CALIFORNIA COASTAL COMMISSION

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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.:	CD-0001-16
Federal Agency:	Department of the Navy
Location:	Point Mugu, Naval Base Ventura County (Exhibit 1)
Project Description:	Repair and enhance existing shoreline protection structures, repair Beach Road, and restore dunes.
Staff Recommendation:	Concurrence

SUMMARY OF STAFF RECOMMENDATION

The Department of the Navy (Navy) has submitted a consistency determination for the repair and enhancement of existing shoreline protection structures, and some related work, at Naval Base Ventura County (NBVC) Point Mugu. The proposed project is similar in purpose to previous projects to protect the Navy's critical shoreline assets at Point Mugu, for which the Navy has submitted consistency determinations and the Commission has concurred. The purpose of the proposed project is to protect infrastructure, revetments, and beach habitat which are at risk from erosion and flooding, and to repair other damaged infrastructure. Project elements include repairs to the Central and West revetments, a minor extension to the east end of the West Revetment, repairs to Beach Road, sand dune replenishment near the east end of the West Revetment, sand dune recontouring at East Ormond and/or Holiday beaches on the base, and relocation away from the shoreline of Building PM-812 within five years. The Navy anticipates completing the proposed dune recontouring, the West Revetment repairs and expansion, and the repairs to Beach

Road prior to the start of the bird nesting season in March 2016, but that schedule is dependent on winter weather conditions. If this work is not completed over the next two months, work will resume in the fall along with the Central Revetment repairs and sand dune replenishment.

The proposed revetment repairs and extension are permitted under Section 30235 of the Coastal Act as they are necessary to protect existing structures (sea-range test facilities, explosive storage areas, Runway 3-21, Building PM-812, and Beach Road) and coastal dependent uses supporting sea range testing and aircraft operations at NBVC Point Mugu. There are currently no feasible less damaging alternatives to protecting these structures. Wave attack, shoreline erosion, and headwall retreat of the Mugu Submarine Canyon continue to threaten these Navy facilities and existing shoreline revetments on the base. Proposed repairs and enhancements are designed to protect this infrastructure and minimize the potential for increasing both shoreline erosion and adverse effects on sand supply. The staff recommends that the Commission find the project consistent with the shoreline structure policy (Section 30235) of the Coastal Act.

The project avoids environmentally sensitive habitat areas, will not create any permanent impacts to adjacent sensitive habitat or to listed species, and construction impacts would be temporary and minor. Degraded sandy beach lost due to the extension of the West Revetment would be fully mitigated by restoration of open sandy beach habitat elsewhere on the base, and the project includes the necessary measures to avoid adverse impacts to adjacent sensitive habitat and resources. The staff recommends that the Commission find the project consistent with the environmentally sensitive habitat policy (Section 30240) of the Coastal Act.

NBVC Point Mugu is a secure military area and access to the base, including the shoreline, is restricted to authorized personnel. The proposed repairs and enhancements to the Central and West revetments would not affect public beaches up- or down-coast of the base and would not generate burdens on public access and recreation off the base. The staff recommends the Commission find the project consistent with the public access and recreation policies (Sections 30210-30212) of the Coastal Act.

Commission staff recommends concurrence with CD-0001-16. The motion to implement this recommendation is found on Page 4, below.

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- Exhibit 1 Regional Map
- Exhibit 2 Naval Base Ventura County Point Mugu
- Exhibit 3 Mugu Submarine Canyon
- Exhibit 4 Central Revetment Plan
- Exhibit 5 Central Revetment Section
- Exhibit 6 West Revetment Plan
- Exhibit 7 West Revetment Extension and Dune Restoration
- Exhibit 8 Beach Road and Building PM-812
- Exhibit 9 Dune Recontouring Sites
- Exhibit 10 Buildings Behind Central Revetment
- Exhibit 11 Facilities Accessed via Beach Road

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The Navy has determined the project consistent with the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

I move that the Commission concur with consistency determination CD-0001-16.

Staff recommends a **YES** vote on the motion. Passage of this motion will result in a concurrence in the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

The Commission hereby <u>concurs</u> with consistency determination CD-0001-16 by the Navy on the grounds that the project is fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program.

III. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

The Navy has submitted a consistency determination for the repair and enhancement of existing shoreline protection structures at Naval Base Ventura County (NBVC) Point Mugu (**Exhibits 1** and 2). The proposed projects are similar in purpose to previous projects concurred with by the Commission to protect the Navy's critical shoreline assets at Point Mugu (including CD-090-98, repairs to West and Central revetments; and CD-091-95, repairs to Central and East revetment and partial removal of East Revetment). NBVC Point Mugu is down-coast of Channel Islands and Port Hueneme harbors and immediately adjacent to the offshore Mugu Submarine Canyon (**Exhibit 3**). The consistency determination describes the military significance of the airfield and related assets as follows:

The installation encompasses Mugu Lagoon, which is the largest salt marsh estuary in Southern California and is home to approximately 2,139 acres of jurisdictional delineated wetlands. Therefore, 48 percent, or nearly half, of the installation is functioning tidal salt marsh and undevelopable. In spite of this, NBVC Point Mugu operates an airfield with two runways and a 36,000-squaremile sea test range extending more than 180 nautical miles seaward from shore as well as ordnance assembling and storing facilities. The installation's proximity to the Sea Range is inherently important to provide aircraft access to radar and tracking capabilities for the aircraft, weapon and missile testing conducted on the range.

The Navy's *Environmental Assessment* (October 2015) for the proposed project elaborates on the need for protecting these assets by enhancing existing shoreline structures as follows:

Naval Base Ventura County (NVBC), Point Mugu has a number of mission critical assets and infrastructure located immediately adjacent to the shoreline and exposed to the Pacific Ocean. The shoreline and beaches at NBVC Point Mugu have a long history of erosion and shoreline retreat, which has increasingly threatened base assets and infrastructure, including buildings and roads. Over the years, shoreline protection structures, including groins and revetments, have been constructed to protect these assets and infrastructure. However, storms and other high water events have damaged the Central and West revetments and caused coastal flooding. Building PM-812, which houses airfield lighting equipment, has recently flooded despite efforts to protect the building and equipment. Beach Road, which runs parallel to the coastline and provides access to the buildings and other assets located along the coastline, has also flooded and remains partially blocked by sand and debris.

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The purpose of the Proposed Action is to ensure the continued protection of mission critical infrastructure and valuable ecological resources along the most at-risk locations of the NBVC Point Mugu coastline. The Proposed Action is needed because the shoreline, roads, infrastructure, and natural resources along the NBVC Point Mugu coast are at risk from erosion and coastal flooding. Sand on the beaches and in the littoral zone is eroding at an accelerated rate due to a deficit in sand moving down-coast, causing the loss of beach area, flooding of infrastructure, damage to revetments, and loss of coastal beach habitat. The Proposed Action would protect mission critical infrastructure at NBVC Point Mugu and help to preserve and replenish beach habitat behind or adjacent to the revetments.

As a result of the findings contained in the Navy's *Shoreline Protection Study Report (August 2012)* and the *Shoreline Protection Plan (November 2012)*, the Navy is proposing to implement the following projects:

- Central Revetment. Increase the crest elevation from its current height of approximately 20 feet to between 23 and 27 feet, armor the seaward slope, reinforce the backside of the structure by adding larger, dense stone, and slightly increase the revetment width to support the increased height. The repairs would restore the approximate 2:1 seaward design slope of the revetment (Exhibits 4 and 5).
- <u>West Revetment</u>. Restore the current crest elevation of 14 feet to the 1999 design height of 18 feet, armor the seaward slope, reinforce the backside of the structure by adding larger, dense stone, and slightly increase the revetment width to support the restored height (Exhibit

6). Extend the eastern end of the revetment by 125 feet across approximately 0.18 acres of sandy beach. The height, crest width, toe depth, and 2:1 seaward design slope of the extension would match the repaired revetment dimensions (**Exhibit 7**).

- Beach Road Repairs. This two-lane paved road runs parallel to the shoreline between the upcoast ordnance storage facilities and Laguna Road and is the primary ordnance handling transportation route on the base (Exhibit 11). During the storms of 2011, the road suffered severe damage just south of the West Revetment extension and next to Bldg PM-812. Despite installation of concrete k-rails and sand fencing, this section of road continues to experience flooding and temporary closures after significant storm events. Extension of the West Revetment and dune replenishment is designed, in part, to curtail this repeated damage to a stretch of road critical to the safe transport of ordnance on the base. To repair the existing damage, the Navy will reconstruct a 300-foot-long section of Beach Road adjacent to Bldg PM-812 and repave the balance of the road (Exhibit 8).
- Dune Replenishment. A sand dune complex extends downcoast from near the proposed West Revetment extension site. There is sufficient flat beach on the seaward side of the dunes allowing for California least tern and western snowy plover nesting. The proposed project would partially restore and nourish sand dunes in the gap between the end of the West Revetment extension and the terminus of the existing dunes, using excavated materials or other beach-quality sand. The restored dune will reduce the risk of waves overtopping the dunes and causing additional damage to Beach Road. Revegetation of the dunes with native dune plants would be done to further protect the dunes from erosion (Exhibits 7 and 8).
- Dune Recontouring: East Ormond Beach is located at the northwestern end of the base and Holiday Beach is located down-coast from West Revetment. Non-native plant species have artificially stabilized the foredunes at these beaches resulting in accretion of sand and increasing size of the foredunes. The result is a reduction of sand movement into the backdunes and loss of open sand sheet habitat preferred by Western snowy plovers and California least terns. Dune recontouring would be performed at a 1:1 ratio (habitat loss to habitat restored) to offset the potential loss of nesting habitat for plovers and terns due to the extension of the West Revetment. Dune recontouring would occur at East Ormond and/or Holiday Beaches with East Ormond Beach the Navy's preferred location (Exhibit 9).
- Building/Equipment Relocation. Building PM-812 was constructed in 1963 and is located behind the West Revetment along Beach Road (Exhibits 6 and 7). The building contains airfield lighting control equipment critical to flight operations. The equipment is built into the structure itself and has significant electronic infrastructure connecting to it. The building has experienced damage from flooding due storm events and the continually deteriorating revetment (Exhibit 8). The Navy attempted to protect Bldg PM-812 from additional flooding by building a short retaining wall around the beach side of the building to deflect incoming waves and water. The location of the wall was limited due to the proximity of the building to Beach Road and Mugu Lagoon; the wall has not been entirely successful in protecting the building. As a result, the Navy will relocate the airfield lighting control equipment to a site further from the shoreline and demolish Bldg. PM-812. The Navy expects the relocation to

occur within five years and has committed to submit the final relocation plan to the Commission for federal consistency review.

The Navy anticipates completing the proposed dune recontouring, the West Revetment repairs and expansion, and the repairs to Beach Road prior to the start of the bird nesting season in March 2016, but that schedule is dependent on winter weather conditions. If this work is not completed over the next two months, work will resume in the fall along with the Central Revetment repairs and sand dune replenishment.

B. OTHER AGENCY APPROVALS

U.S. Army Corps of Engineers (USACE)

The USACE will review an application from the Navy for a federal Clean Water Act Section 404 Permit.

Los Angeles Regional Water Quality Control Board (LARWQCB)

The LARWQCB will review an application from the Navy for a Clean Water Act Section 401 Water Quality Certification.

U.S. Fish and Wildlife Service (USFWS)

Consultation was completed between the USFWS and the Navy under the provisions of the Programmatic Biological Opinion (8-8-15-F-5R) for ongoing operations at Naval Base Ventura County, Point Mugu, Ventura County.

California State Historic Preservation Officer (SHPO)

Consultation between the SHPO and the Navy will occur under the provisions of Section 106 of the National Historic Preservation Act, potentially in accordance with the new Section 106 Programmatic Agreement recently signed by the SHPO and the Navy for activities at Naval Base Ventura County.

C. SHORELINE PROTECTION

Coastal Act Section 30235 states:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

Background

The *Environmental Assessment* for the proposed project provides information on the process that led to the Navy's proposed project:

A Shoreline Protection Study Report was prepared to assess the short- and longterm vulnerabilities of mission-critical and ecological assets and to develop a strategy to reduce or eliminate those vulnerabilities (U.S. Department of the Navy 2012a). The strategies were formalized into a Shoreline Protection Plan, which outlines specific, pre-design recommendations for stabilizing the NBVC Point Mugu shoreline (U.S. Department of the Navy 2012b). The Study Report concluded that the Central Revetment and the West Revetment are failing to protect mission-critical assets located along the shoreline, including buildings PM-750, PM-758, PM-767, PM-761, PM-7020, and PM-6-31 located behind the Central Revetment (Figure 1-3); and Runway 03-21, Building PM-812, and Beach Road located behind the West Revetment (Figure 1-4). The Shoreline Protection Plan recommends repairing and expanding the width and height of the revetments, extending the West Revetment down-coast to protect Building PM-812 and Beach Road, and restoring sand to the adjacent dunes at the down-coast end of the West Revetment.

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The NBVC Point Mugu coastline recession is a result of a sand imbalance in which more sand is lost from beaches than supplied to them. The revetments do not cure this imbalance; they only fix the upper portion of the beach and shore face profile. Consequently, the loss of sand, coastal erosion and damage to the revetments from winter storms has left NBVC assets and natural resources at risk. Repair and extension of these revetments will protect vulnerable assets vital to the mission of NBVC Point Mugu.

The consistency determination refers to this report and provides additional details on the history of erosion at and the efforts to control adverse impacts at Point Mugu:

NBVC Point Mugu is situated along a very dynamic stretch of coastline known as the "Modern" Malibu littoral cell which spans from Port Hueneme to Marina del Rev and is vulnerable to significant coastal erosion caused by a reduction in sand supply. Coastline recession is a result of a sand imbalance in which more sand is lost from beaches than supplied to them. In 1939, after construction of Port Hueneme Harbor, the longshore sediment transport system, which naturally supplied sand to NBVC Point Mugu, was interrupted. The Hueneme jetties effectively diverted all sediment supply headed down-coast towards Point Mugu into an impoundment of sand near the Port Hueneme jetty and into Hueneme Submarine Canyon. The Channel Islands Harbor, located up-coast from Port Hueneme, was then constructed in 1961 not only to create a new small craft harbor, but also to create a sand trap as part of a sand-bypassing program to restore sediment transport to down-coast beaches on an annual to biennial basis since 1963. The sand-bypassing program dredges sediment within the sand trap and places it on Hueneme beach to enhance that particular beach as well as to provide a sacrificial sand supply for down-coast beaches. Unfortunately, due to lack of adequate funding in recent years, the Army Corps of Engineers has not been able to sustain the historic levels of sand supply from the by-pass program.

The Shoreline Protection Study also identified reductions in sediment supply due to damning of rivers causing additional coastline recession.

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To further complicate the longshore sediment transport situation along NBVC Point Mugu, the Mugu Submarine Canyon acts as a large sand sink. Net longshore littoral transport of sands within the cell is predominantly down-coast, from the Santa Clara River to Point Mugu, terminating at the Mugu Submarine Canyon, where approximately 1,000,000 cubic yards of sediment is lost into the canyon per year. Mugu Canyon functions as an ideal sand trap because the headwall is wide and its rim is shallow. Along the 2,200 ft long Family Beach, which is located on the eastern end of Central Revetment, the headwall [the most landward extension of the eroding canyon] is within tens of feet of the MSL shoreline. The canyon headwall is located along a concave section of coastline that promotes seaward sediment transport. Although this geologic feature does not necessarily affect NBVC Point Mugu's shoreline sand erosion or retention rates, it does inhibit sand transport further south of the installation and within the coastal zone.

In response to rapid shoreline retreat after construction of Port Hueneme and Channel Islands harbors and jetties, several shoreline protection structures were installed at NBVC Point Mugu in the late 1960s to protect critical assets that were either coastal dependent or nearly impossible to move (such as Runway 3-21). These structures consisted of a field of three groins (western, central and eastern) and four revetments (West, Central, East, and Rifle Range Revetments) in order from north to south along the coast. The groins were constructed in 1967 to protect the mission-critical ordnance storage buildings located on the back beach just west of Runway 3-21 (**Exhibits 2 and 11**). The groins were designed to stabilize the beach up-coast and in front of the ordnance buildings. The beach areas retained by the groin field also provide nesting and foraging habitat for the western snowy plover. According to the *Shoreline Protection Study Report*, the shoreline retreat rate on the down-coast side of the groins has been large and is the typical shoreline response to this type of protection.

The 2,600-foot-long West Revetment was constructed in 1967 to counteract the erosion effects down-coast of the groin field and to provide critical protection for Runway 3-21 and Beach Road (**Exhibit 6**). The Navy states that this runway is:

... critically important to the mission of NBVC Point Mugu as a premier weapons systems testing and research installation adjacent to the Sea Range and cannot easily be moved, relocated or abandoned. The runways not only serve the Navy's interests but are also used by California National Guard, U.S. Air Force, North American Treaty Organization partners and U.S. Coast Guard aviation units. The infrastructure to support the runway, such as lighting equipment including Bldg PM-812, must remain adjacent to the runway as much of the equipment has prescribed parameters for its location, i.e., must be within a certain distance and/or angle from the runway. The West Revetment crest elevation was increased to 16 feet above mean lower low water (MLLW) in 1983 and to 18 feet MLLW in 1999. However, topographic data indicates that the current revetment height has become lower. In 2010 the Navy constructed an emergency 100-foot-long extension to the eastern end of the revetment to protect the intersection of Beach Road and South M Avenue, the primary explosive safety transportation route on the base (**Exhibit 11**). The revetment now ends immediately upcoast of Building PM-812, which, as noted above, contains airfield lighting control equipment critical to flight operations at the base. Despite construction of a retaining wall around the ocean side of the building, flooding during storm events exacerbated by the deteriorating revetment continues to damage this mission-critical building.

The consistency determination next addresses the critical function of Beach Road (**Exhibits 6** and 11):

Beach Road runs parallel to the coastline along the entire length of NBVC Point *Mugu and is considered a mission-critical transportation pathway, providing* primary access to the ordnance storage facilities located east of the groin field. Beach Road functions as a crucial explosive safety transport route for ordnance, which may be susceptible to electromagnetic interferences, because it is a relatively unencumbered road through less populated areas of the installation. Beach Road provides an explosive safety buffer that cannot be achieved via other existing roads through more developed parts of the installation. Keeping Beach Road accessible at all times is critically important to maintain operational readiness. The portion of Beach Road located east or behind West Revetment and about 300 ft down coast from the revetment runs very close to the coast while further down-coast the road starts to veer away from the coast. It is due to this lack of adequate beach and dune distance to the road that the revetment and the extension are needed. Repairs and extension to West Revetment as well as the dune replenishment at the east end of the extension are designed to further protect Beach Road from the effects of coastal flooding, storm surge, and sea level rise.

In addition, the Navy notes and the Commission agrees that construction of a new alternate roadway to convey ordnance across the base would be severely constrained by wetland habitat and Mugu Lagoon, and would require significant amounts of wetland and/or lagoon fill, making such an alternative infeasible as well as environmentally more damaging.

The 4,000-foot-long Central Revetment was constructed between 1966 and 1968 to protect mission-critical Buildings PM-761 and PM-7020 (Elevated Sea Range Labs for Electronic Emission Testing) from wave erosion and from erosion effects associated with the recession of the Mugu Submarine Canyon (**Exhibits 4 and 10**). The Navy states that these large buildings are critical to operations at NBVC Point Mugu, cannot be easily relocated, and require protection from wave attack and flooding. The crest of the initial revetment ranged in height from 12 to 22 feet above MLLW and was raised to a consistent 22 feet in 1983. This revetment required numerous emergency repairs between 1983 and 1998. Strong storms in 2014 resulted in minor flooding and damages to adjacent infrastructure and buildings from waves overtopping the revetment.

The consistency determination also states that the long-term stability of the Central Revetment is dependent upon the Mugu Submarine Canyon headwall retreat rate (**Exhibit 3**):

The rim of the canyon [headwall] is within 100 feet of the revetment at its east end, and may intercept the revetment in the next 50-100 years, assuming an average headwall retreat rate of 1-2 feet/year. The close proximity of the retreating canyon headwall to the Central Revetment has increased the sand capture ratio of the canyon and reduced the sediment supply to down-coast beaches. The sand deposited in the submarine canyon helps protect the soft material that make up the canyon walls and slows the head wall erosion which extends the life of operational use at Bldgs 761 and 7020. Future headwall retreat could also have significant impacts to wetland habitat in Mugu Lagoon. Repairs and enhancement to Central Revetment would not affect down-coast beaches in the coastal zone since Mugu Submarine Canyon is already starving those beaches. Repairing Central Revetment will limit shoreline recession immediately in front of the revetment. **The Navy understands the long term threat to these buildings and is evaluating longer term strategies to maintain operationally critical functions they house including managed retreat [emphasis added].**

The Commission notes that in addition to threatening Bldgs. PM-761 and PM-7020, future headwall retreat could also have significant impacts on wetland habitat in Mugu Lagoon (**Exhibit 2**). Should the headwall retreat across the narrow sandy spit between the Central and East revetments and breach the lagoon, a new tidal flow regime between the lagoon and the ocean could expose and release contaminated sediments at the bottom of the lagoon into the water column, with potentially significant adverse effects on water quality and marine habitat and resources. The Navy would prefer that the lagoon not be breached in this manner and views the presence of the Central Revetment as key to protecting the natural resources of Mugu Lagoon. The Navy states that it is currently and will continue to monitor the NBVC Point Mugu shoreline and Mugu Submarine Canyon headwall retreat on a regular basis as part of its efforts to protect shoreline structures and natural resources on the base and to plan for sea level rise adaptation.

The consistency determination also addresses the potential effects of sea level rise on shoreline protective structures and existing facilities they are designed to protect at NBVC Point Mugu:

The [Shoreline Protection] study recommended a plan to regularly monitor the condition of existing shoreline protective devices and the risk level to assets and infrastructure. The study provided analysis of potential effects from sea level rise using several different models including the State of California's sea level rise ranges, derived from published work by the National Research Council. The State uses a range of 2-12 inches by 2030, 5-24 inches by 2050 and 17-66 inches by 2100. (CCC Sea Level Rise Policy Guidance 2015). The policy guidance and the study recommend managed retreat as a strategic response to sea level rise. Although managed retreat is a multiphase, long-term adaptive strategy, NBVC Point Mugu has been actively implementing this strategy for years recognizing its

unique, complicated coastal location with erosion forces not necessarily within its control.

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Although shore hardening (in the form of repairs to West and Central *Revetments*) continues to be a practical approach to protecting assets at NBVC *Point Mugu, other strategies have been incorporated into the project planning:* managed retreat, adaptation, and beach nourishment. First, as mentioned above, managed retreat has been in practice, where feasible, along the NBVC Point Mugu coastline since the late 1960s, when shoreline recession created a need for emergency protection of mission-critical infrastructure. For example, NBVC removed a large portion of the East Revetment, abandonment of the North Rifle Range and relocation of target area as well as some landward buildings. It has also taken significant steps to demolish facilities located along the coastline that are not critical or unique to operations, including but not limited to: Theodolite towers, radar towers, sailor support facilities (Club and Laundry facility), jet engine and prop test stands, laboratory buildings, antenna shop and yard, and campground sites near beach erosion. Managed retreat is also the purpose for the proposed relocation of PM-812. Second, an adaptation strategy is implemented by incorporating sea level rise estimates into the engineering plans for expanding the height and width of the revetments and for the siting and building height design of new proposed facilities. Finally, beach nourishment strategy is implemented with the dune replenishment at the east end of West Revetment extension and dune recontouring up-coast and down-coast of West Revetment.

NBVC Point Mugu also participates in the Nature Conservancy's "Coastal Resilience Ventura Project," a multi-agency effort to provide coastal managers and planners with information to reduce vulnerability to the impacts of climate change, including sea level rise impacts. In response to an inquiry from Commission staff regarding how the Navy's proposed project fits into this effort, the Navy stated that:

NBVC Point Mugu's shoreline protection project elements are consistent with The Nature Conservancy (TNC's) Coastal Resilience project. Point Mugu's projects are designed to address urgent, short-term protection of mission-critical coastal dependent infrastructure as well as to provide for long term adaptation and resilience to sea level rise, to restore and enhance coastal dunes and to provide for planned managed retreat of infrastructure to the greatest extent possible given the limited developable acreage left on the installation. In support of those goals and to complement TNC's project, Point Mugu's wetland management plan protects, restores when possible, and enhances over 2,000 acres of wetlands over which the Navy has stewardship and ownership.

As for the Navy's participation with TNC, the Navy requested that its shoreline be included in the dataset for development of TNC's coastal resilience model. As you may know, this model provides scientific information to predict vulnerabilities to assets and infrastructure associated with sea level rise. The Navy plans to use

vulnerability information derived from the model to focus its long term managed retreat strategy and address those goals in the base master plan. In addition, TNC has a coastal restoration project underway at Ormond Beach which is located adjacent to NBVC Point Mugu's western boundary. The project is considered the largest coastal wetland-restoration project in Southern California. The goal is to link together and restore as much of the historic 1,100 acres of wetlands which have the potential to protect many endangered species from water-level rise and other dangers of climate change. (Note, while this is indeed a valuable and worthwhile project, it is smaller acreage than those included in Point Mugu's wetland management plan.) The Navy is seeking to support the TNC project through its Readiness and Environmental Protection Integration (REPI) program.

Consistency with Section 30235 Shoreline Protection Policy

The Commission must determine if the project is permitted under Section 30235 of the Coastal Act, and if so, whether the other applicable requirements of that section have been satisfied. The proposed revetment repairs and extension are not designed to protect a public beach, as the Point Mugu shoreline is not publicly accessible due to military security needs. The Commission must then determine whether the revetment repairs and extension are required to protect a coastal-dependent facility or an existing structure. As the above findings demonstrate, the proposed revetment repairs and extension meet this test because they are needed both to protect existing structures and coastal dependent uses. During its reviews of previous repairs and modifications to the West and Central revetments by the Navy (CD-090-98 and CD-91-95), the Commission determined that these two revetments were needed to protect several vital military facilities located along the beach area of NBVC Point Mugu. In addition, the Commission noted that some of these facilities qualified as coastal dependent uses because they needed to be located along the shoreline in order to function. The Central Revetment continues to protect mission-critical Buildings PM-761 and PM-7020 (designated Elevated Sea Range Labs for Electronic Emission Testing; Exhibit 10). The West Revetment continues to protect existing explosive storage facilities, the primary runway (3-21) on the base, missioncritical Beach Road, and Building PM-812 (which provides airfield lighting control equipment; Exhibit 6). The proposed extension to the West Revetment would further protect Beach Road and Building PM-812 (Exhibit 7). Therefore, the Commission finds that the proposed revetment repairs and extension are permitted under Section 30235.

The second test of Section 30235 is whether the project has been designed to eliminate or mitigate any adverse impacts on local shoreline sand supply. Historically, littoral sand transport along this section of shoreline begins with river transport of sand from the Santa Clara and Ventura Rivers and Calleguas Creek, to and along the coast (**Exhibit 1**). Two offshore submarine canyons, as well as several harbor entrances, interrupt sand transport downcoast. Most of the sand that is transported as far downcoast as NBVC Point Mugu enters the Mugu Submarine Canyon, although until recently some sand passed by the canyon to downcoast beaches. Construction of the Port Hueneme jetties upcoast of Point Mugu in 1938-1940 reduced the extent of sand reaching Point Mugu and caused sand to be transported to the Hueneme offshore canyon, which is upcoast of the Mugu Submarine Canyon. Although ongoing harbor dredging and beach replenishment replaces some of the sand lost to the system, shoreline erosion continues at Point Mugu, and the offshore advancement of the Mugu

Submarine Canyon towards shore is likely to accelerate that erosion. Previous Commission concurrences with revetment repairs at NBVC Point Mugu documented that shoreline erosion at the base is a very significant problem. The Navy has clearly demonstrated in the subject consistency determination that erosion continues to threaten facilities, infrastructure, and shoreline protection revetments at the base. The Commission finds that the proposed repairs to the West and Central revetments, which include decreasing the seaward-facing slope of the structures, have been designed to minimize the potential for exacerbating ongoing shoreline erosion at NBVC Point Mugu.

The proposed 125-foot-long extension to the east end of the 2,600-foot-long West Revetment would provide additional needed protection to Beach Road and Building PM-812 (**Exhibit 7**). The proposed extension represents a five percent increase in the length of the existing revetment. In addition, approximately 25 percent (1.5 miles) of the six-mile-long shoreline at NBVC Point Mugu is currently protected with rock revetments. The proposed extension represents a 1.6 percent increase in the total length of revetments along the Point Mugu shoreline. The consistency determination states that the proposed 125-foot-long extension:

... would change the beach profile from a relatively flat, unvegetated, sandy area to an area similar to up-coast areas with a revetment. Beach erosion on the seaward side of the revetment extension is expected to be consistent with up-coast beach areas immediately seaward of the revetment. Replenishing the dune downcoast of the extension would act as a sacrificial sand source to help reduce localized dune losses and beach erosion. Extending the existing sand fencing would help to stabilize the replenished dune. Any sand excavated to extend the West Revetment could also be used to build up the adjacent dune. The erosion "hot spot" caused by end-effect scour at the down-coast end of the revetment would be moved down-coast to the end of the extension and farther from Bldg PM-812, thus providing protection to that mission-critical building. The change in angle of the beach and revetment in this section, combined with improved engineering of the revetment itself is also expected to diminish end-effect scour. The replenished dune down-coast of the revetment extension would further protect Beach Road from the effects of flooding, and sand eroded from the dune or blown off the dune may benefit down-coast beaches by adding to sand transported downcoast in the longshore current.

Inherent in the determination of whether a shoreline protective device is "necessary" to protect an existing structure is the consideration of alternatives, such as those that would not involve armoring. In this location, not authorizing the expanded armoring would pose threats to existing structures that cannot, at this time, feasibly be relocated. The Commission agrees with the Navy that: (1) for the reasons discussed above, allowing Beach Road to be damaged by wave action would threaten mission-critical defense capabilities; and (2) there are currently no feasible less damaging alternatives available for relocating Beach Road in a manner maintaining needed defense capabilities, given the presence of Mugu Lagoon and wetland habitat which severely restrict where, if anywhere, new roads could be constructed on the base, and given the public safety requirements that severely constrain where ordnance can be transported on the base (**Exhibit s 2 and 11**). In addition, Building PM-812 (and its airfield electronic equipment) currently requires enhanced protection from wave attack and flooding until this facility is relocated away from the shoreline within the next five years.

However, even if and when Building PM-812 is relocated, the need to protect Beach Road in the near term for military security remains paramount. At the same time, and as described above, the Navy recognizes that onshore and offshore littoral and topographic processes, combined with predicted sea level rise, will, in the short term, pose risks to existing facilities that cannot feasibly be remediated by shoreline armoring. The Navy has already implemented some managed retreat options on the base, and will need to consider, if not accelerate, future planning efforts involving considerations of facility relocation/managed retreat. The Commission nevertheless finds that, for the short term, the existing shoreline protection is inadequate to protect structures in danger of erosion, that the proposed revetment extension and dune restoration are designed to protect both this facility and the stretch of Beach Road at this location, and that the proposed revetment repairs are similar to past West and Central revetment repair projects at NBVC Point Mugu concurred with by the Commission. The proposed revetment extension represents a minor increase in the amount of shoreline armoring at the base. The slight change to the beach topography by extending the West Revetment would not significantly alter littoral transport of beach sand along the coastline or create significant adverse effects on the longshore current. The Commission agrees with the Navy that the proposed repairs to the West and Central revetments, and the extension to the West Revetment, have been designed to minimize the potential for increased shoreline erosion and minimize potential adverse effects on shoreline sand supply. Therefore, the Commission concludes that the project is consistent with the shoreline structure policy (Section 30235) of the Coastal Act.

D. ENVIRONMENTALLY SENSITIVE HABITAT

Coastal Act Section 30240 states:

- (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
- (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

The Navy's consistency determination describes the natural habitats and protected species that are in or adjacent to the project area:

NBVC Point Mugu consists of a developed area, dominated by non-native vegetation, and a large salt marsh estuary and beach that supports a variety of native plants and wildlife, including special status species. The project area is primarily located along the south to southwest facing beach encompassing developed areas, and the degraded beach and coastal dune system extending to the end of West Revetment. Special status bird species that may occur within the project area include: light-footed Ridgway's rail, California least tern, and western snowy plover, all listed on the Federal Endangered Species list. Other birds with a special status are: Belding's savannah sparrow (state endangered list) and California brown pelican (delisted by federal and state as endangered but still designated as Fully Protected Species in CA). The only marine mammals with the potential to occur at the project sites are California sea lions, harbor seals, and Northern elephant seals because of their tendency to haul out on the beaches on base.

The Navy reports that it manages and protects the coastal beaches at Point Mugu under its *Integrated Natural Resource Management Plan*:

The Navy ensures there is adequate nesting and wintering habitat for western snowy plovers and nesting habitat California least terns, as well as maintaining habitats for all other coastal plants and animals. This is accomplished by closing selected beaches, limiting disturbance on beaches, and restoring and maintaining beach habitats (invasive plant control).

Potential project impacts to federally listed species will be addressed using the *Programmatic Biological Opinion for Ongoing Operations at Naval Base Ventura County, Point Mugu, Ventura County, California (8-8-15-F-5R; September 2015).* The Navy recently completed consultation with the U.S. Fish and Wildlife Service for the proposed project and states that:

The listed bird species may be disturbed by noise and visual stimuli during the project construction activity. Individuals would be expected to move away from the project area and therefore would not be exposed to noise levels that would cause hearing damage or loss or suffer risk of injury due to equipment strikes. However the visual and noise disturbances could cause disruption of foraging behaviors and nest loss as a result of abandonment or increased predation. The impacts would be avoided by the implementation of Environmental Protective Measures required within the PBO such as scheduling construction to avoid nesting periods and if construction cannot be avoided during these times, a qualified biologist would conduct weekly surveys for the presence of active nests. If active nests are found within 300 feet, construction would be postponed until nesting is complete and no evidence of new nesting activity.

The Navy reports that the proposed project requires no in-water construction activity but that temporary effects from construction hold the potential to affect coastal waters. The consistency determination states that:

Potential affects to the intertidal zone from the proposed projects result from construction vehicles transporting and installing armor stone at the revetments and replenishing the sand dune down-coast of the West Revetment since this activity will be within the zone. The construction activity would likely loosen and introduce additional sandy sediments into the water column of intertidal and nearshore waters. Additional suspended sediments would result in an increase in turbidity, reducing water quality and potentially affecting biological resources

that may be present in the nearshore waters. Although the increases in turbidity may occur, any impacts would be localized and temporary, lasting only as long as the equipment and materials are being used on site. After construction activity is complete, sedimentation and turbidity levels would quickly return to preconstruction levels as less turbid, up-coast waters are transported into the local intertidal zone. Sediments entrained in the water column would be transported down-coast and deposited on beaches or be transported offshore as part of the natural longshore transport within the littoral cell. The seaward face of the revetments would be constructed or repaired to establish a 2:1 (horizontal to vertical) slope, which is similar to existing conditions at the intact sections of the revetments. Stone, sand, and other materials (e.g., filter cloth) used to repair and expand the West and Central Revetments would be free from chemical contaminants that have the potential to impact water quality in nearshore waters. A hazardous materials plan would be prepared that outlines procedures for the use and clean-up of hazardous materials (e.g., fuel) should an accidental spill occur.

The proposed repairs to the West and Central revetments will not occur within, or create any permanent impacts to any adjacent, environmentally sensitive habitat areas. The area of the proposed 125-foot-long extension at the eastern end of the West Revetment is a narrow stretch of degraded beach which the Navy reports is not used by the Western snowy plover or California least tern (**Exhibit 7**). The 35-foot-wide stretch of dry beach between the high tide line and Beach Road does not provide suitable nesting or breeding habitat. Nevertheless, the proposed restoration of open beach nesting habitat at East Ormand Beach at the northwest end of the base or at Holiday Beach downcoast of the West Revetment will more than compensate for the loss of the 0.18 acres of sandy beach at the West Revetment extension site (**Exhibit 9**):

Non-native plant species have artificially stabilized the foredunes on East Ormand and Holiday beaches resulting in accretion of sand and increasing the size of the foredunes but resulting in a reduction of sand movement into the backdunes and loss of open sand sheet habitat, preferred by the birds. Recontouring would be performed with a bulldozer in order to restore sand movement to the backdune areas and would be accomplished over approximately 3 days.

Regarding potential project impacts to marine mammals, the consistency determination states that:

Impacts to marine mammals are limited to airborne noise from construction activities and temporary loss of haul-out habitat on sandy beaches seaward of the revetments and temporarily adjacent to the revetments when construction equipment is present. The pinnipeds are not known to use the beaches for pupping. Harbor seals are the most abundant of three pinnepeds at NBVC Point Mugu but they prefer the more protected Mugu Lagoon over the coastal beach habitat which is directly exposed to waves and wind from the Pacific Ocean. The other two pinnepeds prefer the coastal beaches however they are less abundant than the seals. Temporary loss of haul-out habitat in the project area would occur but once construction is complete, there would be no appreciable net loss of haulout habitat. In the meantime, the majority of beaches along the NBVC Point Mugu shoreline would remain undisturbed and available to the marine mammals. If a behavioral response to construction noise were to occur, the effect on the animal would be temporary and minimal with no long-term effect to the individual or the population of marine mammal.

