the San Diego Water Board must be submitted in both hardcopy and electronic format. The preferred electronic format for each report submission is one file in PDF format that is also Optical Character Recognition (OCR) capable.
3. San Diego Unified Port District and U.S. Fish & Wildlife Service must submit a final project report to the San Diego Water Board within 90 days of project completion. The report should include description of habitat types (in acres) of pre- and post-project conditions, final plant palette, final as-built drawings no bigger than 11" x 17", project photo documentation, and GIS shape files.
4. All applications, reports, or information submitted to the San Diego Water Board must be signed and certified as follows:

*"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

5. San Diego Unified Port District and U.S. Fish & Wildlife Service must submit reports required under this Certification, or other information required by the San Diego Water Board, to:

Executive Officer  
California Regional Water Quality Control Board  
San Diego Region  
Attn: 401 Certification; Project No. 10C-011  
9174 Sky Park Court, Suite 100  
San Diego, California 92123



6. Required Reports: The following list summarizes the reports required per the conditions of this Certification to be submitted to the San Diego Water Board.

Report Topic	Certification Condition	Due Date(s)
Annual Report	A11	Annually on August 1 until project is complete
Bay Photo Documentation	C1	Final Report
GIS shape files	D1	Final Report
Final Report	E3	Final Report

**PUBLIC NOTIFICATION OF PROJECT APPLICATION:**

On February 9, 2010, receipt of the project application was posted on the San Diego Water Board web site to serve as appropriate notification to the public. No comments were received during the public notification period.

**REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:**

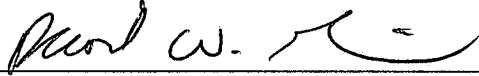
Jody Ebsen  
California Regional Water Quality Control Board, San Diego Region  
9174 Sky Park Court, Suite 100  
San Diego, CA 92123  
(858) 636-3146  
jebesen@waterboards.ca.gov

**WATER QUALITY CERTIFICATION:**

I hereby certify that the proposed discharge from the South San Diego Bay Coastal Wetland Restoration and Enhancement Project (Project No. 10C-011) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017 DWQ is conditional and, should new information come to our attention that indicates a

water quality problem, the San Diego Water Board may issue waste discharge requirements at that time.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicants' project description and/or on the attached Project Information Sheet, and (b) on compliance with all applicable requirements of the San Diego Water Board's Water Quality Control Plan (Basin Plan).



David W. Gibson  
Executive Officer  
Regional Water Quality Control Board

5/17/2010  
Date

- Attachments:
1. Project Information
  2. Distribution List
  3. Location Map
  4. Site Map
  5. Restoration Maps, a and b
  6. Stream Photo Documentation Procedures

**ATTACHMENT 1  
PROJECT INFORMATION**

**Applicant:** San Diego Unified Port District  
Attention: Eileen Maher  
3165 Pacific Highway  
San Diego, CA 92101  
Telephone: 619-686-6254  
Facsimile: 619-6866467  
Email: [emaher@portofsandiego.org](mailto:emaher@portofsandiego.org)

U.S. Fish & Wildlife Service  
San Diego National Wildlife Refuge Complex  
Attention: Andy Yuen  
6010 Hidden Valley Road  
Carlsbad, CA 92011  
Telephone: 760-930-0168  
Facsimile: 760-930-0256  
Email: [andy\\_yuen@fws.gov](mailto:andy_yuen@fws.gov)

**Project Name:** South San Diego Bay Coastal Wetland Restoration and Enhancement Project 10C-011

**Project Location:** South Bay Power Plant – 990 Bay Blvd. / Salt Ponds – 1470 Bay Blvd in Chula Vista, Coronado and Imperial Beach

**Type of Project:** Coastal habitat restoration and enhancement project.

**Need for Project:** Improve coastal habitats in south San Diego Bay for fish, birds and other wildlife.

**Project Description:** The project is to restore and enhance approximately 285 acres of coastal habitat within south San Diego Bay. The areas include the Chula Vista Wildlife Reserve and Western Salt Ponds (Ponds 10, 10A and 11) to support a range of high quality coastal habitats for fish, birds, and other wildlife. The elevation on Chula Vista Wildlife Reserve will be lowered to support low and mid salt marsh habitat creating up to 67,500 cubic yards of fill material. Within Ponds 10, 10A and 11 elevations to support cordgrass-dominated salt marsh will be achieved through regrading and use of fill generated by grading at Chula Vista Wildlife Reserve.

