

SETTLEMENT AGREEMENT AND MUTUAL RELEASE

ADMINISTRATIVE CIVIL LIABILITY

COMPLAINT NO. R2-2008-0070

THIS SETTLEMENT AGREEMENT AND MUTUAL RELEASE – ADMINISTRATIVE CIVIL LIABILITY COMPLAINT NO. R9-2008-0070 (“Agreement”) is made by and between Sewerage Agency of Southern Marin (“SASM”) and the Prosecution Team (“Prosecution Team”) of the Regional Water Quality Control Board, San Francisco Bay (“Regional Water Board”) (collectively, the “Parties”) and effective as of the last date of the signing Parties, with reference to the following facts:

RECITALS:

- A. On or about August 11, 2008, the Assistant Executive Officer of the Regional Water Board issued Administrative Civil Liability Complaint No. R8-2008-0070 (the “Complaint”), which sought to impose an Administrative Civil Liability order on SASM for discharges from its treatment plant located in Mill Valley that occurred on January 24 and January 31, 2008 (**Attachment B**)
- B. SASM denies the allegations contained in the Complaint. The Parties, through their respective representatives, have reached a proposed settlement that includes the issuance of an Administrative Civil Liability Order (**Attachment A** hereto) for the discharges from SASM’s treatment plant and other discharges from SASM’s facilities that occurred during the period January 1, 2001 to September 30, 2008, as set forth in **Attachment C** hereto. SASM enters into this Agreement without the admission of any fact or adjudication of any issue in this matter. If the Regional Water Board’s Executive Officer or Board Chair chooses to have a hearing on this matter, the Parties agree to present the proposed Administrative Civil Liability Order to the Regional Water Board for issuance at a publicly noticed Regional Water Board Meeting.
- C. Under this Settlement, in exchange for a full release of all claims arising out of the specified alleged violations in the Complaint and the discharges described in **Attachment C**, SASM will pay a total liability assessment of \$1,600,000.00 as set forth herein.
- D. As a material condition of this Agreement, SASM represents and warrants that the contributions to the projects that would serve as Supplemental Environmental Projects (“SEPs”) under this Agreement (as set forth in **Attachment D** hereto) are not and were not previously being contemplated, in whole or in part, by SASM for any purpose other than to satisfy, in part, SASM’s obligations in

settling the Complaint and that SASM's contributions to the projects that serve as SEPs would not be made in the absence of this enforcement action.

E. In order to facilitate the approval of the proposed settlement, and to carry out its terms, the Parties desire to enter into the following agreement.

NOW, THEREFORE, in exchange for their mutual promises and for other good and valuable consideration specified herein, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. The Parties agree to support, advocate for, and promote the proposed Administrative Civil Liability Order set forth in **Attachment A**.
2. The Parties covenant and agree that they will not contest the proposed Administrative Civil Liability Order before the Regional Water Board, the State Water Resources Control Board, or any court.
3. SASM agrees to pay the proposed Administrative Civil Liability Order of \$1,600,000.00 for the discharges from the SASM treatment plant and other discharges from SASM's facilities that occurred during the period January 1, 2001 to September 30, 2008, as follows:
 - a. Pay \$800,000.00 to the State Water Resources Control Board Cleanup and Abatement Account in three payments, with the first payment of \$300,000.00 being due as provided in Section 4 below. The second payment of \$250,000.00 must be received by April 14, 2010 at the office of the Regional Water Board. The third and final payment of \$250,000 must be received by April 14, 2011 at the office of the Regional Water Board. The payments are not subject to interest thereon.
 - b. Fund and implement Supplemental Environmental Projects ("SEPs") in the amount of an additional \$800,000.00 as follows:
 1. \$200,000.00 to the Richardson Bay Aramburu Island Project; and
 2. \$600,000.00 for the Private Lateral Replacement Program.

Each of these SEPs is described in detail in **Attachment D** hereto, including schedules for implementation.

4. SASM will make the first payment of \$300,000.00 by delivering a check to the Executive Officer of the Regional Water Board within 30 days of approval by the Regional Water Board or its Executive Officer of the proposed Administrative Civil Liability Order.

5. SASM agrees that if it fails to make any payment as provided herein or to implement any SEP as set forth in the schedule for that SEP by the deadline, all payments due after that, including SEP payments, become immediately due and payable to the State Water Resources Control Board's Cleanup and Abatement Account, and that the Regional Water Board may immediately seek an order under Water Code Section 13328 in a court of competent jurisdiction requiring payment of the entire remaining amount.

6. The Prosecution Team agrees to submit a request to the Regional Water Board asking that it adopt a resolution to be submitted to the Cleanup and Abatement Account to request additional money from the CAA (up to \$800,000) to support the Richardson Bay Aramburu Island Project.

7. SASM agrees that if it or a related agency publicizes the SEPs or the results of the SEPs, it will state in a prominent manner that the SEP is being undertaken as part of the settlement of this enforcement action by the San Francisco Regional Water Quality Control Board.

8. In the event that any of the SEPs described in **Attachment D** cannot be performed for any reason as determined by the Executive Officer, then the penalty amount designated for that SEP shall be directed to another SEP approved by the Executive Officer after consultation with SASM's representatives. In the event that no alternative SEP(s) are agreed upon between the Executive Officer and SASM following a 90-day consultation period, the remaining funds shall become immediately due and payable to the State Water Resources Control Board's Cleanup and Abatement Account. The approval of another SEP by the Executive Officer as contemplated by this paragraph cannot be unreasonably withheld.

9. The Regional Water Board agrees that this settlement fully resolves the allegations in the Complaint and all discharges listed in **Attachment C** and that it will not to pursue any action of any kind for those discharges.

10. Performance of paragraph 3 and 4 (and if applicable, paragraphs 5 and 8) shall effect a mutual release and discharge of the Parties and their respective successors and assigns, agents, attorneys, employees, officers, and representatives from any and all claims, demands, actions, causes of action, obligations, damages, penalties, liabilities, debts, losses, interest, costs, or expenses of whatever nature, character, or description, that they may have or claim to have against one another by reason of any matter or omission arising from any cause whatsoever relating to the proposed Administrative Civil Liability Order, the discharges, or the Complaint.

11. SASM agrees to a limited waiver of the requirement to have a hearing on the Complaint within 90 days of service under Water Code section 13323(b)

conditioned on the hearing on the proposed settlement and on the Complaint, if necessary, being conducted at the next regularly scheduled board meeting.

In the event that the Regional Water Board does not approve the proposed Administrative Civil Liability Order or the Order is vacated in whole or in part by the State Water Resources Control Board or a court, the Parties acknowledge that they expect to proceed to a contested evidentiary hearing at the next scheduled Regional Water Board meeting.

The Parties also agree that, in the event that the Regional Water Board does not approve the proposed settlement, they waive any and all objections related to their attempt to settle this matter, including, but not limited to, objections related to prejudice or bias of any of the board members or their advisors and any other objections that are premised in whole or in part on the fact that the board members and their advisors were exposed to some of the material facts and the Parties' settlement positions and, therefore, may have formed impressions or conclusions prior to conducting an evidentiary hearing on the merits of the Administrative Civil Liability Complaint.

12. The Parties intend that the procedure that has been adopted for the approval of the settlement by the Parties and review by the public, as reflected by the proposed Administrative Civil Liability Order and this Agreement will be legally sufficient. In the event that objections are raised during the public comment period for the proposed Administrative Civil Liability Order, the Parties agree to meet and confer concerning any such objections, and may agree to revise or adjust the procedure as necessary or advisable under the circumstances.

13. Each person executing this Agreement in a representative capacity represents and warrants that he or she is authorized to execute this Agreement on behalf of and to bind the entity on whose behalf he or she executes the Agreement.

14. This Agreement shall not be construed against the Party preparing it, but shall be construed as if the Parties jointly prepared this Agreement and any uncertainty and ambiguity shall not be interpreted against any one Party.

15. This Agreement shall not be modified by any of the Parties by oral representation made before or after the execution of this Agreement. All modifications must be in writing and signed by the Parties.

16. Each Party to this Agreement shall bear its own attorneys' fees and costs arising from that Party's own counsel in connection with the matters referred to herein.

17. The Parties shall execute and deliver all documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Agreement.

18. This Agreement shall be executed as duplicate originals, each of which shall be deemed an original Agreement, and all of which shall constitute one agreement to be effective as of the Effective Date. Facsimile or electronic signatures are acceptable.

19. This Agreement is entered into and shall be construed and interpreted in accordance with the laws of the State of California.

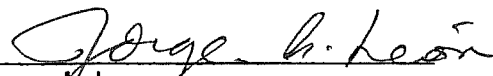
IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the date set forth above.

REGIONAL BOARD PROSECUTION TEAM by:

Dyan C. Whyte
Assistant Executive Officer

Date: 2/13/09

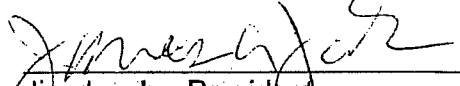
APPROVED AS TO FORM:



Jorge A. Leon
Office of Chief Counsel
Counsel to the Regional Water Board Prosecution Team

Date: 2/13/09

SEWERAGE AGENCY OF SOUTHERN MARIN by:



Jim Jacobs, President
Sewerage Agency of Southern Marin Board

Date: 2/12/09

APPROVED AS TO FORM:



Melissa A. Thorne
Downey Brand LLP
Counsel to the Sewerage Agency of Southern Marin

Date: 2/12/09

EXHIBIT "A"

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER NO. R9-2009-00xx

ASSESSING

ADMINISTRATIVE CIVIL LIABILITY

FOR VIOLATIONS OF

Order No. R2-2007-0056 (NPDES No. CAO037711)

To

SEWERAGE AGENCY OF SOUTHERN MARIN

This Order is issued in reference to an adjudicative proceeding initiated by the issuance of Administrative Civil Liability Complaint No. R2-2008-0070, dated August 11, 2008 ("Complaint") which proposed to assess a total of \$1,600,000 against the Sewerage Agency of Southern Marin ("SASM") for certain alleged discharges that occurred on January 24 and 31, 2008, in violation of Order No. R2-2007-0056 (NPDES No. CAO037711).

The parties to this proceeding are the **Regional Water Quality Control Board, San Francisco Region's ("Regional Water Board") Prosecution Team** and SASM.

The Regional Water Board has been presented with a proposed settlement of the claims alleged in the Complaint that has been developed during negotiations between SASM and the Prosecution Team. The Settlement Agreement is attached hereto as **Attachment A**. The proposed Settlement represents a mutually agreed-upon resolution of the Prosecution Team's claims through the payment of an administrative civil liability in the amount of \$1,600,000 comprised of a cash payment to the State Water Resources Control Board ("State Water Board") Cleanup and Abatement Account in the amount of \$800,000 and additional payments in the sum of \$800,000 to support the Supplemental Environmental Programs (SEPs) set forth in **Attachment B**. SASM and the Prosecution Team recommend that the Regional Water Board issue this Order to effectuate their proposed Settlement. Having provided public notice of the proposed settlement and not less than thirty (30) days for public comment, **the Regional Water Board finds that:**

1. The Settlement is in the public interest and the proposed SEPs substantially comply with all essential requirements as set forth in the State Water Board's Enforcement Policy for SEPs.

2. In accepting the proposed Settlement the Regional Water Board has considered each of the factors prescribed in California Water Code §13385(e). The Regional Water Board's consideration of these factors is based upon information obtained by the Regional Water Board in investigating the Claims or otherwise provided to the Regional Water Board, including the information presented at the noticed hearing of this matter. In addition to these factors, the administrative civil liability recovers the costs incurred by the staff of the Regional Water Board in evaluating the Claims and preparing the Complaint and related documents.
3. A notice of the Settlement and Assessment of civil liability was published on the Regional Water Board's website notifying the public of a 30-day review period and soliciting public comments on the terms of the settlement. The proposed settlement supports the total assessment of administrative civil liability in the amount of \$1,600,000 for the Claims and is in the public interest. This Order provides for the full and final resolution of each of the Claims.
4. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 *et seq.*) in accordance with section 15321, Chapter 3, Title 14, California Code of Regulations.

IT IS HEREBY ORDERED that:

1. Administrative civil liability under California Water Code Section 13385(c) is imposed upon SASM in the amount of \$1,600,000 consisting of a payment of \$800,000 to the Cleanup and Abatement Account and implementation of the proposed SEPs valued at \$800,000.
2. The SEPs that are supported by contributions from this order are:
 - a. \$200,000 to the Richardson Bay Aramburu Island Project; and
 - b. \$600,000 to the Private Lateral Replacement Program.

