



County of Santa Cruz

DEPARTMENT OF COMMUNITY DEVELOPMENT AND INFRASTRUCTURE

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CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) INITIAL STUDY/ENVIRONMENTAL CHECKLIST

Date: February 2, 2024

Application Number: 201349

Project Name: 145 Rio Boca Road,
Watsonville

Staff Planner: Nathan MacBeth

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Gallagher

APN(s): 052-301-69

OWNER: Arrillaga

SUPERVISORIAL DISTRICT: 2nd District

PROJECT LOCATION: The project is located on the west side of Rio Boca Road, which is the main road running in a north south direction within the community of Pajaro Dunes in unincorporated Santa Cruz County. Santa Cruz County is bounded on the north by San Mateo County, on the south by Monterey and San Benito counties, on the east by Santa Clara County, and on the south and west by the Monterey Bay and the Pacific Ocean.

SUMMARY PROJECT DESCRIPTION:

Proposal to construct a new 2,500 square foot residence with 2,300 square foot habitable basement and detached 925 square foot garage. The project includes grading of approximately 400 cubic yards of material for the construction of a basement under the proposed home.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: *All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.*

- | | |
|---|--|
| <input checked="" type="checkbox"/> Aesthetics and Visual Resources | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Population and Housing |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Transportation |
| <input checked="" type="checkbox"/> Geology and Soils | <input type="checkbox"/> Tribal Cultural Resources |

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: *All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.*

- | | |
|---|---|
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Utilities and Service Systems |
| <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Wildfire |
| <input type="checkbox"/> Hydrology/Water Supply/Water Quality | <input type="checkbox"/> Mandatory Findings of Significance |
| <input checked="" type="checkbox"/> Land Use and Planning | |

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

- | | |
|--|--|
| <input type="checkbox"/> General Plan Amendment | <input checked="" type="checkbox"/> Coastal Development Permit |
| <input type="checkbox"/> Land Division | <input type="checkbox"/> Grading Permit |
| <input type="checkbox"/> Rezoning | <input type="checkbox"/> Riparian Exception |
| <input checked="" type="checkbox"/> Development Permit | <input type="checkbox"/> LAFCO Annexation |
| <input type="checkbox"/> Sewer Connection Permit | <input type="checkbox"/> Other: |

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (e.g., permits, financing approval, or participation agreement):

<u>Permit Type/Action</u>	<u>Agency</u>
Habitat Conservation Plan/Take Permit	United States Fish and Wildlife Service
Incidental Take Permit	California Department of Fish and Wildlife

CONSULTATION WITH NATIVE AMERICAN TRIBES: *Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?*

No California Native American tribes traditionally and culturally affiliated with the area of Santa Cruz County have requested consultation pursuant to Public Resources Code section 21080.3.1.

DETERMINATION:

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


MATT JOHNSTON, Environmental Coordinator

3/12/2024
Date



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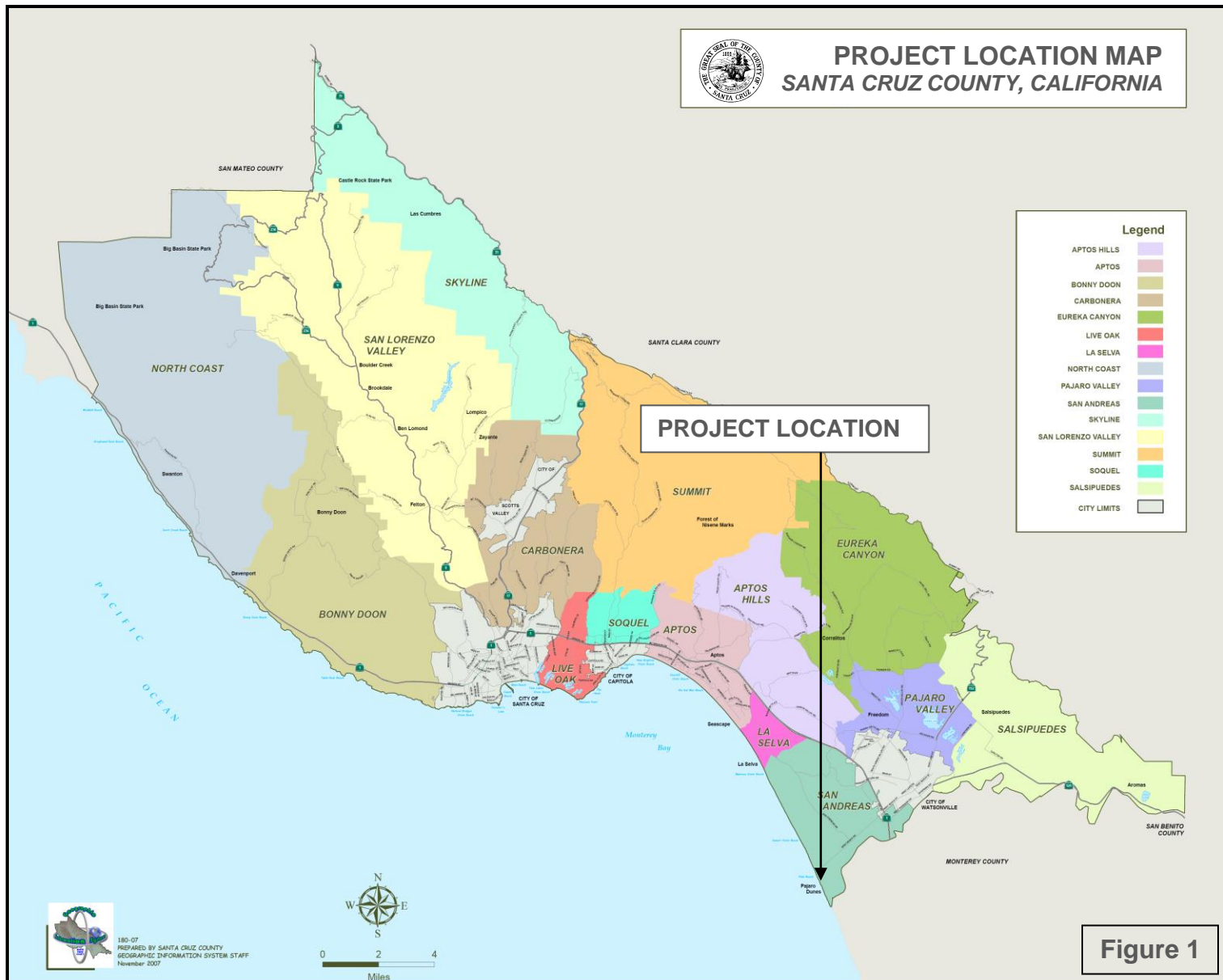
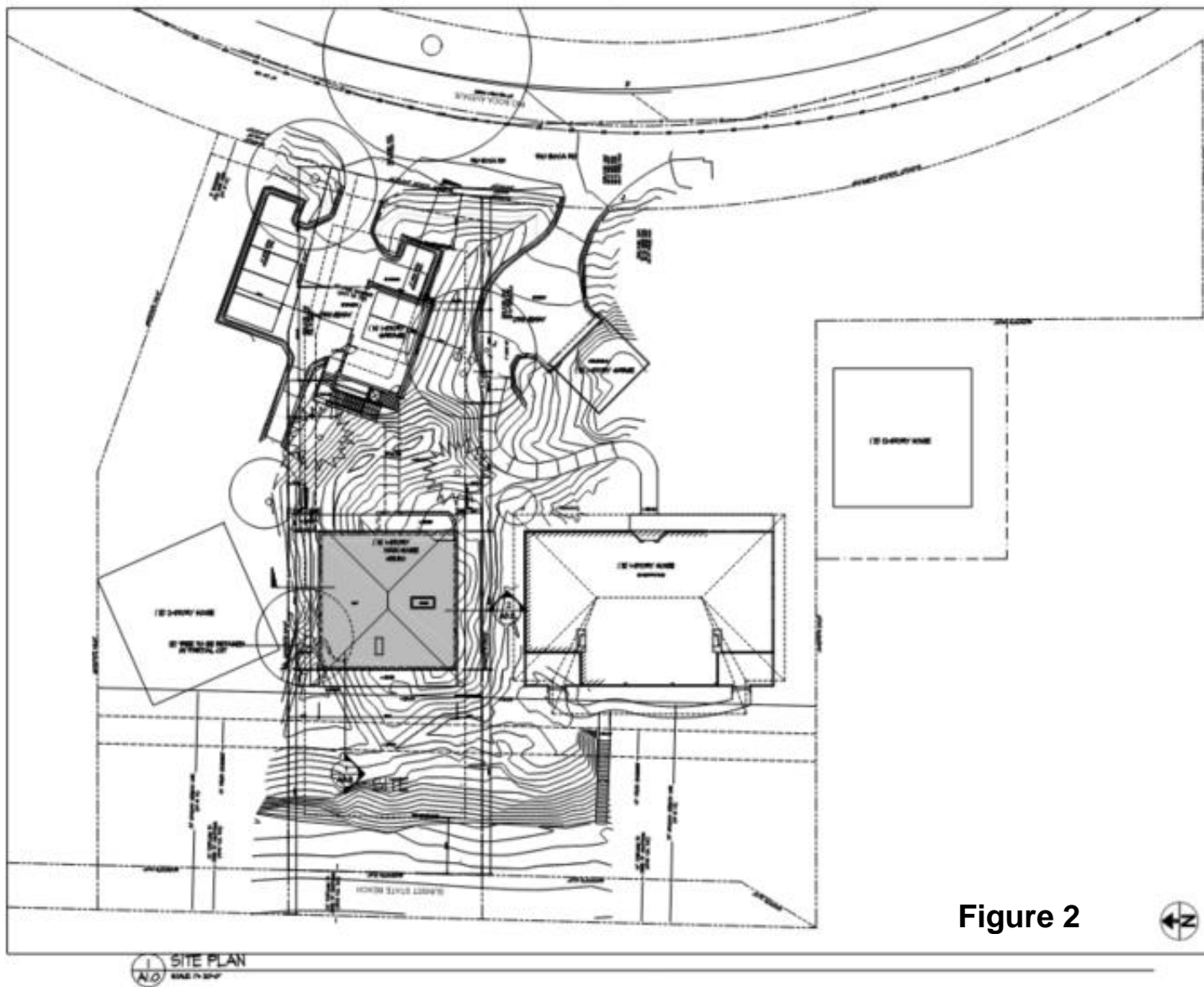


Figure 1



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II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS:

Parcel Size (acres): 18,400 square feet
 Existing Land Use: Residential
 Vegetation: Dune grass
 Slope in area affected by project: 0 - 30% 31 – 100% N/A
 Nearby Watercourse: Monterey Bay & Pajaro River
 Distance To: 280 feet to Monterey Bay; 200 feet to Pajaro River

ENVIRONMENTAL RESOURCES AND CONSTRAINTS:

Water Supply Watershed:	N/A	Fault Zone:	N/A
Groundwater Recharge:	Yes	Scenic Corridor:	Yes
Timber or Mineral:	N/A	Historic:	N/A
Agricultural Resource:	N/A	Archaeology:	Not mapped
Biologically Sensitive Habitat:	Yes	Noise Constraint:	N/A
Fire Hazard:	N/A	Electric Power Lines:	Underground
Floodplain:	VE; X	Solar Access:	N/A
Erosion:	N/A	Solar Orientation:	South
Landslide:	N/A	Hazardous Materials:	N/A
Liquefaction:	High	Other:	N/A

SERVICES:

Fire Protection:	CSA 04- Pajaro Dunes	Drainage District:	Zone 7
School District:	Pajaro	Project Access:	Rio Boca
Sewage Disposal:	CSA 12	Water Supply:	Watsonville

PLANNING POLICIES:

Zone District:	SU	Special Designation:	N/A
General Plan:	R-UL		
Urban Services Line:	<input type="checkbox"/> Inside	<input checked="" type="checkbox"/> Outside	
Coastal Zone:	<input checked="" type="checkbox"/> Inside	<input type="checkbox"/> Outside	

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

Natural Environment

Santa Cruz County is uniquely situated along the northern end of Monterey Bay approximately 55 miles south of the City of San Francisco along the Central Coast. The Pacific Ocean and Monterey Bay to the west and south, the mountains inland, and the prime agricultural lands along both the northern and southern coast of the county create limitations on the style and amount of building that can take place. Simultaneously, these natural features create an environment that attracts both visitors and new residents every

year. The natural landscape provides the basic features that set Santa Cruz apart from the surrounding counties and require specific accommodations to ensure building is done in a safe, responsible and environmentally respectful manner.

The California Coastal Zone affects nearly one third of the land in the urbanized area of the unincorporated County with special restrictions, regulations, and processing procedures required for development within that area. Steep hillsides require extensive review and engineering to ensure that slopes remain stable, buildings are safe, and water quality is not impacted by increased erosion. The farmland in Santa Cruz County is among the best in the world, and the agriculture industry is a primary economic generator for the County. Prime farmland exists within the vicinity of the project site, approximately 300 feet to the east, across the Pajaro River. Preserving this industry in the face of population growth requires that soils best suited to commercial agriculture remain active in crop production rather than converting to other land uses.

The project site is located entirely within sensitive coastal dune habitat fronting the Monterey Bay within the community of Pajaro Dunes. As discussed further in the attached Biotic Report, the project site is host to several endangered, threatened, and or species of special concern.

DETAILED PROJECT DESCRIPTION:

The proposed project entails the construction of a new one-story, 2,468 square foot single-family dwelling with 2,304 square foot conditioned basement, including a detached 925 square foot garage connected to the proposed dwelling via a new concrete walkway, on an approximately 18,400 square foot lot located in the community of Pajaro Dunes.

The project site is currently vacant of any development with the exception of an existing shared parking pad located at the front of the parcel, adjacent to Rio Boca Road. The project would increase the permanent development footprint on the parcel by approximately 3,358 square feet. Grading to accommodate the proposed development would temporarily impact approximately 1,800 additional square feet around the new developed area during construction.

There are sensitive habitat constraints on the project site associated with coastal dune scrub habitat, special-status species, and habitat for nesting birds that must be considered prior to and during project implementation. Measures to avoid impacts to sensitive resources during project construction, including protecting/retaining existing dune scrub and special status plant species, implementing a pre-construction breeding bird nest survey, and monitoring construction for the black legless lizard have been incorporated into the Mitigation and Monitoring Program for the project.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. AESTHETICS AND VISUAL RESOURCES

Except as provided in Public Resources Code section 21099, would the project:

1. Have a substantial adverse effect on a scenic vista?

Discussion: The project is located in the Pajaro Dunes beach community in Watsonville, which is primarily developed with two-story dwellings in a range of architectural styles; however, most of the structures feature wood siding or wood-like siding in a natural color palette. The entire Pajaro Dunes community is located within a designated scenic area as the parcels within the community front on, or are in proximity to, a public beach. The parcel on which the proposed dwelling is to be located (project site) has frontage along the beach as well as Rio Boca Road. The parcels located on either side of the subject parcel are developed with one-story single-family dwellings. The proposed dwelling, like the homes locate to the north and south, would also have a single story profile. Due to being situated on the top of a sand dune, the proposed dwelling is likely to be visible by most beachgoers. As the properties located to the north and south of the subject property are developed with existing single story homes, the proposed single story home will blend with the surrounding pattern of development. Visual simulations contained in the project plans depict a modest design and the use of natural finish colors and materials. Retention of existing mature vegetation combined with the low-profile design will result in a project with less than significant impacts to scenic views.

The subject parcel is zoned SU (Special Use), where single-family residential uses are principally permitted. Pursuant to SCCC 13.10.383, “for single-family dwellings and accessory structures, the district development standards shall be the same as those contained in SCCC [13.10.323](#) pertaining to residential districts and shall further be based on the size of the parcel for purposes of applying SCCC [13.10.323\(B\)](#).” The parcel is approximately 8,500 square feet in size; therefore, the R-1-6 development standards apply. The project site however is located within the Community of Pajaro Dunes, a Planned unit Development with specific site and development standards. The proposed dwelling is designed in compliance with the PUD standards which for this particular parcel, incorporate the R-1-6 residential development standards. The dwelling is designed to be well under the maximum allowed height of 28-feet (19 feet) and the combined floor area of the dwelling and basement is approximately 2,500 square feet with detached 925 square foot garage. The proposed dwelling, which is modern in design, features a low-profile hipped roof pitch with wood shingle roofing. Finish wall materials will be wood shingle siding with metal eaves and soffit which will be consistent with the surrounding homes and complementary to the natural environment. The project would not directly impact any public scenic vistas in the

area.

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|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

The project is located in the Pajaro Dunes community, which is developed on and around beach dunes adjacent to a public beach. The entire community is designated as scenic resource area due to its proximity to the beach. The subject parcel is vacant with the exception of a shared parking area at the rear, adjacent to Rio Boca Road. The project site fronts on the beach with developed parcels to the north and south. The project consists of construction of a new single story dwelling with habitable basement dwelling. The dwelling, as designed, meets all applicable site and development standards for the Pajaro Dunes Subdivision. Though the project would be visible from the public beach, impacts are expected to be less than significant in that the project has been designed in accordance with the County’s Design Review Ordinance and Coastal Design Criteria to ensure the utmost protection of visual resources. There are no rock outcroppings or historic structures on the parcel. Further, the parcel is not adjacent to a scenic highway.

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| 3. <i>Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

The existing visual setting is an undeveloped parcel in the Pajaro Dunes community of Watsonville. The proposed project, construction of a new dwelling and minor site improvements, is designed and landscaped to fit in with the existing pattern of development; therefore, the project will result in less than significant impact.

The project is designed to be consistent with County Code sections that regulate height, bulk, density, setback, landscaping, and design of new structures in the County, including County Code Chapter 13.11, Site, Architectural and Landscape Design Review, including all applicable design guidelines.

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|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project could create an incremental increase in night lighting; however, this increase would be small, and would be similar in character to the lighting associated with the surrounding existing uses (residential neighborhood).

B. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. In addition, the project does not contain Farmland of Local Importance. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide or Farmland of Local Importance would be converted to a non-agricultural use. No impact would occur from project implementation.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is zoned Special Use (SU), which is not considered to be an agricultural zone. Additionally, the project site's land is not under a Williamson Act contract. Therefore, the project does not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impact is anticipated.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located near land designated as Timber Resource. Therefore, the project would not affect the resource or access to harvest the resource in the future. The timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: No forest land occurs on the project site or in the immediate vicinity. See discussion under B-3 above. No impact is anticipated.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is located approximately 300 feet west of Prime Farmland. Between the farmland and the subject parcel is Rio Boca Road and open space land owned by the Pajaro Dunes Association containing the Pajaro River and buffer. The project, a new single family dwelling on a parcel where residential development is principally permitted, will not impact the nearby farmland.

The project site contains no forest land, and no forest land occurs within nine miles of the project site. Therefore, no impacts are anticipated.

C. AIR QUALITY

The significance criteria established by the Monterey Bay Air Resources District (MBARD)¹ has been relied upon to make the following determinations. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not conflict with or obstruct any long-range air quality plans of the MBARD. Because general construction activity related emissions (i.e., temporary sources) are accounted for in the emission inventories included in the air quality plans, impacts to air quality plan objectives are less than significant.

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|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The primary pollutants of concern for the NCCAB are ozone and PM₁₀, as those are the pollutants for which the district is in nonattainment. Project construction would have a limited and temporary potential to contribute to existing violations of California air quality standards for ozone and PM₁₀ primarily through diesel engine exhaust and fugitive dust. The criteria for assessing cumulative impacts on localized air quality are the same as those for assessing individual project impacts. Projects that do not exceed MBARD's construction or operational thresholds and are consistent with the AQMP would not have cumulatively considerable impacts on regional air quality (MBARD, 2008). Because the project would not exceed MBARD's thresholds and is consistent with the AQMP, there would not be cumulative impacts on regional air quality.

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

The proposed construction of a new single family dwelling would not generate substantial pollutant concentrations. Emissions from construction activities represent temporary impacts that are typically short in duration. Impacts to sensitive receptors would be less than significant.

Impacts

The project is located in the community of Pajaro Dunes and sensitive receptors would be as

¹ Formerly known as the Monterey Bay Unified Air Pollution Control District (MBUAPCD).

close as 20 feet from the project area. Since grading activity is anticipated to occur over a period of less than four weeks, the sensitive receptors would be affected for a maximum of two weeks, which is well below of the 70-year maximum exposed individual (MEI) criteria used for assessing public health risk due to emissions of certain air pollutants (MBUAPCD 2008).

Due to the intermittent and short-term temporary nature of grading activities (i.e., four weeks), emissions of DPM, TACs, or MSATs would not be sufficient to pose a significant risk to sensitive receptors from construction equipment operations during the project.

4. *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

Discussion: Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses that would be associated with objectionable odors. Odor emissions from the proposed project would be limited to odors associated with vehicle and engine exhaust and idling from cars entering, parking, and exiting the facility. The project does not include any known sources of objectionable odors associated with the long-term operations phase.

During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. California ultralow sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight would be used in all diesel-powered equipment, which minimizes emissions of sulfurous gases (sulfur dioxide, hydrogen sulfide, carbon disulfide, and carbonyl sulfide). As the project site is in a coastal area that contains coastal breezes off of the Monterey Bay, construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (located approximately 20 feet to the north and south of the project site). Construction-related odors would be short-term and would cease upon completion. Therefore, no objectionable odors are anticipated from construction activities associated with the project. The project would not create objectionable odors affecting a substantial number of people; therefore, the project is not expected to result in significant impacts related to objectionable odors during construction or operation.

D. BIOLOGICAL RESOURCES

Would the project:

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 Wildlife, or U.S. Fish and Wildlife Service?

Discussion:

The project site is located in an area of biotic concern. A biotic report was prepared for this project by EMC Planning Group, dated August 27, 2021. (Attachment 2). This report has been reviewed and accepted by the Planning Department Environmental Section (Attachment 3). The biotic report determined that the project site is comprised of Coastal Dune Scrub, Dune Plant Habitat, and Dunes. Federal Threatened Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is located on and or around the subject parcel. Further, the project site contains suitable habitat for two wildlife State Species of Special Concern: Northern California legless lizard (*Anniella pulchra*) and coast horned lizard (*Phrynosoma blainvillii*). Pursuant to the Biotic Report, avoidance, and minimization measures for protection of these species and/or their habitat is recommended. An overview of these species and potential project related impacts is included below. The avoidance and minimization measures in the Biotic Report, and conditions of approval in the County Biotic Approval Letter have been incorporated into the mitigation measures below to reduce project related impacts to less than significant.

Impacts

Sensitive biological resources are present in and adjacent to the proposed project’s impact Area. Therefore, avoidance/minimization measures have been identified to avoid or minimize potentially significant impacts to biological resources due to the proposed project.

Mitigation Measures

BIO-1: Qualified project biologists from a Santa Cruz County-approved consulting biological firm will be retained by the project proponent to conduct preconstruction surveys, lead worker environmental awareness training, and monitor for sensitive biological resources during construction. A project biologist will be on the site during times of initial ground disturbance, vegetation removal, and clearing to monitor biological resource protection measures, and at any other time when impacts to sensitive biological resources could occur.

BIO-2: Before construction activities begin, a qualified project biologist will conduct a worker environmental awareness training session for all construction personnel. At a minimum, the training will include a description of protected biological resources, species descriptions and habitat requirements, and general measures being implemented to protect sensitive resources during construction. Informational handouts with photographs clearly illustrating species appearances will be used in the training session.

Training topics will include special-status species with potential to occur on the project site. Species are expected to include Monterey spineflower, globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon and other nesting birds, and western snowy plover. The training session will include information about steps to take if a special-status species is encountered, including contact information for the biological monitoring staff and measures to protect species during construction.

Additionally, a project biologist will be available to answer any questions about the special-status species. All new construction personnel will undergo this mandatory worker environmental awareness training when they start work on the project. Training will occur prior to the start of construction and periodically as needed if new construction personnel begin work at the project site. Each worker will sign a statement that they received training and the statement will be posted or easily available for viewing at the project site.

BIO-3: Signs, flags, and/or fencing will be used to establish exclusion areas outside work area limits to protect sensitive biological resources (e.g., coastal dune scrub, nesting bird buffers) in the vicinity of construction activities. A system of standardized and simplified exclusion signage will be determined in advance through coordination with the construction contractor to reduce potential confusion during construction. Fencing will be checked weekly by the biological monitor to ensure it is intact and does not present an entrapment hazard to wildlife. The biological monitor may assign a designee within the construction crew to monitor fencing after the grading and clearing phases are complete.

BIO-4: To prevent wildlife entanglement and entrapment, the construction contractor will avoid the use of monofilament netting on the project site, including use in temporary and permanent erosion control materials (fiber rolls and blankets). The construction contractor will also seal all steep-walled holes greater than one foot deep overnight. Holes will be sealed such that no gap is left between the cover and the edges of the hole so that gaps do not inadvertently appear to be burrow entrances (e.g. place plastic sheeting over the hole, place wooden plate over plastic sheeting, and place dirt on top of wooden plate/plastic sheeting if necessary). Where holes cannot be sealed, escape ramps that are no more than a 30 percent slope will be positioned such that entrapped wildlife will be able to escape. The escape ramps will be at least one foot wide and covered with jute netting or similar material.

BIO-5: To prevent birds and other wildlife from ingesting or becoming entangled in plastic trash, and to avoid providing supplemental food to attract predators that prey on nesting birds, amphibians, reptiles, and small mammals, all trash and food scraps (including microtrash such as bottle caps and soda can tabs, plastic string, plastic grocery bags, six-pack container plastic

rings, food containers, watermelon rinds, fruit peels, bones, etc.) will be placed in covered, wildlife-proof trash cans or removed from the site at the end of each work day. Work areas will be inspected by the biological monitor or a designee on the construction crew for trash and food scraps daily prior to crews leaving the jobsite to ensure compliance with this measure.

BIO-6: Project storm water pollution prevention plan (SWPPP) measures will be followed to prevent toxins and soil from entering local water bodies. SWPPP measures will include secondary containment of portable gas cans and generators, of all stationary equipment that could leak oil, and of concrete washouts.

BIO-7: A report of preconstruction survey efforts and biological construction monitoring to protect special-status species during initial ground disturbance and vegetation removal at the project site will be submitted to the Santa Cruz County Planning Department within 30 days of completion of the survey/monitoring efforts. The report(s) will include the dates, times, weather conditions, and personnel involved in the biological surveys and construction monitoring. CNDDDB Field Survey Forms will be submitted to the CDFW for any special-status species observed. Prior to any site disturbance, a pre-construction meeting shall be held onsite as a condition of approval. The results of the preconstruction survey, site fencing delineating the areas of work and construction plan shall be reviewed to ensure impacts are less than significant.

Monterey Spineflower

Monterey spineflower (*Chorizanthe pungens var. pungens*). This species is federally listed as endangered under the Federal Endangered Species Act (FESA). This species is also listed as rare (List 1B.1) by the California Native Plant Society and is considered rare by the County of Santa Cruz. The species is not listed under the California Endangered Species Act (CESA). The Monterey spineflower is an annual species that grows in sandy soils within portions of Santa Cruz County; there are several known occurrences from dune scrub habitat in the Pajaro Dunes development and from nearby Sunset State Beach.

The spineflower is characterized by its whitish to pinkish flowers, low-growing habit and spiny bracts surrounding the flowers. Individuals of Monterey spineflower were observed on the parcel during the April 2020 field survey. A colony was observed along both sides of the wooden pathway in the northwestern portion of the parcel. A second colony was observed north of the existing asphalt parking area. A total of 53 plants were found on site.

Impacts

The on-site 0.007-acre Monterey spineflower occurrence (200-300 individuals) is positioned

mostly within the proposed project impact area, and avoidance of the occurrence is not feasible. It is assumed that the entire on-site occurrence could be removed by the proposed project.

Mitigation Measures

BIO-8: The Monterey spineflower occurrence on the project site will be relocated from the central impact area to the western preservation area. Prior to any ground disturbance, a qualified biologist will work with the project architect to demarcate the on-site mitigation area for restoration of coastal dune scrub habitat and Monterey spineflower seed transplantation. The project proponent will be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity. Prior to seed transplant, permanent fencing will be installed between the residential development area and the preserved area to prevent access to the preserved area, with a small designated walkway allowing access from the new residence to the beach.

Prior to any ground disturbance, in the spring/summer before construction, the project proponent will retain a qualified biologist or native plant specialist to perform seed collection from all Monterey spineflower plants located within the impact area, and implement seed installation in the mitigation area at the optimal time.

A restoration plan will be developed for the project by a qualified biologist in accordance with Santa Cruz County's 2012 Draft Guidelines for Biological Resources Assessments and Related Documents, Appendix D: Guidelines for the Preparation of Revegetation/Restoration Plans and Appendix E: Revegetation/Restoration Plan Checklist. This restoration plan will include both Monterey spineflower occurrence seed collection and transplantation/preservation and coastal dune scrub habitat restoration/preservation. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native invasive plants. Monitoring will occur for a minimum of five years after mitigation area installation to verify that restoration activities have been successful and will include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years.

The abundance of annual plants naturally varies from year to year depending on multiple factors including disturbance and rainfall. The performance standard for successful mitigation will be a minimum 2:1 replacement ratio (i.e. two plants observed in the mitigation area for each plant lost from the impact area), meaning that at least an estimated 600 Monterey spineflower plants must be present in the mitigation area during at least one spring occurring in year 3, 4, or 5 after installation. The program will contain options for corrective action and

extended maintenance/monitoring if the performance standard is not achieved during the 5-year monitoring period.

During each monitoring effort undertaken in the mitigation area, a qualified biologist will conduct a comparison of spring survey conditions for Monterey spineflower from the previous year(s) and prepare a written report for the County. If adaptive management (corrective measures) are warranted, a description and recommendation will be included in the annual report.

Special Status Species – Coastal Horned Lizard and Black legless lizard

The Coastal horned lizard (*Phrynosoma blainvillii*) and Black legless lizard (*Anniella pulchra nigra*). The Coastal horned lizard and black legless lizard are California species of special concern. The Coastal horned lizard occurs in a wide range of habitats, though it is most common in lowlands along sandy washes with scattered low bushes (CDFW 2021). It requires open areas for basking, fine loose soil where it can bury itself for camouflage to escape predators and regulate its temperature, shrubs for refugia, and abundant insect prey, especially ants; coast horned lizards are ant specialists, and depend on the presence of native ant species (Stebbins 2003, Jennings and Hayes 1994). This species has potential to occur on the project site.

The Black legless lizard inhabits sandy or loose loamy soils under sparse vegetation and prefers moist soils (CDFW 2021). This fossorial (burrowing) species forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats (Stebbins 2003). CNDDDB occurrences were recorded in proximity to the project site in sandy habitat at Sunset State Beach; this species has potential to occur on the project site.

Impacts

The dune scrub habitat at this site provides only marginal habitat for the horned lizard and black legless lizard, due to the sparse occurrence of native vegetation which this species is usually associated with, fragmentation of habitat from other suitable dune areas, and the predominance of dense mats of non-native plants, such as ice plant. However, this lizard has a slight chance to occur in the areas in small numbers where loose sand, leaf litter, and adequate prey base exists.

Mitigation Measures

BIO-9: The project proponent will retain a biologist qualified in herpetology to conduct preconstruction surveys for coast horned lizard and Northern California legless lizard. Preconstruction surveys will be conducted within impact areas no more than 48 hours prior to

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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disturbance of any suitable habitat for these species as determined by the qualified biologist. Surveys will utilize hand search methods within impact areas where these species are expected to be found (i.e., under shrubs, other vegetation, or debris on sandy soils). Any individuals located during the surveys will be safely relocated to suitable habitat outside of the impact areas.

In coordination with the CDFW, as needed, the qualified biologist will be at the project site to recover any coast horned lizards or Northern California legless lizards that may be excavated/unearthed during initial ground disturbance and vegetation removal activities. If the animals are in good health, they will be immediately relocated to a designated release site outside of the work area. If they are injured, the animals will be released to a CDFW-approved rehabilitation specialist until they are in a condition to be released into the designated release site.

Migratory Bird Treaty Act

Migratory birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). All migratory bird species are protected by the MBTA. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a “take” of the species under federal law.

Impacts

The project area provides potential nesting habitat for birds of prey and birds listed by the MBTA. Vegetation (especially coastal dune scrub and Monterey cypress trees) on and adjacent to the project site provides suitable nesting habitat for a wide variety of birds. Given the site’s oceanfront location in a biodiverse region, there is high potential for nesting birds to occur on or near the project site. As a result, implementation of the following mitigation would reduce impacts to below a level of significance.

Mitigation Measures

BIO-10: To avoid impacts to nesting birds, the removal of vegetation shall be minimized to the greatest extent feasible. Construction activities that include any tree removal, pruning, grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January 15 through September 15) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction surveys for nesting birds to ensure that no nests would be disturbed during project construction.

If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two

surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.

If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize “normal” bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.

In addition, if construction is proposed during the western snowy plover nesting season (March 15 to September 15), the biologist will coordinate with Point Blue Conservation Science and the USFWS who regularly monitor western snowy plover nesting to determine if any western snowy plovers are nesting close to the project site. If nesting occurs within 200 feet of the proposed project, construction must be halted until the young have fledged and left the area or Incidental Take Authorization has been obtained from USFWS. The on-site western snowy plover critical habitat area will not be disturbed by construction activities per mitigation measures BIO-1 through BIO-7.

A report documenting survey results and a plan for active bird nest avoidance (if needed) will be completed by the biologist and submitted to the Santa Cruz County Planning Department for review and approval prior to disturbance and/or construction activities. If no active bird nests are detected during the survey, then project activities can proceed as scheduled. However, if an active bird nest of a native species is detected during the survey, then a plan for bird nest avoidance will be prepared to determine and clearly delineate an appropriately-sized, temporary protective buffer area around each active nest, depending on the nesting bird species, existing site conditions, and type of proposed disturbance and/or construction activities.

Coastal Dune Scrub

The on-site 0.15-acre coastal dune scrub habitat supports a special-status Monterey spineflower occurrence and contains USFWS-designated critical habitat for western snowy plover. The coastal dune scrub is considered to be a sensitive habitat under County Code. The proposed project is to construct a new single family dwelling and detached garage on an existing lot of

record.

Impacts

The new development footprint (residence, detached garage, and walkway) will be permanently impact 4,454 square feet of the parcel's dune habitat as well as 7,936 square feet of the temporary impacts resulting from construction access and grading activities.

Mitigation Measures

BIO-11: Prior to final project approvals, landscaping plans will be reviewed by the County to ensure the palette is limited to drought-tolerant species, fire-resistant species, and species capable of increasing soil stability, with preference to plant species endemic to coastal Santa Cruz County. Species from the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory (Cal-IPC 2021), such as iceplant and European beachgrass, will not be included in any new landscaping. The plant palette used for on-site landscaping will be reviewed and approved by the Santa Cruz County Planning Department to confirm no invasive species will be planted.

Monterey Cypress trees

Significant trees are generally defined as any tree located in a sensitive habitat; and in the urban services line or rural services line, to any tree 20 inches or more in Diameter at Breast Height (DBH); any sprout clump of five or more stems each of which is greater than 12 inches in DBH; or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches in DBH. On-site mature Monterey cypress trees are considered significant trees.

Impacts

At least two trees will be removed or significantly trimmed as part of the proposed development. Construction activities and permanent development are proposed very close to the trunk of an existing mature cypress tree that would require heavy pruning to allow for construction access. Grading, trenching, or heavy pruning could cause direct mortality or decline of this tree after construction is complete. Mitigations are included below to protect trees and compensate for any direct or indirect mortality to significant trees that may result from project construction.

Mitigation Measures

BIO-12: Prior to any ground disturbance, an International Society of Arboriculture (ISA)-certified arborist will conduct a tree survey and prepare an evaluation report with associated

data and location map for all Santa Cruz County-regulated trees on and immediately adjacent to the site. The project proponent will then obtain approval through a Coastal Development Permit and Santa Cruz County tree removal permit prior to removal of or impact to any regulated tree. Replacement plantings will likely be required as a condition for permit approvals. The project proponent will implement any stipulated conditions of approval, such as the planting of replacement trees in appropriate on-site or off-site areas, along with any required maintenance and monitoring. Prior to any site disturbance, a pre-construction meeting shall be held onsite as a condition of approval. The meeting shall involve all relevant parties including the project proponent, construction supervisor, Environmental Planning Staff, and the project biologist. The results of the preconstruction survey, site fencing delineating the areas of work and construction plan shall be reviewed to ensure impacts are less than significant.

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| <p>2. <i>Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</i></p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

Discussion:

The project site does not contain riparian habitat, native grassland, special forests or intertidal zone; however the site does contain coastal dune scrub and non-native eucalyptus (See Impacts and Mitigation discussion under Biological Resources Question 1).

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>3. <i>Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: There are no mapped or designated federally protected wetlands on the project site. Therefore, no impacts would occur from project implementation.

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| <p>4. <i>Interfere substantially with the movement of any native resident or migratory fish or wildlife species or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: The project does not involve any activities that would interfere with the movements or migrations of fish or wildlife or impede use of a known wildlife nursery site.

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| 5. Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: Implementation of Mitigations Bio 1-12 prevent conflict with any local policies or ordinances.

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| 6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: The project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

E. CULTURAL RESOURCES

Would the project:

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is vacant with the exception of an existing parking area, shared with an adjoining parcel developed with an existing single family dwelling. Neither the parking area or development on the adjoining parcel is designated as a historic resource on any federal, state or local inventory. As a result, no impacts to historical resources would occur from project implementation.

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| 2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: No archaeological resources have been identified in the project area. Pursuant to SCCC section 16.40.040, if at any time in the preparation for or process of excavating or

otherwise disturbing the ground, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in SCCC Chapter 16.40.040.

Pursuant to section 16.40.040 of the SCCC, if archaeological resources are uncovered during construction, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in SCCC Chapter 16.40.

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| 3. <i>Disturb any human remains, including those interred outside of dedicated cemeteries?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: Impacts are expected to be less than significant. However, pursuant to section 16.40.040 of the SCCC, and California Health and Safety Code sections 7050.5-7054, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archaeological report shall be prepared, and representatives of local Native American Indian groups shall be contacted. If it is determined that the remains are Native American, the Native American Heritage Commission will be notified as required by law. The Commission will designate a Most Likely Descendant who will be authorized to provide recommendations for management of the Native American human remains. Pursuant to Public Resources Code section 5097, the descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. Disturbance shall not resume until the significance of the resource is determined and appropriate mitigations to preserve the resource on the site are established.

F. ENERGY

Would the project:

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project, like all development, would be responsible for an incremental increase in the consumption of energy resources during site grading and construction of the replacement dwelling. All project construction equipment would be required to comply

with the California Air Resources Board (CARB) emissions requirements for construction equipment, which includes measures to reduce fuel-consumption, such as imposing limits on idling and requiring older engines and equipment to be retired, replaced, or repowered. In addition, the project would comply with General Plan policy 8.2.2, which requires all new development to be sited and designed to minimize site disturbance and grading. As a result, impacts associated with the small temporary increase in consumption of fuel during construction are expected to be less than significant.

In addition, the County has strategies to help reduce energy consumption and greenhouse gas (GHG) emissions. These strategies included in the *County of Santa Cruz Climate Action Strategy* (County of Santa Cruz, 2022). The project, to construct a new single family dwelling on an existing lot of record, like all new single family construction would be conditioned to ensure construction activities comply with prevailing building technology, the California Building Code, and the County Building ordinance to ensure the conservation of energy and resources.

Therefore, the project will not result in wasteful, inefficient, or unnecessary consumption of energy resources. Impacts are expected to be less than significant.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: AMBAG’s 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) recommends policies that achieve statewide goals established by CARB, the California Transportation Plan 2040, and other transportation-related policies and state senate bills. The SCS element of the MTP targets transportation-related greenhouse gas (GHG) emissions in particular, which can also serve to address energy use by coordinating land use and transportation planning decisions to create a more energy efficient transportation system.

The Santa Cruz County Regional Transportation Commission (SCCRTC) prepares a County-specific regional transportation plan (RTP) in conformance with the latest AMBAG MTP/SCS. The 2040 RTP establishes targets to implement statewide policies at the local level, such as reducing vehicle miles traveled and improving speed consistency to reduce fuel consumption.

In 2022, Santa Cruz County adopted a Climate Action Strategy (CAS) focused on reducing the emission of greenhouse gases, which is dependent on increasing energy efficiency and the use of renewable energy. The strategy intends to reduce energy consumption and greenhouse gas emissions by implementing a number of measures such as reducing vehicle

miles traveled through County and regional long-range planning efforts, increasing energy efficiency in new and existing buildings and facilities, increasing local renewable energy generation, improving the Green Building Program by exceeding minimum state standards, reducing energy use for water supply through water conservation strategies, and providing infrastructure to support zero and low emission vehicles that reduce gasoline and diesel consumption, such as plug in electric and hybrid plug in vehicles.

In addition, the Santa Cruz County General Plan has historically placed a priority on “smart growth” by focusing growth in the urban areas through the creation and maintenance of an urban services line. Objective 2.1 (Urban/Rural Distinction) directs most residential development to the urban areas, limits growth, supports compact development, and helps reduce sprawl. The Circulation Element of the General Plan further establishes a more efficient transportation system through goals that promote the wise use of energy resources, reducing vehicle miles traveled, and transit and active transportation options.

Energy efficiency is a major priority throughout the County’s General Plan. Measure C was adopted by the voters of Santa Cruz County in 1990 and explicitly established energy conservation as one of the County’s objectives. The initiative was implemented by Objective 5.17 (Energy Conservation) and includes policies that support energy efficiency, conservation, and encourage the development of renewable energy resources. Goal 6 of the Housing Element also promotes energy efficient building code standards for residential structures constructed in the County.

The project will be consistent with the AMBAG 2040 MTP/SCS and the SCCRTC 2040 RTP. The project would also be required to comply with the Santa Cruz County General Plan and any implemented policies and programs established through the CAS. In addition, the project design would be required to comply with CALGreen, the state of California’s green building code, to meet all mandatory energy efficiency standards. Therefore, the project would have no impact on the environment as it will not conflict with or obstruct any state or local plan for renewable energy or energy efficiency.

G. GEOLOGY AND SOILS

Would the project:

1. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

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| <ol style="list-style-type: none"> A. <i>Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| B. Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| C. Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| D. Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion (A through D): All of Santa Cruz County is subject to some hazard from earthquakes, and there are several faults within the County. While the San Andreas fault is larger and considered more active, each fault is capable of generating moderate to severe ground shaking from a major earthquake. Consequently, large earthquakes can be expected in the future. The October 17, 1989 Loma Prieta earthquake (magnitude 7.1) was the second largest earthquake in central California history.

The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone or any County-mapped fault zone (County of Santa Cruz GIS Mapping, California Division of Mines and Geology, 2001). The project site is likely to be subject to strong seismic shaking during the life of the improvements, though the potential for ground surface rupture is low. The improvements would be designed in accordance with the California Building Code, which should reduce the hazards of seismic shaking and liquefaction. There is no indication that landsliding is a significant hazard at this site. Therefore, impacts related to seismic shaking and landslides are less than significant.

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| 2. Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: Some potential for erosion exists during the construction phase of the project, however, this potential is minimal because the slopes on the parcel are less than 30 percent and standard erosion controls are a required condition of the project. Prior to approval of a grading or building permit, the project must have an approved stormwater pollution control plan (SCCC Section 7.79.100), which would specify detailed erosion and sedimentation control measures. The plan would include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion. Impacts

from soil erosion or loss of topsoil would be considered less than significant.

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| 3. <i>Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion:

An updated Geotechnical Investigation was prepared for the project by Silicon Valley Soil Engineering revised November 20, 2022. Per the report, the project site is located on a frontal dune adjacent to a beach. The substrate consists of medium-dense sand, which is subject to liquefaction-induced settlement and erosion. Pursuant to the report, the proposed residence with basement and detached garage should be supported by pre-stress pre-cast concrete pile foundation. The recommendations contained in the geotechnical report will be implemented to reduce this potential hazard to a less than significant level.

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| 4. <i>Be located on expansive soil, as defined in section 1803.5.3 of the California Building Code (2016), creating substantial direct or indirect risks to life or property?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: The geotechnical report for the project did not identify any elevated direct or indirect risks associated with expansive soils. Therefore, no impact is anticipated.

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| 5. <i>Have soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: The project would use connect to an existing sewer system serving the homes within Pajaro Dunes. The project would be conditioned to ensure that all requirements of the Watsonville Sanitation District are met prior to issuance of the Building Permit.

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| 6. <i>Directly or indirectly destroy a unique paleontological resource or site of unique geologic feature?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Discussion: No unique paleontological resources or sites or unique geologic features are known to occur in the vicinity of the project. A query was conducted of the mapping of identified geologic/paleontological resources maintained by the County of Santa Cruz Planning Department, and there are no records of paleontological or geological resources in

the vicinity of the project parcel. No direct or indirect impacts are anticipated.

H. GREENHOUSE GAS EMISSIONS

Would the project:

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| 1. <i>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: The project, like all development, would be responsible for an incremental increase in greenhouse gas (GHG) emissions by usage of fossil fuels during the site grading and construction. The proposed development would comply with policies to limit site disturbance and minimize grading. As a result, impacts associated with the temporary increase in GHG emissions are expected to be less than significant.

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| 2. <i>Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: See the discussion under H-1 above. Less than significant impacts are anticipated.

I. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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| 1. <i>Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: The project would not create a significant hazard to the public or the environment. No routine transport or disposal of hazardous materials is proposed. However, during construction, fuel would be used at the project site.

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| 2. <i>Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
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Discussion: See discussion under I-1 above. Project impacts would be considered less than significant.

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| 3. <i>Emit hazardous emissions or handle</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Discussion: The nearest Watsonville city schools are located approximately 3 ½ miles away from the project site. No impacts are anticipated.

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| 4. <i>Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is not included on the list of hazardous sites in Santa Cruz County compiled pursuant to Government Code section 65962.5. No impacts are anticipated from project implementation.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. <i>For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is located more than four miles away from the nearest airport, Watsonville Municipal Airport.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 6. <i>Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would not conflict with implementation of the County of Santa Cruz Local Hazard Mitigation Plan 2015-2020 (County of Santa Cruz, 2020). Therefore, no impacts to an adopted emergency response plan or evacuation plan would occur from project implementation.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 7. <i>Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located in a State Responsibility Area, a Very High Fire

Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area and will not conflict with emergency response or evacuation plans. Therefore, no impact would occur.

J. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not discharge runoff either directly or indirectly into a public or private water supply. However, runoff from this project may contain small amounts of chemicals and other household contaminants, such as pathogens, pesticides, trash, and nutrients. No commercial or industrial activities are proposed that would contribute contaminants. Potential siltation from the project would be addressed through implementation of erosion control BMPs. No water quality standards or waste discharge requirements would be violated and surface or ground water quality would not otherwise be substantially degraded. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would obtain water from the City of Watsonville and would not rely on private well water. The project would be conditioned to ensure adequate supplies are available to serve the project.

The project site is located in a mapped groundwater recharge area; however the project consists of construction of a new single-family dwelling and detached garage on an existing lot of record served by municipal water district; therefore, the project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts would be less than significant.

The proposal would be consistent with General Plan policies 5.8.2 (Land Division and Density Requirements in Primary Groundwater Recharge Areas), 5.8.3 (Uses in Primary Groundwater Recharge Areas), and 5.8.4 (Drainage Design in Primary Groundwater Recharge Areas).

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. <i>Substantially alter the existing drainage pattern of the site or area, including</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| A. <i>result in substantial erosion or siltation on- or off-site;</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| B. <i>substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| C. <i>create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or;</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| D. <i>impede or redirect flood flows?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion: The County Department of Public Works Stormwater Management Section staff has reviewed and approved the proposed drainage plan prepared for the project. The project is consistent with SCCC section 7.79.070, which states, “No person shall make any unpermitted alterations to drainage patterns or modifications to the storm drain system or any channel that is part of receiving waters of the county. No person shall deposit fill, debris, or other material in the storm drain system, a drainage channel, or on the banks of a drainage channel where it might enter the storm drain system or receiving waters and divert or impede flow.” The Project will not substantially alter the existing drainage pattern of the site in a manner that would result in erosion or siltation, or an increase in runoff from the site. The project would be conditioned to ensure all requirements of the Department of Public Works Stormwater Management Section are met. Impacts would be less than significant.

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. <i>In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

Flood Hazards: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated September 29, 2017, the project site lies within the VE

flood hazard zone. However, the project will meet the minimum flood plain management standards of the National Flood Insurance Program and the minimum flood plain design criteria in County Code section 16.10.070(F)(3). Impacts would be less than significant.

Tsunami and Seiche Zones:

There are two primary types of tsunami vulnerability in Santa Cruz County. The first is a teletsunami or distant source tsunami from elsewhere in the Pacific Ocean. This type of tsunami is capable of causing significant destruction in Santa Cruz County. However, this type of tsunami would usually allow time for the Tsunami Warning System for the Pacific Ocean to warn threatened coastal areas in time for evacuation (County of Santa Cruz 2010).