Federal Agency/Permit: U.S. Army Corps of Engineers, NWP 27, Robert Smith  
U.S. Fish and Wildlife Service, NEPA (FONSI),  
Victoria Touchstone  
U.S. Fish and Wildlife Service, Section 7 Biological  
Evaluation, Karen Goebel  
NOAA/NMFS, ESA Consultation, Christina Fay

Other Required Regulatory Approvals: Port of San Diego, Coastal Development Permit, John Helmer

California Environmental Quality Act (CEQA) Compliance: California Environmental Quality Act (CEQA) Notice of Determination, Final Mitigated Negative Declaration with accompanying Final Environmental Assessment/Initial Study for the South San Diego Bay Coastal Wetland Restoration and Enhancement Project (San Diego County, California), SCH# 2009091066, filed November 2, 2009 with the Office of Planning and Research by California State Coastal Conservancy (lead CEQA agency).

Receiving Water: San Diego Bay

Affected Waters of the United States/State: Ocean

Dredge Volume: N/A

Compensatory Mitigation: The project's purpose is to restore portions of south San Diego Bay. As such, implementation and maintenance of the project is considered appropriate mitigation for all impacts to jurisdictional waters that result from the project construction.

Public Notice: On February 9, 2010, receipt of the project application was posted on the San Diego Water Board web site to serve as appropriate notification to the public. No comments were received during the public notification period.

Fees: Total Due: \$640.00  
Total Paid: \$640.00 (check No. 129490)

CIWQS: Regulatory Measure ID: 372862  
Place ID: 748862  
Party ID: 281794

**ATTACHMENT 2  
DISTRIBUTION LIST**

Cc

Andy Yuen  
U.S. Fish and Wildlife Service  
6010 Hidden Valley Road  
Carlsbad, CA 92011

Cc via email:

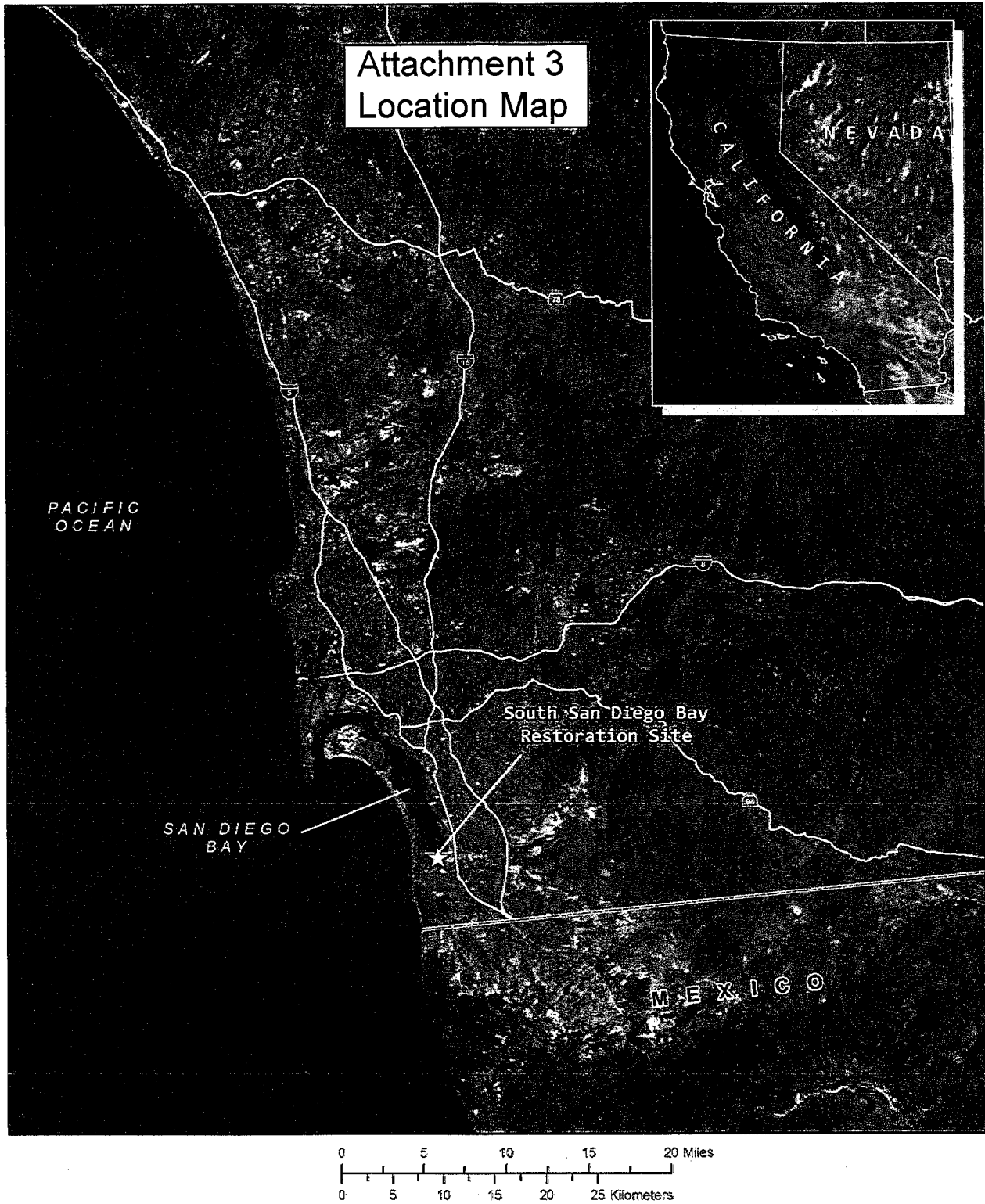
Robert Smith  
U.S. Army Corps of Engineers, Regulatory Branch  
[Robert.R.Smith@usace.army.mil](mailto:Robert.R.Smith@usace.army.mil)

State Water Resources Control Board, Division of Water Quality  
401 Water Quality Certification and Wetlands Unit  
[Stateboard401@waterboards.ca.gov](mailto:Stateboard401@waterboards.ca.gov)

U.S. Environmental Protection Agency, Region 9  
Wetlands Regulatory Office  
[R9-WTR8-Mailbox@epa.gov](mailto:R9-WTR8-Mailbox@epa.gov)

David Zoutendyk  
U.S. Department of the Interior  
Fish and Wildlife Service  
[david\\_zoutendyk@fws.gov](mailto:david_zoutendyk@fws.gov)