Details regarding each SEP and implementation requirements and time schedules following implementation are set forth in **Attachment B**.

3. Thirty (30) days following adoption of this Order by the Regional Water Board or approval by the Executive Officer under his delegated authority, SASM shall pay the sum of \$800,000 to the State Water Resources Control Board, Cleanup and Abatement Account in accordance with the schedule contained in the Settlement Agreement. Thirty (30) days from adoption of this Order by the Regional Water Board or approval by the Executive Officer under his delegated authority, SASM shall commence

implementation of the proposed SEP. These activities shall be suspended during the time in which any review is sought by any third party under Water Code Sections 13320 or 13330.

4. The Executive Officer is authorized to refer this matter to the Office of the Attorney General for enforcement if SASM fails to comply with paragraphs 1, 2 and 3.
5. Fulfillment of SASM's obligations under this Order constitutes full and final satisfaction of any and all liability for each Claim in the Complaint and for the discharges set forth in **Attachment C**.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order imposing civil liability assessed by the California Regional Water Quality Control Board, San Francisco Region, on March _____, 2009.

TENTATIVE

Bruce H. Wolfe
Executive Officer

EXHIBIT "B"

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

IN THE MATTER OF:)
)
SEWERAGE AGENCY OF) COMPLAINT NO. R2-2008-0070
SOUTHERN MARIN) FOR
WASTEWATER TREATMENT PLANT) ADMINISTRATIVE CIVIL LIABILITY
450 Sycamore St.) August 11, 2008
Mill Valley, CA)

THE SEWERAGE AGENCY OF SOUTHERN MARIN IS GIVEN NOTICE THAT:

1. The Sewerage Agency of Southern Marin (SASM) is alleged to have violated provisions of law for which the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), may impose civil liability under 13385 of the California Water Code.
2. SASM operates the Wastewater Treatment Plant (WWTP) located at 450 Sycamore Street, Mill valley, CA. The WWTP and associated wastewater collection system operates under Order No. R2-2007-0056 (NPDES Permit No. CA00337711). The collection system is also subject to State Water Resources Control Board (State Water Board) Order No. 2006-0003. This Complaint is issued to address alleged violations of the Water Code during January 2008.
3. Unless waived, a hearing on this complaint will be held before the Water Board on October 8, 2008, at 1515 Clay Street in the Auditorium, Oakland, California. You or your representative will have an opportunity to be heard and to contest the allegations in this complaint and the imposition of the civil liability. An agenda for the meeting will be provided to you not less than 10 days before the hearing date. The deadline to submit all evidence or comments concerning this complaint is September 10, 2008.

ALLEGATIONS

1. SASM is composed of six member agencies who operate under a "Restated Joint Exercise of Powers Agreement", last revised January 27, 2000. The WWTP treats domestic wastewater from the six member agencies: City of Mill Valley, Almonte Sanitary District, Alto Sanitary District, Homestead Valley Sanitary District, Richardson Bay Sanitary District, and the Kay Park Area of Tamalpais Community Services District. The present service area population is approximately 28,000. The member agencies finance the operation and

maintenance of the WWTP in proportion to the number of Equivalent Dwelling Units (EDUs) in the service area. An EDU is equal to 200 gallons per day. Each member agency's estimated share is listed in the Restated Joint Exercise of Powers Agreement. This agreement also stipulates that each agency is responsible for the operation and maintenance of its own collection system.

2. As more fully described below, during the month of January 2008, two discharge events occurred at the WWTP that constitute NPDES Permit and Water Code violations. First, on January 25, SASM bypassed 2.45 million gallons (MG) of screened untreated sewage influent to equalization ponds, which then discharged to Pickleweed Inlet, which is connected to Richardson Bay at the North end of San Francisco Bay. Second, on January 31, SASM bypassed 962,000 gallons of treated but undisinfected wastewater to Pickleweed Inlet. This discharge occurred as a result of understaffing and inadequate equipment maintenance.

3. The SASM WWTP is a secondary treatment facility designed for an Average Dry Weather Flow (ADWF) of 2.9 million gallons per day (MGD). This capacity was re-rated in 1988 to 3.6 MGD, which is the current permitted ADWF capacity. The design Peak Wet Weather Flow (PWWF) or maximum 24-hour average is listed in the Operation and Maintenance (O & M) Manual as 24.7 MGD. This is the maximum flow that the secondary treatment system can theoretically handle over a 24-hour period. The design peak hour flow is listed as 32.7 MGD.

4. The permitted effluent outfall is also rated at 32.7 MGD. The outfall terminates about 840 feet offshore in Raccoon Strait of Central San Francisco Bay at an outfall 84-foot in depth below mean sea level. However, SASM shares this outfall with another WWTP (operated by Marin County Sanitary District No. 5). According to a March 7, 1983, agreement between the two agencies, SASM's share of the outfall capacity is limited to a maximum flow of 24.7 MGD. This is also SASM's effluent pumping capacity when all six effluent pumps are in operation. The practical consequence of this arrangement is that sustained flows above 25 MGD are likely to result in overflow and flooding of the SASM WWTP. The actual volume of flow that SASM can transport through this outfall may also be affected by tides and the gravity effluent flow from Sanitary District No. 5.

5. The treatment process consists of screening facilities, grit removal, primary sedimentation clarifiers, biological treatment using trickling filters, secondary clarification, chlorination, and dechlorination. Chlorine contact time occurs in the six-mile effluent force main line, and dechlorination occurs prior to entrance into the outfall by Marin County Sanitary District No. 5. The final effluent is combined with treated, disinfected, and dechlorinated effluent from Marin County Sanitary District No. 5 and discharged through the same outfall.

6. The actual average dry weather flows between 2002 and 2005 were in the range of 2.2 – 2.6 MGD. The City of Mill Valley and Richardson Bay Sanitary District are the two largest member agencies contributing 51% and 32% of the total flow, respectively.

7. Wet weather conditions can cause the influent flow to exceed 24.7 MGD or the design capacity of the biological treatment processes. Influent flows exceeding 24.7 MGD are diverted after screening to two earthen unlined equalization ponds with a combined capacity of 1.74 MG.¹ Above 24.7 MGD, two dedicated influent pumps can pump the excess flow to the equalization ponds at a maximum combined flow rate of about 12 MGD. SASM's practice calls for the diverted flow to be returned back to the headworks for full treatment after the high influent flows subside. However, at the rate of 12 MGD, the two ponds would predictably exceed capacity at just under four hours time and begin to overflow.

8. Two equalization ponds are located on the WWTP premises and feature an overflow pipe which leads directly to Pickleweed Inlet. Any discharges from this pipe are not authorized by the NPDES permit. If it discharges, the pipe would convey raw sewage that has been screened and diluted into Pickleweed Inlet. This would be expected to occur when the flows exceed the plant's hydraulic capacity. The pipe is merely a physical remnant of the replaced treatment facility. The existing SASM WWTP was upgraded in 1986 and a new discharge outfall was authorized as noted in Allegation 4, above. Since discharges from the pipe are not authorized under the NPDES permit, any such discharges are a violation of the permit.

9. The WWTP is currently staffed by three operators and one Laboratory Director/Analyst. Stephen Danehy serves dual roles of General Manager and Chief Plant Operator. At one time, the WWTP had a General Manager separate from the Chief Plant Operator and it also had a Clerical Assistant. Mr. Danehy reports that he currently spends most of his time on managerial and clerical duties, leaving him little time to focus on operational needs of the WWTP. An organizational chart for SASM's Operations Department in 1996 shows that it had at least four more positions than it has now. The reduction in staff has occurred despite the fact that the WWTP's capacity needs have remained the same, but the need for maintenance and repairs has increased. Formerly, SASM had a separate Chief Plant Operator and a separate Lead Maintenance Mechanic. Both positions have been eliminated or combined with other positions. The maintenance department currently consists of a Maintenance Supervisor and two maintenance mechanics, a mechanic's aide and a painter. The Maintenance Supervisor, Mike Aries, reports that he had more staff in the past, and that the department is understaffed. As a result of understaffing, as of

¹ The NPDES Permit recites that the capacity of the ponds is 2.21 MG. However, SASM has recently reported that the capacity was recently measured by a consultant and that a more reliable capacity figure is 1.74 MG.

February 2008, a review of work orders showed that there were 50 open work orders, some dating back to 2005. While most dealt with non-operating repairs, such as rusting equipment, there were several open work orders dealing with critical pieces of equipment that involved plant operations, such as a work order for a defective microswitch associated with the wet well controller and a broken hypochlorite line that feeds the disinfectant to the final effluent.

10. JANUARY 25, 2008, DISCHARGE

a. On Friday, January 25, 2008, a winter storm struck Marin County. According to SASM's January 2008 Self-Monitoring Report, the peak influent flow for that day was about 44 MGD. This is 19.3 MGD in excess of the plant's influent flow capacity. SASM reported to the Regional Water Board that the average and peak daily flows on January 25 were 11.62 and 44 MGD, respectively.

b. Flow charts indicate that the influent flow peaked at about 44 MGD between 2 p.m. and 3 p.m. and remained at a sustained flow rate of about 30 MGD between 3 p.m. and midnight. As a result of this overwhelming volume of influent, SASM reported the equalization ponds started overflowing into the Pickleweed Inlet of Richardson Bay at about 6 p.m., which corresponds to the predictable overflow point based on maximum pumping capacity for a period of just under four hours as noted in Allegation 7, above.

c. From 6 p.m. to midnight on January 25, approximately 2.45 MGD of screened, but untreated sewage overflowed to Pickleweed Inlet. Flow charts indicate that, during that period of time, effluent pumps were discharging at a rate of about 23 MGD and continued to discharge at that rate until about 5 a.m. the following morning. Mr. Danehy's report dated February 14, 2008, states that five of the six effluent pumps were in service during that time. The sole operator on duty during the day shift was the General Manager. The next two shifts were staffed by operators John Ehni and Roger Paskett, respectively.

d. SASM asserts the bypass complied with "the approved Operation and Maintenance plan" for the facility.

e. After the emergency ponds started overflowing at about 6 p.m. the operator on duty (John Ehni) was apparently under the impression that a blend of primary and secondary effluent was discharged through the effluent outfall. He set up a composite sampler at about 7:30 p.m. and also collected grab samples. However, according to the laboratory director these samples were not collected at the appropriate location and most of them were not analyzed (although they were reportedly preserved and stored for a time). Subsequently, SASM determined that, based on its

review of recirculation wet well charts that blending did not occur because the water level in the wet well did not exceed 13 feet.

f. A total coliform test performed on one grab sample resulted in 130 Most Probable Number (MPN)/100 ml, which was within the permit limit. However, this sample was taken at the normal designated effluent sampling point, Air Relief Valve #1, at 9:40 p.m. For that reason, the sample failed to include any of the bypassed untreated sewage. As a consequence, the sampling does not comply with permit requirements.

g. In the event of a bypass event, the Laboratory Director had identified sampling stations in the marsh headlands, both up and downstream of the discharge. The Laboratory Director was not present during this event but had prepared sample bottles in anticipation of another non-permitted blending event, not an emergency storage pond bypass. The lack of specific guidance or Standard Operating Procedures (SOPs) (including the safety precautions) for sampling during emergency situations was certainly a major factor that resulted in the failure to sample in accordance with the permit requirements.

h. SASM failed to properly report the January 25, 2008, discharge to the California Office of Emergency Services (OES) and the Regional Water Board as required in its permit and by Water Code Section 13271.

11. JANUARY 31, 2008, DISCHARGE

a. According to the WWTP staff (Stephen Danehy and John Ehni) the weather forecast for Thursday, January 31, 2008, called for light showers and approximately a half an inch of rain. Mr. Ehni, a Grade III operator, completed his day shift and went home at about 2:30 p.m. The influent flow at that time was between 7 and 8 MGD. Prior to leaving the WWTP Mr. Ehni left **two** of the **six** effluent pumps in the automatic position. This would be adequate for a flow of 14 MGD.

b. According to Mr. Danehy, when he left the WWTP at approximately 3:40 p.m. the flow was about 9 MGD. By that time the rain was steady and heavier than was predicted earlier in the day.

c. According to WWTP records, the influent flow reached 18 MGD by 4:30 p.m. and an alarm signal was automatically sent out to the alarm company dispatcher. The dispatcher called the normally scheduled on-call operator (Roger Paskett) and left messages at his home and on his cell phone. According to SASM operators the alarm company dispatcher did not continue calling other WWTP operators on a list provided by SASM when the dispatcher failed to reach Mr. Paskett. Consequently, the alarm company failed to make contact with any plant operators.

d. Meanwhile, at about 5:30 p.m. partially treated wastewater was overflowing the secondary treatment structures because the WWTP influent volume exceeded the capacity of the two effluent pumps that were on-line. According to SASM, the wastewater flowed through the Corporation Yard parking lot, into the vehicle and equipment storage areas, into other out-buildings and eventually exited into Corte Madera Creek via a storm drain. Corte Madera Creek empties a short distance below into Pickleweed inlet of Richardson Bay.

e. After a few hours at home Mr. Ehni realized that the rain was still coming down strong. Just before 10 p.m. he decided to check the WWTP flows from his lap-top computer. When he noticed that the effluent pumps were discharging 14 MGD (their full capacity) he called Mr. Paskett. They both arrived at the WWTP and noticed that the wastewater was flowing over the clarifier walls. They turned on the remaining effluent pumps, which stopped the overflow.

f. On that particular day, the operator on "call duty" was supposed to be Mr. Roger Paskett; however, he had arranged with another operator, Mr. Dennis Parker, to cover for him that day. This change should not have affected the eventual outcome as long as the alarm company dispatcher followed existing notification procedures that according to SASM would have required that the dispatcher call the next person on the list until he/she reached a WWTP employee.

g. The overflow caused significant damage and disruption at the WWTP, which required several days to repair and clean up. The return sludge pumping facility located in the dry well near the secondary clarifiers was completely inundated. Both the Regional Water Board and OES were notified in a timely manner, however, no samples of the overflow were taken. Mr. Danehy stated that overflow and receiving water samples were not taken because of safety concerns.

PERMIT REQUIREMENTS APPLICABLE TO SASM

ORDER NO. R2-2007-0056 (NPDES PERMIT NO. CA0037711) contains the following provisions:

Section III – DISCHARGE PROHIBITIONS

A. The discharge of treated wastewater at a location or in a manner different from that described in this order is prohibited.

D. The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in 40 CFR 122.41(m)(4) and in A.12 of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge permits, August 1993.

Section VI – PROVISIONS

C.6.c (1) The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (Attachment G) and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a Contingency Plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

C.6.c (2) The Discharger shall regularly review and update, as necessary, the Contingency Plan so that the plan may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

C.6.c (3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each annual self-monitoring report, a description or summary or review and evaluation procedures and applicable changes to its Contingency.

Attachment D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

D. Proper operation and maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance....

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [40CFR 122.41(m)(1)(i)(4)].

3. Prohibition of bypasses - Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass unless

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- b. There were no feasible alternatives to the bypass.....; and
- c. The Discharger submitted notice to the Regional Water Board...

Attachment G - SELF-MONITORING PROGRAM, PART A, NPDES PERMITS (Included in the Order No. R2-2007-0056 at VI.B by reference)

Section C. SPECIFICATIONS FOR SAMPLING AND ANALYSES

2. Effluent

- h. When any type of bypass occurs, composite samples shall be collected on a daily basis for all constituents at all affected discharge point which have effluent limits for the duration of the bypass.

WATER CODE PROVISIONS RELEVANT TO THESE EVENTS

Section 13376 provides:

The discharge of pollutants or dredged or fill material or the operation of a publicly owned treatment works or other treatment works treating domestic sewage by any person except as authorized by waste discharge requirements or dredged or fill material permits is prohibited, except that no waste discharge requirements or permit is required under this chapter if no state or federal permit is required under the Federal Water Pollution Control Act, as amended.

Section 13385 provides:

- (a) Any person who violates any of the following shall be liable civilly in accordance with this section:
 - (1) Section 13375 or 13376.
 - (2) Any waste discharge requirements or dredge and fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to Section 13160.

- (c) Civil liability may be imposed administratively by the state board or a regional board pursuant to Article 2.5 (commencing with Section 13323) of Chapter 5 in an amount not to exceed the sum of both of the following:
 - (1) Ten thousand dollars (\$10,000) for each day in which the violation occurs.
 - (2) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned

up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

VIOLATIONS

The January 25 and 31, 2008, discharges constitute violations of the NPDES Permit Sections III.A (unauthorized discharge) and III.D (unauthorized bypass), and Attachment G Standard Provisions C.2.h (failure to sample bypass discharge). As a result, Discharger violated Water Code Section 13376 prohibiting discharges in violation of permit requirements.

MAXIMUM POTENTIAL LIABILITY

The maximum potential civil liability for these violations is \$34,160,000, based on the following calculations: Two days of violations, for three separate permit violations on each day at \$10,000/day/violation = 2 days x 3 violations x \$10,000/day/violation = \$60,000 (Water Code Section 13385(c)(1)). Discharge of 2,450,000 gallons – 1000 gallons = 2,449,000 gallons x \$10/gallon = \$24,490,000 (Water Code Section 13385(c)(2)). Discharge of 962,000 gallons – 1000 gallons = 961,000 gallons x 10/gallon = \$9,610,000 (Water Code Section 13385(c)(2)). TOTAL: \$60,000 + \$24,490,000 + 9,610,000 = \$34,160,000.

CONSIDERATION OF FACTORS UNDER 13327 AND 13385(e)

1. Nature, circumstances, extent and gravity of the violation

a. January 25, 2008, discharge

This discharge resulted in a significant volume of partially treated waste being discharged to surface waters. The discharge occurred as a result of a system unable to handle heavy inflow volume compounded by understaffing. The peak influent flow on January 25 was 44 MGD, while the WWTP's capacity is 24.7 MGD. This resulted in the operation of the WWTP to relieve the system by sending a large volume of the inflow to the equalization or "emergency" ponds. The ponds, in turn overflowed via an unpermitted pipe. This diversion of flow could not properly qualify as a bypass under the NPDES permit provisions because SASM failed to give the Regional Water Board prior notice and failed to conduct appropriate sampling, as required. Moreover, it is apparent that the discharges were avoidable through better planning, facility improvements and repairs, adequate storage, and larger staffing.

b. January 31, 2008, discharge

This discharge occurred in part because of understaffing and miscalculations about the intensity of the rain event that day. The circumstances were aggravated by a breakdown in the WWTP's alarm reporting system. While SASM apparently expected that its personnel would be contacted while away from the WWTP by phone by the alarm company (once it received an alarm signal of an emergency at the WWTP), the alarm company responsible for those contacts reports that it was only obligated to conduct limited contact service. The breakdown allowed the high volume of rainfall to enter the facility for a long period of time and to eventually overwhelm the system. When staff at home eventually determined without being notified by the alarm company that an overflow was likely, he was able to respond to the discharge by turning on additional pumps that had been left in an off setting. Again, sampling was not conducted after the discharge. SASM reports that this was because of safety concerns. However, State Water Board investigators were unable to confirm the existence of the asserted safety concerns.

Both these bypasses were avoidable had SASM taken appropriate measures in advance of the rain events. Given that the sampling was not conducted for either, it is impossible to determine the actual harmful impacts on the bay from the discharge. However, any discharge of untreated or partially treated sewage would be expected to raise the level of coliform and other pollutants in the receiving waters, and is prohibited by the permit and by law. Following the January 31 discharge, the Marin County Health Department took receiving water samples, and posted warnings against human contact with the water and closed public beaches in the area until February 6, 2008. Similar action by the County likely would have been taken had SASM provided proper notice of its January 25 discharge.

2. Whether the discharge is susceptible to cleanup or abatement

The untreated or partially treated material was discharged into the inlet, then to the bay. It was not recoverable. Instead, the Regional Water Board would look to SASM to prevent such discharges.

3. The degree of toxicity of the discharge

The untreated or partially treated material would be expected to have a deleterious effect on the environment, including causing potential nuisance in the near shore areas. However, given the intensity of the rainfall during both events, some of the toxic effect was likely reduced. Failure of SASM to sample at the appropriate location deprived the Regional Water Board staff and other responding agencies of information that may have been useful in fully assessing impacts to the environment. SASM should not be rewarded

for this failure. Timely and appropriate sampling would have been SASM's opportunity to show minimal impacts, if that were the case. In the absence of proper sampling, any assumptions about the impacts of the spill should not go toward decreasing the amount of the assessment, but rather, toward a higher assessment.

4. The violator's ability to pay

SASM has an annual operating budget of over \$2.3 Million for fiscal year 2007/2008. SASM has authority to adjust its rate scale to provide for financial needs. SASM has not provided any information indicating that it would be unable to pay the recommended assessment.

5. The effect on the violator's ability to continue in business

Again, SASM has the authority to adjust its rates to accommodate its financial needs. No information has been provided indicating that SASM would be unable to continue its business if it pays the recommended assessment.

6. Any voluntary cleanup efforts undertaken

SASM did not report any voluntary cleanup efforts as to either discharge, except those within the WWTP itself.

7. Any prior history of violations

Given the design and operation of the WWTP, the investigation concluded that it is likely that events similar to the January 25 discharge have occurred in the past.

The Regional Water Board's records show these past violations:

- January 4, 2008, bypass of secondary treatment units for a portion of the wastewater due to high influent flows in violation of permit prohibition, and violation of total coliform effluent limitation.
- December 31, 2005, 37 million gallon bypass of screened, untreated sewage.
- December 30, 2005, 32.5 million gallon bypass of screened, untreated sewage

Both of the above incidents in 2005 occurred during extreme wet weather flooding when Marin County was in a state of emergency.

8. The degree of culpability

SASM, like all other treatment plants within the San Francisco Bay Region, are required to maintain a Contingency Plan pursuant to Regional Water Board Resolution 74-10. This requirement is imposed directly on SASM in its NPDES Permit, Provisions VI, C.6.c. SASM was required to maintain the Plan as prudent in accordance with current publicly-owned wastewater facility emergency planning. Marin County wastewater agencies have a history of being impacted by storm-related events. All wastewater permittees are prohibited from discharging pollutants in violation of permit limits. If a discharger subject to the Resolution fails to develop and/or adequately implement a contingency plan, the Regional Water Board has said that is the basis for considering such a discharge a willful and negligent violation of the NPDES permit pursuant to Section 13387 of the California Water Code.

SASM is further required to regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews must be conducted annually, and updates completed as necessary. SASM does not have a stand-alone plan, but instead relies upon outdated and irrelevant information contained in the 1984 Engineering Design document which dates back to when the present facility was constructed. When storm events occurred in January 2008, SASM staff decisions were not well-planned or executed with deliberation. Instead, errors of judgment contributed significantly to the inability to meet the terms and conditions of the SASM discharge permit.

SASM is required to submit a report describing the current status of its Contingency Plan review and update by June 30 of each year. The annual report is to include a description or copy of any completed revisions, or a statement that no changes are needed. SASM has repeatedly failed to comply with this requirement. This failure is central to permit accidents and mistakes of judgment during the January 2008 storm events. A relevant, current Contingency Plan would have driven staff operational choices and appropriate storm-related sampling, thereby assuring compliance with discharge requirements.

SASM is fully culpable for the events described herein. With respect to the January 25 discharge, SASM has been aware for years of the potential for high inflow volume to exceed the WWTP's capacity. It has nonetheless operated that way for a number of years despite this threat. SASM personnel failed to report its intent to bypass the high inflow volumes that day despite clear evidence that it was likely to bypass. Compounding this failure, SASM also failed to conduct the appropriate sampling that is required under the NPDES permit and the federal regulations. Its O&M Manual and SASM's staff training apparently was not clear enough to the staff that they would be aware of the appropriate sampling points following a "bypass." While the Lab

Director had set up procedures for such sampling, somehow, SASM failed to assure that its personnel properly conducted such sampling. Furthermore, any fault with the alarm company's performance is a matter between SASM and the alarm company. SASM remains responsible to assure that it operates its system to avoid unpermitted discharges, including the proper performance by contractors. SASM should not be rewarded for its failure to upgrade its WWTP and collection system if necessary, to properly train its staff, and to assure that its contractors perform their proper functions or a suitable alternative system is put into place.

9. Economic Benefit of savings, if any, resulting from the violation

SASM was able to realize financial savings by not taking actions to prevent the discharges. Facts concerning economic savings affect the final assessment in that the Regional Water Board is required to recover economic benefit as a minimum pursuant to Water Code Section 13385(e). However, Regional Water Board staff currently has limited information concerning SASM's economic savings. Despite this, a best estimate was developed based on the categories discussed below.

a. Plant upgrades

At a minimum, SASM should have increased the holding capacity of its equalization ponds. The severe rain storms were foreseeable and predictable. It was foreseeable that the amount of rain could exceed the present ponds' capacity. SASM is now in the process of having the ponds enlarged to gain increased capacity. This is expected to reduce the likelihood of overflow discharges. It had budgeted \$380,000 for an enlargement in fiscal year 2007/2008, but has not yet started this project. Also, the project currently being contemplated will only increase the capacity by 1 MG, which will not be adequate in preventing future discharges in the event of rainstorms of the magnitude that occurred in January 2008. SASM may have to consider additional upgrades to its system to address the high flow volume. One option is to build facilities that will increase the current storage capacity by about 150 percent, or 2.5 MG. At a minimum, this would cost 1.5 times the cost of the current project to increase capacity by 1 MG.

b. Increase in staffing during rain events

The magnitude of the January 2008 discharges could likely have been substantially reduced if SASM had had more staff to monitor the amount of rain coming down and properly operated its WWTP systems during the events. The Regional Water Board staff does not have sufficient detailed information to make reliable conclusions about the number and grade of additional staff necessary to properly operate the system during the rainy

season. However, as an example of improved staffing, in all likelihood, the alarm company notification failure could have been avoided if SASM employed a person to remain at the WWTP instead of relying on an off-site contractor. SASM is responsible for making sure that it conducts its own assessments of staff needs in order to prevent discharges and meet NPDES permit requirements. Based upon the investigation, it appears that the discharges could have been prevented had SASM had in place additional, properly trained staff.

c. Staff training improvements

Again, SASM is solely responsible to assure that its staff is fully and properly trained. The events of January 2008 suggest that this was not the case. There were failures in pump operations, reporting and in monitoring. It is clear that SASM has failed to provide its staff with training, for example, about the NPDES permit requirements. Training could have helped to prevent the discharge and their effects on the environment. SASM realized an unknown savings by failing to conduct appropriate and timely training in system operations, reporting and monitoring.

d. O&M Improvements

SASM could have made Operating and Maintenance improvements that would likely have reduced the magnitude of the discharges that occurred in January 2008. However, the cost of those improvements is unknown.

e. Alarm system upgrades

The system that SASM utilizes costs \$65 per month. The system proved unreliable during the storm on January 31, 2008. The cost of an upgraded system is unknown.

Overall, the Regional Water Board staff estimates the economic savings to be at least \$545,600. This is based on two categories of deferred costs: storage upgrades, and increased staffing.

For storage upgrades, Regional Water Board staff estimates that SASM saved at least \$190,000 in from deferred expenditures to build adequate storage. This is based on the estimate total cost for storage (\$380,000 + \$570,000) at 10% interest for two years, which is the time frame since the last discharge of this nature (see #7 above) that should have alerted SASM to the need for increased storage.

For increased staffing, Regional Water Board staff estimates that SASM saved \$355,600 by understaffing its WWTP. SASM should have employed an

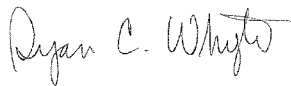
additional treatment plant operator to assist in operating the WWTP and an additional maintenance worker to keep up on necessary repairs. Had these additional two positions been filled, SASM's General Manager would have been in a better position to plan and manage overall operations, update plans and manuals, and provide staff training, all of which could have avoided the poor judgments made before and during the events. According to the AFSCME MOU effective July 1, 2008, the monthly salary for those positions would be \$5,573 and \$4,304 per month, respectively. Applying a 1.5 factor to account for benefits, etc., the positions would cost \$8,359 and \$6,456 per month. Annually, the positions would cost combined \$177,800. This becomes \$355,600 using two years, which is the time frame since the last discharge of this nature (see #7 above) that should have alerted SASM to the need for increased staffing.

10. Other matters as justice may require

The relatively low capacity to handle influent flows given the potential for comparably high amounts of rainfall signals a lack of advance planning and a lack of proper expenditures to accommodate the WWTP's needs. SASM also failed to take proper action once the discharges occurred by failing to properly report the one on January 25 and failing to sample both discharges to determine their impacts.

PROPOSED CIVIL LIABILITY

Based upon consideration of the factors in Sections 13327 and 13385, the Assistant Executive Officer proposes civil liability be imposed upon SASM in the amount of \$1,600,000.



Dyan C. Whyte
Assistant Executive Officer

August 11, 2008
Date

Attachment: Waiver of Hearing

WAIVER

If you waive your right to a hearing, the matter will be included on the agenda of a Water Board meeting but there will be no hearing on the matter, unless a) the Water Board staff receives significant public comment during the comment period, or b) the Water Board determines it will hold a hearing because it finds that new and significant information has been presented at the meeting that could not have been submitted during the public comment period. If you waive your right to a hearing but the Water Board holds a hearing under either of the above circumstances, you will have a right to testify at the hearing notwithstanding your waiver. Your waiver is due no later than September 10, 2008.

- Waiver of the right to a hearing and agreement to make payment in full.
By checking the box, I agree to waive my right to a hearing before the Water Board with regard to the violations alleged in Complaint No. R2-2008-0070 and to remit the full penalty payment to the State Water Pollution Cleanup and Abatement Account, c/o Regional Water Quality Control Board at 1515 Clay Street, Oakland, CA 94612, within 30 days after the Water Board meeting for which this matter is placed on the agenda. I understand that I am giving up the right of Sewerage Agency of Southern Marin to be heard, and to argue against the allegations made by the Assistant Executive Officer in this Complaint, and against the imposition of, or the amount of, the civil liability proposed unless the Water Board holds a hearing under either of the circumstances described above. If the Water Board holds such a hearing and imposes a civil liability, such amount shall be due 30 days from the date the Water Board adopts the order imposing the liability.
- Waiver of right to a hearing and agree to make payment and undertake an SEP.
By checking the box, I agree to waive my right to a hearing before the Water Board with regard to the violations alleged in Complaint No. R2-2008-0070, and to complete a supplemental environmental project (SEP) in lieu of the suspended liability up to \$800,000 and paying the balance of the fine to the State Water Pollution Cleanup and Abatement Account (CAA) within 30 days after the Water Board meeting for which this matter is placed on the agenda. The SEP proposal shall be submitted no later than the date specified above. I understand that the SEP proposal shall conform to the requirements specified in Section IX of the Water Quality Enforcement Policy, which was adopted by the State Water Resources Control Board on February 19, 2002, and be subject to approval by the Assistant Executive Officer. If the SEP proposal, or its revised version, is not acceptable to the Assistant Executive Officer, I agree to pay the suspended penalty amount within 30 days of the date of the letter from the Assistant Executive Officer rejecting the proposed/revised SEP. I also understand that I am giving up my right to argue against the allegations made by the Assistant Executive Officer in the Complaint, and against the imposition of, or the amount of, the civil liability proposed unless the Water Board holds a hearing under either of the circumstances described above. If the Water Board holds such a hearing and imposes a civil liability, such amount shall be due 30 days from the date the Water Board adopts the order imposing the liability. I further agree to satisfactorily complete the approved SEP within a time schedule set by the Assistant Executive Officer. I understand failure to adequately complete the approved SEP will require immediate payment of the suspended liability to the CAA.

Name (print)

Signature

Date

Title/Organization

EXHIBIT "C"

ATTACHMENT C: Spill Table (January 1, 2001 through September 30, 2008)

Sewerage Agency Of Southern Marin
 ACL Complaint No. R2-2008-0070
 Treatment Plant/Sewer Overflows

No.	Date	Location	Gallons Discharged	Gallons Recovered	Overflow Destination	Cause
1	12/27/04	Miller Ave. Mill Valley MH # AR6	6,000	0	Pickleweed Inlet	Extreme weather conditions/I&I and incomplete cleaning project (contractor's equipment failed)
2	12/27/04	Almonte Blvd & Wisteria Lane, Mill Valley MH# A11	1,200	0	Pickleweed Inlet	Extreme weather conditions/I&I and incomplete cleaning project (contractor's equipment failed)
3	12/27/04	Almonte Blvd north of Shoreline Highway MH #A24	600	0	Pickleweed Inlet	Extreme weather conditions/I&I and incomplete cleaning project (contractor's equipment failed)
4	12/30-31/2005	Equalization Pond	1,400,000	0	Pickleweed Inlet	Extreme weather conditions. A state of emergency was declared in Marin County due to wide spread flooding.
5	1/25/2008	Equalization Pond	2,450,000	0	Pickleweed Inlet	Large winter storm.
6	1/31/2008	Wastewater Treatment Plant	961,000	500	Some captured on paved surface	Storm/inadequate number of pumps functioning to handle flows/alarm error.
Total Gallons			4,818,800	500		

EXHIBIT "D"

Sewerage Agency of Southern Marin Supplemental Environmental Project (SEP) Proposals

On August 11, 2008, the San Francisco Bay region of the California Regional Water Quality Control Board (Regional Water Board) issued an Administrative Civil Liability (ACL) Complaint the Sewerage Agency of Southern Marin (SASM) for violations of California Water Code section 13385. Pursuant to a settlement agreement and subsequent order of the Regional Water Board, the fine was set at \$1,600,000 with \$800,000 to be paid in cash to the Cleanup and Abatement Account (CAA) and \$800,000 to be satisfied through the development and expense of one or more Supplemental Environmental Projects (SEPs). SASM will pay the cash portion of the fine consistent with the settlement agreement once it is finalized. Because of the amount of funds that will be available, two SEPs are proposed by SASM, each of which are subject to approval by the Regional Water Board.

Following are the proposed SEPs that will share and benefit from the \$800,000 earmarked for SEPs.

- Private Lateral Replacement Project - \$600,000
- Richardson Bay Aramburu Island Restoration Project - \$200,000

Each proposed SEP is described in greater detail.

SASM understands that based upon the State Water Resources Control Board's Enforcement Policy criteria that SEPs should be an extension of SASM's commitment to improving the quality of the waters of the State, benefit the public or environment in which the alleged violations occurred, and that any SEP should represent a program that is not otherwise required of SASM in its NPDES permit. We believe that these proposed SEPs would accomplish that goal.

Project Name: Private Lateral Replacement Project (PLRP)

Location: City of Mill Valley, Richardson Bay Sanitary District, Almonte, Alto and Homestead Valley Sanitary Districts and the Kay Park area of Tamalpais Community Services District.

Name of Contact: Stephen Danehy (415) 288-2402
Sewerage Agency of Southern Marin

Category: Pollution Prevention and Reduction and Public Awareness

General Cost: \$200,000.00 for grant program
\$400,000.00 for loan program

Duration: 5 years from approval, with provisions for extension for another 5 years if necessary.

Background

In 2005, the Regional Water Board adopted Resolution No. R2-2005-0059 - "In Support of Programs for Inspection and Rehabilitation of Private Sewer Lateral," which officially recognized that sewer laterals in poor condition may cause surcharging of public sewers, overload pump stations and wastewater treatment plants, and potentially pose localized human health and environmental risks. Local programs for inspection and rehabilitation of private laterals represent one means of assuring that laterals are not a source of unreasonable amounts of inflow and infiltration or blockages. The Resolution states that the Regional Water Board supports and encourages local communities and sanitary sewer collection system agencies, especially those experiencing significant infiltration and inflow from private sewer laterals, to have a program that requires inspection and rehabilitation of private sewer laterals.

Wastewater flow is comprised of mostly residential wastewater. The geography of the area lends to high infiltration rates in damaged or deteriorating lines. Flow to the SASM Wastewater Treatment Plant can increase on a scale of 10 to 1 or more. This means that possibly several million gallons per day may enter the system from infiltration or inflow.

Once the initial loan program is completed, SASM intends to continue the loan program at a rate of \$50,000 per year.

SEP Requirements

SEP proposals must conform to the requirements specified by the State Water Resources Control Board in the Water Quality Enforcement Policy (WQEP) and the Regional Water Board's Standard Criteria and Reporting Requirement for SEPs.

Section IX.E of the WQEP states that a SEP(s) must have an appropriate nexus between the alleged violations and the SEP. The proposed SEP should be related both

geographically and in violation type. Excessive infiltration and inflow into the collection system may contribute to sanitary sewer overflows (SSOs) and wet weather sewage discharges to Richardson Bay. The proposed SEP addresses this problem in the SASM service area in the collection systems owned and operated by satellite agencies.

The Private Lateral Replacement Project (PLRP) is designed to reduce the amount of inflow and infiltration (I&I) in the SASM sanitary sewer systems. This PLRP will benefit the people and water quality in the watershed by reducing SSOs and wet weather sewage discharges to Richardson Bay through incentivizing and enabling the replacement of privately owned sewer laterals. The SASM service area consists of approximately 160 miles of collector lines owned and operated by the member agencies of SASM and approximately 150 miles of private laterals that connect to the main collector lines. Studies have shown that as much as 50% of I&I can be attributed to private laterals. Excessive I&I have led to overflows at the SASM wastewater treatment plant and may contribute to sanitary sewer overflows. Defective private laterals may also allow exfiltration of sewage to groundwater.

SASM and the member agencies do not own the lateral lines that connect private properties to the sanitary sewer system, so this SEP will not directly benefit SASM or its member agencies.

This PLRP fits the categories of pollution prevention and public awareness. In addition to funds directed at replacing, or assisting in the replacement, of private laterals, there will be educational material created and disseminated about the connections between private laterals and the public sewer system, and the problems that arise from defects in either.

The PLRP will consist of two programs: a grant program for low income property owners and a low interest loan program. The details of each of these program elements of the PLRP are described in more detail below.

Description: Studies have shown that many SSOs reported in the past years have been traced to poor lateral maintenance and repair by residents. Old pipes may be cracked, have open joints, or become misaligned resulting in I&I. Left unrepaired, tree roots or materials traveling through the pipe can get caught and back up the system. If this happens past the sewer cleanout, if one exists, a backup will occur and potentially allow for spills into the street through the clean out. The cost to repair laterals is expensive and many residents opt to pay for regular cleaning or live with slow drains rather than replace lateral lines that have opened to root intrusion and alignment problems.

As an incentive, the PLRP would provide grants and low interest loans to video inspect and replace the lateral. SASM will place and retain the money for the lateral programs in a separate account to be used solely for grants and low interest loans under the PLRP. For the grant program, matching funds of 50% per lateral will be provided to property owners meeting the criteria until the set budget (about \$200,000) for this program

is expended. At an estimated \$250 for video inspection and \$6,000 for replacement or rehabilitation per connection at 50% grant funded, it is anticipated that this grant program would impact approximately 64 homes below 70% of the median income level.

For the loan program, low interest loans of 2 percentage points below the prime rate will be made available to home owners, for a term of between 1 and 3 years at each homeowner's option. As this program progresses, the maximum term of new loans must be shortened accordingly to ensure full payment of loaned funds within the 5-year term of the PLRP. In addition, up to \$150 per lateral will be provided as a grant to incentivize the video inspection of private laterals. Some homeowners may choose to replace their defective laterals without further financial aid. Other homeowner's may finance the balance of the cost of video. Loan payments received will be returned to the program to fund additional loans and video inspection grants until the set budget (about \$400,000) for this program is expended. For loans in default, SASM shall make every effort to recover the funds, and if it fails to do so, shall make up for half of the defaulted amount. At an approximate cost of \$250 for video inspection and \$6,000 for rehabilitation per lateral and an estimated average loan term of 2 years, this loan program would enable the replacement of about 150 private laterals. This estimate will be lower if more laterals receive video inspections that are partially funded by grants.

Loan funds not spent by the 5-year deadline of the program shall be paid to the State's Cleanup and Abatement Account or, alternatively, SASM may make a request to the Regional Water Board's Executive Officer that the term of the project be extended. The extension must identify the amount of funds remaining, specify the term of the extension requested, which shall not go beyond 10 years from the initiation of the project, and must provide for additional third party oversight/audit costs.

To maximize the effectiveness of the grant and loan programs, the PLRP will include

- identification of target areas with high I&I,
- smoke testing of homes in those areas,
- community outreach, and
- identification of qualified contractors who will perform video inspection and rehabilitation work at pre-set prices

Currently, SASM is studying the "sewersheds" that make up the SASM service area. Analysis will better determine the area in most need of repair. SASM will identify from 2 to 5 such areas. These areas will be targeted for the PLRP. At SASM's cost, smoke testing will be conducted at homes in these areas as a preliminary assessment of the defective laterals.

The community outreach and education will inform the homeowners in the targeted areas about I&I problems, how they can help resolve those issues, identify the grants and loans programs available to assist them, and list pre-qualified contractors with pre-set prices that are available to do the work. This component would start before and would continue during the time of the PLRP and may extend beyond the target areas though priority for grants will be given to those from the target areas.

SASM, at its own cost, will identify a short list of pre-qualified contractors that will agree to do work at a pre-set price. This will serve two purposes: ensure that the work will be done correctly, and relieve the homeowners of the burden of finding his/her own contractor. This task will also provide an opportunity for SASM to negotiate pre-set prices for the work, which can be more competitive than market prices because of economies-of-scale. In other words, pre-qualified contractors can expect more work in a particular area because they will be identified in SASM's outreach material, and can thus save costs for mobilization to that area to perform work for multiple homes.

An ordinance will be developed for the inspection, maintenance and replacement of lateral sewer lines that will be presented to the SASM member agencies for adoption. SASM is currently participating in the North Bay Watershed Association "Clean Green Lateral Program," which is supported by wastewater agencies throughout Marin County.

At its own cost, SASM will compile information as to the length of pipe replaced, rehabbed, conditions found during replacement, and other conditions as appropriate. Additionally, SASM will continue flow monitoring to assess the success of lateral repairs/replacements in a targeted area.

Grant Criteria: The intent of the grant program is to provide funds to owner occupied single family homeowners in the SASM sewer service area that are 70% below the median individual income for Marin County. For homes with joint ownership, this criterion will be met using the arithmetic average of the incomes of all the owners. Also, at least one of the owners must use the house as his or her primary residence. The California Franchise Tax Board most recent report states that the median individual income of Marin County in 2006 was \$116,626.

Loan Criteria: The intent of the loan program is to provide low interest loans to owner occupied single family homeowners in the SASM sewer service area. The loan program would not be available for commercial or multi-residential units (apartment buildings).

Education: As noted previously, SASM will establish a public education program regarding private laterals, problems that can be encountered, routine maintenance, and the homeowners' responsibilities. At the same time, this

program will make the public aware of information through SASM's website posting and individual mailers that SASM will be providing grants and loans to repair/replace lateral lines. Educational informational about the grant and loan programs shall indicate that these programs are being performed in fulfillment of a settlement of an enforcement action with the Regional Water Board. SASM will also continue to participate in the North Bay Watershed Association public outreach programs as well as to develop localized (service area) public education programs.

<i>Budget/Cost:</i>	<u>Task</u>	<u>Budget</u>
	Development and Implementation of Education and Promotion for PLRP	\$ 2,000
	Grants to low income homeowners*	\$190,000
	Low Interest Loans and video inspection grants to homeowners*	\$397,000
	Project Administration by SASM	\$ 0
	Third Party Oversight by San Francisco Estuary Project	<u>\$ 11,000</u>
	Total for PLRP	\$600,000

* 2 years after project initiation, SASM may request shifting of funds from the grant program into the loan program or visa versa, depending on the level of use of one program over the other. Additional third party oversight costs will be determined by the Executive Officer for the remainder of the project at that time and shall not be from the original project budget, but shall be in addition to the budget and paid for by SASM.

Project Timetable and Milestones:

<u>Task</u>	<u>Timeline</u>
Identify 2-5 target areas from flow monitoring	Within 2 months of project initiation*
Develop outreach material and strategy for implementation, and model lateral ordinance, and submit a copy of outreach material to Regional Water Board	Within 3 months of project initiation
Complete smoke testing in target areas, and provide ordinance to SASM member agencies for adoption	Within 4 months of project initiation
Complete list of pre-qualified contractors for video inspection and rehabilitation of private laterals at pre-fixed prices	Within 5 months of project initiation
Begin public education and outreach, and begin to accept and evaluate grant/loan applications	Within 5 months of project initiation
Begin PLRP to provide grants/loans	Within 6 months of project initiation
Begin video inspections of suspect laterals and repair/rehabilitation of defective laterals	Within 6 months of project initiation
Determine if budget for grants and loans need adjustment and request Regional Water Board approval as appropriate	2 years after project initiation
Complete PLRP or pay Cleanup and Abatement the balance of unspent grant or loan funds	Within 5 years of project initiation**

* *Project initiation shall begin within 40 days after approval of the project by the Regional Water Board or its Executive Officer.*

** *This 5-year term may be extended for up to 5 years for a total project term of 10 years if approved by the Regional Water Board's Executive Officer based on a request by SASM as described above.*

Reporting: Progress reporting will be made to the Regional Water Board and the oversight/audit organization identified below on a quarterly basis from the start of the PLRP for 2 years (a total of eight reports). After two years,

progress reports will be made on an annual basis until project completion (for remaining 3 years). Quarterly progress reports are due on the first of each calendar quarter; annual reports are due on January 2 of each year.

A final report shall be made to the Regional Water Board and the oversight/audit organization identified below by July 1st five years after PLRP initiation. This timing is intended to allow SASM time to collect system flow data to show whether the flow reduction measure of success was achieved in the targeted areas. Records of project accounts, expenses and improvements shall be maintained by SASM.

Each progress report shall describe the tasks completed along with their results (i.e., target areas identified, number of laterals videoed, etc.), monies expended for each task since the last report, and progress of compliance with the project timetable and milestones. The final report shall describe the tasks completed, an accounting of funds expended, and describe whether the measures of success detailed below were met, and if not met, identify possible reasons for why they were not met and suggestions for changes to project elements and strategies to guide future efforts by SASM or others.

If SASM requests and is granted an extension of the project, a final report for the first 5 years is still due on the date specified above, and the conditions of the extension will specify reporting requirements for the term of the extension.

Measures of Success:

The measures of success of this project include the following:

- The replacement or rehabilitation of approximately 200 defective private sewer laterals in the SASM service area that were financially assisted with either the grant or loan program.
- An average of 25% reduction in peak wet weather flows from service areas targeted by the PLRP
- Video inspections of 400 laterals
- Mailers of educational material on PLRP to 500 homeowners
- Posting of educational material on SASM website

Project Oversight/Audit:

To ensure completion of commitments and appropriate expenditure of funds, oversight and audit of the project will be conducted by the San Francisco Estuary Project. All reports must be sent to the following:

Carol Thornton
Contractor to San Francisco Estuary Project
1515 Clay Street, Suite 1400
Oakland, CA 94612
(510) 622-2419
cThornton@waterboards.ca.gov

SUPPLEMENTAL ENVIRONMENTAL PROJECT ARAMBURU ISLAND

Project Name: Aramburu Island Restoration and Enhancement Project

Location: Richardson Bay, Marin County

Name of Contact: Brooke Langston, 415-388-2524
Richardson Bay Audubon Center

Category: Environmental Restoration and Protection

General Cost: \$200,000.00

Duration: 2 years from approval

1.0 Introduction

On August 11, 2008, the San Francisco Bay region of the California Regional Water Quality Control Board (Regional Water Board) issued an Administrative Civil Liability (ACL) Complaint the Sewerage Agency of Southern Marin (SASM) for violations of California Water Code section 13385. Pursuant to a settlement agreement and subsequent order of the Regional Water Board, the fine was set at \$1,600,000 with \$800,000 to be paid in cash to the Cleanup and Abatement Account (CAA) and \$800,000 to be satisfied through the development and expense of one or more Supplemental Environmental Projects (SEPs). The purpose of this document is to describe the Aramburu Island Restoration and Enhancement Project (the project) in Richardson Bay, Marin County, California. This project meets the qualifications as an SEP in that considerable, tangible progress toward completing the restoration goals of the project will be made with use of the SEP funds.

1.1 Requirements for SEPs

SEP proposals must conform to the requirements specified by the State Water Resources Control Board in the Water Quality Enforcement Policy (WQEP) and the Regional Board Water Board's Standard Criteria and Reporting Requirement for SEP's. Section IX.E of the WQEP state that the SEP(s) must have an appropriate nexus between the alleged violations and the SEP. The proposed Aramburu Island project is related geographically

(Figure 1). Overflows from the Equalization Ponds flowed directly into Pickleweed Inlet, a tributary to Richardson Bay and may have negatively impacted Aramburu Island. The fact that the proposed restoration site is an island makes it a highly desirable target for habitat restoration in the heavily urbanized Richardson Bay area as it is relatively isolated from surrounding human disturbances and terrestrial predators. The unique position of the island within Richardson Bay, and its topographic and substrate variability, offer a rare opportunity to restore a variety of habitats that will have great biological value while maintaining resiliency to rising sea levels.

1.2 Project Environmental Benefits

The primary goals of this project are to:

1. **Rehabilitate existing tidal marsh, tidal flat, shoreline, and grassland habitats and establish gradual transition zones (ecotones) that support diverse native vegetation types and optimum wildlife habitats** for shorebirds, waterfowl, marine mammals, and special-status native plant species.
2. **Expand existing sand and gravel spit shorebird roosting habitats, and reduce wave erosion and shoreline retreat**, by selective placement (replenishment) of bay sand and gravel beach sediments with appropriate grain sizes for incident wave energy.
3. **Maintain topographic heterogeneity on the island** to facilitate gradual transgression of resilient tidal wetlands during sea level rise (submergence of uplands)
4. **Establish additional roost habitat** for herons and egrets by placement of persistent large woody debris in storm drift-lines, and creating snags on the island.

The Aramburu Island SEP will improve habitat for resident and migratory birds, such as the San Pablo song sparrow, the salt marsh yellowthroat, shorebirds and terns, as well as mammals such as the harbor seal. The replacement of eroded, steep, rubble-dominated retreating, artificial shorelines by gradually sloping sand beaches, sand flats, and gravel/shell/sand berms, would be likely to provide high tide roosts for shorebirds, terns, and gulls, and may potentially facilitate re-use of the island as a seal haul-out. The island's terrestrial sediments exposed in the high salt marsh edge provide highly suitable conditions for the regionally rare salt marsh annuals, Point Reyes bird's-beak, salt marsh owl's-clover, and smooth goldfields. In addition, erosion reduction measures may have indirect benefits for adjacent subtidal habitats, including native eelgrass that is likely to be limited by turbidity due to locally resuspended fine sediment.

The project will contribute to the regional restoration effort presented in the Baylands Ecosystem Habitat Goals Report, which specifically identified the following recommended restoration and management actions for “Strawberry Spit” (of which Aramburu Island was formerly a part) and Richardson Bay (Goals Report, p. 117 and Appendix D) that are incorporated in the preliminary conceptual project design:

- Protect and enhance harbor seal haul-out sites at Strawberry Spit
- In Richardson Bay, restore and enhance fringing marsh along northwest edge for Point Reyes bird’s-beak
- Restore and enhance tidal marsh
- Restore high marsh near populations of rare and uncommon salt marsh plants to enable their expansion

2.0 Project Description

This section describes the preliminary conceptual restoration alternative that is currently preferred. Its ecological engineering design concepts are based on initial qualitative assessments of field conditions of the site and its setting within Richardson Bay, and preliminary evaluation of opportunities and constraints. These concepts will be developed in further detail in a subsequent Conceptual Restoration and Enhancement Plan, incorporating the results of data collection and community outreach activities. This description however, should provide basic descriptive information on the proposed restoration/enhancement components, planning and construction timelines, and overall project budget to allow the funding and regulatory agencies to make an informed decision on the suitability of this project for funding as an SEP.

2.1 Site Description

Richardson Bay is a sensitive water body that historically provided a rich assortment of ecological benefits to wildlife and human communities. Intense urbanization of the surrounding area has significantly degraded these benefits. Native fish, waterfowl, shorebird and plant populations have declined precipitously over several decades. Urbanization has also increased flooding of developed areas and degraded human recreation opportunities by polluting the waters and privatizing the shoreline. Historic U.S. Coast Survey maps of Richardson Bay prepared in the 1850s represented fringing salt marshes, small pockets of bay-head salt marsh and tidal creek systems, wide tidal flats, and pockets of barrier beaches.

Aramburu Island is located in the northwest region of Richardson Bay on the east side of the Strawberry Point (Figure 1). The island was initially a peninsula off the mainland created by deposition of dredge spoils and hillslope fill in the early 1960s during the

construction of residential housing on Strawberry Point/Spit. The undeveloped portion of the peninsula offered attractive habitats for shorebirds, waterfowl, and harbor seals and these species began using the area shortly after its construction. In 1987 a channel was cut between the developed and undeveloped portions of the peninsula, forming what is now the 17-acre Aramburu Island (Figure 2). This cut was made to provide a buffer between the wildlife that had begun using the island and the human community on Strawberry Point. In addition, a new beach area was constructed on the north end of the island to improve harbor seal haul-out habitat. Despite these improvements, the island was slowly abandoned by the seals. The island is currently owned by Marin County and managed as part of the Richardson Bay Audubon Sanctuary. In its current configuration, the island offers marginal habitat for wildlife, but presents several distinct opportunities for enhancing these habitat values.

An overview of current conditions on Aramburu Island is displayed in Figure 3. The island currently supports mostly weedy upland plant communities (primarily non-native grassland) on artificial fill soils. A large swath of this upland habitat is heavily goose-grazed to a low turf (Photo 1), while other areas are dominated by bunch grasses and invasive species such as French broom and Italian thistle, which are unpalatable to geese (Photo 2). Small oak groves also exist on the northern end of the island (Photo 3). Fringing tidal marsh is present along some of the island's margin.

The eastern shore of the island is subject to high wave energy and a steep, wave-cut erosional shoreline has developed (Photo 4). As the compacted upland fill shorelines facing the bay retreat, a rough, rocky intertidal shelf expands in the footprint of the original fill. The fill contains insufficient sand and gravel sediments to form substantial bay beaches in response to waves. Two coves partially sheltered by gravel point bars (Photo 5) were constructed as harbor seal haul-out sites (subsequently abandoned by the seals) along the eastern shoreline and support back-barrier tidal marshes and mudflats. A steep engineered boulder (rock rip-rap) revetment stabilizes the banks facing the channel that isolates the island from Strawberry Spit.

2.2 Restoration/Enhancement Design Opportunities

The artificial terrestrial fill substrates of Aramburu Island, and its exposure to episodes of high wave energy during storms, are currently liabilities for its unmanaged habitat structure and geomorphic evolution: they have resulted in dominance by weeds, erosional scarps with poor access for harbor seals, and poor development of salt marsh and mudflats. The same physical characteristics, however, can potentially be modified to become assets and opportunities to rehabilitate distinctive shoreline and wetland habitats representing lost habitat types and ecological functions in Richardson Bay. Based on preliminary field assessments of the site, as well as reference sites in Richardson Bay and

comparable sites in San Francisco Bay, the following habitat types and ecological functions appear to be feasible and appropriate for rehabilitation on the island:

2.2.1 Bay beach and sand flat

Richardson Bay formerly supported estuarine (bay) beaches associated with sheltered flats and marshes (including historic barrier beaches linking Belvedere to the mainland). Bay beaches form naturally where wind-waves from the open bay are supplied with erosional sources of sand or gravel, and a receptive shoreline for deposition. Such settings are mostly eliminated from Richardson Bay today. Modification of the wave-cut scarp (low cliff) shoreline configuration on the eastern (Bay) shore of Aramburu Island, combined with nourishment of imported natural bay sand, shell fragments, and gravels, has the potential to establish a beach shore profile over the existing erosional fill shelf.

Physically, beach nourishment would buffer wave erosion of the scarp, mantle the erosional shelf with upper intertidal sand flats, and naturally form emergent beach ridges and spits. With sufficient sediment supply, bay beaches can migrate landward and adjust in elevation to rising sea level. Naturally graded sands, shell, and gravel would esthetically replace eroded, rocky upland fill (Photo 6).

Ecologically, extensive beach and sandy foreshore habitats at Aramburu Island – especially elongated sand and gravel spits – would be likely to function as high tide roosts for migratory shorebirds, intertidal foraging habitat for shorebirds, and roosts for terns (Forster's, Caspian, and possibly also endangered California Least Terns, which recently have opportunistically colonized artificial island-like sand deposits at Montezuma Wetlands in Suisun Marsh, Solano County). Western snowy plovers have also been observed at isolated bay beaches, and could potentially exploit extensive, isolated new beach habitats at Aramburu Island. The relatively high, unvegetated intertidal elevations of sandy foreshores (in the elevation range of tidal marsh) may provide valuable shorebird foraging habitat during higher tidal stages. In addition, the smooth, ramp-like profile of beaches at Aramburu Island may approximate other isolated bay beach shorelines that are attractive as haul-outs for seals, particularly where beach slopes are near deep water channels for rapid escape.

Beach ridges formed by the highest tides and waves would support scarce elements of San Francisco Bay's native estuarine beach flora, including beach-bur, western ragweed, cressa, poverty-weed, and Pacific dunegrass.

2.2.2 High tidal marsh

Richardson Bay supports some of the largest remaining populations of the northern

subspecies of salt marsh bird's-beak (a.k.a. Point Reyes bird's-beak). This species has found refuge in sparse, short cover of pickleweed and sea-lavender growing on eroded artificial terrestrial sediments in the high tide lines north of Sausalito. Very similar soil and vegetation conditions exist at Aramburu Island. With suitable shallow grading and moderated exposure to wave erosion, substantial populations of salt marsh bird's-beak and associated regionally rare salt marsh annuals (such as salt marsh owl's-clover and smooth goldfields) could potentially be established at Aramburu Island, consistent with the Goals Project recommendations (Photo 7).

2.2.3 High tidal marsh-terrestrial grassland transition zones

There are few places in San Francisco Bay where natural slopes support transitions between native lowland grasslands, sedge-rush meadows, and thickets of native perennial forbs (Photo 8). One large colony of a creeping sedge native to salt marsh edges has established spontaneously in a clay soil pocket depression on the island, indicating the potential for the rest of its associated plant community to be established as well. Re-grading the soils, and redistributing a surface soil layer rich in clay and organic matter could support native perennial colonial grasses, sedges, rushes, and forbs that naturally form transition zones with salt marshes. These colonial species also provide relatively high long-term resistance to invasion by weeds. As sea level rises, this community could form a sloping platform for future tidal marsh, resulting in ecosystem resilience rather than tidal marsh drowning.

2.2.4 Seasonal nontidal pools and marsh

Within constructed lowland grasslands, depressions could be sculpted and capped with relatively impermeable clay soils to form rain-fed pools with a seasonal marsh flora including many vernal pool species of Marin County, including water-starwort, toad rush, spikerush, flowering-quillwort, and popcorn-flower (Photo 9). Other wet depressions could form seasonal marshes covered with low-growing creeping sedges. Seasonal wetlands can provide high tide roosts and foraging opportunities for migratory shorebirds and dabbling ducks, and may potentially support tree frogs (prey base for egrets, herons) and mallard nesting habitat.

2.2.5 Snag and large woody debris sub-habitats

San Francisco Bay's tributary streams and rivers have lost their supply of large decadent riparian trees that would have supplied tidal marshes with large woody debris. Egrets, herons, and tidal marsh subspecies of song sparrows use large woody debris (decaying persistent logs and limbs) in tidal marshes as perches and roosts (Photo 10). Importing large woody debris to the island would increase its structural habitat diversity and replace lost or deficient subhabitat elements of tidal marsh.

2.3 Preliminary Conceptual Enhancement Design

The preliminary conceptual enhancement design for Aramburu Island is displayed in Figure 4. We emphasize that the landscape configuration displayed in this figure is a preliminary draft based on our early site reconnaissance and data collection activities and input from various stakeholders. The locations, quantities, and dimensions of all enhancement elements may be changed based on the outcome of future investigations and deliberations.

The landscape and habitat design compresses several related marsh shoreline and terrestrial ecotone types (transition zones) known from modern and historic Marin County bayshores, with emphasis on Richardson Bay. They are adapted to the steep environmental gradients of the artificial island's setting in contemporary Richardson Bay. The individual enhancement elements are described below.

2.3.1 Bay beach and sand flat

As described above, the east-facing shore of the island is currently erosional and highly exposed to infrequent but energetic southerly storm waves from the Central Bay. Waves have eroded scarps (low cliffs) and a shelf of rock and mud in artificial terrestrial fill on the east shore.

We propose to address ongoing eastern shore erosion by nourishing the shoreline with natural sand and gravels from San Francisco Bay. Sand, shell, and gravel material will be imported to the site via barge and deposited in three beach enrichment locations along the eastern shoreline. Waves will rework coarser sand and gravel into narrow, steep beach ridges and spits at the high tide line, while the gentler gradient of the low tide terrace will form protective intertidal sand flats.