A greater risk to the County of Santa Cruz is a tsunami generated as the result of an earthquake along one of the many earthquake faults in the region. Even a moderate earthquake could cause a local source tsunami from submarine landsliding in Monterey Bay. A local source tsunami generated by an earthquake on any of the faults affecting Santa Cruz County would arrive just minutes after the initial shock. The lack of warning time from such a nearby event would result in higher casualties than if it were a distant tsunami (County of Santa Cruz 2010).

Seiches are recurrent waves oscillating back and forth in an enclosed or semi-enclosed body of water. They are typically caused by strong winds, storm fronts, or earthquakes.

According to the 2021 County of Santa Cruz Local Hazard Mitigation Plan, Santa Cruz County is currently providing the following measures to reduce the effects of any future tsunami/seiche impacts in the area. The County is:

- Coordinating a communication system with other agencies and cities, including evacuation operations for homes and businesses within specific areas;
- Providing management of the early warning system including a defined public information process including establishing a review 911 system that will notify all homes and businesses within the tsunami inundation areas, and a public address protocol to have local and regional radio, TV and cable outlets announce evacuation notifications to the community;
- Updating tsunami maps;
- Updating mitigation actions to include installation of signage defining tsunami evacuation zones; and
- Encouraging investigation of the tsunami threat to the County of Santa Cruz and updating development regulations based on upon this investigation.

The project site is located within a tsumani/seiche zone, approximately 350 feet from the Monterey Bay. However, due to the implementation of the measures included in the County of Santa Cruz Local Hazard Mitigation Plan, impacts from the release of pollutants associated with residential development would be less than significant.

5. *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Discussion: The proposed project site is located within the area of the Pajaro and San Andreas groundwater basin. The project would result in construction and operation of a new 2,500 square foot single family dwelling consisting of three bedrooms with an associated water demand that relies on groundwater from impacted groundwater basins. However, the level of proposed development would be within the overall amount of remaining residential development potential analyzed in the Sustainability Update EIR as described in Section IV.B. Because the project size is within the total amount of potential development related to groundwater impacts analyzed in the Sustainability Update EIR, which identified less-than-significant groundwater impacts, the proposed project would not result in new significant impacts or substantially more severe impacts than evaluated in the Sustainability Update EIR, and would not result in impacts peculiar to the site or the project. Therefore, no further environmental analysis or review is required pursuant to Public Resources Code section 21083.3 and the State CEQA Guidelines section 15183.

K. LAND USE AND PLANNING

Would the project:

1. *Physically divide an established community?*

Discussion: The project does not include any element that would physically divide an established community. No impact would occur.

2. *Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

Discussion: The project would not cause a significant environmental impact due to a conflict with any land use plan, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. No impacts are anticipated.

L. MINERAL RESOURCES

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The site does not contain any known mineral resources that would be of value to the region and the residents of the state. Therefore, no impact is anticipated from project implementation.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is zoned SU (Special Use), which is not considered to be an Extractive Use Zone (M-3) nor does it have a land use designation with a Quarry Designation Overlay (Q) (County of Santa Cruz 1994). Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project.

M. NOISE

Would the project result in:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

County of Santa Cruz General Plan

The County of Santa Cruz has not adopted noise thresholds for construction noise. The following applicable noise related policy is found in the Noise Element of the Santa Cruz County General Plan (Santa Cruz County 2020).

The General Plan contains the following tables, which specifies the acceptable range of noise exposure by land use type (Table 9-2) and maximum allowable noise exposure for stationary noise sources (Table 9-3).

Table 9-2
Acceptable through Unacceptable Ranges of Noise Exposure by Land Use*
**Outdoor noise exposure measured at the property line of receiving land use*

LAND USE		COMMUNITY NOISE EXPOSURE DNL or CNEL, dB					
		55	60	65	70	75	80
A	Residential/Lodging – Single Family, Duplex, Mobile Home,						
B	Schools, Libraries, Religious Institutions, Meeting Halls,						
C	Outdoor Sports Arena or Facility, Playgrounds,						
D	Office Buildings, Business Commercial and Professional						
E	Industrial, Manufacturing, Utilities, Agriculture						

NORMALLY ACCEPTABLE:
Specific land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements, and can meet the indoor noise standards.

CONDITIONALLY ACCEPTABLE:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design to meet interior and exterior noise standards, where applicable.

NORMALLY UNACCEPTABLE:
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design to meet interior and exterior noise standards, where applicable.

CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Based on Draft General Plan Guidelines published by the California State Office of Planning and Research, 2014.

Table 9-3 Maximum Allowable Noise Exposure Stationary Noise Sources ⁽¹⁾		
	Daytime ⁽⁵⁾ (7 AM to 10 PM)	Nighttime ^(2,5) (10 PM to 7 AM)
Hourly Leq – average hourly noise level, dB ⁽³⁾	50	45
Maximum level, dB ⁽³⁾	70	65
Maximum level dB – Impulsive Noise ⁽⁴⁾	65	60
<p>dB = decibel</p> <p>(1) As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures</p> <p>(2) Applies only where the receiving land use operate or is occupied during nighttime hours</p> <p>(3) Sound level measurements shall be made with “slow” meter response</p> <p>(4) Sound level measurements shall be made with “fast” meter response</p> <p>(5) Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced 5 dB if the ambient hourly Leq is at least 10 dB lower than the allowable level.</p>		

County of Santa Cruz Code

There are no County of Santa Cruz ordinances that specifically regulate construction or operational noise levels. However, Section 13.15.050(A) (General noise regulation and unlawful noise) of the SCCC contains the following language regarding noise impacts:

- (A) No use, except a temporary construction operation, shall be permitted which creates noise which is found by the Planning Commission not to conform to the noise parameters established by Table 9-2 and Table 9-3 of the Santa Cruz County General Plan beyond the boundaries of the project site at standard atmospheric pressure.

Further, SCCC 13.10.040(A) (Exceptions) limits construction hours as follows:

- (A) Noise sources normally and reasonably associated with construction, repair, remodeling, or grading of any real property, provided a permit has been obtained from the County as required, and provided said activities take place between the hours of 8:00 a.m. and 5:00 p.m. on weekdays unless the Building Official has in

advance authorized said activities to start at 7:00 a.m. and/or continue no later than 7:00 p.m. Such activities shall not take place on Saturdays unless the Building Official has in advance authorized said activities, and provided said activities take place between 9:00 a.m. and 5:00 p.m. and no more than three Saturdays per month. Such activities shall not take place on Sunday or a federal holiday unless the Building Official has in advance authorized such work on a Sunday or federal holiday, or during earlier morning or later evening hours of a weekday or Saturday.

Table 3: Typical Noise Levels for Common Construction Equipment (at 50 feet)

Equipment	L _{max} (dBA)
Air Compressor	80
Backhoe	80
Chain Saw	85
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Saw	90
Crane	83
Dozer	85
Dump Truck	84
Excavator	85
Flat Bed Truck	84
Fork Lift	75
Generator	82
Grader	85
Hoe-ram	90
Jack Hammer	88
Loader	80
Paver	85
Pick-up Truck	55
Pneumatic Tool	85
Roller	85
Tree Chipper	87
Truck	84

Source: Federal Transit Authority, 2006, 2018.

Sensitive Receptors

Some land uses are generally regarded as being more sensitive to noise than others due to the type of population groups or activities involved. Sensitive population groups generally include children and the elderly. Noise sensitive land uses typically include all residential uses (single- and multi-family, mobile homes, dormitories, and similar uses), hospitals, nursing homes, schools, and parks.

The nearest sensitive receptors, neighboring dwellings, are located approximately 20 feet to the north and south of the project area.

Impacts

Potential Temporary Construction Noise Impacts

The use of construction equipment to accomplish the project would result in noise in the project area, i.e., construction zone. Table 3 shows typical noise levels for common construction equipment. The sources of noise that are normally measured at 50 feet, are used to determine the noise levels at nearby sensitive receptors by attenuating 6 dB for each doubling of distance for point sources of noise such as operating construction equipment. Noise levels at the nearest sensitive receptors for each site were analyzed on a worst-case basis, using the equipment with the highest noise level expected to be used.

Although construction activities would likely occur during daytime hours, noise may be audible to nearby residents. However, periods of noise exposure would be temporary. Noise

from construction activity may vary substantially on a day-to-day basis.

Construction activity would be expected to use equipment listed in Table 3. Based on the activities proposed for the project, the equipment with the loudest operating noise level that would be used often during activity would be an excavator or cement mixer, which would produce noise levels of 85 dBA at a distance of 50 feet. The nearest sensitive receptor is located approximately 20 feet from the construction site. At that distance, the decibel level will not be reduced. However, these impacts would be temporary (24 weeks) and short in duration due to time restrictions on building and grading permits issued by the County of Santa Cruz. All construction activities would be restricted to the hours of 8am to 5pm Monday through Friday.

Noise generated during project construction would increase the ambient noise levels in adjacent areas. Construction would be temporary and given the limited duration of this impact it is considered to be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Generation of excessive groundborne vibration or groundborne noise levels?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The use of construction and grading equipment would potentially generate periodic vibration in the project area. This impact would be temporary and periodic and is not expected to cause damage; therefore, impacts are not expected to be significant.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. <i>For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not in the vicinity of a private airstrip or within two miles of a public airport. Therefore, the project would not expose people residing or working in the project area. No impact is anticipated.

N. POPULATION AND HOUSING

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. <i>Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example,</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

through extension of roads or other infrastructure)?

Discussion: The project would not induce substantial population growth in an area because the project does not propose any physical or regulatory change that would remove a restriction to or encourage population growth in an area. The project proposes only to construct a new dwelling on an existing lot of record; therefore, the project would not induce population growth. No impact would occur.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would not displace any existing housing. No impact would occur.

O. PUBLIC SERVICES

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:</i> | | | | |
| a. <i>Fire protection?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. <i>Police protection?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. <i>Schools?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. <i>Parks?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e. <i>Other public facilities; including the maintenance of roads?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion (a through e): While the project represents an incremental contribution to the need for services, the increase would be minimal. Moreover, the project meets all the standards and requirements identified by the local fire agency or California Department of Forestry, as applicable, and school, park, and transportation fees to be paid by the applicant would be used to offset the incremental increase in demand for school and recreational facilities and public roads. Impacts would be considered less than significant.

P. RECREATION

Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
1. <i>Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion: The project would not substantially increase the use of existing neighborhood and regional parks or other recreational facilities. Impacts would be considered less than significant.

2. <i>Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Discussion: The project does not propose the expansion or require the construction of additional recreational facilities. No impact would occur.

Q. TRANSPORTATION

Would the project:

1. <i>Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Discussion:

Senate Bill (SB) 743, signed by Governor Jerry Brown in 2013, changed the way transportation impacts are identified under CEQA. Specifically, the legislation directed the State of California’s Office of Planning and Research (OPR) to look at different metrics for identifying transportation impacts. OPR issued its “Technical Advisory on Evaluating Transportation Impacts in CEQA” (December 2018) to assist practitioners in implementing the CEQA Guidelines revisions to use vehicle miles traveled (VMT) as the preferred metric for assessing passenger vehicle related impacts. The CEQA Guidelines were also updated in December 2018, such that vehicle level of service (LOS) will no longer be used as a determinant of significant environmental impacts, and an analysis of Vehicle Miles Traveled (VMT) will be required as of July 2020. A discussion of consistency with the Santa Cruz County General Plan LOS policy is provide below for informational purposes only.

There would be no operational changes to the vehicle circulation system because no additional traffic would be generated.

The project would be consistent with applicable Santa Cruz County plans, policies, and

ordinances.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1) (Vehicle Miles Traveled)?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: In response to the passage of Senate Bill 743 in 2013 and other climate change strategies, OPR amended the CEQA Guidelines to replace LOS with VMT as the measurement for transportation impacts. The “Technical Advisory on Evaluating Transportation Impacts in CEQA,” prepared by OPR (2018) provides recommended thresholds and methodologies for assessing impacts of new developments on VMT. There are also a number of screening criteria recommended by OPR that can be used to determine whether a project will have a less-than-significant impact. The screening criteria include projects that generate less than 110 net new trips, map-based screening, projects within a ½ mile of high quality transit, affordable housing projects, and local serving retail. Since Santa Cruz County has a Regional Transportation Planning Authority and generally conducts transportation planning activities countywide, the county inclusive of the cities is considered a region.

In June of 2020, the County of Santa Cruz adopted a threshold of 15% below the existing countywide average per capita VMT levels for residential projects, 15% below the existing countywide average per employee VMT for office and other employee-based projects, no net increase in the countywide average VMT for retail projects, and no net increase in VMT for other projects. Based on the countywide travel demand model the current countywide average per capita VMT for residential uses is 10.2 miles. The current countywide per employee average VMT for the service sector (including office land uses) is 8.9 miles, for the agricultural sector is 15.4, for the industrial sector is 13.9, and for the public sector is 8.2. Therefore, the current VMT thresholds for land use projects are 8.7 miles per capita for residential projects. For employee-based land uses the current thresholds are: 7.6 miles per employee for office and services projects, 13.1 miles per employee for agricultural projects, 11.8 miles per employee for industrial projects, and 7 miles per employee for public sector land use projects. The threshold for retail projects and all other land uses is no net increase in VMT. For mixed-use projects, each land use is evaluated separately unless they are determined to be insignificant to the total VMT.

The project consists of construction of a new dwelling on an existing lot of record and would result in one peak trip per day (1 peak trip per dwelling unit), Such an increase will not adversely impact existing roads or intersections in the surrounding area and fall below the threshold for significance or 110 net new trips. Therefore, the project would result in a less than significant impact in VMT.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project consists of construction of a new dwelling on an existing lot of record in a residential community (Pajaro Dunes). No increase in hazards would occur from project design or from incompatible uses. No impact would occur from project implementation.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project's road access, Rio Boca Road, meets County standards and has been approved by the local fire agency or California Department of Forestry, as appropriate.

R. TRIBAL CULTURAL RESOURCES

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| A. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources Code section 5020.1(k), or | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| B. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion: The project proposes to construct a new dwelling on an existing lot of record in the Pajaro Dunes community. Section 21080.3.1(b) of the California Public Resources Code (AB 52) requires a lead agency formally notify a California Native American tribe that

is traditionally and culturally affiliated within the geographic area of the discretionary project when formally requested. As of this writing, no California Native American tribes traditionally and culturally affiliated with the Santa Cruz County region have formally requested a consultation with the County of Santa Cruz (as Lead Agency under CEQA) regarding Tribal Cultural Resources. However, no Tribal Cultural Resources are known to occur in or near the project area. Therefore, no impact to the significance of a Tribal Cultural Resource is anticipated from project implementation.

S. UTILITIES AND SERVICE SYSTEMS

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| <p>1. <i>Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

Water

The project would connect to an existing municipal water supply. The project has been conditioned to ensure all requirements of the City of Watsonville Water District are met prior to issuance of the Building Permit. and no new facilities are required to serve the project. Impacts are expected to be less than significant from project implementation.

Wastewater

Municipal wastewater treatment facilities are available through the City of Watsonville. Beyond the extension of a sewer lateral to the project site, no new wastewater facilities are required to serve the project. Impacts are expected to be less than significant from project implementation.

Stormwater

The proposed project, construction of a new single family dwelling and detached garage on an existing lot of record in the Pajaro Dunes community, has been designed and further conditioned such that no increase in runoff would occur. New Drainage facilities would be adequately sized to accommodate additional runoff resulting from the project. Impacts are expected to be less than significant.

Electric Power

Pacific Gas and Electric Company (PG&E) provides power to existing and new

developments in the Santa Cruz County area. As of 2018, residents and businesses in the County were automatically enrolled in MBCEP’s community choice energy program, which provides locally controlled, carbon-free electricity delivered on PGE’s existing lines.

The proposed site is already served by electric power, and no further improvements to serve the site are necessary; therefore, there will be no impact.

Natural Gas

The proposed site will be served by propane tanks, and no improvements related to natural gas service will be required. No impacts are anticipated.

Telecommunications

Telecommunications, including telephone, wireless telephone, internet, and cable, are provided by a variety of organizations. AT&T is the major telephone provider, and its subsidiary, DirectTV provides television and internet services. Cable television services in Santa Cruz County are provided by Charter Communications in Watsonville and Comcast in other areas of the county. Wireless services are also provided by AT&T, as well as other service providers, such as Verizon.

No improvements related to telecommunications are required, and there will be no impact.

2. *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

Discussion: All the main aquifers in this County, the primary sources of the County’s potable water, are in some degree of overdraft. Overdraft is manifested in several ways including 1) declining groundwater levels, 2) degradation of water quality, 3) diminished stream base flow, and/or 4) seawater intrusion. Surface water supplies, which are the primary source of supply for the northern third of the County, are inadequate during drought periods and will be further diminished as a result of the need to increase stream baseflows to restore habitat for endangered salmonid populations. In addition to overdraft, the use of water resources is further constrained by various water quality issues.

The project is located within the City of Watsonville Water District service area and would be conditioned to ensure adequate water supplies are available to serve the project prior to issuance of a building permit and payment of fees and charges in effect at the time. The development would also be subject to the water conservation requirements in Chapter 7.69 (Water Conservation) and 13.13 (Water Conservation—Water Efficient Landscaping) of the County Code and the policies of section 7.18c (Water Conservation) of the General Plan. Therefore, existing water supplies would be sufficient to serve the project and reasonably

foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. <i>Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project is located in the City of Watsonville Sanitation District which is expected to have adequate capacity in the sewer collection system to serve the existing parcel within the community of Pajaro Dunes. The project would be conditioned to demonstrate sewer service availability subject to the payment of fees and charges in effect at the time of building permit issuance. Impacts to existing wastewater collection/treatment capacity would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. <i>Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not generate solid waste during the operational phase of the project. However, construction debris would be generated during demolition and construction, much of which would be recycled. The waste generated would not exceed local or state standards, or require additional landfills or recycling centers; therefore, impacts would be less than significant.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. <i>Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would comply with all federal, state, and local statutes and regulations related to solid waste disposal. No impact would occur.

T. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. <i>Substantially impair an adopted emergency response plan or emergency evacuation plan?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located in a State Responsibility Area, a Very High Fire

Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area and will not conflict with emergency response or evacuation plans. Therefore, no impact would occur.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: See discussion under T1. No impact would occur.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. <i>Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located in a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area. No new infrastructure is proposed. No impacts would occur.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. <i>Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project is not located within a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area. Downslope and downstream impacts associated with wildfires are unlikely to result from the project. Regardless, the project design incorporates all applicable fire safety code requirements and includes fire protection devices as required by the local fire agency. Impacts would be less than significant.

U. MANDATORY FINDINGS OF SIGNIFICANCE

- | | | | | |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| 1. <i>Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community,</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|

substantially reduce the number or restrict the range of a rare or endangered plant or animal community or eliminate important examples of the major periods of California history or prehistory?

Discussion: The potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in Section III (A through T) of this Initial Study. Resources that have been evaluated as significant would be potentially impacted by the project, particularly Coastal Dune Scrub, Dune Plant Habitat, Dunes, and habitat for special-status species, the black legless lizard. Federal Threatened Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is located on the central portion of the subject parcel. However, mitigation has been included that clearly reduces these effects to a level below significance. This mitigation includes pre-construction site surveys and habitat restoration. As a result of this evaluation, there is no substantial evidence that, after mitigation, significant effects associated with this project would result. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Does the project have impacts that are individually limited, but cumulatively considerable? (“cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: In addition to project specific impacts, this evaluation considered the project’s potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there were determined to be no potentially significant cumulative effects associated with this project. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. <i>Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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for adverse direct or indirect impacts to human beings were considered in the response to specific questions in Section III (A through T). As a result of this evaluation, no potentially adverse effects to human beings associated with this project were identified. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. REFERENCES USED IN THE COMPLETION OF THIS INITIAL STUDY

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Pajaro Dunes Site and Development Standards

Adopted 1975

Sustainability Update EIR

August 2022



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Attachment 1

Mitigation Monitoring and Reporting Program



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County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
 (831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

MITIGATION MONITORING AND REPORTING PROGRAM

for
Application No. 201349
 145 Rio Boca Road

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
Biological Resources				
BIO-1	<p>To avoid potential impacts to sensitive habitat:</p> <p>Qualified project biologists from a Santa Cruz County-approved consulting biological firm will be retained by the project proponent to conduct preconstruction surveys, lead worker environmental awareness training, and monitor for sensitive biological resources during construction. A project biologist will be on the site during times of initial ground disturbance, vegetation removal, and clearing to monitor biological resource protection measures, and at any other time when impacts to sensitive biological resources could occur.</p>	Applicant	Compliance monitored by the County Planning Department	Prior to site disturbance, during construction, site grading operations, and ongoing
BIO-2	<p>Before construction activities begin, a qualified project biologist will conduct a worker environmental awareness training session for all construction personnel. At a minimum, the training will include a description of protected biological resources, species descriptions and habitat requirements, and general measures being implemented to protect sensitive resources during construction. Informational handouts with photographs clearly illustrating species appearances will be used in the training session.</p> <p>Training topics will include special-status species with potential to occur on the project site. Species are expected to include Monterey spineflower, globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon and other nesting birds, and western snowy plover. The training session will include information about steps to take if a special-status species is encountered, including contact information for the biological monitoring staff and measures to protect species during construction.</p> <p>Additionally, a project biologist will be available to answer any questions about the special-status species. All new construction personnel will undergo this mandatory worker environmental awareness training when they start work on the project. Training will occur prior to the start of construction and periodically as needed if new construction personnel begin work at the project site. Each worker will sign a statement that they received training and the statement will be posted or easily available for viewing at the project site.</p>	Applicant	Compliance monitored by County Planning Department	Prior to site disturbance, during construction, site grading operations, and ongoing
BIO-3	Signs, flags, and/or fencing will be used to establish exclusion areas outside work area limits to protect sensitive biological resources (e.g., coastal dune scrub, nesting bird buffers) in the vicinity of construction activities. A system of standardized and	Applicant	Compliance monitored by County Planning Department	Prior to site disturbance, during

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	simplified exclusion signage will be determined in advance through coordination with the construction contractor to reduce potential confusion during construction. Fencing will be checked weekly by the biological monitor to ensure it is intact and does not present an entrapment hazard to wildlife. The biological monitor may assign a designee within the construction crew to monitor fencing after the grading and clearing phases are complete.			construction, site grading operations, and ongoing
BIO-4	To prevent wildlife entanglement and entrapment, the construction contractor will avoid the use of monofilament netting on the project site, including use in temporary and permanent erosion control materials (fiber rolls and blankets). The construction contractor will also seal all steep-walled holes greater than one foot deep overnight. Holes will be sealed such that no gap is left between the cover and the edges of the hole so that gaps do not inadvertently appear to be burrow entrances (e.g. place plastic sheeting over the hole, place wooden plate over plastic sheeting, and place dirt on top of wooden plate/plastic sheeting if necessary). Where holes cannot be sealed, escape ramps that are no more than a 30 percent slope will be positioned such that entrapped wildlife will be able to escape. The escape ramps will be at least one foot wide and covered with jute netting or similar material.	Applicant	Compliance monitored by the County Planning Department	Prior to site disturbance, during construction, and site grading operations.
BIO-5	To prevent birds and other wildlife from ingesting or becoming entangled in plastic trash, and to avoid providing supplemental food to attract predators that prey on nesting birds, amphibians, reptiles, and small mammals, all trash and food scraps (including microtrash such as bottle caps and soda can tabs, plastic string, plastic grocery bags, six-pack container plastic rings, food containers, watermelon rinds, fruit peels, bones, etc.) will be placed in covered, wildlife-proof trash cans or removed from the site at the end of each work day. Work areas will be inspected by the biological monitor or a designee on the construction crew for trash and food scraps daily prior to crews leaving the jobsite to ensure compliance with this measure.	Applicant	Compliance monitored by the County Planning Department	Prior to site disturbance, during construction, and site grading operations
BIO-6	Project storm water pollution prevention plan (SWPPP) measures will be followed to prevent toxins and soil from entering local water bodies. SWPPP measures will include secondary containment of portable gas cans and generators, of all stationary equipment that could leak oil, and of concrete washouts	Applicant	Compliance monitored by County Stormwater Management and Environmental Planning staff	Prior to site disturbance, during construction, and site grading operations
BIO-7	A report of preconstruction survey efforts and biological construction monitoring to protect special-status species during initial ground disturbance and vegetation removal at the project site will be submitted to the Santa Cruz County Planning Department within 30 days of completion of the survey/monitoring efforts. The report(s) will include the dates, times, weather conditions, and personnel involved in the biological surveys and construction monitoring. CNDDDB Field Survey Forms will be submitted to the CDFW for any special-status species observed. Prior to any site disturbance, a pre-construction meeting shall be held onsite as a condition of approval. The results of the preconstruction survey, site fencing delineating the areas of work and construction plan shall be reviewed to ensure impacts are less than significant	Applicant	Compliance monitored by the County Planning Department - Resource Planner Leah MacCarter Leah.MacCarter@santacruzcountyca.gov	Prior to site disturbance, during construction, and site grading operations

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
BIO-8	<p>The Monterey spineflower occurrence on the project site will be relocated from the central impact area to the western preservation area. Prior to any ground disturbance, a qualified biologist will work with the project architect to demarcate the on-site mitigation area for restoration of coastal dune scrub habitat and Monterey spineflower seed transplantation. The project proponent will be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity. Prior to seed transplant, permanent fencing will be installed between the residential development area and the preserved area to prevent access to the preserved area, with a small designated walkway allowing access from the new residence to the beach.</p> <p>Prior to any ground disturbance, in the spring/summer before construction, the project proponent will retain a qualified biologist or native plant specialist to perform seed collection from all Monterey spineflower plants located within the impact area, and implement seed installation in the mitigation area at the optimal time.</p> <p>A restoration plan will be developed for the project by a qualified biologist in accordance with Santa Cruz County's 2012 Draft Guidelines for Biological Resources Assessments and Related Documents, Appendix D: Guidelines for the Preparation of Revegetation/Restoration Plans and Appendix E: Revegetation/Restoration Plan Checklist. This restoration plan will include both Monterey spineflower occurrence seed collection and transplantation/preservation and coastal dune scrub habitat restoration/preservation. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native invasive plants. Monitoring will occur for a minimum of five years after mitigation area installation to verify that restoration activities have been successful and will include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years.</p> <p>The abundance of annual plants naturally varies from year to year depending on multiple factors including disturbance and rainfall. The performance standard for successful mitigation will be a minimum 2:1 replacement ratio (i.e. two plants observed in the mitigation area for each plant lost from the impact area), meaning that at least an estimated 600 Monterey spineflower plants must be present in the mitigation area during at least one spring occurring in year 3, 4, or 5 after installation. The program will contain options for corrective action and extended maintenance/monitoring if the performance standard is not achieved during the 5-year monitoring period.</p> <p>During each monitoring effort undertaken in the mitigation area, a qualified biologist will conduct a comparison of spring survey conditions for Monterey spineflower from the previous year(s) and prepare a written report for the County. If adaptive management (corrective measures) are warranted, a description and recommendation will be included in the annual report.</p>	Applicant	Compliance monitored by the County Planning Department - Restoration Coordinator, John Cairns John.Cairns@santacruzcountyca.gov	Prior to site disturbance, during construction, site grading operations, and ongoing
BIO-9	The project proponent will retain a biologist qualified in herpetology to conduct preconstruction surveys for coast horned lizard and Northern California legless	Applicant	Compliance monitored by the County	Prior to site

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	<p>lizard. Preconstruction surveys will be conducted within impact areas no more than 48 hours prior to disturbance of any suitable habitat for these species as determined by the qualified biologist. Surveys will utilize hand search methods within impact areas where these species are expected to be found (i.e., under shrubs, other vegetation, or debris on sandy soils). Any individuals located during the surveys will be safely relocated to suitable habitat outside of the impact areas.</p> <p>In coordination with the CDFW, as needed, the qualified biologist will be at the project site to recover any coast horned lizards or Northern California legless lizards that may be excavated/unearthed during initial ground disturbance and vegetation removal activities. If the animals are in good health, they will be immediately relocated to a designated release site outside of the work area. If they are injured, the animals will be released to a CDFW-approved rehabilitation specialist until they are in a condition to be released into the designated release site.</p>		Planning Department	disturbance, during construction, site grading operations, and ongoing
BIO-10	<p>To avoid impacts to nesting birds, the removal of vegetation shall be minimized to the greatest extent feasible. Construction activities that include any tree removal, pruning, grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January 15 through September 15) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction surveys for nesting birds to ensure that no nests would be disturbed during project construction.</p> <p>If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.</p> <p>If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.</p> <p>In addition, if construction is proposed during the western snowy plover nesting season (March 15 to September 15), the biologist will coordinate with Point Blue</p>	Applicant	Compliance monitored by the County Planning Department - Resource Planner Leah MacCarter Leah.MacCarter@santacruzcountyca.gov	Prior to site disturbance, during construction, site grading operations, and ongoing

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	<p>Conservation Science and the USFWS who regularly monitor western snowy plover nesting to determine if any western snowy plovers are nesting close to the project site. If nesting occurs within 200 feet of the proposed project, construction must be halted until the young have fledged and left the area or Incidental Take Authorization has been obtained from USFWS. The on-site western snowy plover critical habitat area will not be disturbed by construction activities per mitigation measures BIO-1 through BIO-7.</p> <p>A report documenting survey results and a plan for active bird nest avoidance (if needed) will be completed by the biologist and submitted to the Santa Cruz County Planning Department for review and approval prior to disturbance and/or construction activities. If no active bird nests are detected during the survey, then project activities can proceed as scheduled. However, if an active bird nest of a native species is detected during the survey, then a plan for bird nest avoidance will be prepared to determine and clearly delineate an appropriately-sized, temporary protective buffer area around each active nest, depending on the nesting bird species, existing site conditions, and type of proposed disturbance and/or construction activities.</p>			
BIO-11	<p>Prior to final project approvals, landscaping plans will be reviewed by the County to ensure the palette is limited to drought-tolerant species, fire-resistant species, and species capable of increasing soil stability, with preference to plant species endemic to coastal Santa Cruz County. Species from the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory (Cal-IPC 2021), such as iceplant and European beachgrass, will not be included in any new landscaping. The plant palette used for on-site landscaping will be reviewed and approved by the Santa Cruz County Planning Department to confirm no invasive species will be planted.</p>	Applicant	Compliance monitored by County Planning Department	Prior to issuance of Building Permit and prior to final inspection.
BIO-12	<p>Prior to any ground disturbance, an International Society of Arboriculture (ISA)-certified arborist will conduct a tree survey and prepare an evaluation report with associated data and location map for all Santa Cruz County-regulated trees on and immediately adjacent to the site. The project proponent will then obtain approval through a Coastal Development Permit and Santa Cruz County tree removal permit prior to removal of or impact to any regulated tree. Replacement plantings will likely be required as a condition for permit approvals. The project proponent will implement any stipulated conditions of approval, such as the planting of replacement trees in appropriate on-site or off-site areas, along with any required maintenance and monitoring. Prior to any site disturbance, a pre-construction meeting shall be held onsite as a condition of approval. The meeting shall involve all relevant parties including the project proponent, construction supervisor, Environmental Planning Staff, and the project biologist. The results of the preconstruction survey, site fencing delineating the areas of work and construction plan shall be reviewed to ensure impacts are less than significant.</p>	Applicant	Compliance monitored by County Planning Department	Prior to site disturbance, during construction, site grading operations, and final inspection

Biological Resources Evaluation
145 Rio Boca Road

Pajaro Dunes, Santa Cruz County

May 28, 2021

Prepared by
EMC Planning Group



This document was produced on recycled paper.

May 28, 2021

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Pajaro Dunes, Santa Cruz County
Planning Department Application No. 201349
Assessor's Parcel No. 052-301-69

145 RIO BOCA ROAD

BIOLOGICAL RESOURCES EVALUATION

As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report.

Patrick Furtado

Patrick Furtado, MS, Associate Biologist

As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief.

Andrea Edwards

Andrea Edwards, Senior Biologist

Janet Walther

Janet Walther, MS, Principal Biologist



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Executive Summary

This biotic report was prepared to comply with Santa Cruz County Planning Department requirements. The oceanfront 0.38-acre project site contains sensitive coastal dune scrub habitat with the potential to support certain special-status species. The site also contains patches of ruderal/non-native grassland vegetation, and a paved driveway and parking area.

The proposed project is construction of a new single-family one-story residence plus detached garage and small guest house on a vacant lot at 145 Rio Boca Road in the Pajaro Dunes South neighborhood; the oceanfront site falls within the California Coastal Zone. The primary purposes of this report are to evaluate the proposed project's potential to impact special-status biological resources, and provide project-specific measures to avoid or minimize these impacts. Project approvals must be obtained from both the County and the California Coastal Commission.

Proposed mitigation includes: general measures to protect biological resources and minimize impacts during construction; compensatory mitigation including on-site habitat restoration and preservation for anticipated loss of special-status Monterey spineflower (*Chorizanthe pungens* var. *pungens*) plants and sensitive coastal dune scrub habitat; avoidance of impacts to potentially occurring special-status animals including globose dune beetle (*Coelus globosus*), coast horned lizard (*Phrynosoma blainvillii*), Northern California legless lizard (*Anniella pulchra*), American peregrine falcon (*Falco peregrinus anatum*), western snowy plover (*Charadrius nivosus nivosus*), and nesting birds; and proper documentation and permitting for anticipated impacts to regulated Monterey cypress (*Hesperocyparis macrocarpa*) trees.

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1.0 Introduction

This section describes the proposed project and its location/environmental setting.

1.1 PROJECT SUMMARY

The proposed project is construction of a new single-family one-story residence plus detached garage and small guest house on a vacant lot at 145 Rio Boca Road in the Pajaro Dunes South neighborhood; the oceanfront site falls within the California Coastal Zone. For project details, refer to Appendix E, Site Plans.

The 0.38-acre property is located within an area of biotic concern and further information is required to ensure protection of potentially sensitive habitat (SCCC Section 16.32.070). As a Santa Cruz County-approved consulting biological firm, we prepared this evaluation of biological resources in accordance with the County's *Draft Guidelines for Biological Resources Assessments and Related Documents* (County of Santa Cruz 2012).

1.2 LOCATION AND SETTING

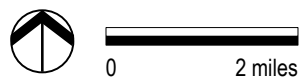
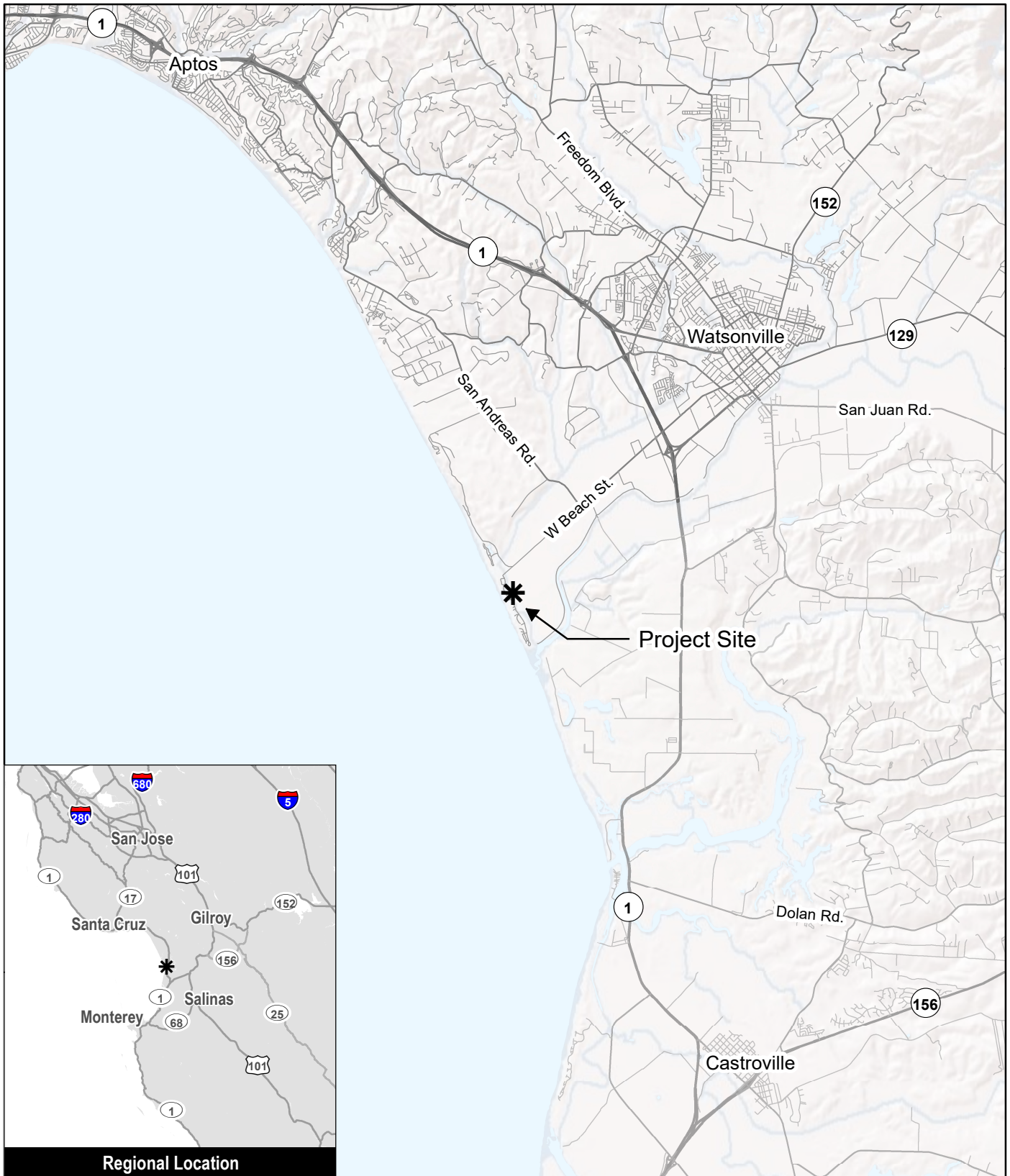
The project region is located south of San Francisco along the Central Coast of California at Monterey Bay. This is within the Central Coast sub-region of the California Floristic Province, which extends along the Pacific Coast from near Bodega Bay in the north to Point Conception in the south. This sub-region supports coastal vegetation, and in some areas only contains coastal bluffs; salt marshes and coastal prairies also occur in this sub-region around the San Francisco Bay (Baldwin 2012).

The Central Coast of California experiences a Mediterranean climate with cool, wet winters and warm, dry summers; the Pacific Ocean has a moderating effect on temperatures, producing a maritime temperature regime with mild temperatures year-round (California Department of Parks and Recreation 1990). The City of Watsonville, located near the project site, receives an average of almost 24 inches in annual precipitation (SFGate 2016); the majority of rainfall occurs between November and March. Windy conditions are common around Monterey Bay, and fog occurs during all seasons, but is most prevalent during summer months. Based on the Watsonville Waterworks weather station data collected from 1948 to 2005, annual average temperatures near the project area range from 45.9 to 67.1 degrees Fahrenheit (Western Regional Climate Center 2016).

1.0 Introduction

As mentioned above, construction of a new oceanfront residence on a vacant lot (Assessor's Parcel Number 052-301-69) is proposed at 145 Rio Boca Road in the Pajaro Dunes development of Santa Cruz County. It is positioned on the Moss Landing U.S. Geological Survey (USGS) quadrangle map. Non-paved portions of the parcel have sandy beach and dune substrates. [Figure 1-1, Location Map](#), presents an overview of the project location. [Figure 1-2, Aerial Photograph](#), presents an aerial view of the existing conditions on and surrounding the subject property.

The project site is bordered to the north and south by existing residences, to the west by Pajaro Dunes Beach and then waters of Monterey Bay, and to the east by Rio Boca Road and then the Watsonville Slough and active agricultural fields. The slough flows south and empties into the mouth of the Pajaro River where it meets Monterey Bay to the south of the project site. Sunset State Beach is located up the coast from the Pajaro Dunes neighborhood, and Pajaro River Mouth Natural Preserve and Zmudowski State Beach are located down the coast.





Source: ESRI 2019

Figure 1-1
Location Map



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-  Project Parcel
-  Western Snowy Plover Critical Habitat

Source: ESRI 2021. Santa Cruz County 2020, USFWS 2012



Figure 1-2
Aerial Photograph

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2.0 Regulatory Setting

This section includes a summary of the applicable biological resource protection regulations.

2.1 FEDERAL REGULATIONS

Endangered Species Act

The federal Endangered Species Act of 1973 protects species that the U.S. Fish and Wildlife Service (USFWS) has listed as Endangered or Threatened. Permits may be required from USFWS if activities associated with a proposed project would result in the “take” of a federally listed species or its habitat. Under the Act, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take. “Take” of a listed species is prohibited unless (1) a Section 10(a) permit has been issued by the USFWS or (2) an Incidental Take Statement has been obtained through formal consultation between a federal agency and the USFWS pursuant to Section 7 of the Act.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, last amended in 1989, prohibits killing, possessing, or trading in migratory birds, and protects the nesting activities of native birds including common species, except in accordance with certain regulations prescribed by the Secretary of the Interior. Over 800 native nesting bird species are currently protected under the federal law. This Act encompasses whole birds, parts of birds, bird nests, and eggs.

Clean Water Act

Section 404 of the Clean Water Act of 1972 regulates the discharge of dredge and fill material into “Waters of the U.S.” including wetlands. Certain natural drainage channels and wetlands are considered jurisdictional “Waters of the U.S.” The U.S. Army Corps of Engineers (USACE) is responsible for administering the Section 404 permit program. The agency determines the extent of its jurisdiction as defined by ordinary high water marks on channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions naturally select for plant species

known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2008 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*.

Activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE. Discharge permits are typically issued on the condition that the project proponent agrees to provide compensatory mitigation which results in no net loss of wetland area, function, or value, either through wetland creation, restoration, or the purchase of wetland credits through an approved wetland mitigation bank. In addition to individual discharge permits, the USACE also issues nationwide permits applicable for certain activities.

2.2 STATE REGULATIONS

California Endangered Species Act

Pursuant to the California Endangered Species Act and Section 2081 of the California Fish and Game Code, an Incidental Take Permit from the CDFW is required for projects that could result in the “take” of a state-listed Threatened or Endangered species. “Take” is defined under the Act as an activity that would directly or indirectly kill an individual of a species; “take” is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” If a proposed project would result in the “take” of a state-listed species, then a CDFW Incidental Take Permit, including the preparation of a species conservation plan, would be required.

Nesting Birds and Birds of Prey

Sections 3505, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, including their nests or eggs. Birds of prey (the orders *Falconiformes* and *Strigiformes*) are specifically protected under provisions of the California Fish and Game Code, Section 3503.5. This section of the Code establishes that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code. Disturbance that causes nest abandonment and/or loss of reproductive effort, such as construction during the bird nesting season, is considered “take” by the CDFW.

Streambed Alterations

The CDFW has jurisdiction over the bed and bank of natural drainages according to provisions of Sections 1601 through 1603 of the California Fish and Game Code. Diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources and/or riparian vegetation are subject to CDFW regulations. Activities that would disturb these drainages are regulated by the CDFW; authorization is required in the form of a Streambed Alteration Agreement. Such an agreement typically stipulates certain measures that will protect the habitat values of the drainage in question.

California Porter-Cologne Water Quality Control Act

Under the California Porter-Cologne Water Quality Control Act, the applicable Regional Water Quality Control Board (RWQCB) may necessitate Waste Discharge Requirements for the fill or alteration of “Waters of the State,” which according to California Water Code Section 13050 includes “any surface water or groundwater, including saline waters, within the boundaries of the state.” The RWQCB may, therefore, necessitate Waste Discharge Requirements even if the affected waters are not under USACE jurisdiction. Also, under Section 401 of the Clean Water Act, any activity requiring a USACE Section 404 permit must also obtain a state Water Quality Certification (or waiver thereof) to ensure that the proposed activity will meet state water quality standards. The applicable state RWQCB is responsible for administering the water quality certification program and enforcing National Pollutant Discharge Elimination System permits.

California Environmental Quality Act (CEQA)

CEQA Guidelines Appendix G contains standards of significance to indicate that a project may have a significant effect on biological resources if it would:

- 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

2.0 Regulatory Setting

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

California Coastal Act

California Coastal Act Section 30240 prohibits all development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, in and/or adjacent to any “environmentally sensitive area”, which is defined in Section 30107.5 as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.”

Section 30121 defines wetlands as “lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.” In further defining jurisdictional state waters under the Coastal Act, the California Coastal Commission (CCC) establishes a “one parameter” wetland definition that requires the presence of only a single wetland parameter (i.e., soils, vegetation and/or hydrology) as opposed to the three parameters required by the USACE jurisdictional wetland definition, to meet the jurisdictional wetland criteria. The single parameter rule in the Coastal Zone is primarily based on the hydric (i.e. wetland) soils definition, which states that a soil is considered hydric if it is ponded or remains saturated for a minimum period of seven consecutive days during the growing season. Any alteration of existing wetlands must comply with the regulations of the California Coastal Act, including implementation of mitigation measures as appropriate.

Finally, Section 30231 states that “the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.”

Specific California Coastal Act excerpts pertaining to coastal biological resources include:

Section 30001: Legislative findings and declarations; ecological balance.
The Legislature hereby finds and declares:

- (a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem.
- (b) That the permanent protection of the state's natural and scenic resources is a paramount concern to present and future residents of the state and nation.
- (c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.
- (d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and specially to working persons employed within the coastal zone.

Section 30116: Sensitive coastal resource areas. [abridged] "Sensitive coastal resource areas" means those identifiable and geographically bounded land and water areas within the coastal zone of vital interest and sensitivity. "Sensitive coastal resource areas" include the following:

- (a) Special marine and land habitat areas, wetlands, lagoons, and estuaries as mapped and designated in Part 4 of the coastal plan.

Section 30231: Biological productivity; water quality. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30240: Environmentally sensitive habitat areas; adjacent developments.

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

2.3 REGIONAL/LOCAL REGULATIONS

Santa Cruz County - General Plan and Local Coastal Program

The *1994 General Plan and Local Coastal Program for the County of Santa Cruz, California* (SCC GP/LCP) was adopted by the Board of Supervisors in May 1994 and certified by the CCC in December 1994 (County of Santa Cruz 1994). It applies to unincorporated areas of Santa Cruz County, including land within the Coastal Zone. The SCC GP/LCP includes the following objectives regarding biological resources:

Objective 5.1 Biological Diversity

To maintain the biological diversity of the County through an integrated program of open space acquisition and protection, identification and protection of plant habitat and wildlife corridors and habitats, low-intensity and resource compatible land uses in sensitive habitats and mitigations on projects and resource extraction to reduce impacts on plant and animal life.

Objective 5.2 Riparian Corridors and Wetlands

To preserve, protect and restore all riparian corridors and wetlands for the projection of wildlife and aquatic habitat, water quality, erosion control, open space, aesthetic and recreational values and the conveyance and storage of flood waters.

Objective 5.3 Aquatic and Marine Habitats

To identify, preserve and restore aquatic and marine habitats; to maximize scientific research and education which emphasizes comprehensive and coordinated management consistent with the mission of the Monterey Bay National Marine Sanctuary; and to facilitate multiple use and recreation opportunities compatible with resource protection.

Objective 5.4 Monterey Bay and Coastal Water Quality

To improve the water quality of Monterey Bay and other Santa Cruz County coastal waters by supporting and/or requiring best management practices for the control and treatment of urban run-off and wastewater discharges in order to maintain local, state and national water quality standards, protect County residents from health hazards of water pollution, protect the County's sensitive marine habitats and prevent the degradation of the scenic character of the region.

The SCC GP/LCP includes, but is not limited to, the following policies most applicable to biological resources in the project vicinity:

5.1.1 Sensitive Habitat Designation. Designate the following areas as sensitive habitats: (a) areas shown on the County General Plan and LCP Resources and Constraints Maps; (b) any undesignated areas which meet the criteria (policy 5.1.2) and which are identified through the biotic review process or other means; and (c) areas of biotic concern as shown on the Resources and Constraints Maps which contain concentrations of rare, endangered, threatened or unique species.

5.1.2 Definition of Sensitive Habitat. An area is defined as a sensitive habitat if it meets one or more of the following criteria:

- (a) Areas of special biological significance as identified by the State Water Resources Control Board;
- (b) Areas which provide habitat for locally unique biotic species/communities, including coastal scrub, maritime Chaparral, native rhododendrons and associated Elkgrass, mapped grasslands in the coastal zone and sand parkland; and Special Forests including San Andreas Live Oak Woodlands, Valley Oak, Santa Cruz Cypress, indigenous Ponderosa Pine, indigenous Monterey Pine and ancient forests;
- (c) Areas adjacent to essential habitats of rare, endangered or threatened species as defined in (e) and (f) below;
- (d) Areas which provide habitat for Species of Special Concern as listed by the California Department of Fish and Game in the Special Animals list, Natural Diversity Database;
- (e) Areas which provide habitat for rare or endangered species which meet the definition of Section 15380 of the California Environmental Quality Act guidelines;

- (f) Areas which provide habitat for rare, endangered or threatened species as designated by the State Fish and Game Commission, United States Fish and Wildlife Service or California Native Plant Society;
- (g) Nearshore reefs, rocky intertidal areas, seacaves, islets, offshore rocks, kelp beds, marine mammal hauling grounds, sandy beaches, shorebird roosting, resting and nesting areas, cliff nesting areas and marine, wildlife or educational/research reserves;
- (h) Dune plant habitats;
- (i) All lakes, wetlands, estuaries, lagoons, streams and rivers; and
- (j) Riparian corridors.

(See Appendix B [of the SCC GP/LCP] for a list of specific habitats and/or species.)

5.1.3 Environmentally Sensitive Habitats. Designate the areas described in 5.1.2 (d) through (i) as Environmentally Sensitive Habitats per the California Coastal Act and allow only uses dependent on such resources in these habitats within the Coastal Zone unless other uses are:

- (a) consistent with sensitive habitat protection policies and serve a specific purpose beneficial to the public;
- (b) it is determined through environmental review that any adverse impacts on the resource will be completely mitigated and that there is no feasible less-damaging alternative; and
- (c) legally necessary to allow a reasonable economic use of the land, and there is no feasible less-damaging alternative.

5.1.6 Development Within Sensitive Habitats. Sensitive habitats shall be protected against any significant disruption of habitat values; and any proposed development within or adjacent to these areas must maintain or enhance the functional capacity of the habitat. Reduce in scale, redesign, or, if no other alternative exists, deny any project which cannot sufficiently mitigate significant adverse impacts on sensitive habitats unless approval of a project is legally necessary to allow a reasonable use of the land.

5.1.7 Site Design and Use Regulations. Protect sensitive habitats against any significant disruption or degradation of habitat values in accordance with the Sensitive Habitat Protection ordinance. Utilize the following site design and use regulations on parcels containing these resources, excluding existing agricultural operations:

- (a) Structures shall be placed as far from the habitat as feasible;
- (b) Delineate development envelopes to specify location of development in minor land divisions and subdivisions;
- (c) Require easements, deed restrictions, or equivalent measures to protect that portion of a sensitive habitat on a project parcel which is undisturbed by a proposed development activity or to protect sensitive habitats on adjacent parcels;
- (d) Prohibit domestic animals where they threaten sensitive habitats;
- (e) Limit removal of native vegetation to the minimum amount necessary for structures, landscaping, driveways, septic systems and gardens; and
- (f) Prohibit landscaping with invasive or exotic species and encourage the use of characteristic native species.

5.1.8 Chemicals Within Sensitive Habitats. Prohibit the use of insecticides, herbicides, or any toxic chemical substance in sensitive habitats, except when an emergency has been declared, when the habitat itself is threatened, when a substantial risk to public health and safety exists, including maintenance for flood control by Public Works, or when such use is authorized pursuant to a permit issued by the Agricultural Commissioner.

5.1.9 Biotic Assessments. Within the following areas, require a biotic assessment as part of normal project review to determine whether a full biotic report should be prepared by a qualified biologist:

- (a) Areas of biotic concern, mapped; and
- (b) Sensitive habitats, mapped & unmapped.

5.1.10 Species Protection. Recognize that habitat protection is only one aspect of maintaining biodiversity and that certain wildlife species, such as migratory birds, may not utilize specific habitats. Require protection of these individual rare, endangered and threatened species and continue to update policies as new information becomes available.

5.1.11 Wildlife Resources Beyond Sensitive Habitats. For areas which may not meet the definition of sensitive habitat contained in policy 5.1.2, yet contain valuable wildlife resources (such as migration corridors or exceptional species diversity), protect these wildlife habitat values and

species using the techniques outlined in policies 5.1.5 and 5.1.7 and use other mitigation measures identified through the environmental review process.

5.1.12 Habitat Restoration with Development Approval. Require as a condition of development approval, restoration of any area of the subject property which is an identified degraded sensitive habitat, with the magnitude of restoration to be commensurate with the scope of the project. Such conditions may include erosion control measures, removal of non-native or invasive species, planting with characteristic native species, diversion of polluting run-off, water impoundment, and other appropriate means. The object of habitat restoration activities shall be to enhance the functional capacity and biological productivity of the habitat(s) and whenever feasible, to restore them to a condition which can be sustained by natural occurrences, such as tidal flushing of lagoons.

5.1.14 Removal of Invasive Plant Species. Encourage the removal of invasive species and their replacement with characteristic native plants, except where such invasive species provide significant habitat value and where removal of such species would severely degrade the existing habitat. In such cases, develop long-term plans for gradual conversion to native species providing equal or better habitat values.

5.2.1 Designation of Riparian Corridors and Wetlands. Designate and define the following areas as Riparian Corridors:

- (a) 50' from the top of a distinct channel or physical evidence of high water mark of a perennial stream;
- (b) 30' from the top of a distinct channel or physical evidence of high water mark of an intermittent stream as designated on the General Plan maps and through field inspection of undesignated intermittent and ephemeral streams;
- (c) 100' of the high water mark of a lake, wetland, estuary, lagoon, or natural body of standing water;
- (d) The landward limit of a riparian woodland plant community; and
- (e) Wooded arroyos within urban areas.

Designate and define the following areas as Wetlands:

Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water periodically or permanently. Examples of wetlands are saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

The US Army Corps of Engineers, and other federal agencies utilize a "unified methodology" which defines wetlands as "those areas meeting certain criteria for hydrology, vegetation, and soils."

5.2.3 Activities Within Riparian Corridors and Wetlands.

Development activities, land alteration and vegetation disturbance within riparian corridors and wetlands and required buffers shall be prohibited unless an exception is granted per the Riparian Corridor and Wetlands Protection ordinance. As a condition of riparian exception, require evidence of approval for development from the US Army Corps of Engineers, California Department of Fish and Game, and other federal or state agencies that may have regulatory authority over activities within riparian corridors and wetlands.

5.2.4 Riparian Corridor Buffer Setback. Require a buffer setback from riparian corridors in addition to the specified distances found in the definition of riparian corridor. This setback shall be identified in the Riparian Corridor and Wetland Protection ordinance and established based on stream characteristics, vegetation and slope. Allow reductions to the buffer setback only upon approval of a riparian exception. Require a 10 foot separation from the edge of the riparian corridor buffer to any structure.

5.2.5 Setbacks From Wetlands. Prohibit development within the 100 foot riparian corridor of all wetlands. Allow exceptions to this setback only where consistent with the Riparian Corridor and Wetlands Protection ordinance, and in all cases, maximize distance between proposed structures and wetlands. Require measures to prevent water quality degradation from adjacent land uses, as outlined in the Water Resources section.

5.2.8 Environmental Review for Riparian Corridor and Wetland Protection. Require environmental review of all proposed development projects affecting riparian corridors or wetlands and preparation of an Environmental Impact Report or Biotic Report for projects which may have a significant effect on the corridors or wetlands.

5.2.9 Management Plans for Wetland Protection. Require development in or adjacent to wetlands to incorporate the recommendations of a management plan which evaluates: migratory waterfowl use December 1 to April 30; compatibility of agricultural use and biotic and water quality protection; maintenance of biologic productivity and diversity; and the permanent protection of adjoining uplands.

5.2.10 Development in Wetland Drainage Basins. Require development projects in wetland drainage basins to include drainage facilities or Best Management Practices (BMPs) which will maintain surface runoff patterns and water quality, unless a wetland management plan specifies otherwise, and minimize erosion, sedimentation, and introduction of pollutants.

5.4.1 Protecting the Monterey Bay National Marine Sanctuary from Adverse Impacts. Prohibit activities which could adversely impact sensitive habitats of the Monterey Bay National Marine Sanctuary, including the discharge of wastes and hazardous materials. The main sources of concern are wastewater discharge, urban runoff, toxic agricultural drainage water, including that originating outside of Santa Cruz County, and the accidental release of oil or other hazardous material from coastal tanker traffic.

5.4.12 Disturbances of Coastal Waters, Wetlands, Estuaries and Lakes. Prohibit the diking, filling and dredging of open coastal waters, wetlands, estuaries, and lakes. Allow exceptions only for the following purposes and only where there is no other feasible, less environmentally damaging alternative:

- (a) Incidental public service purposes, including, but not limited to burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines;
- (b) Restoration purposes, including the protection and enhancement of existing harbors, and where the activity will maintain and enhance the functional capacity of the wetland or estuary as determined through the County environmental review process in conjunction with the California Department of Fish and Game and U.S. Army Corps of Engineers; and
- (c) Nature study, aquaculture, or similar resource-dependent activities.

5.4.14 Water Pollution from Urban Runoff. Review proposed development projects for their potential to contribute to water pollution via increased storm water runoff. Utilize erosion control measures, on-site detention and other appropriate storm water best management practices to reduce pollution from urban runoff.

Santa Cruz County Code

The following regulations are excerpted from the Santa Cruz County Code (County of Santa Cruz 2021).

Sensitive Habitat Protection Ordinance (Chapter 16.32)

The purpose of Chapter 16.32 of the Santa Cruz County Code is to "...minimize the disturbance of biotic communities which are rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activity; to protect and preserve these biotic resources for their genetic, scientific, and educational values; and to implement policies of the General Plan and the Local Coastal Program Land Use Plan."

Codes potentially applicable to the proposed project include the following:

16.32.070 Assessments and reports required. A biotic assessment shall be required for all development activities and applications in areas of biotic concern, as identified on maps on file in the Planning Department or as identified during inspection of the site by Planning Department staff. A biotic report shall be required if the Environmental Coordinator determines on the basis of the biotic assessment that further information is required to ensure protection of the sensitive habitat consistent with General Plan and Local Coastal Program Land Use Plan policies. If the Environmental Coordinator determines that the project will have a significant effect on the environment under the provisions of Section 602 of the environmental impact guidelines, the biotic report shall be part of the environmental impact report.

16.32.090 Approval conditions.

- A. Conditions of approval shall be determined by the Environmental Coordinator through the environmental review process. These conditions may be based on the recommendations of the biotic assessment or biotic report and shall become conditions of any subsequent approval issued for the property. Such conditions shall also apply to all development activities engaged in on the property. Any additional measures deemed necessary by the Decision-Making Body shall also become development permit conditions. Exceptions may be granted by the Decision-Making Body subject to the provisions of SCCC 16.32.100.
- B. The following conditions shall be applied to all development within any sensitive habitat area:
 - 1. All development shall mitigate significant environmental impacts, as determined by the Environmental Coordinator;

2. Dedication of an open space or conservation easement or an equivalent measure shall be required as necessary to protect the portion of a sensitive habitat which is undisturbed by the proposed development activity or to protect a sensitive habitat on an adjacent parcel; and
 3. Restoration of any area which is a degraded sensitive habitat or has caused or is causing the degradation of a sensitive habitat shall be required; provided, that any restoration required shall be commensurate with the scale of the proposed development.
- C. All development activities in or adjacent to a sensitive habitat area shall conform to the following types of permitted uses, and the following conditions for specific habitats shall become minimum permit conditions unless the approving body pursuant to Chapter 18.10 SCCC finds that the development will not affect the habitat based on a recommendation of the Environmental Coordinator following a biotic review pursuant to SCCC 16.32.070.

Sensitive Habitats Standards

1. Environmentally Sensitive Habitat Areas. Only resource-dependent uses shall be allowed within any environmentally sensitive habitat area. [16.32.090 (1)(a-n)];

No new development shall be allowed adjacent to marshes, streams, and bodies of water if such development would cause adverse impacts on water quality which cannot be mitigated or will not be fully mitigated by the project proponent.

2. Areas Adjacent to the Essential Habitats of Rare and Endangered Species. [16.32.090 (2)(a-b)]; and
3. Habitats of Locally Unique Species. [16.32.090 (3)(a-b)]

16.32.100 Exceptions. Exceptions to the provisions of SCCC 16.32.090 may be approved by the Decision-Making Body.

- A. In granting an exception, the Decision-Making Body shall make the following findings:

1. That adequate measures will be taken to ensure consistency with the purpose of this chapter to minimize the disturbance of sensitive habitats; and
 2. One of the following situations exists:
 - (a.) The exception is necessary for restoration of a sensitive habitat; or
 - (b.) It can be demonstrated by biotic assessment, biotic report, or other technical information that the exception is necessary to protect public health, safety, or welfare.
- B. Notwithstanding the above, the Decision-Making Body may grant an exception for development within the essential habitat of the Santa Cruz Long-Toed Salamander as follows:
1. Upon receiving a development application for an undeveloped parcel within the essential habitat, the County shall notify the California Coastal Commission, the Coastal Conservancy, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The County or other agency shall have one year to decide whether acquisition of the parcel is to proceed. If the County and other agencies decide not to acquire the parcel and development potential in the essential habitat has not been otherwise permanently eliminated by resubdivision, easement, or other recorded means, the Decision-Making Body may grant an exception to allow the development to proceed; provided, that it finds that the proposed development cannot be accommodated on the parcel outside the essential habitat, and that it will be consistent with the standards for the area adjacent to the essential habitat and other LCP policies.
 2. The permittee shall provide a cash deposit, time certificate of deposit, or equivalent security, acceptable to the County. This security shall be payable to the County, in an amount not less than \$5,000 or greater than \$10,000, to be determined by the

County on a case-by-case basis, depending on site-specific circumstances. The purpose of this security shall be to ensure compliance with the development standards for the area adjacent to the essential habitat, and shall not be returned unless and until all required standards and improvements are met. All expenditures by the County for corrective work necessary because of the permittee's failure to comply with the provisions of the permit and this chapter shall be charged against the security deposit. [Ord. 3483 § 1, 1983; Ord. 3442 § 1, 1983; Ord. 3342 § 1, 1982].

Significant Trees Protection (Chapter 16.34)

The purposes of Chapter 16.34 of the Santa Cruz County Zoning Ordinance are: "(A) The Board of Supervisors of Santa Cruz County finds that the trees and forest communities located within the Coastal Zone are a valuable resource. Removal of significant trees could reduce scenic beauty and the attractiveness of the area to residents and visitors. (B) The Board of Supervisors further finds that the preservation of significant trees and forest communities on private and public property is necessary to protect and enhance the County's natural beauty, property values, and tourist industry. The enactment of this chapter is necessary to promote the public health, safety, and general welfare of the County, while recognizing individual rights to develop, maintain, and enjoy the use of private property to the fullest possible extent."

Codes potentially applicable to the proposed project include the following:

16.34.030 Definitions. "Significant tree," for the purposes of this chapter, shall include any tree, sprout clump, or group of trees, as follows:

- A. Within the urban services line or rural services line, any tree which is equal to or greater than 20 inches at diameter at breast height (d.b.h.) (approximately five feet in circumference); any sprout clump of five or more stems each of which is greater than 12 inches d.b.h. (approximately three feet in circumference); or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches d.b.h. (approximately three feet in circumference);
- B. Outside the urban services line or rural services line, where visible from a scenic road, any beach, or within a designated scenic resource area, any tree which is equal to or greater than

40 inches d.b.h. (approximately 10 feet in circumference); any sprout clump of five or more stems, each of which is greater than 20 inches d.b.h. (approximately five feet in circumference); or, any group consisting of 10 or more trees on one parcel, each greater than 20 inches d.b.h. (approximately five feet in circumference); and

- C. Any tree located in a sensitive habitat as defined in Chapter 16.32 SCCC.

16.34.040 Permit required. Except for those exempt activities as enumerated in SCCC 16.34.090, no person shall do, cause, permit, aid, abet, suffer, or furnish equipment or labor to remove, cut down, or trim more than one-third of the green foliage of, poison, or otherwise kill or destroy any significant tree as defined in this chapter within the Coastal Zone until a significant tree removal approval for the project has been obtained pursuant to Chapter 18.10 SCCC, Level II.

16.34.050 Application and fee. Applications for significant tree removal approvals granted pursuant to this chapter shall be made in accordance with the requirements of Chapter 18.10 SCCC, Level II, and shall include the following:

- A. Applicant's or authorized representative's name, address, and telephone number;
- B. Property Description. The description of the site(s) involved, including the street address, if any, and the assessor's parcel number; and
- C. Required Information. The following information shall be provided in writing:
 - 1. A site plan sufficient to identify and locate the trees to be removed, other trees, buildings, proposed buildings, and other improvements;
 - 2. A description of the species, circumference or diameter at breast height, estimated height, and general health of the tree(s) to be removed;
 - 3. A description of the method to be used in removing the tree(s);
 - 4. Reason(s) for removal of the tree(s); and

5. Proposed visual impact mitigation measures as appropriate. Size, location, and species of replacement trees, if any, shall be indicated on the site plan.
- D. Applicant's Property Interest. Evidence that the applicant is the owner or purchaser under contract of the premises involved, is the owner of a leasehold interest, or has written permission of the owner to make the application.
- E. Further Information. Such further information as may be required by the Planning Director, including but not limited to the opinion of a registered professional forester, tree surgeon, or other qualified expert.
- F. Filing Fee. A filing fee, set by resolution of the Board of Supervisors, shall accompany the application.

16.34.070 Conditions of approval. In granting any permit as provided herein, the Planning Director may attach reasonable conditions to mitigate visual impacts and ensure compliance with the provisions of this chapter, including but not limited to replacement of trees removed with trees acceptable to the Planning Director.

3.0 Methods

This section includes a summary of the methods and limitations of the biological surveys.

3.1 BACKGROUND RESEARCH

EMC Planning Group biologists reviewed maps, aerial photographs, electronic database accounts, technical reports, and relevant scientific literature describing natural resources in the project region. A search of the CDFW *California Natural Diversity Database* (CNDDDB) and the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* for the Moss Landing and six surrounding terrestrial USGS quadrangles (Soquel, Watsonville East, Watsonville West, Prunedale, Marina, and Salinas) was conducted in order to generate lists of potentially occurring special-status species in the project vicinity (CDFW 2021 and CNPS 2021). Species listed by the USFWS that occur in Santa Cruz County were also reviewed (USFWS 2021). Special-status species in this report are those listed as Endangered, Threatened, or Rare, or as candidates proposed for listing by the USFWS and/or CDFW; as Species of Special Concern or Fully Protected species by the CDFW; or as Rare Plant Rank 1B or 2B by the CNPS.

3.2 FIELD SURVEYS

EMC Planning Group associate biologist Patrick Furtado conducted a 5.5-hour reconnaissance-level biological field survey combined with focused plant surveys for the entire property on April 14, 2021. Weather conditions were clear skies, about 60 degrees Fahrenheit, with 5-10 mile-per-hour winds. The substrate on the site was dune sands.

The purpose of the field surveys was to document existing plant communities and wildlife habitats, and to evaluate potential for special-status species occurrence at the project site. Biological resources were documented in field notes, including species observed, dominant plant communities, and significant wildlife habitat characteristics. Qualitative estimations of plant cover, structure, and spatial changes in species composition were used to determine plant communities and wildlife habitats, and habitat quality and disturbance level were described. Plant communities and significant observations were mapped in the field on an aerial photo.

Focused plant surveys were performed in accordance with CDFW (2009), CNPS (2001), and USFWS (2000) rare plant survey protocols. All undeveloped portions of the project site were systematically surveyed, and plant species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification.

Searches for reptiles and amphibians were performed by overturning and then replacing rocks and debris. Birds were identified by visual and/or auditory recognition; mammals were identified by observing diagnostic signs. Additionally, observations of any sensitive habitats, potentially jurisdictional wetlands, regulated trees, and wildlife movement corridors were recorded. Representative site photographs were taken at several locations at the project site and adjacent areas to document habitat conditions.

Focused presence/absence plant surveys targeted four special-status species previously determined to have potential to occur on the site due to the presence of suitable habitat and known occurrence in the project vicinity: Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*), robust spineflower (*Chorizanthe robusta* var. *robusta*), and sand-loving wallflower (*Erysimum ammophilum*).

On the same day as the site surveys, Mr. Furtado checked available reference populations in the area and confirmed that target species were observable and in peak blooming condition; Monterey spineflower and sand-loving wallflower were observed at Sunset State Beach, and Monterey gilia was observed in Sand City. This was deemed essential for valid plant surveys because per the *United States Drought Monitor*, all of Santa Cruz County was experiencing severe drought conditions at the time of survey (National Drought Mitigation Center 2021).

Existing Biological Conditions

This section documents the physical project site characteristics and general biological resources observed during the field surveys.

4.1 PLANT COMMUNITIES AND OTHER AREAS

The 0.38-acre parcel contains a few distinct plant communities/areas. The plant communities and other areas noted above are illustrated on [Figure 4-1, Habitat Map](#). Representative site photos are contained in [Figure 4-2, Site Photographs](#). The project site is positioned on the Moss Landing USGS 7.5-minute quadrangle map as shown on [Figure 4-3, USGS Topographic Quadrangle](#). No riparian habitat or wetlands/waterways are present on the site.

The central and western portions of the sandy site support coastal dune scrub (0.15-acre). This plant community is dominated by coastal sagewort (*Artemisia pycnocephala*), mock heather (*Ericameria ericoides*), and non-native iceplant (*Carpobrotus edulis*). Other common species include lizard tail (*Eriophyllum staechadifolium*), seaside daisy (*Erigeron glaucus*), beach evening primrose (*Camissoniopsis cheiranthifolia* ssp. *cheiranthifolia*), coast buckwheat (*Eriogonum latifolium*), and non-native sea rocket (*Cakile maritima*).

A few mature Monterey cypress (*Hesperocyparis macrocarpa*) trees are present in the northern and eastern portions of the site (0.14-acre); these were likely planted or naturalized from nearby plantings given that they are outside the specific areas where this species naturally occurs.

A patch of non-native European beachgrass (*Ammophila arenaria*) occurs along the southern boundary of the site (0.03-acre); this is adjacent to an existing single-family residence. A ruderal/non-native grassland area is present along the eastern edge of the site (0.02-acre) adjacent to Rio Boca Road; it contains non-native iceplant mixed with non-native ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and rattail fescue (*Festuca myuros*).








Finally, developed areas in the eastern portion of the site (0.04-acre) include a paved driveway entrance to the site connected to Rio Boca Road, along with a small paved parking area. Note that a portion of the paved areas are mapped as Monterey cypress on the habitat map when a tree canopy overhangs the pavement.

4.2 WILDLIFE HABITATS

Even with adjacent residential development to the north and south, the on-site coastal dune scrub and other vegetation patches on this small oceanfront parcel provide moderate quality wildlife habitat, including foraging and nesting opportunities for many common bird species including California gull (*Larus californicus*), killdeer (*Charadrius vociferous*), Brewer's blackbird (*Euphagus cyanocephalus*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Small mammals expected to occur include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and deer mouse (*Peromyscus maniculatus*). Common reptile species that may occur include western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Gerrhonotus coeruleus*), and gopher snake (*Pituophis melanoleucus*).



- | | |
|---|---|
|  Project Parcel - 0.38 ac |  European Beachgrass - 0.03 ac |
|  Monterey Spineflower - 0.007 ac |  Paved - 0.04 ac |
|  Coastal Dune Scrub - 0.15 ac |  Ruderal/Non-Native Grasses - 0.02 ac |
|  Monterey Cypress - 0.14 ac | |

Source: ESRI 2021. Santa Cruz County 2020



Figure 4-1
Habitat Map

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① Driveway access with paved parking area at entrance to the project site



② Location of proposed structure with native and non-native vegetation

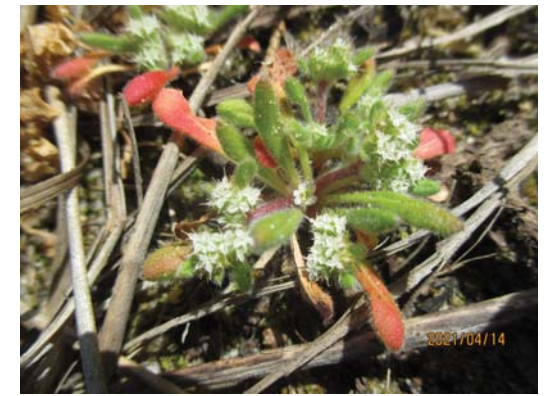


 Project Site

Source: Bing 2021, Santa Cruz County GIS 2020
Photographs: EMC Planning Group 2021

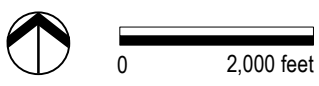
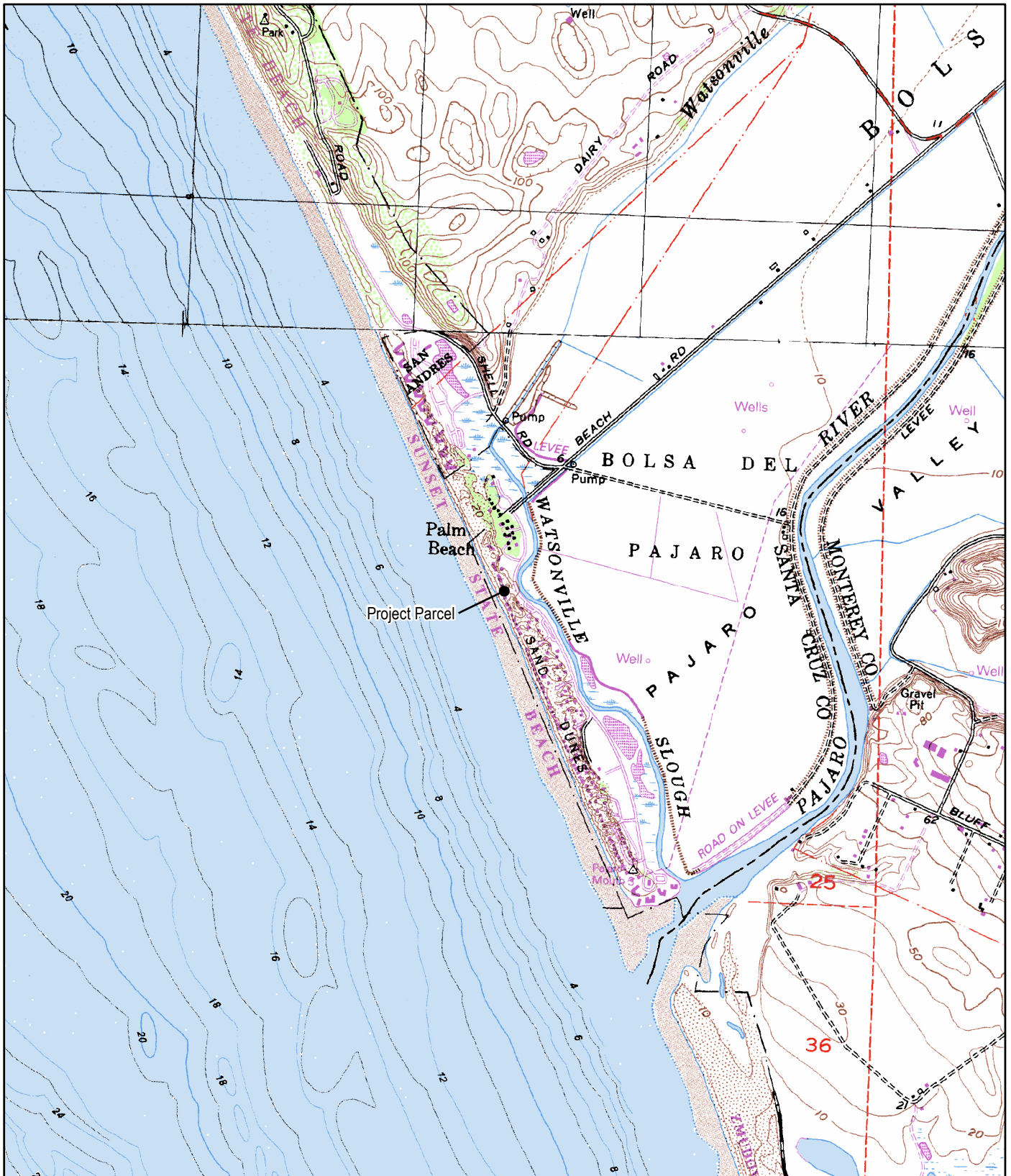


③ Sand dune between coastal strand habitat and proposed development



④ Monteary spineflower observed on the site in coastal dune scrub habitat

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Source: Santa Cruz County 2020, Moss Landing USGS 24k 1954

Figure 4-3

USGS Topographic Quadrangle

145 Rio Boca Road Biological Resources Evaluation



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Special-Status Biological Resources

This section documents the special-status biological resources observed at or having potential to occur on the project site.

5.1 OVERVIEW

Given the project site's location in coastal dune scrub habitat along the biodiverse shores of Monterey Bay, several special-status biological resources have been observed or have potential for occurrence and may be impacted by the proposed development project. These resources are discussed below, and protective mitigation measures are presented in the following section.

Wetland and riparian habitats are considered special-status by several regulatory agencies including the USACE, CDFW, RWQCB, and CCC; the role these various federal and state agencies play in regulating wetlands and waters is discussed in the Regulatory Setting section of this report. Although the Watsonville Slough is located immediately across the street from the site, it would not be impacted by the proposed project. The project site does not contain any potentially jurisdictional wetlands/waterways or riparian habitat.

Wildlife movement corridors provide connectivity between habitat areas, enhancing species richness and diversity, and usually also provide cover, water, food, and breeding sites. Wildlife movement includes migration (i.e., usually movement one way per season), inter-population movement (i.e., long-term dispersal and genetic flow), and small travel pathways (i.e., daily movement within an animal's territory). The project site is bordered by residential development to the north and south, and by agricultural fields to the east. The only wildlife movement expected on the site is along the beachfront/foredune area along the western edge of the site, which would not be impacted by the proposed project.

5.2 SPECIAL-STATUS PLANTS

Special-status plant species potentially occurring in the project vicinity were evaluated for potential to occur at the project site. Information on special-status plants, including listing status, suitable habitat conditions, and potential to occur at the project site is presented in Appendix A, Special-Status Plants Potentially Occurring in the Project Vicinity.

Monterey Spineflower

Focused surveys were conducted on the project site for special-status plant species with potential to occur, and one of the target species was observed in coastal dune scrub habitat. Federally listed Threatened and CNPS Rare Plant Rank 1B Monterey spineflower (*Chorizanthe pungens* var. *pungens*) occurs in a small (0.007-acre) cluster in the central portion of the project site. About 200-300 individuals of this small annual plant were present during the April 2021 survey. This species blooms from April to June, and occurs in sandy soils in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland (CNPS 2021).

Figure 4-1, Habitat Map, shows the location and extent of the Monterey spineflower on-site occurrence; and Figure 4-2, Site Photographs, contains representative images of the habitat and special-status plant occurrence. Appendix C, Project Site Plant Inventory, presents the list of plant species that were observed on the project site. Details on the Monterey spineflower occurrence are contained in Appendix D, California Native Species Field Survey Form; this form will be submitted to the CDFW for inclusion in the California Natural Diversity Database. The project site is not located within USFWS-designated Critical Habitat for this species.

5.3 SPECIAL-STATUS ANIMALS

Special-status animal species potentially occurring in the project vicinity were evaluated for potential to occur at the project site. Information on special-status animals, including listing status, suitable habitat conditions, and potential to occur at the project site is presented in Appendix B, Special-Status Animals Potentially Occurring in the Project Vicinity. Information on the special-status animals that have potential to be impacted by the proposed project due to presence of suitable habitat at the project site is presented below.

Globose Dune Beetle

Globose dune beetle (*Coelus globosus*) is a species of local concern with no state or federal listing status. It occurs in coastal sand dune habitats, erratically distributed from Mendocino County south into Mexico (CDFW 2021). It typically inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation (CDFW 2021). CNDDDB occurrences from 1977 and 1990 were recorded in proximity to the project site in sandy foredune habitat at Sunset State Beach; this species has potential to occur on the project site.

Coast Horned Lizard

The state Species of Special Concern coast horned lizard (*Phrynosoma blainvillii*) occurs in a wide range of habitats, though it is most common in lowlands along sandy washes with scattered low bushes (CDFW 2021). It requires open areas for basking, fine loose soil where it can bury itself for camouflage to escape predators and regulate its temperature, shrubs for refugia, and abundant insect prey, especially ants; coast horned lizards are ant specialists, and depend on the presence of native ant species (Stebbins 2003, Jennings and Hayes 1994). This species has potential to occur on the project site.

Northern California Legless Lizard

The state Species of Special Concern Northern California legless lizard (*Anniella pulchra*) inhabits sandy or loose loamy soils under sparse vegetation and prefers moist soils (CDFW 2021). This fossorial (burrowing) species forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats (Stebbins 2003). CNDDDB occurrences were recorded in proximity to the project site in sandy habitat at Sunset State Beach; this species has potential to occur on the project site.

American Peregrine Falcon

The state Fully Protected American peregrine falcon (*Falco peregrinus anatum*) occurs in a wide range of habitats near wetlands, lakes, rivers, or other waters (CDFW 2021). It typically nests on cliffs, banks, dunes, mounds, and in human-made structures such as buildings and bridges; the nest consists of a scrape, depression, or ledge in an open site (CDFW 2021). This species has potential to occur on the project site.

Western Snowy Plover

The federally listed Threatened and state Species of Special Concern western snowy plover (*Charadrius nivosus nivosus*) occurs on sandy beaches, salt pond levees, and shores of large alkali lakes; it requires sandy, gravelly, or friable soils for nesting (CDFW 2021). It prefers early successional dune habitat or open habitats with cover or camouflage for nesting, and also nests on mudflats and evaporation ponds (CDFW 2021). This species occurs in the immediate project vicinity and is regularly monitored during the nesting season (March 15 to September 15) by Point Blue Conservation Science and the USFWS. It has potential to occur on and near the project site, and USFWS-designated critical habitat for this species exists in the western portion of the project site (see Figure 1-2).

Nesting Migratory Birds

Vegetation (especially coastal dune scrub and Monterey cypress trees) on and adjacent to the project site provides suitable nesting habitat for a wide variety of birds. Native nesting migratory birds (including raptors) are protected during the nesting bird season under the

federal Migratory Bird Treaty Act and California Fish and Game Code. Given the site's oceanfront location in a biodiverse region, there is high potential for nesting birds to occur on or near the project site.

5.4 SPECIAL-STATUS NATURAL COMMUNITIES

Special-status natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive special regulatory protection (see Section 2, Regulatory Setting). In addition, the CDFW has designated a number of natural communities as rare; these communities are given the highest inventory priority and are tracked in the CNDDDB. Sensitive natural communities are of limited distribution and often most vulnerable to environmental effects of development.

The project site contains coastal dune scrub habitat (0.15-acre) which is known to support a special-status Monterey spineflower occurrence in the central portion of the site and, in the western portion of the site, includes USFWS-designated critical habitat for western snowy plover in the foredune adjacent to the beach/coastal strand. This dune habitat is considered rare by the CDFW, and protected by the Santa Cruz County municipal code and California Coastal Commission regulations for environmentally sensitive habitats. Further, coastal dune scrub is particularly susceptible to disturbance by non-native invasive plant species, so it is important that the proposed project avoid introducing invasive species through careful landscape design.

5.5 REGULATED TREES

On-site mature Monterey cypress trees are regulated by both the Santa Cruz County Planning Department and the California Coastal Commission, and at least two trees will be removed or significantly trimmed by the proposed project. These trees likely qualify as protected significant trees per Chapter 16.34 of the Santa Cruz County Zoning Ordinance because of their large size and location in a sensitive habitat area. Significant trees are defined in Section 2.3 of this report. This designation generally applies to any tree located in a sensitive habitat; and in the urban services line or rural services line, to any tree 20 inches or more in Diameter at Breast Height (DBH); any sprout clump of five or more stems each of which is greater than 12 inches in DBH; or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches in DBH.

Impacts and Mitigation Measures

This section analyzes anticipated project impacts to special-status biological resources, and presents mitigation measures designed to avoid, minimize, and/or mitigate those impacts.

6.1 GENERAL AVOIDANCE/MINIMIZATION MEASURES

Sensitive biological resources are present in and adjacent to the proposed project's impact area as shown in [Figure 6-1, Impact Areas](#). Therefore, recommended avoidance/minimization measures are identified in this section to avoid or minimize potentially significant impacts to biological resources due to the proposed project. Some of these measures are dependent on regulatory agency coordination and approval of associated permit conditions. Therefore, final minimization and avoidance measures along with compensatory mitigation requirements will be established in consultation and coordination with all involved regulatory agencies and other project permitting authorities.

- BIO-1. Qualified project biologists from a Santa Cruz County-approved consulting biological firm will be retained by the project proponent to conduct preconstruction surveys, lead worker environmental awareness training, and monitor for sensitive biological resources during construction. A project biologist will be on the site during times of initial ground disturbance, vegetation removal, and clearing to monitor biological resource protection measures, and at any other time when impacts to sensitive biological resources could occur.
- BIO-2. Before construction activities begin, a qualified project biologist will conduct a worker environmental awareness training session for all construction personnel. At a minimum, the training will include a description of protected biological resources, species descriptions and habitat requirements, and general measures being implemented to protect sensitive resources during construction. Informational handouts with photographs clearly illustrating species appearances will be used in the training session.

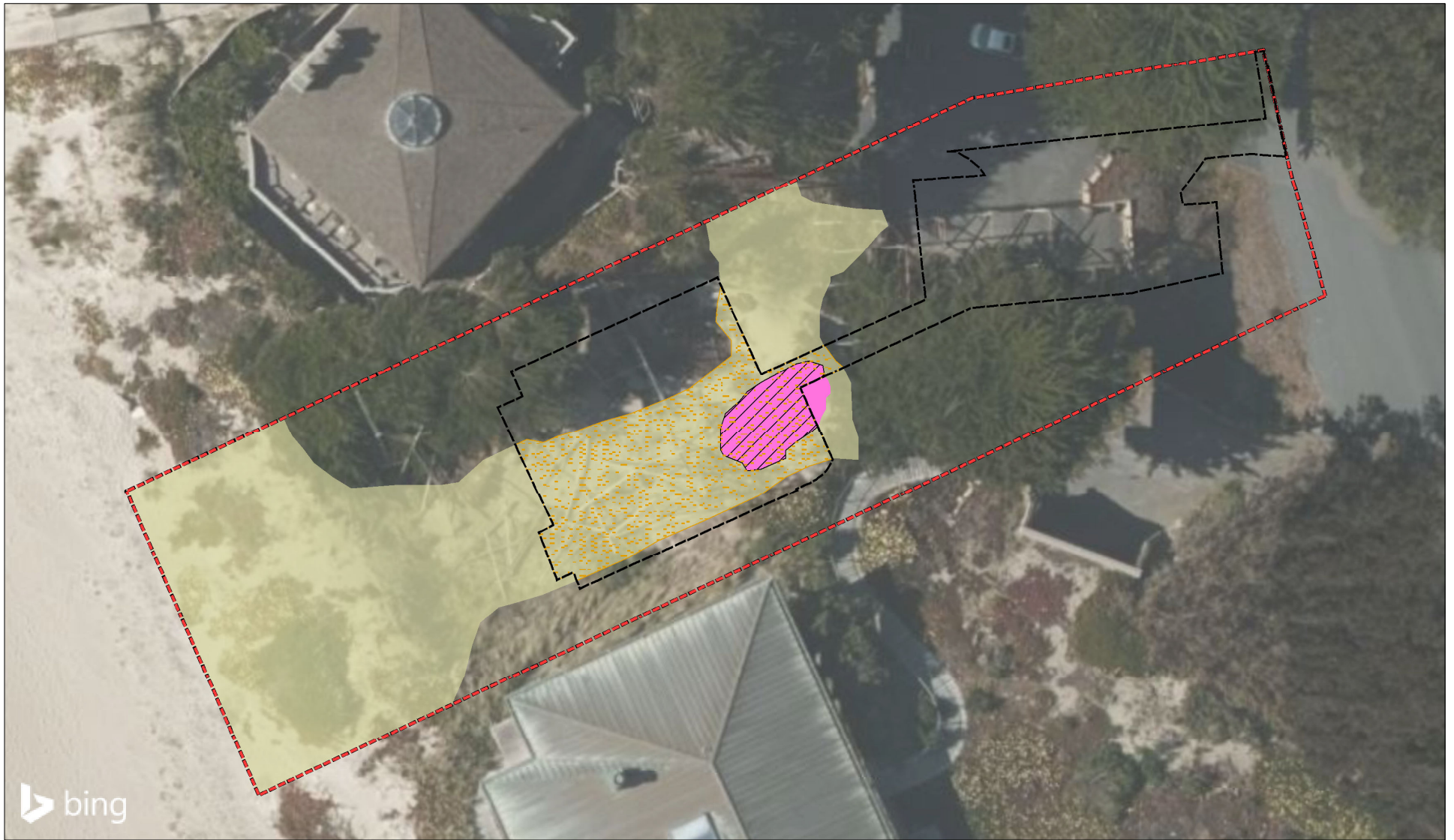
Training topics will include special-status species with potential to occur on the project site. Species are expected to include Monterey spineflower, globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon and other nesting birds, and western snowy plover.

The training session will include information about steps to take if a special-status species is encountered, including contact information for the biological

monitoring staff and measures to protect species during construction.

Additionally, a project biologist will be available to answer any questions about the special-status species. All new construction personnel will undergo this mandatory worker environmental awareness training when they start work on the project. Training will occur prior to the start of construction and periodically as needed if new construction personnel begin work at the project site. Each worker will sign a statement that they received training and the statement will be posted or easily available for viewing at the project site.

- BIO-3. Signs, flags, and/or fencing will be used to establish exclusion areas outside work area limits to protect sensitive biological resources (e.g., coastal dune scrub, nesting bird buffers) in the vicinity of construction activities. A system of standardized and simplified exclusion signage will be determined in advance through coordination with the construction contractor to reduce potential confusion during construction. Fencing will be checked weekly by the biological monitor to ensure it is intact and does not present an entrapment hazard to wildlife. The biological monitor may assign a designee within the construction crew to monitor fencing after the grading and clearing phases are complete.
- BIO-4. To prevent wildlife entanglement and entrapment, the construction contractor will avoid the use of monofilament netting on the project site, including use in temporary and permanent erosion control materials (fiber rolls and blankets). The construction contractor will also seal all steep-walled holes greater than one foot deep overnight. Holes will be sealed such that no gap is left between the cover and the edges of the hole so that gaps do not inadvertently appear to be burrow entrances (e.g. place plastic sheeting over the hole, place wooden plate over plastic sheeting, and place dirt on top of wooden plate/plastic sheeting if necessary). Where holes cannot be sealed, escape ramps that are no more than a 30 percent slope will be positioned such that entrapped wildlife will be able to escape. The escape ramps will be at least one foot wide and covered with jute netting or similar material.
- BIO-5. To prevent birds and other wildlife from ingesting or becoming entangled in plastic trash, and to avoid providing supplemental food to attract predators that prey on nesting birds, amphibians, reptiles, and small mammals, all trash and food scraps (including microtrash such as bottle caps and soda can tabs, plastic string, plastic grocery bags, six-pack container plastic rings, food containers, watermelon rinds, fruit peels, bones, etc.) will be placed in covered, wildlife-proof trash cans or removed from the site at the end of each work day. Work areas will be inspected by the biological monitor or a designee on the construction crew for trash and food scraps daily prior to crews leaving the jobsite to ensure compliance with this measure.



bing



- Project Parcel
- Impact Area (approx.)
- Coastal Dune Scrub - 0.15 ac
- Spineflower Impacted - 296 sq. ft.
- Monterey Spineflower - 0.007 ac
- Dune Scrub Impacted - 1,725 sq. ft.

Source: ESRI 2021. Santa Cruz County 2020, SANDIS 2021



Figure 6-1
Impact Areas

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- BIO-6. Project storm water pollution prevention plan (SWPPP) measures will be followed to prevent toxins and soil from entering local water bodies. SWPPP measures will include secondary containment of portable gas cans and generators, of all stationary equipment that could leak oil, and of concrete washouts.
- BIO-7. A report of preconstruction survey efforts and biological construction monitoring to protect special-status species during initial ground disturbance and vegetation removal at the project site will be submitted to the Santa Cruz County Planning Department within 30 days of completion of the survey/monitoring efforts. The report(s) will include the dates, times, weather conditions, and personnel involved in the biological surveys and construction monitoring. CNDDDB Field Survey Forms will be submitted to the CDFW for any special-status species observed.

6.2 SPECIAL-STATUS PLANTS

The on-site 0.007-acre Monterey spineflower occurrence (200-300 individuals) is positioned mostly within the proposed project impact area, and avoidance of the occurrence is not feasible. It is assumed that the entire on-site occurrence could be removed by the proposed project. Monterey spineflower is listed as Threatened under the Federal Endangered Species Act (FESA); impacts to federally listed animals are prohibited everywhere without an incidental take permit, but FESA does not prohibit impacts to federally listed plants on lands outside federal management unless federally listed animals would also be impacted. Under Section 7 of the FESA, consultation with the USFWS for the potential loss of a federally listed plant is only required if a federal nexus for the project exists. If no federal nexus exists, there is no requirement to mitigate for the loss of a plant under FESA Section 9 (a)(2)(B). A federal nexus exists for the project if any federal permits (of any kind, not just biological) are required, the project includes federal funding, or the project is on federal lands.

For the proposed project, no federal nexus exists. An incidental take permit is therefore not required to impact Monterey spineflower on the site and there is no FESA requirement to coordinate with the USFWS or mitigate for the loss of Monterey spineflower. However, significant impacts to all special-status plants must be mitigated per CEQA requirements. Project development would result in the direct loss of Monterey spineflower plants. Therefore, implementation of the following measure is recommended to mitigate this impact.

- BIO-8. The Monterey spineflower occurrence on the project site will be relocated from the central impact area to the western preservation area. Prior to any ground disturbance, a qualified biologist will work with the project architect to demarcate the on-site mitigation area for restoration of coastal dune scrub habitat and

Monterey spineflower seed transplantation. The project proponent will be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity. Prior to seed transplant, permanent fencing will be installed between the residential development area and the preserved area to prevent access to the preserved area, with a small designated walkway allowing access from the new residence to the beach.

Prior to any ground disturbance, in the spring/summer before construction, the project proponent will retain a qualified biologist or native plant specialist to perform seed collection from all Monterey spineflower plants located within the impact area, and implement seed installation in the mitigation area at the optimal time.

A restoration plan will be developed for the project by a qualified biologist in accordance with Santa Cruz County's 2012 *Draft Guidelines for Biological Resources Assessments and Related Documents*, Appendix D: Guidelines for the Preparation of Revegetation/Restoration Plans and Appendix E: Revegetation/Restoration Plan Checklist. This restoration plan will include both Monterey spineflower occurrence seed collection and transplantation/preservation and coastal dune scrub habitat restoration/preservation. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native invasive plants. Monitoring will occur for a minimum of five years after mitigation area installation to verify that restoration activities have been successful and will include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years.

The abundance of annual plants naturally varies from year to year depending on multiple factors including disturbance and rainfall. The performance standard for successful mitigation will be a minimum 2:1 replacement ratio (i.e. two plants observed in the mitigation area for each plant lost from the impact area), meaning that at least an estimated 600 Monterey spineflower plants must be present in the mitigation area during at least one spring occurring in year 3, 4, or 5 after installation. The program will contain options for corrective action and extended maintenance/monitoring if the performance standard is not achieved during the 5-year monitoring period.

During each monitoring effort undertaken in the mitigation area, a qualified biologist will conduct a comparison of spring survey conditions for Monterey spineflower from the previous year(s) and prepare a written report for the County. If adaptive management (corrective measures) are warranted, a description and recommendation will be included in the annual report.

6.3 SPECIAL-STATUS ANIMALS

The proposed project has potential to impact special-status animals including globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon, western snowy plover, and nesting migratory birds. These species have potential to occur, and if any of these species is present at the project site during construction, project development could result in direct loss of individuals or harassment which is considered “take”. Therefore, implementation of the following measures is recommended to avoid or minimize potential impacts.

Globose Dune Beetle

Specific mitigation is not proposed for this species as it has no state or federal protections. However, the project was designed to minimize impacts to coastal dune scrub habitat where this beetle may occur, and this species will also benefit from the project mitigation measures (see Section 6.1 above) that protect other biological resources during construction activities.

Coast Horned Lizard and Northern California Legless Lizard

State Species of Special Concern coast horned lizard and Northern California legless lizard have potential to occur at the project site. If these species are present in impact areas, project development could result in the direct loss of individuals. Therefore, implementation of the following measure is recommended to avoid or minimize this potential impact.

BIO-9. The project proponent will retain a biologist qualified in herpetology to conduct preconstruction surveys for coast horned lizard and Northern California legless lizard. Preconstruction surveys will be conducted within impact areas no more than 48 hours prior to disturbance of any suitable habitat for these species as determined by the qualified biologist. Surveys will utilize hand search methods within impact areas where these species are expected to be found (i.e., under shrubs, other vegetation, or debris on sandy soils). Any individuals located during the surveys will be safely relocated to suitable habitat outside of the impact areas.

In coordination with the CDFW, as needed, the qualified biologist will be at the project site to recover any coast horned lizards or Northern California legless lizards that may be excavated/unearthed during initial ground disturbance and vegetation removal activities. If the animals are in good health, they will be immediately relocated to a designated release site outside of the work area. If they are injured, the animals will be released to a CDFW-approved rehabilitation specialist until they are in a condition to be released into the designated release site.

American Peregrine Falcon, Western Snowy Plover, and Nesting Migratory Birds

If special-status or other native migratory bird species are present in or adjacent to the impact area, project development could result in the direct loss of individuals or disturbance to nesting activities. Therefore, implementation of the following measure is recommended to avoid or minimize this potential impact.

BIO-10. To avoid impacts to nesting birds, the removal of vegetation shall be minimized to the greatest extent feasible. Construction activities that include any tree removal, pruning, grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January 15 through September 15) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction surveys for nesting birds to ensure that no nests would be disturbed during project construction.

If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.

If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize “normal” bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.

In addition, if construction is proposed during the western snowy plover nesting season (March 15 to September 15), the biologist will coordinate with Point Blue Conservation Science and the USFWS who regularly monitor western snowy plover nesting to determine if any western snowy plovers are nesting close to the project site. If nesting occurs within 200 feet of the proposed project, construction must be halted until the young have fledged and left the area or Incidental Take Authorization has been obtained from USFWS. The on-site western snowy plover critical habitat area will not be disturbed by construction activities per mitigation measures BIO-1 through BIO-7.

A report documenting survey results and a plan for active bird nest avoidance (if needed) will be completed by the biologist and submitted to the Santa Cruz County Planning Department for review and approval prior to disturbance and/or construction activities. If no active bird nests are detected during the survey, then project activities can proceed as scheduled. However, if an active bird nest of a native species is detected during the survey, then a plan for bird nest avoidance will be prepared to determine and clearly delineate an appropriately-sized, temporary protective buffer area around each active nest, depending on the nesting bird species, existing site conditions, and type of proposed disturbance and/or construction activities.

6.4 SPECIAL-STATUS NATURAL COMMUNITIES

The on-site 0.15-acre coastal dune scrub habitat supports a special-status Monterey spineflower occurrence and contains USFWS-designated critical habitat for western snowy plover. It is an Environmentally Sensitive Habitat Area (ESHA) strictly regulated by the Santa Cruz County Planning Department and California Coastal Commission. This special-status natural community cannot be avoided by an alternative project design, so the proposed project would require special allowance during the local and state permitting processes for this impact to ESHA that is necessary to allow a reasonable economic use of the land.

As demonstrated in this report, the proposed project was designed to minimize impacts to sensitive biological resources. The anticipated ESHA impact has been minimized to the extent feasible by concentrating development in the less sensitive central and eastern portions of the project site. About 0.04-acre (27 percent) of the on-site 0.15-acre coastal dune scrub habitat would be impacted by the project, and the habitat in the western portion of the site would be permanently protected/preserved within the proposed combined habitat restoration and Monterey spineflower mitigation area in the western portion of the parcel. However, during permitting approvals the proposed on-site mitigation may be modified to

utilize off-site restoration and preservation options. Proposed mitigation for the impact to coastal dune scrub is included above as the Monterey spineflower mitigation measure BIO-8. The preservation area should be at least twice as large as the 0.04-acre coastal dune scrub impact (meeting or exceeding a 2:1 minimum mitigation ratio for preserved vs. impacted acreage).

Additional compensatory mitigation may be required by the County or by the California Coastal Commission as part of the Coastal Development Permit process. This may include off-site habitat preservation or restoration of sensitive habitats similar in composition, quality, and acreage to those that would be impacted, or payment to a regional habitat mitigation bank. The following mitigation will prevent degradation of the preserved on-site coastal dune scrub habitat by preventing the introduction of invasive species through residential landscaping.

BIO-11. Prior to final project approvals, landscaping plans will be reviewed by the County to ensure the palette is limited to drought-tolerant species, fire-resistant species, and species capable of increasing soil stability, with preference to plant species endemic to coastal Santa Cruz County. Species from the California Invasive Plant Council (Cal-IPC) *California Invasive Plant Inventory* (Cal-IPC 2021), such as iceplant and European beachgrass, will not be included in any new landscaping. The plant palette used for on-site landscaping will be reviewed and approved by the Santa Cruz County Planning Department to confirm no invasive species will be planted.

6.5 REGULATED TREES

As mentioned earlier, the on-site Monterey cypress trees likely qualify as protected significant trees per Chapter 16.34 of the Santa Cruz County Zoning Ordinance because of their large size and location in a sensitive habitat area. Any proposed impacts would therefore require a significant tree removal approval for the project obtained per the requirements in Section 2, Regulatory Setting, which may require replacement of trees removed with trees acceptable to the Santa Cruz County Planning Director. Any regulated tree removals will require approval through a Coastal Development Permit and Santa Cruz County tree removal permit.

BIO-12. Prior to any ground disturbance, an International Society of Arboriculture (ISA)-certified arborist will conduct a tree survey and prepare an evaluation report with associated data and location map for all Santa Cruz County-regulated trees on and immediately adjacent to the site. The project proponent will then obtain approval through a Coastal Development Permit and Santa Cruz County tree removal permit prior to removal of or impact to any regulated tree. Replacement

plantings will likely be required as a condition for permit approvals. The project proponent will implement any stipulated conditions of approval, such as the planting of replacement trees in appropriate on-site or off-site areas, along with any required maintenance and monitoring.

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Report Preparers and References

7.1 REPORT PREPARERS

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APPENDIX A

SPECIAL-STATUS PLANTS POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Appendix A: Special-Status Plants Potentially Occurring in the Project Vicinity

Species	Status (Federal/State/Other)	Habitat Description	Potential to Occur
Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	--/1B.2	Alkaline playas, valley and foothill grassland on adobe clay substrate, and vernal pools; elevation 1-60m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Anderson's manzanita (<i>Arctostaphylos andersonii</i>)	--/1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest. Prefers open sites in redwood forest habitat; elevation 180-800m. Blooms Nov-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Ben Lomond spineflower (<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>)	FE--/1B.1	Lower montane coniferous forest – specifically maritime ponderosa pine sandhills; elevation 90-610m. Known only from Santa Cruz Mountains. Blooms Apr-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Choris' popcorn-flower (<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>)	--/1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie; also found in grassy areas per CNDDDB records; elevation 15-100m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>)	--/1B.1	Alkaline valley and foothill grassland; elevation 1-230m. Also occurs in disturbed areas and ruderal habitats. Blooms May-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	FE--/1B.1	Mesic sites in cismontane woodland, alkaline playas, valley and foothill grassland, and vernal pools; elevation 0-470m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Dudley's lousewort (<i>Pedicularis dudleyi</i>)	--/SR/1B.2	Maritime chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland. Prefers shady woods in redwood forests; elevation 60-900m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Eastwood's goldenbush (<i>Ericameria fasciculata</i>)	--/1B.1	Sandy areas in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub; elevation 30-275m. Blooms Jul-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Fort Ord spineflower (<i>Chorizanthe minutiflora</i>)	--/1B.2	Sandy openings in maritime chaparral and coastal scrub; elevation 55-150m. Discovered in 1994; only known from Monterey County. Blooms Apr-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Fragrant fritillary (<i>Fritillaria liliacea</i>)	--/1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay in grassland; elevation 3-410m. Blooms Feb-Apr.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hickman's onion (<i>Allium hickmanii</i>)	--/1B.2	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland, coastal prairie; prefers grasslands with sandy loam, damp ground, and vernal swales; elevation 20-200m. Blooms Mar-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hooker's manzanita (<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>)	--/1B.2	Sandy soils in coastal scrub, chaparral, and closed-cone coniferous forest; elevation 60-535m. Blooms Jan-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hutchinson's larkspur (<i>Delphinium hutchinsoniae</i>)	--/1B.2	Broadleaved upland forest, chaparral, coastal prairie, coastal scrub; prefers semi-shaded, west-facing, slightly moist slopes; elevation 0-430m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Kellogg's horkelia (<i>Horkelia cuneata</i> var. <i>sericea</i>)	--/1B.1	Prefers sand dunes and coastal sandhills. Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub; elevation 10-200m. Blooms Apr-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
King's Mountain manzanita (<i>Arctostaphylos regismontana</i>)	--/1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest; prefers granitic or sandstone outcrops; elevation 305-730m. Blooms Dec-Apr.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Legenere (<i>Legenere limosa</i>)	--/1B.1	In beds of vernal pools; elevation 1-880m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Marsh microseris (<i>Microseris paludosa</i>)	--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland; elevation 5-355m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Menzies' wallflower (<i>Erysimum menziesii</i>)	FE/SE/1B.1	Coastal dunes and coastal strand; elevation 0-35m. Blooms Mar-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey gilia (<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>)	FE/ST/1B.2	Sandy openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; prefers wind-sheltered areas (back dunes); elevation 0-45m. Blooms Apr-Jun.	Absent. Not observed during April 2021 focused plant survey.
Monterey spineflower (<i>Chorizanthe pungens</i> var. <i>pungens</i>)	FT/--/1B.2	Sandy soils in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; elevation 3-450m. Blooms Apr-Jun.	Present. Observed on the project site during April 2021 focused plant survey.
Northern curly-leaved monardella (<i>Monardella sinuata</i> ssp. <i>nigrescens</i>)	--/--/1B.2	Sandy soils in chaparral, coastal dunes, coastal scrub, and lower montane coniferous forest (ponderosa pine sandhills); elevation 0-300m. Blooms May-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pajaro manzanita (<i>Arctostaphylos pajaroensis</i>)	--/--/1B.1	Sandy soils in chaparral; elevation 30-760m. Blooms Dec-Mar.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
perennial goldfields (<i>Lasthenia californica</i> ssp. <i>macrantha</i>)	--/--/1B.2	Coastal bluff scrub, coastal dunes, and coastal scrub; elevation 5-520m. Blooms Jan-Nov.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pine rose (<i>Rosa pinetorum</i>)	--/--/1B.2	Closed-cone coniferous forest; elevation 2-300m. Blooms May-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pink Johnny-nip (<i>Castilleja ambigua</i> ssp. <i>insalutata</i>)	--/--/1B.1	Coastal prairie and coastal bluff scrub; elevation 0-100m. Blooms May-Aug.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Point Reyes horkelia (<i>Horkelia marinensis</i>)	--/--/1B.2	Sandy soils in coastal dunes, coastal prairie, and coastal scrub; elevation 5-755m. Blooms May-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Robust spineflower (<i>Chorizanthe robusta</i> var. <i>robusta</i>)	FE/--/1B.1	Sandy or gravelly areas in maritime chaparral, cismontane woodland openings, coastal dunes, and coastal scrub; prefers sandy terraces/bluffs or loose sand; elevation 3-300m. Blooms Apr-Sep.	Absent. Not observed during April 2021 focused plant survey.
Saline clover (<i>Trifolium hydrophilum</i>)	--/--/1B.2	Marshes and swamps, valley and foothill grassland, and vernal pools. Prefers mesic, alkaline sites; elevation 0-300m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
San Francisco popcorn-flower (<i>Plagiobothrys diffusus</i>)	--/SE/1B.1	Valley and foothill grassland, and coastal prairie; elevation 60-360m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Sand-loving wallflower (<i>Erysimum amphilum</i>)	--/--/1B.2	Sandy openings in maritime chaparral, coastal dunes, and coastal scrub; elevation 0-60m. Blooms Feb-Jun.	Absent. Not observed during April 2021 focused plant survey.
Sandmat manzanita (<i>Arctostaphylos pumila</i>)	--/--/1B.2	Sandy openings in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; elevation 3-205m. Blooms Feb-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz clover (<i>Trifolium buckwestiorum</i>)	--/--/1B.1	Broadleaved upland forest, cismontane woodland, and coastal prairie; elevation 105-610m. Blooms Apr-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz Mountains beardtongue (<i>Penstemon rattanii</i> var. <i>kleei</i>)	--/--/1B.2	Chaparral, lower montane coniferous forest, and sandy shale slopes; found in transition zone between forest and chaparral; elevation 400-1100m. Blooms May-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz tarplant (<i>Holocarpha macradenia</i>)	FT/SE/1B.1	Coastal prairie, coastal scrub, valley and foothill grassland, often on clay or sandy soils; tolerates non-native species; elevation 10-220m. Blooms Jun-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Seaside bird's beak (<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i>)	--/SE/1B.1	Sandy, often disturbed sites in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; usually within chaparral or coastal scrub; elevation 0-215m. Blooms Apr-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tidestrom's lupine (<i>Lupinus tidestromii</i>)	FE/SE/1B.1	Partially stabilized coastal dunes, immediately near the ocean; elevation 0-3m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/State/Other)	Habitat Description	Potential to Occur
Toro manzanita (<i>Arctostaphylos montereyensis</i>)	--/--/1B.2	Sandy places in maritime chaparral, cismontane woodland, and coastal scrub; elevation 30–730m. Blooms Feb-Mar.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Vernal pool bent grass (<i>Agrostis lacuna-vernalis</i>)	--/--/1B.1	Vernal pools (mima mounds); known only from Fort Ord National Monument; elevation 115-145m. Blooms Apr-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
White-rayed pentachaeta (<i>Pentachaeta bellidiflora</i>)	FE/SE/1B.1	Valley and foothill grassland; found on open, dry rocky slopes and grassy areas, often on serpentine soils; elevation 35-620m. Blooms Mar-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Woodland woollythreads (<i>Monolopia gracilens</i>)	--/--/1B.2	Serpentine sites; openings in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland; elevation 100-1200m. Blooms Mar-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Yadon's rein orchid (<i>Piperia yadonii</i>)	FE/--/1B.1	Sandy areas in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral; elevation 10-510m. Blooms May-Aug.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Sources: CDFW 2021, CNPS 2021, USFWS 2021

Listing Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SR: Listed as Rare under the California Endangered Species Act.

Other (CNPS Rare Plant Ranks and Threat Code Extensions)

1B: Plants that are considered Rare, Threatened, or Endangered in California and elsewhere.

2B: Plants that are considered Rare, Threatened, or Endangered in California, but more common elsewhere.

.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat).

.2: Fairly endangered in California (20-80% occurrences threatened).

APPENDIX B

SPECIAL-STATUS ANIMALS POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Appendix B: Special-Status Animals Potentially Occurring in the Project Vicinity

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Insects			
Crotch bumble bee (<i>Bombus crotchii</i>)	--/SC	Coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. CNDDDB occurrence from 1995 recorded in proximity to the project site within dune/coastal scrub habitat at Sunset State Beach. However, sandy on-site soils are not suitable for underground bee nesting.
Globose dune beetle (<i>Coelus globosus</i>)	--/--	Coastal sand dune habitats; erratically distributed from Mendocino County south into Mexico. Inhabits foredunes and sand hummocks. It burrows beneath the sand surface and is most common beneath dune vegetation.	Low potential to occur on project site due to presence of marginally suitable habitat. CNDDDB occurrences from 1977 and 1990 recorded in proximity to the project site in sandy foredune habitat at Sunset State Beach.
Monarch butterfly (<i>Danaus plexippus</i>)	FC/--	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts are located in wind-protected tree groves (eucalyptus, Monterey pine, and cypress) with nectar and water sources nearby.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Ohlone tiger beetle (<i>Cicindela ohlone</i>)	FE/--	Remnant native grasslands with California oatgrass and purple needlegrass in Santa Cruz County. Substrate is poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Smith's blue butterfly (<i>Euphilotes enoptes smithi</i>)	FE/--	Coastal dunes and coastal sage scrub plant communities. Host plants include coast buckwheat (<i>Eriogonum latifolium</i>) and seacliff buckwheat (<i>Eriogonum parvifolium</i>) for larval and adult stages.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western bumble bee (<i>Bombus occidentalis</i>)	--/SC	Requires suitable nesting sites for the colonies, nectar and pollen from floral resources, and suitable overwintering sites for the queens. Nests in underground cavities.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Zayante band-winged grasshopper (<i>Trimerotropis infantilis</i>)	FE/--	Isolated sandstone deposits in the Santa Cruz Mountains, in Zayante Hills ecosystem.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Fish			
Eulachon (<i>Thaleichthys pacificus</i>)	FT/--	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Longfin smelt (<i>Spirinchus thaleichthys</i>)	FC/ST	Migratory fish found in open waters of estuaries; mostly in the middle or bottom of the water column. Can be found in completely freshwater to almost pure seawater. Known from San Francisco Bay delta and Humboldt Bay in California.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey hitch (<i>Lavinia exilicauda harengus</i>)	--/SSC	Can occupy a wide variety of habitats, although they are most abundant in lowland areas with large pools or in small reservoirs that mimic such conditions. Widely distributed in the Pajaro and Salinas river systems.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Steelhead (<i>Oncorhynchus mykiss irideus</i>)	FT/--	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tidewater goby (<i>Eucyclogobius newberryi</i>)	FE/--	Brackish water habitats with fairly still but not stagnant water and high oxygen levels. Found in shallow lagoons and lower stream reaches.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Reptiles and Amphibians			
California giant salamander (<i>Dicamptodon ensatus</i>)	--/SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests, under rocks and logs, usually near streams and lakes.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
California red-legged frog (<i>Rana draytonii</i>)	FT/SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires nearby upland habitat to aestivate during dry months.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. Though there is low potential to occur in the nearby slough, this species is not expected to occur on the site's sandy substrate.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
California tiger salamander (<i>Ambystoma californiense</i>)	FT/ST	Grasslands, open oak woodlands, and seasonal pools or stock ponds in Central California. Require underground refuges/burrows for cover, and seasonal water sources for breeding.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	--/SSC	Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes.	Low potential to occur on project site due to presence of marginally suitable habitat.
Coast range newt (<i>Taricha torosa</i>)	--/SSC	Coastal drainages; lives in terrestrial habitats and can migrate over 1 km to breed in ponds, reservoirs, and slow-moving streams.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Foothill yellow-legged frog (<i>Rana boylei</i>)	--/ SE&SSC	Partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. Requires at least some cobble-sized substrate for egg-laying and 15 weeks of available water to attain metamorphosis.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Northern California legless lizard (<i>Anniella pulchra</i>)	--/SSC	Sandy or loose loamy soils under sparse vegetation; moist soils.	Moderate potential to occur on project site due to presence of suitable habitat. CNDDDB occurrences recorded in proximity to the project site in sandy habitat at Sunset State Beach.
Santa Cruz black salamander (<i>Aneides niger</i>)	--/SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara Counties. Adults found under rocks, talus, and damp woody debris.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz long-toed salamander (<i>Ambystoma macrodactylum croceum</i>)	FE/SE&FP	Wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey Counties. Aquatic larvae prefer shallow (<12 inches) water, and use clumps of vegetation or debris for cover. Adults use mammal burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western pond turtle (<i>Emys marmorata</i>)	--/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western spadefoot (<i>Spea hammondi</i>)	--/SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Birds			
American peregrine falcon <i>(Falco peregrinus anatum)</i>	--/FP	Occurs in wide range of habitats near wetlands, lakes, rivers, or other water. Nests on cliffs, banks, dunes, mounds, and in human-made structures such as buildings and bridges. Nest consists of a scrape, depression, or ledge in an open site.	Low potential to occur on project site due to presence of marginally suitable habitat.
Bank swallow <i>(Riparia riparia)</i>	--/ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Burrowing owl <i>(Athene cucularia)</i>	--/SSC	Open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation; dependent on mammal burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
California Ridgway's rail <i>(Rallus obsoletus obsoletus)</i>	FE/SE&FP	Found in saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. Though there is low potential to occur in the nearby slough, this species is not expected to occur on the site.
Short-eared owl <i>(Asio flammeus)</i>	--/SSC	Found in swamp lands, both fresh and salt; lowland meadows; and irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tricolored blackbird <i>(Agelaius tricolor)</i>	--/ ST&SSC	Requires open water, protected nesting substrate, and foraging area with insect prey available near the colony.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western snowy plover <i>(Charadrius nivosus nivosus)</i>	FT/SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes; sandy, gravelly, or friable soils for nesting. Prefers early successional dune habitat or open habitats with cover or camouflage for nesting. Nests on mudflats and evaporation ponds.	High potential to occur on project site due to presence of suitable habitat and occurrence records in the immediate vicinity. USFWS-designated critical habitat is present in the coastal strand habitat along the western portion of project site.
White-tailed kite <i>(Elanus leucurus)</i>	--/FP	Rolling foothills and valley margins with scattered oaks, and river bottomlands or marshes next to deciduous woodlands. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Yellow rail (<i>Coturnicops noveboracensis</i>)	--/SSC	Summer resident in eastern Sierra Nevada in Mono County. Occurs in freshwater marshlands.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Mammals			
American badger (<i>Taxidea taxus</i>)	--/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils, and open, uncultivated ground. Prey on burrowing rodents and dig burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey dusky-footed woodrat (<i>Neotoma macrotis luciana</i>)	--/SSC	Maritime chaparral and woodlands with moderate to dense cover and abundant dead wood for nest construction. Restricted to Monterey County and northern San Luis Obispo County.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey shrew (<i>Sorex ornatus salarius</i>)	--/SSC	Range restricted to Santa Cruz and Monterey Counties. Typically found in brackish marshes, along streams, in brushy areas of valleys and foothills, and in forests. Favor low, dense vegetation that forms a cover for worms and insects. Typically found in riparian habitats.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pallid bat (<i>Antrozous pallidus</i>)	--/SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	--/SSC	Inhabits a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

APPENDIX B

Sources: CDFW 2021, USFWS 2021

Listing Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: Candidate for listing as Endangered or Threatened under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SC: Candidate for listing as Endangered or Threatened under the California Endangered Species Act.

SSC: CDFW Species of Special Concern due to declining breeding populations in California.

FP: CDFW Fully Protected species per the California Fish and Game Code.

APPENDIX C

PROJECT SITE PLANT INVENTORY

Appendix C: Project Site Plant Inventory	
GYMNOSPERMAE - GYMNOSPERMS	
CUPRESSACEAE - CYPRESS FAMILY	
<i>Hesperocyparis macrocarpa</i> [<i>Cupressus macrocarpa</i>]	Monterey cypress
ANGIOSPERMAE - FLOWERING PLANTS	
DICOTYLEDONES - DICOTS	
AIZOACEAE - FIG-MARIGOLD FAMILY	
<i>Carpobrotus edulis</i> *	iceplant/hottentot fig
ASTERACEAE (COMPOSITAE) - SUNFLOWER FAMILY	
<i>Agoseris</i> sp. (?)	agoseris
<i>Artemisia pycnocephala</i>	coastal sagewort
<i>Ericameria ericoides</i>	mock heather / California goldenbush
<i>Erigeron glaucus</i>	seaside daisy
<i>Eriophyllum staechadifolium</i>	lizard tail / seaside woolly sunflower
<i>Grindelia stricta</i>	coastal gumplant
<i>Heterotheca sessiliflora</i>	goldenaster
<i>Hypochaeris radicata</i> * (?)	rough cat's-ear
<i>Pseudognaphalium stramineum</i> [<i>Gnaphalium stramineum</i>]	cotton-batting plant
BORAGINACEAE - BORAGE FAMILY	
<i>Cryptantha leiocarpa</i>	beach cryptantha
BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY	
<i>Cakile maritima</i> *	sea rocket
FABACEAE (LEGUMINOSAE) - LEGUME FAMILY	
<i>Lupinus arboreus</i> (?)	yellow bush lupine
MONTIACEAE - MONTIA FAMILY	
<i>Claytonia perfoliata</i>	common miner's-lettuce
SCROPHULARIACEAE- FIGWORT FAMILY [MYOPORACEAE - MYOPORUM FAMILY]	
<i>Myoporum laetum</i> *	myoporum
ONAGRACEAE - EVENING PRIMROSE FAMILY	
<i>Camissoniopsis cheiranthifolia</i> ssp. <i>cheiranthifolia</i>	beach evening primrose
OXALIDACEAE - WOOD-SORREL FAMILY	
<i>Oxalis pes-caprae</i> *	Bermuda buttercup / sour grass
PLANTAGINACEAE - PLANTAIN FAMILY	
<i>Plantago coronopus</i> *	cut-leaved plantain
POLYGONACEAE - BUCKWHEAT FAMILY	
<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower
<i>Erigonum latifolium</i>	coast buckwheat
<i>Pterostegia drymarioides</i>	woodland threadstem
ROSACEAE - ROSE FAMILY	
<i>Pyracantha</i> sp.* (?)	firethorn

MONOCOTYLEDONES - MONOCOTS	
<i>POACEAE [GRAMINEAE] - GRASS FAMILY</i>	
<i>Ammophila arenaria</i> *	European beachgrass
<i>Bromus diandrus</i> *	ripgut grass
<i>Bromus hordeaceus</i> *	soft chess
<i>Festuca myuros [Vulpia myuros]</i> *	rattail fescue
* non-native species	

APPENDIX D

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDDB@wildlife.ca.gov

For Office Use Only

Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Date of Field Work (mm/dd/yyyy): 04/14/2021

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Chorizanthe pungens var. pungens*

Common Name: Monterey spineflower

Species Found? Yes No If not found, why? _____

Total No. Individuals: 200 Subsequent Visit? Yes No

Is this an existing NDDDB occurrence? No Unk. Yes, Occ. # _____

Collection? If yes: _____ Number _____ Museum / Herbarium _____

Reporter: Patrick Furtado

Address: 301 Lighthouse Ave., Suite C
Monterey, CA 93940

E-mail Address: furtado@emcplanning.com

Phone: 831.649.1799

Plant Information

Phenology:
% vegetative: 20 % flowering: 80 % fruiting: 0

Animal Information

adults # juveniles # larvae # egg masses # unknown
 wintering breeding nesting rookery burrow site lek other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Pajaro Dunes Resort, 145 Rio Boca Road, Watsonville, CA 95076

County: Santa Cruz Landowner / Mgr: Pajaro Dunes Resort

Quad Name: Moss Landing Elevation: 5

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S GPS Make & Model: Garmin eTrek

DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy: 10 feet _____ meters/feet

Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)

Coordinates: 36.864691, -121.818113

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Coastal dune scrub plant community, iceplant (*Carpobrotus edulis*) dominant, associates - *Artemisia pycnocephala*, *Ericameria ericoides*, substrate - sand, slope/aspect - flat.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: Residential beach housing

Visible disturbances: Foot traffic

Threats: Development

Comments:

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): Flora of Monterey County
- Compared with specimen housed at: _____
- Compared with photo / drawing in: _____
- By another person (name): Dylan Neubauer
- Other: _____

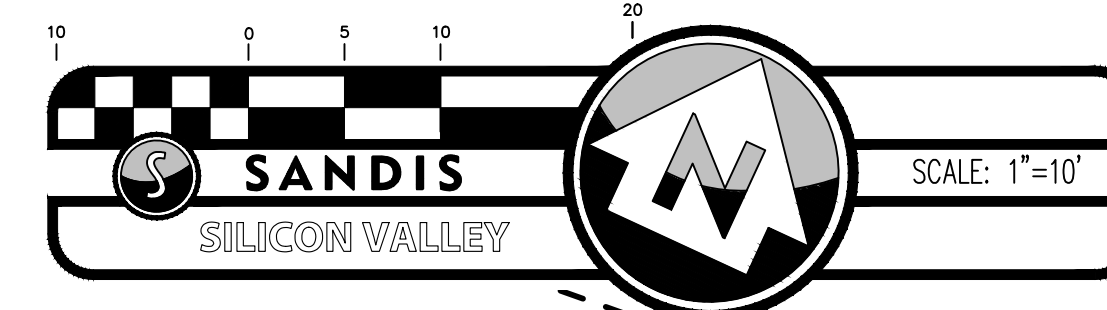
Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diagnostic feature	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

May we obtain duplicates at our expense? yes no

APPENDIX E

SITE PLANS



GRADING PLAN LEGEND

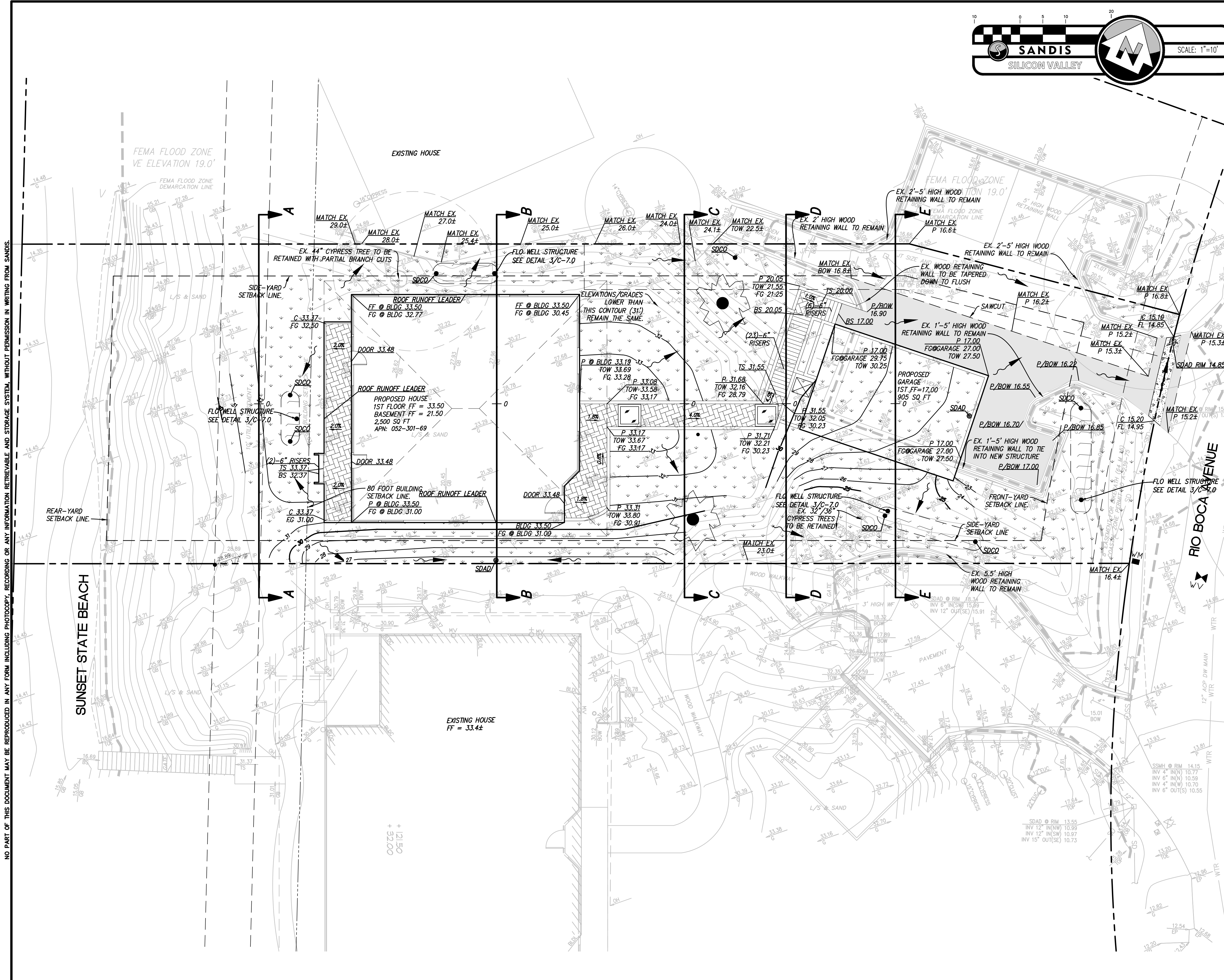
- ASPHALT CONCRETE PAVING (X/C-XX)
- GLASS SKYLIGHT, SEE ARCHITECTURAL PLANS FOR DETAILS
- LANDSCAPE AREA, SEE LANDSCAPE PLANS FOR DETAILS
- PEDESTRIAN PAVERS (X/C-XX)
- GRADE BREAK
- FLOW DIRECTION
- SAWCUT
- XX MINOR CONTOUR
- XX MAJOR CONTOUR

GENERAL NOTES

1. EXISTING (VACANT) 17,054 SQFT LOT TO BE DEVELOPED. NEW 2,500 SQFT ONE STORY HOME WITH BASEMENT AND 2 CAR GARAGE. PORTIONS OF LOT TO BE RAISED TO MATCH NEIGHBORING PROPERTY. (NEIGHBORING PROPERTY SAME OWNER).
2. SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UPDATED GEOTECHNICAL INVESTIGATION, FILE NO. SV1858A DATED MAY 3, 2021.

GRADING NOTES

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING ALL HARDSCAPE SURFACES AT 2% AND LANDSCAPE SURFACES AT 5% AWAY FROM STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.
2. STRUCTURE WALLS: PER CBC 2304.11.2.2 (WOOD SUPPORTED BY FOUNDATION) PROVIDE 8" MINIMUM CLEAR TO EXTERIOR GRADE.
3. ALL FILL, IMPORT SOILS AND GRADING SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL REPORT PERFORMED BY SILICON VALLEY SOIL ENGINEERING, DATED DECEMBER 11, 2018, PROJECT NUMBER SV1858
4. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
5. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1 OR THE ADA REQUIREMENTS BELOW. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
6. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
8. ALL GRADING SHALL CONFORM TO APPROVED SPECIFICATIONS PRESENTED HEREON OR ATTACHED HERETO. ALL GRADING WORK SHALL BE OBSERVED AND APPROVED BY THE SOILS ENGINEER. THE SOILS ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS BEFORE BEGINNING ANY GRADING. UNOBSERVED AND UNAPPROVED GRADING WORK SHALL BE REMOVED AND REDONE AT THE CONTRACTORS EXPENSE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY EXISTING IMPROVEMENTS OF UNDERGROUND FACILITIES DAMAGED DURING THE CONSTRUCTION PERIOD.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL ENCROACHMENT, EXCAVATION, CONCRETE, ELECTRICAL, PLUMBING, ETC. PERMITS NECESSARY PRIOR TO BEGINNING CONSTRUCTION FOR ANY WORK.
11. THE RISE / RUN / STEP COUNT IS FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND BUILDING CODE COMPLIANCE PRIOR TO ANY WORK.
12. AREAS LACKING TOPOGRAPHIC INFORMATION (ELEVATIONS) HAVE BEEN INTERPOLATED USING STANDARD ENGINEERING METHODS. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AT CONFORMS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT BACK ANY DISCREPANCIES TO THE CIVIL ENGINEER.
13. ADJUST ANY MANHOLE OR UTILITY STRUCTURES TO PROPOSED GRADE PRIOR TO INSTALLING FINAL LIFT OF AC OR POURING CONCRETE.



NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM INCLUDING PHOTOCOPY, RECORDING OR ANY INFORMATION RETRIEVABLE AND STORAGE SYSTEM, WITHOUT PERMISSION IN WRITING FROM SANDIS.

SANDIS CIVIL ENGINEERS SURVEYORS PLANNERS
 1700 S. Winchester Blvd, Suite 200, Campbell, CA 95008 | P. 408.636.0900 | F. 408.636.0999 | www.sandis.net
 SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF

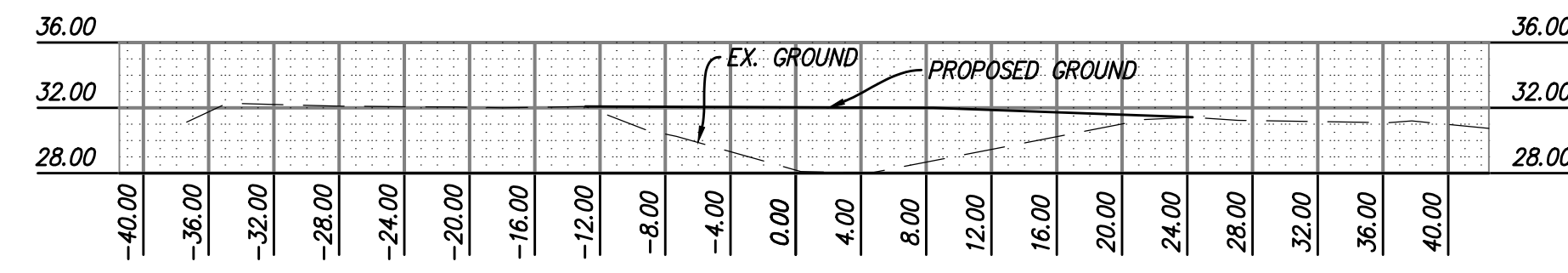
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DRAWN BY:	SAN
APPROVED BY:	DIS
DRAWING NO.:	218593

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1	PLANNING PERMIT SUBMITTAL	11/3/20	DB
2	PLANNING RESUBMITTAL	2/5/21	DB
3	PLANNING RESUBMITTAL	5/28/21	AP

145 RIO BOCA GRADING PLAN
WATSONVILLE CALIFORNIA

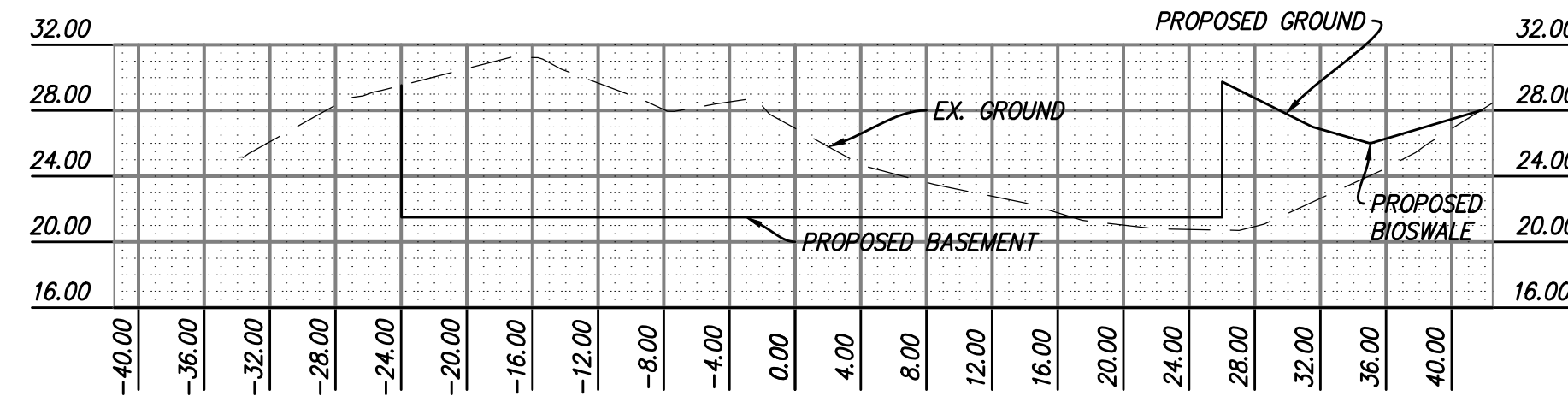
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C-2.0
 OF 12 SHEETS

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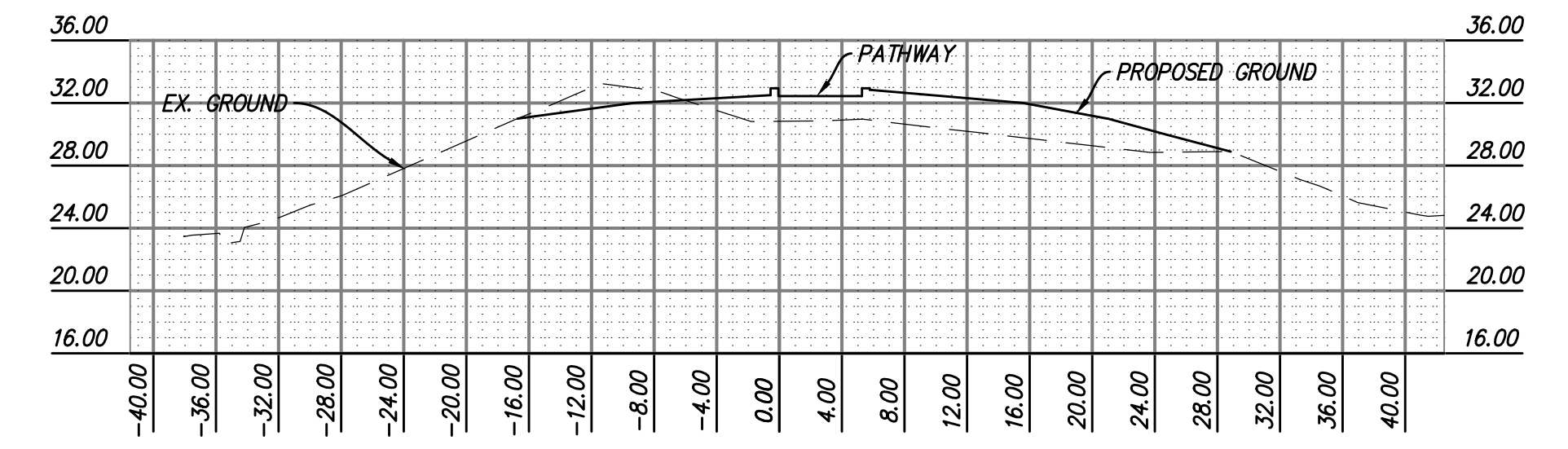
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VERT: 1"=10'



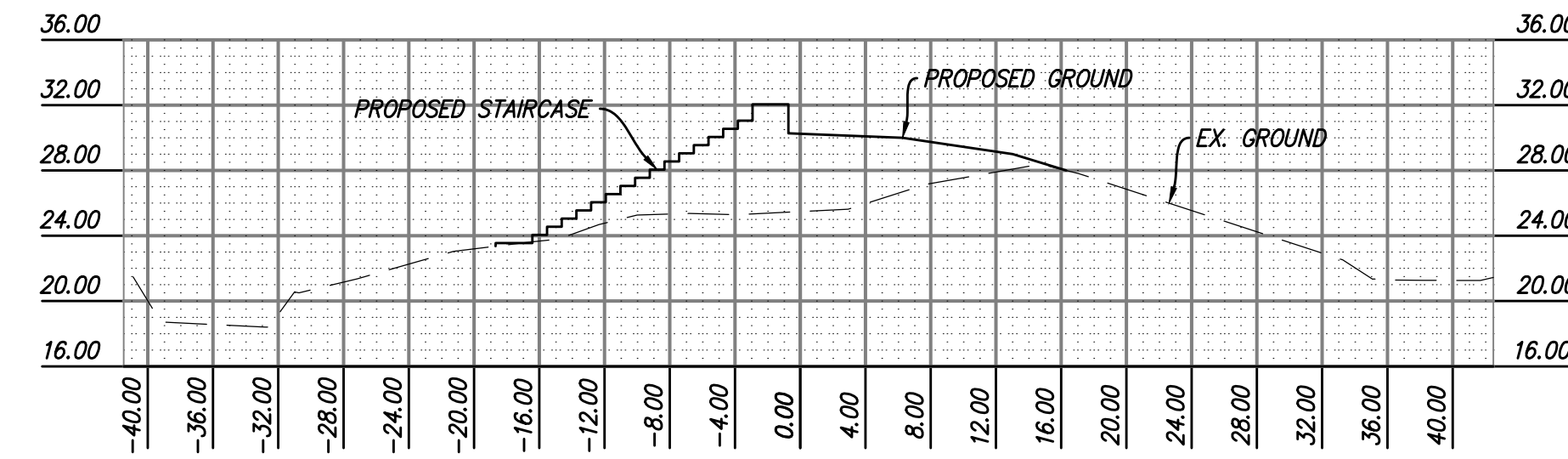
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VERT: 1"=10'



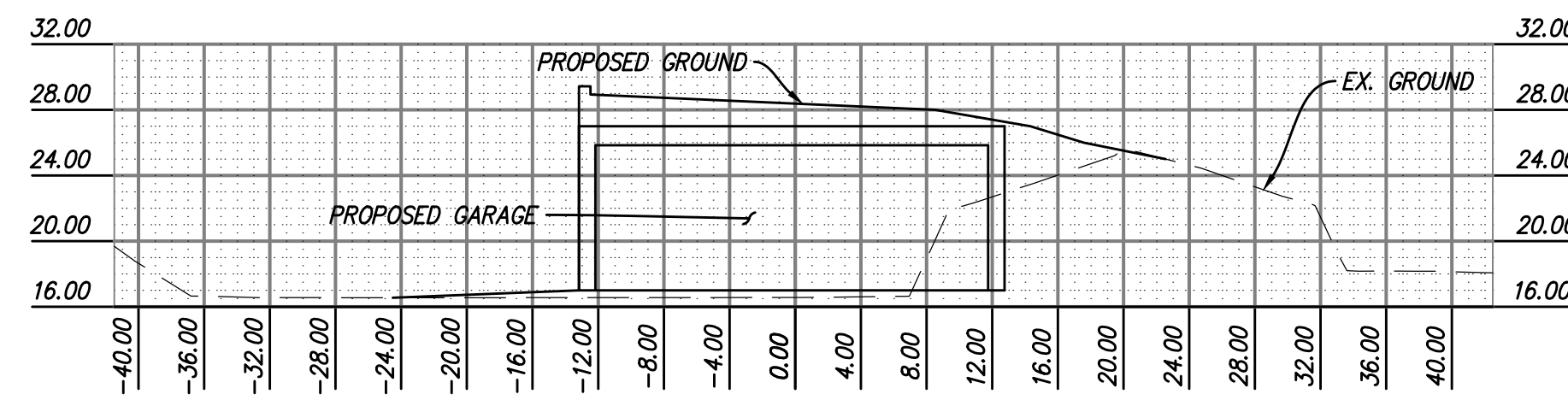
SECTION C-C

HORIZ: 1"=10'
VERT: 1"=10'



SECTION D-D

HORIZ: 1"=10'
VERT: 1"=10'



SECTION E-E

HORIZ: 1"=10'
VERT: 1"=10'



**CIVIL ENGINEERS
SURVEYORS
PLANNERS**

1700 S. Winchester Blvd, Suite 200, Campbell, CA 95008 | P. 408.636.0900 | F. 408.636.0999 | www.sandis.net

SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF

DATE:	02/05/2021
SCALE:	1"=10'
DRAWN BY:	SAN
APPROVED BY:	DIS
DRAWING NO.:	218593

No.	REVISION/ISSUE	DATE	BY
	PLANNING PERMIT SUBMITTAL	11/3/20	DB
	PLANNING RESUBMITTAL	2/5/21	DB
	PLANNING RESUBMITTAL	5/28/21	AP

**145 RIO BOCA
GRADING SECTIONS
WATSONVILLE CALIFORNIA**

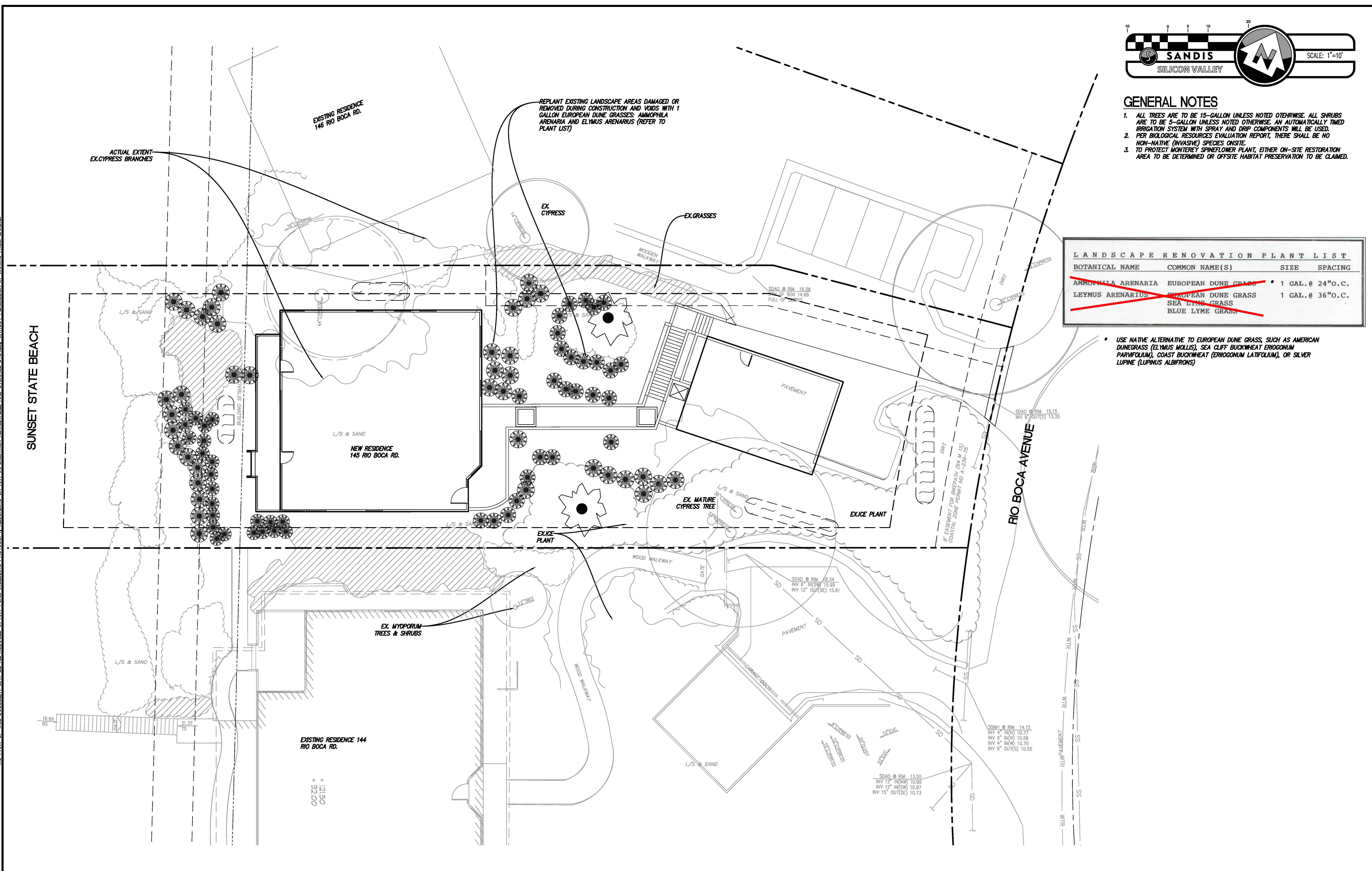
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OF 12 SHEETS



- GENERAL NOTES**
- ALL TREES ARE TO BE 15-GALLON UNLESS NOTED OTHERWISE. ALL SHRUBS ARE TO BE 5-GALLON UNLESS NOTED OTHERWISE. AN AUTOMATICALLY TIMED IRRIGATION SYSTEM WITH SPRAY AND DRIP COMPONENTS WILL BE USED.
 - PER BIOLOGICAL RESOURCES EVALUATION REPORT, THERE SHALL BE NO NON-NATIVE (INVASIVE) SPECIES ON-SITE.
 - TO PROTECT MONTEREY SPINEFLOWER PLANT, EITHER ON-SITE RESTORATION AREA TO BE DETERMINED OR OFFSITE HABITAT PRESERVATION TO BE CLAIMED.

