

MARINE TAXONOMIC SERVICES, LTD.

Marine Biological Resources Report and Essential Fish Habitat Assessment for The Avalon Dinghy Dock Project

July 25, 2024

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**Marine Taxonomic Services Ltd. 2024. Marine Biological Resources Report and
Essential Fish Habitat Assessment for The Avalon Dinghy Dock Project.
Prepared for Engineered Solutions Group Inc., July 25, 2024.**

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Marine Biological Resources Report and Essential Fish Habitat Assessment for The Avalon Dinghy Dock Project

June 25, 2024

1 Introduction

Marine Taxonomic Services, LTD. (MTS) was contracted by Engineered Solutions Group Inc. to provide a marine biological assessment and essential fish habitat assessment for the Avalon Club Dock Project (Project). MTS completed a survey and analysis of the resources occurring within the designated survey area and prepared the following report on the findings.

1-1 Project Location

The Project area encompasses a dinghy dock midway between the Catalina Island Yacht Club and the Tuna Club off of Saint Catherine Way at 33.346365, -118.327097 in Avalon, California (Figure 1). The dinghy dock is accessed off the coastal path bayward of Saint Catherine Way, off an approximately 60-foot-long approach pier and a 20-foot gangway down to the dinghy dock, which consists of a series of floats.

1-2 Project Description

The dinghy dock is composed of a series of floats that change in configuration across seasons. In summer the dock has a total area of about 1,040 square feet with roughly a T-shaped geometry with the top of the “T” parallel with the shoreline and the stem of the “T” extending towards the harbor. This places the majority of dinghies closer to shore, tied to the longer shoreline-parallel dock.

During winter, the north and south extensions are removed, leaving the stem of the “T”, resulting in an area of approximately 440 square feet. The dock is moored with two shoreside padeyes, each approximately 25 feet from the centerline of the approach pier and utilizing 3/4-inch long-link chain extending out to secure the landward edge of the dock. Two concrete anchors secure the seaward side of the dock, with lines extending at roughly 45 degrees out from the dock to secure it. These lines also use 3/4-inch long-link chain shackled to padeyes on each side of the dock.

The existing approximately 20-foot-long gangway at low tide is quite steep, and the desire is to install an ADA compliant gangway, enabling safer access to the dock. The existing gangway has an A-frame extending out from the end of the approach pier to enable raising the gangway during any stormy weather or an easterly swell.

A new 80-foot-long ADA-compliant gangway is proposed. The gangway will attach to the shoreline at the same location as the existing approach pier; this places the end of the 80-foot gangway at roughly the same location as the existing 20-foot gangway.



Figure 1. Vicinity map of the Avalon Dinghy Dock Project site and survey extent within Avalon, Catalina Island, CA.

The proposed Project includes placement of new dinghy docks having roughly the same areal footprint and seafloor shadow, along with the new ADA-compliant gangway. A lift frame will be incorporated similar to the existing structure and capable of raising the gangway off the dock during periods of inclement weather. The new docks are to be located at roughly the same location as the existing docks, with the new gangway lift to be located approximately 50 feet out from the shoreline. At the location of the gangway lift, the bay floor consists primarily of sands, small boulders, cobble, and debris. The elevation of the existing bay floor in the vicinity of the gangway lift is approximately -2 feet mean lower low water (MLLW). The underlying bedrock is anticipated to be within 2 to 5 feet below the existing sandy bay floor. There are several existing concrete foundations on the bay floor supporting both the existing approach pier pile supports, along with previous foundations presumably associated with older approach piers. All the existing foundations are proposed to be removed as part of this Project to improve bay floor habitat.

Two alternative lift designs have been provided for contractor consideration and pricing. The Option-A gangway lift envisions two 6-foot-diameter foundations extended through the surface sands down to bedrock that would support a 3-foot-diameter concrete column up to an elevation of 11.5 feet MLLW, with a steel I-beam extending up to an elevation of 24 feet MLLW to support the hoist beam and two electric winches to lift and then hold the gangway off the dock during periods of inclement weather. The 3-foot-diameter concrete shafts extending up to elevation 11.5 feet MLLW protect the steel I-beam from corrosion. The design wave load on the 3-foot-diameter concrete columns will require drilled anchors embedded into the seabed to resist overturning of the circular concrete foundation.

The anticipated construction of the 6-foot-diameter foundations will require using two 6-foot-diameter corrugated metal pipe (CMP) pipes, each about 3 feet in total length, set on the bay floor, into which divers can step inside the 6-foot-diameter rings and then excavate both the sand and gravels, advancing the CMP rings down to bedrock. Once bedrock is exposed, the CMP would serve as a form, first enabling drilling and installation of the No. 9 epoxy-coated anchors, then placement of the foundation reinforcing and pouring of the concrete footing. Steel reinforcing would extend up to the top of the 36-inch diameter concrete column, with a steel wide flange (10x54 inches) placed in the middle of each column and the form then backfilled with concrete. The overhead hoist beam would be welded to the vertical columns, providing support for the electric winches. Redundant mechanical winches will also be provided for lifting the gangway in the event of an electric winch failure. For the Option-A alternative, after the concrete foundations are completed, the CMP can be cut and removed if required by regulatory agencies.

The Option-B gangway lift would utilize 12-inch-diameter American Petroleum Institute (API) heavy wall steel pipe, with a pipe thickness of 1.32 inches. In order to install this pipe into the sea floor, a large casing drill is required to advance the casing through the overburden sand and gravels, and then into the underlying bedrock through which the drill bit can then drill to a total depth of 20 feet into the rock. The steel pipe would then be set into the steel casing and filled with concrete up to the bay floor. Since the steel pipe is exposed to salt water, zinc anodes would be installed on each leg to be replaced annually.

Option B is a straightforward design approach, albeit requiring a large crane and a large casing drill to be able to advance a hole into the bay floor into which the 12-inch API pipe would be set. The

upper framework of both options is identical, both utilizing electric winches to lift the gangway, with mechanical hoists to lift the gangway in the event of an electrical winch failure.

The new docks are also being designed to accommodate both a smaller winter dock of roughly 440 square feet in dimension, along with a larger summer dock of roughly 1,040 square feet of dock space for dinghies to tie up to.

2 Methods

MTS staff completed a marine biological assessment at the Project site on May 15, 2024. A SCUBA diver survey was used to identify habitat types and species that occupy the Project survey area.

2-1 SCUBA Survey

During the survey, the diver swam throughout the Project area, inspecting the seafloor and existing structures. The diver was equipped with a Nikon Coolpix 4X UHD camera and took photos of species observed in the area. The diver identified species that were observed within the Project area or took photos to later be analyzed for species identification.

2-2 Sensitive Species and Essential Fish Habitat Assessment

A detailed assessment was conducted to determine any sensitive species holding special or protected status that may occur within, or adjacent to, the designated Project site. Species lists provided by the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (USFWS 2023 and NMFS 2023a) were evaluated for sensitive species near the Project site. An analysis of the range and habitat preferences of those species was conducted through literature review. An Essential Fish Habitat (EFH) assessment was conducted through EFH GIS mapping software regularly maintained and updated by NOAA Fisheries (NMFS 2023b). Analysis of the requirements of those habitats was performed via literature review.

3 Results

3-1 Marine Habitats Surveyed

Marine habitats observed during the SCUBA survey within the Project site fell into two distinct categories: hard substrate and piles. Notable and common fauna observed included 6 unique species of marine vertebrates, 5 unique species of marine invertebrates, and 17 unique species of marine macroalgae (Table 1). Habitats mapped throughout the Project site during this survey are provided in Figure 2.

Table 1. Common marine species observed within the designated Project site during the SCUBA survey.

Common Name	Scientific Name	Conservation Status
Marine Vertebrates		
Round ray	<i>Urobatis halleri</i>	Least Concern
Garibaldi	<i>Hypsypops rubicundus</i>	Least Concern
Opaleye	<i>Girella nigricans</i>	Least Concern
Kelp bass	<i>Paralabrax clathratus</i>	Least Concern
Topsmelt	<i>Atherinops affinis</i>	Least Concern
California sheephead	<i>Semicossyphus pulcher</i>	Vulnerable
Marine Invertebrates		
Dusky tegula	<i>Tegula pulligo</i>	Least Concern
California aglaja	<i>Navanax inermis</i>	Least Concern
Orange encrusting bryozoan	<i>Antho karykina</i>	Least Concern
Pyrosome	<i>Pyrosoma atlanticum</i>	Least Concern
Sandcastle worm	<i>Phragmatopoma californica</i>	Least Concern
Macroalgae		
Green turf	<i>Prasiola crispa</i>	Least Concern
Red algae	<i>Plocamium cartilagineum</i>	Least Concern
Banded fanweed	<i>Zonaria farlowii</i>	Least Concern
Brown algae	<i>Dictyopteris undulata</i>	Least Concern
Bubble algae	<i>Colpomenia peregrina</i>	Least Concern
Giant kelp	<i>Macrocystis pyrifera</i>	Least Concern
Articulated coralline algae	<i>Corallina spp.</i>	Least Concern
Articulated coralline algae	<i>Bossiella spp.</i>	Least Concern
Crustose coralline algae	<i>Corallinales</i>	Least Concern
Beanweed	<i>Scytosiphon lomentaria</i>	Least Concern
Sea lettuce	<i>Ulva sp.</i>	Least Concern
Feather boa kelp	<i>Egregia menziesii</i>	Least Concern
Jellyweed	<i>Gelidium coulteri</i>	Least Concern
Japanese wireweed	<i>Sargassum muticum</i>	Invasive
Red turf algae	<i>Endocladia muricata</i>	Least Concern
Red algae	<i>Laurencia pacifica</i>	Least Concern
Brown algae	<i>Dictyota flabellata</i>	Least Concern

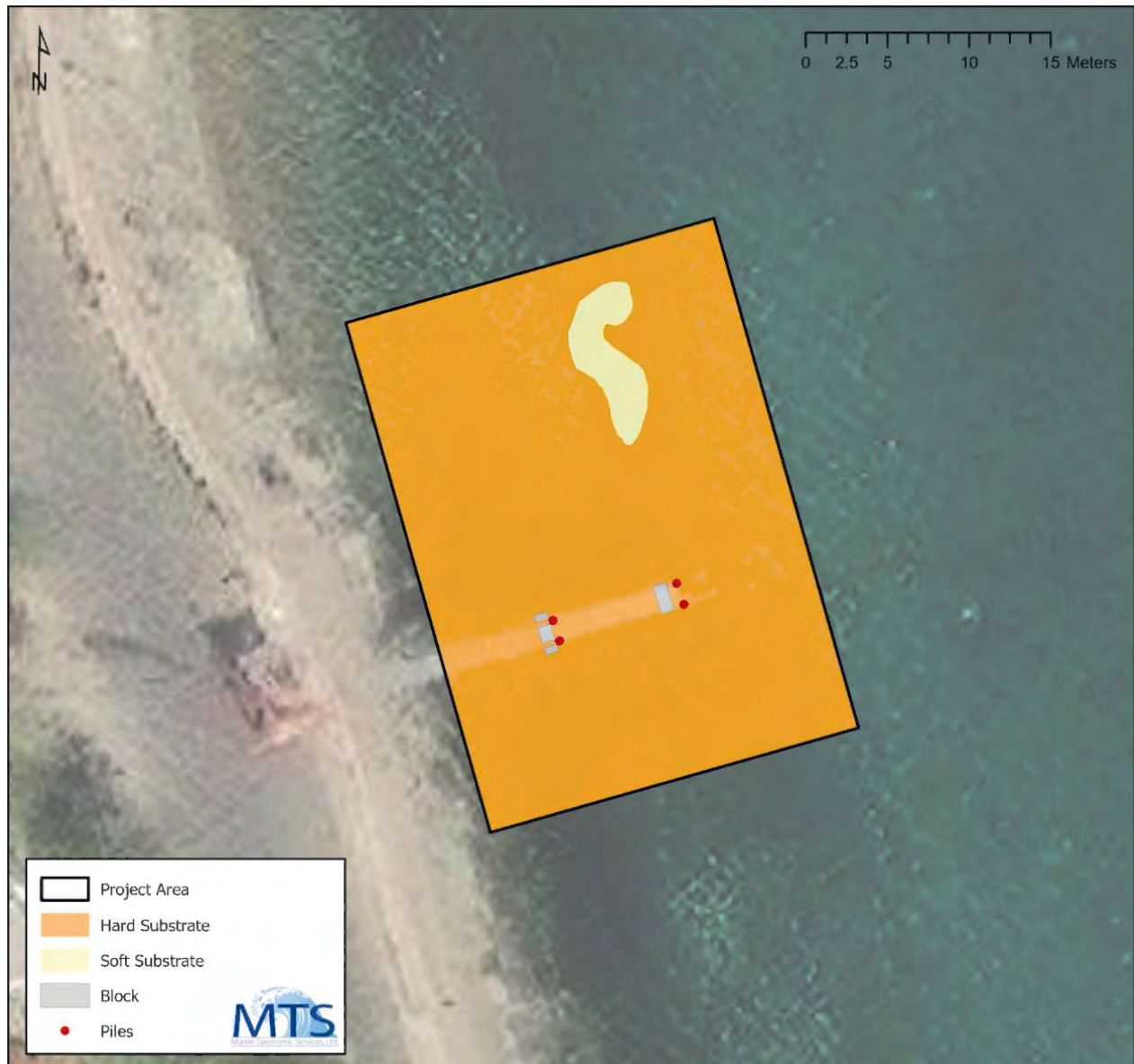


Figure 2. Map showing habitat types observed within the Project area.

3-1.1 Hard substrate

The majority of the seafloor at the Project site was classified as hard substrate (Figure 2). Large concrete footings or blocks rested below the pier on the shoreward side of the existing pilings (Figure 2). The rest of the area was comprised mostly of boulders with small interstitial areas of cobble or sand. The intertidal riprap stones along the shore were covered predominantly in algae including green turf algae (*Prasiola crispa*), red turf algae (*Endocladia muricata*), Japanese wireweed (*Sargassum muticum*), feather boa kelp (*Egregia menziesii*), jellyweed (*Gelidium coulteri*), beanweed (*Scytosiphon lomentaria*), sea lettuce (*Ulva* sp.), brown algae (*Dictyota flabellata*), red algae (*Laurencia pacifica*), and banded fanweed (*Zonaria farlowii*). Also present were sandcastle worms (*Phragmatopoma californica*).

The subtidal hard-substrate was host to a more diverse group of species. Invertebrate species observed on subtidal, hard-substrate included California aglaja (*Navanax inermis*), orange encrusting bryozoan (*Antho karykina*), pyrosomes (*Pyrosoma atlanticum*), dusky tegula (*Tegula pulligo*). Vertebrate species observed included California sheephead (*Semicossyphus pulcher*), garibaldi (*Hypsypops rubicundus*), kelp bass (*Paralabrax clathratus*), opaleye (*Girella nigricans*), and topsmelt (*Atherinops affinis*). Algal species composition was similar to the intertidal substrate but with less turf algae and additional species observed including articulated and crustose coralline species (*Bossiella* sp. and *Corallina* sp.), bubble algae (*Colpomenia peregrina*), red algae (*Plocamium cartilagineum*), and juvenile giant kelp (*Macrocystis pyrifera*). Note that the pyrosomes are a pelagic colonial tunicate that drifted into the site from offshore.

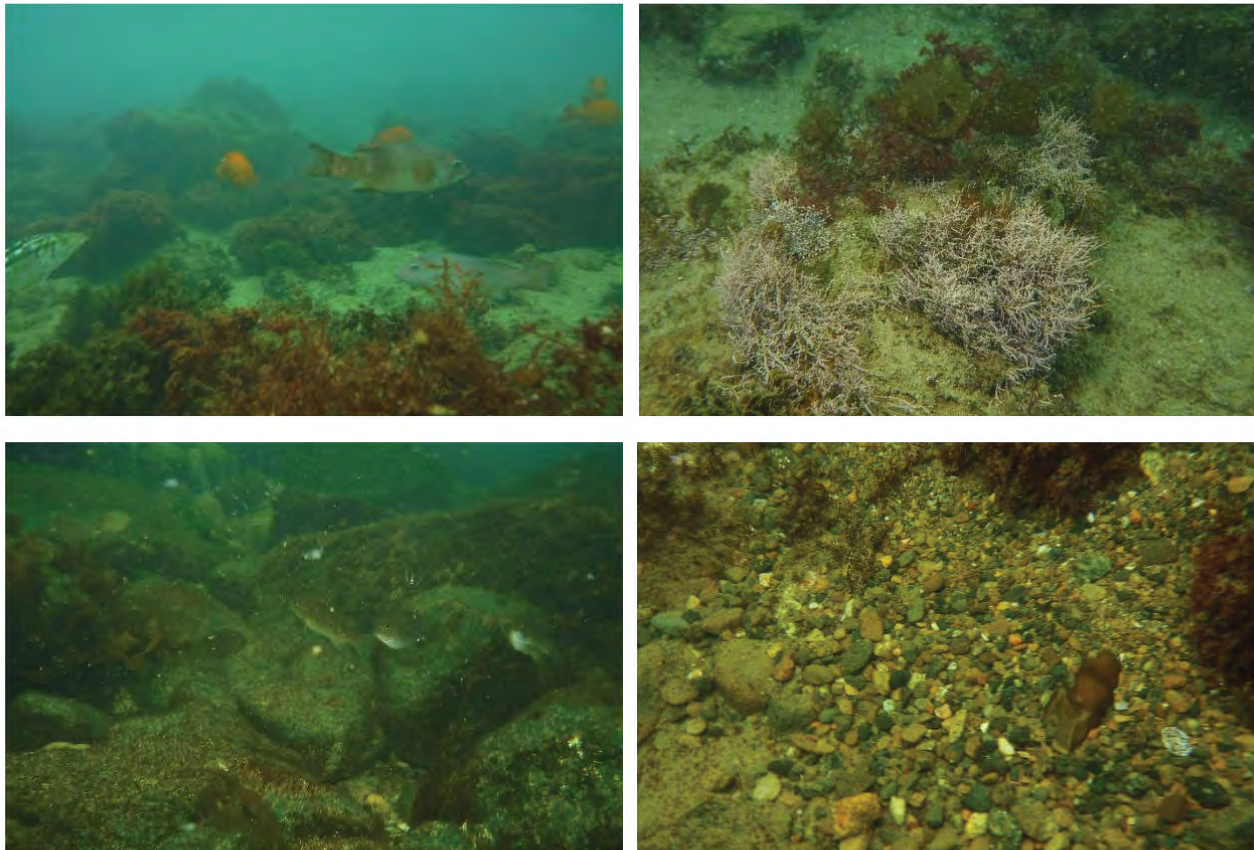


Figure 3. Subtidal hard-substrate (top left and top right), intertidal hard-substrate (bottom left), and sandy cobble (bottom right).

3-1.2 Piles

Only four piles exist within the Project site, and they were not notably diverse. The tops of piles consisted mainly of green turf algae while the bottom half of the piles also were home to red algae (*Laurencia pacifica* and *Plocamium cartilagineum*).

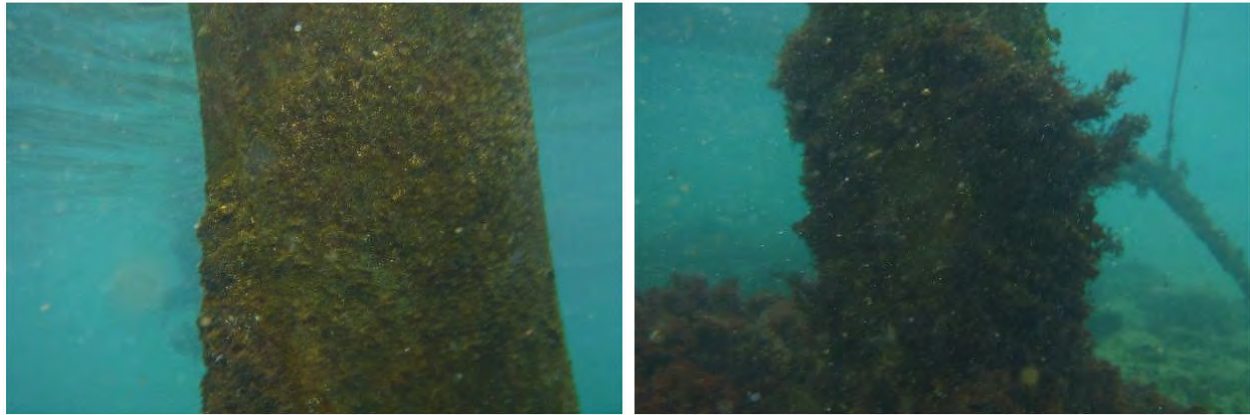


Figure 4. Photos showing the top of a pile (left) and bottom of a pile (right) within the Project site.

3-1.3 Soft-Bottom

There was a small area of soft-bottom habitat within the Project area. The lack of hard-substrate in this area resulted in few sessile species such as invertebrates and algae. However, similar vertebrate species were observed in the hard-substrate areas. Vertebrate species included California sheephead, garibaldi, kelp bass, and opaleye.



Figure 5. Photos showing soft-bottom habitat within the Project site.

3-2 Sensitive Species

In addition to accounting for all marine species identified during the field survey, an assessment was also conducted to determine other sensitive species holding special or protected status that may occur within, or adjacent to, the designated Project site. Based on species lists provided by USFWS and NMFS (USFWS 2023 and NMFS 2023a), an analysis of the range and habitat preferences of sensitive species that have a potential to occur within or nearby the Project site was completed (Table 2).

Table 2. Special status and protected species with the potential to occur within or near the study area (USFWS 2023 and NMFS 2023a).

Common Name	Species Name	Conservation Status	Likelihood to Occur
Marine Mammals			
Baird's Beaked Whale	<i>Berardius bairdii</i>	Protected	Unlikely
Blainville's Beaked Whale	<i>Mesoplodon densirostris</i>	Protected	Unlikely
Blue Whale	<i>Balaenoptera musculus</i>	Endangered	Unlikely
Bryde's Whale	<i>Balaenoptera edeni</i>	Protected	Unlikely
California Sea Lion	<i>Zalophus californianus</i>	Protected	Possible
Common Bottlenose Dolphin	<i>Tursiops truncatus</i>	Protected	Unlikely
Cuvier's Beaked Whale	<i>Ziphius cavirostris</i>	Protected	Unlikely
Dall's Porpoise	<i>Phocoenoides dalli</i>	Protected	Unlikely
Dwarf Sperm Whale	<i>Kogia sima</i>	Protected	Unlikely
False Killer Whale	<i>Pseudorca crassidens</i>	Protected	Unlikely
Fin Whale	<i>Balaenoptera physalus</i>	Endangered	Unlikely
Gray Whale	<i>Eschrichtius robustus</i>	Endangered	Unlikely
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	Threatened	Unlikely
Harbor Porpoise	<i>Phocoena phocoena</i>	Protected	Unlikely
Harbor Seal	<i>Phoca vitulina</i>	Protected	Possible
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered	Unlikely
Killer Whale	<i>Orcinus orca</i>	Endangered	Unlikely
Long-Beaked Common Dolphin	<i>Delphinus capensis</i>	Protected	Unlikely
Melon-Headed Whale	<i>Peponocephala electra</i>	Protected	Unlikely
Minke Whale	<i>Balaenoptera acutorostrata</i>	Protected	Unlikely
North Pacific Right Whale	<i>Eubalaena japonica</i>	Endangered	Unlikely
Northern Elephant Seal	<i>Mirounga angustirostris</i>	Protected	Unlikely
Northern Fur Seal	<i>Callorhinus ursinus</i>	Protected	Unlikely
Northern Right Whale Dolphin	<i>Lissodelphis borealis</i>	Protected	Unlikely
Pacific White-Sided Dolphin	<i>Lagenorhynchus obliquidens</i>	Protected	Unlikely
Pygmy Sperm Whale	<i>Kogia breviceps</i>	Protected	Unlikely
Risso's Dolphin	<i>Grampus griseus</i>	Protected	Unlikely
Rough-Toothed Dolphin	<i>Steno bredanensis</i>	Protected	Unlikely
Sei Whale	<i>Balaenoptera borealis</i>	Endangered	Unlikely
Short-Beaked Common Dolphin	<i>Delphinus delphis</i>	Protected	Unlikely
Short-Finned Pilot Whale	<i>Globicephala macrorhynchus</i>	Endangered	Unlikely

Sperm Whale	<i>Physeter macrocephalus</i>	Endangered	Unlikely
Spinner Dolphin	<i>Stenella longirostris</i>	Protected	Unlikely
Stejneger's Beaked Whale	<i>Mesoplodon stejnegeri</i>	Endangered	Unlikely
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered	Unlikely
Striped Dolphin	<i>Stenella coeruleoalba</i>	Protected	Unlikely
Sea Turtles			
Green Turtle	<i>Chelonia mydas</i>	Threatened	Possible
Leatherback Turtle	<i>Dermochelys coriacea</i>	Endangered	Unlikely
Loggerhead Turtle	<i>Caretta caretta</i>	Endangered	Unlikely
Olive Ridley Turtle	<i>Lepidochelys olivacea</i>	Endangered	Unlikely
Birds			
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Endangered	Unlikely
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Threatened	Unlikely
Western Snowy Plover*	<i>Charadrius nivosus nivosus</i>	Threatened	Possible
California Brown Pelican**	<i>Pelecanus occidentalis</i>	Delisted	Possible

*Possible fly over.

**This species was delisted but still considered for impacts because it is fully protected by California Fish and Game Code.

Protected, rare, threatened, or endangered species that may occur within the region include green sea turtle (*Chelonia mydas*) (Federally Threatened) and the California brown pelican (Protected under Migratory Bird Treaty Act and California Fish and Game Code). Mammals protected under the Marine Mammal Protection Act with potential to occur in southern Avalon Bay (Bay) include harbor seal (*Phoca vitulina*) and California sea lion (*Zalophus californianus*).

Green sea turtles (GST) are found throughout southern California and several sightings and strandings have confirmed their presence on Santa Catalina Island. The Project site lies within the proposed critical habitat designated by NMFS's latest report that is currently under review (NMFS 2023c). This area has been designated as having moderate conservation value due to foraging and resting behavior of GST documented in the region. It is unlikely that GST would enter the highly modified environment of Avalon Bay for transit or resting. GSTs primarily forage in eelgrass habitat, of which Avalon has none (Bernstein et al. 2011). Some GSTs also forage on macroalgae and invertebrates, but that niche is more common in juvenile pelagic stages where they feed on floating algal material such as *Sargassum*. Therefore, the presence of GST at the Project site is possible but highly unlikely.

The Hawaiian petrel (*Pterodroma sandwichensis*) (endangered) and the marbled murrelet (*Brachyramphus marmoratus*) (threatened) both have ranges that encompass the eastern Pacific region. There are no known nesting sites of either of these birds on Santa Catalina Island nor have there been any documented sightings of them. Furthermore, the Project site does not lie within any critical habitat ranges for either of these birds. The likelihood of Hawaiian petrels or marbled murrelets occurring in the Project site is, therefore, unlikely.

Western snowy plovers have nearby nesting sites in the Channel Islands but not on Santa Catalina Island. These birds breed and forage on sandy landscapes which do not occur within the Project site. Although these birds are not known to nest on Catalina Island, they have been observed on the island

(eBird). There is potential for snowy plovers to fly-over the Project site to reach sandy landscapes so they have been deemed as possible.

California brown pelicans were delisted from the federal list of endangered and threatened wildlife in 2009, however this species is still considered to be sensitive. The only long-term breeding colonies of California brown pelicans in the United States are on the near-by Anacapa and Santa Barbara Islands. The Channel Islands also provide roosting habitat for the birds, with major roosting areas occurring on offshore rocks of Santa Cruz Island and near the lighthouse on East Anacapa Island. The occurrence of California brown pelicans at the project site is thus likely.

Two pinniped species, California sea lions and harbor seals, reside on Santa Catalina Island. California sea lions do not breed on the island and the majority of them are found at Seal Rock located approximately 2.5 nautical miles from Avalon (Le Boeuf 2002). California sea lions have potential to be found near the Project site but are likely to be deterred by the modified nature of the site, as compared to the rest of the island, as well as the constant boat traffic that occurs within the bay. Harbor seals do breed on the island; however, they are found on the western side of the island, far from the Project site (Le Boeuf 2002). Both pinniped species are thus deemed possible but unlikely to appear within the Project site.

Common dolphin's and bottlenose dolphins have widespread distributions and are commonly observed in southern California nearshore environments. They are also often observed in the San Pedro Channel which separates the island from the mainland. These animals are often observed either swimming in the Channel or bow-riding vessels transiting to and from the island. The potential for the occurrence of these species within the Project site is low because dolphin species are rarely observed within highly modified shoreline environments such as Avalon Bay. Additionally, whale species such as the blue whale and the gray whale are often observed in the Channel, but the constraints of Avalon Bay would deem them unlikely to occur.

4 Essential Fish Habitat Assessment

This section provides an Essential Fish Habitat Assessment for EFH located within the designated Project site. This EFH includes an evaluation of proposed actions from the Project that could potentially impact EFH. The following section discusses the legal background and purpose of an EFH for managed species, fisheries, and Habitat Areas of Particular Concern (HAPCs) with potential to occur within the Project Site.

4-1 Essential Fish Habitat Background

The following EFH assessment for the proposed Project is provided in accordance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSA) (Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600). The amendments require the delineation of “essential fish habitat” for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the NMFS regarding the potential effects of their actions on EFH and respond in writing to the NMFS’s recommendations.

The MSA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” For the purpose of interpreting the definition of essential fish habitat: “waters” includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle. A healthy ecosystem is defined under the MSA as, “an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself”.

The purpose of this EFH assessment is to comprehensively identify and analyze EFH occurring within the designated study area so that federal agencies can best determine whether the proposed Project would adversely affect designated EFH and identify possible conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH. The MSA requires consultation for all federal agency actions that may adversely affect EFH. EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location. Under Section 305(b)(4) of the MSA, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. As such, the following EFH assessment, which includes an analysis of species managed by the Pacific Fishery Management Council (PFMC) that are known to utilize EFH within the study area, and an analysis of potential HAPCs within the study area, will provide all the information necessary for NMFS to conduct any future EFH consultations for the proposed Project.

4-2 Managed Fisheries with the Potential to Occur Within the Project Site

To adequately address EFH within the Project site, fish species managed by the PFMC that are known to either occur within the study area, have historically occurred within the study area, or depend upon those marine habitats that are known to occur within study area, were identified. This was accomplished through a thorough analysis of the habitat requirements of PFMC managed fish species (McCain et al. 2005 and Love et al. 2002), and by running an analysis using the latest EFH GIS software regularly maintained and updated by NOAA Fisheries (NMFS 2023b). In all, 92 fish species managed by the PFMC fall under the Coastal Pelagic Species Fisheries Management Plan (FMP), which includes the Finfish FMP (Table 3), and under the Pacific Groundfish FMP (Table 4). Additionally, 14 species specific FMPs are listed for this region (Table 5). During this survey, no species managed by PFMC were observed in the Project site. However, topsmelt were observed, which have been designated by the fishery management plan as ecosystem component species along with Pacific herring (PFMC 2023).

Table 3. Fish species managed under the Coastal Pelagic Species FMP occurring within the study area.

Common Name	Species Name
Pacific sardine	<i>Sardinops sagax</i>
Pacific (chub) mackerel	<i>Scomber japonicus</i>
Northern anchovy	<i>Engraulis mordax</i>
Market squid	<i>Doryteuthis opalescens</i>
Jack mackerel	<i>Trachurus symmetricus</i>
Krill	<i>Euphausia pacifica</i> and <i>Thysanoessa spinifera</i>

Table 4. Fish species managed under the Pacific Coast Groundfish FMP.

Common Name	Species Name
Elasmobranchs	
Big skate	<i>Raja binoculata</i>
Leopard shark	<i>Triakis semifasciata</i>
Longnose skate	<i>Raja rhina</i>
Spiny dogfish	<i>Squalus suckleyi</i>
Roundfish	
Cabazon	<i>Scorpaenichthys marmoratus</i>
Kelp greenling	<i>Hexagrammos decagrammus</i>
Lingcod	<i>Ophiodon elongatus</i>
Pacific cod	<i>Gadus macrocephalus</i>
Pacific whiting (hake)	<i>Merluccius productus</i>
Sablefish	<i>Anoplopoma fimbria</i>
Rockfish	
Aurora rockfish	<i>Sebastes aurora</i>
Bank rockfish	<i>S. rufus</i>
Black rockfish	<i>S. melanops</i>
Black and yellow rockfish	<i>S. chrysomelas</i>
Blackgill rockfish	<i>S. melanostomus</i>
Blackspotted rockfish	<i>S. melanostictus</i>
Blue rockfish	<i>S. mystinus</i>
Bocaccio	<i>S. paucispinis</i>
Bronzespotted rockfish	<i>S. gilli</i>

Common Name	Species Name
Brown rockfish	<i>S. auriculatus</i>
Calico rockfish	<i>S. dallii</i>
California scorpionfish	<i>Scorpaena gutatta</i>
Canary rockfish	<i>Sebastes pinniger</i>
Chameleon rockfish	<i>S. phillipsi</i>
Chilipepper rockfish	<i>S. goodei</i>
China rockfish	<i>S. nebulosus</i>
Copper rockfish	<i>S. caurinus</i>
Cowcod	<i>S. levis</i>
Darkblotched rockfish	<i>S. crameri</i>
Deacon rockfish	<i>S. diaconus</i>
Dusky rockfish	<i>S. ciliatus</i>
Dwarf-red rockfish	<i>S. rufinanus</i>
Flag rockfish	<i>S. rubrivinctus</i>
Freckled rockfish	<i>S. lentiginosus</i>
Gopher rockfish	<i>S. carnatus</i>
Grass rockfish	<i>S. rastrelliger</i>
Greenblotched rockfish	<i>S. rosenblatti</i>
Greenspotted rockfish	<i>S. chlorostictus</i>
Greenstriped rockfish	<i>S. elongatus</i>
Halfbanded rockfish	<i>S. semicinctus</i>
Harlequin rockfish	<i>S. variegatus</i>
Honeycomb rockfish	<i>S. umbrosus</i>
Kelp rockfish	<i>S. atrovirens</i>
Longspine thornyhead	<i>Sebastolobus altivelis</i>
Mexican rockfish	<i>Sebastes macdonaldi</i>
Olive rockfish	<i>S. serranoides</i>
Pink rockfish	<i>S. eos</i>
Pinkrose rockfish	<i>S. simulator</i>
Pygmy rockfish	<i>S. wilsoni</i>
Pacific Ocean perch	<i>S. alutus</i>
Quillback rockfish	<i>S. maliger</i>
Redbanded rockfish	<i>S. babcocki</i>
Redstripe rockfish	<i>S. proriger</i>
Rosethorn rockfish	<i>S. helvomaculatus</i>
Rosy rockfish	<i>S. rosaceus</i>
Rougheye rockfish	<i>S. aleutianus</i>
Sharpchin rockfish	<i>S. zacentrus</i>
Shortraker rockfish	<i>S. borealis</i>
Shortspine thornyhead	<i>Sebastolobus alascanus</i>
Silvergray rockfish	<i>Sebastes brevispinis</i>
Speckled rockfish	<i>S. ovalis</i>
Splitnose rockfish	<i>S. diploproa</i>
Squarespot rockfish	<i>S. hopkinsi</i>
Sunset rockfish	<i>S. crocotulus</i>
Starry rockfish	<i>S. constellatus</i>
Stripetail rockfish	<i>S. saxicola</i>
Swordspine rockfish	<i>S. ensifer</i>
Tiger rockfish	<i>S. nigrocinctus</i>

Common Name	Species Name
Treefish	<i>S. serriceps</i>
Vermilion rockfish	<i>S. miniatus</i>
Widow rockfish	<i>S. entomelas</i>
Yelloweye rockfish	<i>S. ruberrimus</i>
Yellowmouth rockfish	<i>S. reedi</i>
Yellowtail rockfish	<i>S. flavidus</i>
Flatfish	
Arrowtooth flounder (turbot)	<i>Atheresthes stomias</i>
Butter sole	<i>Isopsetta isolepis</i>
Curlfin sole	<i>Pleuronichthys decurrens</i>
Dover sole	<i>Microstomus pacificus</i>
English sole	<i>Parophrys vetulus</i>
Flathead sole	<i>Hippoglossoides elassodon</i>
Pacific sanddab	<i>Citharichthys sordidus</i>
Petrale sole	<i>Eopsetta jordani</i>
Rex sole	<i>Glyptocephalus zachirus</i>
Rock sole	<i>Lepidopsetta bilineata</i>
Sand sole	<i>Psettichthys melanostictus</i>
Starry flounder	<i>Platichthys stellatus</i>

Table 5. Species-specific management plans

Common Name	Species Name
Albacore tuna	<i>Thunnus alalunga</i>
Bigeye tuna	<i>Thunnus obesus</i>
Blue shark	<i>Prionace glauca</i>
Broadbill Swordfish	<i>Xiphias gladius</i>
Common thresher shark	<i>Alopias vulpinus</i>
Dorado	<i>Salminus brasiliensis</i>
Krill-Euphausia pacifica	<i>Euphausia Pacifica</i>
Krill-Thysanoessa spinifera	<i>Thysanoessa spinifera</i>
Northern bluefin tuna	<i>Thunnus thynnus</i>
krill species	Multiple species
Shortfin mako shark	<i>Isurus oxyrinchus</i>
Skipjack tuna	<i>Katsuwonus pelamis</i>
Striped marlin	<i>Kajikia audax</i>
Yellowfin tuna	<i>Thunnus albacares</i>

4-3 Habitat Areas of Particular Concern (HAPC) Observed Within the Project Site

HAPCs are present within the Project site. HAPCs are a discreet subset of habitats within an EFH that are distinguished by characteristics including their high ecological value and vulnerability to anthropogenic stressors (Figure 6).

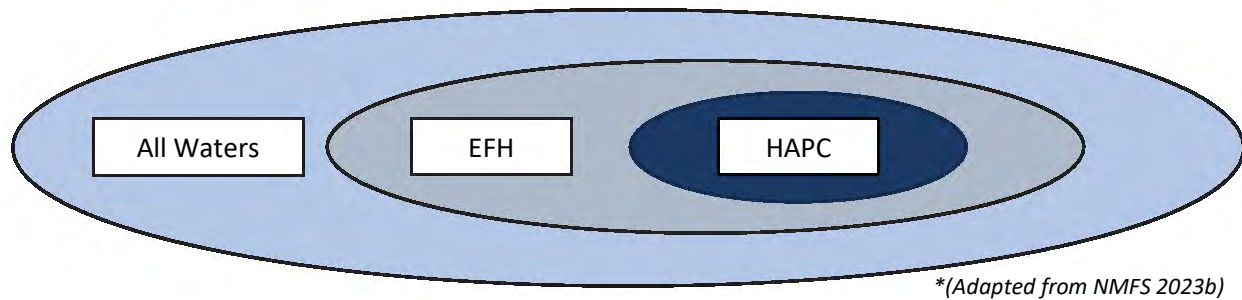


Figure 6. Figure depicting organization chart of essential fish habitat and habitats of particular concern.

Areas within designated EFH can also be designated as an HAPC based on one or more of the following characteristics (NMFS 2023b):

- 1) The importance of the ecological function provided by the habitat
- 2) Its sensitivity to human-induced environmental degradation
- 3) The extent of threats posed by development of the habitat
- 4) The rarity of the habitat type

HAPCs are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function (NMFS 2023b). The HAPC designation does not necessitate additional protections or restrictions upon an area, but the help to prioritize and focus conservation efforts (NMFS 2023b). Although these habitats are particularly important for healthy fish populations, other EFH areas that provide suitable habitats are also necessary to support and maintain sustainable fisheries and a healthy ecosystem (NMFS 2023b). Current HAPC types are estuaries, canopy kelp, seagrass, and rocky reefs.

The Project site does not hold any HAPCs.

5 Laws and Regulations

5-1.1 Coastal Zone Management Act of 1972

The Coastal Zone Management Act of 1972 is administered by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources and balances economic development with environmental conservation.

The Coastal Zone Management Act outlines two national programs. The National Coastal Zone Management Program includes 34 coastal programs. The goal of these programs is to balance competing land and water issues in the coastal zone. The National Estuarine Research Reserve System creates field laboratories that provide a greater understanding of estuaries and how humans affect them. The overall program objectives of the act are to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

The Coastal Zone Management Act ensures that development projects in coastal areas are designed and permitted in a manner that is consistent with coastal zone land uses, maximizes public health and safety, and ensures that biological resources (e.g., wetlands, estuaries, beaches, and fish and wildlife and their habitat) within the coastal zone are protected. The California Coastal Commission enforces the Coastal Zone Management Act by certifying that any proposed project is consistent with the California Coastal Act of 1976 (as amended). The enforceable policies of the Coastal Zone Management Act are found in Chapter 3 of the California Coastal Act.

5-1.2 Rivers and Harbors Act (Section 10)

The USACE is authorized to regulate any activity within or over any navigable water of the United States pursuant to Section 10 of the Rivers and Harbors Act. Rivers and Harbors Act Section 10 jurisdiction is defined as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use, to transport interstate or foreign commerce" (33 Code of Federal Regulations 322). The San Diego Bay is considered a traditional navigable water regulated under Section 10 of the Rivers and Harbors Act.

5-1.3 Endangered Species Act of 1973

Species listed as endangered and/or threatened by the USFWS are protected under Section 9 of the federal Endangered Species Act, which forbids any person to "take" an endangered or threatened species. Take is defined in Section 3 of the act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Supreme Court ruled in 1995 that the term "harm" includes destruction or modification of habitat. Sections 7 and 10 of the Act may authorize "incidental take" for an otherwise lawful activity (a development project, for example) if it is determined that the activity would not jeopardize survival or recovery of the species. Section 7 applies to projects where a federally listed species is present and there is a federal nexus, such as a federal Clean Water Act (CWA) Section 404 permit (e.g., impacts on waters of the U.S.) that is required. Section 10, requiring an incidental take permit, applies when a federally listed species is present, but there is no federal nexus.

5-1.4 Magnuson-Stevens Fishery Management and Conservation Act, as amended 1996 (Public Law 104-267)

Federal agencies must consult with NOAA Fisheries on actions that may adversely affect EFH. EFH is defined as those “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” NOAA Fisheries encourages streamlining the consultation process using review procedures under the National Environmental Policy Act, Fish and Wildlife Coordination Act, the CWA, and/or the federal Endangered Species Act (ESA) provided that documents meet requirements for EFH assessments under Section 600.920(g). EFH assessments must include (1) a description of the proposed action, (2) an analysis of effects, including cumulative effects, (3) the federal agency’s views regarding the effects of the action on EFH, and (4) proposed mitigation, if applicable. The EFH is discussed in Section 5 of this report.

5-1.5 Marine Mammal Protection Act of 1972

The Marine Mammal Protection Act (MMPA) of 1972 prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. Congress passed the MMPA based on the following findings and policies: (1) some marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities, (2) these species or stocks must not be permitted to fall below their optimum sustainable population level (depleted), (3) measures should be taken to replenish these species or stocks, (4) there is inadequate knowledge of the ecology and population dynamics, and (5) marine mammals have proven to be resources of great international significance.

The MMPA was amended substantially in 1994 to provide for: (1) certain exceptions to the take prohibitions, such as for Alaska Native subsistence, and for permits and authorizations for scientific research; (2) a program to authorize and control the taking of marine mammals incidental to commercial fishing operations; (3) preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; and (4) studies of pinniped-fishery interactions. Additionally, under the 1994 amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance that:

- Has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or
- Has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavior patterns, including, but not limited to migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B harassment).

NOAA Fisheries and USFWS administer the MMPA. The proposed Project must be analyzed to ensure that marine mammals protected under the MMPA would not be harassed or injured as a result of future activities in or adjacent to San Diego Bay. Any future Project activities that may result in Level A or B harassment, injury, or mortality would require consultation with NOAA Fisheries and USFWS under the MMPA.

5-1.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 to prohibit the killing or transport of native migratory birds, or any part, nest, or egg of any such bird, unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA, “take” means to kill, directly harm, or destroy individuals, eggs, or nests or to otherwise cause failure of an ongoing nesting effort. Migratory bird species that are protected by the MBTA is maintained by USFWS, which regulates most aspects of the taking, possession, transportation, sale, purchase, barter, exportation, and importation of migratory birds. The USFWS does not issue permits for “incidental take” of migratory birds that results from otherwise lawful activities such as construction of development projects.

5-1.7 Clean Water Act

The major federal legislation governing water quality is the Federal Water Pollution Control Act Amendments of 1972, commonly known as the CWA (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987. The intention of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States (WoUS) are regulated under CWA Section 404 and includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below.

- **Section 401** requires any federal permit applicant that proposes an activity that may result in a discharge into WoUS to obtain certification from the state that the discharge will comply with the CWA. A 401 certification is provided by the Regional Water Quality Control Board (RWQCB) assigned to the Project’s region. A Section 401 certification from the San Diego RWQCB would be required this Project if a Section 404 permit and Rivers and Harbor Act (Section 10) permit is required.
- **Section 404** certification is required where USACE issues permits for discharge of dredged or fill material into WoUS. These permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) USACE review and approval of sediment quality analysis before dredging; (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring; and (3) requiring compensation for loss of WoUS.

5-1.8 California Eelgrass Mitigation Policy

Eelgrass, *Zostera* spp., is protected under the CWA as a habitat forming species and the resource is managed locally under the California Eelgrass Mitigation Policy (CEMP) as developed by NOAA fisheries (NMFS 2014). Additionally, due to the high ecological value of eelgrass as essential fish habitat, eelgrass is also designated as a habitat area of particular concern (HAPC) by NOAA Fisheries. The CEMP requires that an eelgrass survey be performed prior to construction to evaluate the presence of eelgrass and or potential eelgrass habitat.

NMFS has provided this policy to other state and federal agencies, including the California Department of Fish and Wildlife (CDFW), as guidance for handling project-related impacts on eelgrass habitat.

5-2 State

5-2.1 California Coastal Act of 1976

California ports, harbors, and coastline beaches are recognized as primary economic and coastal resources and as essential elements of the national maritime industry by the California Coastal Act of 1976. Decisions to undertake specific development projects are to be based on consideration of alternative locations and designs to minimize any adverse environmental impacts. The California Coastal Act is implemented by the California Coastal Commission (CCC).

5-2.2 California Endangered Species Act; Fully Protected Species

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available should not be approved according to the CESA. For projects that affect both a state- and federally listed species, compliance with the federal ESA will satisfy the CESA if the CDFW determines that the federal incidental take authorization is consistent with the CESA under California Fish and Game Code Section 2080.1. Also, California Fish and Game Code Sections 3511, 4700, 5050, and 5515 prohibit take or possession of fully protected species.

5-2.3 California Fish and Game Code

Other sections of the California Fish and Game Code establish the Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. Under Sections 200-221 the Fish and Game Commission is responsible for regulating the take of fish and game, not including the taking, processing, or use of fish, mollusks, crustaceans, kelp, or other aquatic plants for commercial purposes. The Fish and Game Commission does regulate aspects of commercial fishing, including fish reduction; shellfish cultivation; take of herring, lobster, sea urchins, and abalone; kelp leases; leases of state water bottoms for oyster allotments; and aquaculture operations. The resource protection is responsible for setting recreational and commercial limits on species collection, collection method, and determines the conditions under which permits, or licenses may be issued or revoked by CDFW. The Fish and Game Commission also oversees the establishment of wildlife areas and ecological reserves and regulates their use and sets policy for CDFW.