The project *Environmental Assessment* also includes a discussion of the environmental protection measures that are incorporated into the proposed revetment work, road repairs, and dune restoration and recontouring. These measures include a storm water pollution prevention plan; an erosion control plan with best management practices; an integrated pest management plan to prevent the introduction and movement of weedy species in the project area; and a restoration plan to ensure all disturbed areas are restored to pre-construction conditions or better. While the construction schedule for the proposed project is not final, the Navy intends to undertake portions of the work this winter prior to the start of the bird nesting season and finish the balance of the project in the fall. This timing will avoid the potential for any project-related impacts to sensitive habitat and listed species.

In conclusion, the Commission agrees with the Navy that the proposed project avoids environmentally sensitive habitat areas, construction impacts would be temporary and minor, degraded beach habitat lost due to the extension of the West Revetment would be fully mitigated by restoration of open sandy beach habitat elsewhere on the base, and that the project includes the necessary measures to avoid adverse impacts to sensitive habitat and resources. Therefore, the Commission concludes that with these measures the project is consistent with the environmentally sensitive habitat policy (Section 30240) of the Coastal Act.

E. PUBLIC ACCESS AND RECREATION

Coastal Act Section 30210 states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas form overuse.

Coastal Act Section 30211 states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Coastal Act Section 30212 states in part:

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is

inconsistent with public safety, military security needs, or the protection of fragile coastal resources

Sections 30210-30212 of the Coastal Act provide for maximization of public access and recreational opportunities, with certain exceptions for, among other things, military security needs and public safety. In reviewing Defense Department consistency determinations for activities on bases that are off limits to the general public for military security reasons, the Commission typically attempts to substantiate claims of military security access restrictions, as well as analyze whether proposed projects generate burdens on public access. Naval Base Ventura County Point Mugu is a "secure military area" and access to the base is restricted to authorized personnel. The Navy states in its consistency determination that:

There is no public access to the project sites and no public recreation opportunities located within the project sites. DoD [Department of Defense] personnel access to the beaches on the seaward side of the revetments is often limited or closed for safety and mission requirements associated with the airfield, weapons movements, and missile launches or closed to conserve sensitive habitat areas for federally protected species.

As described in Section C of this report, the presence of the Mugu Submarine Canyon immediately offshore of the project area effectively captures nearly all sand which moves downcoast as a result of longshore currents in this area. The repairs to the existing West and Central revetments, and the minor extension at the eastern end of the West Revetment, would not alter shoreline processes or local shoreline sand supply beyond the boundaries of the base greater than that which has occurred as a result of the existing revetments. The Commission has historically determined that projects at this base that do not generate access burdens do not entail the need for public access provisions, given the Navy's legitimate, high-security classified defense-related activities throughout most areas of this base. Thus, as the Commission found in previous repairs to the western, central, and eastern revetments (CD-090-98 and CD-091-95), the proposed project would not affect public beaches up- or down-coast of the base, would not generate burdens on public access and recreation, and is therefore consistent with the public access and recreation policies (Sections 30210-30212) of the Coastal Act.

APPENDIX A

SUBSTANTIVE FILE DOCUMENTS

- 1. CD-0001-16 (Navy), Repairs and Enhancement of Shoreline Protection Structures, Road Repair, and Coastal Dune Restoration, Naval Base Ventura County Point Mugu.
- 2. CD-090-98 (Navy), Repairs and Modifications to Western and Central Seawalls, Naval Air Weapons Station Point Mugu, Ventura County.
- 3. CD-091-95 (Navy), Repairs to Central and Eastern Seawalls and Removal of a Portion of the Eastern Seawall, Naval Air Weapons Station Point Mugu, Ventura County.
- 4. Environmental Assessment for Shoreline Protection Repair and Enhancements, Naval Base Ventura County, Department of the Navy, October 2015.
- 5. Final Shoreline Protection Plan, Naval Base Ventura County Point Mugu, Brady G2 and Moffatt & Nichol, November 28, 2012.
- 6. Final Shoreline Protection Study Report, Naval Base Ventura County Point Mugu, Brady G2 and Moffatt & Nichol, August 3, 2012.
- Programmatic Biological Opinion for Ongoing Operations at Naval Base Ventura County, Point Mugu, Ventura County, CA (8-8-15-F-5R), U.S. Fish and Wildlife Service, September 25, 2015.
- 8. Nature Conservancy Coastal Resiliency Ventura Project, www.coastalresilience.org/project-areas/ventura-county-introduction
- 9. Integrated Natural Resource Management Plan, Naval Base Ventura County Point Mugu, Department of the Navy, December 2013.
- 10. Sea Level Rise Policy Guidance, California Coastal Commission, August 12, 2015.



FIGURE 2-1. VICINITY MAP NBVC POINT MUGU

Exhibit 1

CD-0001-16



November 2012



Exhibit 2 CD-0001-16

August 2012

(Derived from: NOAA 2009)

FIGURE 2-4. MUGU SUBMARINE CANYON



Exhibit 3 CD-0001-16



Figure 1-3: Mission-Critical infrastructure at NBVC Point Mugu Protected by the Central Revetment

Exhibit 4 CD-0001-16





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Figure 1-4: Mission-Critical Infrastructure of NBVC Point Mugu Protected by the West Revetment



Figure 8 - West Revetment Extension & Dune Replenishment

> Exhibit 7 CD-0001-16

ENCLOSURE (1)







Exhibit 8 CD-0001-16

ENCLOSURE (1)



Figure 11 – Dune Recontouring Sites

Exhibit 9 CD-0001-16

ENCLOSURE (1)



FIGURE 5-1. CENTRAL REVETMENT PLAN







Exhibit 10 CD-0001-16





Exhibit 11 CD-0001-16

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