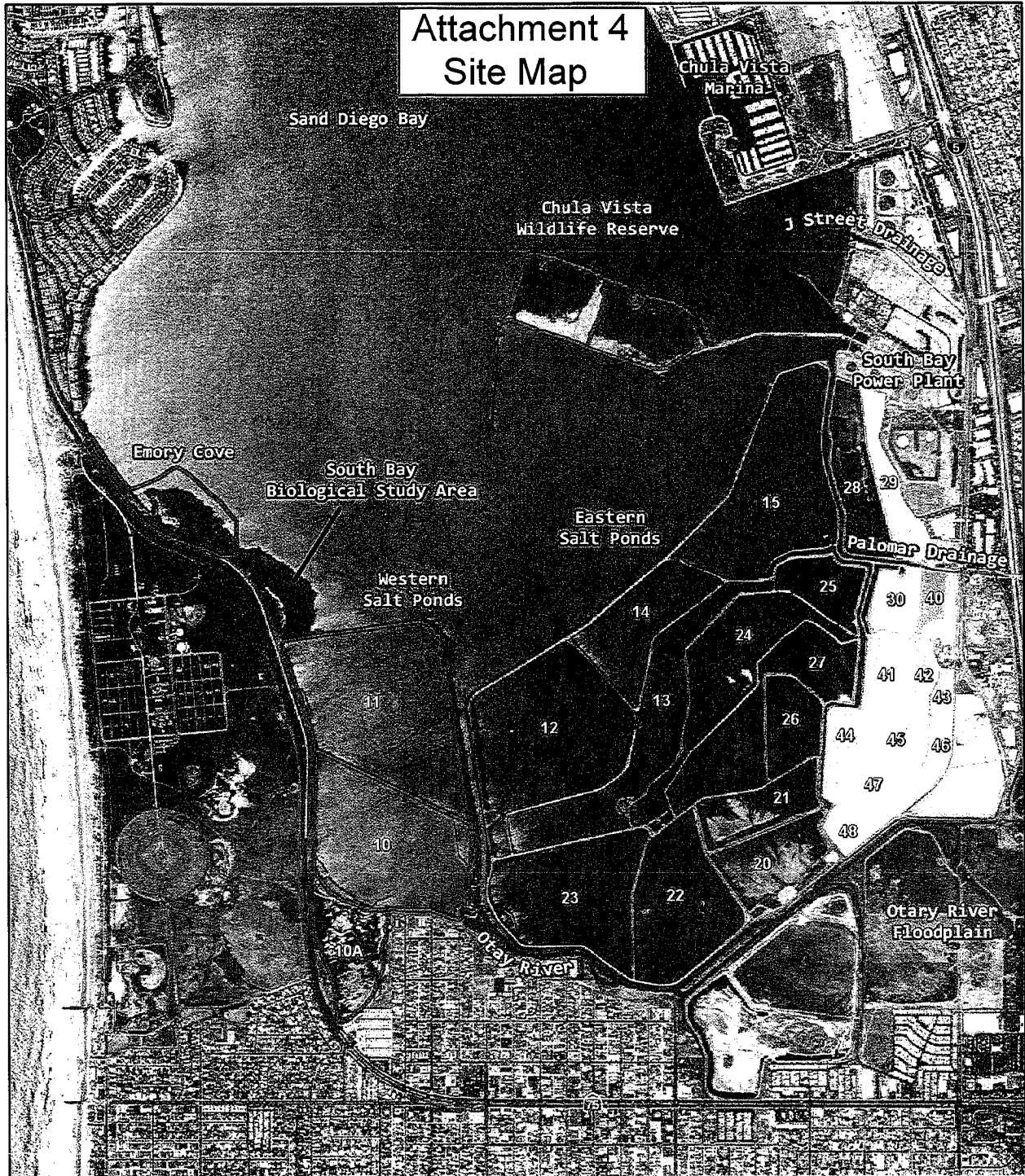




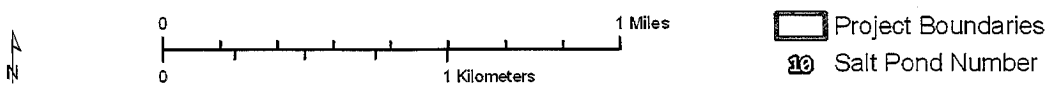
**Figure 1 - Vicinity Map**  
**South San Diego Bay Coastal Wetland Restoration and Enhancement Project**







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 Data Source: FWS, CASIL  
 Image Source: USGS NAIP 2005



**Figure 2 - Location Map**  
**South San Diego Bay Coastal Wetland Restoration and Enhancement Project**



# Attachment 5a Restoration Map

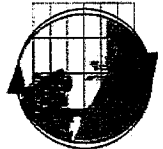


**Figure 3 - Restoration Plan for the Western Salt Ponds  
Proposed Action, 1A(1)**



# Attachment 5b Restoration Map

- Habitat Types**
- Least Tern Nesting Area
  - Shallow Subtidal
  - Intertidal Mudflat
  - Coastal Salt Marsh (low)
  - Coastal Salt Marsh (mid)
  - Coastal Salt Marsh (high)
  - Disturbed/Unvegetated Uplands
  - Unvegetated Levees/Berms



**Figure 4 - Restoration Plan  
Chula Vista Wildlife Reserve**

Merkel & Associates, Inc.