CDFW is a state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

5-2.4 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is the California or state equivalent of the federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the State Water Resources Control Board (SWRCB) and nine separate RWQCBs that oversee water quality on a day-to-day basis at the regional/local level. The RWQCB regulates actions involving “discharging waste, or proposing to discharge waste, within any region that could affect the water of the state”

(Water Code Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. Waters of the state (WoS) are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code Section 13050 (e)).

The RWQCB regulates WoS under Section 401 of the CWA. This requires states to certify that federally authorized activities comply with state water quality standards. A Water Quality Certification or a waiver must be obtained from the RWQCB if an activity requiring a Section 404 permit would affect WoS. Additionally, the RWQCB issues waste discharge requirements for discharges to WoS for fill of wetlands and other waters that are not regulated by Section 404 of the federal CWA.

5-3 Local

5-3.1 Catalina Island Local Coastal Management Plan

The Open Space Easement Agreement that was signed between the County of Los Angeles and the Santa Catalina Island Company allowed for the development of the island. This agreement also called for the preservation of the natural character of the Island and improvement of the Island’s access and recreational opportunities. The Santa Catalina Island Conservancy was established to manage the Island’s biotic resources in perpetuity. The California Coastal Act of 1976 calls for coastal areas such as Catalina to have a Local Coastal Plan (LCP) which recognizes and responds to the goals and requirements of the Open Space Easement Agreement, the Santa Catalina Island Conservancy, and the California Coastal act to ensure that the vast majority of the Island will remain in its natural state for future generations to enjoy. The main goals of this LCP are to provide shoreline access and recreation, resource protection, and control new development. The first goal is accomplished by increasing shoreline access and interior Island access, improved boater access, increase recreational activities, and expansion of the visitor season. The second goal is accomplished by preserving undisturbed areas, minimizing impacts or alteration of topography and natural resources, educating the public, improving habitat areas, and protecting sensitive environments. New developments must be compatible with these goals, ideally mitigating environmental impacts by channeling development into already developed or used areas.

6 Project Impact Analysis

6-1 Thresholds of Significance

The following significance criteria are based on Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines and provide the basis for determining the significance of biological resource impacts resulting from the proposed Project. The determination of whether a biological resource impact would be significant is based on the threshold described below and the professional judgment and recommendations of qualified MTS personnel.

Impacts are considered if the proposed Project would result in any of the following.

Threshold 1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Threshold 2: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

6-2 Project Elements

The proposed Avalon Club Dock Project is summarized by the following elements:

- Removal of old concrete footings
- Replace existing approach pier and gangway with new 80 ft-gangway
 - Option A:
 - Construction of the foundations requires using CMP pipes set on the bay floor to be excavated by divers.
 - Drilling and installation of the No. 9 epoxy coated anchors.
 - Placement of the foundation reinforcing and pouring of the concrete footing.
 - A steel wide flange will be placed in the middle of each column and the form would be backfilled with concrete.
 - Overhead hoist beam would be welded to the vertical columns.
 - Option B:
 - Use of a crane positioned landside on Saint Catherine Way.
 - Install API heavy wall steel pipe into the sea floor.
 - Use of a large casing drill to advance casing through the overburden sand and gravels, and then into the underlying bedrock through which the drill bit can then drill to a total depth of 20 feet into the rock.
 - API steel pipe set into the steel casing and filled with concrete up to the bay floor.
 - Zinc anodes would be installed on each leg to be replaced annually.
 - Upper framework remains the same as Option A
- Addition of new in-kind docks designed to accommodate a smaller winter dock of roughly 440 square feet in dimension and a larger summer dock of roughly 1,040 square feet of dock space for dinghies to tie up to.

6-3 Project Impacts and Mitigation Measures

6-3.1 Construction Related Impacts

In general, construction activities from implementation of the proposed Project could cause construction-induced noise, increases in turbidity, and release of particulates and chemicals of concern into U.S. and State waters. These impacts fall under Threshold 1. A discussion of each of these potential construction-related impacts is provided below.

6-3.1.1 Construction Noise Impacts on Marine Resources

The use of large machinery for construction and demolition could result in construction-induced noise impacts that could alter the behavior of protected species. These impacts could occur from construction activities such as drilling, operation of heavy construction equipment, or unloading building materials. Construction-induced noise impacts from landside construction activity and overwater construction activities such as drilling could disrupt the behavior of piscivorous birds, marine mammals, and turtles (**Impact-1**). The noise impacts associated with Option A are considered less than significant due to the absence of heavy machinery whereas Option B has significant noise impacts due to the use of a casing drill. It is unlikely that marine mammals or turtles will inhabit the area; however, noise can impact the foraging behavior of piscivorous birds such as the California brown pelican. And, if marine mammals or turtles were to occur, the noise could alter their behavior. The impacts for Option B are considered significant without mitigation.

6-3.1.2 Construction Water Quality Impacts on Marine Resources

Construction activities associated with gangway installation could increase levels of turbidity within surrounding waters in the absence of mitigation (**Impact-2**). Increases in water turbidity may occur as a result of displaced sediment from excavation of the seafloor where CMP forms are placed (Option A) or drilling to prepare the casing for steel pipes (Option B).

Increased sedimentation and turbidity can also be accompanied by lower dissolved oxygen content. In general, increased turbidity could limit the ability of piscivorous avian species to locate prey. Additionally, disruption to the photic zone can occur due to increased turbidity. Prolonged increases in turbidity can reduce primary productivity because turbid water prevents sunlight from reaching macroalgae at the seafloor. These impacts would be considered a significant impact without mitigation (**Impact-2**).

Construction activities could result in impacts on protected species by changing the water chemistry in the surrounding waters. Both options for construction of the new gangway involve pouring and curing concrete in the water. Recently-cast concrete is known to increase the pH level of water it contacts, which has the potential to harm marine species. However, given the small amount of concrete to be poured, there will be no measurable and no significant alteration of pH. Thus, the impacts of the small amount of concrete used for this Project are less than significant.

Additionally, pollution could be caused by the inadvertent introduction of pollutants such as fuel, oil, and/or other industrial and mechanical fluids into waters of the U.S., either from construction

equipment, landside construction vehicles, construction vessels, and from partially completed overwater structures. If this were to happen, it would constitute a significant impact (**Impact-3**).

6-3.2 Construction Related Mitigation Measures

6-3.2.1 Construction Noise Mitigation Measures

The impacts associated with noise from drilling activities proposed for Option B gangway construction (**Impact-1**) can be reduced by implementing biological construction monitoring (**Mitigation-1**). A qualified biologist approved by the City of Avalon would monitor drilling activities. The monitor would have the ability to reduce or temporarily stop noise producing activities if those activities were believed to impact or otherwise alter foraging behavior of sensitive avian species such as the California brown pelican. If the qualified biologist identifies that the activities are impacting the foraging behavior of sensitive avian species, actions to be taken shall include, but not be limited to, the installation of sound barriers, reducing intensity of drilling and restricting drilling to periods when sensitive species are not present. Implementation of **Mitigation-1** would reduce impacts to sensitive species to less than significant by minimizing the effects of noise producing activities that could alter behavior.

The monitor will also observe for any marine mammals or turtles present in the waters surrounding the Project area to assess impacts of noise on the animals' behavior (**Mitigation-1**). If marine mammals are hauled out within the zone where sound thresholds may be exceeded, then the biological monitor will notify the contractor to halt or alter the noise generating activity such that construction drilling noise is at or below 90 dB RMS or 100 dB RMS for harbor seals and non-harbor seals, respectively. For portions of the proposed Project that generate in water noise such as drilling, the biological monitor will monitor for marine mammals and sea turtles within 100 meters of construction. The drilling will not produce sounds capable of Level A impacts to marine mammals and sea turtles as established by NOAA NMFS (NMFS 2018). However, Level B harassment of marine mammals is possible. Like monitoring for hauled out animals, the biological monitor will have the authority to halt or modify work based on animal observations relative to the monitoring distance. There is no specific guidance for sea turtles, but they are often monitored alongside marine mammals to ensure their protection. Implementation of **Mitigation-1** would reduce **Impact-1** to less than significant for Option B construction.

6-3.2.2 Construction Water Quality Mitigation Measures

Turbidity generated by in-water construction activities (**Impact-2**) can be reduced by implementing various measures required under **Mitigation-2**. Two options are available to decrease this impact to less than significant. The first is the use of a silt curtain around the excavation activities of Option A or the drilling activities of Option B to limit the spread of any turbidity generated. The second option is to time excavation or drilling activities for low tide when the area is not submerged.

The degradation of water chemistry could occur due to accidental spills of chemicals in the water (**Impact-3**). These impacts can be reduced by the implementation of a few best management practices. Construction crews will have appropriate spill kits on site and shall not fuel or clean equipment on site unless a spill containment structure is in place. If a spill occurs, cleanup shall begin immediately if safe to do so and the California Governor's Office of Emergency Services shall be contacted at 800.852.7550. As such, **Mitigation-3** would reduce impacts to less than significant.

6-3.2.3 *Excavation Impacts on Marine Resources*

Direct impacts to the benthic community would include the loss or mortality of any benthic infauna and epifauna within the pile and drilling footprints (**Impact-4**). For Option A, the impact area of excavation by diver is approximately 2.09 to 5.23 cubic yards per piling based on the estimated depth of bedrock being 2 to 5 feet below surface substrate. Option A's total excavated material will be approximately 8.36 to 20.92 cubic yards. Option B requires drilling to depths of 20 feet to fit 12-inch diameter pipes which results in approximately 0.58 cubic yards of excavated materials per piling. Option B's total excavated material will be approximately 2.32 cubic yards.

Benthic and epibenthic fauna will occur in the top portions of the excavated area which are not home to any particularly sensitive or ecologically important species. Adjacent habitat would be expected to provide alternative foraging habitat for motile species following the bottom disturbance. It is anticipated that the disturbed areas would be re-colonized by adult migration from adjacent areas as well as colonization by larval recruitment. As such, the impact of drilling and diver excavation is minimal, temporary, and therefore considered not significant.

6-3.3 *Operational Impacts*

Operational impacts are permanent impacts caused by construction such as the increase in overwater cover or increase in ocean fill. This project is in-kind in terms of overwater coverage, but an increase in ocean fill is a possible consequence of construction depending on which option is utilized. These impacts fall under Threshold 2. A discussion of each of these potential construction-related impacts is provided below.

6-3.3.1 *Permanent Fill Impacts on Marine Resources*

The installation of gangway support structures for Option A results in a net increase in fill (**Impact-5**). The current footprint of the existing piles is 0.24 cubic yards. The total permanent fill for Option A is 4.19 cubic yards for the concrete footings, resulting in a net increase of 3.95 cubic yards. Option B's API piles result in a permanent fill of 0.12 cubic yards, resulting in a net decrease of 0.12 cubic yards. The increase in fill for Option A is considered significant without mitigation. Increases in fill can alter water velocities, circulation patterns, or sedimentation rates that could affect local flora and fauna.

6-3.4 *Operational Mitigation Measures*

6-3.4.1 *Permanent Fill Mitigation Measures for Marine Resources*

Increase in ocean fill can be mitigated by removal of other areas of ocean fill. Mitigation measure **Mitigation-5** would remove old concrete footings and other materials from the ocean floor to reduce **Impact-5** to less than significant. If deemed possible by construction crews and engineers, the Permittee shall mitigate the fill of ocean waters by removing old construction elements from the ocean floor within the Project site. Diver surveys estimate the concrete footings to be approximately 3.1 cubic yards of fill, however, the embeddedness of these concrete blocks could increase that number substantially as well as the removal of other debris such as metal pipes and smaller concrete

debris in the area. Removal of all debris and old construction elements in the region will sufficiently mitigate the net increase of fill from the proposed Option A construction. Implementation of **Mitigation-5** would reduce the fill impacts (**Impact-5**) to less than significant.

6-4 Impacts and Mitigation Summary

Impact-1: The use of large machinery for construction and demolition could result in construction-induced noise impacts that could alter the behavior of protected species.

Mitigation-2: Implementation of sensitive species monitoring to include marine mammals, turtles, and avian species.

Impact-2: Construction activities associated with gangway installation could increase levels of turbidity in waters within surrounding waters in the absence of regulations

Mitigation-2: Either use of a silt curtain around the drilling activities or time drilling activities for low tide when the area is not submerged for Option B.

Impact-3: Construction activities could result in impacts on protected species by changing the water chemistry in the surrounding waters

Mitigation-3: Construction crews will have appropriate spill kits on site and shall not fuel or clean equipment on site unless a spill containment structure is in place.

Impact-4: Direct impacts to the benthic community would include the loss or mortality of any benthic infauna and epifauna within the pile and drilling footprints.

Impact-5: The installation of gangway support structures for Option A results in a net increase in fill.

Mitigation-5: If deemed possible by construction crews and engineers, approximately 3.1 cubic yards of existing fill from the ocean floor within the Project site will be removed.

6-4.1 Level of Significance After Mitigation

The potential noise related impacts on sensitive species such as marine mammals, turtles, and piscivorous avian species (**Impact-1**) has been deemed less than significant without mitigation for Option A but significant for Option B. Option B requires **Mitigation-1** which employs a biological monitor to assess impacts to species during drilling activities.

Impacts associated with turbidity increased from installation of gangway support structures (**Impact-2**) would be reduced to less than significant by **Mitigation-2**, which requires the use of a silt curtain or working during low tide conditions.

Implementation of **Mitigation-3** would reduce impacts on water chemistry (**Impact-3**) to less-than-significant levels by conducting work using poured concrete during low tide times to reduce the amount of surrounding waters being impacted. Additionally, spill kits and proper barriers will be put in place to reduce the impacts of accidental spills of chemicals or oils during construction.

No mitigation is required for **Impact-4** which involves the loss or mortality of benthic and epibenthic fauna due to excavation. This impact was deemed less than significant without mitigation due to the availability of similar habitat adjacent to the site and the ability of these species to recolonize the area.

Impacts associated with a net increase in ocean fill (**Impact-5**) would be reduced by **Mitigation-5** which would remove existing structures on the seafloor, making the net change in fill 0.85 cubic yards or less.

7 Discussion

The biological communities present within the designated study area are typical of the bays and shorelines in the region, and are not notably diverse, unique, or sensitive. Fish and invertebrate species that were observed during SCUBA surveys throughout the Project site are generally considered common through the bays and shorelines of the region and would generally not be put at risk by activities such as those proposed by this Project.

The marine habitat within the Project site is generally composed of intertidal and subtidal hard-substrate, small areas of soft-bottom, large concrete blocks or footings, and some scattered anthropogenic debris. Flora and fauna observed within the Project site were typical of species likely to occur within Avalon Bay. Neither sensitive nor unique species were observed during the survey. However, the ecologically important foraging fish, topsmelt, were observed in small numbers within the area which could be important to piscivorous avian species but has no current protections or essential habitat in the area. Invasive species seen included only *Sargassum muticum* which has become extremely common in Southern California and the Channel Islands.

The proposed Project would consist of construction and operational activities in marine environments. Construction related impacts on marine resources that could occur from this Project include construction-induced noise impacts, increases in turbidity, release of particulates and chemicals of concern into U.S. or State waters, and removal of benthic and epibenthic species.

Construction-induced noise impacts from overwater and in-water construction activities such as drilling could disrupt the foraging behavior of the California brown pelican and other sensitive marine mammal or turtle species (**Impact-1**) but is below the threshold to require mitigation for Option A. Option B construction requires a monitor to be present during drilling activities (**Mitigation-1**) to reduce noise impacts on species to less than significant. Drilling activities as well as site excavation can cause an increase in turbidity (**Impact-2**). The possibility for spills of fuel and other chemicals could negatively impact water chemistry (**Impact-3**). However, the implementation of **Mitigation-2 and -3** would reduce these Project level impacts to less than significant with the implementation of a few best management practices. The installation of new gangway support structures could create impacts by increasing the ocean fill (**Impact-5**) and removing benthic and epibenthic species (**Impact-4**). However, **Mitigation-5** involves removal of existing fill within the project site which reduces the impact to insignificant. **Impact-4** was deemed less than significant due to the ability of species to quickly recolonize the area.

Many of the pacific coast groundfish and coastal pelagic fish species are unlikely to occur at the Project site due to the urbanized and shallow nature of the site as well as the lack of seagrass and kelp forest habitat. Although the Project site has moderate species diversity, much of this was due to the availability of hard substrate that was placed there from previous shoreline projects. The availability of such hard substrates provided by shoreline improvements allows for these species to exist within the Project area. Additionally, the Project area falls under essential fish habitats for many pelagic species such as several tuna and shark species but, due to the epipelagic nature of the area, these species are not likely to be encountered.

The purpose of this assessment was to determine whether proposed Project activities would have any effect on the surrounding marine environment, or to the marine flora and fauna reliant on the resources provided by this marine environment. Based on the analyses previously described in this assessment, it has been determined that any potential impacts caused by the Project to the marine environment, sensitive species, and marine mammals can be reduced to less than significant and impacts would be reduced if mitigation measures are followed.

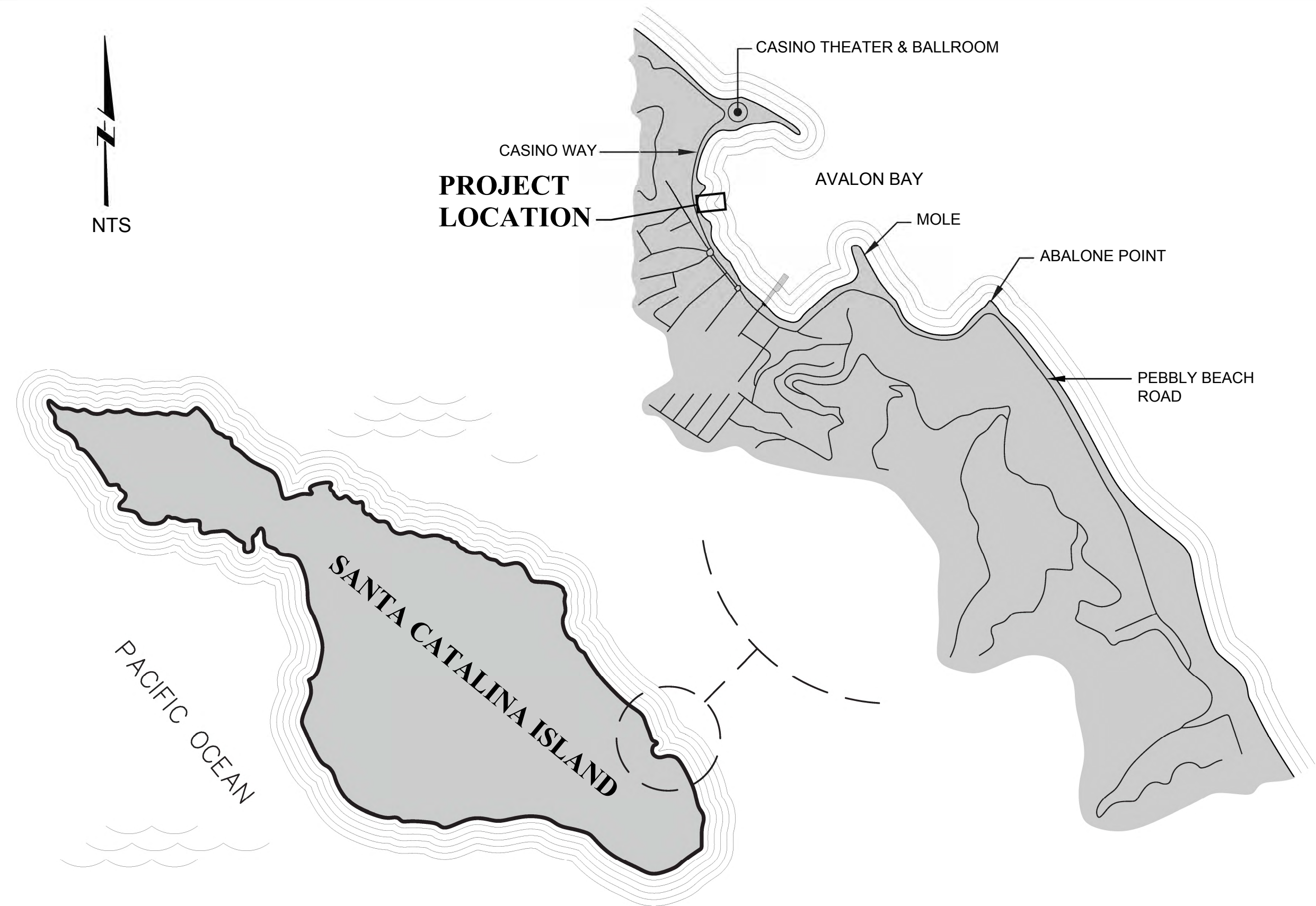
8 References

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Appendix A: Project Plans

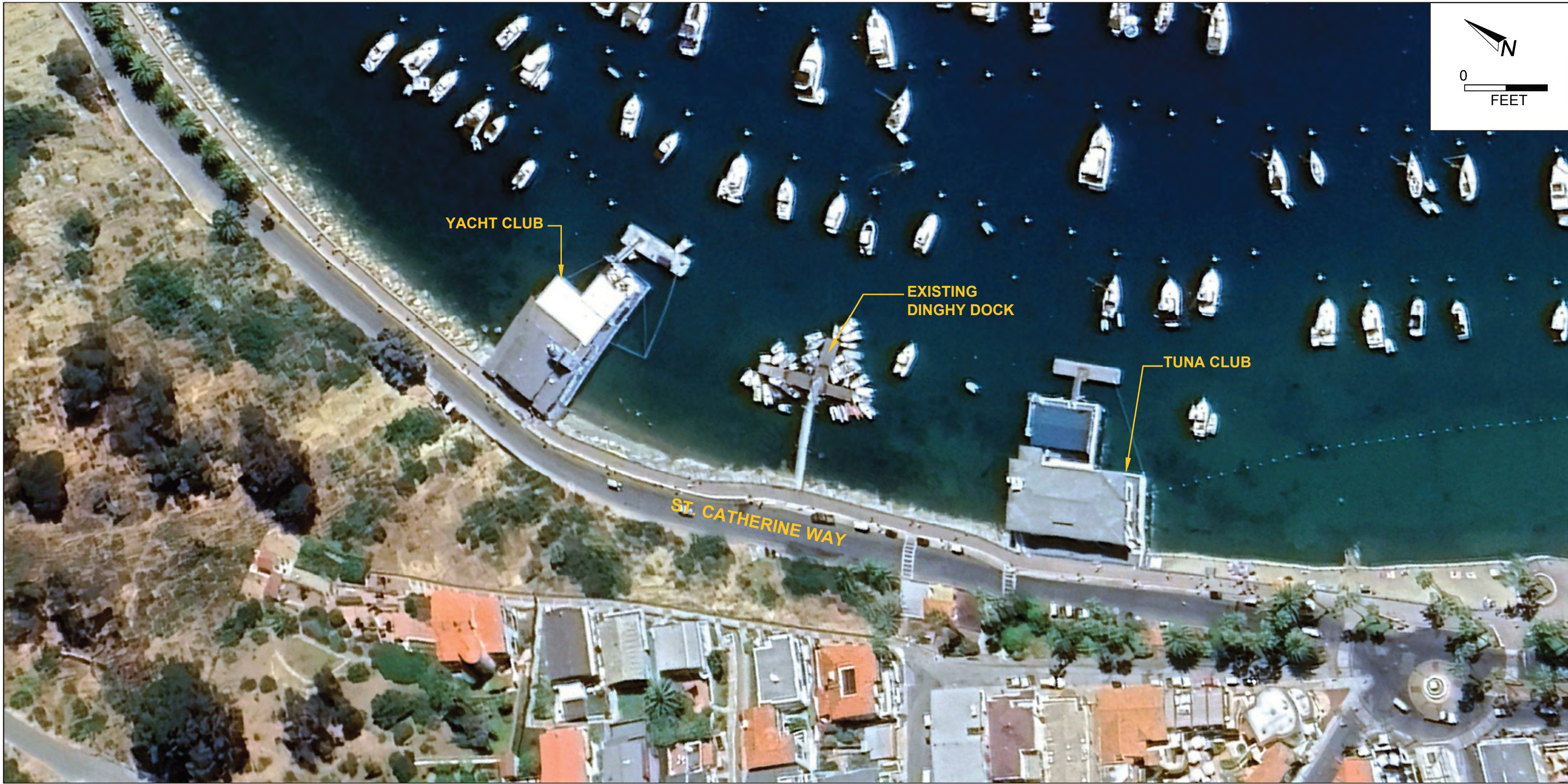


VICINITY MAP
NO SCALE

GENERAL NOTES

- GOVERNING CODE AUTHORITY: CITY OF AVALON.
- WORK SHALL COMPLY WITH 2022 CBC.
- CONTRACTOR TO COMPLY WITH ALL CAL/OSHA REQUIREMENTS.
- GENERAL NOTES AND TYPICAL DETAILS APPLY TO THE DRAWINGS UNLESS NOTED OR DETAILED OTHERWISE.
- WHERE DISCREPANCIES BETWEEN GENERAL NOTES AND DRAWINGS OCCUR, DRAWINGS TAKE PRECEDENCE.
- DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION SUBJECT TO REVIEW BY ENGINEER.
- THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURES. UNLESS OTHERWISE SHOWN, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR WILL SUPERVISE AND DIRECT THE WORK AND IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER DO NOT INCLUDE INSPECTIONS FOR PROTECTIVE MEASURES OR THE PROCEDURES REQUIRED FOR CONSTRUCTION. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION ARE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES, WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES WHICH ARE FURNISHED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, AND WHETHER PERFORMED PRIOR TO, DURING OR AFTER COMPLETION OF CONSTRUCTION, ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS, BUT THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND IS NOT TO BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
- ALL CONDITIONS SHOWN OR NOTED AS EXISTING ARE BASED ON BEST INFORMATION CURRENTLY AVAILABLE AT THE TIME OF PREPARATION OF THESE DRAWINGS. NO WARRANTY IS IMPLIED AS TO THE ACCURACY OF SAME. FIELD VERIFY ALL CONDITIONS AND IMMEDIATELY BRING TO THE ATTENTION OF THE ENGINEER, WHEN IT BECOMES APPARENT, ANY CONDITIONS THAT DIFFER FROM THE CONDITIONS SHOWN HEREIN. THE ENGINEER WILL THEN PREPARE ADDITIONAL DRAWINGS AS MAY BE NEEDED TO ACCOMMODATE THE CONDITIONS AS BROUGHT TO THEIR ATTENTION.

PLANS FOR:
DINGHY DOCK & GANGWAY REPLACEMENT
AVALON, CALIFORNIA



PROJECT LOCATION - GOOGLE EARTH
NO SCALE

SHEET INDEX

SHT. #	DWG. #	DESCRIPTION
1	T-1	TITLE SHEET
2	T-2	NOTES & SPECIFICATIONS
3	C-1	SITE PLANS
4	C-2	CROSS SECTION
5	C-3	CROSS SECTIONS
6	C-4	DETAILS

STANDARD SPECIFICATIONS

- STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK", CURRENT EDITION.)

PROJECT SCOPE OF WORK

THIS PROJECT CONSISTS OF THE FOLLOWING:

- DEMOLISH EXISTING GANGWAY, SUPPORTS AND CONCRETE FOUNDATIONS
- INSTALL ADA COMPLIANT GANGWAY AND SUPPORT STRUCTURES

DIRECTOR OF PUBLIC WORKS CATALINA ISLAND			
APPROVED BY:	BY:	DATE:	APPROVED BY:
			DIRECTOR OF PUBLIC WORKS
			DATE

CITY OF AVALON

410 AVALON CANYON ROAD
AVALON, CALIFORNIA 90704
PHONE: (310) 510-0220 FAX: (310) 510-2478



REVISION	DATE	FULL SIZE: 24x36
		HALF SIZE: 11x17
		DATE: 07/10/24
		NOTE: THIS DRAWING IS REDUCED AND NOT TO SCALE IF SHEET SIZE IS SMALLER THAN 24" x 36"

DINGHY DOCK & GANGWAY REPLACEMENT

SHEET TITLE:

TITLE SHEET

ENGEO
Expect Excellence
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CALIFORNIA 92123
(858) 573-6900



DRAWING NO.

T-1

SHEET
1 OF 6

WORK TO BE DONE

THE WORK TO BE DONE GENERALLY CONSISTS OF THE CONSTRUCTION OF A AN APPROXIMATELY 80-FOOT-LONG VERTICAL CANTILEVERED SEAWALL . THE WALL SHALL BE LOCATED BETWEEN THE INTACT EXISTING SEAWALL TO THE NORTH AND SOUTH OF THE WALL REPLACEMENT. THE SEAWALL CAP WILL INCORPORATE A WAVE DEFLECTOR.

THE CONTRACTOR SHOULD BE AWARE THAT BURIED RIPRAP MAY EXIST WITHIN THE GENERAL LIMITS OF WORK, AND THAT THE REMOVAL AND OFF-SITE DISPOSAL OF ANY RIPRAP ENCOUNTERED IS INCLUDED IN THE SCOPE OF WORK.

SITE ACCESS & STAGING NOTES

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ALLEYS, SIDEWALKS, PRIVATE DRIVEWAYS, AND PUBLIC STREETS AT ALL TIMES.

CONSTRUCTION EQUIPMENT AND ACTIVITIES PERFORMED ON THE SANDY BEACH AREA SHALL NOT RESTRICT LATERAL PUBLIC ACCESS.

CONSTRUCTION MATERIALS: DISTURBANCE TO SAND AND INTERTIDAL AREAS SHALL BE MINIMIZED. BEACH SAND EXCAVATED SHALL BE REDEPOSITED ON THE BEACH. LOCAL SAND OR COBBLES SHALL NOT BE USED FOR BACKFILL OR CONSTRUCTION MATERIAL.

CONSTRUCTION SCHEDULE: CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE APPROVED SCHEDULES OF BOTH THE CITY OF AVALON AND THE CALIFORNIA COASTAL COMMISSION.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE FOLLOWING MATERIAL SPECIFICATIONS PER ASTM DESIGNATIONS AND AS AMENDED TO DATE, UNLESS OTHERWISE NOTED:

- WIDE FLANGES: ASTM A-572, GRADE 50
- ANGLES & OTHER SHAPES: ASTM A-36
- PIPES: API 5L X52
- TUBES: ASTM A-500, GRADE B
- SHEAR PLATES & COLUMN BASE PLATES: ASTM A-36
- CONTINUITY PLATES & DOUBLER PLATES: ASTM A-572, GRADE 50
- MISCELLANEOUS PLATES: ASTM A-36

2. SHOP DRAWINGS FOR STEELWORK MUST BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION. FABRICATOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF FABRICATION. FABRICATION AND ERECTION SHALL CONFORM TO AISC AND AWS SPECIFICATIONS.

3. BOLTS SHALL BE A307 WITH ASTM A563 HEAVY HEX NUTS AND HARDENED WASHERS, GRADE A, UNLESS OTHERWISE NOTED. HIGH-STRENGTH BOLTS SHALL BE A325 AND SHALL BE INSTALLED WITH SPECIAL INSPECTION BY A CITY DEPUTY INSPECTOR, UNLESS OTHERWISE NOTED. HOLES FOR BOLTS IN STRUCTURAL STEEL SHALL BE DRILLED OR PUNCHED. BURNING OF HOLES SHALL NOT BE PERMITTED. HOLES IN STEEL MEMBERS SHALL NOT BE GREATER THAN 1/16 INCH OF THE NOMINAL BOLT DIAMETER, UNLESS OTHERWISE NOTED.

4. WELDING PROCEDURE SPECIFICATIONS SHALL CONFORM TO PRE-QUALIFIED AWS PROCEDURES OR AS APPROVED BY THE ENGINEER. ELECTRODES SHALL BE E70xx, UNLESS OTHERWISE NOTED. SHOP WELDING SHALL BE PERFORMED BY A CERTIFIED FABRICATOR LICENSED BY THE LOCAL BUILDING DEPARTMENT. FIELD WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS LICENSED BY THE LOCAL BUILDING DEPARTMENT. CONTINUOUS INSPECTION BY A REGISTERED DEPUTY BUILDING INSPECTOR IS REQUIRED FOR ALL FIELD WELDS, UNLESS OTHERWISE NOTED.

5. AFTER FABRICATION, STEEL MEMBERS SHALL BE CLEANED AND FREE OF RUST, LOOSE MILL SCALE, AND OIL. ONE COAT OF RUST INHIBITIVE PRIMER SHALL BE APPLIED. AFTER ERECTION, ALL UNPAINTED SURFACES AND AREAS WHERE PAINT HAS BEEN DAMAGED, SHALL BE GIVEN A FIELD TOUCH-UP COAT OF SAME PRIMER APPLIED IN SHOP. STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED, AND PAINTED AND PROTECTED UTILIZING TWO COATS OF EXTERIOR METAL PRIMING PAINT AND A FINISH COAT.

REINFORCING STEEL:

1. REINFORCING TO CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

LOCATION	TYPE
REINFORCING STEEL #7 AND SMALLER	ASTM A615, 60 KSI
REINFORCING STEEL #8 AND LARGER	ASTM A706, 60 KSI
AND REINFORCING STEEL TO BE WELDED	ASTM A706, 60 KSI
SMOOTH STEEL WIRE FOR SPIRALS	ASTM A82, 70 KSI
WELDED STEEL WIRE FABRIC	ASTM A185, 70 KSI
SMOOTH DOWELS IN SLAB ON GRADE	ASTM A36, 36 KSI

2. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT FROM DISPLACING DUE TO FORMWORK, CONSTRUCTION, OR CONCRETE PLACEMENT OPERATIONS. LOCATE AND SUPPORT REINFORCING BY METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS, AND HANGERS AT A MAXIMUM 3-FOOT SPACING.
3. MECHANICAL COUPLERS: LENTON THREADED OR INTERLOCK COUPLERS BY ERICO (IAPMO-ES-ER-0129 WITH LABC SUPPLEMENT), OR XTENDER BY HEADED REINFORCEMENT CORPORATION (ICC-ESR 2764 WITH LABC SUPPLEMENT). COUPLERS FOR BEAM AND SLAB BARS AT FORMED CONSTRUCTION JOINTS MAY BE LENTON FORM SAVERS BY ERICO(IAPMO-ES-ER-0129 WITH LABC SUPPLEMENT).
3. WELD REINFORCING STEEL IN ACCORDANCE WITH AWS D1.4 USING QUALIFIED WELDERS.
4. TERMINATE REINFORCING STEEL IN STANDARD HOOKS, UNLESS OTHERWISE SHOWN.
5. PROVIDE REINFORCING SHOWN OR NOTED CONTINUOUS IN LENGTHS AS LONG AS PRACTICAL.

CAST-IN-PLACE CONCRETE

1. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.
2. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES. LOCATE CONSTRUCTION JOINTS AS SHOWN ON THE DRAWINGS. SUBMIT ALTERNATE JOINT LOCATIONS OR JOINTS NOT SHOWN TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO PROCEEDING WITH THE WORK.
3. AT LOCATIONS WHERE CONCRETE IS CAST AGAINST EXISTING CONCRETE, ROUGHEN CONTACT SURFACES TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES.
4. AT LOCATIONS WHERE CONCRETE IS CAST AGAINST EXISTING MASONRY, THOROUGHLY ROUGHEN CONTACT SURFACES BY LIGHT SANDBLASTING OR OTHER SUITABLE MEANS AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES.
5. CONCRETE CLEAR COVER TO REINFORCING BARS IS AS FOLLOWS, UNLESS OTHERWISE NOTED.

LOCATION	CLEAR COVER
CONCRETE PLACED AGAINST EARTH	3 INCHES
FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:	
#6 BARS AND LARGER	2 INCHES
#5 BARS AND SMALLER	1 ½ INCHES
SLABS ON GRADE (TOP CLEARANCE)	1 ½ INCHES
BEAMS, GIRDERS AND COLUMNS NOT EXPOSED TO WEATHER OR EARTH	1 ½ INCHES
WALL OR SLAB SURFACES NOT EXPOSED TO WEATHER OR EARTH:	
#5 & SMALLER	¾ INCH
#6 & #7	1 INCH
#8, #9, #10 & #11	1 ½ INCHES
#14 & #18	2 ½ INCHES

6. CONCRETE TYPES:

CLASS	28-DAY STRENGTH	TYPE	LOCATION
A	5,000 PSI	NORMAL WEIGHT	ALL CONCRETE, UNLESS OTHERWISE NOTED

6.1. NON-SHRINK GROUT, 7000 PSI: "EUCO-NS" BY EUCLID CHEMICAL COMPANY (LARR 25221).

DIRECTOR OF PUBLIC WORKS CATALINA ISLAND

APPROVED BY: _____

BY: _____

DATE: _____

APPROVED BY: _____

DIRECTOR OF PUBLIC WORKS _____

DATE: _____

CITY OF AVALON

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REVISION

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DINGHY DOCK & GANGWAY REPLACEMENT

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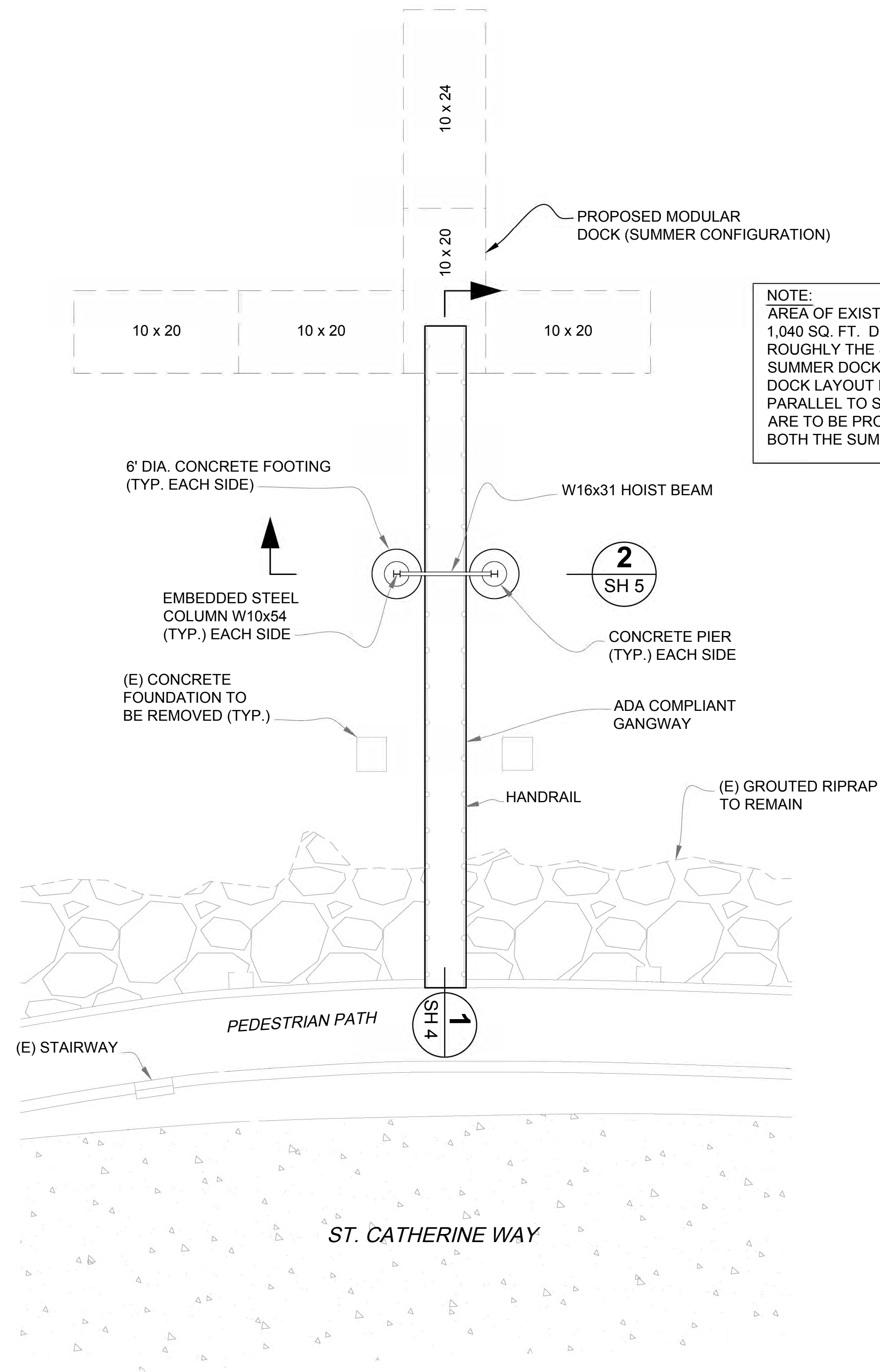
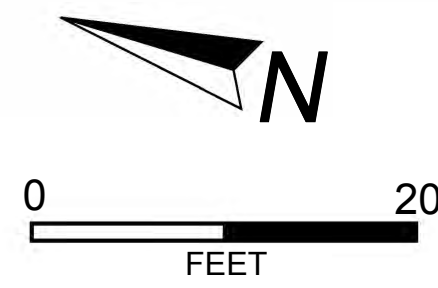
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SHEET 2 OF 6

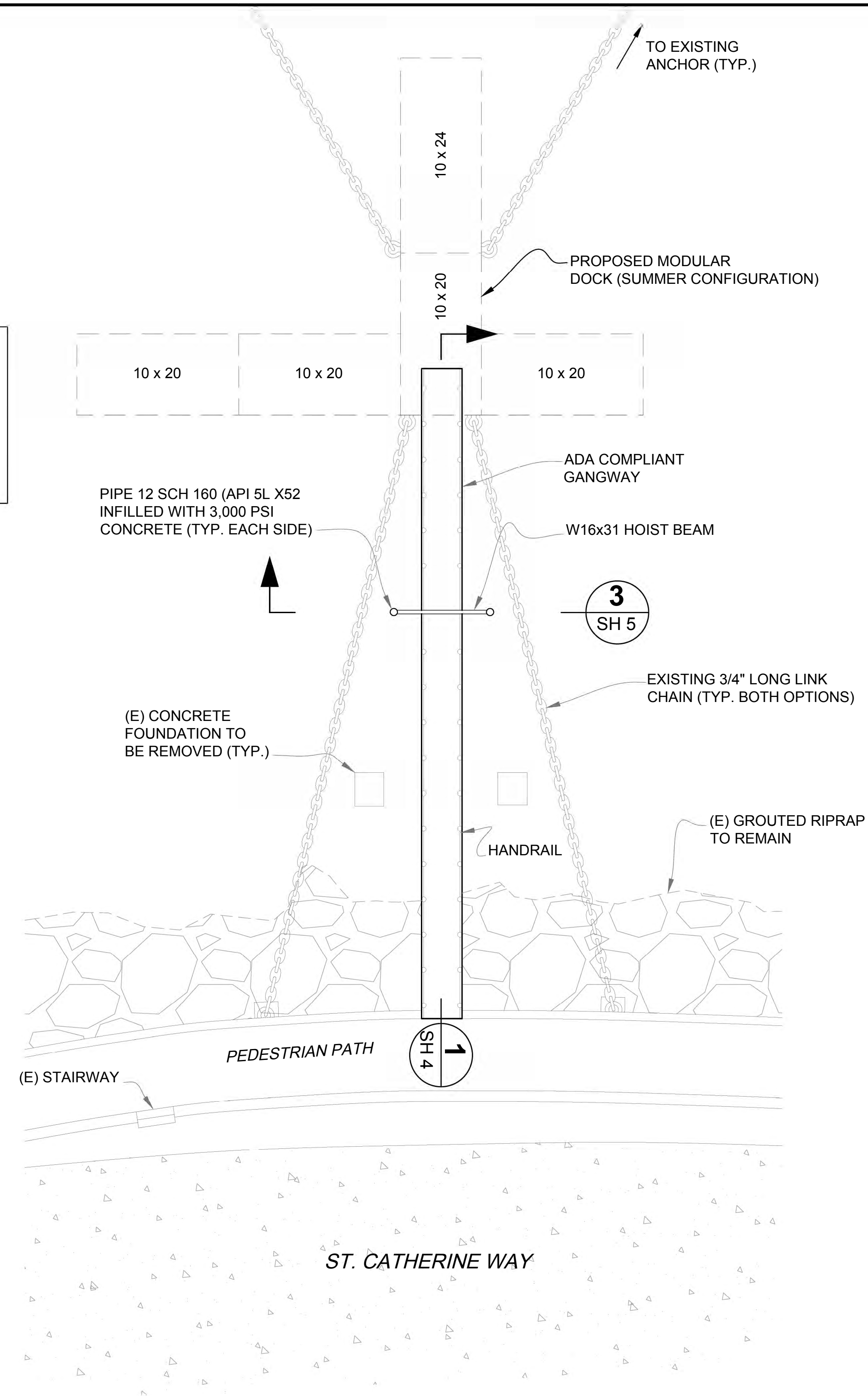


3890 MURPHY CANYON ROAD, SUITE 200
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(858) 573-6900





SITE PLAN-CONCRETE COLUMN OPTION 'A'
SCALE: 1"=10'

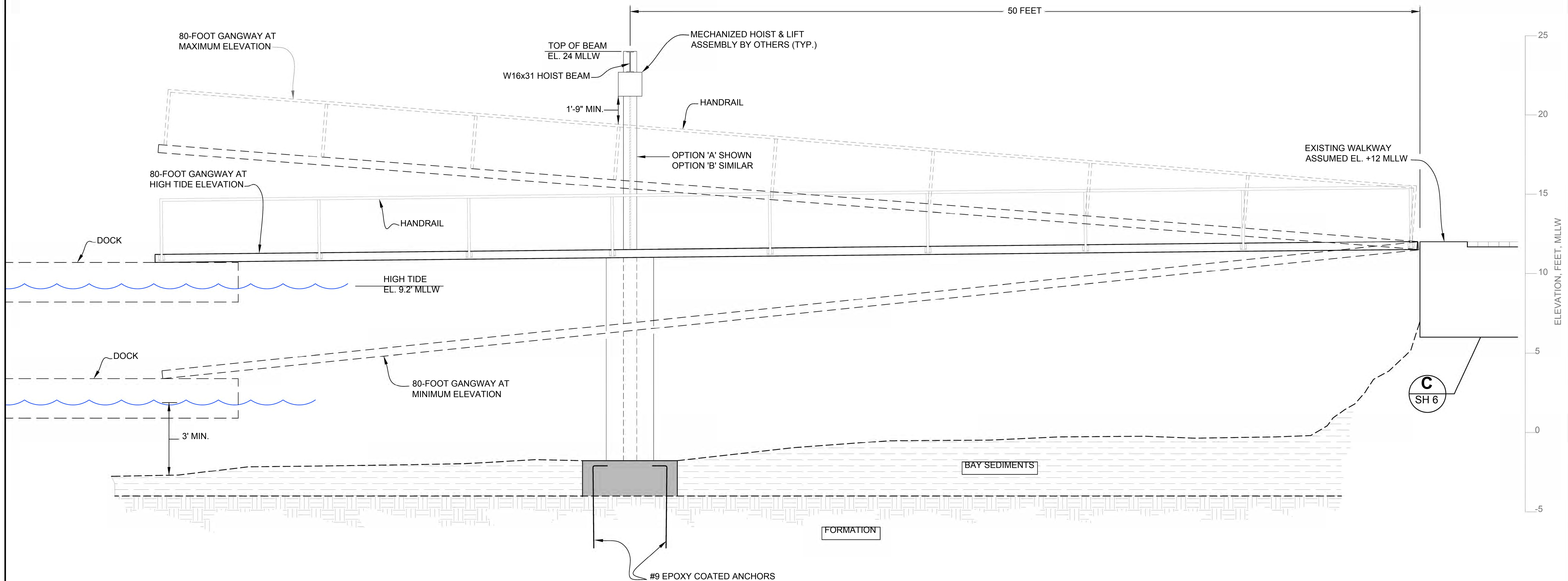


SITE PLAN-STEEL PIPE OPTION 'B'
SCALE: 1"=10'

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DIRECTOR OF PUBLIC WORKS CATALINA ISLAND				CITY OF AVALON 410 AVALON CANYON ROAD AVALON, CALIFORNIA 90704 PHONE: (310) 510-0220 FAX: (310) 510-2478			REVISION		DATE		FULL SIZE: 24x36		DINGHY DOCK & GANGWAY REPLACEMENT				DRAWING NO.	
APPROVED BY:		BY:					DATE:		APPROVED BY:		HALF SIZE: 11x17						SHEET TITLE:	
										DATE: 07/10/24		SITE PLAN				SHEET		
										NOTE: THIS DRAWING IS REDUCED AND NOT TO SCALE IF SHEET SIZE IS SMALLER THAN 24" x 36"						3 OF 6		



**CROSS SECTION THROUGH GANGWAY-
OPTION 'A' AND 'B'**

SCALE "1"=3'

1
--

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DINGHY DOCK & GANGWAY REPLACEMENT

SHEET TITLE:

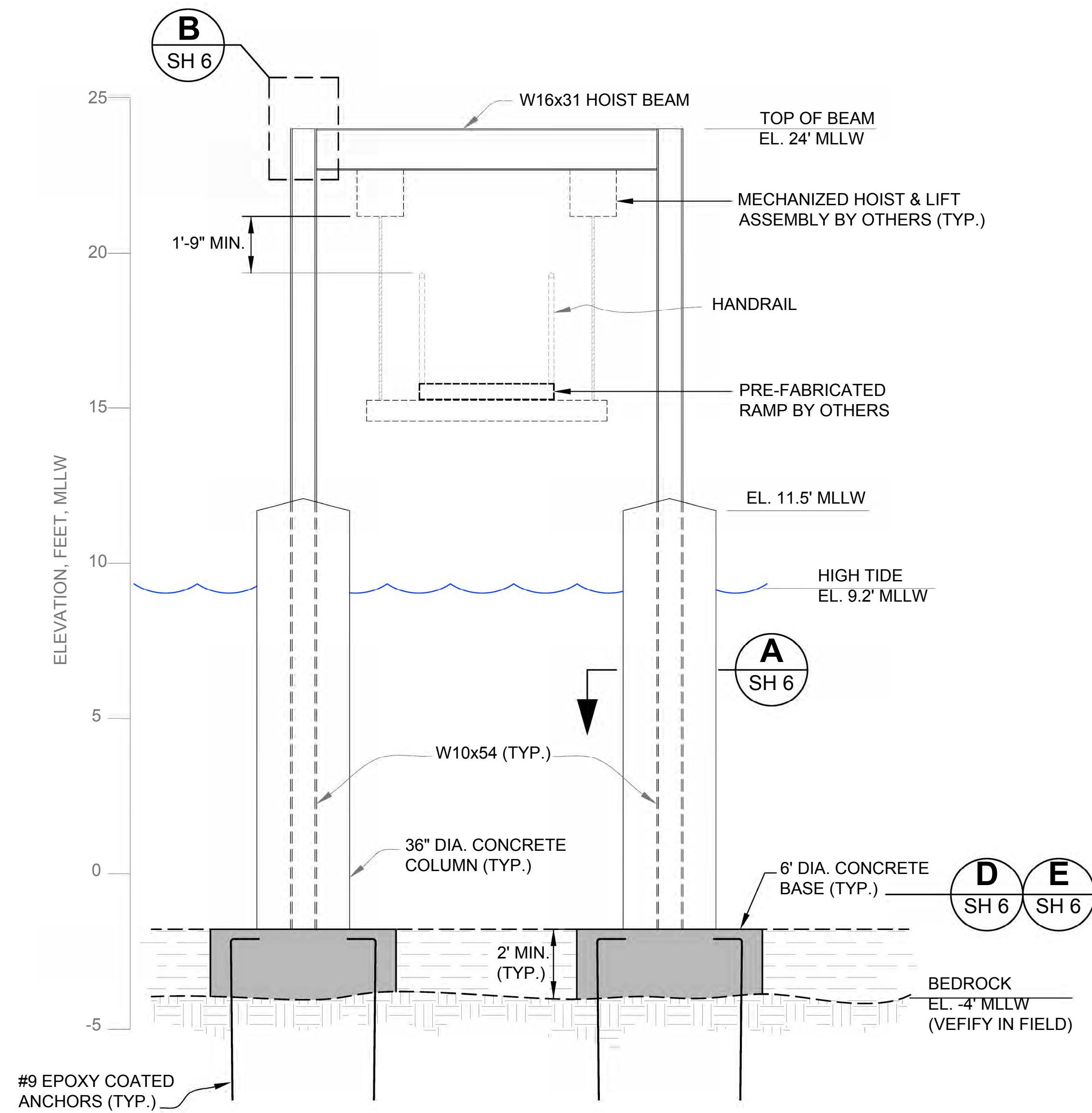
CROSS SECTION

DRAWING NO.

C-2

SHEET

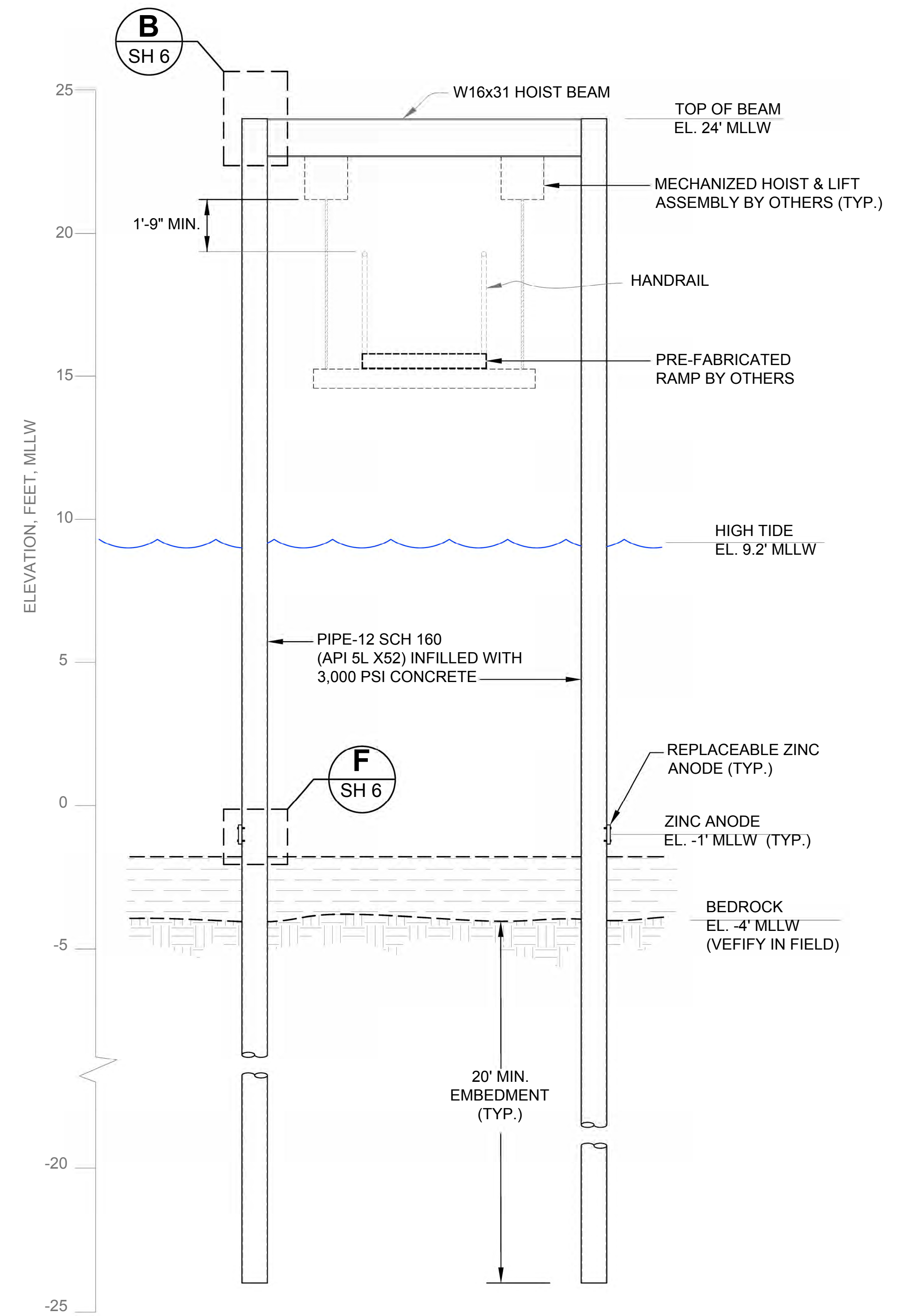
4 OF 6



GANGWAY REPLACEMENT DETAIL - OPTION 'A'

SCALE" 1"=3'

2



GANGWAY REPLACEMENT DETAIL - OPTION 'B'

SCALE" 1"=3'

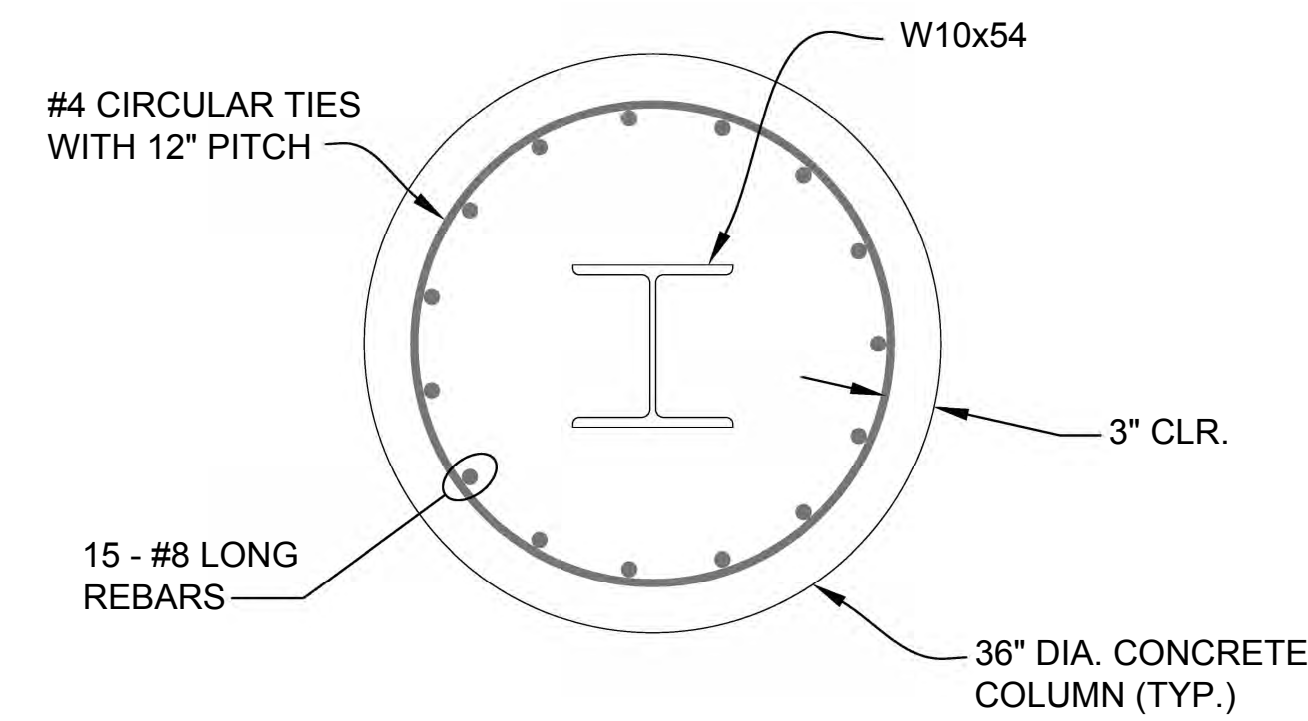
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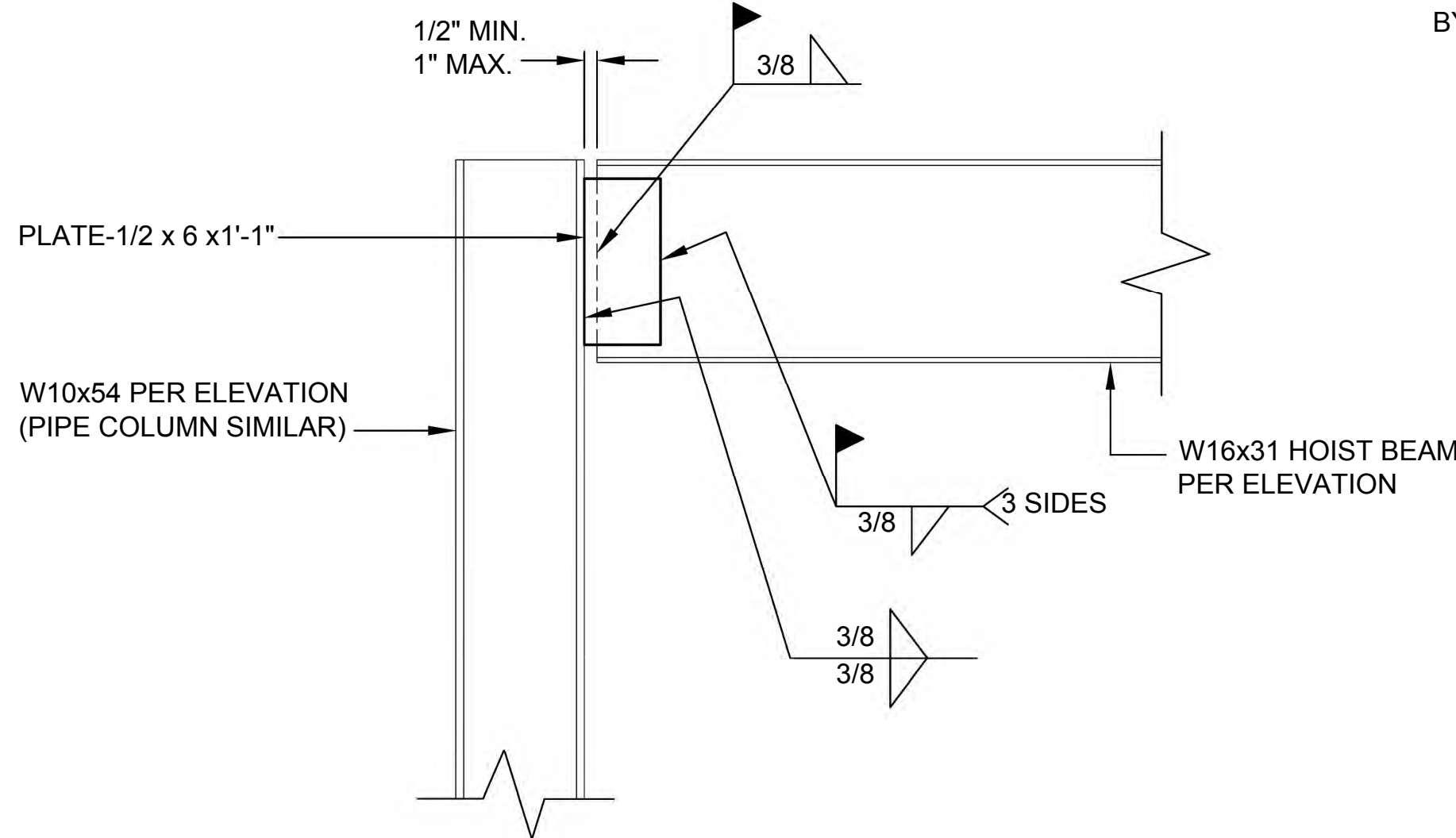
DIRECTOR OF PUBLIC WORKS CATALINA ISLAND				CITY OF AVALON			DINGHY DOCK & GANGWAY REPLACEMENT			DRAWING NO.	
APPROVED BY:	BY:	DATE:	APPROVED BY:	410 AVALON CANYON ROAD	AVALON, CALIFORNIA 90704	PHONE: (310) 510-0220 FAX: (310) 510-2478	REVISION	DATE	FULL SIZE: 24x36	SHEET TITLE:	
									HALF SIZE: 11x17		
									DATE: 07/10/24		
									NOTE: THIS DRAWING IS REDUCED AND NOT TO SCALE IF SHEET SIZE IS SMALLER THAN 24" x 36"	CROSS SECTIONS	
										5 OF 6	



