San Francisco Bay Area
Wetlands Restoration Program

Letter of Review

Breuner Marsh Mitigation Bank
Richmond, California
01/28/03

1. Project Team:

a. Project Proponents: Stan Davis (Bay Area Wetlands) and David Guthridge (Bay Area Wetlands)

b. Project Presenter to Design Review Group: Jeff Olberding (Olberding Environmental)

2. Design Review Group Participants:

a. Dates Review Team met to discuss the project: The Design Review Group, including the Breuner Marsh Mitigation Bank Design Review Team, featured the first presentation of the project on October 28, 2002. Following the presentation, the Team discussed the project and inquired about further information.

The Design Review Group then met again on December 2, 2002, to discuss finalizing this Letter of Review. Three of the five Design Review Team members were in attendance at this meeting.

b. Review Team: Bob Batha - Wildlife (Bay Conservation and Development Commission), Karl Malamud-Roam - Hydrology and marsh evolution (Contra Costa Mosquito Vector and Control District), Michelle Orr - Hydrology (Philip Williams and Associates), Carl Wilcox - Marsh ecology and physical processes (California Department of Fish and Game), and Katy Zaremba - Invasive Species (State Coastal Conservancy – Invasive Spartina Project)

c. Non-Review Team Meeting Attendees: (10/28/02) John Brosnan (Wetlands Restoration Program), Maya Khosla (Independent Biologist), Michelle Levenson (San Francisco Bay Conservation and Development Commission), Roger Levelthal (Far West Restoration Engineering), Molly Martindale (U.S. Army Corps of Engineers), Mike Monroe (U.S. Environmental Protection Agency), Jeff Olberding (Olberding Environmental), and Stuart Siegel (Wetlands and Water Resources)

(12/02/02) Molly Martindale (U.S. Army Corps of Engineers), Mike Monroe (U.S. Environmental Protection Agency), Jeff Olberding (Olberding Environmental), and Brad Olsen (East Bay Regional Park District)

3. Review Process:

a. Assistance requested by project sponsor: Jeff Olberding, on behalf of the project's planning team, presented a list of issues to the Design Review Team. The list consisted of those issues on which he sought Design Review Team input. Items included:

i. Boardwalk
ii. Trails
iii. Parking lot
iv. Interpretive signage
v. Tidal channel location
vi. Panne habitat
vii. Vegetation establishment
viii. Bridge removal
ix. Tidal connection/connectivity
x. Excavation and disposal
xi. Island creation
xii. Shoreline restoration (concrete riprap removal)
xiii. Shorebird habitat, and,
xiv. Conceptual creek design.

In addition to overall design review, specific questions asked included: How to get rid of the concrete currently used as riprap along the Bay shoreline? What then could replace that concrete to act as an erosion control mechanism? How can the project provide island shorebird breeding/refugia habitat?

b. Materials reviewed:

- Breuner Marsh Site Plan Map (no date)
- Figure 1, General Project Location (no date)
- Figure 2, Project Location (USGS Richmond, CA, 1993)
- San Francisco Estuary Invasive Spartina Project (no date)
- USGS 7.5 Quadrangle Map for Richmond (4/28/01)
- Completed DRG Project Summary Form
- Personal presentation

c. Additional Information Requested by the Design Review Team: Following the 10/28/02 meeting of the Design Review Team, Team members requested the following additional information: a 1' grading plan; and, a design basis memo (that includes specific elevations around the site). These documents were submitted to the Design Review Team. Some members of the Design Review Team asked for a summary of the post-project monitoring and adaptive management plans so they could be related to the design uncertainties discussed, but it was decided that these issues were beyond the scope of the review.

4. Design Review Group Findings and Comments:

The Design Review Team provided numerous suggestions and all of those suggestions are captured in this section. The Team does not intend to reach consensus in all of its feedback and dissenting opinions are included as appropriate.

