F

Author Information

Keep Private:	No
Name:	Dale Hopkins
Organization:	SFBay RWQCB
Organization Type:	I - Unaffiliated Individual
Address:	1515 Clay Street Suite 1400 Oakland, CA 94612 USA
E-mail:	dhopkins@waterboards.ca.gov

Correspondence Information

Status: New	**Park Correspondence Log:**
Date Sent: 03/06/2007	**Date Received:** 03/06/2007
Number of Signatures: 1	**Form Letter:** No
Contains Request(s): No	**Type:** Web Form

Official Letterhead of Regional Water Quality Control Board in original

Date: March 6, 2007
File No: 2158.04 (lcf)

Superintendent Brian O'Neill
Golden Gate National Recreation Area
Fort Mason, Building 201
San Francisco, CA 94123
Attn: Restoration at Big Lagoon

Re: Comments on Draft EIR/EIS for Wetland and Creek Restoration at Big Lagoon, Muir Beach

Dear Superintendent O'Neill:

Thank you for the opportunity to comment on the draft EIR/EIS (DEIR/S) for the Wetland and Creek Restoration at Big Lagoon, Muir Beach Project. We have been closely involved with the Project since its inception and have commented on various occasions. In general we are very supportive of this restoration and many aspects of the proposed design. Many of the issues that we have raised throughout the scoping process have been addressed in the DEIR/S. We appreciate the extensive efforts of the GGNRA staff in creating an ongoing public forum and in responding to our technical concerns. However, there are some remaining significant issues that have not been adequately addressed and are discussed below.

Bridge Alternatives

The DEIR/S evaluated several bridge alternatives and used a value analysis approach to determine the selected alternative of 150 feet. The DEIR/S does not provide adequate information to support this decision. The longer bridge with spans of 266-300 feet is shown to have the highest value: providing the most geomorphic value, creating the most stable channel and natural stream function, and reducing flooding to the largest extent. The DEIR/S should fully discuss the basis and conclusions related to the value analysis. In our experience with value analyses, the benefits are often accounted for in a very subjective manner, and therefore the results can be biased. F-1

Typically, the Water Board supports project designs that restore a stream's natural functions, including floodplain connectivity, to the greatest extent possible. This Project has multiple goals including: restoring a F-2

functional self–sustaining ecosystem; reducing flooding on Pacific Way; and identifying and, to the extent possible, mitigating factors that reduce the site's full restoration potential. While the 150-foot bridge with the raised road will reduce flooding and improve the stream natural function, we do not believe that the 150-foot bridge will create a self-sustaining system, nor promote stream natural function to the degree possible. Further, we think there are large uncertainties in the flood level predictions that merit the longer bridge design. A self-sustaining system in the context of this Project includes the criteria that routine maintenance is not required (p. ES-8). Considerations related to this are the following:

• Floodplain connectivity: improved floodplain connectivity results in improved sediment, LWD/debris and flood water transport. The Redwood Creek system transports large annual and episodic sediment loads, and large amounts of LWD/debris. Between 1992/3 and 2002 the reach below Pacific Way experienced 1-4 feet of sediment accretion. The 266 to 300-foot bridge alternative would create the most stable and self-sustaining system by creating greater connectivity to the floodplain for flood flows, sediment, and LWD. While all the bridge alternatives with raised roads do place fill in the floodplain, including the 266 to 300-foot alternative, the latter fills in the floodplain to the smallest extent. To illustrate the effect of filling in the floodplain, it should be noted that in PWA's modeling effort, they state that the raised road is "effectively a weir" (Final Memorandum Related to Bridge Sensitivity Analysis, April 10, 2006, p. 9).

• Natural Channel function: one purpose of a self-sustaining project is to allow the channel to adjust its banks (bank erosion and migration) and transport sediment and LWD/debris such that channel armoring and maintenance are not required. Since 2002, maintenance dredging and LWD/debris removal has been conducted in this reach to minimize the flooding of Pacific Way. This is both costly and has significant environmental impacts. In order to prevent environmental degradation of the restored Project area, it is essential that the future condition not require this maintenance.

• Unsustainable Channel Migration: the GGNRA has determined that Redwood Creek has a significant potential for avulsion. Reducing this threat has been a main driving force in this Project. Channel avulsion can be caused by many factors including channel aggradation and channel blockage by sediment and LWD/debris. The 266 to 300-foot bridge would have the least likelihood of channel avulsion due to the increase in LWD/debris and sediment transport capacity. Additionally, if an avulsion were to occur, the most adverse impacts would occur if the channel avulsed outside of the bridge abutments. This is much less likely with the longer bridge.

F-2 cont.

Uncertainties of Bridge Alternatives

Sea Level Rise: There are large uncertainties in the models used to inform the alternative decisions. These include uncertainties in sea level rise and subsequent flood levels, and sediment transport. A much higher sea level rise is currently being predicted than that used in the analysis (pg 3-15). A sea level rise greater than predicted would significantly affect the flood elevations for the different alternatives. The 266-300 foot alternative provides the greatest reduction in modeled flood elevations and therefore would provide the most protection against the uncertainties related to sea level rise.

F-3

Sediment Transport: The PWA report cited above states that "sediment deposition upstream of the new bridge will have some effects on flood levels; however the modeling is not accurate enough to predict how quickly sediment will accumulate." Further they state, "the long-term sediment model predictions are not consistent with the observed results" (p. 19). This indicates that flood elevations may be larger than predicted, as a result of unpredicted sediment aggradation upstream of the bridge. Sediment aggradation that increases flooding would necessitate maintenance dredging, which is not consistent with this "self- sustaining restoration plan". Further, in addition to being costly and causing environmental degradation, it will be more difficult to obtain permits post-restoration.

F-4

While it may be possible to further refine the sediment transport and flood level modeling, there is a limit to their accuracy due to the many uncertainties in model inputs and model limitations that will be difficult to resolve. For instance, the DEIR/S states "although modeling assumed that sediment would gradually accumulate at the site over the long-term, episodic events in the watershed (e.g., large storms, earthquake, fire) could deliver large amounts of sediment to the site, or other changes in site morphology (e.g., channel avulsion, debris blockages) could alter flooding at the site in ways that are difficult to predict" (p. 4-17). Therefore, rather than relying solely on predicted model results for sediment aggradation and flooding to determine the preferred alternative, alternatives should also be evaluated based on a more mechanistic understanding of how Project components will affect stream geomorphic functions.

F-5

Bridge Length, Width and Aesthetic Considerations: At the Marin County Civic Center public hearing, a

comment was made about the need to maintain the community character of Muir Beach, suggesting that the longer bridges, 150 or 266 to 300-foot, might be too obtrusive. Although we support building a project that meets community flood control and community character needs, at the same time we cannot support the building of a restoration project that does not meet the stated environmental restoration objectives. The environmental goals cannot be achieved by the 50-foot bridge, which received a very low rank in the DEIR/S for restoring stream natural function, stream stability, and floodplain connectivity. A 50-foot bridge does not provide room for the proposed 30-foot channel to naturally migrate and meander. This alternative has a much higher risk of avulsion than the other bridge/road fill alternatives. If the creek were to avulse (jump) beyond the bridge abutments, significant flooding and environmental degradation of the Project would occur. The potential for channel avulsion to occur is much higher in this alternative than the others, as it would promote the highest rate of sediment deposition and LWD/debris blockages. As noted above, the raised roadbed required by the shorter bridge lengths would essentially function as a levee to contain the creek within the constrained channel. It would require riprap to stabilize banks and prevent channel migration. Riprap has very low environmental benefit, eliminating trees, shade, and bank habitat. It is also out of character in a natural creek system, and its use would contradict the stated goals of restoring a naturally functioning creek ecosystem. F-6

We also believe that the need for the proposed bridge width should be further explored. The DEIR/S reports contradictory bridge widths, but in all cases they are wider than the existing road. The DEIR/S does not adequately support the need for these widths. It is essential to the success of the project that an alternative that satisfactorily meets environmental, flood reduction and community character goals be developed. This may mean addressing other alternatives that have not been address in the DEIR/S. For example, we are aware of bridges that separate the vehicle and pedestrian access into separate bridges, reducing the magnitude of an individual structure. Another example would be a long causeway, the same width as the existing road, and lower than the proposed bridges, but somewhat higher than the existing road and bridge, that could allow natural channel function and have less impact on community character. The flood reduction benefits would be less than the larger, higher bridges, but would be improved from existing conditions of frequent flooding. Lastly, in terms of aesthetics, we would suggest that the visual impact of a long-length of raised roadbed fill of the 50 or 150-foot bridge vs. the open space beneath the longer 266-300 foot bridge should be evaluated as part of the DEIR/S, particularly considering the environmental benefits of the longest bridge to the creek restoration. F-7 F-8

Salmonid Winter/spring Rearing Habitat, and Winter/spring Flood Refuge for Juveniles and Newly Emerged Fry

The Redwood Creek coho population is critically important to coho recovery in the Central Coast ESU due to its unique genetic character. However, it is also a very small population that is susceptible to extinction if critical habitat components are lost. A full limiting factors analysis has not been completed, but monitoring results from the National Park Service indicate that winter juvenile coho survivorship is relatively high. The reason for this relatively high survivorship is not known, but it is probable that the flooded areas within the Project area provide high flow refuge (juveniles and emerging fry) and rearing habitat. There are very few other areas within the Redwood Creek watershed that can provide this function. In recent years, this area floods several times a year and remains flooded for an extended duration.