## ATTACHMENT 6 STREAM PHOTO DOCUMENTATION PROCEDURES

### Standard Operating Procedure (SOP)

#### Stream Photo Documentation Procedure

(CARCD 2001, Written by TAC Visual Assessments work group)

#### **Introduction:**

Photographs provide a qualitative, and potentially semi-quantitative, record of conditions in a watershed or on a water body. Photographs can be used to document general conditions on a reach of a stream during a stream walk, pollution events or other impacts, assess resource conditions over time, or can be used to document temporal progress for restoration efforts or other projects designed to benefit water quality. Photographic technology is available to anyone and it does not require a large degree of training or expensive equipment. Photos can be used in reports, presentations, or uploaded onto a computer website or GIS program. This approach is useful in providing a visual portrait of water resources to those who may never have the opportunity to actually visit a monitoring site.

#### **Equipment:**

Use the same camera to the extent possible for each photo throughout the duration of the project. Either 35 mm color or digital color cameras are recommended, accompanied by a telephoto lens. If you must change cameras during the program, replace the original camera with a similar one comparable in terms of media (digital vs. 35 mm) and other characteristics. A complete equipment list is suggested as follows:

#### Required:

- Camera and backup camera
- Folder with copies of previous photos (do not carry original photos in the field)
- Topographic and/or road map
- Aerial photos if available
- Compass
- Timepiece
- Extra film or digital disk capacity (whichever is applicable)
- Extra batteries for camera (if applicable)
- Photo-log data sheets or, alternatively, a bound notebook dedicated to the project
- Yellow photo sign form and black marker, or, alternatively, a small black board and chalk

#### Optional:

- GPS unit
- Stadia rod (for scale on landscape shots)
- Ruler (for scale on close up views of streams and vegetation)
- Steel fence posts for dedicating fixed photo points in the absence of available fixed landmarks

### **How to Access Aerial Photographs:**

Aerial Photos can be obtained from the following federal agencies:

USGS Earth Science Information Center  
 507 National Center  
 12201 Sunrise Valley Drive  
 Reston, VA 22092  
 800-USA-MAPS

USDA Consolidated Farm Service Agencies  
 Aerial Photography Field Office  
 222 West 2300 South  
 P.O. Box 30010  
 Salt Lake City, UT 84103-0010  
 801-524-5856

Cartographic and Architectural Branch  
 National Archives and Records Administration  
 8601 Adelphi Road  
 College park, MD 20740-6001  
 301-713-7040

### **Roles and Duties of Team:**

The team should be comprised of a minimum of two people, and preferably three people for restoration or other water quality improvement projects, as follows:

1. Primary Photographer
2. Subject, target for centering the photo and providing scale
3. Person responsible for determining geographic position and holding the photo sign forms or blackboard.

One of these people is also responsible for taking field notes to describe and record photos and photo points.

### **Safety Concerns:**

Persons involved in photo monitoring should **ALWAYS** put safety first. For safety reasons, always have at least two 2 volunteers for the survey. Make sure that the



Archive all photos, along with the associated photo-log information, in a protected environment.

### **The Photo Point: Establishing Position of Photographer:**

1. Have available a variety of methods for establishing position: maps, aerial photos, GPS, permanent markers and landmarks, etc. If the primary method fails (e.g., a GPS or lost marker post) then have an alternate method (map, aerial photo, copy of an original photograph of the photo-point, etc).
2. Select an existing structure or landmark (mailbox, telephone pole, benchmark, large rock, etc.), identify its latitude and longitude, and choose (and record for future use) the permanent position of the photographer relative to that landmark. Alternatively, choose the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the photographer.
3. For restoration, fuel reduction, and BMP projects, photograph the photo-points and carry copies of those photographs on subsequent field visits.