Low retention barriers to longshore drift (rock micro-groins not exceeding beach height) will be constructed at intervals along the shoreline to aid in the development of beach cells and increase residence time. In addition, a high beach terrace will be constructed at the updrift (southern) end of the island. This feature will provide a re-nourishment (sand and gravel discharge) point for the fringing beach system. This feature is located near the position of historic seal haul-outs adjacent to deep water escape habitat in the navigational channel and therefore may encourage seal use.

This beach and sand flat matrix will reduce the rate of shoreline erosion and add significant habitat benefits for shorebirds and potentially harbor seals. We consider beach nourishment an environmentally superior and more sustainable approach compared to conventionally engineered armoring and stabilization of the shoreline.

2.3.2 Tidal marsh

Along the eastern shoreline, where the new beach ridges partially shelter areas behind them, fill will be excavated to appropriate elevations to form new high salt marsh. This area is proposed as a refuge for native salt marsh plant species diversity and recovery of rare plants. The exposure of dense, infertile rocky terrestrial soil to occasional wave scour would result in a relatively sparse, low, turf-like salt marsh vegetation types that typically support a high diversity of native plants, including rare salt marsh annuals such as Point Reyes bird's-beak.

The sheltered northwestern cove on the island has a pocket of salt marsh where bay mud settles, away from storm wave influence. This salt marsh, which supports more typical pickleweed and cordgrass vegetation, would be expanded by excavating surrounding upland soils, facilitating deposition of bay mud. Topsoil excavated from the southern end of the island during grassland and seasonal wetland enhancement activities may be deposited in this area to support productive salt marsh vegetation. Small tidal creeks would be excavated in resistant substrate to initiate tidal drainage patterns and marsh channel habitat structure for birds and fish.

Large woody debris structures (large tree trunks and branches) will be placed in random clusters along the high tide line of these new tidal marsh areas to offer high tide roosting habitat for shorebirds and other tidal marsh dependent avian species.

2.3.3 Sedge/rush meadow and seasonal wetland matrix

The central "upland" areas of the island would be mostly converted to a particular type of native grassland vegetation found along tidal marsh edges in alluvial, clayey soils in eastern Marin County. This area would consist of a mix of colonial, creeping, sod-forming perennial grasses, sedges, and rushes, that would form dense and continuous cover over years. Accomplishing this goal will involve a process of vegetation removal, substrate re-conditioning to remove existing non-native seed banks and enhance suitability for target species, and replanting with native species.

Seasonal pond and wetland complexes will be constructed within the sedge/rush meadow. Depressions will be excavated and the underlying substrate compacted to reduce drainage. These wetland complexes will support variable wetland vegetation, ranging from uncommon local types of vernal marsh (spikerush, meadow sedge) and vernal pool species (dominated by native annuals).

3.0 Project Phasing

The Aramburu Island Restoration and Enhancement Project will be broken into two phases, which will be funded under separate contracts. In this SEP, we are requesting

funds to complete Phase 1. We anticipate that funding for Phase 2 will be awarded in time so that both phases can be implemented simultaneously. However, should funding for Phase 2 be delayed, Phase 1 will still produce tangible environmental enhancement benefits in addition to completing the Conceptual Enhancement Plan and navigating the regulatory process.

3.1 Phase 1

The following tasks will be completed in Phase 1:

1. Perform a feasibility analysis for the proposed restoration and enhancement design
2. Create the Final Conceptual Enhancement Plan for the entire project
3. Complete CEQA analysis and obtain permits for the entire project
4. Complete the final design plans for bay beach and sand flat enhancement (see section 2.3.1 above)
5. Perform bay beach and sand flat enhancement activities

3.2 Phase 2

The following tasks will be completed in Phase 2:

1. Final design plans for tidal marsh, sedge/rush meadow, seasonal wetland enhancements (see sections 2.3.2 and 2.3.3 above)
2. Perform tidal marsh, sedge/rush meadow, and seasonal wetland enhancements
3. Post-construction habitat monitoring (3 years)

4.0 Project Budget

The budget detail is shown in Table 1. The total project budget, which in addition to all of the above mentioned restoration activities, includes final design, planning, permitting, oversight, and monitoring, is estimated to be **\$970,750**. We are requesting **\$200,000** to carry out Phase 1 of the project. By performing Phase 1, the SEP will produce tangible habitat restoration benefits with the initial sum of money.

5.0 Project Milestones

Project initiation shall begin within 40 days after approval of the project by the Regional Water Board or its Executive Officer. The project milestones and their anticipated dates of completion are as follows:

Phase 1:

- Complete feasibility analysis and Draft Conceptual Enhancement Plan for entire project: **Spring 2009 or within 3 months of project initiation**
- Complete Final Conceptual Enhancement Plan for entire project: **Summer 2009 or within six months of project initiation**

- Complete CEQA analysis: **Fall 2009 or within twelve months of project initiation**
- Submit permits: **Winter 2010 or within 12 months of project initiation**
- Complete the final design plans for bay beach and sand flat enhancement: **Spring 2010 or within 15 months of project initiation**
- Bay beach and sand flat enhancement construction*: **July – September 2010 or completion within 24 months of project initiation**
- Phase 1 final Project Report submitted by Audubon: **December 2010 or within or within 24 months of project initiation**

Phase 2:**

- Complete Phase 2 final design: **Spring 2010**
- Phase 2 construction*: **July – September 2010**
- Phase 2 final Project Report submitted by Audubon: **December 2010**
- Post-construction habitat monitoring: **December 2010 – January 2013**

* construction schedule accommodates avoidance windows for harbor seals and nesting birds

** timeline assumes that funding through RWQCB CAA program is secured in spring-summer 2009

6.0 Project Management and Oversight

Richardson Bay Audubon Center, a program of the National Audubon Society, will serve as Project Manager. Richardson Bay Audubon Center has retained the services of Wetlands and Water Resources Inc. to design the project and to assist with regulatory compliance.

To ensure completion of commitments and appropriate expenditure of funds, oversight and audit of the project will be conducted by the San Francisco Estuary Project. SASM would file a final report to the Regional Water Board and the oversight/audit entity identified below. The report shall describe the work completed under this project no later than one month after the completion of the portion of the project funded by this SEP.

All reports must be sent to the following:

Marc Holmes, Restoration Consultant
 San Francisco Estuary Project
 1515 Clay Street, Suite 1400
 Oakland, CA 94612
 (510) 622-2419

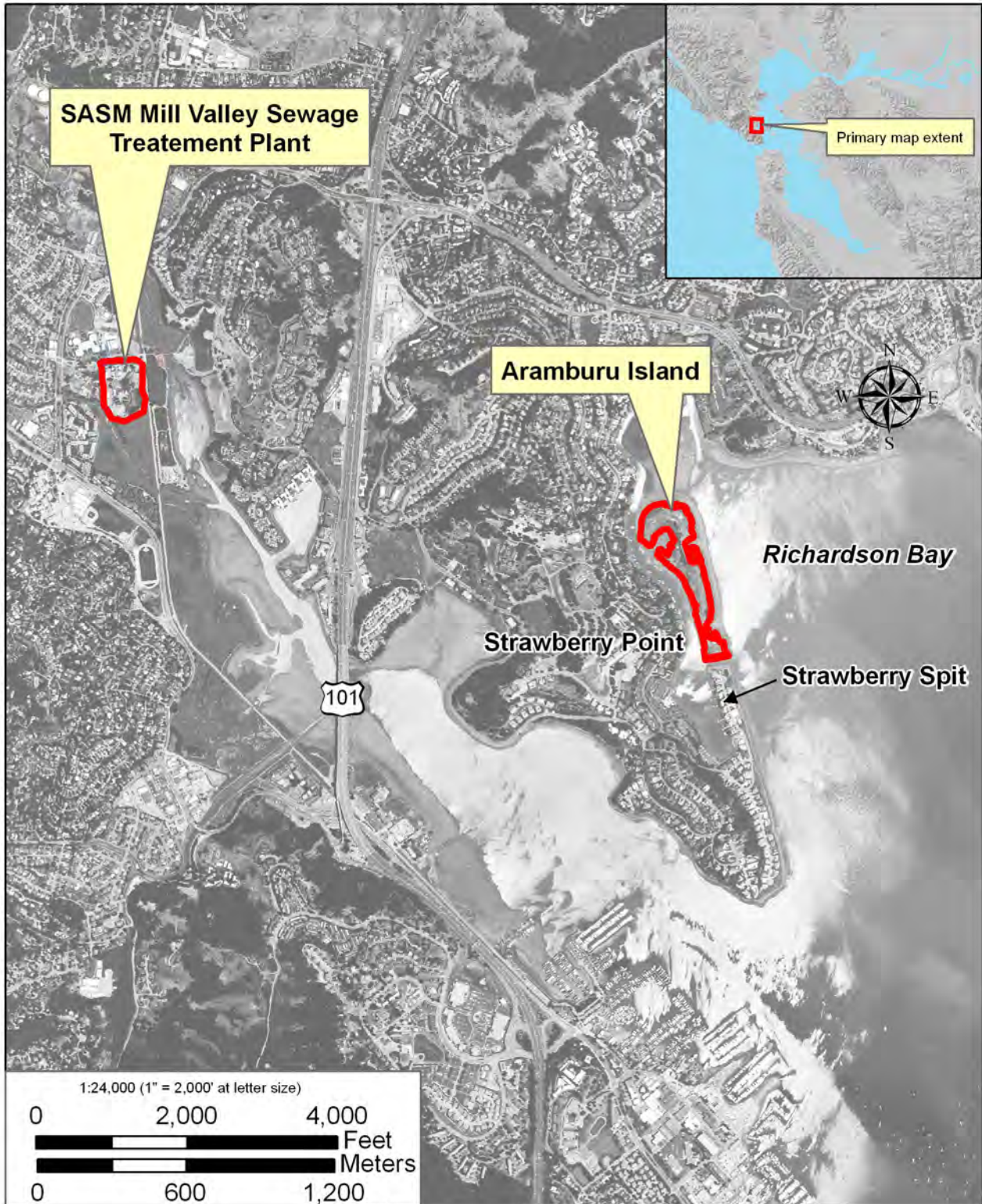
Tables and Figures

Table 1: Budget Summary

Task	Total Budget	Budget Phasing		Request SEP	Secured or Requested Funding				Total secured or requested
		Phase 1	Phase 2		Request CU&A ¹	Secured Bechtel	Secured Toyota	Request Toyota	
Conceptual Planning and Design									
1 Data collection/analysis and planning	35,000	35,000				35,000			35,000
2 Feasibility analysis and draft/final Conceptual Enhancement Plan	31,000	31,000		31,000					31,000
Permitting/environmental compliance	35,000	35,000		35,000					35,000
Audubon Project Planning, Management, Implementation	210,000	50,000	160,000		120,000		50,000	40,000	210,000
Final Design for Phase 1 construction	9,000	9,000		9,000					9,000
Final Design for Phase 2 construction	31,000		31,000		31,000				31,000
Construction, Phase 1									
1 Bay beach and sand flat enhancement									
Transport and deposit beach material	90,000	90,000		90,000					90,000
Construct beach micro groins	10,000	10,000		10,000					10,000
2 Construction Monitoring	5,000	5,000		5,000					5,000
Construction, Phase 2									
3 Earthwork									
Equipment mobilization	70,000		70,000		70,000				70,000
Tidal marsh enhancement	65,000		65,000		65,000				65,000
Seasonal wetland creation	20,000		20,000		20,000				20,000
Grassland enhancement	75,000		75,000		75,000				75,000
4 Woody debris placement	10,000		10,000		10,000				10,000
5 Vegetation re-establishment	20,000		20,000		20,000				20,000
6 Construction monitoring	20,000		20,000		20,000				20,000
Construction Contingency (35%)	134,750		134,750		134,750				134,750
Post-construction habitat monitoring (3 years)	60,000		60,000		60,000				60,000
Audubon Education/outreach programs	20,000		20,000		20,000				20,000
SFEP Oversight	20,000	20,000		20,000					20,000
Total project budget	970,750	285,000	685,750	200,000	645,750	35,000	50,000	40,000	970,750