The following represents the professional opinions of the Design Review Team and select Design Review Group members, as identified. These opinions are provided for the benefit of the project proponent in direct response to those questions posed by the proponent. The project proponent is in no way obliged to incorporate any or all of the feedback herein into their project design.

a. Consistency with Habitat Goals: The Breuner Site is specifically identified in the *Habitat Goals Report* as presenting opportunities for vernal pool restoration, which is included in the proposed project. One recommendation listed within the Contra Costa West Segment further states, "Protect and restore tidal marsh south of the Point Pinole Regional Shoreline at the Breuner property." The restoration, as well as creation, of tidal marsh is included in the proposed project plan.

The Design Review Team concurred that the whole of the project was consistent with the *Habitat Goals Report*. The Team generally agreed that the habitat mix was appropriate for the subregion. Carl Wilcox and Michelle Orr suggested considering more panne and less seasonal pond habitat. Recent experience in wetlands restoration at Hamilton has found that seasonal pond restoration in this setting is relatively untested and may prove difficult to achieve without periodic introduction of saline water and salt concentration. This is consistent with a recent study by Philip Williams and Associates for the U.S. Army Corps of Engineers in support of their designs at Hamilton.

b. Issues Addressed by the Review Team, Discussion and Findings:

Of the issues presented to the Design Review Team, Team members provided feedback on the following items: tidal channel location; panne habitat; vegetation establishment; tidal connection / connectivity; excavation and disposal; island creation; shoreline restoration (concrete riprap removal); shorebird habitat; and, conceptual creek design.

i. Boardwalk - See c., "Issues Not Addressed by the Review Team and Rationale", below.
ii. Trails - See c., "Issues Not Addressed by the Review Team and Rationale", below.
iii. Parking lot - See c., "Issues Not Addressed by the Review Team and Rationale", below.
iv. Interpretive signage - See c., "Issues Not Addressed by the Review Team and Rationale", below.
v. Tidal channel location - See ix., Tidal connection / connectivity, below.
vi. Panne habitat - The Team discussed the sizing of and overall approach to the pannes. **Carl Wilcox recommended that the pannes be driven towards higher salinity to provide for more bird habitat by excluding vegetation. If back marsh pannes are to be a component of the design they should be designed to concentrate salts. This would require grading the bayward edge of the pond to limit drainage following high tide events so that saline bay waters would be trapped in the ponds particularly in the summer months. The size of pannes was discussed and the general consensus was that they be less than and acre. Pannes**

of this type historically formed at the back edge of the marsh and paralleled the shoreline. Review of the Technical Basis for Design Memorandum for this feature is confusing in that it does not appear from the description that the feature would hold water. Given the pond elevation 5 feet NGVD relative to the weir elevation at 3.5 feet, it does not appear that the panne would pond. The bottom elevation of the panne should be at approximately MHW or slightly below and the weir elevation at MHHW. Karl Malamud-Roam expressed his concern with shallow features that completely dry out between neap and spring tide cycles. He stated that any panne elevation above MHHW would be prone to invasion by non-native grasses. Karl suggested in the excavation to shoot for 6 inches too deep, opposed to 6 inches too shallow, as a precautionary measure. Karl also stated that water management at the site is effective in controlling potential mosquito populations and that the onus of preventing the development of mosquito populations is on the property owner, not local governments. In addition, recent work by Philips Williams and Associates for the U.S. Army Corps of Engineers' restoration work at Hamilton may be useful in designing the tidal pannes.

vii. Vegetation establishment - The Team discussed the relationship between the elevation and slope of the Breuner Marsh site and the ability for the site to allow establishment and maintenance of consistent pickleweed populations as planned. Several Design Review Team members suggested that the marshplain design elevations might be too high. Similar restorations at Wildcat Marsh and Martinez have used lower design elevations, 0.5 feet below the natural marshplain. **Bob Batha, among others, suggested that the project proponents should reference the design marsh elevations against adjacent project sites, taking into account larger marsh areas further from the channel/bay edge. This would provide clues as to whether their elevations and slopes are similar to established pickleweed populations nearby, such as at Giant Marsh to the north.** The Team again discussed the slope of the site and how it related to the substrate along the shoreline, given the future absence of the concrete riprap. **The Team recommended that in order to avoid too great a slope over the entire site, which could lead to excessive scour of the mudflats, the site plan should be compared to slopes of adjacent sites of similar vegetative habitat makeup to ensure a proper site slope.** The Team also mentioned the presence of *Spartina densiflora* at Point Pinole. Katy Zaremba stated that *densiflora* might pose more of an invasive threat than *Spartina alterniflora* populations in the area. **She suggested that the best approach to addressing these potential invasive species threats is through monitoring for them.**

viii. Bridge removal - See c., "Issues Not Addressed by the Review Team and Rationale", below.

ix. Tidal connection / connectivity - The project plan called for dredging a tidal channel of -2 feet below mean water level for 200 feet out into the mudflats. Michelle Orr shared that shorter extensions out into the mudflats have been successful in connecting created tidal channels to tidal activity, such as the case at the Cooley Landing site in East Palo

Alto. Several Team members pointed out that success is dependent on mudflat materials, subsidence, compact fill, the size of the channel mouth, the volume of tidal prism, sediment suspension in the water at the site, and longitudinal current flows along the shoreline. Some team members asked about the potential for creating tidal connectivity between the Breuner Marsh site and Giant Marsh to the north, a connection that is suggested within the *Habitat Goals* report. Members expressed that although this prospect could be beneficial to the site, the action is not required.

x. Excavation and disposal - See c., "Issues Not Addressed by the Review Team and Rationale", below.

xi. Island creation - The Team did discuss the construction option for an island, or the tip of "the chicken". General Team consensus is that islands can be problematic in planning and maintaining. **Bob Batha suggested a cut close to the tip of "the chicken" and an accompanying deeper channel would provide a high tide refuge.**

xii. Shoreline restoration (concrete riprap removal) - The Team again discussed the slope of the site and how it related to the substrate along the shoreline, given the future absence of the concrete riprap. **The Team recommended that in order to avoid too great a slope over the entire site, which could lead to excessive scour of the mudflats, the site plan should be compared to slopes of adjacent sites of similar vegetative habitat makeup to ensure a proper site slope. This will lead to the retention of existing mudflats and the potential for augmenting the existing mudflat resources.**

xiii. Shorebird habitat - Given the implementation of the recommendation on xii., Shoreline restoration, above, and the retention and potential expansion of mudflat area, adequate shorebird habitat will be retained.

xiv. Conceptual creek design - See c., "Issues Not Addressed by the Review Team and Rationale", below.

c. Issues Not Addressed by the Review Team and Rationale:

The Design Review Team collectively decided against commenting on Issues i, ii, iii, iv, and viii, or, boardwalk and trail design, parking lot design, interpretive signage, bridge removal, excavation and disposal, and conceptual creek design. The Team determined that these design aspects are not habitat-related and outside of the Group's restoration and management areas, thus outside of the scope of the Design Review Group.

d. Phasing and Coordination.

e. Other issues: Creosote logs tend to get trapped in the tidal channels at Giant Marsh and that is a potential issue of concern for the Breuner site. **This is an erratic and relatively minor problem. In general, the Team recommended that this issue not be overlooked.**

5. Disclaimers:

a. The recommendations of the Restoration Program are not binding on any permitting agency and they will not restrict any agency's authority.

b. The Restoration Program makes every effort to provide guidance, we cannot guarantee issuance of permits by any regulatory agency.

c. The Restoration Program is intended to provide comments and feedback on plans and designs. This assistance will necessarily be limited, and should not be expected to substitute for professionally prepared site evaluations, hydrological studies, final designs, and construction plans.

d. The Restoration Program and the participating agencies will not be liable for the failure of any project.

