



San Francisco Bay Regional Water Quality Control Board

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November 30, 2023

San Mateo County Flood and Sea Level Resiliency District
Attn. Makena Wong, Project Manager
1700 S. El Camino Real, Suite 502
San Mateo, CA 94402
Email: Projects@OneShoreline.org



Subject: Notice of Preparation, Environmental Impact Report for the Millbrae and Burlingame Shoreline Area Protection and Enhancement Project, San Mateo County

Dear Ms. Wong:

The San Francisco Bay Regional Water Quality Control Board (Water Board) appreciates the opportunity to review and comment on the Notice of Preparation (NOP) to prepare an Environmental Impact Report (EIR) for the Millbrae and Burlingame Shoreline Area Protection and Enhancement Project (Project). The Project is being proposed by the San Mateo County Flood and Sea Level Resiliency District (OneShoreline). The proposed Project purpose is to protect the roughly 7.5-mile Millbrae-Burlingame shoreline from coastal flood hazards, including anticipated future sea level rise. The NOP describes one alternative for the Project, a roughly 2.65-mile-long offshore barrier (with associated tide gate) on San Francisco Bay (SF Bay) extending between San Francisco International Airport (SFO) and Anza Fisherman's Park in Burlingame, with the option to extend the barrier another 0.6 miles east to Coyote Point. The NOP provides no details regarding the proposed design or operation of the barrier or any associated shoreline features.

In addition to our permitting authorities for the proposed Project under the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act (Porter-Cologne) the Water Board is a Responsible Agency under the California Environmental Quality Act (CEQA) that must determine the adequacy of CEQA documents such as EIRs (14 CCR §15096). We therefore offer the following comments on the NOP, based on the information provided in the NOP. These comments are meant to advise OneShoreline and its partners of our policies and requirements, so they may be incorporated into the design and environmental documentation processes, and facilitate Water Board review and permitting.

JAYNE BATTEY, CHAIR | EILEEN M. WHITE, EXECUTIVE OFFICER

Comments on Collaborative Climate Adaptation

Climate change threatens the health, integrity, and resilience of the Bay Area's natural and built communities in complex and interconnected ways. Communities like Millbrae and Burlingame and sensitive creek and bay shore ecosystems are especially vulnerable to the compounding impacts of climate change from more-intense storms (watershed flooding), more-severe droughts, and rising sea and groundwater levels. To help agencies such as OneShoreline address these complex challenges, the Water Board has funded and contributed to numerous planning guidance documents aimed at helping communities improve their adaptive capacity to climate change in ways that protect, enhance, and restore the region's sensitive ecosystems. These documents include the 2015 update of the Baylands Ecosystem Habitat Goals (Goals Project 2015)¹, which calls for the accelerated restoration of 100,000 acres of tidal wetland and associated habitats by 2030, and the San Francisco Bay Shoreline Adaptation Atlas (SFEI and SPUR 2019, additional updates in-progress)², which proposes a science-based framework for identifying opportunities to deploy nature-based infrastructure along the Bay's shoreline. Recognizing that climate change does not stop at political boundaries, the Adaptation Atlas proposes a cross-jurisdictional approach to climate adaptation aimed at supporting collaborative planning between municipalities, agencies, land managers, and related entities. In its recent review of the OneShoreline planning and policy guidance for new private development, the Water Board was encouraged to see references to the Adaptation Atlas and many of its guiding principles.

This type of collaborative, cross-jurisdictional approach to planning and co-design is essential to the Project's ultimate success. We appreciate the complexity of climate adaptation in the region, given its landscape setting, land uses and ownership, infrastructure, ecosystems, and vulnerable frontline communities. This complexity underscores the need for OneShoreline to move forward with a Project that can efficiently move through planning, design, and regulatory compliance into implementation. However, it is our understanding that key project partners, including municipalities, regulatory agencies, land managers, and related authorities were minimally consulted during Project development. We strongly encourage OneShoreline to collaborate early and often with the Water Board and our regulatory and community partners to develop a Project that provides the necessary flood protection for the region while complying with requisite environmental policies and regulations.

Comments on Proposed Alternative and Impacts to Aquatic Resources

As previously mentioned, the NOP proposes one alternative for the project, a roughly 2.65-mile-long offshore barrier with associated tide gates. **Water Board staff have**

¹ Goals Project. 2015. *The Baylands and Climate Change: What We Can Do*. Baylands Ecosystem Habitat Goals Science Update 2015 prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. California State Coastal Conservancy, Oakland, CA. Online at <http://baylandsgoals.sfei.org>

² San Francisco Estuary Institute (SFEI) and SPUR. 2019. *San Francisco Shoreline Adaptation Atlas: Working with Nature to Plan for Sea Level Rise Using Operational Landscape Units*. Publication #915, San Francisco Estuary Institute, Richmond, CA. Version 1.0. April. Online at <https://www.sfei.org/adaptationatlas>

serious concerns that this alternative will result in significant, unmitigable impacts to waters of the State and assigned beneficial uses of waters of the State.

Under the authority of the Porter-Cologne Act, the Water Board has developed and implements the *San Francisco Bay Basin Water Quality Control Plan* (Basin Plan), which defines the beneficial uses of waters of the State within the SF Bay. Given the proposed Project's location along the shoreline of SF Bay and local tributaries, the following beneficial uses likely apply to waters and wetlands in the Project area: estuarine habitat (EST); preservation of rare and endangered species (RARE); contact water recreation (REC1); non-contact water recreation (REC2); shellfish harvesting (SHELL); fish spawning (SPWN); and wildlife habitat (WILD). The EIR must consider the reasonably foreseeable potential direct, indirect, and cumulative³ impacts of Project alternatives on these current and anticipated future beneficial uses of waters of the State.

Projects with potential fill-related impacts to State waters, such as the Project, must first demonstrate their design avoids and minimizes those impacts to the maximum extent practicable. As part of the CWA §401 Certification and Waste Discharge Requirements (WDRs) review process for the Project, we will require a thorough analysis of proposed Project alternatives, including their long-term direct, indirect, and cumulative impacts. The Water Board adopted U.S. Environmental Protection Agency's Section 404(b)(1), "Guidelines for Specification of Disposal Sites for Dredge or Fill Material," dated December 24, 1980, (Guidelines) in its Basin Plan and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Dredge and Fill Procedures) for determining the circumstances under which filling of waters of the State may be permitted. The Guidelines and Dredge and Fill Procedures prohibit discharges of fill material into waters of the United States and the State unless a discharge, as proposed, constitutes the least environmentally damaging practicable alternative (LEDPA) that will achieve the project purpose. To accomplish this, the Guidelines and Procedures sequence the order in which proposals must be approached: 1) Avoid - avoid impacts to waters; 2) Minimize – once impacts have been avoided to the maximum extent practicable, modify the project to minimize impacts to waters; and 3) Compensate – once impacts have been fully minimized, compensate for unavoidable impacts to waters.

³ *Direct impacts* to waters (including wetlands) generally include instances in which a water is impacted by an activity at the same time and location as the activity, whereas *indirect* or *secondary impacts* are instances where a water is impacted on a different spatial and/or temporal scale as the activity. For example, building a levee around a tidal water not only results in direct impacts to the water within the footprint of levee fill; it also results in indirect/secondary impacts to the non-filled water inside the levee by isolating it from the tidal processes (e.g. tidal flushing, sediment flux, etc.) that sustain its beneficial uses. *Cumulative impacts* are the incremental (direct and/or indirect) impacts of an activity considered together with the impacts of other past, present, and reasonably foreseeable future activities implemented by a discharger and other entities. Cumulative impacts can result from individually minor but collectively significant activities that take place over a period of time. For example, the impact from a small shoreline hardening project may be minor, but the cumulative impacts of multiple shoreline hardening projects within a region over time are likely to be significant. The Water Board regulates direct, indirect, and cumulative impacts to waters of the State (including wetlands).

The NOP describes a significant offshore barrier that would fundamentally alter the physical and ecological processes that sustain beneficial uses in the Project area. The Project area supports a variety of aquatic habitat types, including open water, intertidal and shallow subtidal mudflats, eelgrass beds, and tidal wetlands, some of which are known to support special-status species such as the federally- and state-endangered Ridgway's rail (*Rallus obsoletus*). Though much of the shoreline is armored, small pocket beaches have formed in some areas from coarse material that has eroded over time from the armoring. Before the area was diked off from the Bay in the late 19th and early 20th centuries, it supported extensive tidal wetlands and mudflats, including some of the largest native oyster beds in SF Bay. By the late 19th century, these oyster beds were used to support a major non-native oyster cultivation industry; when that industry eventually collapsed due to poor water quality in the Bay, the shell beds were then mined to develop concrete (Booker 2013).⁴ Small pocket beaches of oyster shell hash persist in the region, including at SFO.

A quick geospatial analysis indicates that the proposed offshore barrier will enclose roughly 600 acres of SF Bay, isolating it from full tidal circulation. This approach is likely to drive significant negative impacts to water quality by increasing the hydraulic residence time of interior waters, which can exacerbate eutrophication, increase the risk of harmful algal blooms, and decrease dissolved oxygen (DO) to levels below those that can sustain fish, benthic macroinvertebrates, and other aquatic life. By reducing physical connectivity between the Bay and almost 4 miles of shoreline, the barrier would likely interrupt sediment flux between local watersheds, shoreline habitats, and the Bay, increasing the risk of shoreline erosion. The barrier would also likely impede the free movement of fish and wildlife through the region, including by special-status and/or key food web support species such as green sturgeon (*Acipenser medirostris*), steelhead (*Oncorhynchus mykiss*), and Pacific herring (*Clupea pallasii*).