Notes

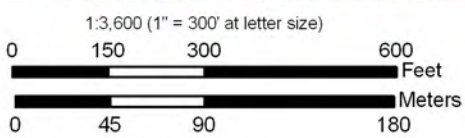
1) RWQCB Clean Up & Abatement



<p>Data sources: Photo (NAIP, 2005) Produced by WWR, Feb 2009 Map file: vicinity-map_2009-0204dag.mxd</p>	 <p>WETLANDS AND WATER RESOURCES</p>	<p>VICINITY MAP</p> <p>Aramburu Island Enhancement Project Richardson Bay Audubon Sanctuary</p>	
<p>February 2009</p>		<p>Project 1145</p>	<p>Figure 1</p>



Channel cut in 1987

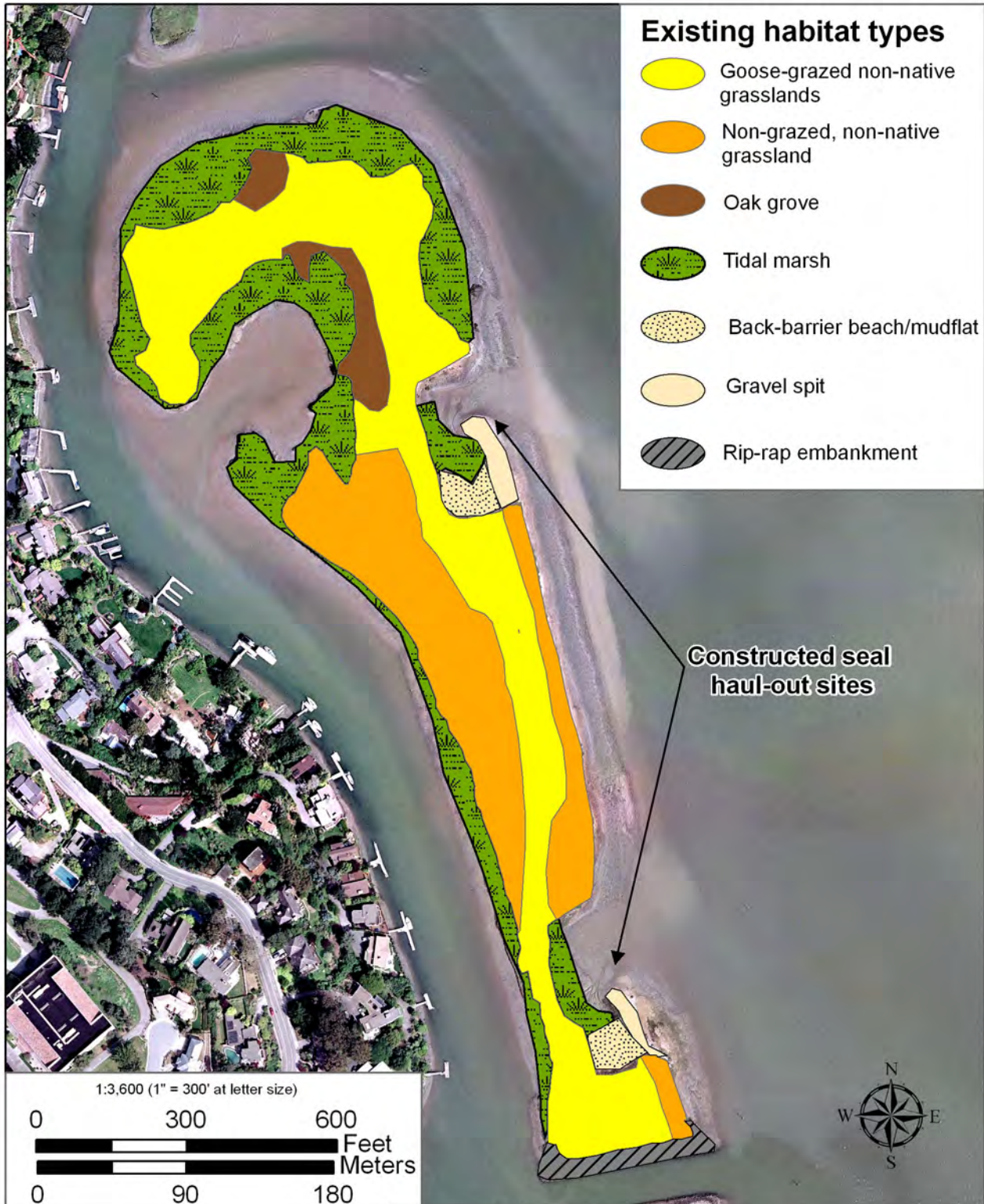


AERIAL PHOTOGRAPH


Aramburu Island Enhancement Project
Richardson Bay Audubon Sanctuary

Air photo source: Marin County (2004)
Map file: aramburu-air-photo_2009-0205dag.mxd

February 2009	Project No. 1145	Figure 2
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Existing habitat types

-  Goose-grazed non-native grasslands
-  Non-grazed, non-native grassland
-  Oak grove
-  Tidal marsh
-  Back-barrier beach/mudflat
-  Gravel spit
-  Rip-rap embankment

Constructed seal haul-out sites

1:3,600 (1" = 300' at letter size)



Data sources: habitats (WWR, 2009);
 Photo (Marin County, 2004)
 Produced by WWR, Feb2009
 Map file: current-habitats_2009-0205dag.mxd



EXISTING HABITAT TYPES

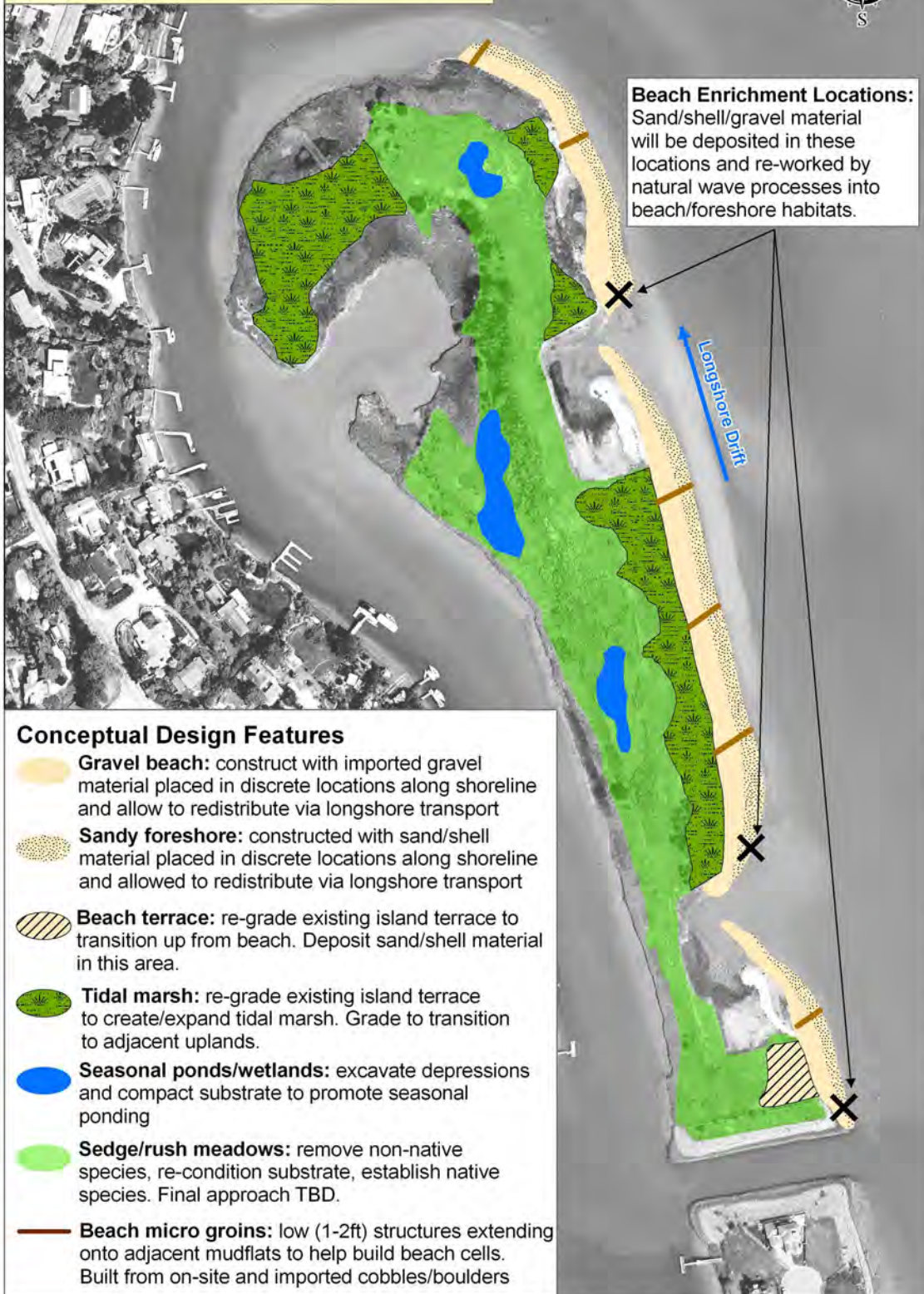
Aramburu Island Enhancement Project
 Richardson Bay Audubon Sanctuary

February 2009

Project 1145








Figure 3

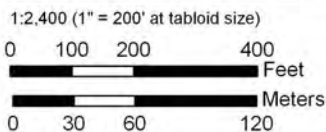
DRAFT: Location, quantity, and dimensions of all enhancement elements are subject to further revision



Beach Enrichment Locations:
Sand/shell/gravel material will be deposited in these locations and re-worked by natural wave processes into beach/foreshore habitats.

Conceptual Design Features

-  **Gravel beach:** construct with imported gravel material placed in discrete locations along shoreline and allow to redistribute via longshore transport
-  **Sandy foreshore:** constructed with sand/shell material placed in discrete locations along shoreline and allowed to redistribute via longshore transport
-  **Beach terrace:** re-grade existing island terrace to transition up from beach. Deposit sand/shell material in this area.
-  **Tidal marsh:** re-grade existing island terrace to create/expand tidal marsh. Grade to transition to adjacent uplands.
-  **Seasonal ponds/wetlands:** excavate depressions and compact substrate to promote seasonal ponding
-  **Sedge/rush meadows:** remove non-native species, re-condition substrate, establish native species. Final approach TBD.
-  **Beach micro groins:** low (1-2ft) structures extending onto adjacent mudflats to help build beach cells. Built from on-site and imported cobbles/boulders



PRELIMINARY CONCEPTUAL ENHANCEMENT DESIGN ELEMENTS

Aramburu Island
Richardson Bay Audubon Sanctuary

Air photo source: Marin County (2004)
Map file: aramburu-concept-design-draft_2009-0204dag.mxd

February 2009

Project No. 1145

Figure 4

Photographs of Existing and Proposed Conditions

Section 1: Existing Site Conditions



Photo 1: heavily goose-grazed grasslands (photo by Dan Gillenwater, 1/12/2009)



Photo 2: non-grazed grasslands (photo by Christina Toms, 1/29/2009)



Photo 3: oak grove at north end of island (photo by Dan Gillenwater, 1/12/2009)



Photo 4: wave-cut, erosional eastern shoreline (photo by Peter Baye, 1/12/2009)



Photo 5: gravel point-bar and back barrier tidal marsh (photo by Peter Baye, 1/12/2009)

Section 2: Reference Sites for Proposed Conditions



Photo 6: small barrier beach composed of coarse-grained shell fragments and gravels eroded from artificial fill sources along the Bayshore Freeway. Location: Brisbane/Candlestick spit, San Mateo County. (photo by Peter Baye)



Photo 7: eroded, compacted, wave-scoured upland fill in the high tide line, exposing rubble and gravel embedded in heavy sandy clay, supports sparse pickleweed and abundant salt marsh bird's-beak. Location: Pohono St. Marsh, North Sausalito, Marin County. (photo by Peter Baye)



Photo 8: meadow sedge forms pure stands that grade down to tidal marsh edges of Point Pinole. One large colony has spontaneously established at Arumburu Island, indicating high feasibility of active establishment. Location: Point Pinole, Contra Costa County. (photo by Peter Baye)



Photo 9: seasonally flooded shallow pools form in depressions in consolidated, desalinized Bay Mud. Dabbling ducks, shorebirds, and egrets forage in them during flood periods when they produce many prey items, including tree frogs tadpoles, and other aquatic invertebrates. Location: Bahia wetlands, Novato. (photo by Peter Baye)



Photo 10: heron perched on large woody debris in tidal marsh. Location: Pickleweed Island (adjacent to Aramburu Island).
(photo by Peter Baye)