### **Determining the Compass Bearing:**

1. Select and record the permanent magnetic bearing of the photo center view. You can also record the true compass bearing (corrected for declination) but do not substitute this for the magnetic bearing. Include a prominent landmark in a set position within the view. If possible, have an assistant stand at a fixed distance from both the photographer and the center of the view, holding a stadia rod if available, within the view of the camera; preferably position the stadia rod on one established, consistent side of the view for each photo (right or left side).
2. Alternatively, use the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the focal point (photo center).
3. When performing ambient or event photo monitoring, and when a compass is not available, then refer to a map and record the approximate bearing as north, south, east or west.

## **Suggestions for Photo Points by Type of Project:**

### **Ambient or Event Monitoring, Including Photography Associated with Narrative Visual Assessments:**

1. When first beginning an ambient monitoring program take representative long and/or medium view photos of stream reaches and segments of shoreline being monitored. Show the positions of these photos on a map, preferably on the stream/shore walk form. Subjects to be photographed include a representative view of the stream or shore condition at the beginning and ending positions of the segment being monitored, storm drain outfalls, confluence of tributaries, structures (e.g., bridges, dams, pipelines, etc.).
2. If possible, take a close view photograph of the substrate (streambed), algae, or submerged aquatic vegetation.
3. Time series: Photographs of these subjects at the same photo points should be repeated annually during the same season or month if possible.
4. Event monitoring refers to any unusual or sporadic conditions encountered during a stream or shore walk, such as trash dumps, turbidity events, oil spills, etc. Photograph and record information on your photo-log and on your Stream and Shore Walk Visual Assessment form. Report pollution events to the Regional Board. Report trash dumps to local authorities.

### **All Restoration and Fuel Reduction Projects – Time Series:**

Take photos immediately before and after construction, planting, or vegetation removal. Long term monitoring should allow for at least annual photography for a minimum of three years after the project, and thereafter at 5 years and ten years.

### **Meadow Restoration:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing an overlapping sequence of photos illustrating a long reach of stream and meadow (satellite photos, or hill close by, fly-over, etc.)
3. Long view up or down the longitudinal dimension of the creek showing riparian vegetation growth bounded on each side by grasses, sedges, or whatever that is lower in height
4. Long view of conversion of sage and other upland species back to meadow vegetation

5. Long view and medium view of streambed changes (straightened back to meandering, sediment back to gravel, etc.)
6. Medium and close views of structures, plantings, etc. intended to induce these changes

#### **Stream Restoration/stabilization:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long-view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view up or down the stream (from stream level) showing changes in the stream bank, vegetation, etc.
4. Long view and medium view of streambed changes (thalweg, gravel, meanders, etc.)
5. Medium and close views of structures, plantings, etc. intended to induce these changes.
6. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 3 and 4 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

#### **Vegetation Management for Fire Prevention ("fuel reduction"):**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view (wide angle if possible) showing the project area or areas. Preferably these long views should be from an elevated vantage point.
4. Medium view photos showing examples of vegetation changes, and plantings if included in the project. It is recommended that a person (preferably holding a stadia rod) be included in the view for scale

5. To the extent possible include medium and long view photos that include adjacent stream channels.

**Stream Sediment Load or Erosion Monitoring:**

1. Long views from bridge or other elevated position.
2. Medium views of bars and banks, with a person (preferably holding a stadia rod) in view for scale.
3. Close views of streambed with ruler or other common object in the view for scale.
4. Time series: Photograph during the dry season (low flow) once per year or after a significant flood event when streambed is visible. The flood events may be episodic in the south and seasonal in the north.
5. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 1 and 2 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

PHOTO- LOG FORM

Project:

Location:

Date:

Photographer:

Team members:

Photo #	Time	Photo Point ID	Photo Pt. Description & Location	Bearing to Subject	Subject Description

General Notes or Comments (weather, cloud cover, time of sunrise and sunset, other pertinent information):

PHOTO SIGN FORM: Print this form on yellow paper. Complete the following information for each photograph. Include in the photographic view so that it will be legible in the finished photo.

Location:

Subject Description:

Date:

Time: