



PUBLIC NOTICE

**U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT**

BUILDING STRONG®

**APPLICATION FOR PERMIT
Broad Beach Project**

Public Notice/Application No.: SPL-2011-00333-BLR

Project: Broad Beach Project

Comment Period: September 11 through October 11, 2014

Project Manager: Bonnie Rogers; 213-452-3372; Bonnie.L.Rogers@usace.army.mil

Applicant and Contact

Mark Goss

Broad Beach Geologic Hazard Abatement District

c/o Elkins Kalt et al. LLP

2049 Century Park East, Suite 2700

Los Angeles, California, 90067

Location

Trancas Beach and Pacific Ocean within the city of Malibu, Los Angeles County, California (approximately 34.034331, -118.861833 to 34.028948, -118.842992).

Activity

The Broad Beach Geologic Hazard Abatement District (BBGHAD) is proposing permanent placement of a rock revetment shoreline protection device (2.6 acres), beach nourishment (37.4 acres), and dune restoration (8 acres) to protect approximately 124 private property parcels and augment beach and dune resources located along Trancas Beach. The existing 4,170 linear foot (approximately 2.6 acre) temporary rock revetment, originally installed in 2010 under an emergency permit authorization (SPL-2009-00979) and amended version, is proposed for permanent placement. Approximately 600,000 cubic yards of imported suitable sand material would be placed on the beach within the intertidal and subtidal zones to create a wider beach approximately 45.4 acres (6,000 feet by 300 feet) which would impact approximately 40 acres waters of the United States (WOUS). The beach target widths of 90 – 230 feet would match beach widths present in the 1970s. As sand fill material naturally moves offshore or seaward from the sand placement area and alongshore, approximately 50 additional acres of WOUS could be impacted immediately and/or over time. Sand fill material would be placed over, landward and seaward of the rock revetment to bury it completely, and native dune vegetation would be planted on top of the revetment crest to restore the dune system. Beach sand would be redistributed likely from downcoast to upcoast, on an as-needed basis, but no more than once per year, to maintain beach widths. Approximately 10 years later an additional 450,000 cubic yards of sand fill material would be imported again to maintain beach widths (see attached figures and tables). For more information see page 3 of this notice.

Interested parties are hereby notified that an application has been received for a Department of the Army permit for the activity described herein and shown on the attached drawing(s). We invite you to review today's public notice and provide views on the proposed work. By providing substantive, site-specific comments to the Corps Regulatory Division, you provide information that support the Corps' decision-making process. All comments received during the comment period become part of the record and will be considered in the decision. This permit will be issued, issued with special conditions, or denied under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Comments should be mailed to:

LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
ATTN: SPL-2011-00333
915 WILSHIRE BLVD. STE 930
LOS ANGELES, CALIFORNIA 90017

Alternatively, comments may be sent electronically to: Bonnie.L.Rogers@usace.army.mil. Please include in the Subject Line: **"Broad Beach Public Notice, SPL-2011-00333."**

The mission of the U.S. Army Corps of Engineers Regulatory Program is to protect the Nation's aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions. The Corps evaluates permit applications for essentially all construction activities that occur in the Nation's waters, including wetlands. The Regulatory Program in the Los Angeles District is executed to protect aquatic resources by developing and implementing short- and long-term initiatives to improve regulatory products, processes, program transparency, and customer feedback considering current staffing levels and historical funding trends.

Corps permits are necessary for any work, including construction and dredging, in the Nation's navigable water and their tributary waters. The Corps balances the reasonably foreseeable benefits and detriments of proposed projects, and makes permit decisions that recognize the essential values of the Nation's aquatic ecosystems to the general public, as well as the property rights of private citizens who want to use their land. The Corps strives to make its permit decisions in a timely manner that minimizes impacts to the regulated public.

During the permit process, the Corps considers the views of other Federal, state and local agencies, interest groups, and the general public. The results of this careful public interest review are fair and equitable decisions that allow reasonable use of private property, infrastructure development, and growth of the economy, while offsetting the authorized impacts to the waters of the United States (WOUS). The permit review process serves to first avoid and then minimize adverse effects of projects on aquatic resources to the maximum practicable extent. Any remaining unavoidable adverse impacts to the aquatic environment are offset by compensatory mitigation requirements, which may include restoration, enhancement, establishment, and/or preservation of aquatic ecosystem system functions and services.

Evaluation Factors

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which

reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof. Factors that will be considered include conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people. In addition, if the proposal would discharge dredged or fill material, the evaluation of the activity will include application of the EPA Guidelines (40 CFR Part 230) as required by Section 404 (b)(1) of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Preliminary Review of Selected Factors

EIS Determination- A determination whether an environmental impact statement is required for the proposed work has not yet been made.

Water Quality- The applicant is required to obtain water quality certification, under Section 401 of the Clean Water Act, from the California Regional Water Quality Control Board. Section 401 requires that any applicant for an individual Section 404 permit provide proof of water quality certification to the Corps of Engineers prior to permit issuance.

Coastal Zone Management- The proposed activity is required to comply with and be conducted in a manner that is consistent with the approved State Coastal Zone Management Program. For those projects in or affecting the coastal zone, the Federal Coastal Zone Management Act requires that prior to issuing the Corps authorization for the project, the applicant must obtain concurrence from the California Coastal Commission that the project is consistent with the State's Coastal Zone Management Plan. The District Engineer hereby requests the California Coastal Commission's concurrence or non-concurrence.

Essential Fish Habitat- The Corps of Engineers determination indicates the proposed activity may adversely affect EFH. Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Los Angeles District will request initiation of EFH consultation for the proposed project with the National Marine Fisheries Service separately. In order to comply with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), pursuant to 50 CFR 600.920(e)(3), an expanded EFH Assessment is required. Preliminary information regarding impacts to EFH are found below:

1. Description of the proposed action: see project description on page 6 of this public notice.
2. On site inspection information: see baseline information on page 6 of this public notice.
3. Analysis of the potential adverse effects on EFH:

A marine resources survey was conducted in 2012 by Chambers Group and, upon request by the Corps, a supplemental survey was conducted in May 2014 that included a side-scan sonar survey to delineate subtidal habitats (see attachments **Figure 3**: Benthic Habitat Map for Broad Beach Survey Area and **Figure 2**: Bathymetry for Broad Beach Survey Area May 2014). In June 2014, a dive survey was also conducted to characterize the dominant fauna and flora within identified habitats (see **Figure 9**: Transects sampled for subtidal community study, **Table 1**: Habitat types delineated within Broad Beach Survey Area). Using a SWATH survey method macroinvertebrates and algae were identified and counted along transects and observed fishes were noted (see attachments: **Table 3**: Algae observed within Broad Beach Habitat Types; **Table 4**: Invertebrates observed within Broad Beach Habitat Types; **Table 5**: Fishes observed within Broad Beach Habitat Types; **Table 6 & 7**: Substrate characteristics within Broad Beach Survey Area and Percent cover of select species within Broad Beach Survey Area; **Table 8**: Abundance of select species within Broad Beach Survey Area). The proposed project includes both permanent and temporary impacts, consisting of both direct and indirect impacts, to EFH from the placement of imported sand fill material. Placement and movement of the sand immediately and over time would result in varying degrees of direct and indirect burial of marine habitat and organisms including but not limited to soft-bottom substrate, hard rocky reef substrate, surfgrass, kelp, tidepools, sandy beach and a range of marine species. Adverse effects to EFH and its associated organisms would include direct conversion of certain habitat types and mortality of organisms, delayed direct mortality, and reduced fitness of organisms, including ability to survive and reproduce. Permanent placement of the rock revetment and placement of up to 600,000 cubic yards of quarry sand fill would impact sandy beach habitat resulting in loss of infauna organisms that comprise the sandy beach ecosystem, loss of these organisms as prey for birds and other species, and periodic disturbance of potential spawning habitat for grunion fish species and other organisms. The revetment would be buried by sand unless uncovered by natural forces, which could occur between major renourishment efforts. For the area of the Project where the revetment is present (seaward of 78 of the 124 parcels), the permanent placement of the rock revetment would result in a habitat type conversion from sandy beach to hard rock substrate, provide a substrate that promotes settlement of an altered suite of organisms, alter the hydrologic conditions along the beach, and alter sedimentation and accretion patterns. Burial of the existing sandy beach would impact organisms and may result in permanent impacts because future proposed activities including 'back-passing' of sand, and importation of up to 450,000 cubic yards of beach sand approximately 10 years later would result in continued disturbance of sandy beach habitat. Such activities would likely reduce the fitness of infaunal organisms and opportunities for reestablishment of a natural community composition. The proposed imported sand material from one or multiple inland quarries would consist of grain sizes similar to, but larger than, the on-site profile. Therefore, the new sand fill could result in a change in the sandy beach ecological microclimate. Offshore and alongshore loss of sand material over time could also result in further downcoast impacts to EFH and marine resources.

The proposed placement of sand fill material would result in direct burial of intertidal and subtidal Special Aquatic Sites (SAS), specifically vegetated shallows (40 CFR 230.43) and a marine

refuge (40 CFR 230.40). Vegetated shallows, defined as submerged aquatic vegetation, includes on-site surfgrass (*Phyllospadix torreyi*) and kelps, including at least giant kelp (*Macrocystis pyrifera*), winged kelp (*Pterygophora californica*), chainbladder kelp (*Cystoseira osmundacea*), and split blade kelp (*Laminaria setchellii*). An approximately 7-acre eelgrass bed is located offshore outside the estimated impact area and could be impacted by offshore movement of sand and/or increased water turbidity from frequent suspension of sediment. The proposed impact site lies entirely within a marine refuge, the Point Dume State Marine Conservation Area (SMCA) designated in 2012 and could result in substantial adverse impacts to the refuge and its resources.

4. Proposed minimization, conservation, or mitigation measures: The proposed project has designed the placement footprint of sand fill material to avoid the direct placement of sand onto rocky reef substrates and intertidal tidepools to the maximum extent practicable, particularly at the West End of the beach. However, direct and indirect placement onto these substrate types would still occur. The BBGHAD asserts that the creation of a new public beach and a restored dune system compensates for impacts to WOUS; however, the BBGHAD would consider additional compensatory mitigation and/or impact avoidance and minimization measures depending on input received during the NEPA process.

5. Conclusions regarding effects of the proposed project on EFH: Based on the project description and EFH information provided to-date by the applicant, the proposed project could result in disturbance of approximately a maximum of approximately 90 acres of marine resources. The direct sand placement footprint area would directly impact approximately 7 acres of complex habitat, comprised of 1 acre sandy beach, 2 acres rocky reef habitat (primarily unvegetated), and 1 acre surfgrass habitat, of which there is overlap of some habitat portions, as well as approximately 36 acres of sandy bottom habitat. Indirect impacts outside the direct placement footprint as a result of sand dispersion could cause approximately 50 acres of additional impacts to WOUS which includes hard and soft substratum. Indirect impacts were based on a model and are subject to change. Some of these indirect impacts may be relatively long-term in duration as a result of sand burial lasting up to 2 and 3 years later or more. The affected resource substrates consist of soft-bottom substrate, hard rocky reef substrate, surfgrass beds, kelp beds, sandy subtidal, tidepools ("rocky outcrops"), and sandy beach, including Special Aquatic Sites (SAS) (vegetated shallows and a refuge) with potential impacts to eelgrass. The project may adversely affect federally managed fisheries including the Pacific Groundfish Fishery Management Plan, the Highly Migratory Species Fishery Management Plan, and the Coastal Pelagic Species Fishery Management Plan by way of abiotic and biotic effects via disturbance.

Therefore, it is my initial determination that the proposed activity would adversely affect and may have a substantial adverse impact on EFH (50 CFR 600.920(a)(3)) and federally managed fisheries in California waters and will require consultation with NOAA Fisheries under the Magnuson-Stevens Act. My final determination relative to project impacts and the need for compensatory mitigation measures is subject to review by, and coordination with, NOAA Fisheries. Consultation with NOAA Fisheries will be initiated separately by the Corps.

Cultural Resources- The latest version of the National Register of Historic Places has been consulted and the project site is not listed. Consultation with culturally affiliated Native American tribes

is required to determine if the proposed project may have an adverse impact on cultural resources. Letters will be sent to tribes to seek information regarding any resources that could be affected.

Endangered Species- Preliminary determinations indicate the proposed activity may affect federally-listed endangered or threatened species, and their critical habitat. Therefore, consultation under Section 7 of the Endangered Species Act will be required for potential impacts to the threatened western snowy plover (*Charadrius alexandrinus nivosus*) individuals and their critical habitat (**Figure 3: Western Snowy Plover Critical Habitat**). Although habitat exists for endangered black abalone (*Haliotis cracherodii*) and endangered white abalone (*Haliotis serreseni*) within the project footprint, neither species were detected in focused surveys (see **Figure 1: Focused abalone area surveyed**).

Public Hearing- Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearing shall state with particularity the reasons for holding a public hearing.

Proposed Activity for Which a Permit is Required

Basic Project Purpose- The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the applicant's project is water dependent (i.e., requires access or proximity to or siting within the Special Aquatic Site to fulfill its basic purpose). Establishment of the basic project purpose is necessary only when the proposed activity would discharge dredged or fill material into a special aquatic site (e.g., wetlands, pool and riffle complex, mudflats, coral reefs, refuges) and applies here. The basic project purpose for the proposed project is shoreline protection. The project is water dependent because the current site conditions require that any shoreline protection at Trancas Beach be located in proximity to the existing special aquatic sites.

Overall Project Purpose- The overall project purpose serves as the basis for the Corps' 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The overall project purpose for the proposed project is to implement shoreline protection along Trancas Beach.

Applicant's Proposed Project Benefits- The BBGHAD seeks to complete a 100% privately funded beach and dune restoration of 1.1 miles of Broad Beach. The BBGHAD proposes the project to restore public beach resources, restore an eroded dune system, create new beach habitat, nourish downcoast beaches, and provide shoreline protection for existing structures.

Additional Project Information

Baseline information-

The project area is located in Malibu along Trancas Beach bounded by Lechuza Point upcoast and Trancas Creek mouth downcoast, extends into the Pacific Ocean, and lies within the Point Dume State Marine Conservation Area (established in 2012) (see attachment **ITEM 2A – MAP 1: Predicted Impact Areas with Waters of the US and State Marine Conservation Areas**). In addition to waters of the United States (WOUS), on-site aquatic resources within, and in the vicinity of, the project area

includes Special Aquatic Sites (SAS) (vegetated shallows and a marine refuge), intertidal and subtidal habitats including tidepools (“rocky outcrops”), rocky reef, subtidal sandy habitat, surfgrass, seagrasses (eelgrass), kelp forests, kelp beds, Essential Fish Habitat (EFH), and habitat and resources supporting species managed under Federal Fisheries Management Plans.

The project area extends along 124 consecutive parcels of which 114 are homes. Eleven of the properties with homes are susceptible to wave uprush property damage. At the west end of the beach where wave uprush can be most intense, 21 homes and two vacant parcels are protected by natural bluffs, timber bulkheads, concrete seawalls, rock revetments or are constructed on pilings. On the west end some homes are tied into the nearby sewer system. Other western homes have two septic leach fields at risk and eight homes at risk; on the central portion there are seven leach fields at risk and three homes at risk. On the east end there are five leach fields at risk of being damaged by oceanic processes. Storms in 2010 resulted in erosion and property damage which led to installation of shoreline protection devices. In addition, a storm in March 2014 caused additional property damage within the project area. Over the last century, the beach was its widest during the 1970’s (see attachment **Figure 6-4: Historic Shoreline Positions – 1960s/1970s**). Since the 1970’s, Trancas Beach coastline has experienced substantial and rapid erosion that has resulted in loss of sandy beach area and damage to residential homes built along the beach and cliffs causing property damage and losses. Currently, Trancas Beach is submerged at high tide, while at low tide approximately 10-20 feet of beach can be traversed. Severe weather regimes including those occurring during El Nino years have led to the installation of geotextile sand bags, riprap rock, and seawall structures both authorized and unauthorized. In 2009, the Trancas Property Owners Association was issued a Corps emergency permit (SPL-2009-00979) to install a 4,170 foot (approximately 21,300 cubic yard) temporary rip-rap rock revetment resulting in permanent impacts to approximately 2.2 acre WOUS. The rock revetment is currently in place and the applicant, the BBGHAD, has applied for authorization for it to remain permanently along the shore.

Project description-

The proposed activity involves permanent authorization of the existing emergency rock revetment installed in 2010 and importation of 600,000 cubic yards of beach compatible sand material by truck from inland quarry(s), to restore the beach and dunes, and protect property. The proposed activities would widen the beach and increase public beach area, entirely bury the rock revetment with sand, and plant native dune vegetation landward of, and on top of the buried rock revetment.

The staging area for construction access, equipment and sand would be located at the Los Angeles County Parking Lot 12 and proposed stockpiling of imported sand material would be staged seaward of the parking lot on the beach. Heavy equipment would transport sand material from Parking Lot No. 12, along the beach in front of Trancas Creek, and along Trancas Beach to each of the fill areas, but the applicant would not cross Trancas Creek in the event that it breaches to the ocean in a rain event(s).

Approximately 100,000 cubic yards of sand material would be used to bury the existing rock revetment. Approximately 500,000 cubic yards of sand material would be used to widen the sandy beach area (see attachment **Figure 1: Beach Re-nourishment Sheet Layout Plan**). Activities would be conducted over a 6-8 month time period. The project’s direct fill footprint using 600,000 cubic yards of trucked in beach sand material is approximately 45.4 acres. Approximately 40 acres, of the total 45.4 acres of the direct project footprint area would fall within WOUS (see attachment **Item 5A – MAP 1: Proposed Project USACE Section 10 + 404 Limits**), specifically the Pacific Ocean. Dimensions of fill

within the Section 404 Clean Water Act jurisdiction are approximately 6,000 linear feet by an average width of 265 feet extending from +7.3 feet MLLW to between 0 and -3 feet MLLW seaward and from 5 to 15 feet landward of the rock revetment. A numerical model was used to estimate sediment movement rates and patterns based on sediment loss rates over the years. Additional temporary and permanent indirect impacts would occur as a result of sand fill material placement within WOUS moving offshore and/or downcoast outside the immediate footprint placement area and onto surrounding areas. The activities could result in approximately a maximum estimate of 90 acres impacts to WOUS (see attachment **Figure 3**: Direct and Indirect footprint area combined). The direct sand placement footprint area would directly impact approximately 7 acres of complex habitat comprised of 1 acres sandy beach, 2 acres rocky reef habitat (primarily unvegetated), and 1 acre surfgrass habitat, of which there is overlap of some habitat portions, as well as approximately 36 acres of sandy bottom habitat (see **Table 2** below). Sandy habitat (34 acres) within the direct placement footprint is labeled as a temporary impact because it would be covered by sand. Indirect impacts outside the direct placement footprint as a result of sand dispersion could cause approximately 50 acres of additional impacts to WOUS which includes hard and soft substratum (see **Table 3** below). Estimated indirect impacts were based on a model and are subject to change. Some of these indirect impacts may be relatively long-term in duration as a result of sand burial lasting up to 2 and 3 years later or more. Areas in the indirect impact area considered to be permanent are those predicted to be buried by 1 foot or more of sand for 1 year. However, the determination of permanent and temporary indirect impacts outside the direct sand placement footprint will be defined based on the predicted permanent impacts to aquatic resource habitats following varying anticipated and actual degrees of burial depths over time based on the best available science.

Table 2 – Estimated Direct Project Impacts

Habitat	Temporary	Permanent	Combined Temporary and Permanent Direct Impacts
	Area (acres)	Area (acres)	Area (acres)
Surf Grass ¹	0.00	0.96	0.96
Kelp (2014)	0.00	0.00	0.00
Kelp attached to bedrock ²	0.00	0.00	0.00
Eel Grass (May 2014)	0.00	0.00	0.00
Rocky Outcrops	0.00	0.02	0.02
Bedrock Intertidal	0.00	0.03	0.03
Bedrock Subtidal	0.00	0.00	0.00
Cobble/Rubble Intertidal	0.00	1.20	1.20
Cobble/Rubble Subtidal	0.00	0.06 ³	0.06
Boulder Field	0.00	0.71	0.71
Trancas Lagoon Mouth	0.00	0.00	0.00
Sandy Bottom Intertidal	20.50 ⁴	2.25*	22.75
Sandy Bottom Subtidal	13.50	0.00	13.50
Dunes	0.95	0.80	1.75
Sandy Beach	0.00	1.02	1.02
TOTALS	34.95	7.05	42.00
TOTAL DIRECT IMPACTS to WOUS (excludes dunes)	34.00	6.25	40.25

* Impact from rock revetment within WOUS.

1 Overlaps with Bedrock Intertidal

2 Overlaps with Kelp Canopy

3 Corrected typo acreage from 0.6 to 0.06 acres for cobble subtidal accounts for drop in permanent impacted acreage from 7.59 to 7.05

4 Sand on sand placement for sandy bottom, intertidal and subtidal, considered a temporary impact, regardless of depth of coverage. Rock revetment placement is a permanent impact.

Table 3 – Estimated Indirect Project Impacts

	Temporary	Permanent	Combined Temporary and Permanent Indirect Impacts
	Area (acres)	Area (acres)	Area (acres)
Surf Grass ⁵	0.00	0.96	0.96
Kelp (2014)	1.80	1.70	3.50
Kelp attached to bedrock ⁶	1.43	0.88	2.31
Eel Grass (May 2014)	0.00	0.00	0.00
Rocky Outcrops	0.00	0.00	0.00
Bedrock Intertidal	0.00	0.95	0.95
Bedrock Subtidal	0.08	0.08	0.16
Cobble/Rubble Intertidal	0.00	0.17	0.17
Cobble/Rubble Subtidal	0.27	2.54	2.81
Boulder Field	0.00	0.00	0.00
Trancas Lagoon Mouth	0.00	0.00	0.00
Sandy Bottom Intertidal ⁷	1.38	0.00	1.38
Sandy Bottom Subtidal	37.46	0.00	37.46
Dunes	0.00	0.00	0.00
Sandy Beach	0.00	0.00	0.00
TOTALS	42.42	7.28	49.70
TOTAL INDIRECT IMPACTS to WOUS (excludes dunes)	42.42	7.28	49.70

5

5 Overlaps with Bedrock Intertidal, includes observed surfgrass (0.45 acres) and extrapolated surfgrass (0.51 acres)

6 Overlaps with Kelp Canopy

7 Sand on sand placement for sandy bottom, intertidal and subtidal, considered a temporary impact, regardless of depth of coverage.

Back-passing is proposed to maximize project benefits by maintaining beach width from moving sand material from accreting sections of the beach and depositing it on eroding sections of the beach (likely from downcoast eastern end to the upcoast western end). A maximum of 50,000 cubic yards of sand would be moved annually in a single back-passing event. Specifically, back-passing would occur in accordance with objective triggers based on measured sediment loss rates and would occur no more than once per year. For example, for a back-passing event to relocate 35,000 cubic yards of sand, a depth cut of 4 feet would be anticipated in the take areas of Maintenance Reaches (MR) 408 and 409 and the average placement depth would be 3.7 feet onto Maintenance Reaches (MR) 411 and 412 (see attachment **Figure 12**: Proposed Backpass Scenario 2 for Removal of 35,000 cy from Combined MR 408 and MR 409 at East for Placement at MR 411 and MR 412 in West End).

In addition, the applicant proposes to import additional sand material to widen the beach again approximately 10 years later would involve placement of approximately 450,000 cubic yards of sand fill material.

The applicant has proposed project alternatives that include combinations of the following options: relocation and modification of the rock revetment more landward, maximum pullback of the revetment along at-risk leach fields, a decreased volume of sand beach fill material, no change to the existing rock revetment, relocation of an improved rock revetment, all in addition to sand beach fill material. Project alternatives would be analyzed to comply with NEPA and 404(b)(1) guidelines.

Proposed Mitigation– The proposed mitigation may change as a result of comments received in response to this public notice, the applicant's response to those comments, and/or the need for the project to comply with the 404(b)(1) Guidelines. In consideration of the above, the proposed mitigation sequence (avoidance/minimization/compensation), as applied to the proposed project is summarized below:

Avoidance: The proposed volume of 600,000 cubic yards of sand material is based on a coastal engineering analysis by the applicant that estimated net offshore rate of sand loss from years 1974 – 2009 and is considered the minimal quantity required to address the estimated annual rate of sand loss (35,000 – 50,000 cubic yards). 600,000 cubic yards is the estimated total that has been lost during that time period. The design footprint at the West End where the most high quality resources exist was reduced to minimize direct burial of surfgrass and lower rocky intertidal and subtidal habitats. The majority of the riprap rock revetment proposed for permanent placement was originally installed landward of the high tide to avoid impacts to WOUS.

Minimization: Project activities would be conducted primarily in fall and winter seasons to avoid the spring when many organisms are most biologically productive. Activities would also avoid grunion running season which generally begins in March and ends in mid to late August. The placement of material by truck over 6-8 months would result in slower placement of sand material and potentially reduce the severity of impacts. The sand material would be of courser grain than the native material that would potentially reduce its rate of dispersal offshore and its effect on water turbidity. All activities would be monitored by qualified biological monitors to prevent take of western snowy plovers. Trancas Creek would be surveyed and monitored to anticipate natural breaching patterns in order to avoid impacts. The applicant would identify any adaptive management needs for the project and submit a monitoring plan to determine impacts.

Compensation: The applicant believes the project would more than compensate for losses by creating a wider beach to serve the public, providing an estimated \$189 million in recreational benefits over 20 years, and create sandy beach area. The applicant has proposed planting native dune vegetation over the buried rock revetment and landward, primarily outside WOUS.

Proposed Special Conditions

None at this time.

For additional information please contact Bonnie Rogers of my staff at 213-452-3372 or via e-mail at Bonnie.L.Rogers@usace.army.mil . This public notice is issued by the Chief, Regulatory Division.



Regulatory Program Goals:

- To provide strong protection of the nation's aquatic environment, including wetlands.
- To ensure the Corps provides the regulated public with fair and reasonable decisions.
- To enhance the efficiency of the Corps' administration of its regulatory program.

LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS

915 WILSHIRE BLVD., STE 930
LOS ANGELES, CALIFORNIA 90017

WWW.SPL.USACE.ARMY.MIL/MISSIONS/REGULATORY

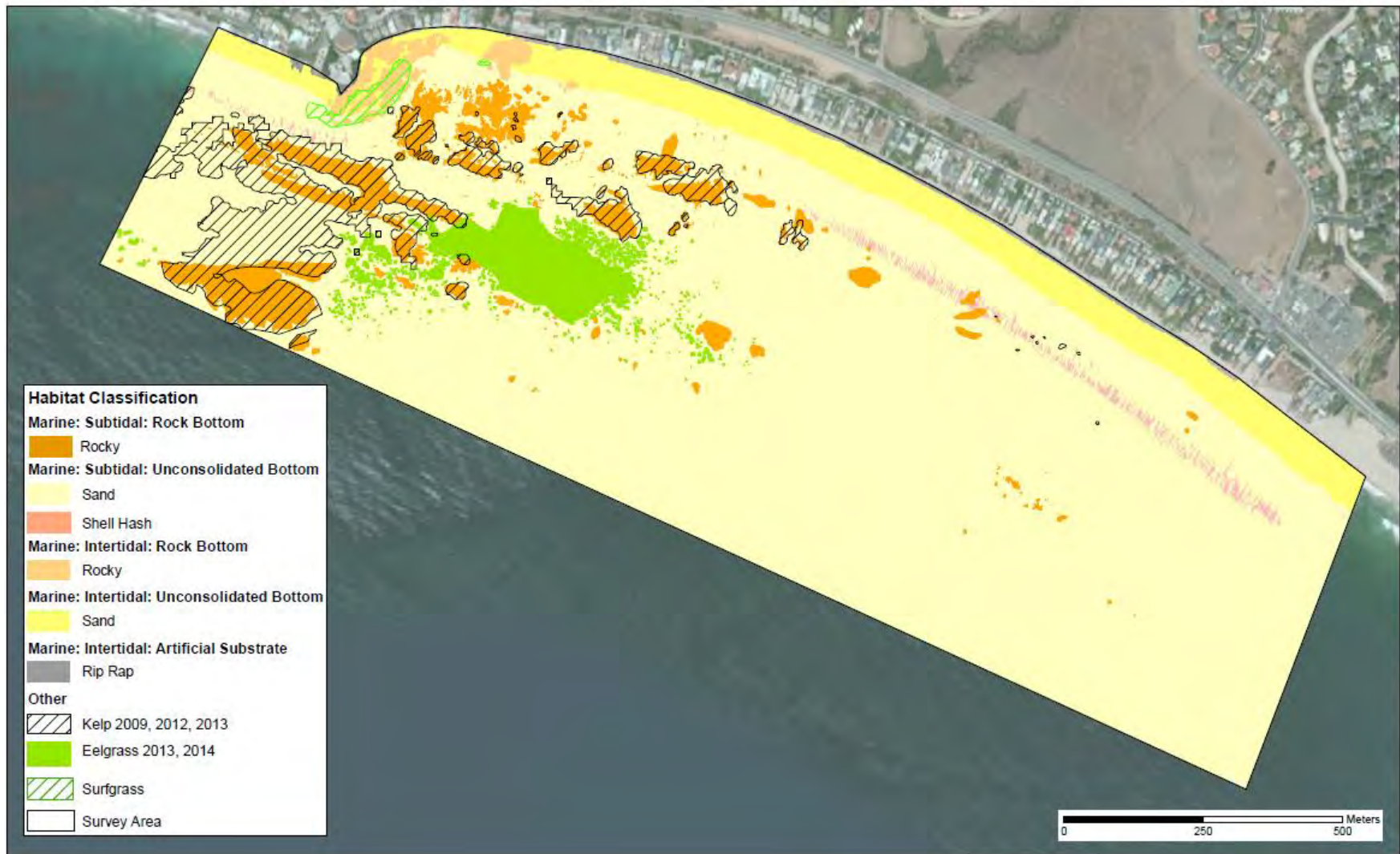


Figure 3. Benthic Habitat Map for Broad Beach Survey Area (Combined Data Sources).

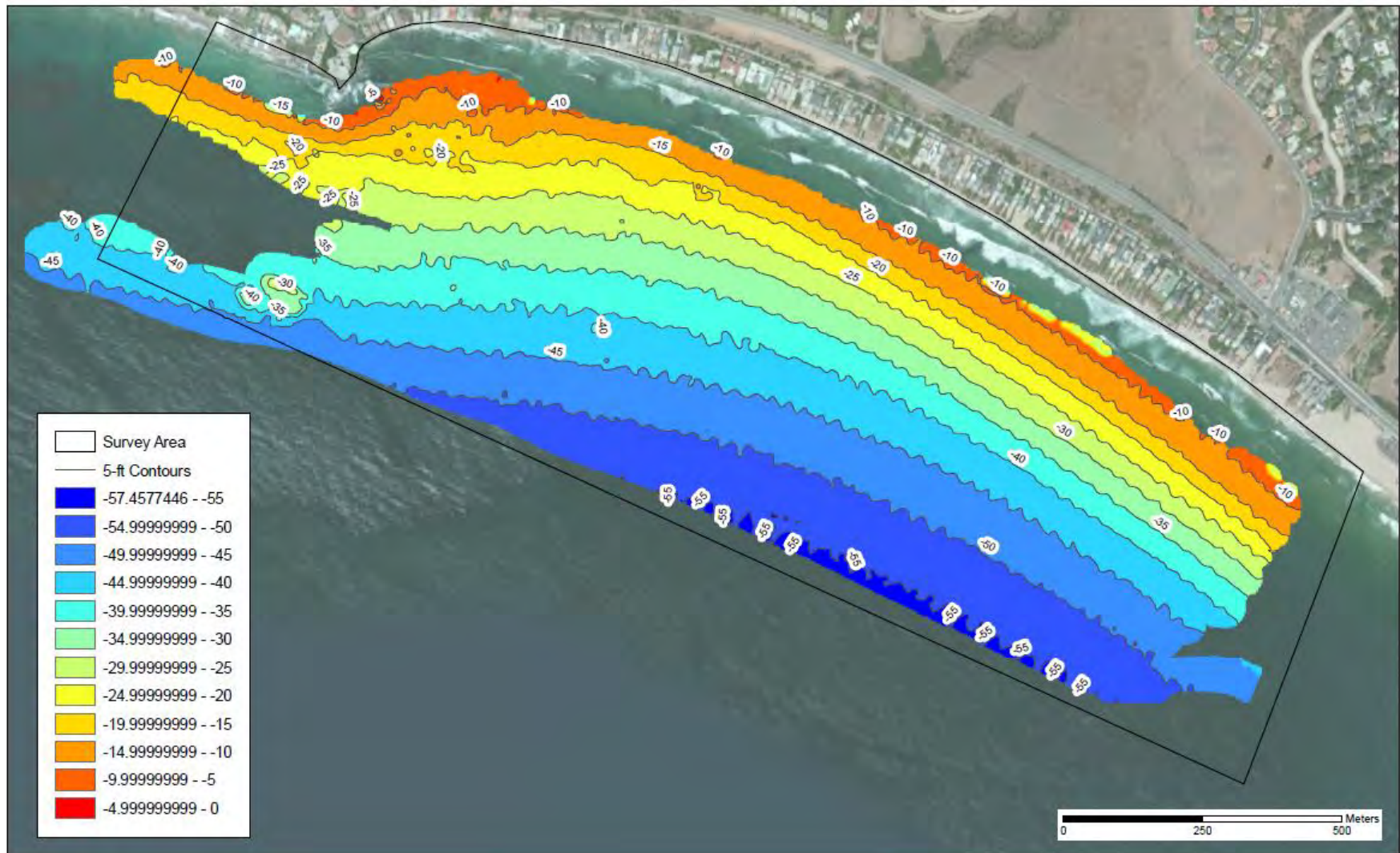


Figure 2. Bathymetry for Broad Beach Survey Area (May 2014).

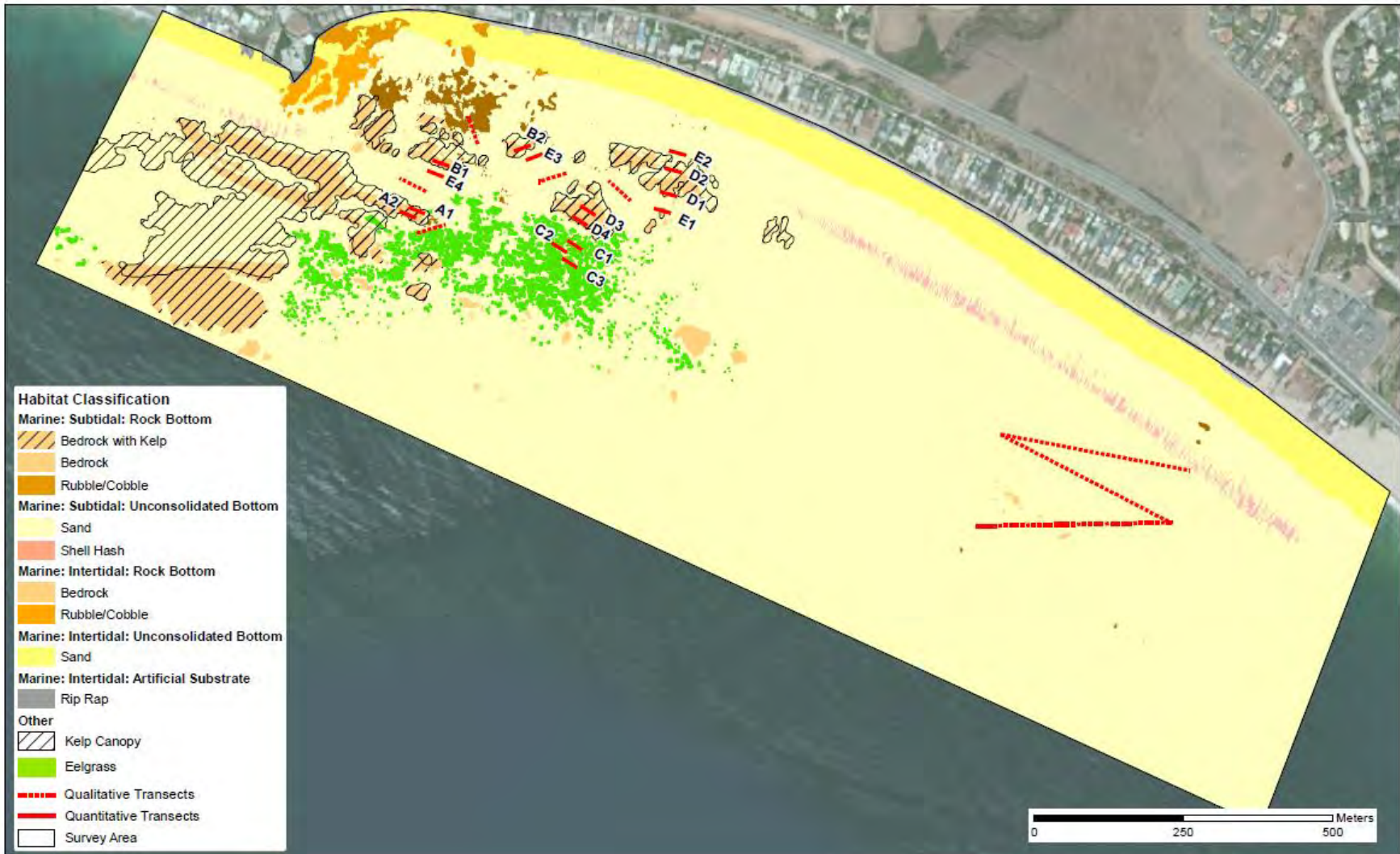


Figure 9. Transects sampled for subtidal community study.

Table 1. Habitat types delineated within Broad Beach Survey Area.

Habitat	Merkel & Associates 2014	All Spatial Data*
Intertidal	Acres	Acres
Bedrock, Marine: Intertidal: Rock Bottom	1.9	4.0
Rip Rap, Marine: Intertidal: Artificial Substrate	1.1	1.1
Rubble/Cobble, Marine: Intertidal: Rock Bottom	1.4	-
Sand, Marine: Intertidal: Unconsolidated Bottom	29.4	28.8
Surfgrass (Observed, Extrapolated)	-	1.0
Intertidal Total	33.8	34.9
Subtidal		
Bedrock with Kelp, Marine: Subtidal: Rock Bottom	15.1	-
Bedrock, Marine: Subtidal: Rock Bottom	2.0	22.5
Rubble/Cobble, Marine: Subtidal: Rock Bottom	3.1	-
Sand, Marine: Subtidal: Unconsolidated Bottom	311.8	309.7
Shell Hash, Marine: Subtidal: Unconsolidated Bottom	3.7	3.6
Surfgrass (Observed, Extrapolated)	-	1.0
Eelgrass	7.1	12.2
Subtidal Total	342.8	349.0
Kelp Canopy (based on aerial photography)	23.1	29.8

* includes data from M&A 2014, Chambers Group 2013a, Chambers Group 2013b.

Table 3. Algae observed within Broad Beach Habitat Types.

Common Name	Scientific Name	Reef	Sand	Eelgrass
Brown				
Chainbladder kelp	<i>Cystoseira osmundacea</i>	X		
Acid kelp	<i>Desmarestia ligulata</i> var. <i>ligulata</i>	X		
	<i>Dictyota</i> sp.	X		
Feather boa kelp	<i>Egregia menziesii</i>	X		
Split blade kelp	<i>Laminaria setchellii</i>	X		
Giant kelp	<i>Macrocystis pyrifera</i>	X		
Winged kelp	<i>Pterygophora californica</i>	X		
Red				
	<i>Botryoglossum farlowianum</i>	X		
	<i>Calliarthron</i> sp.	X		
	<i>Chondracanthus exasperatus</i>	X		
	<i>Lithophyllum</i> sp.	X		
	<i>Lithothamnion</i> sp.	X		
	<i>Plocamium cartilagineum</i>	X		
Green				
	<i>Ulva</i> sp.	X		
Plants				
Eelgrass	<i>Zostera pacifica</i>		X	X
Surfgrass	<i>Phyllospadix torreyi</i>	X		

Table 4. Invertebrates observed within Broad Beach Habitat Types.

Common Name	Scientific Name	Reef	Sand	Eelgrass
Mollusca				
Channeled basket whelk	<i>Nassarius fossatus</i>		X	X
Chestnut cowry	<i>Cypraea spadicea</i>	X		
Giant keyhole limpet	<i>Megathura crenulata</i>	X		
Kellett's whelk	<i>Kelletia kelletii</i>	X		
Olive shell	<i>Olivella biplicata</i>		X	
Rock scallop	<i>Crassadoma gigantea</i>	X		
Sea hare	<i>Aplysia californica</i>	X	X	X
Spanish shawl	<i>Flabellina iodinea</i>	X		
Annelida				
Feather duster worm	<i>Eudistylia polymorpha</i>	X		
Ornate tube worm	<i>Diopatra ornata</i>	X	X	X
Parchment worm	<i>Chaetopterus variopedatus</i>	X	X	
Sandcastle worm	<i>Phragmatopoma californica</i>	X	X	
Scaled wormsnaill	<i>Serpulorbis squamigerus</i>	X		
Echinodermata				
Bat star	<i>Asterina miniata</i>	X		
Purple urchin	<i>Strongylocentrotus purpuratus</i>	X		
Red urchin	<i>Strongylocentrotus franciscanus</i>	X		
Sanddollar	<i>Dendraster excentricus</i>		X	
Spiny sand star	<i>Astropecten armatus</i>		X	X
Warty sea cucumber	<i>Parastichopus parvimensis</i>	X		
Cnidaria				
California golden gorgonian	<i>Muricea californica</i>	X		
Cup coral	<i>Astrangia lajollaensis</i>	X		
Giant green anemone	<i>Anthopleura xanthogrammica</i>	X		
Orange cup coral	<i>Balanophyllia elegans</i>	X		
Sea pansy	<i>Renilla kollikeri</i>		X	
Sea pen	<i>Stylatula elongata</i>		X	
Strawberry anemone	<i>Corynactis californica</i>	X		
Arthropoda				
California spiny lobster	<i>Panulirus interruptus</i>	X		
Elbow crab	<i>Heterocrypta granulata</i>		X	
Globe crab	<i>Randallia ornata</i>		X	
Kelp crab	<i>Pugettia producta</i>	X		
Sheep crab	<i>Loxorhynchus grandis</i>	X	X	X
Slender crab	<i>Cancer gracilis</i>			X
Chordata				
Stalked tunicate	<i>Styela montereyensis</i>	X		
Ectoprocta				
Bryozoan	<i>Bugula neritina</i>	X		
Bryozoan	<i>Diaperoecia californica</i>	X		
Bryozoan	<i>Thalamoporella californica</i>	X		
Porifera				
Sponge	<i>Acarnus erithacus</i>	X		
Sponge	<i>Leucetta losangelensis</i>	X		

Table 5. Fishes observed within Broad Beach Habitat Types.

Common Name	Scientific Name	Reef	Sand	Eelgrass
Angel shark	<i>Squatina californica</i>		X	
Black croaker	<i>Cheilotrema saturnum</i>	X		
Black surfperch	<i>Embiotoca jacksoni</i>	X		
Blackeyed goby	<i>Rhinogobiops nicholsii</i>	X		
Blacksmith	<i>Chromis punctipinnis</i>	X		
Blue rockfish	<i>Sebastes mystinus</i>	X		
Cabezon	<i>Scorpaenichthys marmoratus</i>	X		
California halibut	<i>Paralichthys californicus</i>		X	
Calico rockfish	<i>Sebastes dalli</i>	X		
Fantail sole	<i>Xystreureys liolepis</i>		X	
Garibaldi	<i>Hypsypops rubicundus</i>	X		
Giant kelpfish	<i>Heterostichus rostratus</i>	X		
Gopher rockfish	<i>Sebastes carnatus</i>	X		
Grass rockfish	<i>Sebastes rastrelliger</i>	X		
Halfmoon	<i>Medialuna californiensis</i>	X		
Jacksmelt	<i>Atherinopsis californiensis</i>	X		
Kelp bass	<i>Paralabrax clathratus</i>	X		
Kelp rockfish	<i>Sebastes atrovirens</i>	X		
Kelp surfperch	<i>Brachyistius frenatus</i>	X		
Leopard shark	<i>Triakis semifasciata</i>		X	
Olive rockfish	<i>Sebastes serranoides</i>	X		
Opaleye	<i>Girella nigricans</i>	X		
Painted greenling	<i>Oxylebius pictus</i>	X		
Pile surfperch	<i>Rhacochilus vacca</i>	X		
Rainbow surfperch	<i>Hypsurus caryi</i>	X		
Round ray	<i>Urobatis halleri</i>		X	X
Rubberlip surfperch	<i>Rhacochilus toxotes</i>	X		
Senorita	<i>Oxyjulis californica</i>	X		X
Sheephead	<i>Semicossyphus pulcher</i>	X		
Speckled sanddab	<i>Citharichthys stigmaeus</i>		X	X
Swell shark	<i>Cephaloscyllium ventriosum</i>	X		
Walleye surfperch	<i>Hyperprosopon argenteum</i>	X		
White surfperch	<i>Phanerodon furcatus</i>	X		

Table 6. Substrate characteristics within Broad Beach Survey Area.

		Shallow Reef		Deep Reef		Sand		Eelgrass	
		Average	SE	Average	SE	Average	SE	Average	SE
Substrate (% cover)	Cobble	5.8	5.8	21.3	7.7	0.0	0.0	0.0	0.0
	Boulder	0.0	0.0	15.0	15.0	0.0	0.0	0.0	0.0
	Rock Reef	51.7	12.5	17.9	6.9	0.0	0.0	0.0	0.0
	Sand	42.5	15.4	45.8	11.7	100.0	0.0	100.0	0.0
Relief	Low-relief (<1m)	65.0	12.2	68.3	12.5	100.0	0.0	100.0	0.0
	High-relief (>1m)	35.0	12.2	31.7	12.5	0.0	0.0	0.0	0.0

SE – Standard Error

Table 7. Percent cover of select species within Broad Beach Survey Area.

Percent Cover		Shallow Reef		Deep Reef		Sand		Eelgrass	
		Average	SE	Average	SE	Average	SE	Average	SE
Acid kelp	<i>Desmarestia ligulata</i> var. <i>ligulata</i>	4.7	1.3	15.8	10.3	0.0	0.0	0.0	0.0
Feather boa kelp	<i>Egregia menziesii</i>	1.1	0.4	0.0	0.0	0.1	0.1	0.0	0.0
Surfgrass	<i>Phyllospadix torreyi</i>	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Eelgrass	<i>Zostera pacifica</i>	0.0	0.0	0.0	0.0	0.0	0.0	44.4	3.6
Eelgrass Density (0.0625 m²)		0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.3



SE – Standard Error

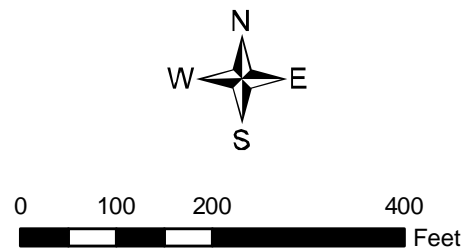
Table 8. Abundance of select species within Broad Beach Survey Area.

Count (per 20 m ²)		Shallow Reef		Deep Reef		Sand		Eelgrass	
		Average	SE	Average	SE	Average	SE	Average	SE
Giant kelp (> 1m)	<i>Macrocystis pyrifera</i>	1.9	0.6	3.2	1.6	0.0	0.0	0.0	0.0
Giant kelp (# stipes)	# stipes	11.2	2.3	16.4	3.7	0.0	0.0	0.0	0.0
Winged kelp	<i>Pterygophora californica</i>	4.8	3.0	5.1	3.7	0.0	0.0	0.0	0.0
Chainbladder kelp	<i>Cystoseira osmundacea</i>	5.8	1.5	2.6	1.7	0.0	0.0	0.0	0.0
Split blade kelp	<i>Laminaria setchellii</i>	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Sea hare	<i>Aplysia californica</i>	0.9	0.6	0.3	0.2	0.0	0.0	0.0	0.0
Bat star	<i>Asterina miniata</i>	0.1	0.1	4.7	2.2	0.0	0.0	0.0	0.0
Sand star	<i>Astropecten armatus</i>	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8
California halibut	<i>Paralichthys californicus</i>	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Rock scallop	<i>Crassadoma gigantea</i>	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Tube worm	<i>Diopatra ornata</i>	6.4	2.2	23.8	3.2	17.9	6.0	3.8	1.3
Elbow crab	<i>Heterocrypta granulata</i>	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Globe crab	<i>Randallia ornata</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
Kellett's whelk	<i>Kelletia kelletii</i>	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Sheep crab	<i>Loxorhynchus grandis</i>	0.6	0.3	0.0	0.0	0.1	0.1	0.0	0.0
Giant keyhole limpet	<i>Megathura crenulata</i>	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
California golden gorgonian	<i>Muricea californica</i>	1.3	1.3	13.6	8.0	0.0	0.0	0.0	0.0
Channeled basket whelk	<i>Nassarius fossatus</i>	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Warty sea cucumber	<i>Parastichopus parvimensis</i>	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
Red urchin	<i>Strongylocentrotus francisanus</i>	226.5	128.5	4.9	1.1	0.0	0.0	0.0	0.0
Purple urchin	<i>Strongylocentrotus purpuratus</i>	400.0	291.7	58.8	28.7	0.0	0.0	0.0	0.0
Speckled sanddab	<i>Citharichthys stigmaeus</i>	0.3	0.3	0.0	0.0	1.7	0.6	3.3	1.7
Stalked tunicate	<i>Styela montereyensis</i>	1.1	0.4	0.3	0.3	0.4	0.2	0.0	0.0

SE – Standard Error



- Legend**
-  Western Snowy Plover Critical Habitat
 -  Revetment Footprint



Western Snowy Plover Critical Habitat

Figure 3: Western Snowy Plover Critical Habitat.

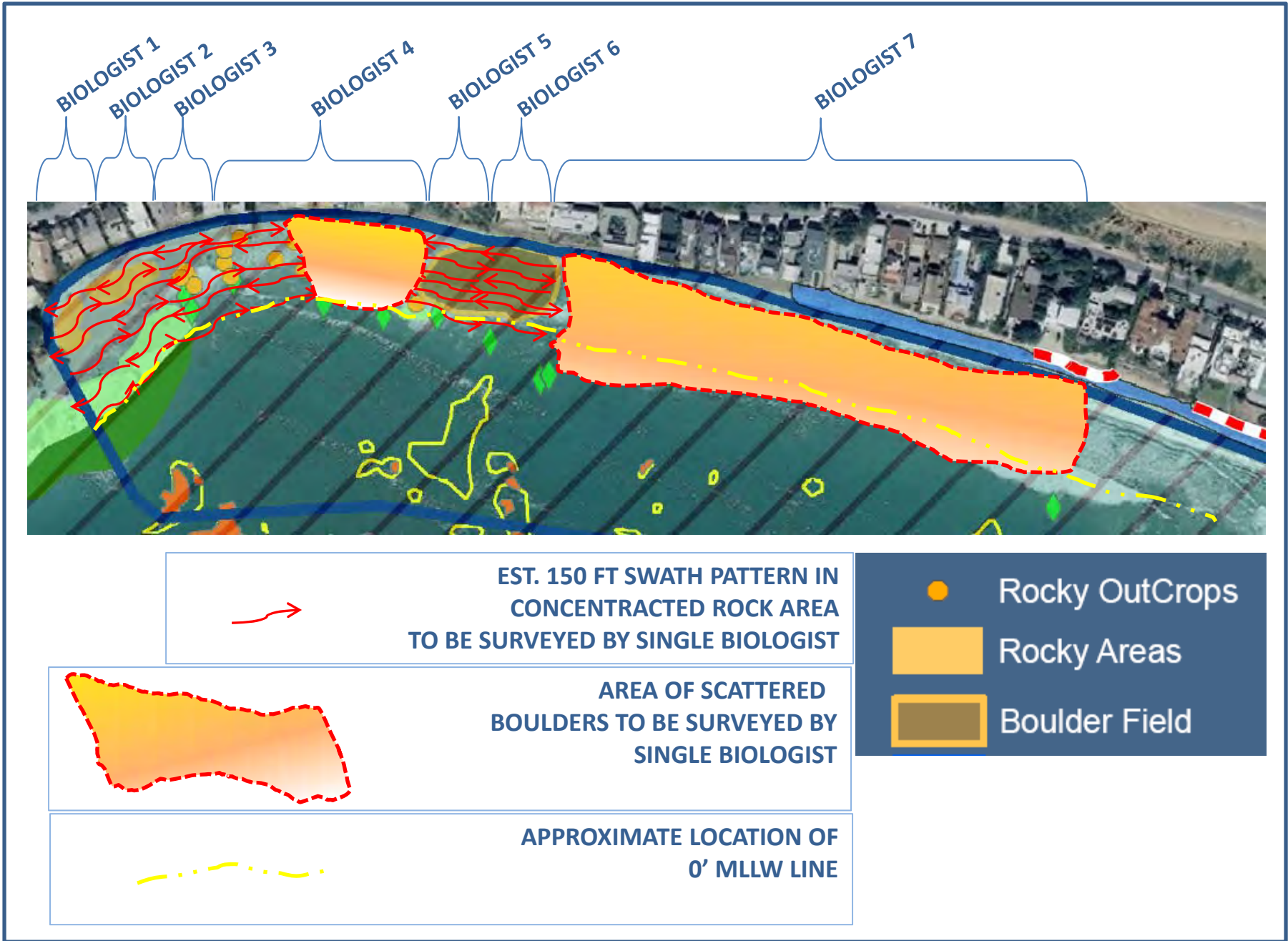
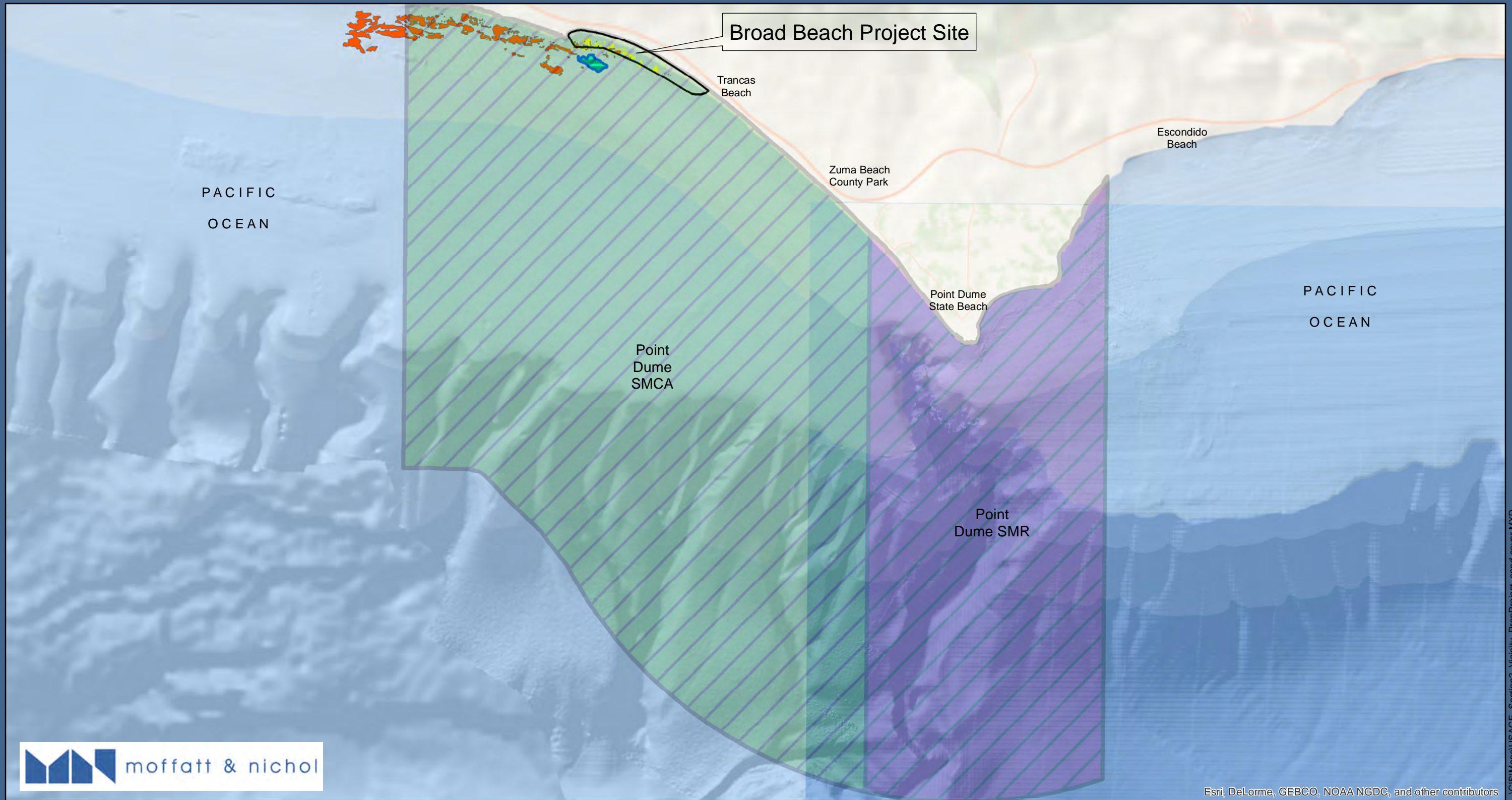
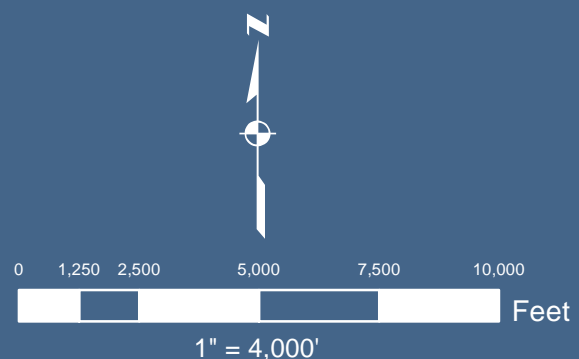


Figure 1: Focused abalone area surveyed.



- Legend**
-  Point Dume SMCA
 -  Point Dume SMR
 -  Project Area
 -  Eel Grass June 2013
 -  Kelp 2012
 -  Subtidal Reefs



USACE ITEM 2A - MAP 1

Broad Beach
Predicted Impact Areas with Waters of the US and
State Marine Conservation Areas

Date Prepared/Revised: May 16, 2014

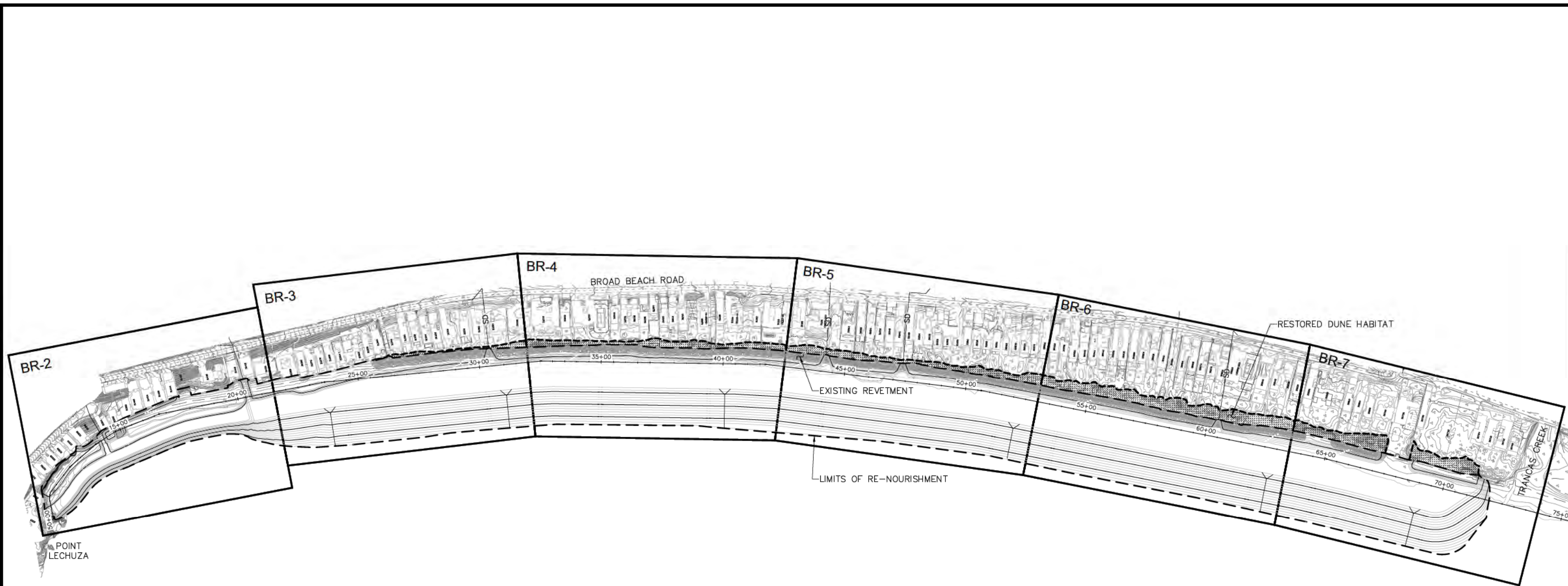
Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

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Aerial photograph taken on March 11, 2008 (LAR-IAC2)

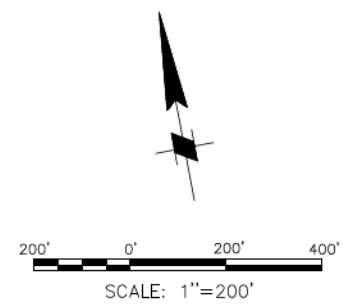
Figure 6-4. Historical Shoreline Positions – 1960s/1970s



SHEET LAYOUT PLAN
1"=200'

FINAL
100%
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 DRAWN BY: S. Salazar IN CHARGE: Russell Boudreau, P.E.

BROAD BEACH RESTORATION PROJECT
California State Lands Commission

BEACH RE-NOURISHMENT

Fig 1: SHEET LAYOUT PLAN

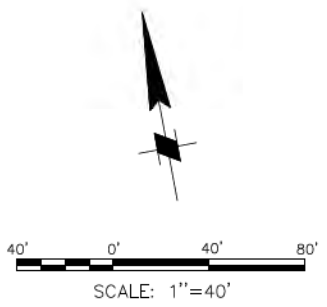
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JOB NO.	6935-02
SHEET	33 OF 42
BR-1	

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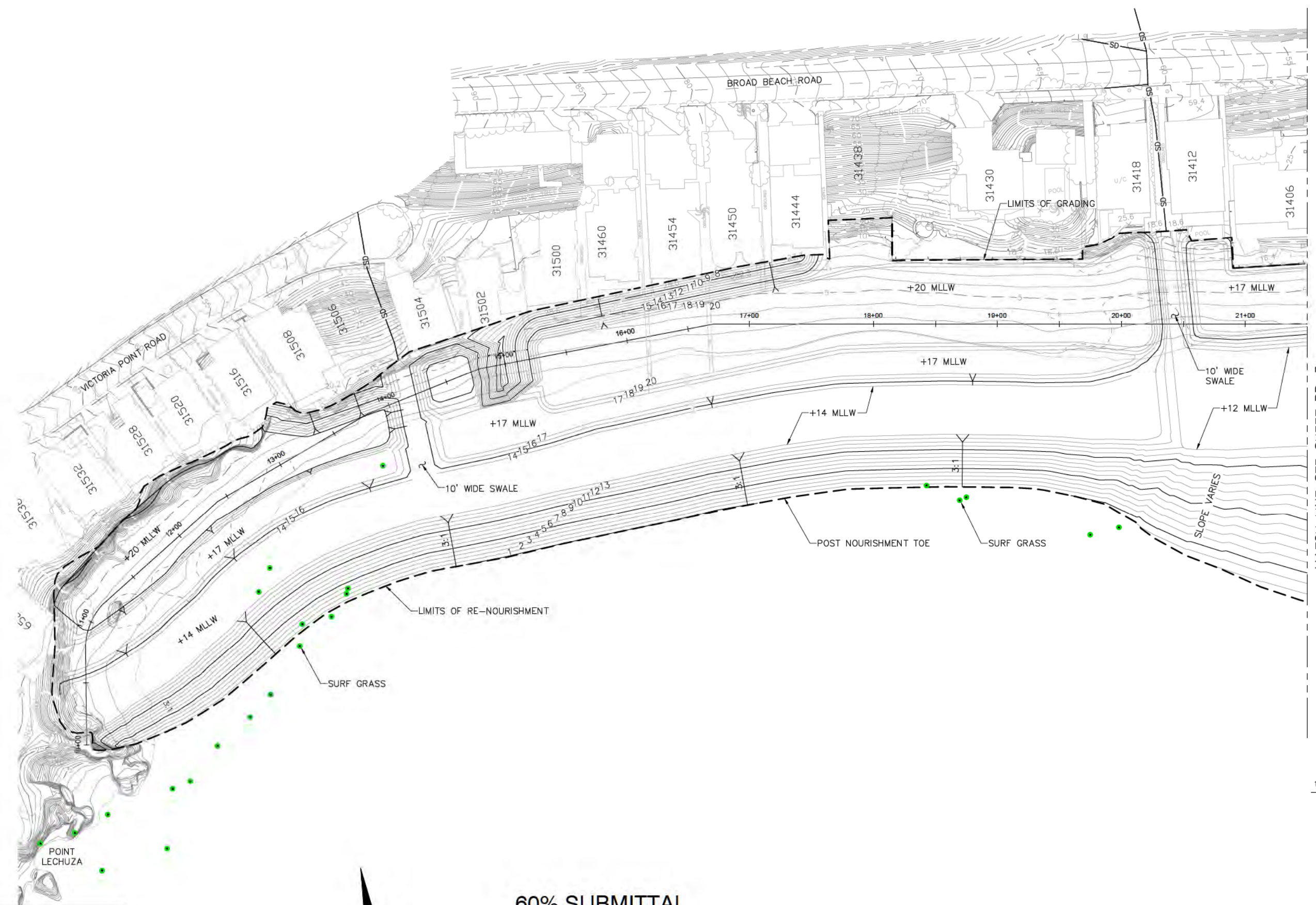
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STA 10+00 TO STA 21+50

SCALE	DATE
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JOB NO.	6935-02
SHEET	34 OF 42
BR-2	



MATCH LINE SEE SHEET BR-3
STATION 21+50

LEGEND:

- SD — EXISTING STORM DRAIN
- 5 — EXISTING CONTOUR
- 5 — PROPOSED CONTOUR
- 18+00 — STATION CONTROL LINE
- LIMITS OF RE-NOURISHMENT PROJECT

FINAL
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CONCEPT
STATUS

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STATION 21+50

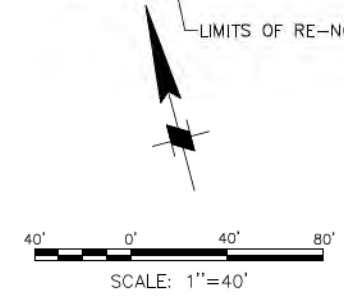
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STATION 32+00



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 - 5 EXISTING CONTOUR
 - 5 PROPOSED CONTOUR
 - EXISTING TEMPORARY REVETMENT
 - 18+00 STATION CONTROL LINE
 - RESTORED DUNE HABITAT
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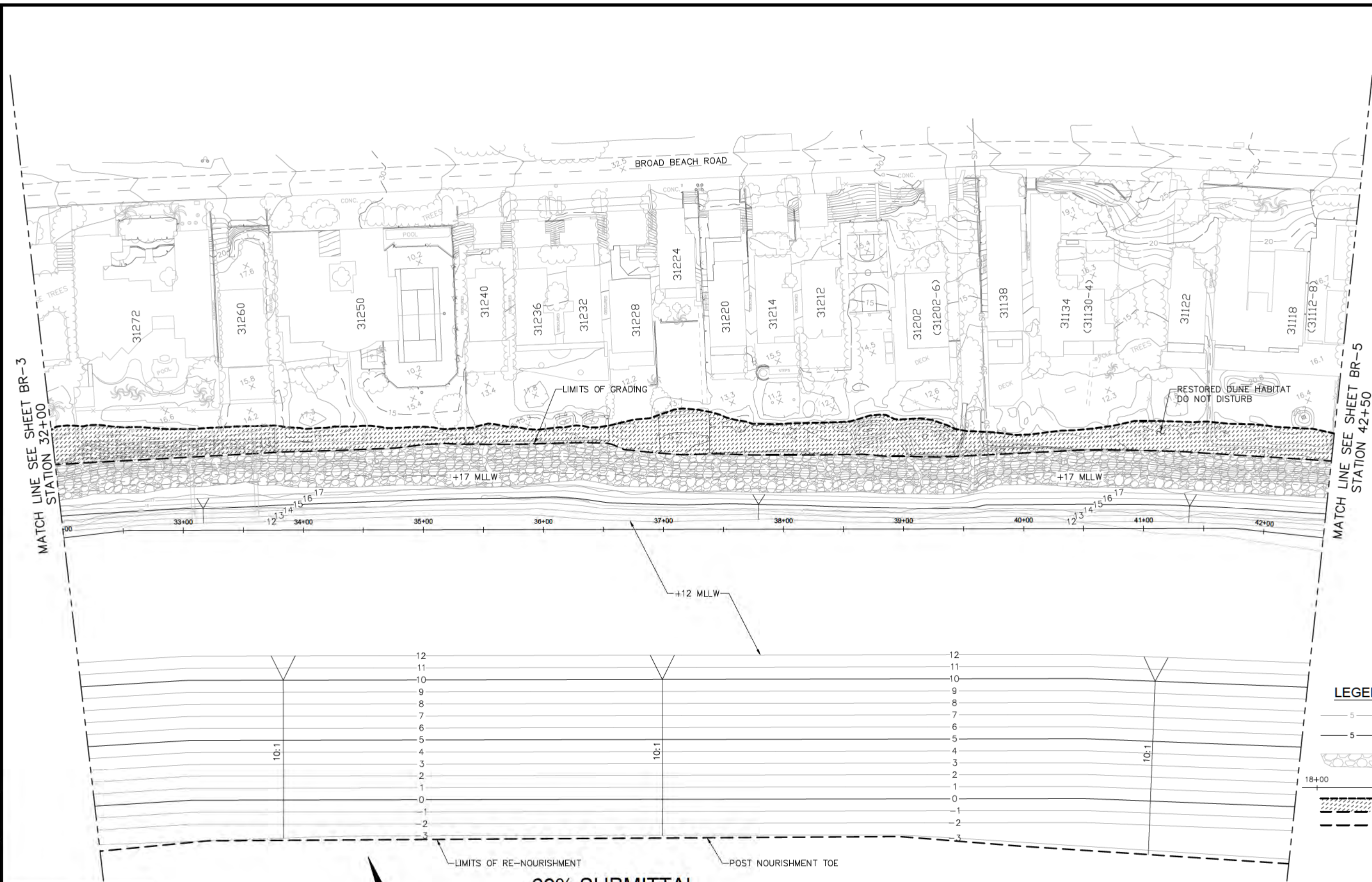
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 STA 21+50 TO STA 32+00

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SHEET	35 OF 42
BR-3	

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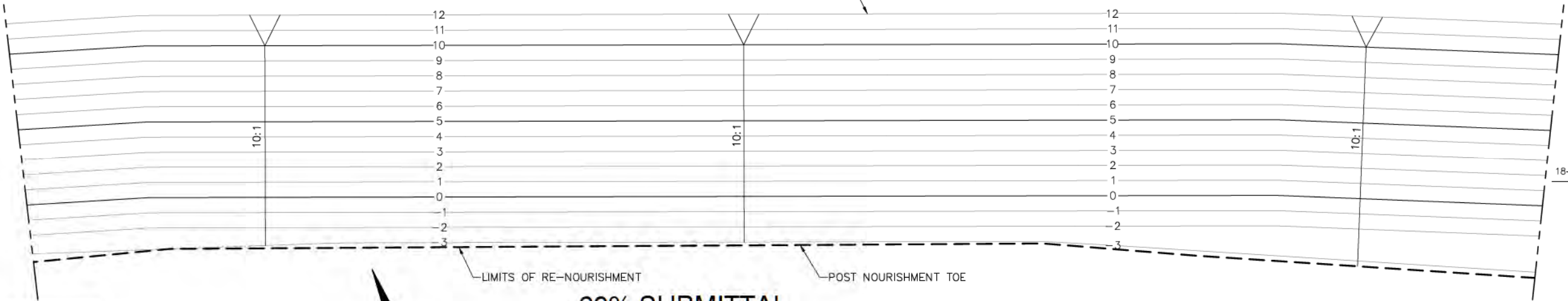
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MATCH LINE SEE SHEET BR-5
STATION 42+50

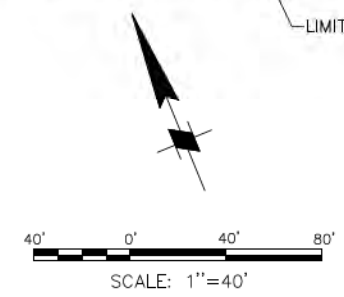
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 - STATION CONTROL LINE
 - RESTORED DUNE HABITAT
 - LIMITS OF RE-NOURISHMENT PROJECT



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SHEET	36 OF 42
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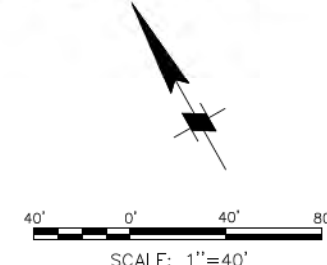
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STATION 53+00



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 - 5 — EXISTING CONTOUR
 - 5 — PROPOSED CONTOUR
 - EXISTING TEMPORARY REVETMENT
 - 18+00 — STATION CONTROL LINE
 - RESTORED DUNE HABITAT
 - LIMITS OF RE-NOURISHMENT PROJECT

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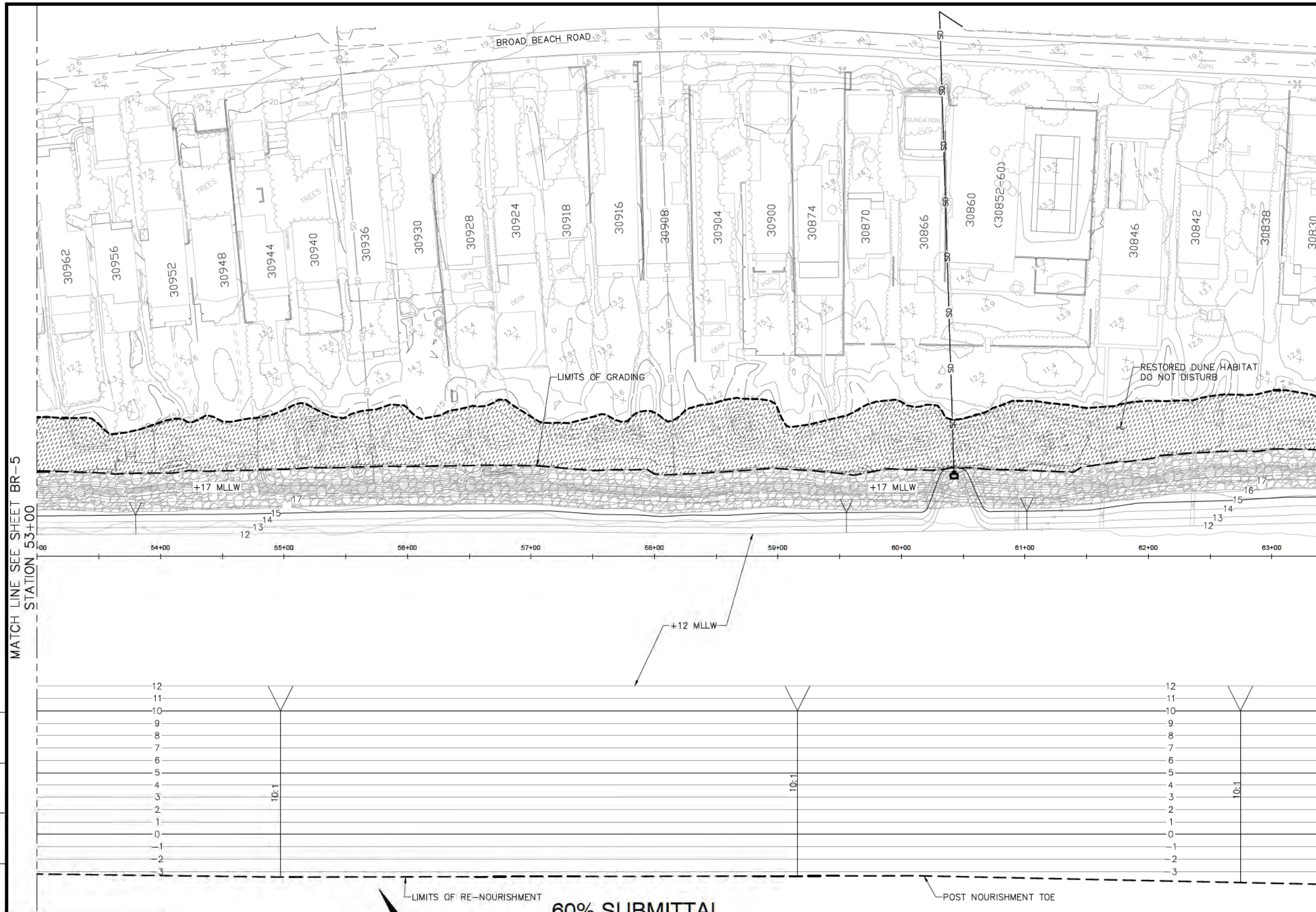
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 STA 42+50 TO STA 53+00

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JOB NO.	6935-02
SHEET	37 OF 42
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STATION 53+00

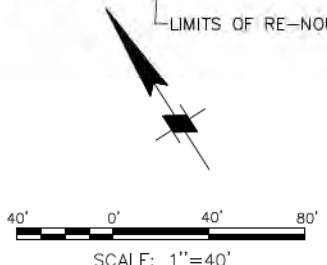
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STATION 63+50

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 - 5 — EXISTING CONTOUR
 - 5 — PROPOSED CONTOUR
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 - 18+00 — STATION CONTROL LINE
 - RESTORED DUNE HABITAT
 - LIMITS OF RE-NOURISHMENT PROJECT

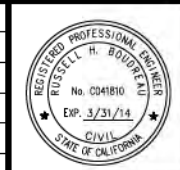
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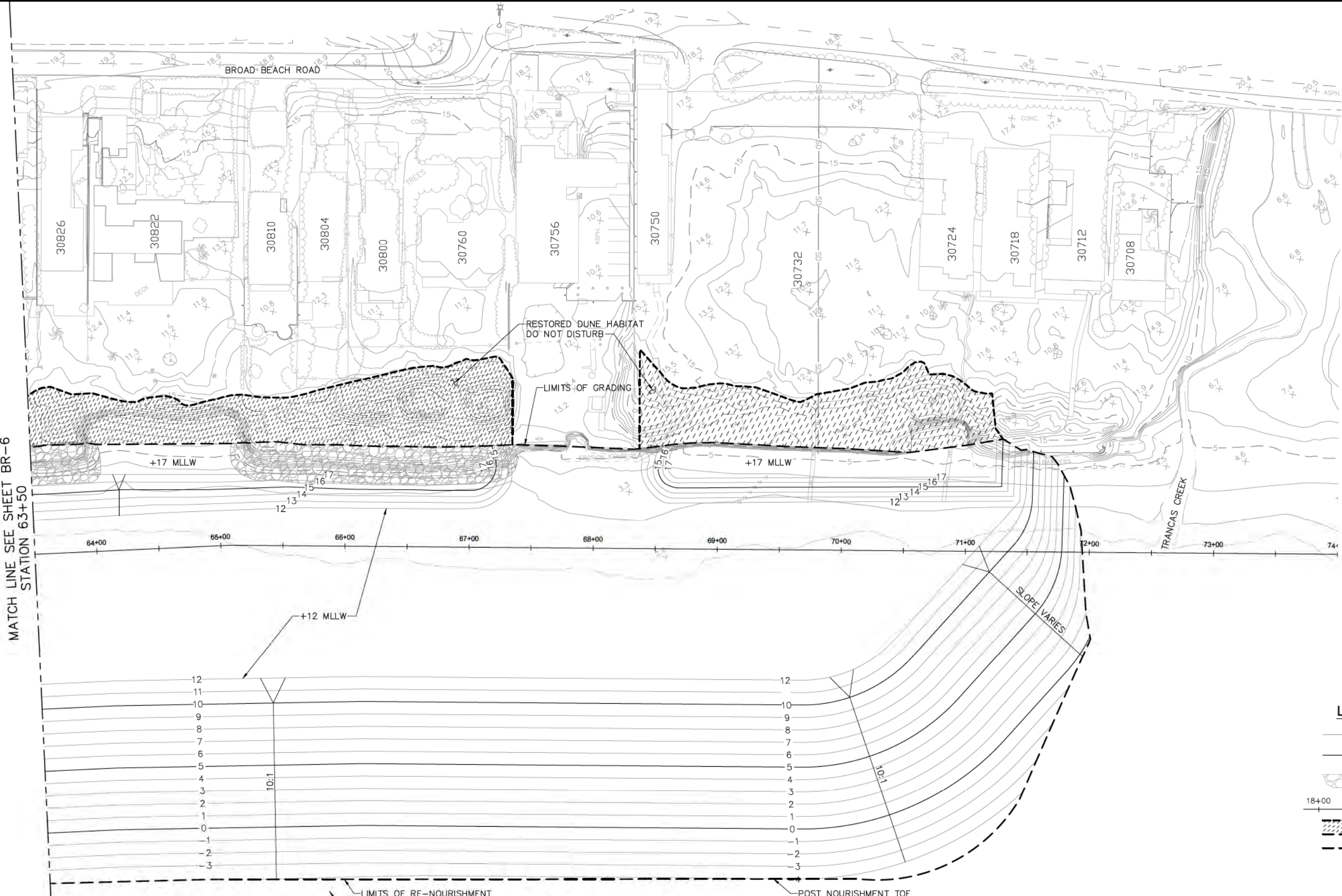
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BEACH RE-NOURISHMENT PLAN
 STA 53+00 TO STA 63+50

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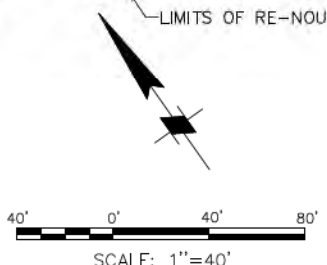
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STATION 63+50



- LEGEND:**
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 - 5 PROPOSED CONTOUR
 - EXISTING TEMPORARY REVETMENT
 - 18+00 STATION CONTROL LINE
 - RESTORED DUNE HABITAT
 - LIMITS OF RE-NOURISHMENT PROJECT

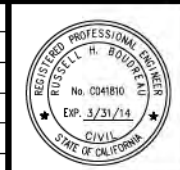
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STATUS

DIGALERT
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AT LEAST TWO DAYS
BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



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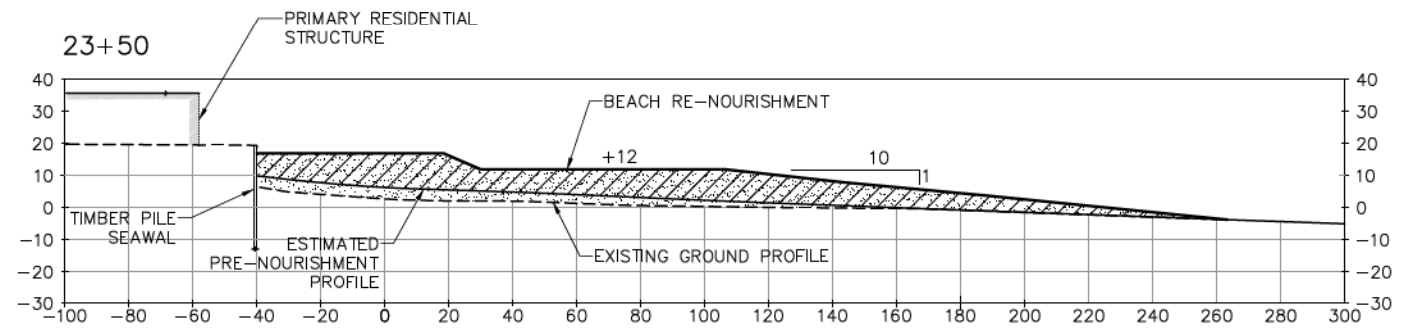
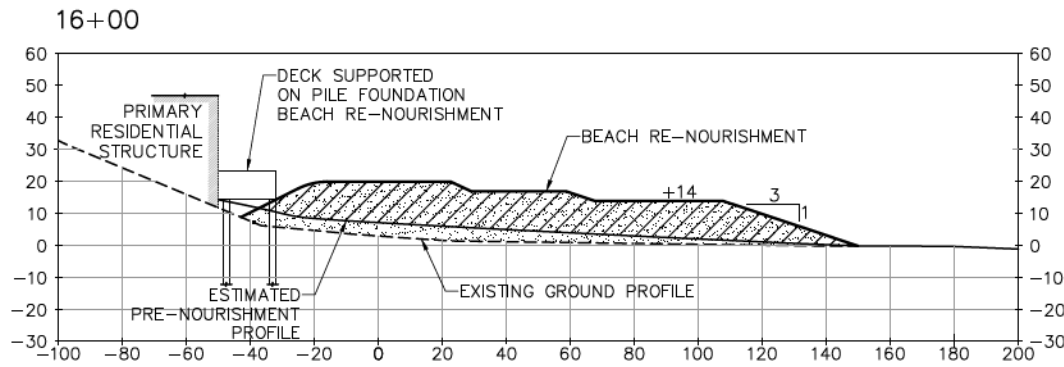
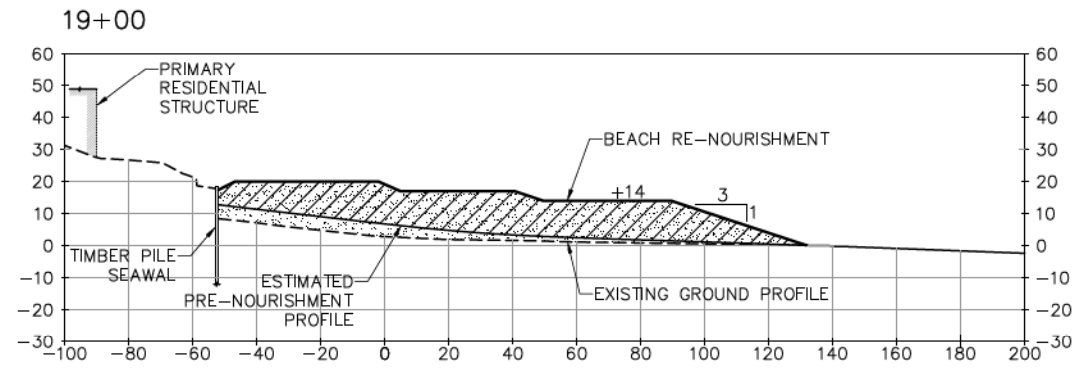
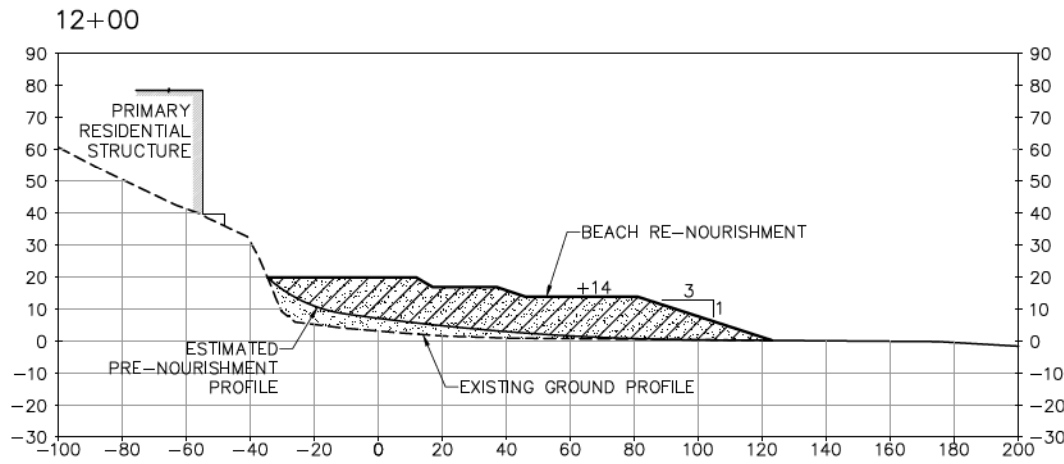
DESIGNED BY Aaron Holloway, P.E. CHECKED BY Chris Webb
DRAWN BY S. Salazar IN CHARGE Russell Boudreau, P.E.

BROAD BEACH RESTORATION PROJECT
California State Lands Commission





BEACH RE-NOURISHMENT PLAN
STA 63+50 TO STA 74+00

SCALE	DATE
1"=40'	OCT. 2013
JOB NO.	6935-02
SHEET	39 OF 42
BR-7	

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LEGEND:

-  MATERIAL REMAINING FROM INITIAL NOURISHMENT
-  MAXIMUM RE-NOURISHMENT TEMPLATE
-  EXISTING GROUND PROFILE (PRE-PROJECT)
-  ESTIMATED PRE-NOURISHMENT PROFILE AT 10 YEARS

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 DRAWN BY: S. Salazar IN CHARGE: Russell Boudreau, P.E.

BROAD BEACH RESTORATION PROJECT
 California State Lands Commission
TYPICAL RE-NOURISHMENT SECTIONS
 STA 12+00 TO STA 23+50

SCALE: 1"=30' DATE: OCT. 2013

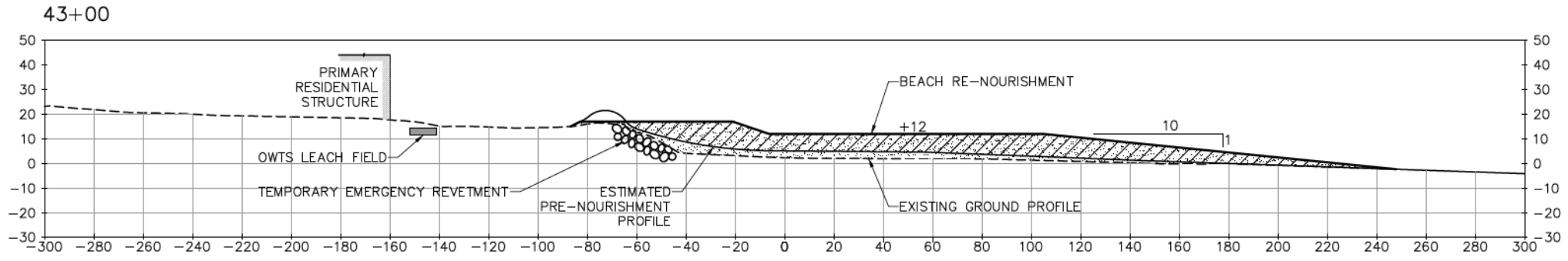
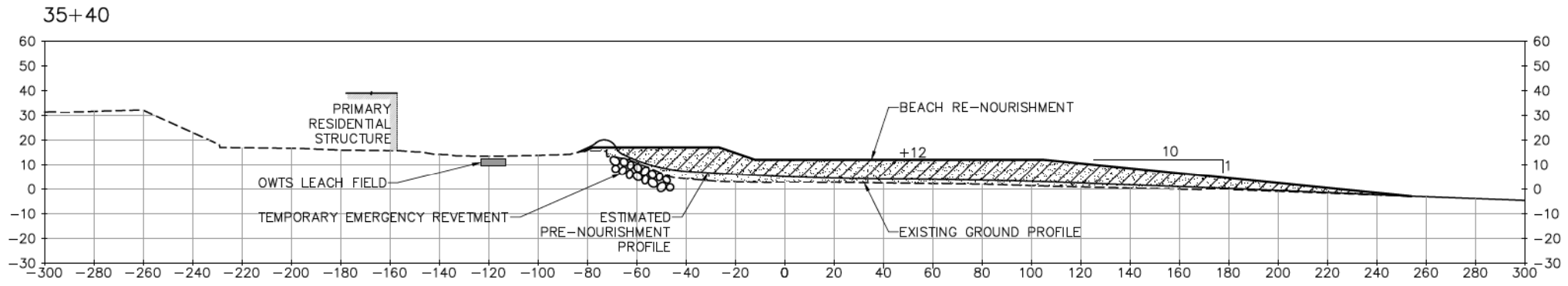
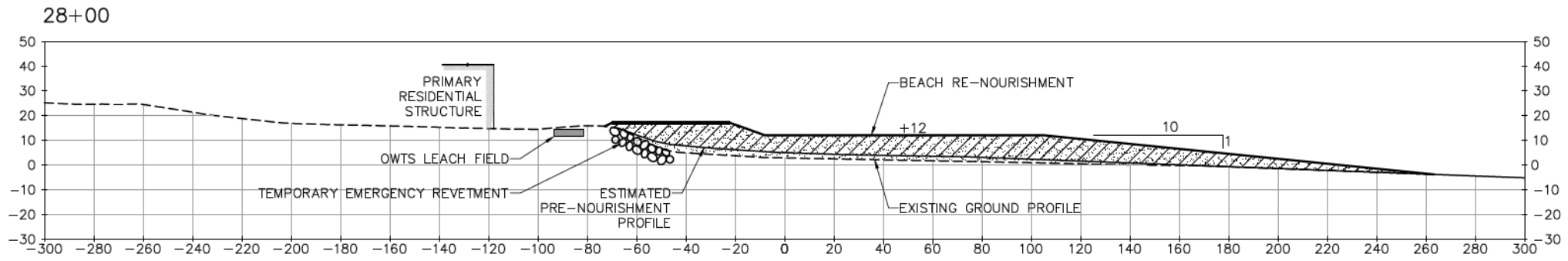
JOB NO.: 6935-02

SHEET: 40 OF 42

XS-4

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 STATUS





LEGEND:

- MATERIAL REMAINING FROM INITIAL NOURISHMENT
- MAXIMUM RE-NOURISHMENT TEMPLATE
- EXISTING GROUND PROFILE (PRE-PROJECT)
- ESTIMATED PRE-NOURISHMENT PROFILE AT 10 YEARS

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NO.	REVISION	BY	DATE

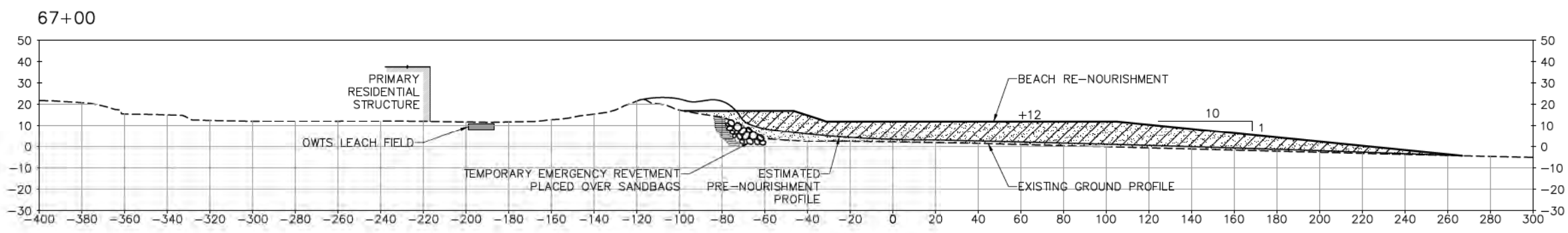
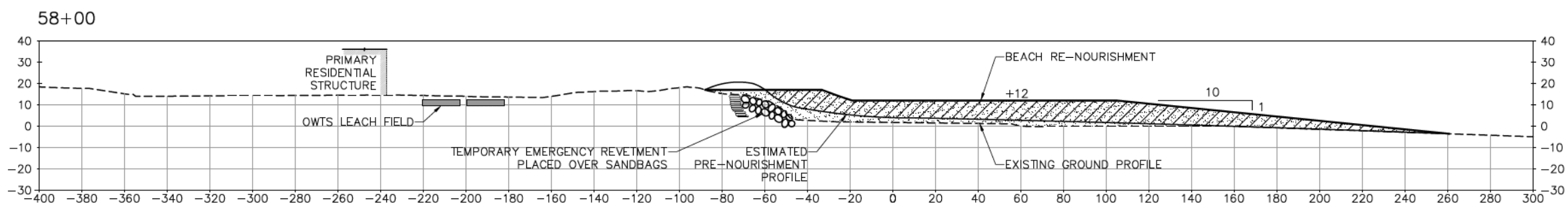
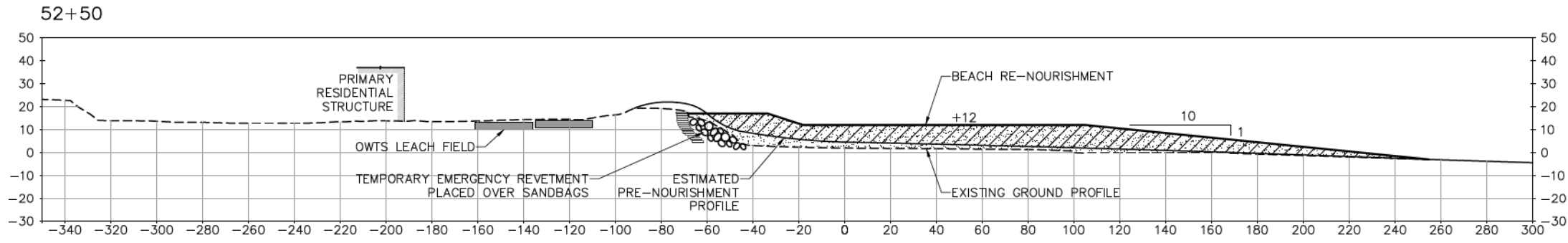
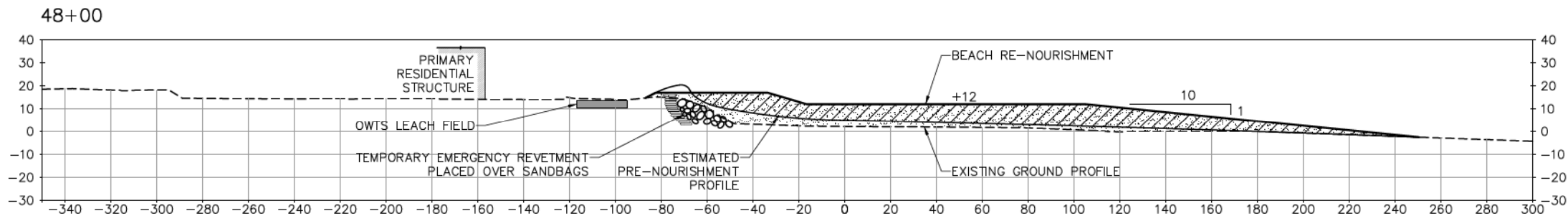


DESIGNED BY: Aaron Holloway, P.E. CHECKED BY: Chris Webb
DRAWN BY: S. Salazar IN CHARGE: Russell Boudreau, P.E.

BROAD BEACH RESTORATION PROJECT
California State Lands Commission
**TYPICAL RE-NOURISHMENT SECTIONS
STA 28+00 TO STA 43+00**

SCALE	DATE
1"=30'	OCT. 2013
JOB NO.	6935-02
SHEET	41 OF 42
XS-5	

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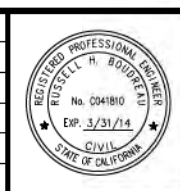
- LEGEND:**
- MATERIAL REMAINING FROM INITIAL NOURISHMENT
 - MAXIMUM RE-NOURISHMENT TEMPLATE
 - EXISTING GROUND PROFILE (PRE-PROJECT)
 - ESTIMATED PRE-NOURISHMENT PROFILE AT 10 YEARS

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NO.	REVISION	BY	DATE



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 DRAWN BY: S. Salazar IN CHARGE: Russell Boudreau, P.E.

BROAD BEACH RESTORATION PROJECT
 California State Lands Commission
**TYPICAL RE-NOURISHMENT SECTIONS
 STA 48+00 TO STA 67+00**

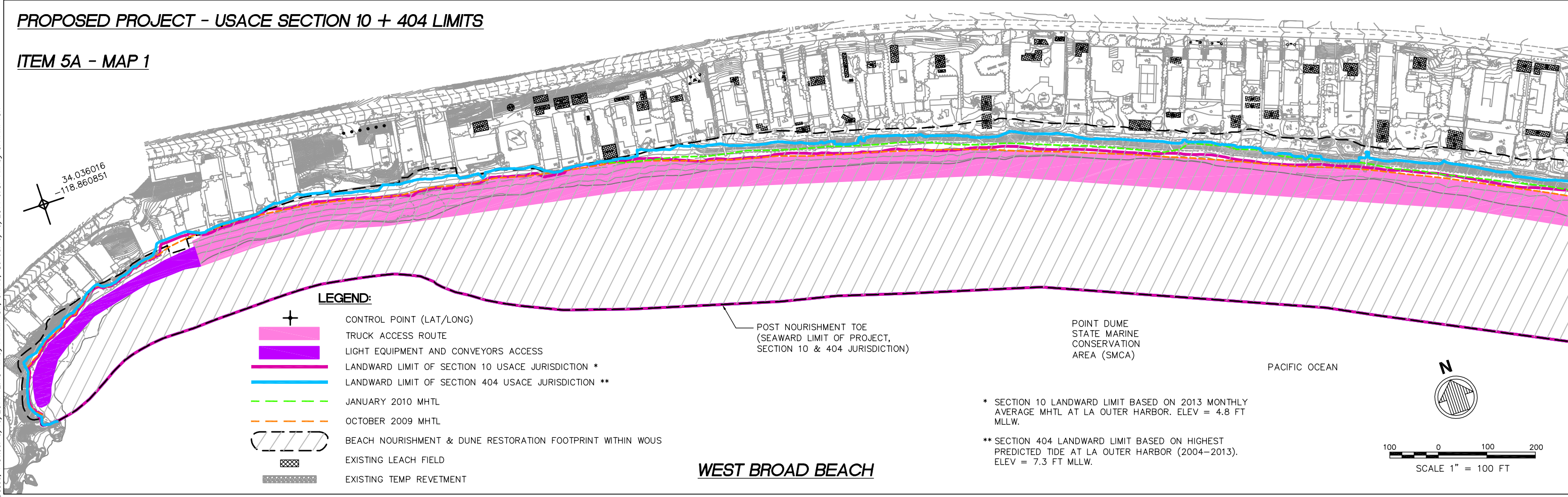
SCALE	DATE
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JOB NO.	6935-02
SHEET	42 OF 42
XS-6	

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PROPOSED PROJECT - USACE SECTION 10 + 404 LIMITS

ITEM 5A - MAP 1

File: P:\6935 Broad Beach\7 Design Information\CADD\60% Plans\60% Plans to ACDE\693502_Section10_404_Proposed\Plotted: 5/16/2014 12:18 PM by FRAMPON, CRAIG; Saved: 5/16/2014 9:37 AM by FRAMPON



LEGEND:

- CONTROL POINT (LAT/LONG)
- TRUCK ACCESS ROUTE
- LIGHT EQUIPMENT AND CONVEYORS ACCESS
- LANDWARD LIMIT OF SECTION 10 USACE JURISDICTION *
- LANDWARD LIMIT OF SECTION 404 USACE JURISDICTION **
- JANUARY 2010 MHTL
- OCTOBER 2009 MHTL
- BEACH NOURISHMENT & DUNE RESTORATION FOOTPRINT WITHIN WOUS
- EXISTING LEACH FIELD
- EXISTING TEMP REVETMENT

WEST BROAD BEACH

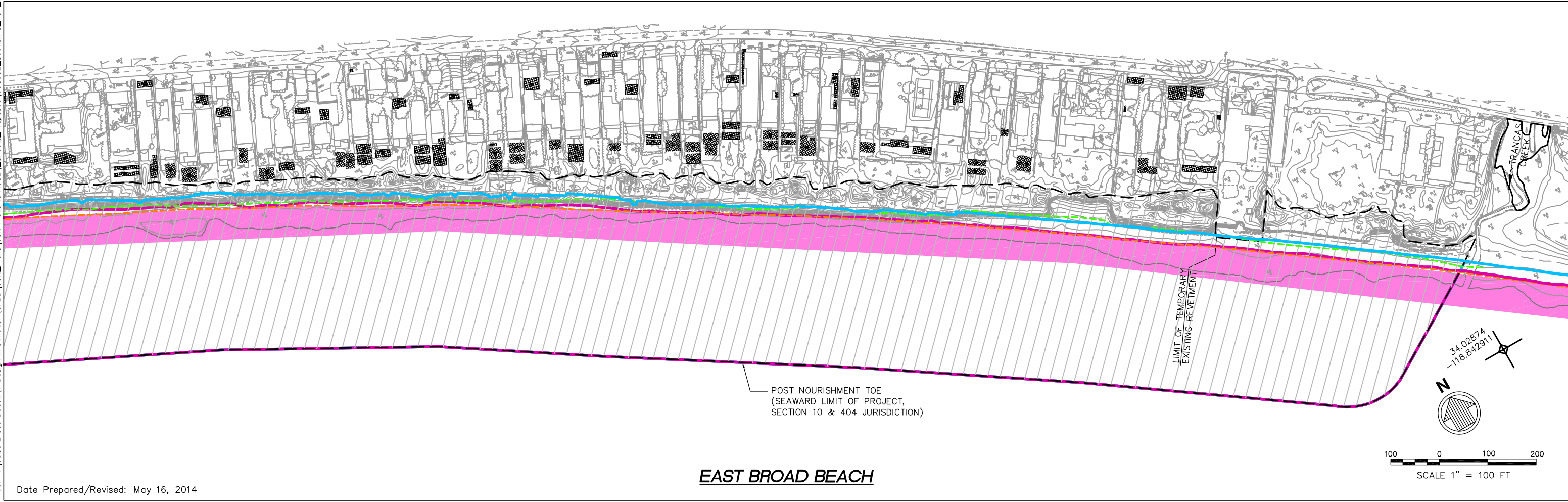
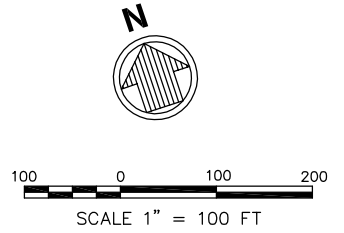
POST NOURISHMENT TOE
(SEAWARD LIMIT OF PROJECT,
SECTION 10 & 404 JURISDICTION)

POINT DUME
STATE MARINE
CONSERVATION
AREA (SMCA)

PACIFIC OCEAN

* SECTION 10 LANDWARD LIMIT BASED ON 2013 MONTHLY AVERAGE MHTL AT LA OUTER HARBOR. ELEV = 4.8 FT MLLW.

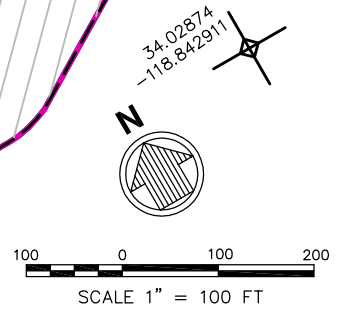
** SECTION 404 LANDWARD LIMIT BASED ON HIGHEST PREDICTED TIDE AT LA OUTER HARBOR (2004-2013). ELEV = 7.3 FT MLLW.

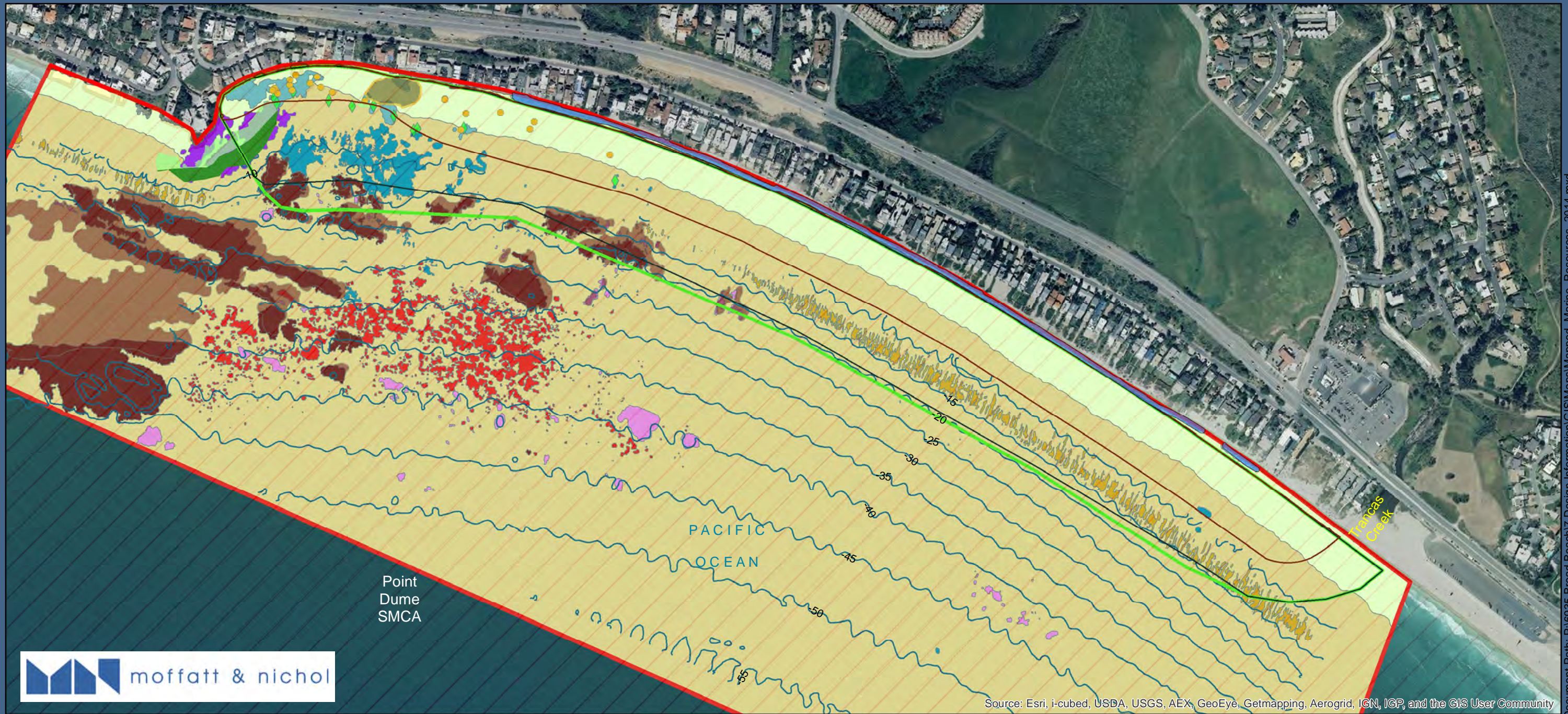


EAST BROAD BEACH

POST NOURISHMENT TOE
(SEAWARD LIMIT OF PROJECT,
SECTION 10 & 404 JURISDICTION)

LIMIT OF TEMPORARY
EXISTING REVETMENT





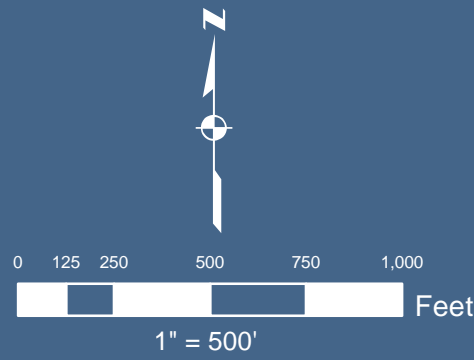
Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Document Path: P:\6935 Broad Beach\7 Design Information\GIS\Maps\Mapped_Marine_Resources_2014.mxd

Legend

	Emergency Revetment Footprint		Habitat Groups - 2014 Survey
	Proposed Beach Nourishment Footprint (Direct Impact)		Bedrock with Kelp, Marine: Subtidal: Rock Bottom
	Point Dume SMCA		Bedrock, Marine: Intertidal: Rock Bottom
	Permanent Impact Area (Indirect)		Bedrock, Marine: Subtidal: Rock Bottom
	Temporary Impact Area (Indirect)		Rubble/Cobble, Marine: Intertidal: Rock Bottom
	Boulder Field		Rubble/Cobble, Marine: Subtidal: Rock Bottom
	Rocky OutCrops		Sand, Marine: Intertidal: Unconsolidated Bottom
	Observed Surfgrass Points		Sand, Marine: Subtidal: Unconsolidated Bottom
	Observed Surfgrass		Shell Hash, Marine: Subtidal: Unconsolidated Bottom
	Extrapolated Surfgrass		Kelp Canopy
	Contours_5ft		Eelgrass (May 2014)
	Survey Area		

- Notes:**
1. Marine resource mapping was done in coordination with Chambers Group, Inc.
 2. Marine habitat temporary impact is defined as area covered by less than 1 FT of material at one year post-construction.
 3. Marine habitat permanent impact is defined as area covered by 1 FT or more of material at one year post-construction.
 4. Contour elevations are in reference to MLLW datum.



**Broad Beach
Mapped Marine Resources
Project Footprint Direct and Indirect Impact Area**

Figure 3: Direct and Indirect footprint estimated areas (brown and green lines)



Figure 12. Proposed Backpass Scenario 2 for Removal of 35,000 cy from Combined MR 408 and MR 409 at East for Placement at MR 411 and MR 412 in West End