CONCRETE COLUMN DETAIL

SCALE" 1"=12"

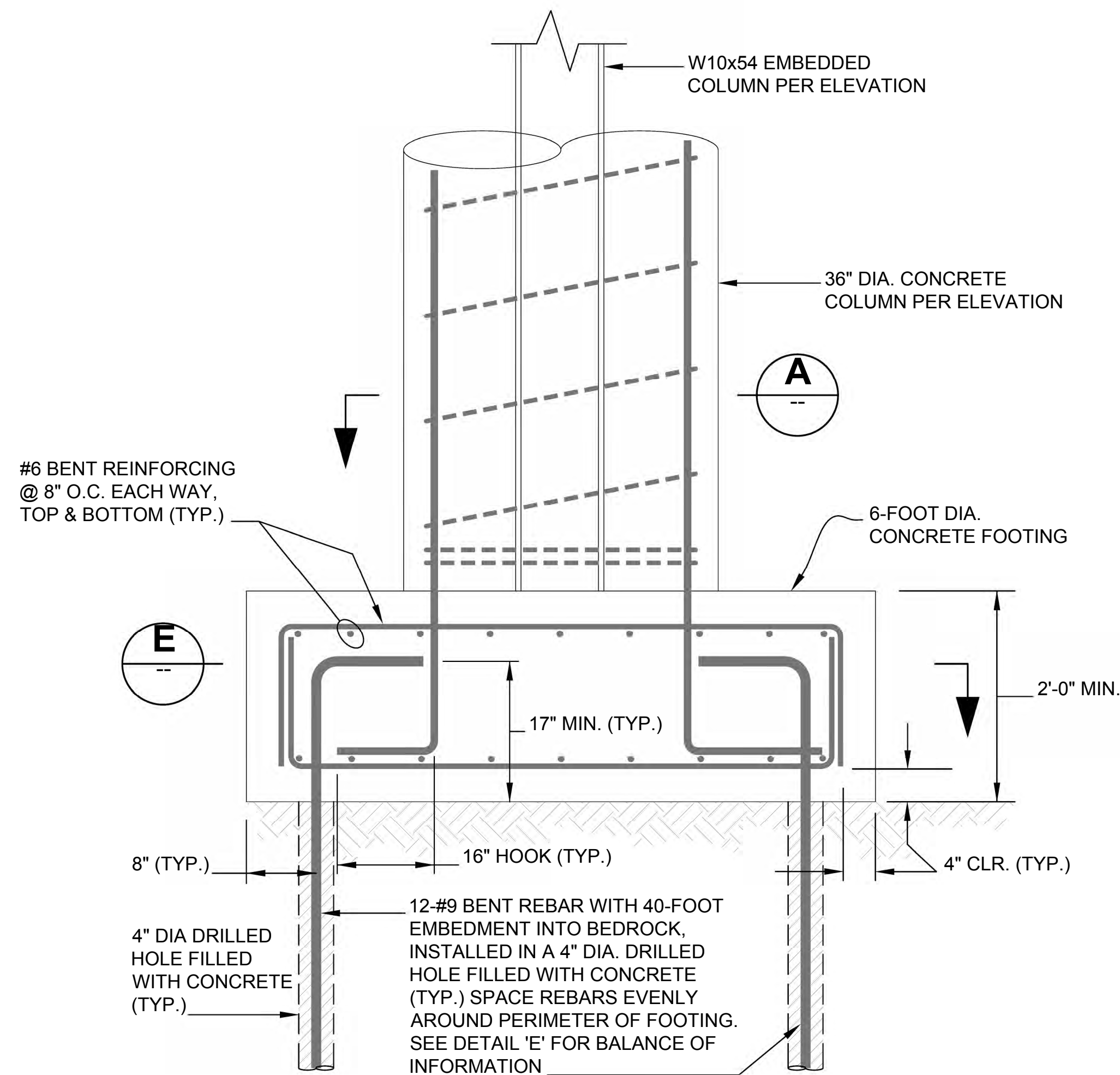
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DETAIL

SCALE" 1"=12"

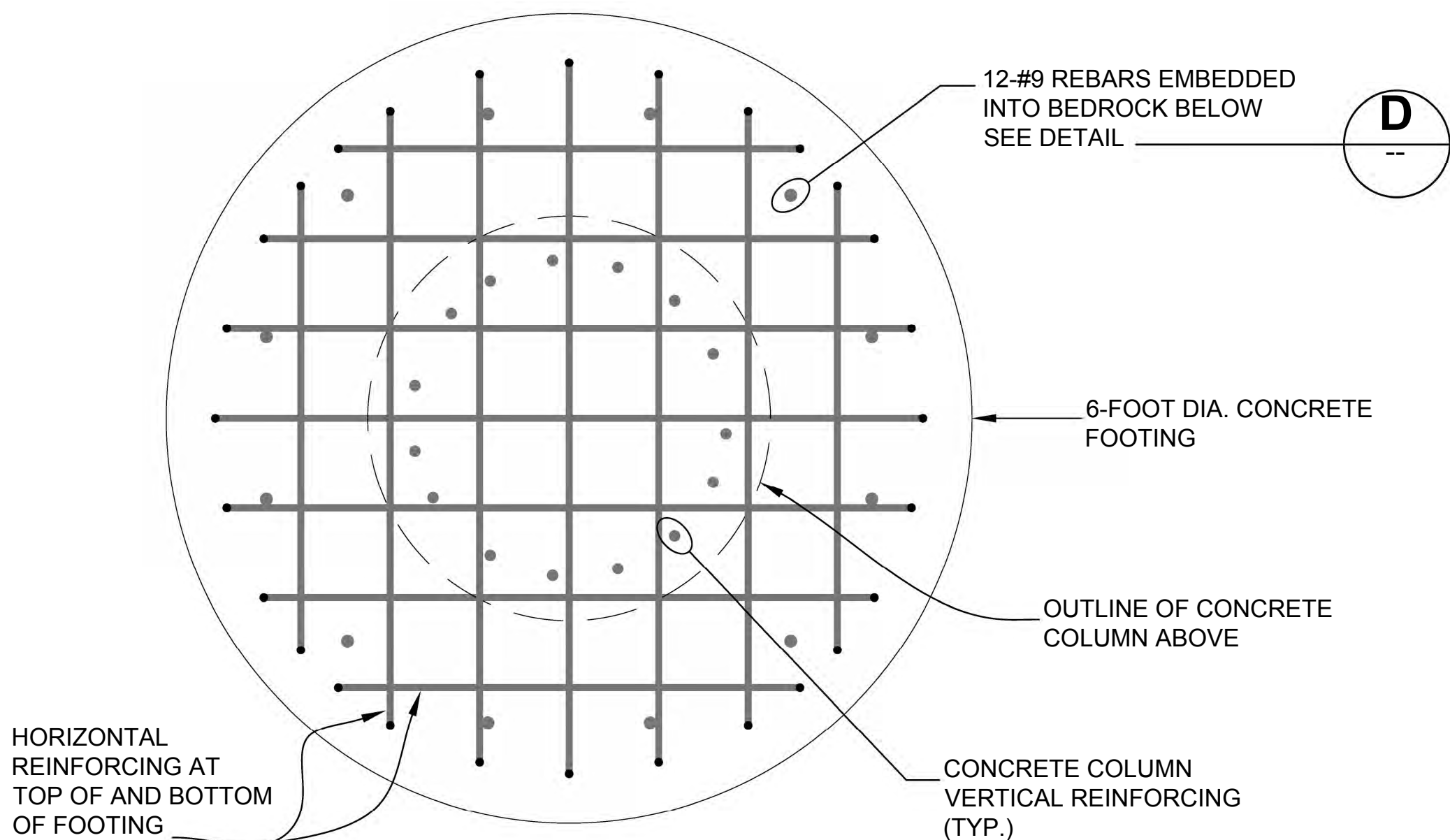
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COLUMN FOOTING DETAIL

SCALE" 1"=12"

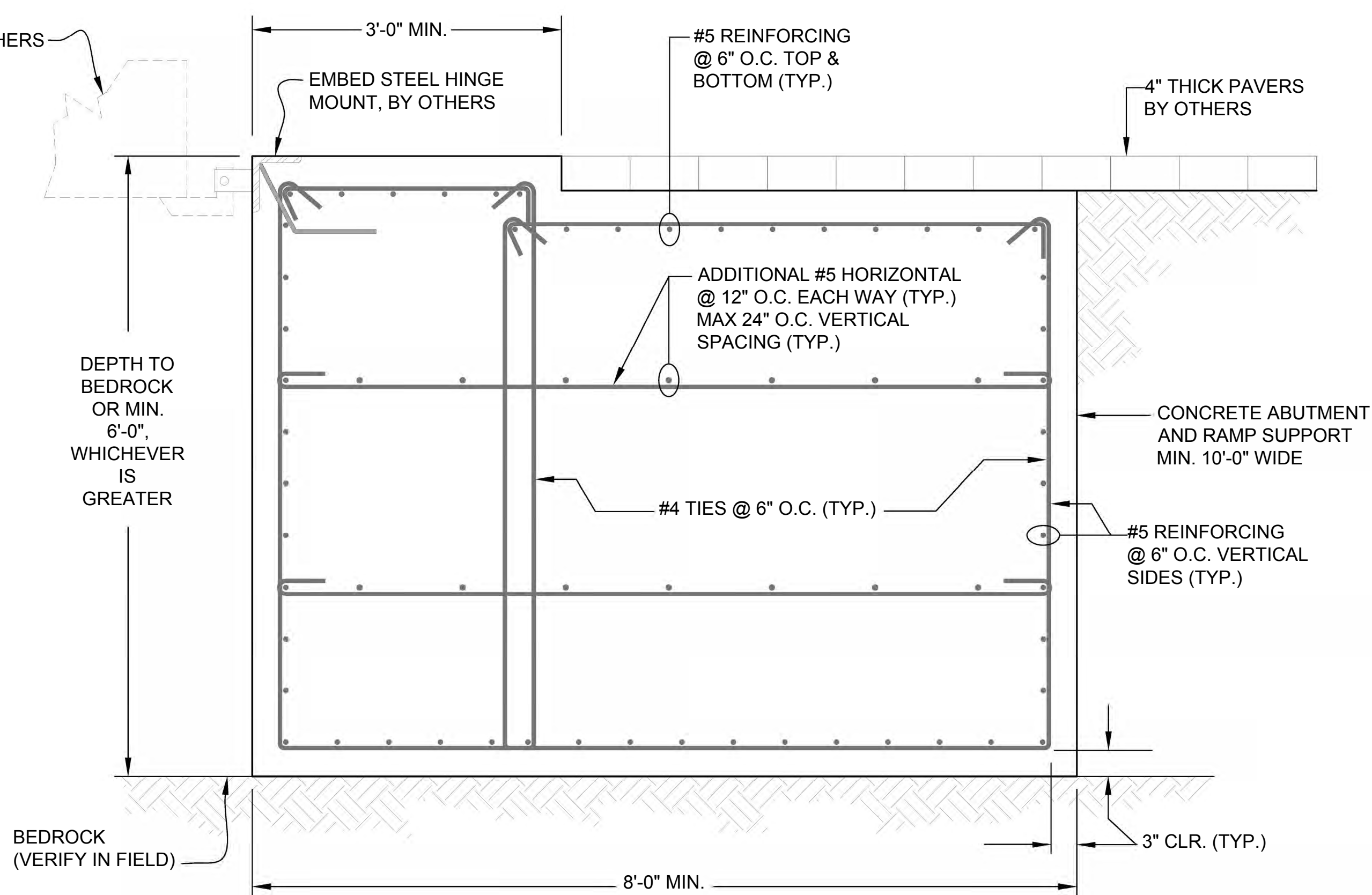
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CONCRETE FOOTING DETAIL

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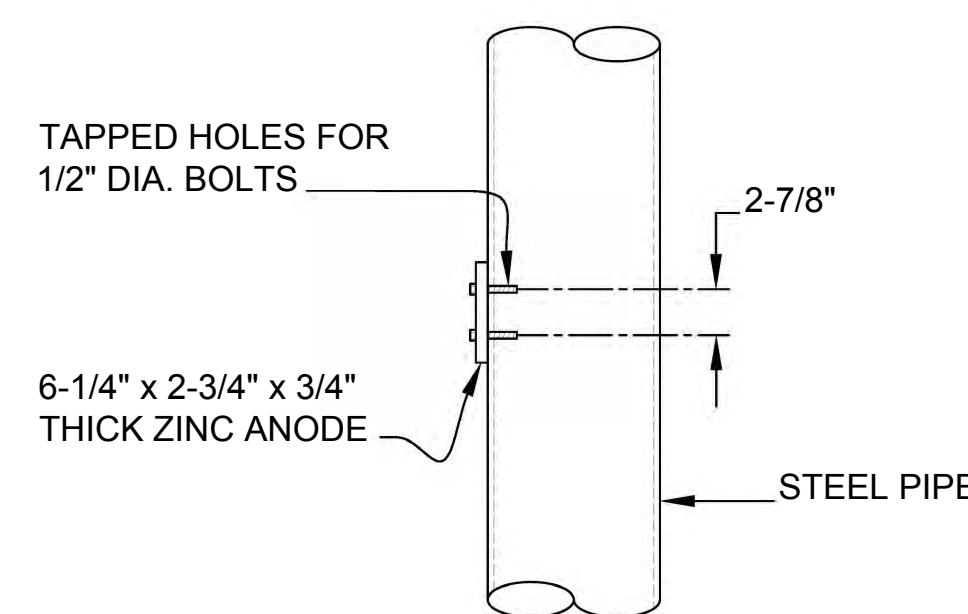
E



DETAIL

SCALE" 1"=12"

C



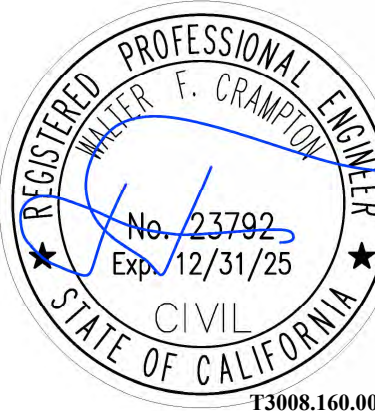
ZINC ANODE DETAIL

SCALE" 1"=12"

F

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DINGHY DOCK & GANGWAY REPLACEMENT

SHEET TITLE:

DETAILS

DRAWING NO.

C-4

SHEET
6 OF 6