The NOP references a single tide gate in the proposed offshore barrier, but does not describe how it would be operated. Tide gates are not a panacea to the water quality threats described above. In many managed tidal systems in SF Bay, key water quality indicators such as temperature, DO, sulfide concentrations, and methylmercury concentrations are frequently negatively impacted in enclosed basins managed by tide gates, especially during summer months. When tide gates are opened to drain, the drainage of this water into the open Bay can adversely affect water quality and beneficial uses in the receiving waters. Another consideration is the projected future increase in the intensity, frequency, and duration of extreme storm events driven by climate change. Given the intensely developed condition of the watersheds that drain to the proposed enclosed tidal lagoon, storm events could drive large pulses of urban runoff into the lagoon and drive acutely poor water quality conditions. Further, it is unclear how the barrier would be maintained over time, whether the barrier would need to be raised in response to rising tides, and whether the Bay Muds underlying the barrier would have bearing capacity sufficient to support the barrier over time. These could result in additional impacts to the Bay and water quality that should be evaluated.

⁴ Booker, M.M. 2013. *Down By The Bay: San Francisco's History Between The Tides*. University of California Press

Comments on Further Consideration of Nature-Based Alternatives

Natural and nature-based shoreline adaptation approaches such as wetland/mudflat/beach enhancement, living shorelines (e.g., oyster reefs, eelgrass beds), strategic sediment placement, ecotone levees, and related approaches typically support multiple beneficial uses, such as habitat for estuarine, rare and endangered, and marine species, that are not supported by traditional shoreline infrastructure/armoring approaches such as seawalls and tide gates. Nature-based infrastructure can include hybrid “green-grey” measures that integrate natural features with traditional armoring approaches (for example, a pocket beach hemmed in by artificial headlands [groins/breakwaters]). These approaches to shoreline adaptation can help avoid/minimize impacts to waters of the State, cost less over time, perform better than engineered infrastructure alone, be more sustainable in the long-term, and provide important co-benefits such as habitat for native species and recreational access. The analysis in the Adaptation Atlas indicates that multiple types of nature-based approaches may be feasible for the Project area, including ecotone levees, coarse beaches along fortified shorelines, and enhancement/restoration of tidal wetlands and mudflats. The Atlas also suggests numerous non-structural (e.g. financial, policy, regulatory) approaches to climate adaptation in the Project area that take advantage of the region’s unique land use characteristics and can improve the region’s adaptive capacity over time.

Unfortunately, the NOP does not reference any Project alternatives that utilize nature-based or hybrid “green-grey” approaches. It is not clear what the NOP means by stating that the proposed barrier alternative “*has been described as a ‘living shoreline’ in other contexts*” (NOP page 2); the Water Board does not consider this alternative to constitute a living shoreline. To comply with the Dredge and Fill Procedures, the Water Board must analyze alternatives that first avoid and minimize impacts to waters of the State.

We therefore strongly encourage OneShoreline to develop and analyze practicable alternatives to the proposed Project alternative that incorporate nature-based approaches and reduce/minimize traditionally engineered structural components that interfere with natural physical and ecological processes. We are happy to work with OneShoreline and its partners to collaboratively develop these alternatives using resources such as the Adaptation Atlas and related literature. Since the 401 Certification process will require a sequential analysis of avoiding, minimizing, and then compensating the Project’s impacts to the extent practicable, we recommended that OneShoreline utilize the same alternatives development approach for the EIR and the required 404(b)(1) Alternatives Analysis that will be prepared for this Project.

Scope of Environmental Review

The EIR will need a detailed assessment of the direct, indirect, and cumulative impacts of Project alternatives on site- and landscape-scale hydrology and water quality, geomorphology, and ecology (including native and special-status plant, fish, and wildlife species). This analysis should consider the potential intensity, frequency, and duration of future storm events in watersheds draining to the Project area in addition to the potential range of sea level rise in the Bay over the intended lifespan of the Project. It

should address how the alternatives will impact existing and future patterns of tidal and watershed flooding, sediment erosion/deposition/transport, vegetation establishment/dispersion/succession, and related physical and ecological processes that support the diversity, integrity, and resilience of the region's waters of the State (including wetlands). It should also address the impacts of Project alternatives on the safe movement of fish and wildlife within and between the Bay, the region's bayland and shoreline habitats, and terrestrial habitats in contributing local watersheds.

Summary

The Water Board supports the Project purpose and is providing these comments to support effective, efficient compliance with CEQA and the Project's eventual 401 Certification process. We look forward to collaborating with OneShoreline and its partners on this important project through planning, design, and regulatory compliance, and are available to meet to discuss the above comments. If you have any questions, please contact Tahsa Sturgis of my staff at (510) 622-2316 or Tahsa.Sturgis@waterboards.ca.gov.

Sincerely,

Eileen M. White

Eileen White
Executive Officer

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