ATTACHMENT A

Project Description:

i. Project objectives:

Bay Area Wetlands would like to obtain the necessary approvals to construct and establish a federally and state approved wetland and habitat mitigation bank, servicing the northern San Francisco Bay region. This would be accomplished by excavating of up to 250,000 cubic yards of historically placed fill crating new tidal channels and lowering existing elevations to allow for a transitional wetland environment along the shoreline of San Pablo Bay. These activities would be conducted to create undisturbed contiguous habitat along the South San Pablo Bay shoreline that is consistent with the US Fish and Wildlife Service and other resource agencies mitigation recommendations and guidelines identified in the Habitat Goals Plan. These activities are also important for expanding the available habitat needed by the salt marsh harvest mouse and for creating contiguous clapper rail habitat with Giant Marsh.

ii. Project location and map:

The Breuner Marsh site is located along the eastern shore of San Pablo Bay, in the City of Richmond, Contra Costa County, California. The Breuner Property site is bounded by San Pablo Bay on the west, Giant Marsh and Point Pinole Regional Shoreline on the north, the Southern Pacific Railroad embankment on the east, and Rheem Creek (a Contra Costa County Flood Control District facility) to the south. Current road access to the site is from the south via a north-south road which is an extension of Goodrick Avenue and which currently traverses the southwestern portion of the property. The site is located on the Richmond Quadrangle Map. **See Figures 1, General Project Location**.

iii. Type and acreage of habitats to be created or restored:

The Breuner Marsh Mitigation Bank, when completed, would include tidal mudflats, tidal marsh, tidal channels, shallow bay channels, wetlands and uplands transitional grasslands, seasonal ponds and pannes (with periodic inundation by tides), grassland, and riparian habitat.

The Breuner Marsh Mitigation Bank offers opportunities for tidal salt marsh and seasonal wetland creation, enhancement and preservation. The site includes a 210.33-acre parcel situated on the eastern shoreline of San Pablo Bay. Of the 210.33 acres, approximately 65.76 acres would be available for wetland creation purposes. An additional 144.32 acres of existing open water / mud flat habitat, tidal wetland habitat and seasonal wetland habitats would be available for enhancement and preservation.

The property contains approximately 3,600 linear feet of shoreline vegetated with tidal marsh habitat that gives way to an expansive mudflat system. The property is

contained between San Pablo Bay and the Union Pacific Railroad tracks to the east. Rheem Creek, a constructed flood control channel, forms the southern boundary while Giant Marsh, a large tidal marsh, is located on the adjacent property to the north. The entire site is on a low-lying alluvial plain bordering the Bay. Elevations range from sea level at the San Pablo Bay shore to a maximum of 15 feet near the railroad embankment along the eastern edge of the property. Most of the area is level, although localized shallow depressions occur throughout the site.

Three spits project into San Pablo Bay from the middle portion of the property. The southernmost of these are considerably longer and larger than the other two. These spits are apparently artificial and are highly disturbed, with large amounts of concrete rubble scattered along the banks as erosion protection. Rheem Creek, a channelized stream, which contains flowing water throughout the year, crosses the site near the southern border of the Breuner Property (a strip of land 60 feet wide on the south side of the creek is also included). The creek is entirely channelized and is incised several feet below the surrounding topography. The channel is highly degraded, with rock riprap and concrete rubble scattered along the banks and channel bottom.

Despite historical losses of tidal marsh within the Breuner property due to fill placement (see iv., Past use and current condition of the site, below), a narrow band of coastal tidal salt marsh remains along the shoreline of San Pablo Bay. This band of habitat varies in width from only several feet near the northern boundary to more than 100 feet wide near the south entrance to the property. Giant Marsh is a large tidal salt marsh located at the south end of Point Pinole Regional Shoreline immediately north of the Breuner property. Giant Marsh forms the northern boundary of the property and contains tidal channels surrounded by pickle weed habitat. A large filled area currently separates the Breuner property from Giant Marsh. Existing seasonal wetland habitat is scattered throughout the property and occurs primarily in small topographical depressions that have formed on placed fill. A large seasonal panne is also located in the northeast corner of the site.

iv. Past use and current condition of the site:

The majority of the site has been historically used as pasture for cattle and horses. As late as last year, up to 15 horses have grazed the property. It is not known how long grazing has occurred on site, but conversation with the occupants of the property indicated that they have grazed the site for the last twelve years. These animals have been removed from the site. Overall the vegetative cover on the site has been highly disturbed from grazing.