Therefore, in the absence of a study clearly identifying population limiting factors, the GGNRA must take a conservative approach and preserve this function of the Project area. It would be preferable to increase the quantity of this habitat, but at a minimum the current extent should be maintained. While several features have been added to the Project in order to maintain this habitat, there is no quantification of this habitat. In order to verify that there will be no decrease in this habitat, the DEIR/S should include a presentation of depth/inundation frequency maps (or some acceptable alternative method of comparing the data) comparing present conditions to future conditions for rearing and refuge habitat. This will necessarily involve making assumptions based on the literature and observations in the Redwood Creek system, of required depths for coho during this life phase. We realize that due to limitations in data available and model limitations, there will be large uncertainty in such mapping; however, it would be on a similar scale as other uncertainties in the Project design. F-9

Additionally, as part of refining the Project design, additional data can be collected to verify the predictions and make design modifications. PWA has conducted work in the Sacramento-San Joaquin system that has led to the identification of the "floodplain activation flow" (FAF) for lands that are frequently flooded and for relatively long durations and have ecological value for fish rearing and carbon production. An abstract describing this work is located in the 4th Biennial CALFED Science Conference 2006 abstracts document. In this abstract, PWA concludes that their work "suggests that it is quite feasible to map and quantify where a specific type of

floodplain occurs".

Water Quality Impacts in backwater channels and flooded areas

The DEIR/S does not discuss water quality during low flow periods in the backwater channels or flooded areas that may not completely drain. If water is ponded in these areas throughout the summer with no freshwater inflows or groundwater flow, they may become anoxic or highly eutrophied. While small areas of anoxic or eutrophied water may not have an adverse impact, large volumes of this water would have a negative impact. Therefore, it's important that the DEIR/S fully evaluate this, and the final Project design take into consideration measures to minimize the volume of this water. F-10

Sand Bar Closure

The DEIR/S (p. 4-35) concludes that none of the alternatives are anticipated to alter the seasonal patterns or processes driving lagoon formation. The potential impact on lagoon closure of the increased size of the tidal lagoon is not explicitly discussed. We believe that this potential impact requires closer scrutiny because unanticipated alterations in the timing of lagoon closure in a few restoration projects along the California coast have created significant negative environmental effects. F-11

Geomorphic Channel Design

The DEIR/S indicates that the SAM model was used to determine stable channel dimensions that will pass a prescribed sediment load without sediment deposition or erosion (p. 4-19). The DEIR/S discussion provides a discussion of the use of the SAM model; however we require further detail on the following:
1. Is the SAM model appropriate for use in an alluvial reach that transitions into an estuarine reach, and at this landscape position with a small lagoon discharging to the ocean?
2. What is the potential effect of using the Meyer-Peter and Muller (MPM) equation rather than other analytical solutions that might be more appropriate?
3. What is the basis for the recurrence intervals selected for different design reaches?
4. We understand that a reference reach for the GGNRA restoration project of the Banducci site, approximately 1 mile above the Big Lagoon Project site, has been determined to have a bankfull channel of approximately 35 feet. The drainage area at the Project site is larger than the Banducci reference site. What is the bankfull width of the restored stream? How have bankfull width and other design parameters (slope, width, depth, sinuosity) been determined and found to be appropriate for use in an alluvial reach that transitions into an estuarine reach, and at this landscape position with a small lagoon discharging to the ocean? If this detailed information is to be developed and refined at the next design phase, then it is important to identify if any of these design parameters (e.g., stream width) have outside constraints that might affect flexibility of the design.
5. Figure 4.3.1-1 depicts the lowering of the thalweg elevation from its current elevation by up to four feet. Is the lowering of the thalweg related to relocating the channel to the lowest elevation in valley, or because the channel is being deepened? F-12

Sea Level Rise (p. 4-36)

There are many aspects of the Project that may be affected by sea level rise. We realize that the DEIR/S was prepared based on the best information available at the time; however, the new Intergovernmental Panel on Climate Control (IPCC) report issued in early 2007 has provided new information on sea level rise. Project planning should consider these revised estimates and propose mitigating measures where necessary. F-13

Soil Disposal- impacts to water tank

It is our understanding that the preferred alternative for soil disposal is also one of the few available sites for a new water tank for the Muir Beach community. While this is not currently planned, increased water storage to reduce the need for summer withdrawal is an essential component of a restored watershed, and potential impacts to this site must be considered. For example, mitigations such as adequate soil compaction and provision of adequate space need to be included in the Project plan. F-14

Maintenance (p. 4-33, Impact WP-R9)

With the substitution of the longer bridge alternative, we believe this Project can improve the ecosystem and

natural creek functions in the Project area. However, as noted above, due to large annual and episodic sediment and LWD/debris loads and the ongoing potential for channel avulsion, the Project will likely experience ongoing adjustments. It is critical that these adjustments be allowed to occur without maintenance intervention unless it is demonstrated to be necessary for the success of the restoration. This is particularly critical in the area below the Pacific Way bridge. The DEIR/S language states that "maintenance could be indicated if sediment deposition or changes in the channel form pose flooding threats to structures in the floodplain or otherwise resulted in undesirable conditions". The criteria under which maintenance would be proposed need to be clarified and mitigation measures proposed, including consideration of prohibition of maintenance below Pacific Way bridge except to further restoration goals. F-15

Construction Phasing

• Issues to be addressed (p. ES-29) notes the possibility that the replacement of the Pacific Way bridge might be delayed until after the completion of the restoration Project below the bridge; this would also delay the upstream restoration of the new channel above the bridge. We believe this could have significant adverse impacts and every effort should be made to construct the bridge prior to or concurrent with the channel realignment. There is no explanation in the DEIR/S of what the "temporary channel alignment" would entail. This issue needs to be addressed as part of the DEIR/S. The bridge replacement is an integral component of this Project, and its design, construction timing, and funding must be clearly identified. F-16

• Impact WQ-R3 (p. 4-53) states that "short duration pulses of sediment would be expected during storm events occurring in the first rainy season following construction". It should be noted that we expect as part of the SWPPP that post-construction BMPs should prevent such sediment discharges throughout the proposed 3 to 4 year construction period. Of particular importance would be winterization measures to prevent discharge of sediment and other contaminants during the rainy season. F-17

• While we understand that impacts to vegetation are unavoidable during the construction phase, every effort should be made to minimize and mitigate for these impacts, including an active revegetation component. F-18

Pedestrian Access and Parking

• We support the plan provisions for pedestrian access that predominantly keep the access to the perimeter of the site and provide maximum habitat protection. This support is conditioned on our understanding that development of pedestrian trails will not require excessive tree removal. F-19

• We believe the proposed parking lot alternative to reconfigure the parking lot but keep it at its current capacity will minimize impacts to wetlands and the creek. However, this alternative could be improved by substituting some parking spaces with a small drop-off area for a small bus, while maintaining the same sized parking lot. F-20

Watershed Sediment Reduction Activities

In the public meeting forums, we have suggested a "two-phased program" in which the Big Lagoon Project would be designed and implemented in the first phase. In the second phase other watershed projects would be identified that would not be funded directly with this Project but should be pursued since they would greatly enhance the success of the Big Lagoon Project. We think watershed sediment reduction from roads and trails (and other sources) should be explicitly incorporated and tied to this Project as a second phase, with high priority for future funding. F-21

Thank you for considering these comments. If you have any questions, please call Leslie Ferguson at (510) 622-2344, email lferguson@waterboards.ca.gov or Dale Hopkins at (510) 622-2362, email dhopkins@waterboards.ca.gov.

Sincerely yours,

original signed by

Wil K. Bruhns,
Division Chief, North Bay Watershed

Cc: Carolyn Shoulders, GGNRA
Darren Fong, GGNRA

Letter F: San Francisco Bay Regional Water Quality Control Board (March 6, 2007)

Response to Comment F-1

Please review MR-1. The preferred alternative has been changed to BR4, which is the longest possible Bridge Alternative.

Response to Comment F-2

Please refer to MR-2, which discusses the bridge design and issues such as floodplain connectivity, natural channel function, and channel migration. Note that NPS and the County now have chosen to select the longest bridge possible to maximize the benefits associated with these factors.

Response to Comment F-3

NPS and Marin County agree that the longest bridge provides the most protection against the uncertainties in flood elevations related to sea level rise, and this is one reason that Marin County has changed its preferred bridge alternative to BR4, the longest bridge alternative, as discussed in MR-1 on page 6-3. Since it is the longest feasible bridge, given constraints with the Pelican Inn on one end of the road and a residential driveway at the other, it will arguably provide the highest level of protection for vehicular access, flood reduction, and natural channel function no matter what the future scenario is. Please refer to MR-3 for a more complete discussion of the effects of sea level rise.

Response to Comments F-4 and F-5

The combined benefits of the longest possible bridge, the parking lot rotated away from the floodplain, removing the levee, and returning the channel to the center of the floodplain are expected to create the optimal conditions for natural sediment movement at the site. Some sediment deposition will occur in the vicinity of the Pacific Way bridge, with or without the project. However, as with sea level rise, the longest possible bridge provides the greatest protection against uncertainties and unpredictability in sediment deposition and its potential effects on flood elevations in the vicinity of Pacific Way.

Despite the sediment transport modeling results (Appendix D), we expect that the project will result in less overall sediment deposition than under existing conditions since the potential obstacles from infrastructure will be as minimal as possible. Furthermore, we expect that the new bridge configuration, with the larger channel opening, will be more resilient to sediment deposition and will

reduce flood hazard risk to existing structures compared with the current bridge configuration and sediment regime.

Project goals include restoring a "self-sustaining ecosystem" that "functions in the context of the watershed and other regional boundaries." The project location is in the downstream-most reach of Redwood Creek, which has historically been depositional because of decreased channel gradient and tidal effects. The main objectives of reducing deposition are (a) to not increase flooding of Pacific Way or nearby structures, and (b) to not block or otherwise modify the creek channel in a manner that would be detrimental to fish passage or winter rearing habitat.

The restoration design was developed to decrease local sediment deposition as much as is practicable, given site constraints, and to reduce the need for mechanical sediment removal (i.e., maintenance dredging). While we cannot guarantee that dredging will not be required, the following project elements should reduce the likelihood and/or frequency of dredging:

- relocating the channel to the valley low spot to improve flow concentration (i.e., reduce flow bifurcation) and sediment transport capacity, as well as to increase floodplain sediment storage potential;
- grading the relocated channel to have as uniform a slope (and sediment transport capacity) as possible, consistent with the valley floor slope, to reduce the potential for local sediment deposition around sharp gradient breaks; and
- replacing the existing 25-foot span Pacific Way bridge with a 250-foot-long and higher bridge, aligned with flow direction, to reduce the existing hydraulic constraint at Pacific Way.

It should be noted that increased sediment deposition may occur farther downstream—for example, where the channel is downsized to increase out-of-bank flooding (to benefit coho salmon rearing). However, sedimentation at these locations is not expected to increase flood hazards or necessitate maintenance dredging.

Response to Comment F-6

The RWQCB's comments regarding the environmental detriments of a short bridge are noted. As part of the environmental review and public comment process for this project, NPS will continue to weigh all appropriate commentary regarding alternative components of the project prior to their decision on implementation. Also, as noted above, the preferred alternative has been changed to BR-4, the longest bridge. See also MR-1.

Response to Comment F-7

The longest possible bridge is, in essence, a causeway that will appear to be similar in elevation or slightly higher than the road at either end. The elevation of Hwy 1 is 16.5 feet NGVD; the height of the bridge under Alternative BR4 would be somewhere between 16.25 and 18 feet (final height would be determined during project design). For comparison, the height of the existing bridge is 15.2 feet NGVD, 1.3 feet lower than the elevation of Hwy 1.

Marin County will reduce the maximum possible width from 36 feet to 32 feet, with the specific width to be determined during the design phase. The 32-foot width, as with the prior 36-foot width, is intended as a maximum width for purposes of analysis in the EIS/EIR. Marin County does not want to overly constrain designers at this stage. The 32-foot bridge width allows for two vehicle lanes (each 10 to 11 feet wide), a shoulder on each side of about a foot, and a 6-foot-wide pedestrian path. It may be possible to reduce the width to less than 32 feet during design, but this reduction cannot be committed to without designs.

A separate bridge for pedestrian access was not considered further because it not only would be significantly more expensive but also would be likely to have additional aesthetics impacts to the natural area.

Please also refer to MR-1.

Response to Comment F-8

Since the longest bridge alternative has been selected as the Preferred Bridge Alternative, any potential visual effect of the embankments next to a raised road has been minimized. A longer bridge means that there is less length of the road that must be raised, and therefore less area will be covered in new embankments next to the road.

We agree that the embankments would have a visual effect, and, extending up to 10 feet next to the road at the points where the road is highest, they could be more obtrusive visually than the natural area that would be next to the longer bridge. However, given that the most frequent views of the bridge would be from Hwy 1 or from along Pacific Way, the embankments are not as important to the visual experience of the bridge as its overall height and width—which are anticipated to be the primary factors affecting the view from these vantage points. While the comment is noted and appreciated, it does not change the overall evaluation of aesthetics impacts presented in the EIS/EIR.

Response to Comment F-9

Please refer to MR-2.

Response to Comment F-10

As discussed on pages 3-22 and 3-23 in Section 3.1.2, *Water Quality*, diurnal fluctuations in dissolved oxygen levels could occur during low-flow periods under existing conditions. Although these conditions may contribute to exceedance of water quality standards, the proposed project is expected to improve dissolved oxygen conditions overall compared to existing conditions as riparian vegetation matures and reduces the aquatic plant and algal growth that contribute to diurnal fluctuations and biological oxygen demand. We acknowledge that backwater areas may still have lower dissolved oxygen levels than the adjacent main channel. However, these backwater areas are important biological features.

Please refer to Impact WQ-R6, which discusses the impact of increased nutrients, lowered DO levels and nuisance plant growth during low-flow periods and during various stages of wetland development. This impact discussion applies to all aspects of the proposed water features as proposed, including the creek channel, backwater channels, and lagoons. While the Draft EIS/EIR adequately addressed these effects on water quality, text has been added to the Final EIS/EIR to clarify the discussion of Restoration Alternative 2 in Impact WQ-R6.

Response to Comment F-11

The proposed project increases the tidal lagoon's ability to expand by removing wetland vegetation along its landward edge. An approximately 100-foot-wide band of vegetation would be removed (for a total excavation volume of 80,000 cubic feet or 3,000 cubic yards). Proposed changes to the tidal lagoon are expected to increase the surface area of the lagoon and consequently its total volume. However, because of the limited size of the change, we do not expect the timing of lagoon opening and closures to be significantly modified by the project, as described further below.

It should be noted that since the Feasibility Analysis was completed in 2004, the tidal lagoon and upstream channel has enlarged on its own during large storms, most notably the December 31, 2005, event. Therefore, mechanical enlargement of the tidal lagoon may not be needed; however, this proposed action is included in the EIS/EIR to allow further consideration during the design phase.

Breaching/Opening Mechanics

Natural reopening of a closed inlet occurs when the water level on one side of the beach barrier exceeds the elevation of the beach crest. This can occur either when high runoff fills the lagoon or when high storm surge tides occur. After the lagoon fills, the ebbing tide allows discharge from the lagoon by scouring a channel at the lowest point on the beach barrier. This breaching mechanism is affected by the wave run-up, the storm surge, the antecedent topography of the beach barrier, and the storage capacity of the lagoon.

Enlarging the tidal lagoon could potentially have the potential to delay lagoon opening if (a) the water surface were decreased because of increased storage volume (taking longer for the lagoon to fill to a critical elevation), or (b) losses from seepage or evaporation were increased. However, based on our evaluation of these two conditions (as described below), changes to the timing of lagoon opening is not likely.

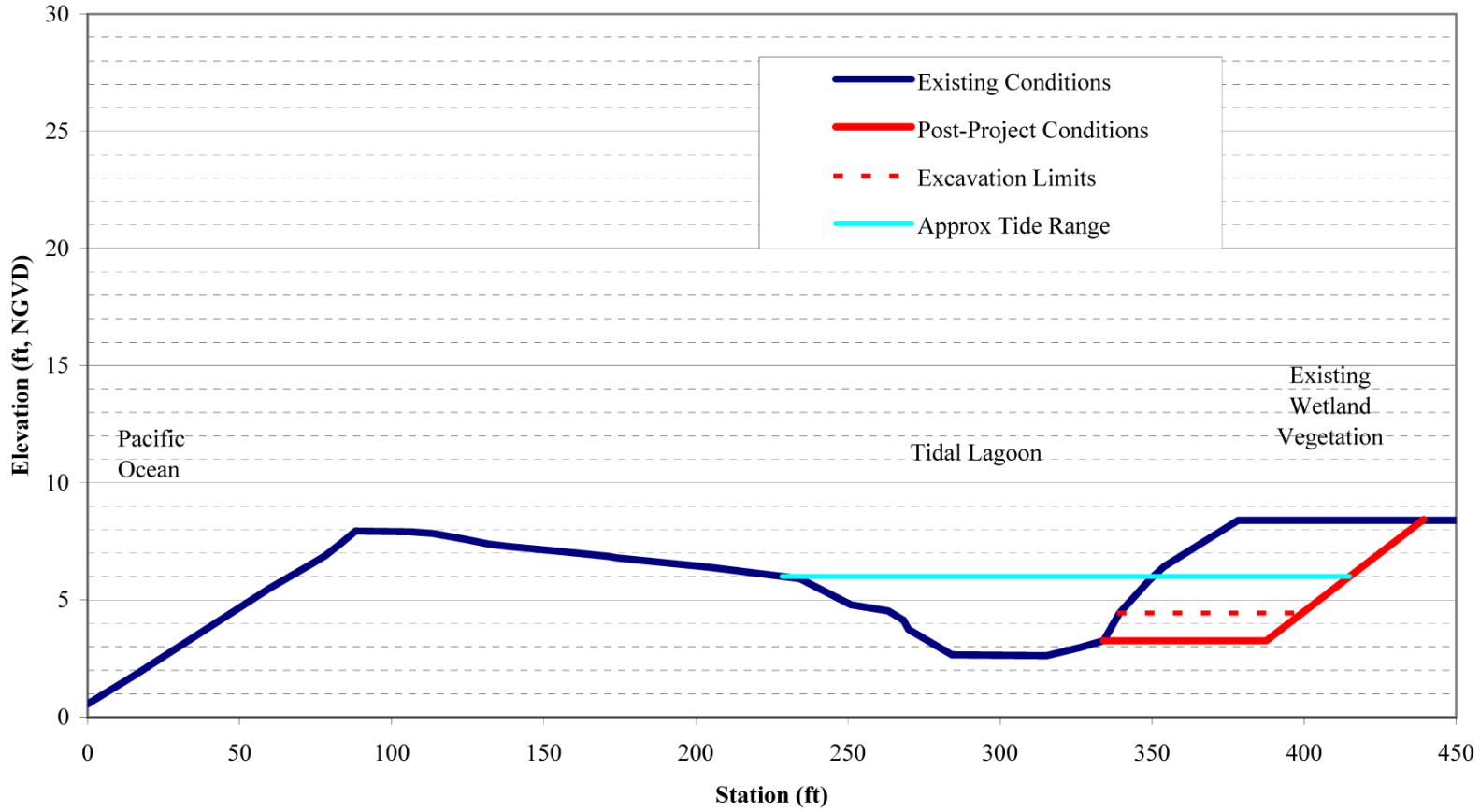
We quantified the expected volume change to evaluate its potential to affect the timing of lagoon opening. The additional storage volume was estimated as approximately 4,000 cubic yards, based on the excavation volume plus expected scour (see Figure 6-4 for a schematic showing the lagoon cross-section). Assuming a constant base flow of 0.5 cfs (based on typical flows during the months of October and November), this additional lagoon volume will fill in less than 3 days. During a storm event, the additional lagoon volume would fill much faster (e.g., a 10 cfs inflow would fill this additional lagoon volume in 3 hours).

Seepage losses to the beach are not expected to increase under the proposed project because the tidal lagoon configuration along its beachward edge will not be modified. Evaporation losses from the lagoon are not expected to significantly increase under the proposed project. Total evaporation loss is roughly estimated at 0.1–0.3 inch per day (Kohler et al. 1959, as referred to in Dunne and Leopold 1978); a 0.5-cfs base flow would replenish lagoon water levels by 6 to 12 inches daily.

Closure Mechanics

The ability of an inlet to remain open is primarily a function of the scouring effect of tidal currents and stream flow and the amount of sediment deposited in its entrance as a result of wave-induced sand transport. An inlet will close if ebb currents in the channel are not sufficiently strong to scour away material previously deposited during the flood tide. Closure usually occurs during neap tides, when the ebb scour potential along the channel is at a minimum and at times of low stream flow and high swell activity.

Increasing the tidal prism (the total volume of tidal waters exchanged during one tide cycle) has the potential to prolong the time the lagoon mouth stays open once it has been breached. Because the tidal lagoon size is quite dynamic, changing seasonally and annually, the total change in tidal prism attributable to the project will vary over time. For discussion purposes, we have estimated that the proposed project could increase the tidal prism by 30% in the winter, assuming a uniform lagoon cross-section as shown in Figure 1 and a 3-foot maximum tidal range (PWA 2004, Figure 1). Analysis of tidal inlets along coastal California suggests that a change of this magnitude would not significantly affect the existing pattern of seasonal closure (Johnson 1973). Even doubling the size of the tidal prism (100% increase) would have little impact on closure frequency (PWA 1994). In general, we expect the larger tidal prism of the lagoon to maintain a slightly larger (deeper) entrance channel during open periods. However, the pattern of seasonal closure is expected to persist.



Based on cross-section R from the 2003 EDS ground survey, modified to reflect the relatively flat wetland area approx 100 feet upstream.
Estimated tide range based on maximum tide range of approximately 3 feet (PWA, 2004), assuming beach configuration at the time of the 2003 ground survey.

05052.05 (8-07)

Jones & Stokes

Figure 6-4
Schematic Cross-Section of Tidal Lagoon

Response to Comment F-12

This response addresses the following four questions.

1. Is SAM appropriate for this location in the watershed that transitions from an alluvial reach to an estuarine reach?

SAM, the USACE's Stable Channel Analytical Model, can be used to evaluate slope-depth-width combinations to understand a channel's ability to carry its load in any region of the watershed; as such, it is appropriate for use in the reach under consideration in this project. For Redwood Creek, the SAM analysis was one of multiple methods used to help answer the question of whether the creek system would be at risk of incising (PWA 2004). Our conclusion that the system would tend to be depositional or in equilibrium, rather than erosional, was based on multiple lines of evidence:

- The existing channel is depositional based on the sediment accumulation measured over the past several years; this is consistent with its location in the lower watershed.
- The gradient of the new design channel (approximately 0.3%) will be less than the valley slope (approximately 0.4%) and the upslope contributing reach.
- The proposed channel gradient correlated with equilibrium gradients of similar streams surveyed in Contra Costa County, taking into account differences in bed material (PWA 2004).

The SAM model was then used as an additional line of evidence to verify that the design channel was not expected to be erosional. The SAM model was not used to determine channel dimensions; rather, preliminary design channel dimensions were used as input values in the model. A more complete analytical approach, as described under the response to Question 4 below, is recommended to determine final channel sizing.

2. What is the potential effect of using Meyer-Peter and Muller, rather than Parker (or other equation)?

The sediment transport modeling was one of several lines of evidence used to assess stream stability, and we therefore looked to see if the most easily implemented sediment transport tools were effective before conduct a wider search of different models. Our approach (which PWA has used on several other studies) was as follows:

1. Use Reid and Dunne's 1996 evaluation of different sediment transport equations to select a range of appropriate candidate sediment transport equations for the field site.

2. Test the best candidate equations from Reid and Dunne against observed field data (Stillwater Sciences, 2004) until a model was found that fitted the data closely (i.e. agreement between predicted and observed sediment loads). This test was carried out in order of ease of use (i.e. we tested the most easily implemented models first).

The Reid and Dunne study (1996) reviewed the accuracy of various sediment transport equations in real-world applications (i.e. in natural rivers rather than flumes) [10]. While both the Parker and MPM equations are appropriate for gravel-bedded streams, the Parker equation initially appeared to be a more accurate predictor for small streams based on a limited sample size (only 3). In three case studies using the MPM equation, sediment capacity was underestimated by 2 times or more (>200%), while the three tests of the Parker model were within 200% of the measured load. These theoretical results from the Reid and Dunne study were the basis for referring to the Parker equation in PWA (2004) and the DEIR/EIS.

The MPM equation (rather than the Parker equation) was initially selected for the SAM analysis because it was the most applicable equation available in the current version of the SAM model (the Parker equation is not available in the version of SAM used in this study, although it can be found in other, more complex sediment transport packages). The modeling results using MPM were compared to measured sediment data for Redwood Creek (Stillwater Sciences, 2004). The measured value was in close agreement with the predicted values from the MPM equation (530 mg/L versus 510 mg/L, PWA, 2004). In sediment transport modeling a difference between predicted and observed results of 4% is considered exceptionally good; for example, the Reid and Dunne book considered any results within 200% of the predicted results to be relatively successful. Therefore, based on the close correlation between predicted and observed results, we believe that the MPM equation is the best predictor for evaluating sediment transport on Redwood Creek. Given the close agreement and the ease of application of MPM it was not necessary to explore the use of the Parker equation or other equations in more complex sediment transport modeling tools.

3. What was the basis for the recurrence intervals selected for different design reaches?

For the SAM analysis, the 1.5-year storm (as estimated from previous annual flood frequency analysis [PWA 1998]) was selected to represent the bank full flow event. This selection was based on the accepted practice of using the 1.5-year storm as an estimate of the bank full (or channel-forming) event (Leopold et al. 1964). See the response to Question 4 below for proposed future actions to

[10] For Redwood Creek, there are only five equations that have been tested for similar small gravel-bedded channels: Diplas, Einstein/bedload, Meyer-Peter/Muller, Parker and Schoklitsch/1943 (Reid and Dunne, 1996, Table 9).

refine the quantification of the bank full (or channel-forming) event to be used in channel sizing.

4. What is the basis for design channel dimensions?

The preliminary design dimensions of the low flow channel were selected to allow hydraulic modeling of the preferred alternative. The channel dimensions are first based on existing channel dimensions of Redwood Creek approximately 0.5 to 1 mile upstream at the Banducci site. During the detailed design phase, the following additional analysis will be performed to refine channel dimensions.

- Historic flow data will be analyzed to better quantify the frequency of smaller high flow events (e.g. the 1- and 1.5-year events). The *Redwood Creek Feasibility Report* (PWA 1998) included a flood-frequency analysis for the 2- to 100-year events, and the *Big Lagoon Feasibility Report Addendum* (PWA 2004) includes analysis of 1999 to 2003 high flow data. During the detailed design, the analysis of high flow data would be expanded to include all data available at that time.
- The bank full flow will be selected for different channel reaches. In the upstream portion of the project site (e.g., upstream of Pacific Way), the 1.5- to 2-year event likely will be used for channel sizing. Downstream of Pacific Way, a smaller flow will be selected to increase the frequency of out-of-bank flows to maximize ecosystem restoration. Selection of appropriate design flows will be based in part on further identification and analysis of stable reference reaches within the watershed.
- A suitable range for channel equilibrium slope will be determined using a variety of empirical and analytical methods. The channel planform (i.e., sinuosity) can be modulated, as practical, to achieve a channel gradient that is considered stable. However, the channel gradient also will be dictated by the existing constraints to channel location (e.g., property lines, Pacific Way, etc.)
- Upon final selection of the channel location and gradient, low flow dimensions will be refined. This refinement may include varying channel dimensions at outside meander bends, etc. Selection of low flow channel dimensions will be based on local hydraulic geometry relationships, measurements of reference reaches, and hydraulic analysis. There are no apparent constraints on channel depth or top width; the height of the low flow berms can be adjusted as needed to achieve the desired channel depth while maintaining a uniform channel gradient.

5. Is the thalweg elevation (the channel low point) lowered because it will be in a lower elevation in the valley or because the channel is being deepened?

Figure 4.3.1-1 shows that channel for the preferred alternative will be excavated with a relatively uniform gradient from the upstream to downstream project

boundary. As shown in Figure 4.3.1-1, the proposed thalweg may be up to 4 feet below the existing thalweg in some locations where the channel has aggraded as a result of high sediment deposition. Therefore, the new channel will deeper than the aggraded reaches of the existing channel.Overall, the proposed channel will have approximately the same gradient as the existing channel between the project limits.

Response to Comment F-13

The latest IPCC (2007) predictions for future global sea-level rise over the next 50 years are lower than those estimated in IPCC (2001); therefore, the analysis in the Draft EIS/EIR is conservative, and no additional mitigation measures are necessary. Please also refer to MR-3, which provides a complete discussion of sea level rise and the newer revised estimates, including the implications of sea level rise over a 100-year time frame and longer.

Response to Comment F-14

Comment noted. The Big Lagoon project is not incompatible with potential placement of a water storage tank. Placement of fill at the old reservoir pit does not preclude the possibility of placing a new water storage tank there for the MBCSD. NPS recognizes the importance to MBCSD of obtaining a new water storage tank so that impacts to federally listed salmonids can be avoided or reduced during periods of low flows in the creek. With a larger water tank, MBCSD would not have to pump as much water during the low-flow periods, and creek flows during critical periods can be better maintained. NPS is willing to work with MBCSD to site a new storage tank in the fill placement area or other possible areas on NPS lands in order to protect the habitat for salmonids. There are many ways a tank and fill could be configured for good placement at the unused reservoir. There are no additional impacts associated with use of the unused reservoir for soil disposal that were not disclosed in the Draft EIS/EIR, and no additional mitigation is necessary.

Response to Comment F-15

It is the full intent of NPS and Marin County to allow natural channel processes to occur and not to conduct routine maintenance related to deposited sediment or channel form. It is unlikely that maintenance actions related to channel form would be conducted downstream of Pacific Way, except to further restoration goals, because the channel will have broad latitude for natural reconfiguration in that area.

That said, the proposed restoration actions do not fundamentally alter the range of flooding conditions that could occur during large storm events or other aberrant catastrophes. If conditions resulting from a large event, series of large events, or catastrophic event clearly threaten structures or health and safety—and

maintenance actions would be likely to provide relief—maintenance actions would likely be taken as necessary to protect safety while also considering and minimizing the ecological impacts of such actions. Any such actions would be subject to regulatory review and permitting, and any necessary maintenance will comply with all relevant regulations. Neither NPS nor the County seeks explicit regulatory authority for maintenance actions as part of this project.

Response to Comment F-16

It is preferable for the County to construct the bridge concurrently with the rest of the project and in advance of downstream actions, if possible. However, since it may be possible that funding for the bridge will lag behind available funding for other actions, the EIS/EIR was written to allow for construction of the bridge following the implementation of actions downstream of the bridge. It is anticipated that if the bridge is built after the downstream actions, it would be constructed at the end of the 2- or 3-year construction period, and not substantially later than other actions. If the bridge is built after the downstream actions are implemented, a temporary channel would be constructed from the existing Pacific Way bridge to the new channel. The channel upstream of Pacific Way would not be relocated until the new bridge was constructed. A temporary channel would be designed to provide sufficient flow conveyance capacity between the existing (upstream) channel and the realigned (downstream) channel and allow channel function that is at least commensurate with existing conditions. As such, it would not exhibit characteristics that are fundamentally different from those associated with the project at large. Other potential impacts have been disclosed in the Draft EIS/EIR and are identical to those associated with all the realigned channels. They include:

- short-term increases in turbidity, nutrients, and temperature in the creek following construction, which would be mitigated through Mitigation Measures WQ-MM-3 (Turbidity Monitoring and Response Plan), WQ-MM-4 (Water Quality Monitoring and Response Plan), and FISH-MM-1 (Riparian Shade Mitigation and Monitoring);
- generation of construction-related pollutant emissions, which would be mitigated by Mitigation Measures AIR-MM-1 (implementation of BAAQMD Dust Control Measures) and AIR-MM-2 (Measures to Reduce NO_X Emissions from Diesel-Powered Equipment);
- temporary disturbance to vegetation communities, which would be minimized to the greatest extent practicable;
- temporary disturbance to common species of wildlife;
- minor short-term adverse effects to juvenile salmonid rearing habitat;
- potential for disturbance of previously unidentified cultural resources, which would be addressed by Mitigation Measure CR-MM-1 (Contingency Measures for Such Discovery);

- reductions in recreational opportunities and aesthetics during construction and site establishment;
- minor effects to visitor safety, which would be addressed by Mitigation Measures REC-MM-1 (Construction Exclusion Areas) and REC-MM-2 (Horse and Equestrian Safety Measures);
- traffic effects of construction, which would be minimized through implementation of Mitigation Measure TC-MM-1 (Construction Traffic Management Plan);
- energy use and use of nonrenewable resources for construction; and
- construction noise, which would be minimized through Mitigation Measures NZ-MM-1 (Noise-Reducing Construction Practices), NZ-MM-2 (Noise Control Plan), and NZ-MM-3 (Public Information Measures).

Response to Comment F-17

Construction and post-construction BMPs, including winterization measures, will be implemented to protect water quality, as will be outlined in a SWPPP. However, some pulse of sediment following construction is likely to be unavoidable as the restored site establishes, particularly sediment originating from within the newly established creek channels themselves.

Response to Comment F-18

Comment noted. Active revegetation is a part of the proposed project. NPS will develop a detailed revegetation strategy as part of the preparation of project designs. The revegetation strategy will identify the target species composition for the site's microhabitats and methods for achieving the target composition through a combination of planting nursery stock, removing nonnative vegetation, and relying on natural recruitment where it is likely to be fast enough to make outplanting unnecessary. In some cases, native vegetation, such as rushes, that is excavated may be suitable for replacement on the finish grade. Specific needs, such as rapid establishment of shade over the new channel, will be factored into the revegetation strategy. NPS works with the Golden Gate National Parks Conservancy to operate the Redwood Creek Native Plant Nursery, located near Muir Woods National Monument, which will be engaged in onsite revegetation in this project. NPS will work with volunteers to collect propagules from the local watershed, grow nursery stock, and plant nursery stock on site.

Response to Comment F-19

Comment noted. Tree removal for project implementation will be minimized to the greatest extent practicable.

Response to Comment F-20

As discussed in the response to Comment J-1, the County is not currently providing bus service to Muir Beach; the Stage Coach service that formerly accessed Muir Beach via Shoreline Highway has been rerouted because of low ridership, and there is no immediate plan to return bus service to the beach. At the same time, EIS/EIR analysis has shown that reduced parking without transit service would result in unacceptable impacts to local traffic circulation. At the present time, sacrificing parking space to provide access for bus service that is not assured would create substantial detriments without providing a meaningful benefit. Nonetheless, as identified previously, NPS is committed to continued coordination with County transit providers to improve transit access to Muir Beach. If bus service to the Muir Beach area is reinstated in the future with a drop-off at the beach, it would be possible accommodate bus access to the beach with minimal modifications to facilities installed under the proposed action.

Response to Comment F-21

Additional actions to reduce sediment inputs to the system are needed in this watershed, but these actions are not a part of this project. Land managers for the publicly owned watershed lands—NPS, State Parks, Marin County, and the MMWD—have developed a greater awareness of sediment delivery from roads, road-runoff, trails, undersized culverts, former land modifications for agriculture, and numerous other land uses. Each agency has conducted one or more actions in recent years that will reduce sediment inputs. For instance, in 2007, the Marin Municipal Water District completed road-related erosion control measures at 14 sites in the upper Redwood Creek Watershed, including Old Railroad Grade and Gravity Car Road, to prevent an estimated 5,100 cubic yards of sediment from entering Redwood Creek. MMWD has previously recontoured trails and stream crossings in the upper watershed to reduce erosion. NPS's expansion of the active floodplain at the Banducci Site in 2003 2007 (Lower Redwood Creek Floodplain and Salmonid Habitat Restoration at the Banducci Site) adds areas for natural sediment deposition. In 2003, NPS also recontoured an old road and blown out culvert at a stream crossing on a steep hillside behind Muir Woods National Monument to prevent slope failure and the delivery of an estimated 900 cubic yards of sediment that could have reached the creek. Marin County has installed fences along roadside parking areas near Muir Woods to reduce sedimentation to the creek from those areas. State Parks has replaced undersized culverts, and trail recontouring proposed at Dias Ridge will reduce sediment runoff (see also the list of cumulative actions presented in the Draft EIS/EIR). Additional proposed actions would be expected in the future as part of a comprehensive watershed management plan, but they should not be considered part of the specific project under review in this EIS/EIR.

G

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cynthia Bryant
Director

February 6, 2007

Tim Haddad
Marin County Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, CA 94903

Subject: Wetland and Creek Restoration at Big Lagoon, Muir Beach, Marin County
SCH#: 2004042143

Dear Tim Haddad:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. The review period closed on February 5, 2007, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. G-1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2004042143
Project Title Wetland and Creek Restoration at Big Lagoon, Muir Beach, Marin County
Lead Agency Marin County

Type JD Joint Document

Description This Draft EIS/EIR presents and evaluates alternatives to restore a functional, self-sustaining ecosystem, and provide for public access that is compatible with restoration. The 38-acre project site is located entirely within the boundaries of the Golden Gate National Recreation Area, but includes some properties owned by the San Francisco Zen Center and Marin County. This Draft EIS/EIR analyzes three Restoration Alternatives, six Public Access Alternatives, four Bridge Alternatives, and five Fill Disposal Alternatives.

Lead Agency Contact

Name Tim Haddad
Agency Marin County Community Development Agency
Phone (415) 499-6274 **Fax**
email
Address 3501 Civic Center Drive, Room 308
City San Rafael **State** CA **Zip** 94903

Project Location

County Marin
City
Region
Cross Streets Pacific Way and Highway 1
Parcel No. 199-16-14, 15, 17, 18, 19, 21, 22, 24
Township **Range** **Section** **Base** MD

Proximity to:

Highways One
Airports
Railways
Waterways Redwood Creek
Schools
Land Use Coastal Open Space (C-OS) and Coastal Agriculture (C-AG1)

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Cumulative Effects; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Geologic/Seismic; Growth Inducing; Landuse; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Septic System; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Regional Water Quality Control Board, Region 2; Department of Parks and Recreation; Native American Heritage Commission; Department of Fish and Game, Region 3; Department of Water Resources; California Coastal Commission; California Highway Patrol; Caltrans, District 4; Department of Toxic Substances Control; State Lands Commission

Date Received 12/22/2006 **Start of Review** 12/22/2006 **End of Review** 02/05/2007

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter G: California State Clearinghouse and Planning Unit (February 6, 2007)

Response to Comment G-1

Comment noted. Note that consistent with NPS NEPA requirements, the comment period was extended through March 6, 2007.

H

MARIN MUNICIPAL WATER DISTRICT

220 Nellen Avenue Corte Madera CA 94925-1169
www.marinwater.org

December 29, 2006
File No. 249.1

Tim Haddad
Marin County Planning Department
3501 Civic Center Drive #308
San Rafael CA 94903-4157

RE: **WATER AVAILABILITY** – Big Lagoon Restoration
Assessor's Parcel No.: 199-160-14, -15, -17, -18, -19, -21, -22, and -24
Location: Pacific Wy. and Hwy. 1, Muir Beach

Dear Mr. Haddad:

The above referenced parcels are located outside of the Marin Municipal Water District's current service area. H-1

If you have any questions regarding this matter, please contact me at (415) 945-1531.

Very truly yours,

Joseph Eischens
Project Manager

JE:dh F:\ENGINEER\WP\LETTERS\Ltrs-2006\Ltrs-Dec\je-12-29-06a-dh.doc

recycled recyclable

Letter H: Marin Municipal Water District (December 29, 2006)

Response to Comment H-1

Comment noted. Thank you for taking the time to review the project and participate in the environmental review process.

I

Steve Ortega
03/13/2007 09:54 AM
PDT

To: Karen Cantwell/GOGA/NPS@NPS, Ann Dolmage/GOGA/NPS@NPS
cc:
Subject: Fw: From NPS.gov: Just in case the regular website comments fail - Big Lagoon Comment

----- Forwarded by Steve Ortega/GOGA/NPS on 03/13/2007 09:54 AM -----

Steve Ortega
03/11/2007 11:06 AM
PDT

To: MStevenson@jsanet.com
cc: Carolyn Shoulders/GOGA/NPS@NPS
Subject: Fw: From NPS.gov: Just in case the regular website comments fail - Big Lagoon Comment

Comment submitted on goga_planning@nps.gov

Steve O.
----- Forwarded by Steve Ortega/GOGA/NPS on 03/11/2007 11:05 AM -----

Nancy Hornor
03/10/2007 03:56 PM
PST

To: Steve Ortega
cc:
Subject: Fw: From NPS.gov: Just in case the regular website comments fail - Big Lagoon Comment

Nancy Hornor
Planning Division Chief
Golden Gate National Recreation Area
(415)561-4937
----- Forwarded by Nancy Hornor/GOGA/NPS on 03/10/2007 04:02 PM -----

eac@svn.net
03/06/2007 07:32 PM
EST

To: GOGA_planning@nps.gov
cc:
Subject: From NPS.gov: Just in case the regular website comments fail

Email submitted from: /goga/parkmgmt/biglagoon.htm

Hi,

These are comments on the Big Lagoon Restoration (below). I am sending them here as well, because my comments once ran into glitches on a different project, so I wanted to be redundant just in case. Thanks

Fred

March 6, 2007

Brian O'Neill, Superintendent Golden Gate National Recreation Area

Re: Big Lagoon/Redwood Creek Restoration

Dear Superintendent O'Neill,

Thank you for the opportunity to comment on the Wetland and Creek Restoration at Big Lagoon

Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R). I am writing on behalf of the Environmental Action Committee of West Marin (EAC), representing close to 1000 members. While the EAC feels that many of the substantive issues have been addressed since GGNRA originally proposed this project, we think that the bridge option BR3 in GGNRA's preferred alternative is not the best option from a cost-benefit standpoint, especially if GGNRA makes realistic assumptions prior to comparing the alternatives.

First, the cost benefit analysis of the bridge alternatives is unrealistic. Not only does it state that the bridge will likely be less wide than the analysis width of 36 feet, but the length of the bridge analyzed in BR4 is in excess of 275 feet (2-24) which is unrealistic with regard to topography and floodplain width. In other words, GGNRA has likely overestimated the cost of BR4, despite the fact that it is the option with the best potential to restore natural watershed processes and minimize bridge/road flooding. In the Final Environmental Impact Statement/Report (FEIS/R), please analyze a new bridge option that provides a realistic cost-benefit analysis of a slimmed down, realistic-length BR4 based upon the actual dimensions required to span the floodplain. Also, focus the analysis not only on realistic bridge dimensions but also on ways that BR4, since it is the best for the environment and flooding, could be more cost effective and financially palatable. Only then can GGNRA do a fair cost-benefit analysis between BR3 and BR4. I-1

Second, GGNRA's analysis of the bridge alternatives does not adequately account for greater than a .7-foot sea level rise and the potential for increased intense, acute flooding events due to global warming. Ideally the goal of this project is to provide a long-term solution for creek restoration and public safety. Please analyze the effect of a 1+ meter sea level rise and increased flood event frequency that could occur due to global warming on the bridge and watershed models in the FEIS/R. This will ensure that the Preferred Alternative is adequate for a full range of global warming scenarios, especially considering that we know that BR4 provides the most benefits regardless of cost. I-2

The ecological benefits provided by BR4 are vitally important to restoring natural ecological process to the entire Redwood Creek watershed, including areas upstream. BR4, which provides the greatest benefits with respect to restoring natural ecological processes, is an ideal way to offset the fact that Alternative 2 does not have the habitat creation benefits of Alternatives 3 and 4. We believe that Alternative 2 with a realistically sized BR4, as a combined package, would likely surface as the Preferred Alternative, especially taking the long-term effects of global warming and the re-assessed cost of a BR4 with realistic size dimensions into account. Please do a cost benefit analysis of Alternative 2 as a package with BR3 and with a more realistic BR4 to assess which option is best for the environment and public safety. I-3

In the end, we are all going to have to live with the long-term consequences of GGNRA's decision. Please help us ensure that all realistic options have been analyzed before resorting to bridge alternatives that may not adequately address the Purpose and Need of this project. Thank you for the opportunity to comment on this proposal. If you have any questions, do not hesitate to contact me at 415-663-9312 or email to EAC@svn.net.

Sincerely, (Pasted signature will not paste here)

Frederick Smith Executive Director Environmental Action Committee of West Marin

Letter I: Environmental Action Committee of West Marin (March 6, 2007)

Response to Comment I-1

Please refer to MR-1, which includes updated assumptions regarding bridge lengths and widths, and rationale behind selection of the preferred bridge alternative. Also note that the preferred alternative has been changed from BR3 to BR4.

Response to Comment I-2

Although none of the recent IPCC studies estimates a sea level rise of up to 1 meter over 50 years (or even 100 years), MR-3 discusses the potential effects of more extreme sea level rise. The worst case scenarios for IPCC (2001) and IPCC (2007), respectively, are 0.40 meter and 0.28 meter over 50 years, and 0.88 meter and 0.59 meter over 100 years.

Cayan et al. (2006) from the California Climate Change Center also predicted global sea level rise over the next 50 and 100 years using IPCC emission scenarios B1, A2, and A1f1. This study included sea level rise attributable to melting ice sheets and glaciers, which was not quantified in the IPCC studies but was considered too indeterminate. Cayan et al. (2006) predicted that sea level rise could range from 0.1 meter to 0.9 meter per 100 years (or from 0.2 meter to 0.9 meter for the worst case scenario, A1f1). Therefore, the high end of the estimated range for the worst case emission scenario is close to 1 meter over 100 years. Given the amount of uncertainty and wide error band in predicting future sea level rise, we chose to use IPCC (2007), the most widely accepted publication on sea level rise, for this study.

Additional modeling with a tidal increase of 6.5 feet (from 3 to 9.5 feet NGVD), as a proxy for sea level rise, was performed. (See the discussion in MR-3 about flood elevations under projected sea level rise.) The conclusions of this analysis indicate that water levels upstream of the footbridge would be increased by less than 1 foot and that water level increases do not extend up to Pacific Way. Also note that for the scenario that was modeled, flood levels under the proposed project are predicted to be 1 to 2 feet lower than existing conditions. Please refer to MR-3 for a more complete discussion of the effects of sea level rise.

Response to Comment I-3

Please see Response to Comment I-1.

J

Feb. 15, 2007

Carolyn Shoulders
Natural Resource Specialist
Golden Gate National Recreation Area
Fort Mason, Bldg. 201
San Francisco, CA 94123

Dear Ms. Shoulders,

Thank you for including us in the planning process for the Big Lagoon Restoration Project. We'd like to continue this collaborative process for its entire duration. As the finalization of the EIR/EIS nears, we're taking this opportunity to reiterate concerns of ours which we fear have fallen to the cutting room floor.

Our big vision is defined in our primary goal: caring for the Redwood Creek Watershed so that it can continue to nurture and to be enjoyed by future generations. We recognize the terrific challenge of working to simultaneously preserve our environment while ensuring visitors the opportunity to enjoy their public parks; we believe our familiarity with our environment provides a constructive perspective. Here goes:

A shrinking parking lot tied to low-cost public transit and quality of life: In this age of global warming, one of our primary goals is to get cars off the roads. To this end, bus service to Muir Beach is critical.

In the past, we've asked that an ADA-approved bus stop be built at our old Highway One Muir Beach bus location, so that the Muir Woods shuttle can stop here. Now, we realize this is not a good location. The bus stop is too far away from the beach and will require long, ADA-approved trails to reach from bus stop to beach.

A shrinking parking lot is the result of low-cost bus service displacing parking spaces in the Big Beach parking lot; as ridership increases, parking spaces decrease. Final Big Lagoon plans should include weeklong, small-sized non-polluting bus service and a correspondingly small bus stop in the Big Beach parking lot.

We believe that the Marin Stagecoach is the appropriate-sized vehicle for local, recreational, and handicapped Muir Beach access.

J-1

We strongly advocate coordinating transportation planning with the Marin County Transit District and the County of Marin: continuing the week-end Muir Woods shuttle service nonstop to Muir Woods: and re-instating and expanding the West Marin Stagecoach's coastal route. The Stage should run seven days a week: should run more frequently and on a more commuter-friendly schedule: should include more educational outreach to the general public: and should stop both on Highway One and at Big Beach.

We are dealing with a small area and a fragile habitat. We're happy to see that current planning does not increase the number of parking spaces in the Big Beach parking lot, and does not try to serve needs that go off the charts at peak usage periods (e.g. hot summer weekends).

As bus service is tied into the shrinking parking lot, so is the question of growth expectation and/or demand. It is our hope that the shrinking parking lot will, over time, get smaller, and that the Big Lagoon planning process will encourage this as it factors in quality of life considerations, including traffic patterns, commercial encroachment, environmental integrity, and visitor experience. J-1 cont.

Pacific Way Gridlock: Ways must be found to alleviate the gridlock that occurs on peak usage days and paralyzes local, recreational and emergency vehicular traffic.

We have asked for an access road exiting Pacific Way as soon as possible, or at the latest just west of the causeway, and providing adequate stacking distance to prevent backups on Pacific Way. It should also include natural visual screening to minimize noise transmission to nearby residences. J-2

If an access road is not included in the planning process, we ask you to come up with some other structural proposal to control Pacific Way gridlock.

Parking control on peak days: This is not an alternative to our request for an improved physical road realignment on Pacific Way. On peak use days, when the parking lot is full, traffic control officers should be provided on Highway One to direct traffic, and prevent stacking congestion and illegal parking on Pacific Way. J-3

A small number of parking spaces outside the gate: 5-6 parking spaces outside the parking lot gate would allow limited after-hours parking, alleviating congestion and illegal parking on community streets. J-4

Berms: Parts of Pacific Way are lower than the floodplain surrounding Redwood Creek. A build-up of siltation, as well as the construction of berms which were installed as a temporary measure to prevent the creek from overflowing, now trap water on Pacific Way. Pacific way flooding and ponding issues, though difficult, must be resolved. J-5

Aerial tram: The concept of a hilltop tram (close to, but below, ridgeline, on the ocean side) serving Muir Woods (and eventually also other parts of the GGNRA) is a vision we are including in the long-range planning for recreational access to GGNRA lands. Muir Beachers began putting this idea forward thirty years ago, at the GGNRA formation meetings held at Tam High. Now, with our entire world at environmental risk, public transportation has to become more and more attractive and easy to use. While non-polluting buses are a necessary beginning, we hope it won't take another thirty years for us to look back and say, "Why didn't we look to the future and start designing an aerial tram back in 2007?" J-6

Sincerely,

Judith Yamamoto

Judith Yamamoto, Co-chair
Greater Muir Beach Neighbors

Cc: Rachel Warner, County of Marin Planning Department
Steve Kinsey, Supervisor, Marin County Board of Supervisors

Letter J: Greater Muir Beach Neighbors (February 15, 2007)

Response to Comment J-1

As discussed in the responses to Comments C-6 and F-20, public transit improvements are outside the scope of the proposed action. However, NPS is committed to continued coordination with County transit providers, through other planning processes. If bus or shuttle service is routed to Muir Beach in the future, the design of the new bridge and parking lot would be adequate to support bus or shuttle vehicles; only minor modifications to the new facilities would be needed to accommodate a bus or shuttle stop at the parking area.

Also note that planning is based on current conditions; while there are no plans to shrink the parking lot over time, nothing in the EIS/EIR precludes NPS from reducing the size of the parking lot in the future if conditions change. NPS and the County acknowledge that while a smaller lot could be a component of a successful public transportation program, the impacts of creating a smaller lot at the outset without public transportation in place would be adverse.

NPS and the County appreciate the input and note the Greater Muir Beach Neighbors' preference for shuttle stops at both the beach and Highway 1, a shuttle that is similar in size to that of the Marin Stagecoach, and the comments about frequency of shuttle service and public outreach regarding public transportation.

Response to Comment J-2

Public Access Alternative B4, the rotated lot, has been selected as the preferred alternative in the Final EIS/EIR. The turn-off from Pacific Way to the parking lot is as close to the Pacific Way bridge as is practical without requiring a second access road. Alternative B4 has been selected as the preferred alternative because of its superior benefits for hydraulic and sediment transport functions and traffic flow benefits provided by stacking room within the lot for backed up traffic.

Noise impacts on residents resulting from use of the parking lot are discussed in Impact NZ-P3 of the Final EIS/EIR. Local residents currently experience vehicle noise from visitor use of the parking area. Because the same number of parking spaces would be provided as exist today and the number of visitors to the site is not anticipated to change relative to today, noise impacts would not increase as a result of the proposed project.

As discussed in Impact AES-P2 of the Final EIS/EIR, Public Access Alternative B4 would result in improved views for residents and visitors because the rotated parking lot would allow a contiguous landscape to develop, one that is unobstructed by a protruding parking lot. A vegetated buffer between Pacific Way and the parking lot would screen the parking lot from residents on Pacific

Way, and planting bays maintained within the lot would improve the aesthetic value of the site.

Response to Comment J-3

Neither Marin County nor NPS has the personnel to commit traffic control officers for routine patrol on peak-use days but will continue to seek and implement new ways to improve traffic conditions, such as through the use of the Intelligent Transportation System, by which vehicles would be notified by roadside electronic signs that the parking lot is full. Several project actions are likely to improve traffic flow on peak-use days, including the fact that the existing bridge will allow two-way traffic, thereby eliminating a bottleneck; the parking lot would be designed to improve traffic flow; and the preferred parking lot alternative, B4, will have stacking space for back-up traffic, thereby relieving congestion on Pacific Way. On peak-use days, traffic is sometimes slowed by pedestrians in the road; the new trail would help reduce those effects.

Response to Comment J-4

Please note that the project's parking lot is in conceptual design stage, as was used for analysis in the EIS/EIR. As the parking lot design process continues, NPS will consider providing parking spaces outside the gates, as requested in this comment.

Response to Comment J-5

The referenced portions of Pacific Way are not considered by Marin County to be part of this project. The County will look at ponding or drainage issues on the road during bridge design and after construction. This area will be evaluated as part of the visitor parking lot design as well. Hydraulic models can be used to identify whether the berms will be needed to protect the road; it is unlikely they will be needed in the future, and their removal could help drainage of the road. The berms will be evaluated as part of the parking lot design, and any actions related to parking design that can improve drainage of the road will be conducted. Work on Pacific Way would be the responsibility of the County and is outside the scope of the proposed project.

Response to Comment J-6

Comment noted. Construction of a tram is outside the scope of this project.

K

Friday, March 2, 2007

Brian O'Neill
Superintendent
GGNRA
Fort Mason Bldg. 201
San Francisco, CA 94123

Dear Brian O'Neill,

Once again, we thank you for including us in the planning process for the Big Lagoon Restoration Project. It has forced us to look long and hard at the various proposals for Muir Beach, some from the County Board of Supervisors (Marin County Transit District plan), some from the County Planning Commission, and some from your staff and that of the National Park Service.

The proposals which immediately concern us range from public transit options, to expansion and improvement of Pacific Way and of Highway One at Pacific Way, to reconfiguration of the Big Beach parking lot. All of them are intertwined with GGNRA proposals, even if not all of them fall strictly in your jurisdiction. Many of them have evolved, and changed, over time.

Hopefully, the GGNRA can continue to work closely with the County to create optimal planning where these jurisdictions overlap.

We have several specific recommendations for elements of the plans that are now going into the EIS/EIR process:

1. **Public Transit:** Four elements are intrinsically intertwined and we're counting them as one public transit issue. They combine concerns of global warming and our continuing efforts to get cars off the roads, with local and recreational access to West Marin. They are:

a. The necessity of public transit along the Highway One corridor to Stinson Beach, stopping at Green Gulch Farm, Muir Beach, Slide Ranch, and hiking and biking trailheads along Highway One. This means continuation of the coastal West Marin Stage route, with additional weekday runs (for local use), expansion of service, year-round, to weekends (for recreational as well as local use), and designation of a Big Beach stage stop.
b. Use of the West Marin Stage on this route. The Muir Woods shuttle ran every half hour last summer, full, non-stop to Muir Woods. That service fills a real need (congratulations!) and should continue unchanged. It should not stop at Muir Beach.
c. The establishment of a West Marin Stage stop at Big Beach, for true recreational access that is compatible with Muir Beach quality of life.

K-1

d. The creation of a "shrinking parking lot" at Big Beach. As Stage ridership to Big Beach rises, the number of parking spaces in the lot decreases, resulting in fewer cars on the roads and a smaller parking lot in the years to come.

K-2

e. The addition of five or six parking spaces outside of the Big Beach parking lot, to relieve after-hours congestion on community roads.

K-3

2. **Roadway design** must be in keeping with the present environment and must preserve the historic, rustic nature of what is here now – always remembering that this is a small area and a fragile habitat. We are concerned about:

a. The size of the bridge/causeway from Highway One to Big Beach. A 36-foot roadway sounds like overkill.
b. The size of the bus stop at the Highway One/Dairy location.
c. The size of pedestrian/ADA-approved lanes from Highway One to Big Beach.
d. The dramatic impact on the character of this rural road intersection (Highway One and the Dairy) to accommodate a full bus stopping every half hour.
e. Flooding on Pacific Way.

We have actually flip-flopped on the issue of an ADA-approved bus stop located at Highway One at the Dairy. Then we realized that it comes with an ADA-approved walkway to Big Beach and a 36-foot wide Pacific Way, and that the Muir Woods shuttle that would stop there every half hour (or even more often) is always full of Muir Woods visitors. So we rethought the whole concept, which we originally endorsed, and figured out a better way. K-4

It makes much more sense for recreational access to be at the recreational destination, not a quarter of a mile away from it. This is especially true because beach-goers typically carry beach paraphernalia, bathing suits, towels, extra dry clothes, picnic baskets, etc.; they consist of families with babies (strollers, baby carriers) and young children, old folks, and handicapped people.

They are a separate entity from the people headed to Muir Woods.

We ask your planners to scale back the bridge/causeway, address flooding on Pacific Way, eliminate plans to have the Muir Woods shuttle stop at Muir Beach, use only the more appropriately-sized West Marin Stage for recreational access, design a "shrinking parking lot" at Big Beach, add a few parking spaces outside the park gate to remove after-hours parking on community roads, and include a West Marin Stage stop in the Big Beach parking lot for meaningful and practical recreational access. K-5

Thank you for listening to our ideas. We think we have found ways to answer several needs that sometimes seem to conflict with each other, and have created an integrated vision for Muir Beach that is greater than the sum of its parts.

Sincerely,
Judith Yamamoto
Judith Yamamoto, Co-chair
Greater Muir Beach Neighbors

Cc: Rachel Warner, County of Marin Planning Dept., Steve Kinsey, Supervisor, District 4, Marin County Board of Supervisors, Amy Van Doren, Manager, Marin County Transit District

Letter K: Greater Muir Beach Neighbors (March 2, 2007)

Response to Comment K-1

NPS and the County agree with the commenter about the desirability of public transit access to the beach, but, as discussed in the response to Comment C-4, public transit is outside the scope of this project. Comments on the need for additional transit service should be directed to County transit providers for separate attention.