LANDSCAPE RENOVATION PLANT LIST			
BOTANICAL NAME	COMMON NAME(S)	SIZE	SPACING
AMMOPHILA ARENARIA	EUROPEAN DUNE GRASS	1 GAL. @ 24" O.C.	
LEYMUS ARENARIUS	EUROPEAN DUNE GRASS	1 GAL. @ 36" O.C.	
	SEA LYME GRASS		
	BLUE LYME GRASS		

* USE NATIVE ALTERNATIVE TO EUROPEAN DUNE GRASS, SUCH AS AMERICAN DUNEGRASS (LEYMUS MOLLIS), SEA CLIFF BUCKWHEAT EROGONIUM PARVIFOLIUM, COAST BUCKWHEAT (ERIOGONIUM LATIFOLIUM), OR SILVER LUPINE (LUPINUS ALBIFRONS)

NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM INCLUDING PHOTOCOPY, RECORDING OR ANY INFORMATION RETRIEVABLE AND STORAGE SYSTEM, WITHOUT PERMISSION IN WRITING FROM SANDIS.



 <p>SANDIS CIVIL ENGINEERS SURVEYORS PLANNERS</p> <p>1700 S. Winchester Blvd, Suite 200, Campbell, CA 95008 P. 408.636.0900 F. 408.636.0999 www.sandis.net</p> <p>SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF</p>	 <p>LAUDERBAUGH ASSOCIATES Landscape Architecture/Planning 128 Newton Street Hayward, California 94544-2026 ph.(510)582-1426 f.(510)582-1428</p>	DATE: 05/28/2021 SCALE: 1"=10' DRAWN BY: JL APPROVED BY: JL DRAWING NO.: 218593	<table border="1"> <thead> <tr> <th>No.</th> <th>REVISION/ISSUE</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PLANNING PERMIT SUBMITTAL</td> <td>11/3/20</td> <td>DB</td> </tr> <tr> <td>2</td> <td>PLANNING RESUBMITTAL</td> <td>2/5/21</td> <td>DB</td> </tr> <tr> <td>3</td> <td>PLANNING RESUBMITTAL</td> <td>5/28/21</td> <td>VB</td> </tr> </tbody> </table>	No.	REVISION/ISSUE	DATE	BY	1	PLANNING PERMIT SUBMITTAL	11/3/20	DB	2	PLANNING RESUBMITTAL	2/5/21	DB	3	PLANNING RESUBMITTAL	5/28/21	VB	<p>145 RIO BOCA LANDSCAPE PLANS WATSONVILLE CALIFORNIA</p>	<p>SHEET L-1.0 OF 12 SHEETS</p>
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County of Santa Cruz

PLANNING DEPARTMENT
701 Ocean Street, 4th floor, Santa Cruz, Ca 95060
(831) 454-2580 Fax: (831) 454-2131 Tdd: (831) 454-2123

November 10, 2021

Nate Dickinson, PE, QSP/D Associate Principal
SANDIS
1700 Winchester Blvd., Ste. 200
Campbell, CA 95005

Subject: 145 Rio Boca Road Single Family Dwelling Biotic Review and Conditioned Biotic Approval
APN: 052-301-69
Application #s: REV211081; 201349

Attachment 1. Biological Resources Evaluation

Dear Mr. Dickinson,

The Planning Department received and reviewed a Biological Resources Evaluation (BRE) dated August 27, 2021, prepared by EMC Planning Group for APN 052-301-69 (Attachment 1). The Biotic Report Review was required because of the potential for sensitive habitats and protected species in the disturbance area where construction of a new single-family dwelling is proposed. The project is located at 145 Rio Boca Road in the Pajaro Dunes gated community.

The proposed project involves construction of a new one-story single-family residence with a basement, a detached garage, and construction of a driveway and pathway to the house from the garage on a currently undeveloped parcel. The proposed garage will be below grade and covered in native substrate. A considerable amount of grading will also be required for construction of the house and garage.

Baseline Environmental Conditions

The Study Area covered in the BRE includes the entire 0.38-acre parcel APN 052-301-69 located within the Coastal Zone. The parcel is currently undeveloped except for an existing paved driveway and small paved parking area located in the eastern portion. The BRE identifies four distinct habitat types in the Study Area: Coastal Dune Scrub, Monterey cypress areas, European beachgrass grassland, and non-native ruderal grassland.

Mature Monterey cypress trees occur in the northern and eastern portions of the parcel and their canopies overhand some of the existing paved areas. Coastal dune scrub is the dominant habitat that occurs throughout the central and western portion of the parcel. This habitat is dominated by native dune plant species but also contains several non-native plant species including European dune grass (*Ammophila arenaria*) and ice plant (*Carpobrotus edulis*). A population of Federally Threatened Monterey spineflower (*Chorizanthe pungens* var. *pungens*) occurs in a 0.007-acre cluster in the central portion of the project site. Figure 4-1 in the attached BRE shows the habitat types identified in the Study Area.

Analysis

Coastal Dune Scrub, Dune Plant Habitat, Dunes, Coastal Strands, and habitat for special-status species are considered sensitive under Santa Cruz County's Sensitive Habitat Protection ordinance (Chapter 16.32). The purpose of Chapter 16.32 is to minimize the disturbance of biotic communities which are rare or especially valuable because of their special nature or role in an ecosystem. The project site is located on a coastal dune directly adjacent to the beach. The entire parcel is considered sensitive habitat.

Biological Resources including special-status species and their habitats and other sensitive natural communities as identified by local policies, California Department of Fish and Wildlife (CDFW), or the United States Fish and Wildlife Service (USFWS) are also protected under the California Environmental Quality Act (CEQA). Additionally, the habitat on the parcel is offered special protections under the California Coastal Act as an Environmentally Sensitive Habitat Area (ESHA). Santa Cruz County Code Section 13.20.130(B)(2) includes requirements for minimizing site disturbance associated with grading, earth moving, and removal of major vegetation in the Coastal Zone. Pursuant to SCCC 13.20, mature trees in the Coastal Zone should be retained when possible.

The project site supports an occurrence of Federally Threatened Monterey spineflower in the central portion of the impact area. The project site contains suitable habitat for four special-status wildlife species including Federally Threatened western snowy plover (*Charadrius nivosus nivosus*), State Fully Protected American peregrine falcon (*Falco peregrinus anatum*), and the following State Species of Special Concern: Northern California legless lizard (*Anniella pulchra*), coast horned lizard (*Phrynosoma blainvillii*), and American badger (*Taxidea taxus*). There is a large, occupied burrow in the western portion of the property on the slope facing the beach. The animal inhabiting this burrow has not been identified, but animal tracks appear throughout the parcel. A portion of the project site is also located within Federally designated Critical Habitat for western snowy plover. Construction of the new residence is not expected to result in adverse effects to Critical Habitat for Western snowy plover.

The project site and adjacent areas also provide potential nesting and foraging habitat for birds of prey and migratory birds. Birds of prey and migratory birds are offered protection under the California Fish and Game Code, and the Federal Migratory Bird Treaty Act (MBTA). Under the MBTA, it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird unless and except as permitted by regulations.

According to the project plans, dated February 5, 2021, no trees are proposed for removal. However, construction activities and permanent development are proposed very close to the trunk of existing mature cypress trees that would require heavy pruning to allow for construction access. Grading, trenching, or heavy pruning could cause direct mortality or decline of these trees after construction is complete. Conditions are included below to protect trees and compensate for any direct or indirect mortality to significant trees that may result from project construction.

The proposed project will impact approximately 0.28 acre of coastal dune habitat including 4,454 square feet (0.10 acre) of permanent impacts associated with the new residence and walkway, and 7,936 square feet (0.18 acre) of temporary impacts resulting from construction access and site grading. Construction of the new residence will directly impact the entire 0.007-acre area where Monterey spineflower occurs on the parcel.

Conditions have been included below to compensate for temporary and permanent impacts to sensitive habitats and special-status species.

Conclusion

Dune scrub habitat occurs throughout the property and cannot be avoided by an alternative project design. The anticipated impacts were minimized to the extent feasible during project design by concentrating permanent development in the less sensitive central and eastern portions of the project site, utilizing existing paved areas, and backfilling the roof of the detached garage with sand that will be planted with native species.

Project construction will directly impact an approximately 0.007-acre population of Monterey spineflower that occurs on the parcel. Avoidance of impacts to this population is not possible given the other resource constraints on the parcel. Conditions have been included below that require seed salvage and relocation of this population to protected areas on site and maintenance and monitoring to ensure relocation success.

The attached BRE lists General Avoidance and Minimization Measures Bio-1 through Bio-8 as well as species-specific and habitat-specific Mitigation Measures Bio-9 through Bio-12 that must be adhered to prior to and during construction. All areas of temporary habitat disturbance, including the area on top of the garage, and all remaining areas on the parcel not temporarily or permanently impacted by proposed development, must be restored to native dune habitat following a restoration plan prepared and implemented by a qualified restoration professional. The western portion of the parcel must be avoided during construction and permanently protected/preserved as a 'designated habitat restoration area'. All permanent impacts associated with the project must be mitigated for by restoring dune plant habitat at a 3:1 ratio.

There are sensitive habitat constraints on the project site associated with coastal dune scrub habitat, special-status species, and habitat for nesting birds that must be considered prior to and during project implementation. Conditions have been included below to ensure that impacts to special-status species, their habitats, and other sensitive habitats will be *less than significant*, and should therefore be incorporated as mitigation measures pursuant the California Environmental Quality Act.

The Conditions of Approval below must be incorporated into all phases of development for this project and will also apply to all future development activities proposed on the property.

If you have any questions regarding this letter, please feel free to contact me by email or telephone at Juliette.Robinson@santacruzcounty.us or 831-454-3156.

Sincerely,



Juliette Robinson
Resource Planner IV, Biologist

CC: Matt Johnston, Environmental Coordinator
Leah MacCarter, Area Resource Planner
Nate MacBeth, Project Planner
Jocelyn Drake, Principal Planner Development Review

Conditions of Approval

In order to conduct development activities on APN 052-301-69, the following conditions shall be adhered to. These Conditions have been included to ensure that impacts to special-status species, their habitats, and other sensitive habitats will be *less than significant*. The Conditions of Approval below shall be incorporated into all phases of development for this project (201349) and shall also apply to all future development activities proposed on the property.

1. Prior to any site disturbance, a pre-construction meeting shall be conducted. The purpose of the meeting will be to ensure that the conditions set forth in the proposed project description and Conditions of Approval are communicated to the various parties responsible for constructing the project. The meeting shall involve all relevant parties including the project proponent, construction supervisor, Environmental Planning Staff, and the project biologist.
2. All recommended Avoidance, Minimization, and Mitigation Measures (Bio-1-Bio-12) outlined in Chapter 6 of the attached Biological Resources Evaluation (BRE) dated August 27, 2021, prepared by EMC Planning Group Inc. shall be adhered to.
3. If a special-status animal is identified at any time prior to or during construction, work shall cease immediately in the vicinity of the individual. The animal shall either be allowed to move out of harm's way on its own or a qualified biologist shall move the animal out of harm's way to a safe relocation site.
4. Prior to construction, high visibility construction fencing or flagging as outlined in Bio-3 of the BRE shall be installed, with the assistance of a qualified biologist, to indicate the limits of work and prevent inadvertent grading or other disturbance within the surrounding sensitive habitats. No work-related activity including equipment staging, vehicular access, and grading shall be allowed outside the limits of work.
5. The entire western portion of the parcel, including the area where the burrow is located, shall be identified and protected as a sensitive habitat area and avoided during construction. All restoration activities conducted in this area shall be completed by hand.
6. No fences or other impediments to wildlife movement between the beach and the slough shall be constructed.
7. Pursuant to SCCC Section 13.20.130(B)(2) removal of mature trees should be avoided if possible. Trees to be retained shall be protected at or outside of the dripline. If avoidance is not possible, trees removed or otherwise compromised through grading, trenching, or heavy pruning shall be replaced on site at a minimum 3:1 ratio. These replacement trees shall be included in the project-specific Mitigation Plan outlined below.
8. To compensate for impacts to Coastal Dune habitat, Monterey spineflower, and habitat for special-status species, and to comply with the Santa Cruz County General Plan Policy 5.1.12, restoration of degraded sensitive habitat on site and off site is required. All restoration activities shall follow the project-specific Mitigation Plan outlined below.
9. All areas temporarily disturbed as a result of the project shall be re-vegetated with native dune plant species following the project-specific Mitigation Plan outlined below.
10. All degraded habitat on the parcel (including areas containing monocultures of non-native species such as European dune grass), not temporarily or permanently impacted by proposed development, must be restored to native dune habitat, following the project-specific Mitigation Plan outlined below.
11. Permanent impacts to Coastal Dune habitat shall be compensated for by restoring degraded Coastal Dune habitat at a minimum 3:1 ratio (minimum 13,362 square feet; 0.31 acre) in suitable areas on site and at designated off-site restoration locations on nearby properties in the Pajaro Dunes. Off-site mitigation areas should be contiguous with and/or as close as possible to the restoration areas occurring on the project site.

12. A project-specific Mitigation Plan shall be prepared by a qualified biologist or restoration professional (as outlined in Bio-8 of the attached BRE). Restoration activities shall be focused on restoring the native plant structure and species composition of local Coastal Dune habitat. The Mitigation Plan must include the following minimum elements:
 - a. A map of all designated on-site and off-site restoration areas including:
 - i. Identification of areas on site where temporary disturbance and re-establishment of native habitat shall occur.
 - ii. Identification of additional on-site *and* off-site restoration areas intended to compensate for permanently impacted dune habitat at 3:1 ratio.
 - iii. The location of any transplanted special-status plant species on site.
 - iv. The location of existing special-status plant colonies on the property to be protected during and after construction and monitored for success.
 - b. Written permission from the property owners where off-site restoration is proposed. Written permission shall include signed approval for the proposed restoration work on their property and the continued maintenance/monitoring as required by the conditions in this letter.
 - c. Seed collection and transplantation strategies for the Monterey spineflower. Seeds from Monterey spineflower should be collected from the colonies on this parcel during the appropriate season before construction and used in the on-site dune restoration.
 - d. Plan for removal of non-native species and a management strategy to control re-establishment of invasive non-native species.
 - e. A planting plan with species, size, and locations of all restoration plantings. These plantings shall occur at sizes and ratios determined by the restoration specialist to adequately restore native habitat while maximizing plant health and survivability of individual plants.
 - f. Information regarding the methods of irrigation for restoration plantings.
 - g. The Restoration Plan shall include a 5-year Management Plan for maintenance and monitoring of restored areas, including a proposed mechanism for evaluating success. Annual reports outlining the progress and success of the restoration and monitoring shall be submitted to the County Environmental Coordinator by December 31 of each monitoring year.
 - h. In addition to the required 5-year annual monitoring and reporting, a 10-year monitoring report shall be prepared and submitted to the County Environmental Coordinator outlining the continued implementation and results of annual Coastal Dune Scrub Management over the 10-year period.
13. The Mitigation Plan shall be submitted to Environmental Planning staff for approval prior to implementation and shall be implemented prior to final building inspection.
14. Planting of European dune grass shall not be permitted as part of any landscape plan. References for planting this species shall be removed from the project plans prior to approval. Any seed mix used for erosion control purposes on exposed soils shall be limited to seeds of native species common to the surrounding habitat and/or sterile seeds.
15. Pursuant to SCCC Section 13.20.130(B)(2) removal of mature trees should be avoided if possible.

A copy of this biotic approval, including all attachments, should be submitted with any future permit applications.

Biological Resources Evaluation
145 Rio Boca Road

Pajaro Dunes, Santa Cruz County

August 27, 2021

Prepared by
EMC Planning Group

BIOLOGICAL RESOURCES EVALUATION

145 RIO BOCA ROAD

Pajaro Dunes, Santa Cruz County
Planning Department Application No. 201349
Assessor's Parcel No. 052-301-69

PREPARED FOR

SANDIS

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Andrea Edwards, Senior Biologist
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August 27, 2021

This document was produced on recycled paper.



As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report.

Patrick Furtado

Patrick Furtado, MS, Associate Biologist

As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief.

Andrea Edwards

Andrea Edwards, Senior Biologist

Janet Walther

Janet Walther, MS, Principal Biologist



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Executive Summary

This biotic report was prepared to comply with Santa Cruz County Planning Department requirements. The oceanfront 0.38-acre project site contains sensitive coastal dune scrub habitat with the potential to support certain special-status species. The site also contains patches of ruderal/non-native grassland vegetation, and a paved driveway and parking area.

The proposed project is construction of a new 2,500 square-foot, one-story house with a 2,300 square-foot basement and a two-car garage with a sand roof on a vacant lot at 145 Rio Boca Road in the Pajaro Dunes South neighborhood; the oceanfront site falls within the California Coastal Zone. The primary purposes of this report are to evaluate the proposed project's potential to impact special-status biological resources, and provide project-specific measures to avoid or minimize these impacts. Project approvals must be obtained from both the County and the California Coastal Commission.

Proposed mitigation includes: general measures to protect biological resources and minimize impacts during construction; compensatory mitigation including on-site habitat restoration and preservation for anticipated loss of special-status Monterey spineflower (*Chorizanthe pungens* var. *pungens*) plants and sensitive coastal dune scrub habitat; avoidance of impacts to potentially occurring special-status animals including globose dune beetle (*Coelus globosus*), coast horned lizard (*Phrynosoma blainvillii*), Northern California legless lizard (*Anniella pulchra*), American peregrine falcon (*Falco peregrinus anatum*), western snowy plover (*Charadrius nivosus nivosus*), and nesting birds; and proper documentation and permitting for anticipated impacts to regulated Monterey cypress (*Hesperocyparis macrocarpa*) trees.

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1.0 Introduction

This section describes the proposed project and its location/environmental setting.

1.1 PROJECT SUMMARY

The proposed project is construction of a new 2,500 square-foot, one-story house with a 2,300 square-foot basement and a two-car garage with a sand roof on a vacant lot at 145 Rio Boca Road in the Pajaro Dunes South neighborhood; the oceanfront site falls within the California Coastal Zone. For project details, refer to Appendix E, Site Plans.

The 0.38-acre property is located within an area of biotic concern and further information is required to ensure protection of potentially sensitive habitat (SCCC Section 16.32.070). As a Santa Cruz County-approved consulting biological firm, we prepared this evaluation of biological resources in accordance with the County's *Draft Guidelines for Biological Resources Assessments and Related Documents* (County of Santa Cruz 2012).

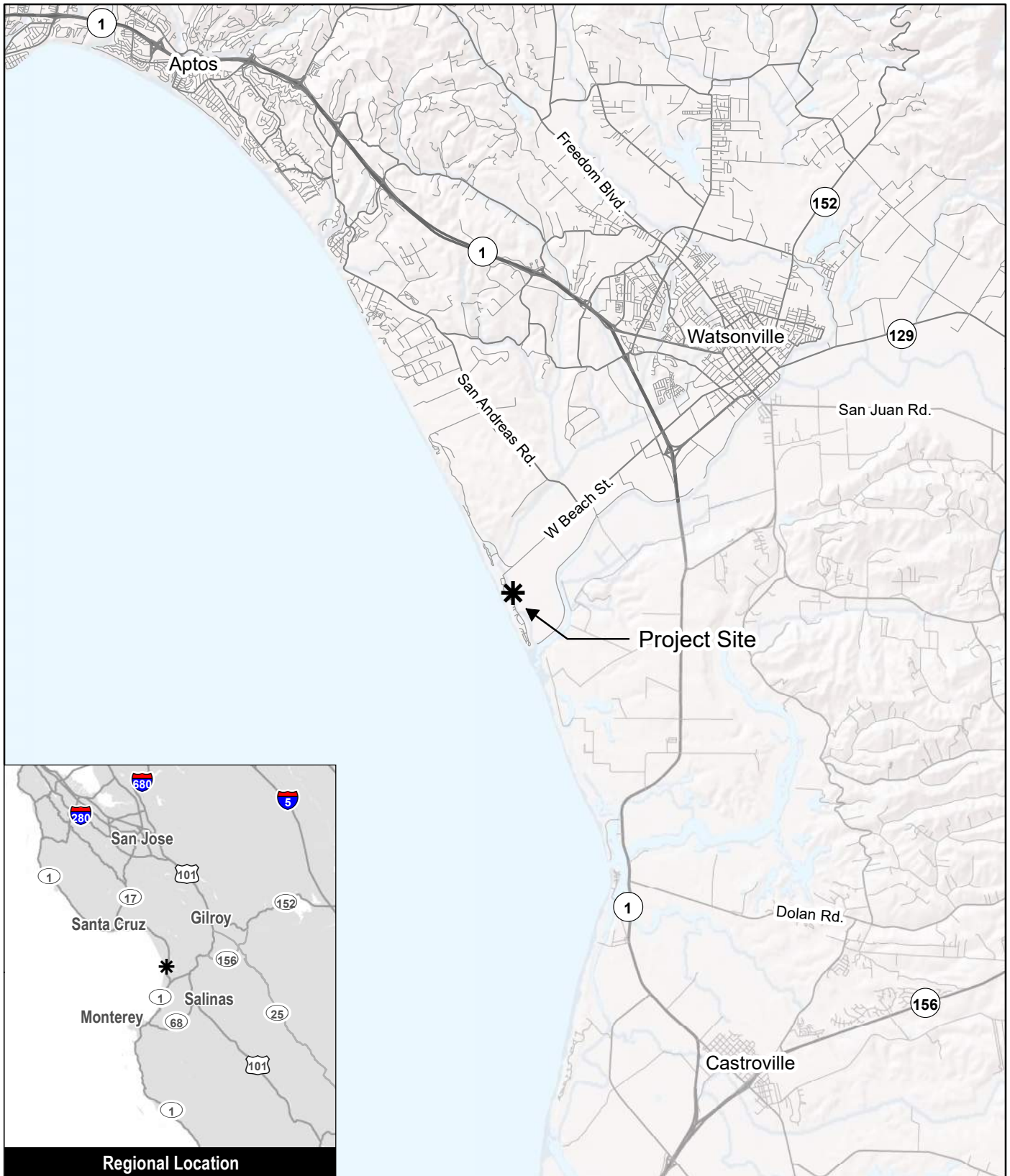
1.2 LOCATION AND SETTING

The project region is located south of San Francisco along the Central Coast of California at Monterey Bay. This is within the Central Coast sub-region of the California Floristic Province, which extends along the Pacific Coast from near Bodega Bay in the north to Point Conception in the south. This sub-region supports coastal vegetation, and in some areas only contains coastal bluffs; salt marshes and coastal prairies also occur in this sub-region around the San Francisco Bay (Baldwin 2012).

The Central Coast of California experiences a Mediterranean climate with cool, wet winters and warm, dry summers; the Pacific Ocean has a moderating effect on temperatures, producing a maritime temperature regime with mild temperatures year-round (California Department of Parks and Recreation 1990). The City of Watsonville, located near the project site, receives an average of almost 24 inches in annual precipitation (SFGate 2016); the majority of rainfall occurs between November and March. Windy conditions are common around Monterey Bay, and fog occurs during all seasons, but is most prevalent during summer months. Based on the Watsonville Waterworks weather station data collected from 1948 to 2005, annual average temperatures near the project area range from 45.9 to 67.1 degrees Fahrenheit (Western Regional Climate Center 2016).

As mentioned above, construction of a new oceanfront residence on a vacant lot (Assessor's Parcel Number 052-301-69) is proposed at 145 Rio Boca Road in the Pajaro Dunes development of Santa Cruz County. It is positioned on the Moss Landing U.S. Geological Survey (USGS) quadrangle map. Non-paved portions of the parcel have sandy beach and dune substrates. [Figure 1-1, Location Map](#), presents an overview of the project location. [Figure 1-2, Aerial Photograph](#), presents an aerial view of the existing conditions on and surrounding the subject property.

The project site is bordered to the north and south by existing residences, to the west by Pajaro Dunes Beach and then waters of Monterey Bay, and to the east by Rio Boca Road and then the Watsonville Slough and active agricultural fields. The slough flows south and empties into the mouth of the Pajaro River where it meets Monterey Bay to the south of the project site. Sunset State Beach is located up the coast from the Pajaro Dunes neighborhood, and Pajaro River Mouth Natural Preserve and Zmudowski State Beach are located down the coast.



Source: ESRI 2019

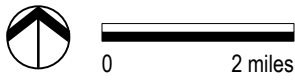




Figure 1-1
Location Map



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-  Project Parcel
-  Western Snowy Plover Critical Habitat

Source: ESRI 2021. Santa Cruz County 2020, USFWS 2012



Figure 1-2
Aerial Photograph

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2.0 Regulatory Setting

This section includes a summary of the applicable biological resource protection regulations.

2.1 FEDERAL REGULATIONS

Endangered Species Act

The federal Endangered Species Act of 1973 protects species that the U.S. Fish and Wildlife Service (USFWS) has listed as Endangered or Threatened. Permits may be required from USFWS if activities associated with a proposed project would result in the “take” of a federally listed species or its habitat. Under the Act, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take. “Take” of a listed species is prohibited unless (1) a Section 10(a) permit has been issued by the USFWS or (2) an Incidental Take Statement has been obtained through formal consultation between a federal agency and the USFWS pursuant to Section 7 of the Act.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, last amended in 1989, prohibits killing, possessing, or trading in migratory birds, and protects the nesting activities of native birds including common species, except in accordance with certain regulations prescribed by the Secretary of the Interior. Over 800 native nesting bird species are currently protected under the federal law. This Act encompasses whole birds, parts of birds, bird nests, and eggs.

Clean Water Act

Section 404 of the Clean Water Act of 1972 regulates the discharge of dredge and fill material into “Waters of the U.S.” including wetlands. Certain natural drainage channels and wetlands are considered jurisdictional “Waters of the U.S.” The U.S. Army Corps of Engineers (USACE) is responsible for administering the Section 404 permit program. The agency determines the extent of its jurisdiction as defined by ordinary high water marks on channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions naturally select for plant species

known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2008 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*.

Activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE. Discharge permits are typically issued on the condition that the project proponent agrees to provide compensatory mitigation which results in no net loss of wetland area, function, or value, either through wetland creation, restoration, or the purchase of wetland credits through an approved wetland mitigation bank. In addition to individual discharge permits, the USACE also issues nationwide permits applicable for certain activities.

2.2 STATE REGULATIONS

California Endangered Species Act

Pursuant to the California Endangered Species Act and Section 2081 of the California Fish and Game Code, an Incidental Take Permit from the CDFW is required for projects that could result in the “take” of a state-listed Threatened or Endangered species. “Take” is defined under the Act as an activity that would directly or indirectly kill an individual of a species; “take” is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” If a proposed project would result in the “take” of a state-listed species, then a CDFW Incidental Take Permit, including the preparation of a species conservation plan, would be required.

Nesting Birds and Birds of Prey

Sections 3505, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, including their nests or eggs. Birds of prey (the orders *Falconiformes* and *Strigiformes*) are specifically protected under provisions of the California Fish and Game Code, Section 3503.5. This section of the Code establishes that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code. Disturbance that causes nest abandonment and/or loss of reproductive effort, such as construction during the bird nesting season, is considered “take” by the CDFW.

Streambed Alterations

The CDFW has jurisdiction over the bed and bank of natural drainages according to provisions of Sections 1601 through 1603 of the California Fish and Game Code. Diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources and/or riparian vegetation are subject to CDFW regulations. Activities that would disturb these drainages are regulated by the CDFW; authorization is required in the form of a Streambed Alteration Agreement. Such an agreement typically stipulates certain measures that will protect the habitat values of the drainage in question.

California Porter-Cologne Water Quality Control Act

Under the California Porter-Cologne Water Quality Control Act, the applicable Regional Water Quality Control Board (RWQCB) may necessitate Waste Discharge Requirements for the fill or alteration of “Waters of the State,” which according to California Water Code Section 13050 includes “any surface water or groundwater, including saline waters, within the boundaries of the state.” The RWQCB may, therefore, necessitate Waste Discharge Requirements even if the affected waters are not under USACE jurisdiction. Also, under Section 401 of the Clean Water Act, any activity requiring a USACE Section 404 permit must also obtain a state Water Quality Certification (or waiver thereof) to ensure that the proposed activity will meet state water quality standards. The applicable state RWQCB is responsible for administering the water quality certification program and enforcing National Pollutant Discharge Elimination System permits.

California Environmental Quality Act (CEQA)

CEQA Guidelines Appendix G contains standards of significance to indicate that a project may have a significant effect on biological resources if it would:

- 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

2.0 Regulatory Setting

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

California Coastal Act

California Coastal Act Section 30240 prohibits all development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, in and/or adjacent to any “environmentally sensitive area”, which is defined in Section 30107.5 as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.”

Section 30121 defines wetlands as “lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.” In further defining jurisdictional state waters under the Coastal Act, the California Coastal Commission (CCC) establishes a “one parameter” wetland definition that requires the presence of only a single wetland parameter (i.e., soils, vegetation and/or hydrology) as opposed to the three parameters required by the USACE jurisdictional wetland definition, to meet the jurisdictional wetland criteria. The single parameter rule in the Coastal Zone is primarily based on the hydric (i.e. wetland) soils definition, which states that a soil is considered hydric if it is ponded or remains saturated for a minimum period of seven consecutive days during the growing season. Any alteration of existing wetlands must comply with the regulations of the California Coastal Act, including implementation of mitigation measures as appropriate.

Finally, Section 30231 states that “the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.”

Specific California Coastal Act excerpts pertaining to coastal biological resources include:

Section 30001: Legislative findings and declarations; ecological balance.
The Legislature hereby finds and declares:

- (a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem.
- (b) That the permanent protection of the state's natural and scenic resources is a paramount concern to present and future residents of the state and nation.
- (c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.
- (d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and specially to working persons employed within the coastal zone.

Section 30116: Sensitive coastal resource areas. [abridged] "Sensitive coastal resource areas" means those identifiable and geographically bounded land and water areas within the coastal zone of vital interest and sensitivity. "Sensitive coastal resource areas" include the following:

- (a) Special marine and land habitat areas, wetlands, lagoons, and estuaries as mapped and designated in Part 4 of the coastal plan.

Section 30231: Biological productivity; water quality. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30240: Environmentally sensitive habitat areas; adjacent developments.

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

2.3 REGIONAL/LOCAL REGULATIONS

Santa Cruz County - General Plan and Local Coastal Program

The *1994 General Plan and Local Coastal Program for the County of Santa Cruz, California* (SCC GP/LCP) was adopted by the Board of Supervisors in May 1994 and certified by the CCC in December 1994 (County of Santa Cruz 1994). It applies to unincorporated areas of Santa Cruz County, including land within the Coastal Zone. The SCC GP/LCP includes the following objectives regarding biological resources:

Objective 5.1 Biological Diversity

To maintain the biological diversity of the County through an integrated program of open space acquisition and protection, identification and protection of plant habitat and wildlife corridors and habitats, low-intensity and resource compatible land uses in sensitive habitats and mitigations on projects and resource extraction to reduce impacts on plant and animal life.

Objective 5.2 Riparian Corridors and Wetlands

To preserve, protect and restore all riparian corridors and wetlands for the projection of wildlife and aquatic habitat, water quality, erosion control, open space, aesthetic and recreational values and the conveyance and storage of flood waters.

Objective 5.3 Aquatic and Marine Habitats

To identify, preserve and restore aquatic and marine habitats; to maximize scientific research and education which emphasizes comprehensive and coordinated management consistent with the mission of the Monterey Bay National Marine Sanctuary; and to facilitate multiple use and recreation opportunities compatible with resource protection.

Objective 5.4 Monterey Bay and Coastal Water Quality

To improve the water quality of Monterey Bay and other Santa Cruz County coastal waters by supporting and/or requiring best management practices for the control and treatment of urban run-off and wastewater discharges in order to maintain local, state and national water quality standards, protect County residents from health hazards of water pollution, protect the County's sensitive marine habitats and prevent the degradation of the scenic character of the region.

The SCC GP/LCP includes, but is not limited to, the following policies most applicable to biological resources in the project vicinity:

5.1.1 Sensitive Habitat Designation. Designate the following areas as sensitive habitats: (a) areas shown on the County General Plan and LCP Resources and Constraints Maps; (b) any undesignated areas which meet the criteria (policy 5.1.2) and which are identified through the biotic review process or other means; and (c) areas of biotic concern as shown on the Resources and Constraints Maps which contain concentrations of rare, endangered, threatened or unique species.

5.1.2 Definition of Sensitive Habitat. An area is defined as a sensitive habitat if it meets one or more of the following criteria:

- (a) Areas of special biological significance as identified by the State Water Resources Control Board;
- (b) Areas which provide habitat for locally unique biotic species/communities, including coastal scrub, maritime Chaparral, native rhododendrons and associated Elkgrass, mapped grasslands in the coastal zone and sand parkland; and Special Forests including San Andreas Live Oak Woodlands, Valley Oak, Santa Cruz Cypress, indigenous Ponderosa Pine, indigenous Monterey Pine and ancient forests;
- (c) Areas adjacent to essential habitats of rare, endangered or threatened species as defined in (e) and (f) below;
- (d) Areas which provide habitat for Species of Special Concern as listed by the California Department of Fish and Game in the Special Animals list, Natural Diversity Database;
- (e) Areas which provide habitat for rare or endangered species which meet the definition of Section 15380 of the California Environmental Quality Act guidelines;

- (f) Areas which provide habitat for rare, endangered or threatened species as designated by the State Fish and Game Commission, United States Fish and Wildlife Service or California Native Plant Society;
- (g) Nearshore reefs, rocky intertidal areas, seacaves, islets, offshore rocks, kelp beds, marine mammal hauling grounds, sandy beaches, shorebird roosting, resting and nesting areas, cliff nesting areas and marine, wildlife or educational/research reserves;
- (h) Dune plant habitats;
- (i) All lakes, wetlands, estuaries, lagoons, streams and rivers; and
- (j) Riparian corridors.

(See Appendix B [of the SCC GP/LCP] for a list of specific habitats and/or species.)

5.1.3 Environmentally Sensitive Habitats. Designate the areas described in 5.1.2 (d) through (i) as Environmentally Sensitive Habitats per the California Coastal Act and allow only uses dependent on such resources in these habitats within the Coastal Zone unless other uses are:

- (a) consistent with sensitive habitat protection policies and serve a specific purpose beneficial to the public;
- (b) it is determined through environmental review that any adverse impacts on the resource will be completely mitigated and that there is no feasible less-damaging alternative; and
- (c) legally necessary to allow a reasonable economic use of the land, and there is no feasible less-damaging alternative.

5.1.6 Development Within Sensitive Habitats. Sensitive habitats shall be protected against any significant disruption of habitat values; and any proposed development within or adjacent to these areas must maintain or enhance the functional capacity of the habitat. Reduce in scale, redesign, or, if no other alternative exists, deny any project which cannot sufficiently mitigate significant adverse impacts on sensitive habitats unless approval of a project is legally necessary to allow a reasonable use of the land.

5.1.7 Site Design and Use Regulations. Protect sensitive habitats against any significant disruption or degradation of habitat values in accordance with the Sensitive Habitat Protection ordinance. Utilize the following site design and use regulations on parcels containing these resources, excluding existing agricultural operations:

- (a) Structures shall be placed as far from the habitat as feasible;
- (b) Delineate development envelopes to specify location of development in minor land divisions and subdivisions;
- (c) Require easements, deed restrictions, or equivalent measures to protect that portion of a sensitive habitat on a project parcel which is undisturbed by a proposed development activity or to protect sensitive habitats on adjacent parcels;
- (d) Prohibit domestic animals where they threaten sensitive habitats;
- (e) Limit removal of native vegetation to the minimum amount necessary for structures, landscaping, driveways, septic systems and gardens; and
- (f) Prohibit landscaping with invasive or exotic species and encourage the use of characteristic native species.

5.1.8 Chemicals Within Sensitive Habitats. Prohibit the use of insecticides, herbicides, or any toxic chemical substance in sensitive habitats, except when an emergency has been declared, when the habitat itself is threatened, when a substantial risk to public health and safety exists, including maintenance for flood control by Public Works, or when such use is authorized pursuant to a permit issued by the Agricultural Commissioner.

5.1.9 Biotic Assessments. Within the following areas, require a biotic assessment as part of normal project review to determine whether a full biotic report should be prepared by a qualified biologist:

- (a) Areas of biotic concern, mapped; and
- (b) Sensitive habitats, mapped & unmapped.

5.1.10 Species Protection. Recognize that habitat protection is only one aspect of maintaining biodiversity and that certain wildlife species, such as migratory birds, may not utilize specific habitats. Require protection of these individual rare, endangered and threatened species and continue to update policies as new information becomes available.

5.1.11 Wildlife Resources Beyond Sensitive Habitats. For areas which may not meet the definition of sensitive habitat contained in policy 5.1.2, yet contain valuable wildlife resources (such as migration corridors or exceptional species diversity), protect these wildlife habitat values and

species using the techniques outlined in policies 5.1.5 and 5.1.7 and use other mitigation measures identified through the environmental review process.

5.1.12 Habitat Restoration with Development Approval. Require as a condition of development approval, restoration of any area of the subject property which is an identified degraded sensitive habitat, with the magnitude of restoration to be commensurate with the scope of the project. Such conditions may include erosion control measures, removal of non-native or invasive species, planting with characteristic native species, diversion of polluting run-off, water impoundment, and other appropriate means. The object of habitat restoration activities shall be to enhance the functional capacity and biological productivity of the habitat(s) and whenever feasible, to restore them to a condition which can be sustained by natural occurrences, such as tidal flushing of lagoons.

5.1.14 Removal of Invasive Plant Species. Encourage the removal of invasive species and their replacement with characteristic native plants, except where such invasive species provide significant habitat value and where removal of such species would severely degrade the existing habitat. In such cases, develop long-term plans for gradual conversion to native species providing equal or better habitat values.

5.2.1 Designation of Riparian Corridors and Wetlands. Designate and define the following areas as Riparian Corridors:

- (a) 50' from the top of a distinct channel or physical evidence of high water mark of a perennial stream;
- (b) 30' from the top of a distinct channel or physical evidence of high water mark of an intermittent stream as designated on the General Plan maps and through field inspection of undesignated intermittent and ephemeral streams;
- (c) 100' of the high water mark of a lake, wetland, estuary, lagoon, or natural body of standing water;
- (d) The landward limit of a riparian woodland plant community; and
- (e) Wooded arroyos within urban areas.

Designate and define the following areas as Wetlands:

Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water periodically or permanently. Examples of wetlands are saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

The US Army Corps of Engineers, and other federal agencies utilize a "unified methodology" which defines wetlands as "those areas meeting certain criteria for hydrology, vegetation, and soils."

5.2.3 Activities Within Riparian Corridors and Wetlands.

Development activities, land alteration and vegetation disturbance within riparian corridors and wetlands and required buffers shall be prohibited unless an exception is granted per the Riparian Corridor and Wetlands Protection ordinance. As a condition of riparian exception, require evidence of approval for development from the US Army Corps of Engineers, California Department of Fish and Game, and other federal or state agencies that may have regulatory authority over activities within riparian corridors and wetlands.

5.2.4 Riparian Corridor Buffer Setback. Require a buffer setback from riparian corridors in addition to the specified distances found in the definition of riparian corridor. This setback shall be identified in the Riparian Corridor and Wetland Protection ordinance and established based on stream characteristics, vegetation and slope. Allow reductions to the buffer setback only upon approval of a riparian exception. Require a 10 foot separation from the edge of the riparian corridor buffer to any structure.

5.2.5 Setbacks From Wetlands. Prohibit development within the 100 foot riparian corridor of all wetlands. Allow exceptions to this setback only where consistent with the Riparian Corridor and Wetlands Protection ordinance, and in all cases, maximize distance between proposed structures and wetlands. Require measures to prevent water quality degradation from adjacent land uses, as outlined in the Water Resources section.

5.2.8 Environmental Review for Riparian Corridor and Wetland Protection. Require environmental review of all proposed development projects affecting riparian corridors or wetlands and preparation of an Environmental Impact Report or Biotic Report for projects which may have a significant effect on the corridors or wetlands.

5.2.9 Management Plans for Wetland Protection. Require development in or adjacent to wetlands to incorporate the recommendations of a management plan which evaluates: migratory waterfowl use December 1 to April 30; compatibility of agricultural use and biotic and water quality protection; maintenance of biologic productivity and diversity; and the permanent protection of adjoining uplands.

5.2.10 Development in Wetland Drainage Basins. Require development projects in wetland drainage basins to include drainage facilities or Best Management Practices (BMPs) which will maintain surface runoff patterns and water quality, unless a wetland management plan specifies otherwise, and minimize erosion, sedimentation, and introduction of pollutants.

5.4.1 Protecting the Monterey Bay National Marine Sanctuary from Adverse Impacts. Prohibit activities which could adversely impact sensitive habitats of the Monterey Bay National Marine Sanctuary, including the discharge of wastes and hazardous materials. The main sources of concern are wastewater discharge, urban runoff, toxic agricultural drainage water, including that originating outside of Santa Cruz County, and the accidental release of oil or other hazardous material from coastal tanker traffic.

5.4.12 Disturbances of Coastal Waters, Wetlands, Estuaries and Lakes. Prohibit the diking, filling and dredging of open coastal waters, wetlands, estuaries, and lakes. Allow exceptions only for the following purposes and only where there is no other feasible, less environmentally damaging alternative:

- (a) Incidental public service purposes, including, but not limited to burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines;
- (b) Restoration purposes, including the protection and enhancement of existing harbors, and where the activity will maintain and enhance the functional capacity of the wetland or estuary as determined through the County environmental review process in conjunction with the California Department of Fish and Game and U.S. Army Corps of Engineers; and
- (c) Nature study, aquaculture, or similar resource-dependent activities.

5.4.14 Water Pollution from Urban Runoff. Review proposed development projects for their potential to contribute to water pollution via increased storm water runoff. Utilize erosion control measures, on-site detention and other appropriate storm water best management practices to reduce pollution from urban runoff.

Santa Cruz County Code

The following regulations are excerpted from the Santa Cruz County Code (County of Santa Cruz 2021).

Sensitive Habitat Protection Ordinance (Chapter 16.32)

The purpose of Chapter 16.32 of the Santa Cruz County Code is to "...minimize the disturbance of biotic communities which are rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activity; to protect and preserve these biotic resources for their genetic, scientific, and educational values; and to implement policies of the General Plan and the Local Coastal Program Land Use Plan."

Codes potentially applicable to the proposed project include the following:

16.32.070 Assessments and reports required. A biotic assessment shall be required for all development activities and applications in areas of biotic concern, as identified on maps on file in the Planning Department or as identified during inspection of the site by Planning Department staff. A biotic report shall be required if the Environmental Coordinator determines on the basis of the biotic assessment that further information is required to ensure protection of the sensitive habitat consistent with General Plan and Local Coastal Program Land Use Plan policies. If the Environmental Coordinator determines that the project will have a significant effect on the environment under the provisions of Section 602 of the environmental impact guidelines, the biotic report shall be part of the environmental impact report.

16.32.090 Approval conditions.

- A. Conditions of approval shall be determined by the Environmental Coordinator through the environmental review process. These conditions may be based on the recommendations of the biotic assessment or biotic report and shall become conditions of any subsequent approval issued for the property. Such conditions shall also apply to all development activities engaged in on the property. Any additional measures deemed necessary by the Decision-Making Body shall also become development permit conditions. Exceptions may be granted by the Decision-Making Body subject to the provisions of SCCC 16.32.100.
- B. The following conditions shall be applied to all development within any sensitive habitat area:
 - 1. All development shall mitigate significant environmental impacts, as determined by the Environmental Coordinator;

2. Dedication of an open space or conservation easement or an equivalent measure shall be required as necessary to protect the portion of a sensitive habitat which is undisturbed by the proposed development activity or to protect a sensitive habitat on an adjacent parcel; and
 3. Restoration of any area which is a degraded sensitive habitat or has caused or is causing the degradation of a sensitive habitat shall be required; provided, that any restoration required shall be commensurate with the scale of the proposed development.
- C. All development activities in or adjacent to a sensitive habitat area shall conform to the following types of permitted uses, and the following conditions for specific habitats shall become minimum permit conditions unless the approving body pursuant to Chapter 18.10 SCCC finds that the development will not affect the habitat based on a recommendation of the Environmental Coordinator following a biotic review pursuant to SCCC 16.32.070.

Sensitive Habitats Standards

1. Environmentally Sensitive Habitat Areas. Only resource-dependent uses shall be allowed within any environmentally sensitive habitat area. [16.32.090 (1)(a-n)];

No new development shall be allowed adjacent to marshes, streams, and bodies of water if such development would cause adverse impacts on water quality which cannot be mitigated or will not be fully mitigated by the project proponent.
2. Areas Adjacent to the Essential Habitats of Rare and Endangered Species. [16.32.090 (2)(a-b)]; and
3. Habitats of Locally Unique Species. [16.32.090 (3)(a-b)]

16.32.100 Exceptions. Exceptions to the provisions of SCCC 16.32.090 may be approved by the Decision-Making Body.

- A. In granting an exception, the Decision-Making Body shall make the following findings:

1. That adequate measures will be taken to ensure consistency with the purpose of this chapter to minimize the disturbance of sensitive habitats; and
 2. One of the following situations exists:
 - (a.) The exception is necessary for restoration of a sensitive habitat; or
 - (b.) It can be demonstrated by biotic assessment, biotic report, or other technical information that the exception is necessary to protect public health, safety, or welfare.
- B. Notwithstanding the above, the Decision-Making Body may grant an exception for development within the essential habitat of the Santa Cruz Long-Toed Salamander as follows:
1. Upon receiving a development application for an undeveloped parcel within the essential habitat, the County shall notify the California Coastal Commission, the Coastal Conservancy, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The County or other agency shall have one year to decide whether acquisition of the parcel is to proceed. If the County and other agencies decide not to acquire the parcel and development potential in the essential habitat has not been otherwise permanently eliminated by resubdivision, easement, or other recorded means, the Decision-Making Body may grant an exception to allow the development to proceed; provided, that it finds that the proposed development cannot be accommodated on the parcel outside the essential habitat, and that it will be consistent with the standards for the area adjacent to the essential habitat and other LCP policies.
 2. The permittee shall provide a cash deposit, time certificate of deposit, or equivalent security, acceptable to the County. This security shall be payable to the County, in an amount not less than \$5,000 or greater than \$10,000, to be determined by the

County on a case-by-case basis, depending on site-specific circumstances. The purpose of this security shall be to ensure compliance with the development standards for the area adjacent to the essential habitat, and shall not be returned unless and until all required standards and improvements are met. All expenditures by the County for corrective work necessary because of the permittee's failure to comply with the provisions of the permit and this chapter shall be charged against the security deposit. [Ord. 3483 § 1, 1983; Ord. 3442 § 1, 1983; Ord. 3342 § 1, 1982].

Significant Trees Protection (Chapter 16.34)

The purposes of Chapter 16.34 of the Santa Cruz County Zoning Ordinance are: "(A) The Board of Supervisors of Santa Cruz County finds that the trees and forest communities located within the Coastal Zone are a valuable resource. Removal of significant trees could reduce scenic beauty and the attractiveness of the area to residents and visitors. (B) The Board of Supervisors further finds that the preservation of significant trees and forest communities on private and public property is necessary to protect and enhance the County's natural beauty, property values, and tourist industry. The enactment of this chapter is necessary to promote the public health, safety, and general welfare of the County, while recognizing individual rights to develop, maintain, and enjoy the use of private property to the fullest possible extent."

Codes potentially applicable to the proposed project include the following:

16.34.030 Definitions. "Significant tree," for the purposes of this chapter, shall include any tree, sprout clump, or group of trees, as follows:

- A. Within the urban services line or rural services line, any tree which is equal to or greater than 20 inches at diameter at breast height (d.b.h.) (approximately five feet in circumference); any sprout clump of five or more stems each of which is greater than 12 inches d.b.h. (approximately three feet in circumference); or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches d.b.h. (approximately three feet in circumference);
- B. Outside the urban services line or rural services line, where visible from a scenic road, any beach, or within a designated scenic resource area, any tree which is equal to or greater than

40 inches d.b.h. (approximately 10 feet in circumference); any sprout clump of five or more stems, each of which is greater than 20 inches d.b.h. (approximately five feet in circumference); or, any group consisting of 10 or more trees on one parcel, each greater than 20 inches d.b.h. (approximately five feet in circumference); and

- C. Any tree located in a sensitive habitat as defined in Chapter 16.32 SCCC.

16.34.040 Permit required. Except for those exempt activities as enumerated in SCCC 16.34.090, no person shall do, cause, permit, aid, abet, suffer, or furnish equipment or labor to remove, cut down, or trim more than one-third of the green foliage of, poison, or otherwise kill or destroy any significant tree as defined in this chapter within the Coastal Zone until a significant tree removal approval for the project has been obtained pursuant to Chapter 18.10 SCCC, Level II.

16.34.050 Application and fee. Applications for significant tree removal approvals granted pursuant to this chapter shall be made in accordance with the requirements of Chapter 18.10 SCCC, Level II, and shall include the following:

- A. Applicant's or authorized representative's name, address, and telephone number;
- B. Property Description. The description of the site(s) involved, including the street address, if any, and the assessor's parcel number; and
- C. Required Information. The following information shall be provided in writing:
 - 1. A site plan sufficient to identify and locate the trees to be removed, other trees, buildings, proposed buildings, and other improvements;
 - 2. A description of the species, circumference or diameter at breast height, estimated height, and general health of the tree(s) to be removed;
 - 3. A description of the method to be used in removing the tree(s);
 - 4. Reason(s) for removal of the tree(s); and

5. Proposed visual impact mitigation measures as appropriate. Size, location, and species of replacement trees, if any, shall be indicated on the site plan.
- D. Applicant's Property Interest. Evidence that the applicant is the owner or purchaser under contract of the premises involved, is the owner of a leasehold interest, or has written permission of the owner to make the application.
- E. Further Information. Such further information as may be required by the Planning Director, including but not limited to the opinion of a registered professional forester, tree surgeon, or other qualified expert.
- F. Filing Fee. A filing fee, set by resolution of the Board of Supervisors, shall accompany the application.

16.34.070 Conditions of approval. In granting any permit as provided herein, the Planning Director may attach reasonable conditions to mitigate visual impacts and ensure compliance with the provisions of this chapter, including but not limited to replacement of trees removed with trees acceptable to the Planning Director.

3.0 Methods

This section includes a summary of the methods and limitations of the biological surveys.

3.1 BACKGROUND RESEARCH

EMC Planning Group biologists reviewed maps, aerial photographs, electronic database accounts, technical reports, and relevant scientific literature describing natural resources in the project region. A search of the CDFW *California Natural Diversity Database* (CNDDDB) and the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* for the Moss Landing and six surrounding terrestrial USGS quadrangles (Soquel, Watsonville East, Watsonville West, Prunedale, Marina, and Salinas) was conducted in order to generate lists of potentially occurring special-status species in the project vicinity (CDFW 2021 and CNPS 2021). Species listed by the USFWS that occur in Santa Cruz County were also reviewed (USFWS 2021). Special-status species in this report are those listed as Endangered, Threatened, or Rare, or as candidates proposed for listing by the USFWS and/or CDFW; as Species of Special Concern or Fully Protected species by the CDFW; or as Rare Plant Rank 1B or 2B by the CNPS.

3.2 FIELD SURVEYS

EMC Planning Group associate biologist Patrick Furtado conducted a 5.5-hour reconnaissance-level biological field survey combined with focused plant surveys for the entire property on April 14, 2021. Weather conditions were clear skies, about 60 degrees Fahrenheit, with 5-10 mile-per-hour winds. The substrate on the site was dune sands.

The purpose of the field surveys was to document existing plant communities and wildlife habitats, and to evaluate potential for special-status species occurrence at the project site. Biological resources were documented in field notes, including species observed, dominant plant communities, and significant wildlife habitat characteristics. Qualitative estimations of plant cover, structure, and spatial changes in species composition were used to determine plant communities and wildlife habitats, and habitat quality and disturbance level were described. Plant communities and significant observations were mapped in the field on an aerial photo.

Focused plant surveys were performed in accordance with CDFW (2009), CNPS (2001), and USFWS (2000) rare plant survey protocols. All undeveloped portions of the project site were systematically surveyed, and plant species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification.

Searches for reptiles and amphibians were performed by overturning and then replacing rocks and debris. Birds were identified by visual and/or auditory recognition; mammals were identified by observing diagnostic signs. Additionally, observations of any sensitive habitats, potentially jurisdictional wetlands, regulated trees, and wildlife movement corridors were recorded. Representative site photographs were taken at several locations at the project site and adjacent areas to document habitat conditions.

Focused presence/absence plant surveys targeted four special-status species previously determined to have potential to occur on the site due to the presence of suitable habitat and known occurrence in the project vicinity: Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*), robust spineflower (*Chorizanthe robusta* var. *robusta*), and sand-loving wallflower (*Erysimum ammophilum*).

On the same day as the site surveys, Mr. Furtado checked available reference populations in the area and confirmed that target species were observable and in peak blooming condition; Monterey spineflower and sand-loving wallflower were observed at Sunset State Beach, and Monterey gilia was observed in Sand City. This was deemed essential for valid plant surveys because per the *United States Drought Monitor*, all of Santa Cruz County was experiencing severe drought conditions at the time of survey (National Drought Mitigation Center 2021).

Existing Biological Conditions

This section documents the physical project site characteristics and general biological resources observed during the field surveys.

4.1 PLANT COMMUNITIES AND OTHER AREAS

The 0.38-acre parcel contains a few distinct plant communities/areas. The plant communities and other areas noted above are illustrated on [Figure 4-1, Habitat Map](#). Representative site photos are contained in [Figure 4-2, Site Photographs](#). The project site is positioned on the Moss Landing USGS 7.5-minute quadrangle map as shown on [Figure 4-3, USGS Topographic Quadrangle](#). No riparian habitat or wetlands/waterways are present on the site.

The central and western portions of the sandy site support coastal dune scrub (0.15-acre). This plant community is dominated by coastal sagewort (*Artemisia pycnocephala*), mock heather (*Ericameria ericoides*), and non-native iceplant (*Carpobrotus edulis*). Other common species include lizard tail (*Eriophyllum staechadifolium*), seaside daisy (*Erigeron glaucus*), beach evening primrose (*Camissoniopsis cheiranthifolia* ssp. *cheiranthifolia*), coast buckwheat (*Eriogonum latifolium*), and non-native sea rocket (*Cakile maritima*).

A few mature Monterey cypress (*Hesperocyparis macrocarpa*) trees are present in the northern and eastern portions of the site (0.14-acre); these were likely planted or naturalized from nearby plantings given that they are outside the specific areas where this species naturally occurs.

A patch of non-native European beachgrass (*Ammophila arenaria*) occurs along the southern boundary of the site (0.03-acre); this is adjacent to an existing single-family residence. A ruderal/non-native grassland area is present along the eastern edge of the site (0.02-acre) adjacent to Rio Boca Road; it contains non-native iceplant mixed with non-native ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and rattail fescue (*Festuca myuros*).

Finally, developed areas in the eastern portion of the site (0.04-acre) include a paved driveway entrance to the site connected to Rio Boca Road, along with a small paved parking area. Note that a portion of the paved areas are mapped as Monterey cypress on the habitat map when a tree canopy overhangs the pavement.

4.2 WILDLIFE HABITATS

Even with adjacent residential development to the north and south, the on-site coastal dune scrub and other vegetation patches on this small oceanfront parcel provide moderate quality wildlife habitat, including foraging and nesting opportunities for many common bird species including California gull (*Larus californicus*), killdeer (*Charadrius vociferous*), Brewer's blackbird (*Euphagus cyanocephalus*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Small mammals expected to occur include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and deer mouse (*Peromyscus maniculatus*). Common reptile species that may occur include western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Gerrhonotus coeruleus*), and gopher snake (*Pituophis melanoleucus*).



- Project Parcel - 0.38 ac
- Monterey Spineflower - 0.007 ac
- Coastal Dune Scrub - 0.15 ac
- Monterey Cypress - 0.14 ac
- European Beachgrass - 0.03 ac
- Paved - 0.04 ac
- Ruderal/Non-Native Grasses - 0.02 ac

Source: ESRI 2021. Santa Cruz County 2020



Figure 4-1
Habitat Map

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① Driveway access with paved parking area at entrance to the project site



② Location of proposed structure with native and non-native vegetation



 Project Site

Source: Bing 2021, Santa Cruz County GIS 2020
Photographs: EMC Planning Group 2021

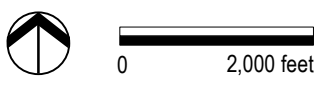
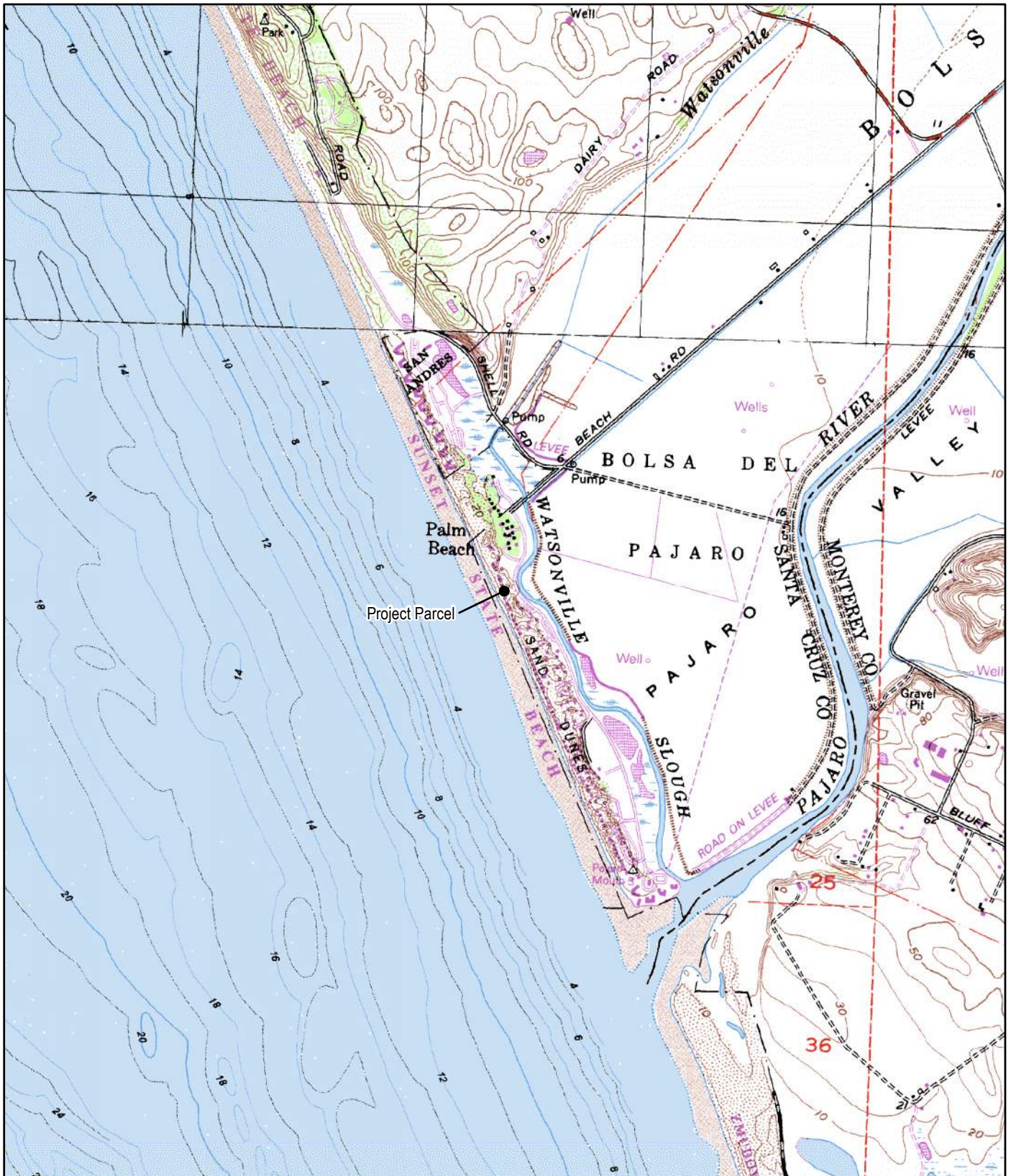


③ Sand dune between coastal strand habitat and proposed development



④ Monterey spineflower observed on the site in coastal dune scrub habitat

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Source: Santa Cruz County 2020, Moss Landing USGS 24k 1954

Figure 4-3

USGS Topographic Quadrangle

145 Rio Boca Road Biological Resources Evaluation



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Special-Status Biological Resources

This section documents the special-status biological resources observed at or having potential to occur on the project site.

5.1 OVERVIEW

Given the project site's location in coastal dune scrub habitat along the biodiverse shores of Monterey Bay, several special-status biological resources have been observed or have potential for occurrence and may be impacted by the proposed development project. These resources are discussed below, and protective mitigation measures are presented in the following section.

Wetland and riparian habitats are considered special-status by several regulatory agencies including the USACE, CDFW, RWQCB, and CCC; the role these various federal and state agencies play in regulating wetlands and waters is discussed in the Regulatory Setting section of this report. Although the Watsonville Slough is located immediately across the street from the site, it would not be impacted by the proposed project. The project site does not contain any potentially jurisdictional wetlands/waterways or riparian habitat.

Wildlife movement corridors provide connectivity between habitat areas, enhancing species richness and diversity, and usually also provide cover, water, food, and breeding sites. Wildlife movement includes migration (i.e., usually movement one way per season), inter-population movement (i.e., long-term dispersal and genetic flow), and small travel pathways (i.e., daily movement within an animal's territory). The project site is bordered by residential development to the north and south, and by agricultural fields to the east. The only wildlife movement expected on the site is along the beachfront/foredune area along the western edge of the site, which would not be impacted by the proposed project.

5.2 SPECIAL-STATUS PLANTS

Special-status plant species potentially occurring in the project vicinity were evaluated for potential to occur at the project site. Information on special-status plants, including listing status, suitable habitat conditions, and potential to occur at the project site is presented in Appendix A, Special-Status Plants Potentially Occurring in the Project Vicinity.

Monterey Spineflower

Focused surveys were conducted on the project site for special-status plant species with potential to occur, and one of the target species was observed in coastal dune scrub habitat. Federally listed Threatened and CNPS Rare Plant Rank 1B Monterey spineflower (*Chorizanthe pungens* var. *pungens*) occurs in a small (0.007-acre) cluster in the central portion of the project site. About 200-300 individuals of this small annual plant were present during the April 2021 survey. This species blooms from April to June, and occurs in sandy soils in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland (CNPS 2021).

Figure 4-1, Habitat Map, shows the location and extent of the Monterey spineflower on-site occurrence; and Figure 4-2, Site Photographs, contains representative images of the habitat and special-status plant occurrence. Appendix C, Project Site Plant Inventory, presents the list of plant species that were observed on the project site. Details on the Monterey spineflower occurrence are contained in Appendix D, California Native Species Field Survey Form; this form will be submitted to the CDFW for inclusion in the California Natural Diversity Database. The project site is not located within USFWS-designated Critical Habitat for this species.

5.3 SPECIAL-STATUS ANIMALS

Special-status animal species potentially occurring in the project vicinity were evaluated for potential to occur at the project site. Information on special-status animals, including listing status, suitable habitat conditions, and potential to occur at the project site is presented in Appendix B, Special-Status Animals Potentially Occurring in the Project Vicinity. Information on the special-status animals that have potential to be impacted by the proposed project due to presence of suitable habitat at the project site is presented below.

Globose Dune Beetle

Globose dune beetle (*Coelus globosus*) is a species of local concern with no state or federal listing status. It occurs in coastal sand dune habitats, erratically distributed from Mendocino County south into Mexico (CDFW 2021). It typically inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation (CDFW 2021). CNDDDB occurrences from 1977 and 1990 were recorded in proximity to the project site in sandy foredune habitat at Sunset State Beach; this species has potential to occur on the project site.

Coast Horned Lizard

The state Species of Special Concern coast horned lizard (*Phrynosoma blainvillii*) occurs in a wide range of habitats, though it is most common in lowlands along sandy washes with scattered low bushes (CDFW 2021). It requires open areas for basking, fine loose soil where it can bury itself for camouflage to escape predators and regulate its temperature, shrubs for refugia, and abundant insect prey, especially ants; coast horned lizards are ant specialists, and depend on the presence of native ant species (Stebbins 2003, Jennings and Hayes 1994). This species has potential to occur on the project site.

Northern California Legless Lizard

The state Species of Special Concern Northern California legless lizard (*Anniella pulchra*) inhabits sandy or loose loamy soils under sparse vegetation and prefers moist soils (CDFW 2021). This fossorial (burrowing) species forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats (Stebbins 2003). CNDDDB occurrences were recorded in proximity to the project site in sandy habitat at Sunset State Beach; this species has potential to occur on the project site.

American Peregrine Falcon

The state Fully Protected American peregrine falcon (*Falco peregrinus anatum*) occurs in a wide range of habitats near wetlands, lakes, rivers, or other waters (CDFW 2021). It typically nests on cliffs, banks, dunes, mounds, and in human-made structures such as buildings and bridges; the nest consists of a scrape, depression, or ledge in an open site (CDFW 2021). This species has potential to occur on the project site.

Western Snowy Plover

The federally listed Threatened and state Species of Special Concern western snowy plover (*Charadrius nivosus nivosus*) occurs on sandy beaches, salt pond levees, and shores of large alkali lakes; it requires sandy, gravelly, or friable soils for nesting (CDFW 2021). It prefers early successional dune habitat or open habitats with cover or camouflage for nesting, and also nests on mudflats and evaporation ponds (CDFW 2021). This species occurs in the immediate project vicinity and is regularly monitored during the nesting season (March 15 to September 15) by Point Blue Conservation Science and the USFWS. It has potential to occur on and near the project site, and USFWS-designated critical habitat for this species exists in the western portion of the project site (see Figure 1-2).

Nesting Migratory Birds

Vegetation (especially coastal dune scrub and Monterey cypress trees) on and adjacent to the project site provides suitable nesting habitat for a wide variety of birds. Native nesting migratory birds (including raptors) are protected during the nesting bird season under the

federal Migratory Bird Treaty Act and California Fish and Game Code. Given the site's oceanfront location in a biodiverse region, there is high potential for nesting birds to occur on or near the project site.

5.4 SPECIAL-STATUS NATURAL COMMUNITIES

Special-status natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive special regulatory protection (see Section 2, Regulatory Setting). In addition, the CDFW has designated a number of natural communities as rare; these communities are given the highest inventory priority and are tracked in the CNDDDB. Sensitive natural communities are of limited distribution and often most vulnerable to environmental effects of development.

The project site contains coastal dune scrub habitat (0.15-acre) which is known to support a special-status Monterey spineflower occurrence in the central portion of the site and, in the western portion of the site, includes USFWS-designated critical habitat for western snowy plover in the foredune adjacent to the beach/coastal strand. This dune habitat is considered rare by the CDFW, and protected by the Santa Cruz County municipal code and California Coastal Commission regulations for environmentally sensitive habitats. Further, coastal dune scrub is particularly susceptible to disturbance by non-native invasive plant species, so it is important that the proposed project avoid introducing invasive species through careful landscape design.

5.5 REGULATED TREES

On-site mature Monterey cypress trees are regulated by both the Santa Cruz County Planning Department and the California Coastal Commission, and at least two trees will be removed or significantly trimmed by the proposed project. These trees likely qualify as protected significant trees per Chapter 16.34 of the Santa Cruz County Zoning Ordinance because of their large size and location in a sensitive habitat area. Significant trees are defined in Section 2.3 of this report. This designation generally applies to any tree located in a sensitive habitat; and in the urban services line or rural services line, to any tree 20 inches or more in Diameter at Breast Height (DBH); any sprout clump of five or more stems each of which is greater than 12 inches in DBH; or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches in DBH.

Impacts and Mitigation Measures

This section analyzes anticipated project impacts to special-status biological resources, and presents mitigation measures designed to avoid, minimize, and/or mitigate those impacts.

6.1 GENERAL AVOIDANCE/MINIMIZATION MEASURES

Sensitive biological resources are present in and adjacent to the proposed project's impact area as shown in [Figure 6-1, Impact Areas](#) and quantified in [Table 6-1, Temporary and Permanent Impacts](#), below. Therefore, recommended avoidance/minimization measures are identified in this section to avoid or minimize potentially significant impacts to biological resources due to the proposed project. Some of these measures are dependent on regulatory agency coordination and approval of associated permit conditions. Therefore, final minimization and avoidance measures along with compensatory mitigation requirements will be established in consultation and coordination with all involved regulatory agencies and other project permitting authorities.

Table 6-1 Temporary and Permanent Impacts

	Temporary Impacts	Permanent Impacts	Restoration Areas	Net Loss/Gain
Parcel (0.38 ac)	0.28 ac*	0.122 ac		
Coastal Scrub	0.084 ac	0.042 ac	0.15 ac	+0.024 ac
Monterey Spineflower	0 ac	0.007 ac	0.01 ac	+0.003 ac

*Includes some area beyond parcel boundary
Source: Sandis 2021, EMC Planning Group 2021

- BIO-1. Qualified project biologists from a Santa Cruz County-approved consulting biological firm will be retained by the project proponent to conduct preconstruction surveys, lead worker environmental awareness training, and monitor for sensitive biological resources during construction. A project biologist will be on the site during times of initial ground disturbance, vegetation removal, and clearing to monitor biological resource protection measures, and at any other time when impacts to sensitive biological resources could occur.
- BIO-2. Before construction activities begin, a qualified project biologist will conduct a worker environmental awareness training session for all construction personnel.

At a minimum, the training will include a description of protected biological resources, species descriptions and habitat requirements, and general measures being implemented to protect sensitive resources during construction. Informational handouts with photographs clearly illustrating species appearances will be used in the training session.

Training topics will include special-status species with potential to occur on the project site. Species are expected to include Monterey spineflower, globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon and other nesting birds, and western snowy plover.

The training session will include information about steps to take if a special-status species is encountered, including contact information for the biological monitoring staff and measures to protect species during construction.

Additionally, a project biologist will be available to answer any questions about the special-status species. All new construction personnel will undergo this mandatory worker environmental awareness training when they start work on the project. Training will occur prior to the start of construction and periodically as needed if new construction personnel begin work at the project site. Each worker will sign a statement that they received training and the statement will be posted or easily available for viewing at the project site.

BIO-3. Signs, flags, and/or fencing will be used to establish exclusion areas outside work area limits to protect sensitive biological resources (e.g., coastal dune scrub, nesting bird buffers) in the vicinity of construction activities. A system of standardized and simplified exclusion signage will be determined in advance through coordination with the construction contractor to reduce potential confusion during construction. Fencing will be checked weekly by the biological monitor to ensure it is intact and does not present an entrapment hazard to wildlife. The biological monitor may assign a designee within the construction crew to monitor fencing after the grading and clearing phases are complete.

BIO-4. To prevent wildlife entanglement and entrapment, the construction contractor will avoid the use of monofilament netting on the project site, including use in temporary and permanent erosion control materials (fiber rolls and blankets). The construction contractor will also seal all steep-walled holes greater than one foot deep overnight. Holes will be sealed such that no gap is left between the cover and the edges of the hole so that gaps do not inadvertently appear to be burrow entrances (e.g. place plastic sheeting over the hole, place wooden plate over plastic sheeting, and place dirt on top of wooden plate/plastic sheeting if necessary). Where holes cannot be sealed, escape ramps that are no more than a 30 percent slope will be positioned such that entrapped wildlife will be able to



- Project Parcel - 0.38 ac
- Temporary Impacts Boundary
- Permanent Impacts - 0.12 ac
- Monterey Spineflower - 0.007 ac
- Coastal Dune Scrub - 0.15 ac
- Monterey Spineflower Restoration - 0.01 ac
- Coastal Dune Scrub Protection/Restoration - 0.15 ac

Source: ESRI 2021. Santa Cruz County 2020, Sandis 2021



Figure 6-1
Impact Areas

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escape. The escape ramps will be at least one foot wide and covered with jute netting or similar material.

- BIO-5. To prevent birds and other wildlife from ingesting or becoming entangled in plastic trash, and to avoid providing supplemental food to attract predators that prey on nesting birds, amphibians, reptiles, and small mammals, all trash and food scraps (including microtrash such as bottle caps and soda can tabs, plastic string, plastic grocery bags, six-pack container plastic rings, food containers, watermelon rinds, fruit peels, bones, etc.) will be placed in covered, wildlife-proof trash cans or removed from the site at the end of each work day. Work areas will be inspected by the biological monitor or a designee on the construction crew for trash and food scraps daily prior to crews leaving the jobsite to ensure compliance with this measure.
- BIO-6. Project storm water pollution prevention plan (SWPPP) measures will be followed to prevent toxins and soil from entering local water bodies. SWPPP measures will include secondary containment of portable gas cans and generators, of all stationary equipment that could leak oil, and of concrete washouts.
- BIO-7. A report of preconstruction survey efforts and biological construction monitoring to protect special-status species during initial ground disturbance and vegetation removal at the project site will be submitted to the Santa Cruz County Planning Department within 30 days of completion of the survey/monitoring efforts. The report(s) will include the dates, times, weather conditions, and personnel involved in the biological surveys and construction monitoring. CNDDDB Field Survey Forms will be submitted to the CDFW for any special-status species observed.

6.2 SPECIAL-STATUS PLANTS

The on-site 0.007-acre Monterey spineflower occurrence (200-300 individuals) is positioned mostly within the proposed project impact area, and avoidance of the occurrence is not feasible. It is assumed that the entire on-site occurrence could be removed by the proposed project. Monterey spineflower is listed as Threatened under the Federal Endangered Species Act (FESA); impacts to federally listed animals are prohibited everywhere without an incidental take permit, but FESA does not prohibit impacts to federally listed plants on lands outside federal management unless federally listed animals would also be impacted. Under Section 7 of the FESA, consultation with the USFWS for the potential loss of a federally listed plant is only required if a federal nexus for the project exists. If no federal nexus exists, there is no requirement to mitigate for the loss of a plant under FESA Section 9 (a)(2)(B). A federal

nexus exists for the project if any federal permits (of any kind, not just biological) are required, the project includes federal funding, or the project is on federal lands.

For the proposed project, no federal nexus exists. An incidental take permit is therefore not required to impact Monterey spineflower on the site and there is no FESA requirement to coordinate with the USFWS or mitigate for the loss of Monterey spineflower. However, significant impacts to all special-status plants must be mitigated per CEQA requirements. Project development would result in the direct loss of Monterey spineflower plants. Therefore, implementation of the following measure is recommended to mitigate this impact.

BIO-8. The Monterey spineflower occurrence on the project site will be relocated from the central impact area to the western preservation area, outside of the temporary impacts boundary. Prior to any ground disturbance, a qualified biologist will work with the project architect to demarcate the on-site mitigation area for restoration of coastal dune scrub habitat and Monterey spineflower seed transplantation. The project proponent will be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity. Prior to seed transplant, permanent fencing will be installed between the residential development area and the preserved area to prevent access to the preserved area, with a small designated walkway allowing access from the new residence to the beach.

Prior to any ground disturbance, in the spring/summer before construction, the project proponent will retain a qualified biologist or native plant specialist to perform seed collection from all Monterey spineflower plants located within the impact area, and implement seed installation in the mitigation area at the optimal time.

A restoration plan will be developed for the project by a qualified biologist in accordance with Santa Cruz County's 2012 *Draft Guidelines for Biological Resources Assessments and Related Documents*, Appendix D: Guidelines for the Preparation of Revegetation/Restoration Plans and Appendix E: Revegetation/Restoration Plan Checklist. This restoration plan will include both Monterey spineflower occurrence seed collection and transplantation/preservation and coastal dune scrub habitat restoration/preservation. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native invasive plants. Monitoring will occur for a minimum of five years after mitigation area installation to verify that restoration activities have been successful and will include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years.

The abundance of annual plants naturally varies from year to year depending on multiple factors including disturbance and rainfall. The performance standard for successful mitigation will be a minimum 2:1 replacement ratio (i.e. two plants observed in the mitigation area for each plant lost from the impact area), meaning that at least an estimated 600 Monterey spineflower plants must be present in the mitigation area during at least one spring occurring in year 3, 4, or 5 after installation. The program will contain options for corrective action and extended maintenance/monitoring if the performance standard is not achieved during the 5-year monitoring period.

During each monitoring effort undertaken in the mitigation area, a qualified biologist will conduct a comparison of spring survey conditions for Monterey spineflower from the previous year(s) and prepare a written report for the County. If adaptive management (corrective measures) are warranted, a description and recommendation will be included in the annual report.

6.3 SPECIAL-STATUS ANIMALS

The proposed project has potential to impact special-status animals including globose dune beetle, coast horned lizard, Northern California legless lizard, American peregrine falcon, western snowy plover, and nesting migratory birds. These species have potential to occur, and if any of these species is present at the project site during construction, project development could result in direct loss of individuals or harassment which is considered "take". Therefore, implementation of the following measures is recommended to avoid or minimize potential impacts.

Globose Dune Beetle

Specific mitigation is not proposed for this species as it has no state or federal protections. However, the project was designed to minimize impacts to coastal dune scrub habitat where this beetle may occur, and this species will also benefit from the project mitigation measures (see Section 6.1 above) that protect other biological resources during construction activities.

Coast Horned Lizard and Northern California Legless Lizard

State Species of Special Concern coast horned lizard and Northern California legless lizard have potential to occur at the project site. If these species are present in impact areas, project development could result in the direct loss of individuals. Therefore, implementation of the following measure is recommended to avoid or minimize this potential impact.

BIO-9. The project proponent will retain a biologist qualified in herpetology to conduct preconstruction surveys for coast horned lizard and Northern California legless

lizard. Preconstruction surveys will be conducted within impact areas no more than 48 hours prior to disturbance of any suitable habitat for these species as determined by the qualified biologist. Surveys will utilize hand search methods within impact areas where these species are expected to be found (i.e., under shrubs, other vegetation, or debris on sandy soils). Any individuals located during the surveys will be safely relocated to suitable habitat outside of the impact areas.

In coordination with the CDFW, as needed, the qualified biologist will be at the project site to recover any coast horned lizards or Northern California legless lizards that may be excavated/unearthed during initial ground disturbance and vegetation removal activities. If the animals are in good health, they will be immediately relocated to a designated release site outside of the work area. If they are injured, the animals will be released to a CDFW-approved rehabilitation specialist until they are in a condition to be released into the designated release site.

American Peregrine Falcon, Western Snowy Plover, and Nesting Migratory Birds

If special-status or other native migratory bird species are present in or adjacent to the impact area, project development could result in the direct loss of individuals or disturbance to nesting activities. Therefore, implementation of the following measure is recommended to avoid or minimize this potential impact.

BIO-10. To avoid impacts to nesting birds, the removal of vegetation shall be minimized to the greatest extent feasible. Construction activities that include any tree removal, pruning, grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January 15 through September 15) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction surveys for nesting birds to ensure that no nests would be disturbed during project construction.

If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.

If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize “normal” bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.

In addition, if construction is proposed during the western snowy plover nesting season (March 15 to September 15), the biologist will coordinate with Point Blue Conservation Science and the USFWS who regularly monitor western snowy plover nesting to determine if any western snowy plovers are nesting close to the project site. If nesting occurs within 200 feet of the proposed project, construction must be halted until the young have fledged and left the area or Incidental Take Authorization has been obtained from USFWS. The on-site western snowy plover critical habitat area will not be disturbed by construction activities per mitigation measures BIO-1 through BIO-7.

A report documenting survey results and a plan for active bird nest avoidance (if needed) will be completed by the biologist and submitted to the Santa Cruz County Planning Department for review and approval prior to disturbance and/or construction activities. If no active bird nests are detected during the survey, then project activities can proceed as scheduled. However, if an active bird nest of a native species is detected during the survey, then a plan for bird nest avoidance will be prepared to determine and clearly delineate an appropriately-sized, temporary protective buffer area around each active nest, depending on the nesting bird species, existing site conditions, and type of proposed disturbance and/or construction activities.

6.4 SPECIAL-STATUS NATURAL COMMUNITIES

The on-site 0.15-acre coastal dune scrub habitat supports a special-status Monterey spineflower occurrence and contains USFWS-designated critical habitat for western snowy plover. It is an Environmentally Sensitive Habitat Area (ESHA) strictly regulated by the

Santa Cruz County Planning Department and California Coastal Commission. This special-status natural community cannot be avoided by an alternative project design, so the proposed project would require special allowance during the local and state permitting processes for this impact to ESHA that is necessary to allow a reasonable economic use of the land.

As demonstrated in this report, the proposed project was designed to minimize impacts to sensitive biological resources. The anticipated ESHA impact has been minimized to the extent feasible by concentrating development in the less sensitive central and eastern portions of the project site. About 0.04-acre (27 percent) of the on-site 0.15-acre coastal dune scrub habitat would be permanently impacted by the project, and the habitat in the western portion of the site would be permanently protected/preserved within the proposed combined habitat restoration and Monterey spineflower mitigation area in the western portion of the parcel. However, during permitting approvals the proposed on-site mitigation may be modified to utilize off-site restoration and preservation options. Proposed mitigation for the impact to coastal dune scrub is included above as the Monterey spineflower mitigation measure BIO-8. The preservation area should be at least twice as large as the 0.04-acre coastal dune scrub impact (meeting or exceeding a 2:1 minimum mitigation ratio for preserved vs. impacted acreage). There are three coastal dune scrub protection/restoration areas proposed, totaling 0.15 acres. The westernmost protection/restoration area (furthest from any permanent impact areas) encompasses approximately 0.1 acres.

Additional compensatory mitigation may be required by the County or by the California Coastal Commission as part of the Coastal Development Permit process. This may include off-site habitat preservation or restoration of sensitive habitats similar in composition, quality, and acreage to those that would be impacted, or payment to a regional habitat mitigation bank. The following mitigation will prevent degradation of the preserved on-site coastal dune scrub habitat by preventing the introduction of invasive species through residential landscaping.

BIO-11. Prior to final project approvals, landscaping plans will be reviewed by the County to ensure the palette is limited to drought-tolerant species, fire-resistant species, and species capable of increasing soil stability, with preference to plant species endemic to coastal Santa Cruz County. Species from the California Invasive Plant Council (Cal-IPC) *California Invasive Plant Inventory* (Cal-IPC 2021), such as iceplant and European beachgrass, will not be included in any new landscaping. The plant palette used for on-site landscaping will be reviewed and approved by the Santa Cruz County Planning Department to confirm no invasive species will be planted.

6.5 REGULATED TREES

As mentioned earlier, the on-site Monterey cypress trees likely qualify as protected significant trees per Chapter 16.34 of the Santa Cruz County Zoning Ordinance because of their large size and location in a sensitive habitat area. Any proposed impacts would therefore require a significant tree removal approval for the project obtained per the requirements in Section 2, Regulatory Setting, which may require replacement of trees removed with trees acceptable to the Santa Cruz County Planning Director. Any regulated tree removals will require approval through a Coastal Development Permit and Santa Cruz County tree removal permit.

BIO-12. Prior to any ground disturbance, an International Society of Arboriculture (ISA)-certified arborist will conduct a tree survey and prepare an evaluation report with associated data and location map for all Santa Cruz County-regulated trees on and immediately adjacent to the site. The project proponent will then obtain approval through a Coastal Development Permit and Santa Cruz County tree removal permit prior to removal of or impact to any regulated tree. Replacement plantings will likely be required as a condition for permit approvals. The project proponent will implement any stipulated conditions of approval, such as the planting of replacement trees in appropriate on-site or off-site areas, along with any required maintenance and monitoring.

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APPENDIX A

SPECIAL-STATUS PLANTS POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Appendix A: Special-Status Plants Potentially Occurring in the Project Vicinity

Species	Status (Federal/State/Other)	Habitat Description	Potential to Occur
Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	--/1B.2	Alkaline playas, valley and foothill grassland on adobe clay substrate, and vernal pools; elevation 1-60m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Anderson's manzanita (<i>Arctostaphylos andersonii</i>)	--/1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest. Prefers open sites in redwood forest habitat; elevation 180-800m. Blooms Nov-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Ben Lomond spineflower (<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>)	FE--/1B.1	Lower montane coniferous forest – specifically maritime ponderosa pine sandhills; elevation 90-610m. Known only from Santa Cruz Mountains. Blooms Apr-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Choris' popcorn-flower (<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>)	--/1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie; also found in grassy areas per CNDDDB records; elevation 15-100m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>)	--/1B.1	Alkaline valley and foothill grassland; elevation 1-230m. Also occurs in disturbed areas and ruderal habitats. Blooms May-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	FE--/1B.1	Mesic sites in cismontane woodland, alkaline playas, valley and foothill grassland, and vernal pools; elevation 0-470m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Dudley's lousewort (<i>Pedicularis dudleyi</i>)	--/SR/1B.2	Maritime chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland. Prefers shady woods in redwood forests; elevation 60-900m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Eastwood's goldenbush (<i>Ericameria fasciculata</i>)	--/1B.1	Sandy areas in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub; elevation 30-275m. Blooms Jul-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Fort Ord spineflower (<i>Chorizanthe minutiflora</i>)	--/--/1B.2	Sandy openings in maritime chaparral and coastal scrub; elevation 55-150m. Discovered in 1994; only known from Monterey County. Blooms Apr-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Fragrant fritillary (<i>Fritillaria liliacea</i>)	--/--/1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay in grassland; elevation 3-410m. Blooms Feb-Apr.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hickman's onion (<i>Allium hickmanii</i>)	--/--/1B.2	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland, coastal prairie; prefers grasslands with sandy loam, damp ground, and vernal swales; elevation 20-200m. Blooms Mar-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hooker's manzanita (<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>)	--/--/1B.2	Sandy soils in coastal scrub, chaparral, and closed-cone coniferous forest; elevation 60-535m. Blooms Jan-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Hutchinson's larkspur (<i>Delphinium hutchinsoniae</i>)	--/--/1B.2	Broadleaved upland forest, chaparral, coastal prairie, coastal scrub; prefers semi-shaded, west-facing, slightly moist slopes; elevation 0-430m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Kellogg's horkelia (<i>Horkelia cuneata</i> var. <i>sericea</i>)	--/--/1B.1	Prefers sand dunes and coastal sandhills. Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub; elevation 10-200m. Blooms Apr-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
King's Mountain manzanita (<i>Arctostaphylos regismontana</i>)	--/--/1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest; prefers granitic or sandstone outcrops; elevation 305-730m. Blooms Dec-Apr.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Legenere (<i>Legenere limosa</i>)	--/--/1B.1	In beds of vernal pools; elevation 1-880m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Marsh microseris (<i>Microseris paludosa</i>)	--/--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland; elevation 5-355m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Menzies' wallflower (<i>Erysimum menziesii</i>)	FE/SE/1B.1	Coastal dunes and coastal strand; elevation 0-35m. Blooms Mar-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey gilia (<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>)	FE/ST/1B.2	Sandy openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; prefers wind-sheltered areas (back dunes); elevation 0-45m. Blooms Apr-Jun.	Absent. Not observed during April 2021 focused plant survey.
Monterey spineflower (<i>Chorizanthe pungens</i> var. <i>pungens</i>)	FT/--/1B.2	Sandy soils in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; elevation 3-450m. Blooms Apr-Jun.	Present. Observed on the project site during April 2021 focused plant survey.
Northern curly-leaved monardella (<i>Monardella sinuata</i> ssp. <i>nigrescens</i>)	--/--/1B.2	Sandy soils in chaparral, coastal dunes, coastal scrub, and lower montane coniferous forest (ponderosa pine sandhills); elevation 0-300m. Blooms May-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pajaro manzanita (<i>Arctostaphylos pajaroensis</i>)	--/--/1B.1	Sandy soils in chaparral; elevation 30-760m. Blooms Dec-Mar.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
perennial goldfields (<i>Lasthenia californica</i> ssp. <i>macrantha</i>)	--/--/1B.2	Coastal bluff scrub, coastal dunes, and coastal scrub; elevation 5-520m. Blooms Jan-Nov.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pine rose (<i>Rosa pinetorum</i>)	--/--/1B.2	Closed-cone coniferous forest; elevation 2-300m. Blooms May-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pink Johnny-nip (<i>Castilleja ambigua</i> ssp. <i>insalutata</i>)	--/--/1B.1	Coastal prairie and coastal bluff scrub; elevation 0-100m. Blooms May-Aug.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Point Reyes horkelia (<i>Horkelia marinensis</i>)	--/--/1B.2	Sandy soils in coastal dunes, coastal prairie, and coastal scrub; elevation 5-755m. Blooms May-Sep.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State/Other)	Habitat Description	Potential to Occur
Robust spineflower (<i>Chorizanthe robusta</i> var. <i>robusta</i>)	FE/--/1B.1	Sandy or gravelly areas in maritime chaparral, cismontane woodland openings, coastal dunes, and coastal scrub; prefers sandy terraces/bluffs or loose sand; elevation 3-300m. Blooms Apr-Sep.	Absent. Not observed during April 2021 focused plant survey.
Saline clover (<i>Trifolium hydrophilum</i>)	--/--/1B.2	Marshes and swamps, valley and foothill grassland, and vernal pools. Prefers mesic, alkaline sites; elevation 0-300m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
San Francisco popcorn-flower (<i>Plagiobothrys diffusus</i>)	--/SE/1B.1	Valley and foothill grassland, and coastal prairie; elevation 60-360m. Blooms Mar-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Sand-loving wallflower (<i>Erysimum amophilum</i>)	--/--/1B.2	Sandy openings in maritime chaparral, coastal dunes, and coastal scrub; elevation 0-60m. Blooms Feb-Jun.	Absent. Not observed during April 2021 focused plant survey.
Sandmat manzanita (<i>Arctostaphylos pumila</i>)	--/--/1B.2	Sandy openings in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; elevation 3-205m. Blooms Feb-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz clover (<i>Trifolium buckwestiorum</i>)	--/--/1B.1	Broadleaved upland forest, cismontane woodland, and coastal prairie; elevation 105-610m. Blooms Apr-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz Mountains beardtongue (<i>Penstemon rattanii</i> var. <i>kleei</i>)	--/--/1B.2	Chaparral, lower montane coniferous forest, and sandy shale slopes; found in transition zone between forest and chaparral; elevation 400-1100m. Blooms May-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz tarplant (<i>Holocarpha macradenia</i>)	FT/SE/1B.1	Coastal prairie, coastal scrub, valley and foothill grassland, often on clay or sandy soils; tolerates non-native species; elevation 10-220m. Blooms Jun-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Seaside bird's beak (<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i>)	--/SE/1B.1	Sandy, often disturbed sites in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub; usually within chaparral or coastal scrub; elevation 0-215m. Blooms Apr-Oct.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tidestrom's lupine (<i>Lupinus tidestromii</i>)	FE/SE/1B.1	Partially stabilized coastal dunes, immediately near the ocean; elevation 0-3m. Blooms Apr-Jun.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/State/Other)	Habitat Description	Potential to Occur
Toro manzanita (<i>Arctostaphylos montereyensis</i>)	--/--/1B.2	Sandy places in maritime chaparral, cismontane woodland, and coastal scrub; elevation 30–730m. Blooms Feb-Mar.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Vernal pool bent grass (<i>Agrostis lacuna-vernalis</i>)	--/--/1B.1	Vernal pools (mima mounds); known only from Fort Ord National Monument; elevation 115-145m. Blooms Apr-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
White-rayed pentachaeta (<i>Pentachaeta bellidiflora</i>)	FE/SE/1B.1	Valley and foothill grassland; found on open, dry rocky slopes and grassy areas, often on serpentine soils; elevation 35-620m. Blooms Mar-May.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Woodland woollythreads (<i>Monolopia gracilens</i>)	--/--/1B.2	Serpentine sites; openings in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland; elevation 100-1200m. Blooms Mar-Jul.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Yadon's rein orchid (<i>Piperia yadonii</i>)	FE/--/1B.1	Sandy areas in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral; elevation 10-510m. Blooms May-Aug.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Sources: CDFW 2021, CNPS 2021, USFWS 2021

Listing Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SR: Listed as Rare under the California Endangered Species Act.

Other (CNPS Rare Plant Ranks and Threat Code Extensions)

1B: Plants that are considered Rare, Threatened, or Endangered in California and elsewhere.

2B: Plants that are considered Rare, Threatened, or Endangered in California, but more common elsewhere.

.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat).

.2: Fairly endangered in California (20-80% occurrences threatened).

APPENDIX B

SPECIAL-STATUS ANIMALS POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Appendix B: Special-Status Animals Potentially Occurring in the Project Vicinity

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Insects			
Crotch bumble bee (<i>Bombus crotchii</i>)	--/SC	Coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. CNDDDB occurrence from 1995 recorded in proximity to the project site within dune/coastal scrub habitat at Sunset State Beach. However, sandy on-site soils are not suitable for underground bee nesting.
Globose dune beetle (<i>Coelus globosus</i>)	--/--	Coastal sand dune habitats; erratically distributed from Mendocino County south into Mexico. Inhabits foredunes and sand hummocks. It burrows beneath the sand surface and is most common beneath dune vegetation.	Low potential to occur on project site due to presence of marginally suitable habitat. CNDDDB occurrences from 1977 and 1990 recorded in proximity to the project site in sandy foredune habitat at Sunset State Beach.
Monarch butterfly (<i>Danaus plexippus</i>)	FC/--	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts are located in wind-protected tree groves (eucalyptus, Monterey pine, and cypress) with nectar and water sources nearby.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Ohlone tiger beetle (<i>Cicindela ohlone</i>)	FE/--	Remnant native grasslands with California oatgrass and purple needlegrass in Santa Cruz County. Substrate is poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Smith's blue butterfly (<i>Euphilotes enoptes smithi</i>)	FE/--	Coastal dunes and coastal sage scrub plant communities. Host plants include coast buckwheat (<i>Eriogonum latifolium</i>) and seacliff buckwheat (<i>Eriogonum parvifolium</i>) for larval and adult stages.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western bumble bee (<i>Bombus occidentalis</i>)	--/SC	Requires suitable nesting sites for the colonies, nectar and pollen from floral resources, and suitable overwintering sites for the queens. Nests in underground cavities.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Zayante band-winged grasshopper (<i>Trimerotropis infantilis</i>)	FE/--	Isolated sandstone deposits in the Santa Cruz Mountains, in Zayante Hills ecosystem.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Fish			
Eulachon (<i>Thaleichthys pacificus</i>)	FT/--	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Longfin smelt (<i>Spirinchus thaleichthys</i>)	FC/ST	Migratory fish found in open waters of estuaries; mostly in the middle or bottom of the water column. Can be found in completely freshwater to almost pure seawater. Known from San Francisco Bay delta and Humboldt Bay in California.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey hitch (<i>Lavinia exilicauda harengus</i>)	--/SSC	Can occupy a wide variety of habitats, although they are most abundant in lowland areas with large pools or in small reservoirs that mimic such conditions. Widely distributed in the Pajaro and Salinas river systems.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Steelhead (<i>Oncorhynchus mykiss irideus</i>)	FT/--	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tidewater goby (<i>Eucyclogobius newberryi</i>)	FE/--	Brackish water habitats with fairly still but not stagnant water and high oxygen levels. Found in shallow lagoons and lower stream reaches.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Reptiles and Amphibians			
California giant salamander (<i>Dicamptodon ensatus</i>)	--/SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests, under rocks and logs, usually near streams and lakes.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
California red-legged frog (<i>Rana draytonii</i>)	FT/SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires nearby upland habitat to aestivate during dry months.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. Though there is low potential to occur in the nearby slough, this species is not expected to occur on the site's sandy substrate.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
California tiger salamander (<i>Ambystoma californiense</i>)	FT/ST	Grasslands, open oak woodlands, and seasonal pools or stock ponds in Central California. Require underground refuges/burrows for cover, and seasonal water sources for breeding.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	--/SSC	Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes.	Low potential to occur on project site due to presence of marginally suitable habitat.
Coast range newt (<i>Taricha torosa</i>)	--/SSC	Coastal drainages; lives in terrestrial habitats and can migrate over 1 km to breed in ponds, reservoirs, and slow-moving streams.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Foothill yellow-legged frog (<i>Rana boylei</i>)	--/ SE&SSC	Partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. Requires at least some cobble-sized substrate for egg-laying and 15 weeks of available water to attain metamorphosis.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Northern California legless lizard (<i>Anniella pulchra</i>)	--/SSC	Sandy or loose loamy soils under sparse vegetation; moist soils.	Moderate potential to occur on project site due to presence of suitable habitat. CNDDDB occurrences recorded in proximity to the project site in sandy habitat at Sunset State Beach.
Santa Cruz black salamander (<i>Aneides niger</i>)	--/SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara Counties. Adults found under rocks, talus, and damp woody debris.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Santa Cruz long-toed salamander (<i>Ambystoma macrodactylum croceum</i>)	FE/SE&FP	Wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey Counties. Aquatic larvae prefer shallow (<12 inches) water, and use clumps of vegetation or debris for cover. Adults use mammal burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western pond turtle (<i>Emys marmorata</i>)	--/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western spadefoot (<i>Spea hammondi</i>)	--/SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Birds			
American peregrine falcon <i>(Falco peregrinus anatum)</i>	--/FP	Occurs in wide range of habitats near wetlands, lakes, rivers, or other water. Nests on cliffs, banks, dunes, mounds, and in human-made structures such as buildings and bridges. Nest consists of a scrape, depression, or ledge in an open site.	Low potential to occur on project site due to presence of marginally suitable habitat.
Bank swallow <i>(Riparia riparia)</i>	--/ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Burrowing owl <i>(Athene cucularia)</i>	--/SSC	Open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation; dependent on mammal burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
California Ridgway's rail <i>(Rallus obsoletus obsoletus)</i>	FE/SE&FP	Found in saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics. Though there is low potential to occur in the nearby slough, this species is not expected to occur on the site.
Short-eared owl <i>(Asio flammeus)</i>	--/SSC	Found in swamp lands, both fresh and salt; lowland meadows; and irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Tricolored blackbird <i>(Agelaius tricolor)</i>	--/ ST&SSC	Requires open water, protected nesting substrate, and foraging area with insect prey available near the colony.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Western snowy plover <i>(Charadrius nivosus nivosus)</i>	FT/SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes; sandy, gravelly, or friable soils for nesting. Prefers early successional dune habitat or open habitats with cover or camouflage for nesting. Nests on mudflats and evaporation ponds.	High potential to occur on project site due to presence of suitable habitat and occurrence records in the immediate vicinity. USFWS-designated critical habitat is present in the coastal strand habitat along the western portion of project site.
White-tailed kite <i>(Elanus leucurus)</i>	--/FP	Rolling foothills and valley margins with scattered oaks, and river bottomlands or marshes next to deciduous woodlands. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

Species	Status (Federal/ State)	Habitat Description	Potential to Occur
Yellow rail (<i>Coturnicops noveboracensis</i>)	--/SSC	Summer resident in eastern Sierra Nevada in Mono County. Occurs in freshwater marshlands.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Mammals			
American badger (<i>Taxidea taxus</i>)	--/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils, and open, uncultivated ground. Prey on burrowing rodents and dig burrows.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey dusky-footed woodrat (<i>Neotoma macrotis luciana</i>)	--/SSC	Maritime chaparral and woodlands with moderate to dense cover and abundant dead wood for nest construction. Restricted to Monterey County and northern San Luis Obispo County.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Monterey shrew (<i>Sorex ornatus salarius</i>)	--/SSC	Range restricted to Santa Cruz and Monterey Counties. Typically found in brackish marshes, along streams, in brushy areas of valleys and foothills, and in forests. Favor low, dense vegetation that forms a cover for worms and insects. Typically found in riparian habitats.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Pallid bat (<i>Antrozous pallidus</i>)	--/SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	--/SSC	Inhabits a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected to occur due to lack of suitable habitat and/or project site location/characteristics.

APPENDIX B

Sources: CDFW 2021, USFWS 2021

Listing Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: Candidate for listing as Endangered or Threatened under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SC: Candidate for listing as Endangered or Threatened under the California Endangered Species Act.

SSC: CDFW Species of Special Concern due to declining breeding populations in California.

FP: CDFW Fully Protected species per the California Fish and Game Code.

APPENDIX C

PROJECT SITE PLANT INVENTORY

Appendix C: Project Site Plant Inventory	
GYMNOSPERMAE - GYMNOSPERMS	
CUPRESSACEAE - CYPRESS FAMILY	
<i>Hesperocyparis macrocarpa</i> [<i>Cupressus macrocarpa</i>]	Monterey cypress
ANGIOSPERMAE - FLOWERING PLANTS	
DICOTYLEDONES - DICOTS	
AIZOACEAE - FIG-MARIGOLD FAMILY	
<i>Carpobrotus edulis</i> *	iceplant/hottentot fig
ASTERACEAE (COMPOSITAE) - SUNFLOWER FAMILY	
<i>Agoseris</i> sp. (?)	agoseris
<i>Artemisia pycnocephala</i>	coastal sagewort
<i>Ericameria ericoides</i>	mock heather / California goldenbush
<i>Erigeron glaucus</i>	seaside daisy
<i>Eriophyllum staechadifolium</i>	lizard tail / seaside woolly sunflower
<i>Grindelia stricta</i>	coastal gumplant
<i>Heterotheca sessiliflora</i>	goldenaster
<i>Hypochaeris radicata</i> * (?)	rough cat's-ear
<i>Pseudognaphalium stramineum</i> [<i>Gnaphalium stramineum</i>]	cotton-batting plant
BORAGINACEAE - BORAGE FAMILY	
<i>Cryptantha leiocarpa</i>	beach cryptantha
BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY	
<i>Cakile maritima</i> *	sea rocket
FABACEAE (LEGUMINOSAE) - LEGUME FAMILY	
<i>Lupinus arboreus</i> (?)	yellow bush lupine
MONTIACEAE - MONTIA FAMILY	
<i>Claytonia perfoliata</i>	common miner's-lettuce
SCROPHULARIACEAE- FIGWORT FAMILY [MYOPORACEAE - MYOPORUM FAMILY]	
<i>Myoporum laetum</i> *	myoporum
ONAGRACEAE - EVENING PRIMROSE FAMILY	
<i>Camissoniopsis cheiranthifolia</i> ssp. <i>cheiranthifolia</i>	beach evening primrose
OXALIDACEAE - WOOD-SORREL FAMILY	
<i>Oxalis pes-caprae</i> *	Bermuda buttercup / sour grass
PLANTAGINACEAE - PLANTAIN FAMILY	
<i>Plantago coronopus</i> *	cut-leaved plantain
POLYGONACEAE - BUCKWHEAT FAMILY	
<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower
<i>Erigonum latifolium</i>	coast buckwheat
<i>Pterostegia drymarioides</i>	woodland threadstem
ROSACEAE - ROSE FAMILY	
<i>Pyracantha</i> sp.* (?)	firethorn

MONOCOTYLEDONES - MONOCOTS	
<i>POACEAE [GRAMINEAE] - GRASS FAMILY</i>	
<i>Ammophila arenaria</i> *	European beachgrass
<i>Bromus diandrus</i> *	ripgut grass
<i>Bromus hordeaceus</i> *	soft chess
<i>Festuca myuros [Vulpia myuros]</i> *	rattail fescue
* non-native species	

APPENDIX D

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDDB@wildlife.ca.gov

For Office Use Only

Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Date of Field Work (mm/dd/yyyy): 04/14/2021

Clear Form **California Native Species Field Survey Form** Print Form

Scientific Name: *Chorizanthe pungens var. pungens*

Common Name: Monterey spineflower

Species Found? Yes No If not found, why? _____
Reporter: Patrick Furtado
Total No. Individuals: 200 Subsequent Visit? Yes No
Address: 301 Lighthouse Ave., Suite C
Is this an existing NDDDB occurrence? No Unk. Monterey, CA 93940
E-mail Address: furtado@emcplanning.com
Collection? If yes: _____ Phone: 831.649.1799
Number _____ Museum / Herbarium _____

Plant Information
Phenology:
% vegetative: 20 % flowering: 80 % fruiting: 0

Animal Information
adults # juveniles # larvae # egg masses # unknown
 wintering breeding nesting rookery burrow site lek other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)
Pajaro Dunes Resort, 145 Rio Boca Road, Watsonville, CA 95076

County: Santa Cruz Landowner / Mgr: Pajaro Dunes Resort
Quad Name: Moss Landing Elevation: 5
T ___ R ___ Sec ___, ___ 1/4 of ___ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
T ___ R ___ Sec ___, ___ 1/4 of ___ 1/4, Meridian: H M S GPS Make & Model: Garmin eTrek
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy: 10 feet _____ meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
Coordinates: 36.864691, -121.818113

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:
Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Coastal dune scrub plant community, iceplant (*Carpobrotus edulis*) dominant, associates - *Artemisia pycnocephala*, *Ericameria ericoides*, substrate - sand, slope/aspect - flat.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor
Immediate AND surrounding land use: Residential beach housing
Visible disturbances: Foot traffic
Threats: Development
Comments:

Determination: (check one or more, and fill in blanks)
 Keyed (cite reference): Flora of Monterey County
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): Dylan Neubauer
 Other: _____

Photographs: (check one or more)
Slide Print Digital
Plant / animal
Habitat
Diagnostic feature
May we obtain duplicates at our expense? yes no

APPENDIX E

SITE PLANS

NEW RESIDENCE

145 RIO BOCA ROAD, WATSONVILLE, CA
LOT-145
APN: 052-301-69

DESIGN RE-SUBMITTAL 2 04/26/2021
DESIGN RE-SUBMITTAL 1 01/25/2021
DESIGN SUBMITTAL 07/20/2020

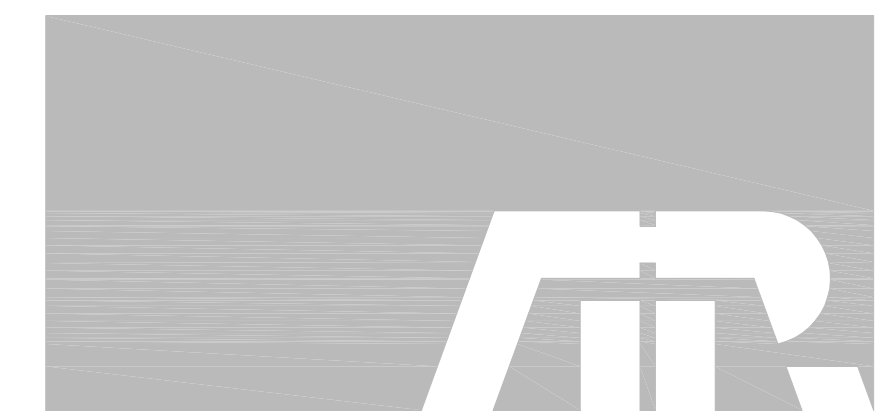


PROJECT DESCRIPTION

THE SCOPE OF THIS PROJECT IS TO BUILD A NEW 2,500 SF ONE-STORY HOUSE WITH 2,300 SF BASEMENT AND A TWO-CAR GARAGE.

DRAWING INDEX

COVER	
A1-0	SITE PLAN/ PROJECT DATA
SV	SURVEY
C-1	PRELIMINARY GRADING PLAN
A1-1	GROUND FLOOR SITE PLAN
A1-2	PLOT PLAN (FEMA)
A1-3	ROOF PLAN
A2-1	FLOOR PLAN-1ST FLOOR
A2-2	FLOOR PLAN- BASEMENT
A3-1	ELEVATIONS
A3-2	ELEVATIONS
A3-3	SECTIONS
A4-1	PERSPECTIVE
A4-2	COLORS AND MATERIALS
L-1	PRELIMINARY LANDSCAPE PLAN



PROJECT DATA:

PERMIT NO.: -
APN: 052-301-69
LOT AREA: 18,395 SF

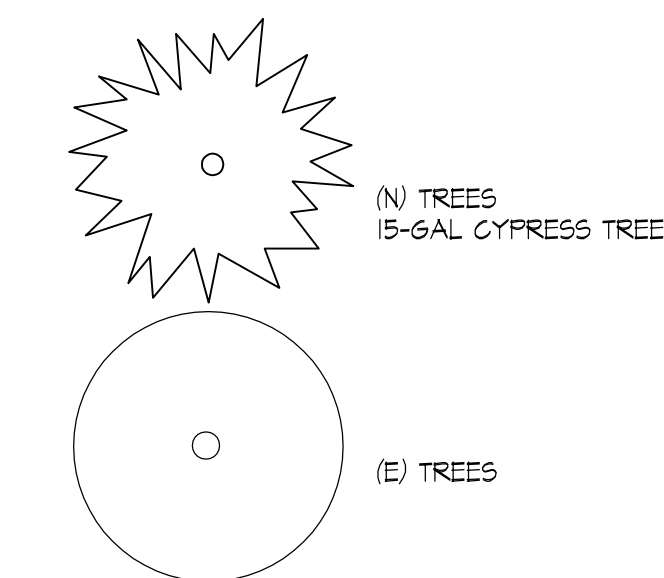
BUILDING AREA

MAIN HOUSE	2,376 SF
COVERED PATIO	122 SF
2,500 SF	
BASEMENT (CONDITIONED)	2,300 SF
GARAGE	905 SF
TOTAL	5,105 SF

F.A.R. 5,105/18,395 = 0.28 < 0.5 --- O.K.
COVERAGE 16%

PARKING 2 (COVERED)
1 (UNCOVERED)

TREE LEGEND



NEW RESIDENCE

LOT- 145
APN: 052-301-69

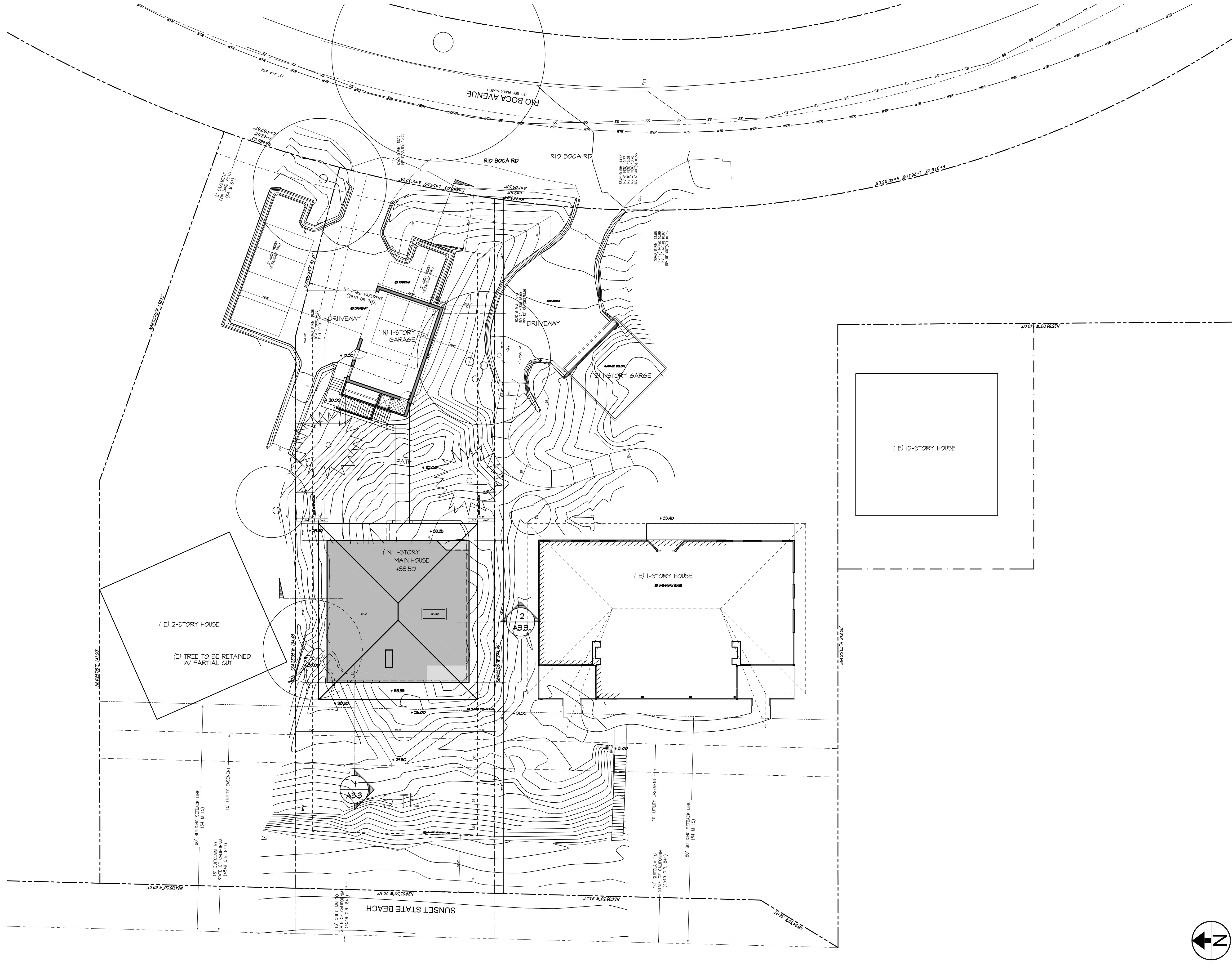
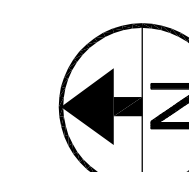
145 RIO BOCA RD
WATSONVILLE, CA

Issues and Revisions

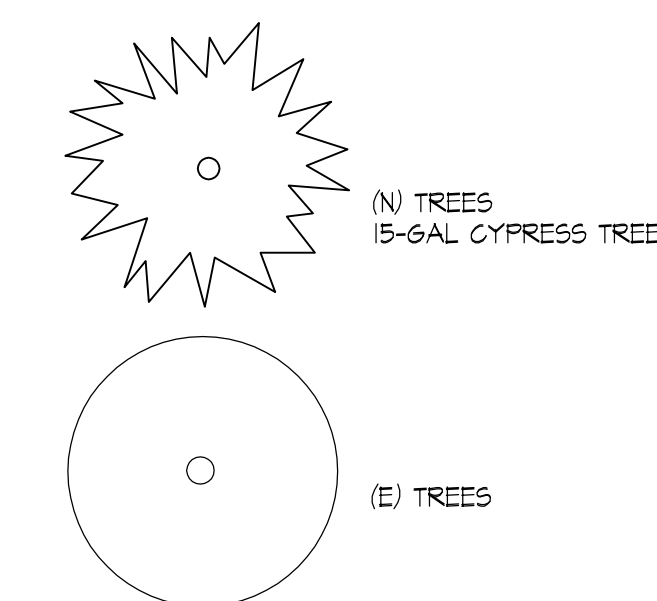
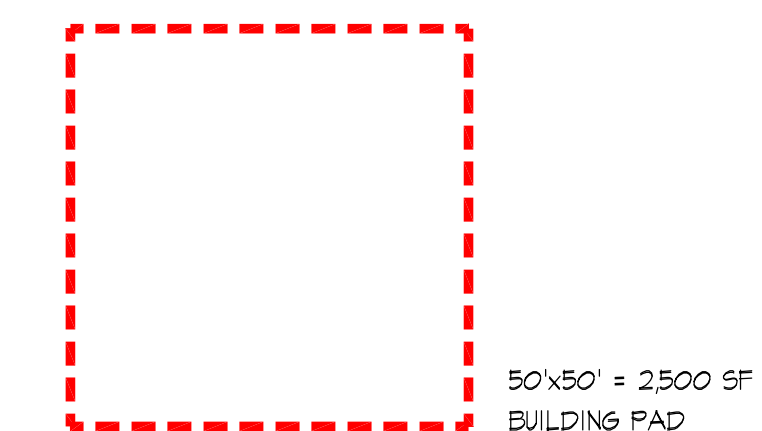
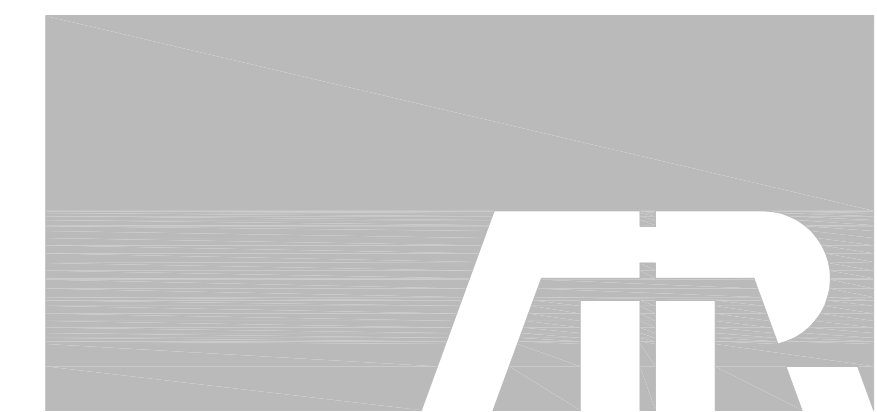
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01/25/21		DESIGN REVIEW COMMENT 1	
04/26/21		DESIGN REVIEW COMMENT 2	

SITE PLAN

Project Number: 2018A106
Date: 07.20.20
Scale: 1"=20'-0"



SITE PLAN
SCALE: 1"=20'-0"



NEW RESIDENCE

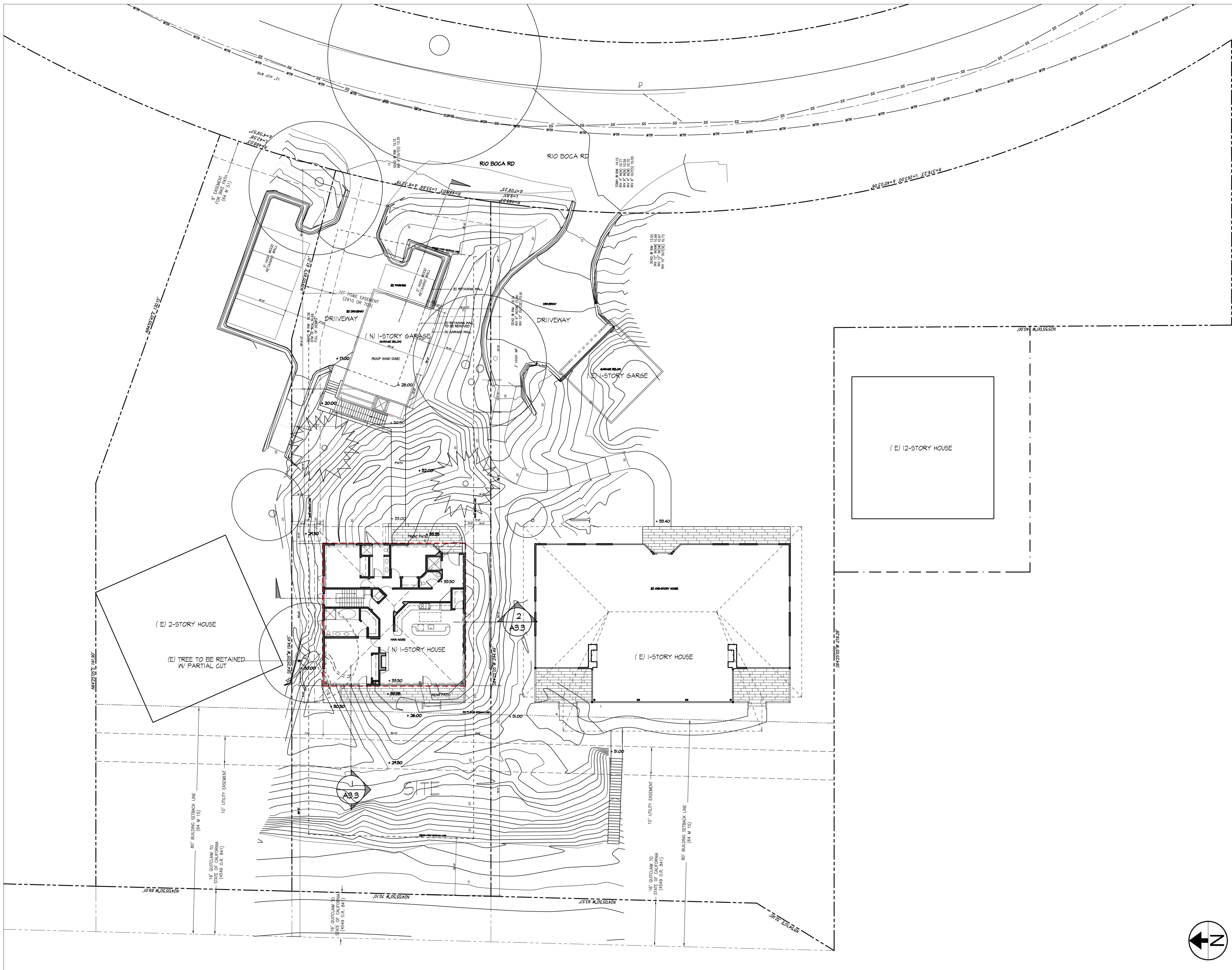
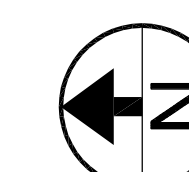
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145 RIO BOCA RD
WATSONVILLE, CA

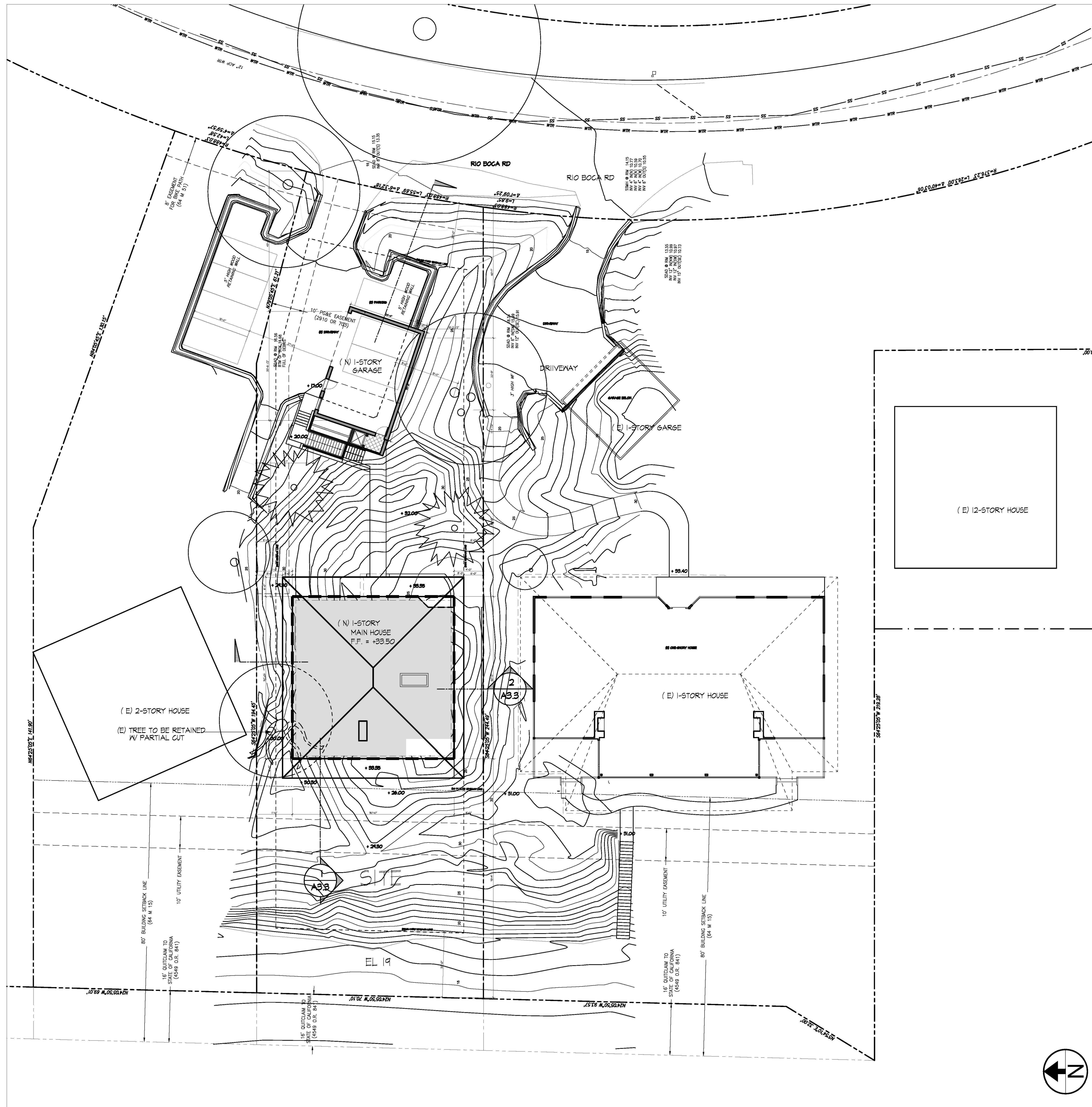
Issues and Revisions		
No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

1ST FLOOR SITE PLAN

Project Number: 2018A106
Date: 07.20.20
Scale: 1/16"=1'-0"



1 | 1ST FLOOR SITE PLAN
AI.1 SCALE: 1/16"=1'-0"

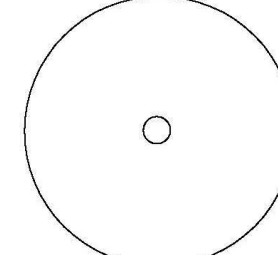
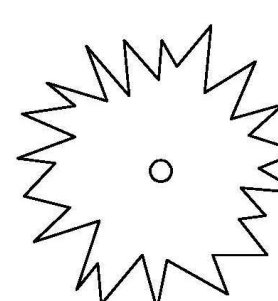
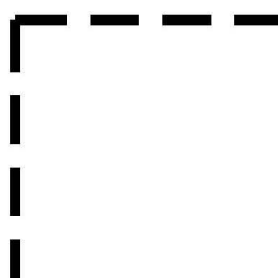


1 PLOT PLAN
A1.2 SCALE: 1"=20'-0"



2 FEMA VE (EL 14.8)
A1.2 SCALE: 1"=20'-0"

LEGEND

-  (E) TREES
-  (N) TREES
15-GAL CYPRESS TREE
-  50 x 50 BUILDING PAD

NEW RESIDENCE

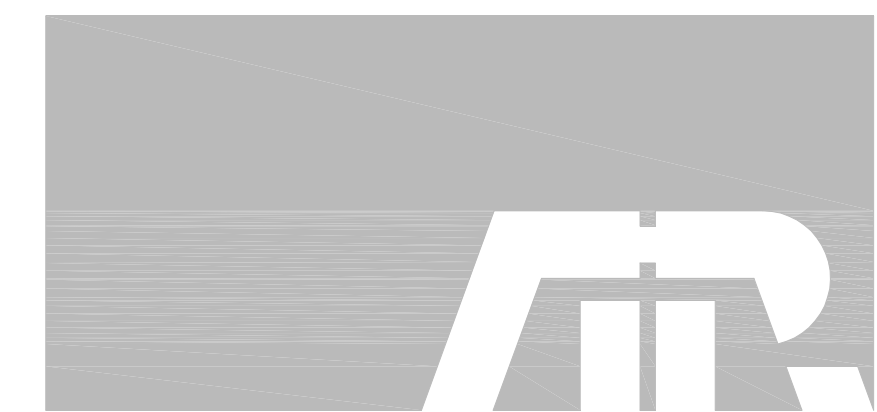
LOT- 145
APN: 052-301-69

145 RIO BOCA RD
WATSONVILLE, CA

Issues and Revisions		
No.	Date	Issues and Revisions By
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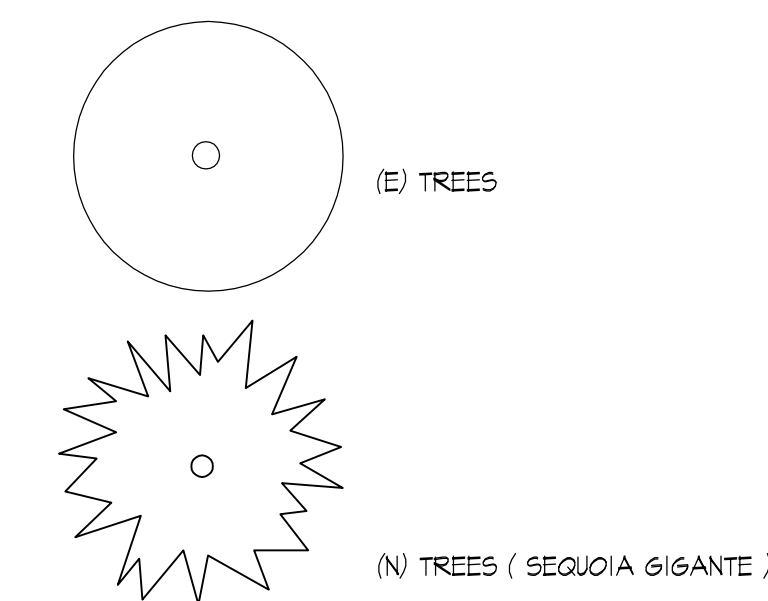
PLOT PLAN
FEMA PLAN

Project Number: 2018A106
Date: 04.30.21
Scale: 1"=20'-0"



MAIN HOUSE
COVERED PATIO

TREE LEGEND



NEW RESIDENCE

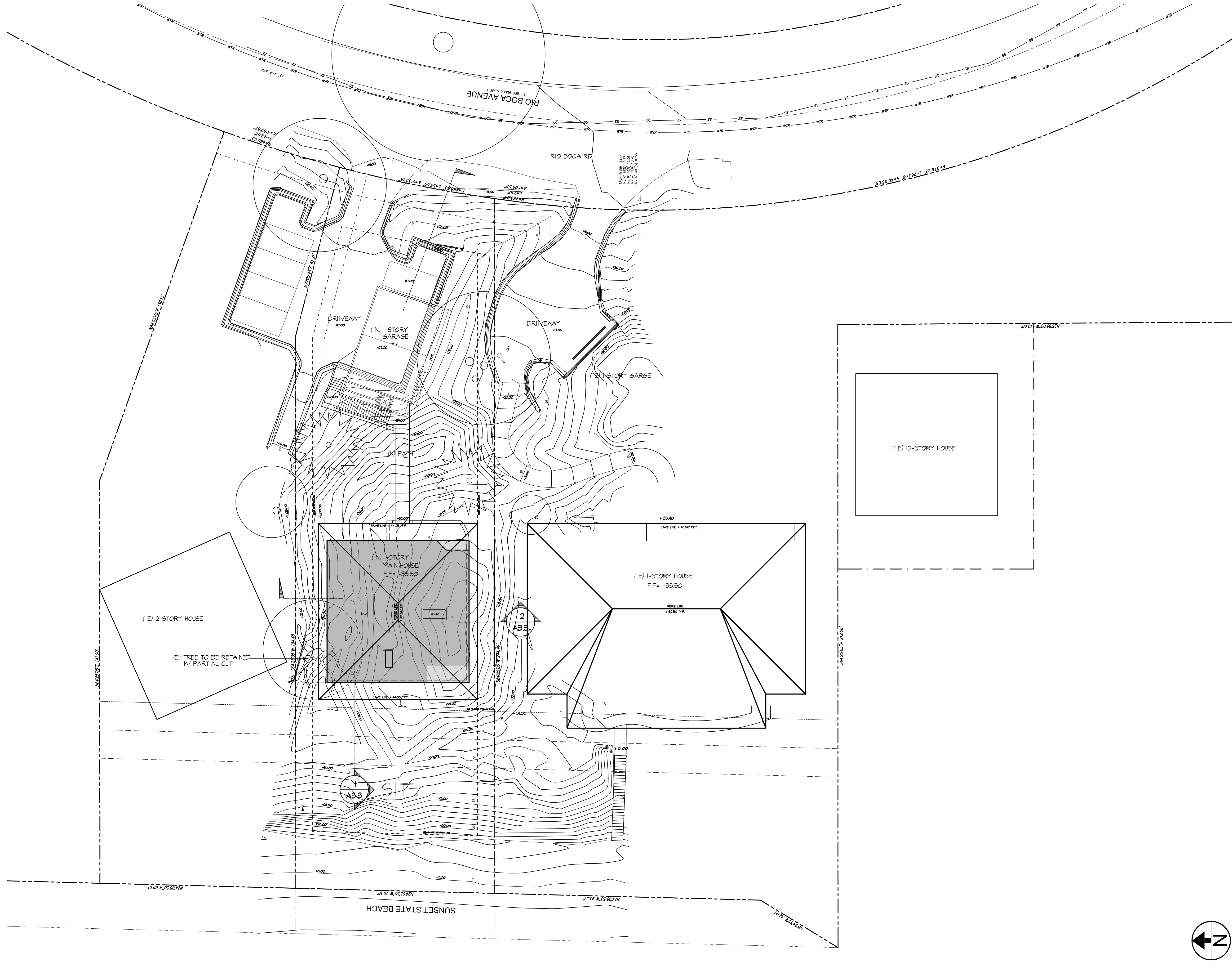
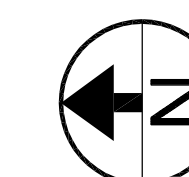
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WATSONVILLE, CA

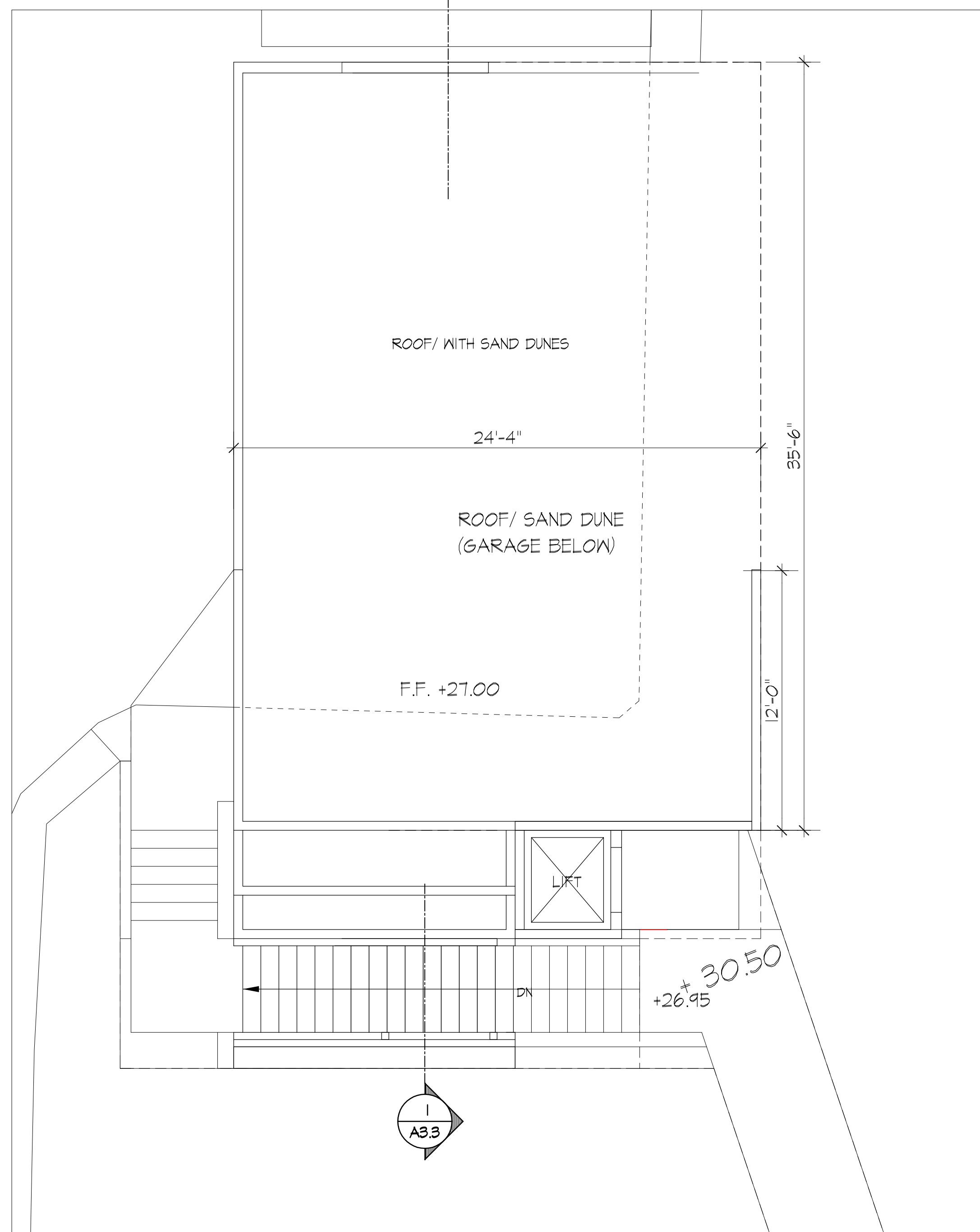
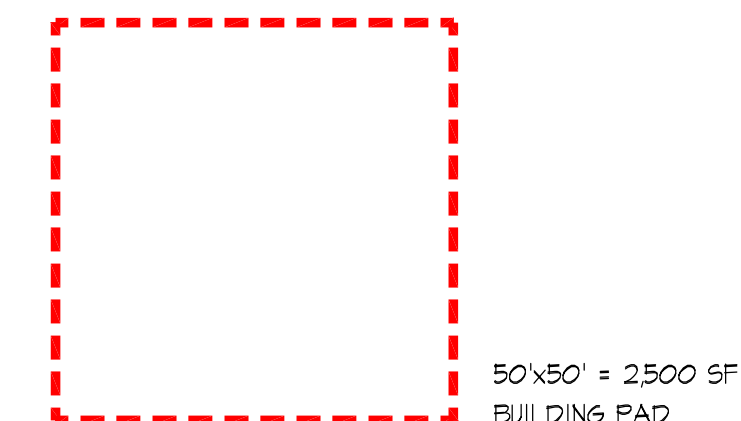
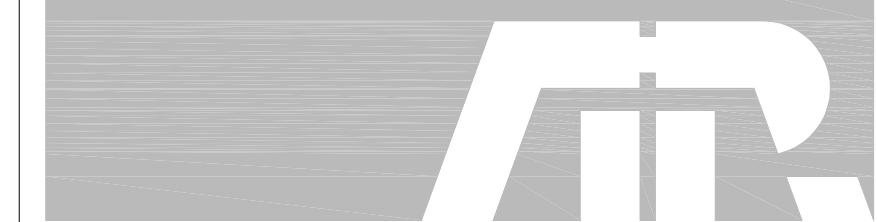
No.	Date	Issues and Revisions	By
	04/26/21	DESIGN REVIEW COMMENT 2	

ROOF PLAN
W/ CONTOUR OVERLAY

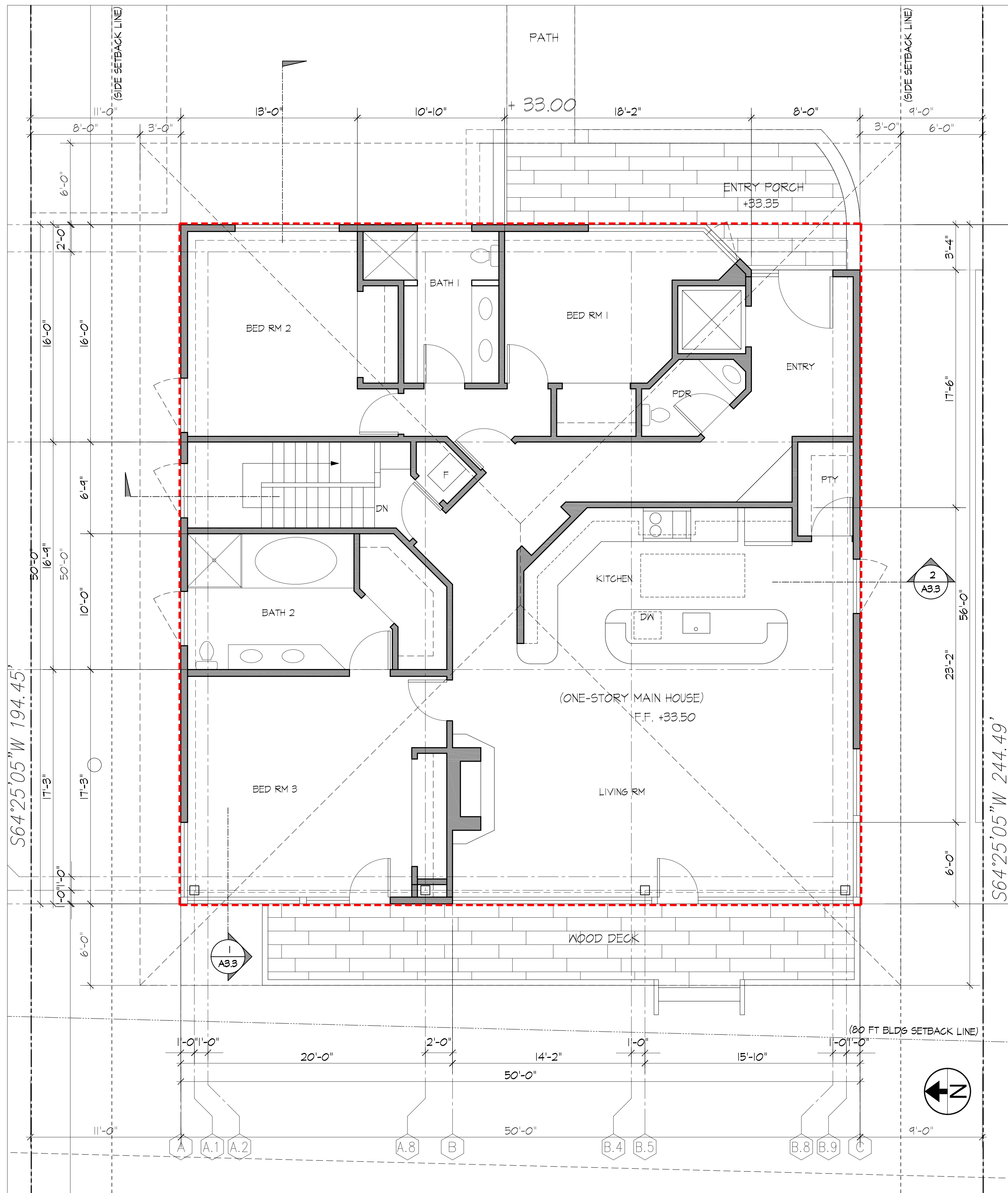
Project Number: 2018A106
Date: 04.30.21
Scale: 1"=20'-0"