Several areas throughout the site have been subject to fill although the date and total amount of fill materials is unquantified. The northern border of the property with Giant Marsh has been subject to fill and contains piles of concrete, earthen fill and other materials. It may be speculated that this fill was intended to halt tidal flows from Giant Marsh onto the property. A drainage canal is present between Giant Marsh and the Breuner Property and forms the northern boundary for the property.

Most of the upland area consists of several feet of historically placed fill that allowed development of several homes and out buildings and provided grazing land over a large portion of the property. A large percentage of the upland area occurs along 3,600 linear feet of exiting tidal salt marsh habitat that boarders San Pablo Bay. Open, undeveloped land is generally occupied by non-native grassland that is highly ruderal in character, with non-native species greatly predominating over natives. This habitat is further degraded from grazing and unauthorized dumping that has historically occurred throughout the property. Most of the fill consists of construction debris that contains concrete rubble mixed with soil. Large areas along the shoreline have also been lined with concrete rubble allowing for additional wetland enhancement opportunities.

The five-acre Breuner Airfield is presently the only ongoing operation on the site. The Airfield is located in the southwest section of the property, along the east side of the access road to the site. The facility is run by the Bay Area Radio Control Society and consists of a small asphalt runway and operation station for flying radio-controlled model airplanes. The site is relatively flat with low growing vegetation that appears to be mowed on an annual basis.

v. Description of any special features or issues:

1. Public access

The project allows for created recreational values. The site plans will include maximum feasible public access while allowing for the maximum functional habitat values. The site will contribute to the ring around the Bay, the Bay Trail. Plans include a 400-foot boardwalk. There will be an increase in visual and aesthetic appearance of the site while maintaining the existing viewsheds. The site will allow for future educational and long-term research opportunities.

Agencies and entities such as the East Bay Regional Parks and Trails for Richmond Action Committee (TRAC) argue that the restoration plan for the Bank would eliminate 0.7 miles of a shoreline spur trail. If included in the design, the spur trail would bisect the existing tidal marsh habitat from the created / restored habitat and allow direct access into the center of the Bank. Although planned marsh restoration eliminates access to the shoreline, an alternate trail would be created which would retain the existing connection between the Wildcat Creek area trails and Point Pinole Regional Shoreline Park. The conflicts between these two opposing views should be outlined in the contexts of the overall mitigation bank approval process.

2. Flood control

Flood control improvements will be necessary. The Contra Costa County Public Works Department will need to issue an Encroachment Permit for work associated with Phase 3 of the Mitigation Bank. The US Army Corps of Engineers (Emergency Readiness Branch) will also need to approve this Phase of work since Phase 3 involves the lowering of approximately 1,500 feet of northern levee along Rheem Creek. Phase 3 may include the meandering of the straight-engineered channel and establishment of a riparian corridor along the channel.

3. Subsidence

   Subsidence has not proven to represent a problem at the site.

4. Mitigation

   The Breuner Marsh Mitigation Bank is not being designed as mitigation for any one on-going project, but as a site that will sell mitigation credits in the future.

5. Other adjacent / nearby projects

   The proposed project would be conducted to create undisturbed contiguous habitat along the South San Pablo Bay shoreline that is consistent with the US Fish and Wildlife Service and other resource agencies mitigation recommendations and guidelines identified in the *Habitat Goals Report*. These activities are also important for expanding the available habitat needed by the salt marsh harvest mouse and for creating contiguous clapper rail habitat with Giant Marsh.

6. Opportunity for transitional habitats

   The project does offer opportunities for the establishment of transitional habitats. Transitional uplands and transitional grassland habitats are included within the proposed habitat mix, as seen in the existing site plans.