NPS and the County will continue to coordinate efforts to improve transit access to key park destinations and with transit providers to improve transit options and ensure that NPS facilities support appropriate transit access. The parking facilities that would be built under the proposed action may require only minor modification to accommodate bus or shuttle service to Muir Beach if or when such service becomes available.

Response to Comment K-2

The proposed parking lot is considered the minimum size lot to avoid causing traffic and parking impacts. As analyzed in the Draft EIS/EIR, without a public transportation system, a smaller lot would increase traffic problems. If public transit conditions change, it is possible that the footprint of the parking lot could be reduced. Parking lot reduction is not proposed as a part of the Big Lagoon project, but the project does not preclude such future changes.

Response to Comment K-3

Please note that the project's parking lot is in conceptual design stage, as was used for analysis in the EIS/EIR. As the parking lot design process continues, NPS will consider providing parking spaces outside the gates, as requested in this comment.

Response to Comment K-4

NPS and the County appreciate the input regarding roadway design; it is our intent to design all new facilities in keeping with the present environment and the historical, rustic nature of the site.

Regarding concerns related to the size of the bridge and pedestrian lanes, please refer to MR-1; the maximum width of the bridge has been reduced from 36 to 32 feet, including the pedestrian walkway. The reduced width of 32 feet is still considered a maximum width, and further reductions in width may be possible

during the design phase of the project. Regarding flooding of Pacific Way, the preferred bridge alternative would greatly reduce the frequency of such flooding.

Regarding comments on the size and location of the bus stop and the nature and frequency of bus service, public transportation amenities are not part of, but also are not precluded by, this restoration project.

Response to Comment K-5

Please see the responses to Comments K-1 through K-4 above. NPS thanks you for your concern and for participating in the public review process. Your comments will be considered as this project moves through the approval process and design stages.

L

Author Information

Keep Private:	No
Name:	Jeremy J. Levie
Organization:	Green Gulch Farm Zen Center
Organization Type:	I - Unaffiliated Individual
Address:	1601 Shoreline Highway Muir Beach, CA 94965 USA
E-mail:	jjlevie@yahoo.com

Correspondence Information

Status: New	**Park Correspondence Log:**
Date Sent: 03/05/2007	**Date Received:** 03/05/2007
Number of Signatures: 1	**Form Letter:** No
Contains Request(s): No	**Type:** Web Form
Notes:	

Green Gulch Creek Restoration
Green Gulch Farm (GGF) is working on a Watershed Plan that would include restoration work along the Green Gulch Creek. We have at times been cautioned by the National Park Service (NPS) about removing any concrete because it might affect Big Lagoon's restoration due to hydrologic considerations. At times, the NPS has also suggested that we wait until the Big Lagoon project is finished before we begin. So we need to ask, "What effect will the Big Lagoon project have on our creek? Is there a way we can collaborate so that the two projects support each other?" Ideally, we would like to collaborate with the NPS so that our creek restoration can be designed and completed in conjunction with the Big Lagoon project. We feel that cooperating in this way would result in the optimal outcome for the health of the creeks, the Big Lagoon, and the watershed and hope we will be able to proceed in this way. L-1

Horses on GGF 7th Field Pasture
GGF supports the presence of the Ocean Riders in our valley and supports the following changes necessary due to reduction in size of the 7th field pasture:

1. Since it will be more difficult to keep four horses in the smaller space without degrading the land, GGF supports the Ocean Riders' proposal to raise the level of the pony paddocks on the corner of Pacific Way and Highway #1 so they could be used year round and they would be able to trade horses out of the 7th field long enough to rest the land. This work would be done after consultation about any effects on the restoration plan. L-2

2. GGF supports the creation of a new windbreak at the new boundary line of the 7th field. It would be made of native trees and shrubs.

3. Shelters would have to be moved. We would need to work out positioning.

GGF Lot on corner of Pacific Way and Highway 1
Given county land use requirements for building's set back from riparian areas and existing project plans, where is the edge of developable portion of GGF lot that fronts on Hwy 1 and is zoned for commercial activity? If it is determined that given set back requirements and the current design for Big Lagoon there is no longer enough space for GGF to make use of this lot for modest purposes (such as a farm stand), GGF may ask that riparian areas be moved further away from this lot so that GGF may make modest developments on the lot. L-3

Parking Lot at Muir Beach
GGF strongly recommends that the new parking lot at Muir Beach be landscaped with as much greenery as possible to soften its impact on Muir Beach residents viewing it from above and to enhance the visitor L-4

experience of the users of the parking lot. L-4

Removal of invasive species
GGF supports suggestion of removing invasive plant species that occur outside the project area (adjacent to project area) and would welcome NPS assistance in doing this work on GGF land. L-5

Public Access and New Emergency Access Route
GGF has concerns regarding the potential for increased visitation to GGF due to proposed improvements for public access of project area. The loop trail that passes by entrance to GGF could encourage traffic into central GGF area. Increased traffic could be a concern, for example, due to safety within the farm work environment that mixes the uses of tractor-farming and a public thoroughfare.

GGF suggests connecting the Middle Green Gulch trail and the New Emergency Access Route that leads to the beach via the trail located along the southeast edge of Green Gulch farm fields, rather than through central GGF roadway? This would involve improving the trail along the SE edge of the farm fields. L-6

Are there any plans to install trail signs in this area to guide people to complete the loop trail, back to Hwy 1 or back to parking area, and/or up to middle GGF trail that are different from the current state?

Interpretative displays/ signs
The 2004 feasibility analysis appears to describe more details about proposed interpretative displays than the EIS/EIR version. The proposed wildlife habitat viewing platform or blind sounds fine to GGF. The proposed interpretative materials at the southeast end of the parking lot also sound fine.

However, there is some concern regarding the location of the proposed display at the confluence of Green Gulch trail and coastal trail. The committee supports the intent of recognizing, and educating the public about, the traditional indigenous people's uses and habitation of the site, but wonders whether this location is the only option or whether displays could be sited towards the more highly populated and visited areas closer to parking area on NPS property proper. L-7

Are there designs/ ideas about any other signs not already mentioned in previous sections or plans?

Letter L: San Francisco Zen Center (March 5, 2007)

Response to Comment L-1

NPS looks forward to coordinating with SFZC on all technical or logistical issues relevant to restoring the Green Gulch tributary in conjunction with restoring Redwood Creek at Big Lagoon.

Response to Comment L-2

The horse paddock area is a wetland under the jurisdiction of USACE. NPS and Marin County are working to obtain a permit from USACE for all project actions, and we are designing actions to minimize the area of fill in the jurisdictional wetlands. If the total area of fill in wetlands increases compared to the existing condition, it is possible that USACE would require NPS to create new wetlands elsewhere as mitigation. NPS does not plan to add to the total area of fill in jurisdictional wetlands by placing fill in the horse paddock area. However, please note that groundwater elevations are predicted to lower somewhat across the whole site as a result of project actions, a phenomenon that likely would benefit the equestrian use of the site. It is possible the paddocks might be somewhat drier, although they would still be a component of an active floodplain.

NPS is willing to discuss with San Francisco Zen Center and Ocean Riders the planting of native willows on its land at the new boundary of Field 7.

NPS plans to reposition the horse shelter and fencing when they are dismantled in the project area and will coordinate with the San Francisco Zen Center and Ocean Riders as necessary to ensure a mutually acceptable solution.

Response to Comment L-3

It is possible that this comment is referring to the Marin County ordinance requiring proposed developments to have a 100-foot setback from streams. If so, the proposed new location of the main creek channel is more than 100 feet from the pony paddock at the intersection of Hwy 1 and Pacific Way and is thus in compliance with the County's ordinance.

However, there may be numerous other laws or ordinances that could affect the potential development of the corner lot because of the inherent characteristics of the property. For instance, the corner lot is a wetland under the jurisdiction of USACE and within a 100-year floodplain, and other local zoning ordinances

could apply to that location. None of these concerns is under the jurisdiction of the NPS. No project actions are proposed for this corner lot.

Response to Comment L-4

NPS will work with a licensed landscape architect to design and construct the new parking lot. The conceptual designs used for environmental review in the Draft EIS/EIR included vegetated swales throughout the parking lot that would be planted with native species. The vegetated swales will contribute to a more visually pleasing parking lot and also serve the purpose of capturing runoff containing pollutants from vehicles.

Response to Comment L-5

Comment noted. The removal of nonnative species (page 4-112) at the project area will be an integral component of project actions. NPS appreciates San Francisco Zen Center's support and cooperation in removing and managing these species so as to allow the natural integrity of native plant compositions to re-emerge in the project area.

Response to Comment L-6

NPS will work with the Green Gulch Farm to create signage appropriate for the area, as well as gates or fencing that would discourage visitors using the emergency access road from wandering into private property. Since the emergency access road and trail are already exist as public paths to the beach, however, there may not be a noticeable change in visitor use.The possibility of connecting Middle Green Gulch Trail to the route to the beach is plausible and may be considered in discussions with Green Gulch. A possible trail connection from Middle Green Gulch Trail to the route to the beach is currently outside of the project boundaries for this project.

Also note that NPS intends to create a cohesive signage/interpretation plan that provides pertinent information that does not alter the rural, semi-wild character of the area. This approach follows NPS policy 9.3.1.1 that signs

> will be held to the minimum number, size and wording required to serve their intended functions and to minimally intrude upon the natural and historic settings. They will be placed where they do not interfere with park visitors' enjoyment and appreciation of park resources.

The signage plan will be developed during the design phase of the project following the completion of the EIS/EIR.

Response to Comment L-7

As discussed above in the response to Comment L-6, NPS will develop a cohesive signage plan for the site during the design phase of the project. At this point, definite sign locations have not been selected, and NPS is flexible on the location of signs to be established at the site. Sign locations shown on drawings at the intersection with the Coastal Trail are suggested placements, but not definite.