1 ROOF PLAN (W/ CONTOUR OVERLAY)
A1.3 SCALE: 1"=20'-0"



2 GARAGE ROOF-TOP PLAN
A2.1 SCALE: 1/4" = 1'-0"



1 MAIN HOUSE 1ST FLOOR PLAN
A2.1 SCALE: 1/4" = 1'-0"

NEW RESIDENCE

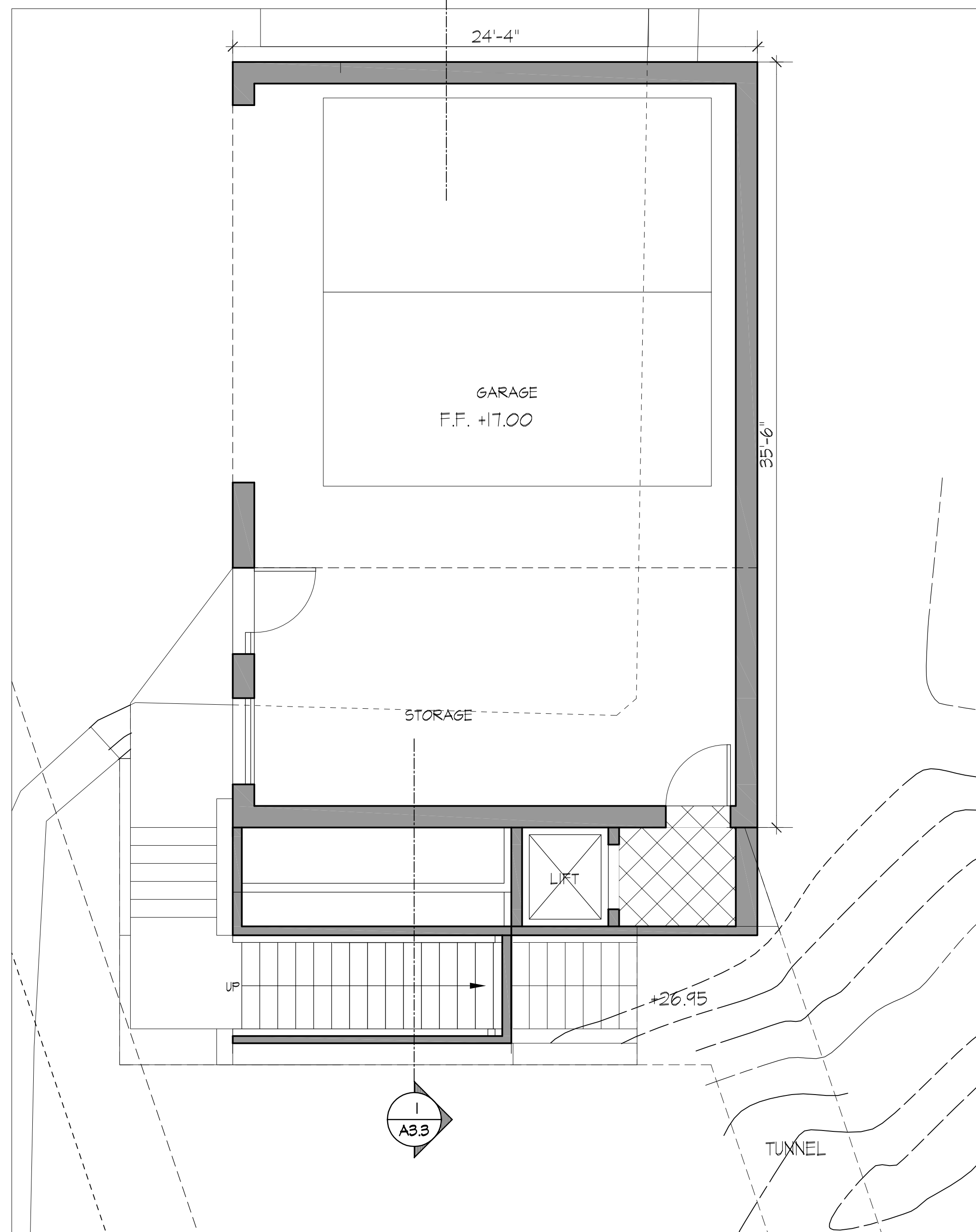
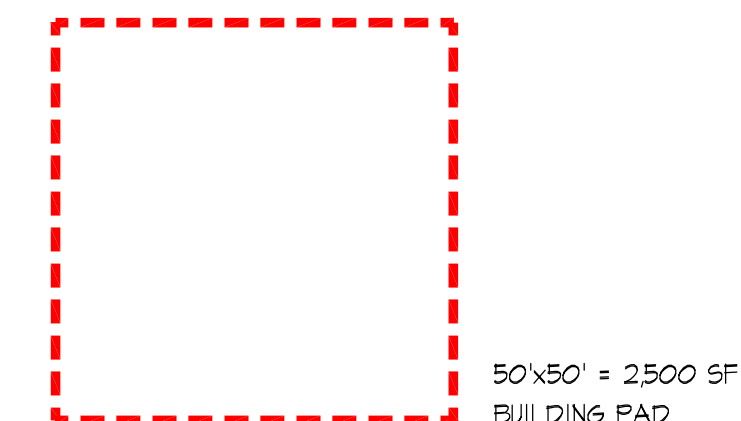
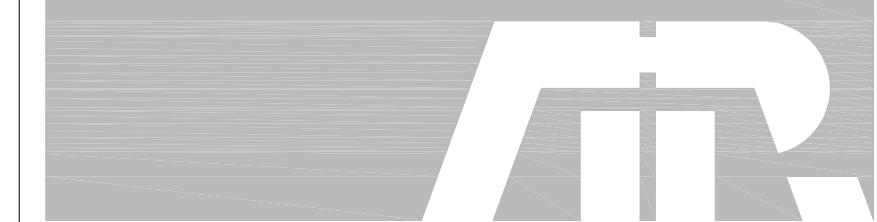
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WATSONVILLE, CA

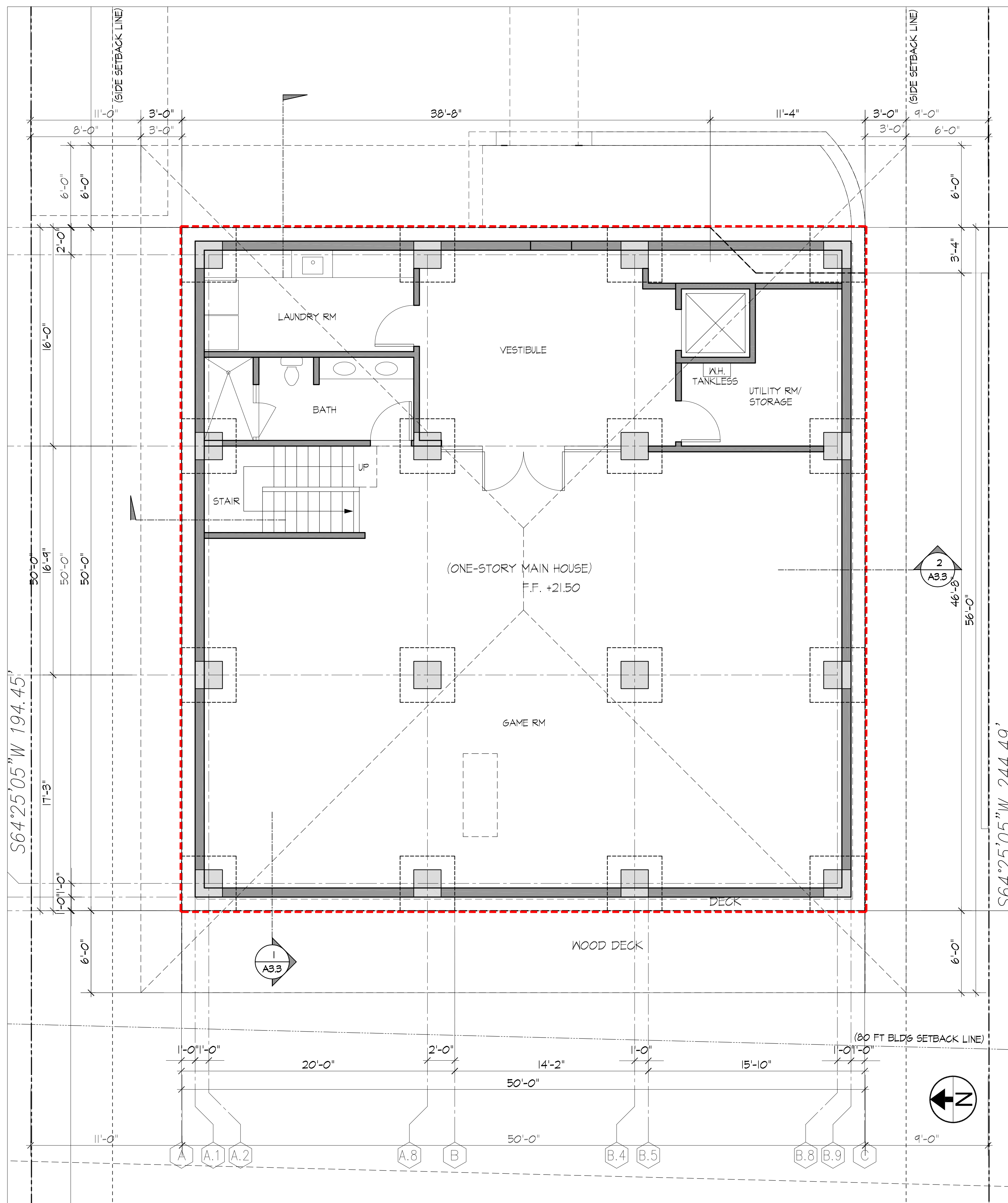
Issues and Revisions		
No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

FLOOR PLAN

Project Number: 2018A106
Date: 07.20.20
Scale: 1/4"=1'-0"



2 GARAGE FLOOR PLAN (LOWER)
A2.2 SCALE: 1/4" = 1'-0"



1 MAIN HOUSE BASEMENT FLOOR PLAN
A2.2 SCALE: 1/4" = 1'-0"

NEW RESIDENCE

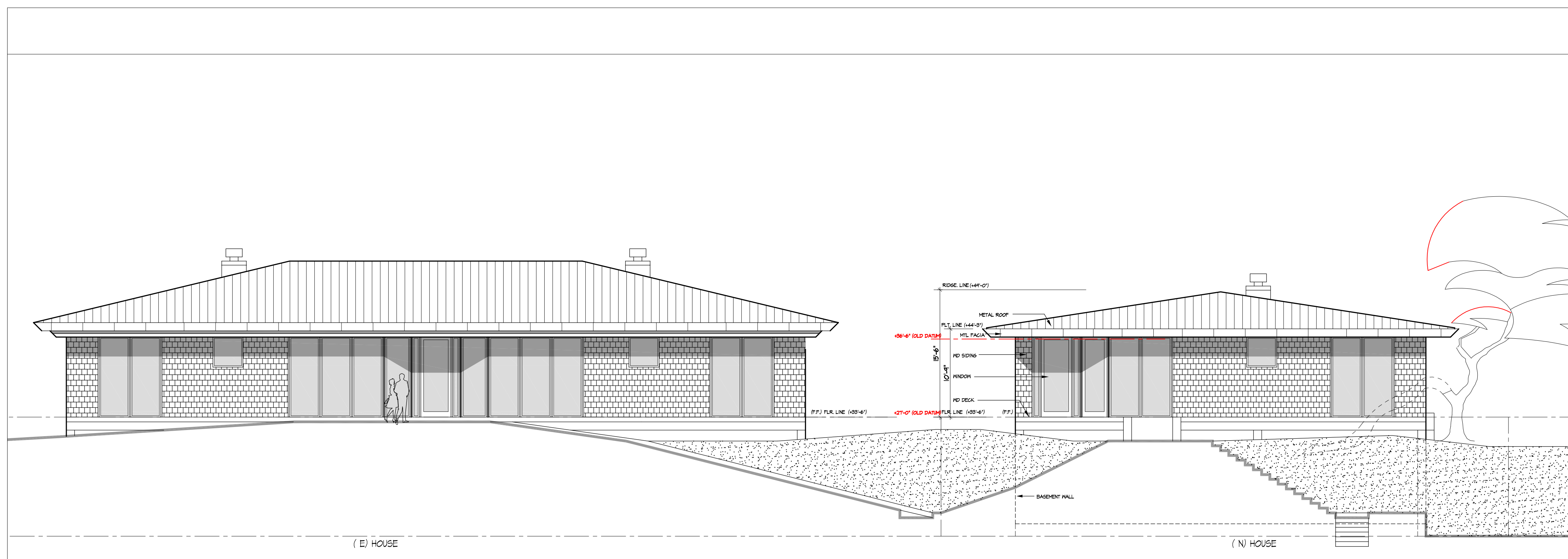
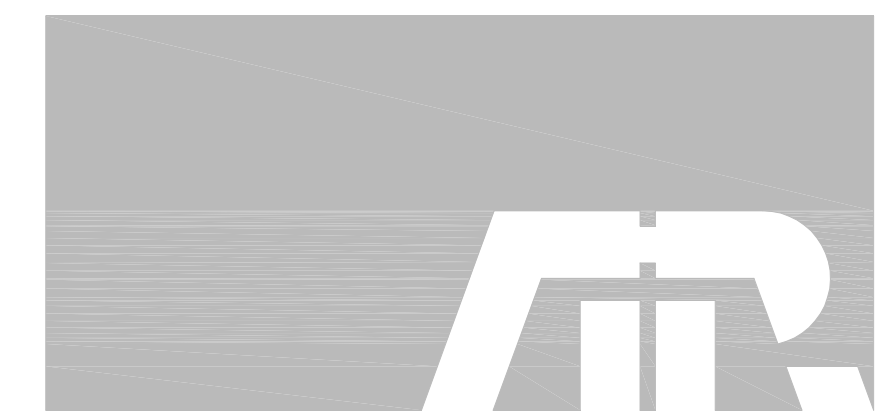
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145 RIO BOCA RD
WATSONVILLE, CA

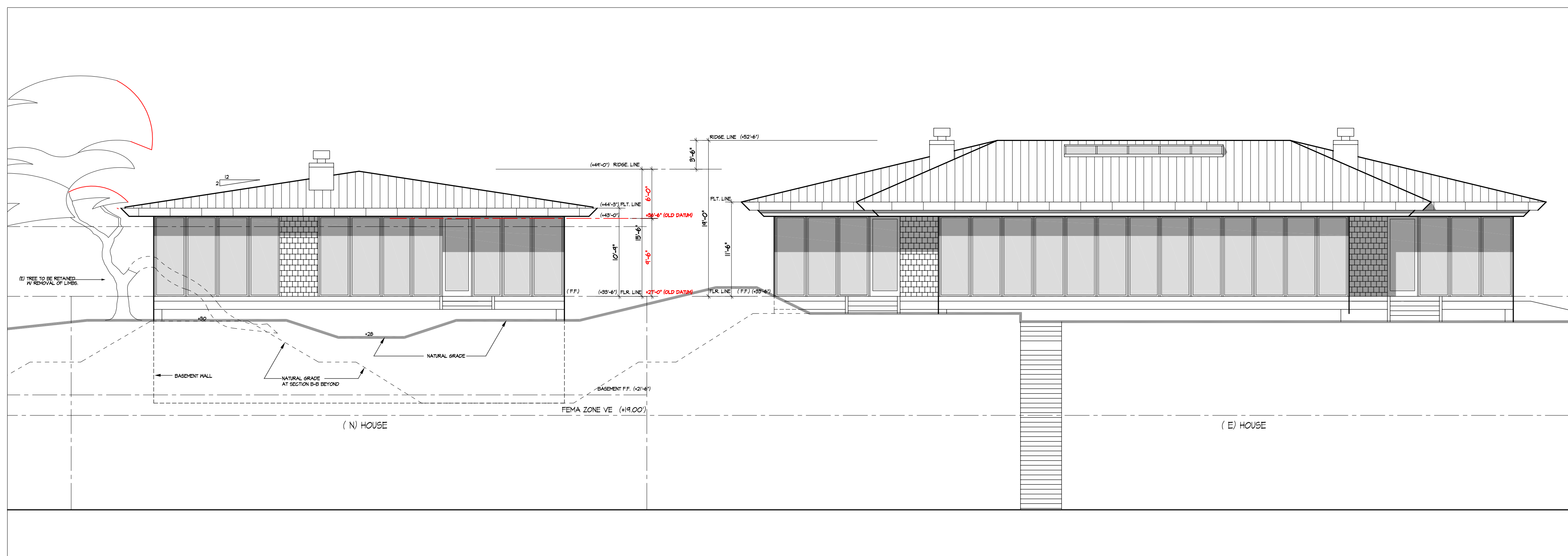
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No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

**LOWER FLOOR PLAN
(CONDITIONED BASEMENT)**

Project Number: 2018A106
Date: 07.20.20
Scale: 1/4" = 1'-0"



2
A3.1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"



1
A3.1 REAR ELEVATION (OCEAN SIDE)
SCALE: 1/8" = 1'-0"

NEW RESIDENCE

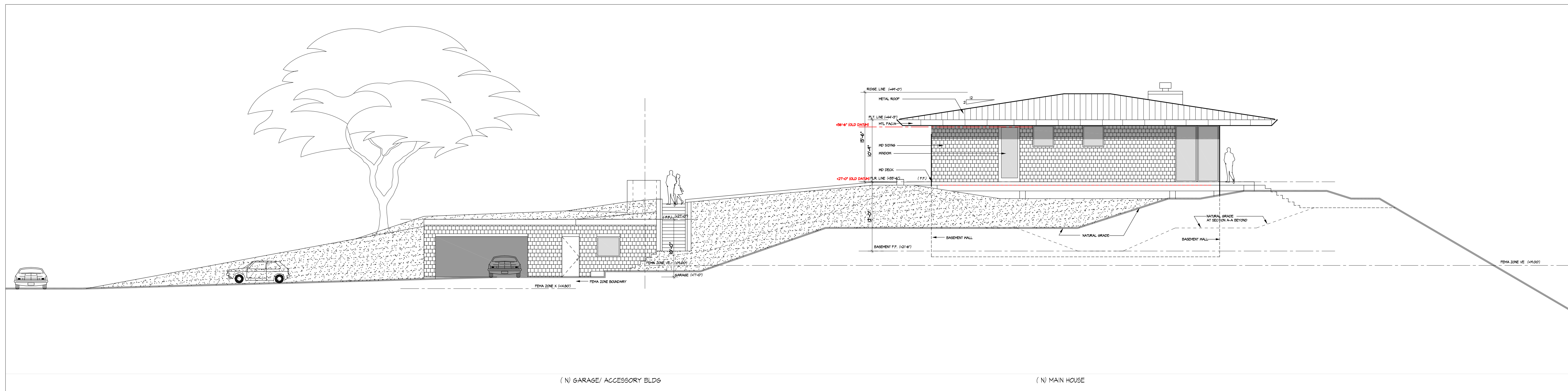
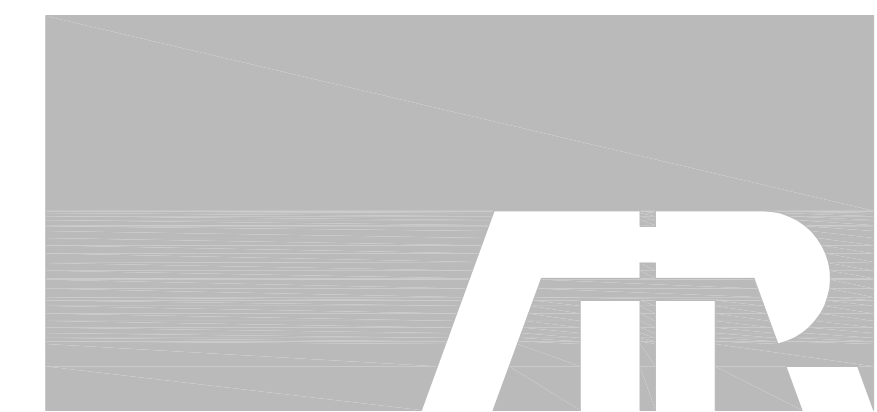
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WATSONVILLE, CA

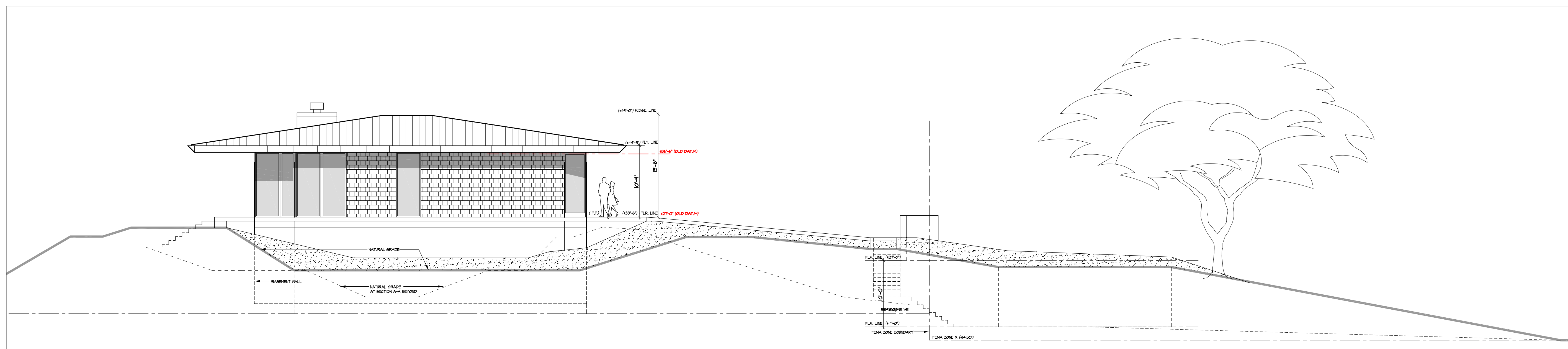
Issues and Revisions		
No.	Date	Issues and Revisions By
01	01/25/21	DESIGN REVIEW COMMENT 1
02	04/26/21	DESIGN REVIEW COMMENT 2

ELEVATIONS

Project Number: 2018A106
Date: 04.30.21
Scale: 1/8"=1'-0"



1 SIDE ELEVATION
A3.2 SCALE: 1/8" = 1'-0"



1 SIDE ELEVATION
A3.2 SCALE: 1/8" = 1'-0"

NEW RESIDENCE

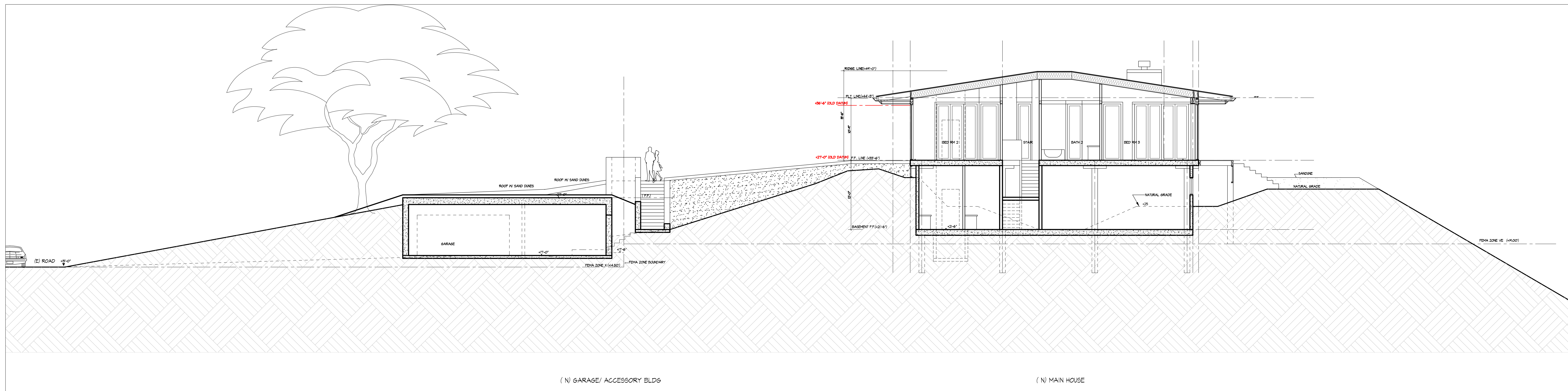
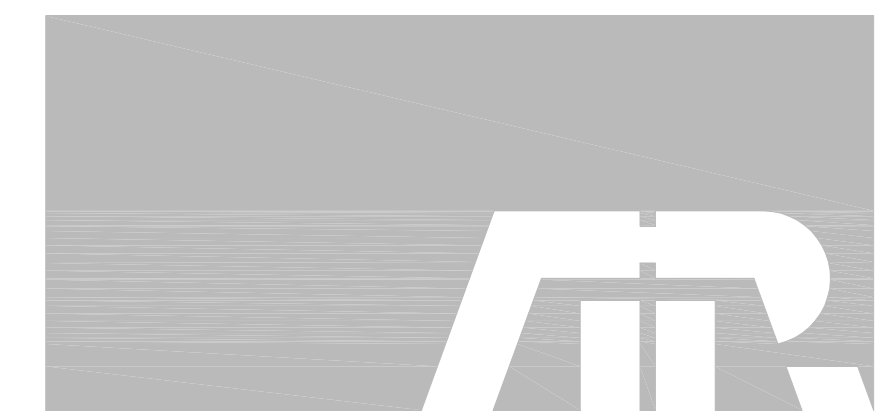
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WATSONVILLE, CA

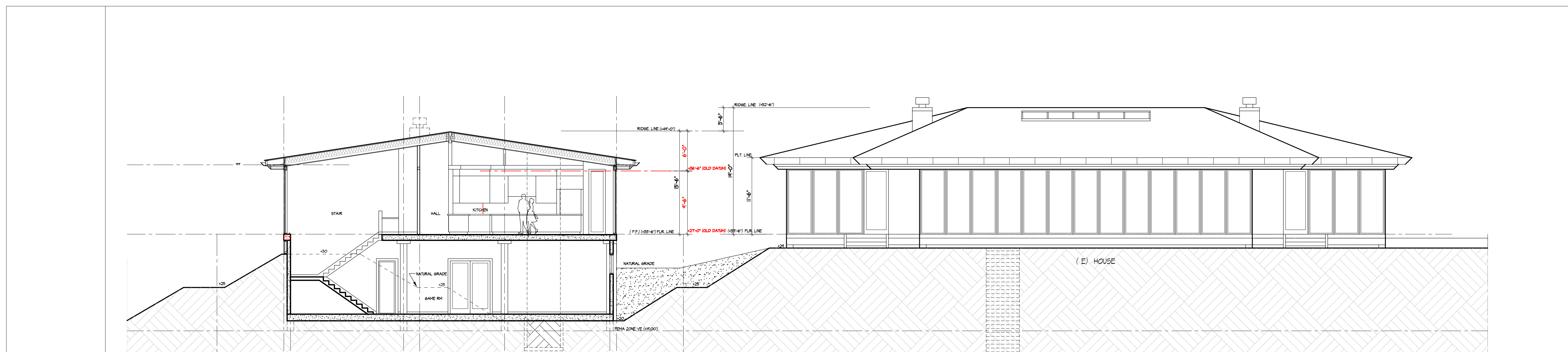
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No.	Date	Issues and Revisions By
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04/26/21		DESIGN REVIEW COMMENT 2

ELEVATION

Project Number: 2018A106
Date: 04.30.21
Scale: 1/8"=1'-0"



1 SECTION A-A
A3.3 SCALE: 1/8" = 1'-0"



2 SECTION B-B
A3.3 SCALE: 1/8" = 1'-0"

NEW RESIDENCE

LOT- 145
APN: 052-301-69

145 RIO BOCA RD
WATSONVILLE, CA

Issues and Revisions		
No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

SECTIONS

Project Number: 2018A106
Date: 04.30.21
Scale: 1/8"=1'-0"

A3.3



NEW RESIDENCE

LOT- 145
APN: 052-301-69

145 RIO BOCA RD
WATSONVILLE, CA

Issues and Revisions		
No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

PERSPECTIVES

Project Number: 2018A106
Date: 07.20.20
Scale: -



145 RIO BOCA ROAD, WATSONVILLE

MATERIALS & COLORS

NEW RESIDENCE

LOT- 145
APN: 052-301-69

145 RIO BOCA RD
WATSONVILLE, CA

Issues and Revisions		
No.	Date	Issues and Revisions By
01/25/21		DESIGN REVIEW COMMENT 1
04/26/21		DESIGN REVIEW COMMENT 2

COLORS AND MATERIALS

Project Number: 2018A106
Date: 07.20.20
Scale: -

LEGEND

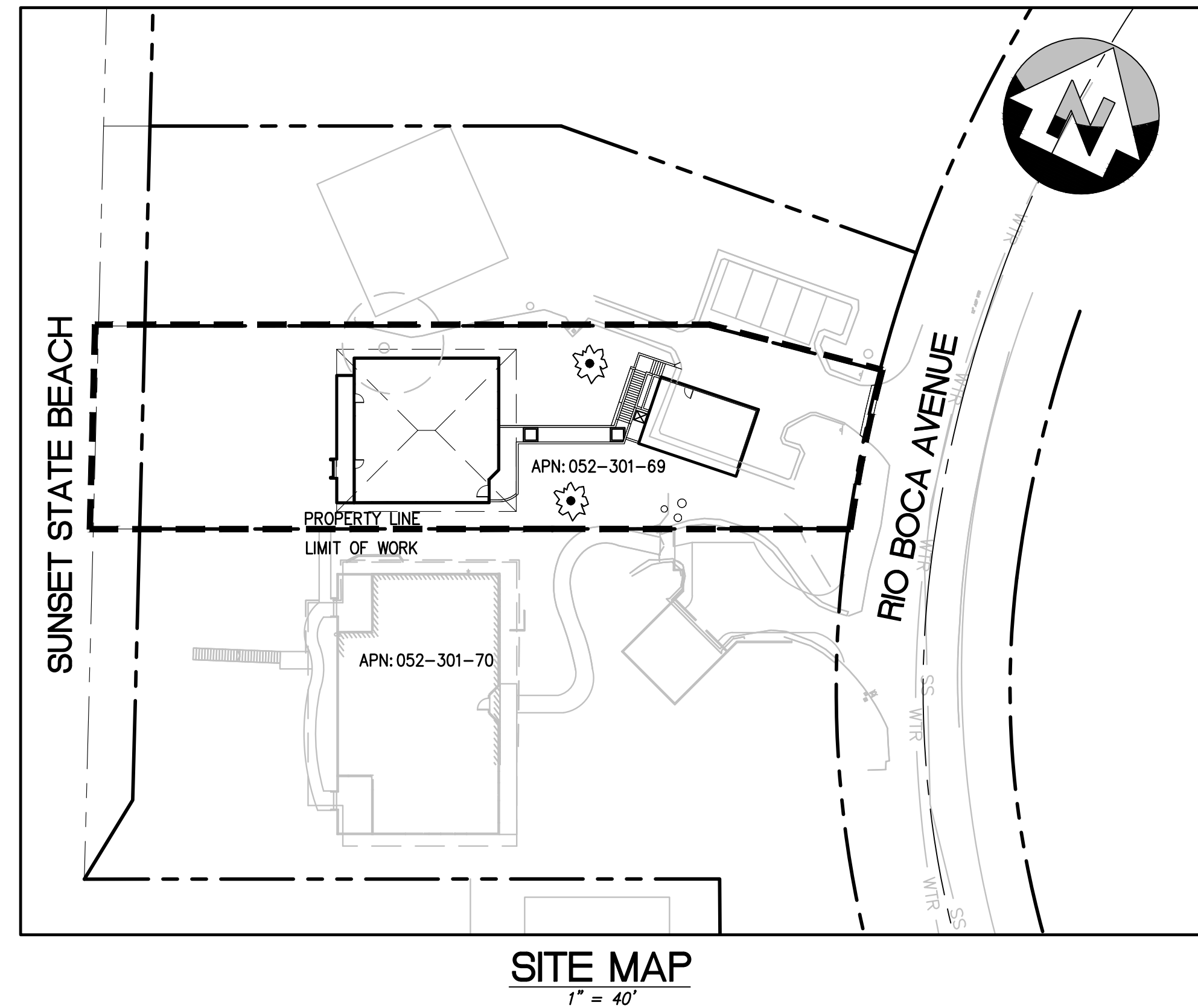
	EXISTING	PROPOSED
SAWCUT AND CONFORM LINE		
RETAINING WALL		
A.C. PAVEMENT		
CONC. VALLEY GUTTER		
CONC. SIDEWALK OR PAD		
6" CURB & GUTTER		
EDGE OF A.C. PAVEMENT		
6" VERTICAL CURB		
CENTER LINE		
SANITARY SEWER MAIN	8" SS	8" SS
STORM DRAIN MAIN	12" SD	15" SD
PERFORATED PIPE	6" SD	6" SD
WATER MAIN	6" W	6" W
FIRE WATER MAIN	6" FW	4" FW
DOMESTIC WATER MAIN	6" DW	4" DW
CHILLED WATER MAIN	6" CHW	4" CHW
IRRIGATION LINE	2" IRR	4" IRR
HOT WATER SUPPLY & RETURN	HWS-HWR	HWS
STEAM LINE	ST	ST
TRENCH DRAIN		
CONDENSATE RETURN	CR	CR
METAL BEAM GUARD RAIL		
SILT FENCE		
FLOW LINE		
CHAIN LINK FENCE	x x	x x
GAS MAIN	G	2" G
ELECTRIC AND SIGNAL DUCT BANK	E	E
OVERHEAD ELECTRIC LINE	OHE	OHE
UNDERGROUND ELECTRIC LINE	UGE	UGE
STREET LIGHT CONDUIT	SL	SL
CONTOUR ELEVATION LINE	85	89
SPOT ELEVATION	x 95.94	FG 95.94
DIRECTION OF SLOPE		2:1 1%
GAS METER		GM
GAS VALVE		GV
WATER METER		WM
WATER VALVE		WV
FIRE HYDRANT		FH
BACK FLOW PREVENTOR		BFP
POST INDICATOR VALVE		PIV
FIRE DEPARTMENT CONNECTION		FDC
WATER LINE TEE		WLT
CAP AND PLUG END		CP
AIR RELEASE VALVE		ARV
SIGN		S
ACCESSIBLE RAMP		AR
CONCRETE THRUST BLOCK		CTB
REDUCER		R
SANITARY SEWER MANHOLE		SSM
SANITARY SEWER CLEANOUT		SSCO
STORM DRAIN MANHOLE		SDM
STORMCEPTOR		SC
STORM DRAIN AREA DRAIN		SDAD
STORM DRAIN CATCH BASIN		SDCB
STORM DRAIN CURB INLET		SDCI
STORM DRAIN CLEANOUT		SDCO
ELECTROLIER		EL
JOINT POLE		JP
OVERLAND RELEASE		OR
CONSTRUCTION DETAIL REFERENCE		15 C5.2
DETAIL REFERENCE SHEET REFERENCE		

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ASB	AGGREGATE SUBBASE
BC	BEGINNING OF CURVE
BFP	BACK FLOW PREVENTOR
BLDC	BUILDING CORNER
BUDC	BUILDING
BOD	BOTTOM OF DOCK
BOL	BOLLARD
BOS	BOTTOM OF STEP
BOW	FG @ BOTTOM OF WALL
BVC	BEGIN VERTICAL CURVE
BW	BACK OF WALK
C	CONCRETE OR CIVIL
C&G	CURB AND GUTTER
CB	CATCH BASIN
CI	CURB INLET
CIP	CAST IRON PIPE
CL	CENTER LINE OR CLASS
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONST	CONSTRUCTION OR CONSTRUCT
CY	CUBIC YARD
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
DI	DROP INLET
DIP	DUCTILE IRON PIPE
DOM	DOMESTIC
DW	DOMESTIC WATER
DWG	DRAWING
E	END OF CURVE
EC	EDGE OF PAVEMENT
EP	END OF RETURN
EVC	END VERTICAL CURVE
ELEV	ELEVATION
EX, EXST.	EXISTING
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FOUND	FOUNDATION
FS	FINISHED SURFACE
FT	FOOT
FW	FIRE WATER
G	GROUND ELEVATION
GB	GRADE BREAK
GV	GATE VALVE
HGR	ACCESSIBLE RAMP
HP	HIGH POINT
INV	INVERT ELEVATION
JP	JOINT POLE
JT	JOINT TRENCH
LIP	LIP OF GUTTER
LP	LOW POINT
LSA	LANDSCAPE ARCHITECT
MAX	MAXIMUM
MEP	MECHANICAL/ELECTRICAL/PLUMBING
MH	MANHOLE
MIN	MINIMUM
MPVC	MIDPOINT OF VERTICAL CURVE
MON	MONUMENT
N	NORTH
N.I.C.	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
P	PAVEMENT ELEVATION
PCC	PORTLAND CEMENT CONCRETE / POINT OF CONTINUOUS CURVATURE
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PMH	POWER MANHOLE
POC	POINT ON CURVE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RC	RELATIVE COMPACTION
RCP	REINFORCED CONCRETE PIPE
RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
R/W	RIGHT OF WAY
S	SLOPE OR SOUTH
S.A.D.	SEE ARCHITECTURAL DRAWINGS
SD	SEDIMENT BASIN
SDM	STORM DRAIN
S.E.D.	SEE ELECTRICAL DRAWINGS
SF	SILT FENCE
S.E.L.	SEE LANDSCAPE DRAWINGS
S.M.D.	SEE MECHANICAL DRAWINGS
S.M.E.	SEE PLUMBING DRAWINGS
SS	SANITARY SEWER
TC	TOP OF CURB
TOS	TOP OF STAIR
TOW	FG @ TOP OF WALL
TS	TOP OF SLAB
TYP	TYPICAL
UNLESS OTHERWISE NOTED	UNLESS OTHERWISE NOTED
UNDERGROUND	UNDERGROUND
V	VERTICAL CURVE
W	WATER METER
WM	WATER METER
WV	WATER VALVE
W	WEST

145 RIO BOCA AVENUE

WATSONVILLE, CA 95076



EARTHWORK QUANTITIES

CUT 400 CY
FILL 50 CY
BALANCE 350 CY (EXPORT)

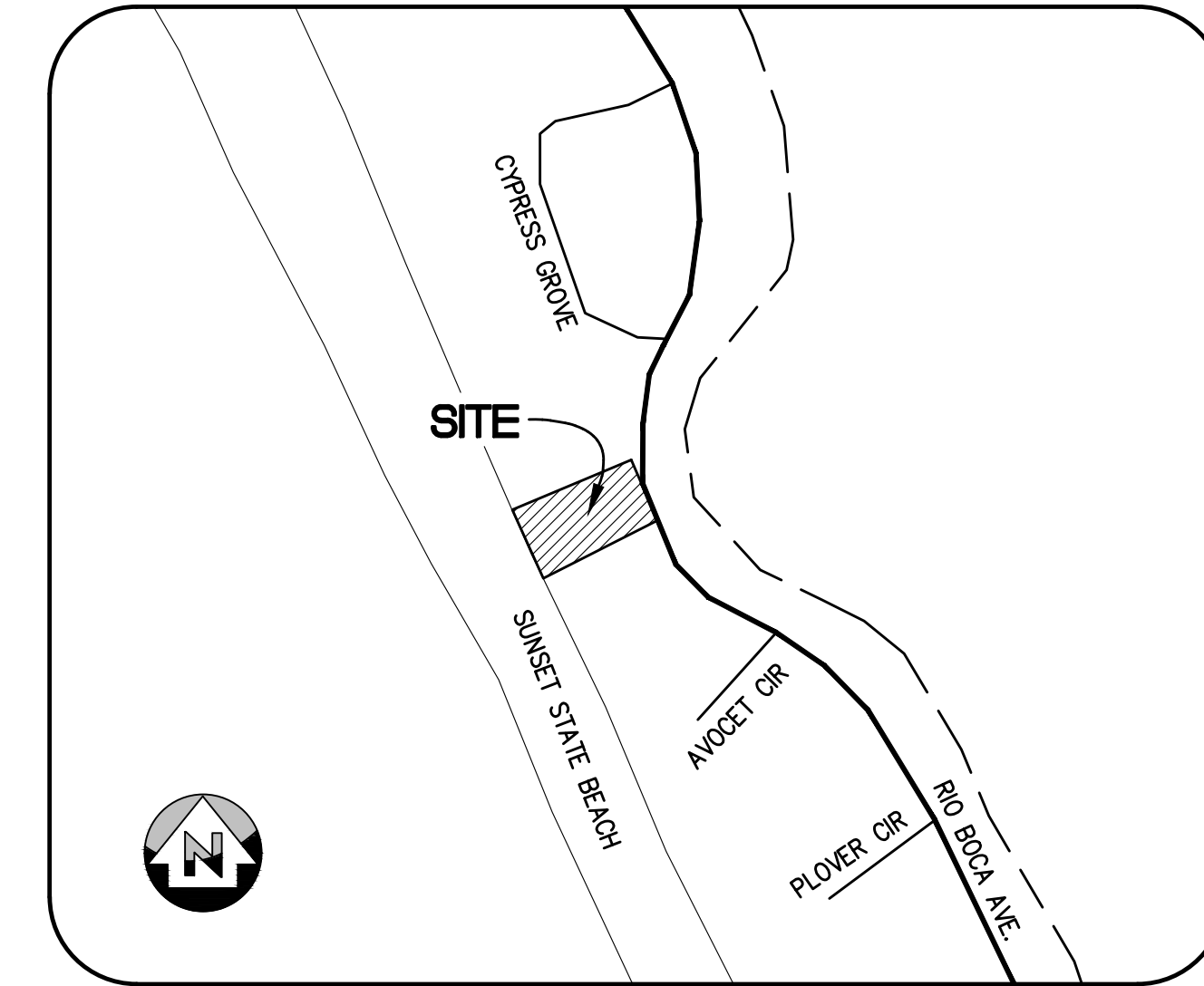
THE EARTHWORK QUANTITIES SHOWN ARE PROVIDED FOR THE PURPOSE OF GRADING PERMIT APPROVAL ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT/FILL, IMPORT/EXPORT AS NECESSARY TO MEET THE DESIGN GRADES AS SHOWN ON THE PLANS REGARDLESS OF THE ESTIMATED EARTHWORK QUANTITIES AS INDICATED. SIGNIFICANT REVISIONS TO THE QUANTITIES NEED REVIEW BY THE CITY OF SANTA CRUZ. FILL SHORTAGE IS ANTICIPATED TO COME FROM ON-SITE SPOILS ACQUIRED FROM UTILITY TRENCHES AND FOOTING SPOILS.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.



UNAUTHORIZED CHANGES AND USES

CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THE PLANS.



PROJECT DESCRIPTION

EXISTING (VACANT) 18,395 SQ FT LOT TO BE DEVELOPED. NEW 2,500 SQ FT ONE STORY HOME WITH BASEMENT AND 2 CAR GARAGE TO BE BUILT WITH TUNNEL CONNECTING THE TWO STRUCTURES. PORTIONS OF LOT TO BE RAISED TO MATCH NEIGHBORING PROPERTY. (NEIGHBORING PROPERTY SAME OWNER).

OWNER INFO

CONTACT PERSON: JOHN ARRILLAGA
2450 WATSON COURT
PALO ALTO, CA 94303
PH: 650-618-7000

CIVIL SHEET INDEX

C-0.0	COVER SHEET
C-1.0	TOPOGRAPHIC SURVEY
C-2.0	GRADING PLAN
C-2.1	GRADING SECTIONS
C-3.0	UTILITY PLAN
C-4.0	STORMWATER MANAGEMENT PLAN
C-4.1	EX. WATERSHED AREA MAP
C-4.2	PROPOSED WATERSHED AREA MAP
C-5.0	EROSION CONTROL PLAN
C-6.0	EROSION CONTROL DETAILS
C-7.0	CONSTRUCTION DETAILS
C-7.1	CONSTRUCTION DETAILS
L-1.0	LANDSCAPE PLANS

PROJECT DATA TABLE

	LOT	18,395 SF
SQUARE FOOTAGE	EX.STRUCTURES	0 SF
	PROP.STRUCTURES	5,705 SF
	GROSS BUILDING AREA	5,705 SF
FAR	FLOOR AREA RATIO	0.31
COVERAGE	LOT COVERAGE	16%
UTILITIES	CITY OF WATSONVILLE	SEWER
	CITY OF WATSONVILLE	WATER
PROPOSED LAND COVERAGE	PERVIOUS	11,108 SF
	TOTAL IMPERVIOUS	5,946 SF



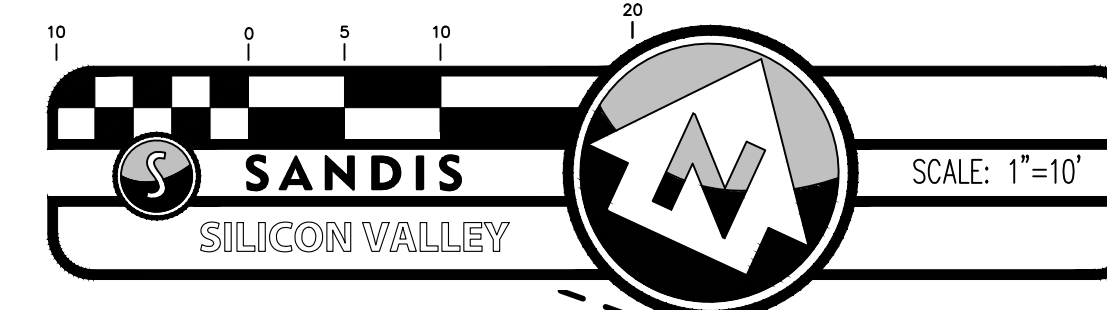
1700 S. Winchester Blvd, Suite 200, Campbell, CA 95008 | P. 408.636.0900 | F. 408.636.0999 | www.sandis.net
SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF

DATE:	02/05/2021
SCALE:	N.T.S.
DRAWN BY:	DB
APPROVED BY:	EE
DRAWING NO.:	218593

No.	REVISION/ISSUE	DATE	BY
1	PLANNING PERMIT SUBMITTAL	11/3/20	DB
2	PLANNING RESUBMITTAL	2/5/21	DB
3	PLANNING RESUBMITTAL	5/28/21	AP

145 RIO BOCA
COVER SHEET
WATSONVILLE CALIFORNIA

SHEET
C-0.0
OF 13 SHEETS
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SURVEY NOTES

1. ALL DISTANCES AND DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
2. DATES OF FIELD SURVEY: 12/11/2018-12/12/2018
3. HORIZONTAL CONTROL AND VERTICAL CONTROL IS BASED ON AN ASSUMED COORDINATE SYSTEM.

UNDERGROUND UTILITY NOTE

THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS TOPOGRAPHIC SURVEY ARE APPROXIMATE AND WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES, HOWEVER, THE ENGINEER CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THIS SURVEY.

BENCHMARK

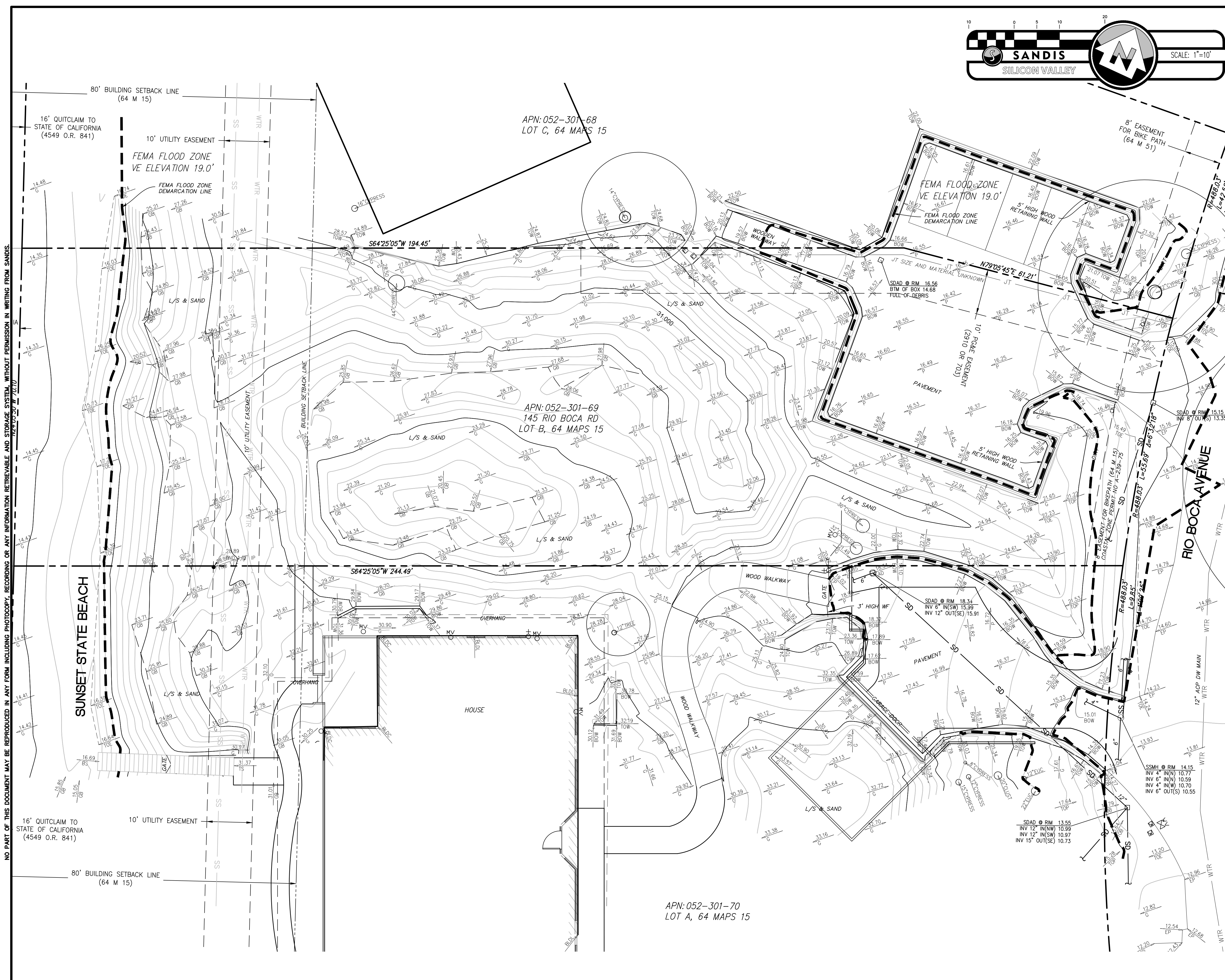
THE ELEVATION REFERENCE FOR THIS SURVEY IS A SANTA CRUZ COUNTY BENCH MARK
 BM 143, DESCRIBED AS BRASS CAP STAMPED S.D.1, LOCATED AT SOUTH END OF FLOOD CONTROL DAM ON SHELL DR.

ELEV=9.04 FEET (NAVD 88 DATUM)

*TO CONVERT ELEVATIONS TO OLD WATSONVILLE DATUM
 SUBSTRACT 6.395 FEET.

UNDERGROUND UTILITY NOTE

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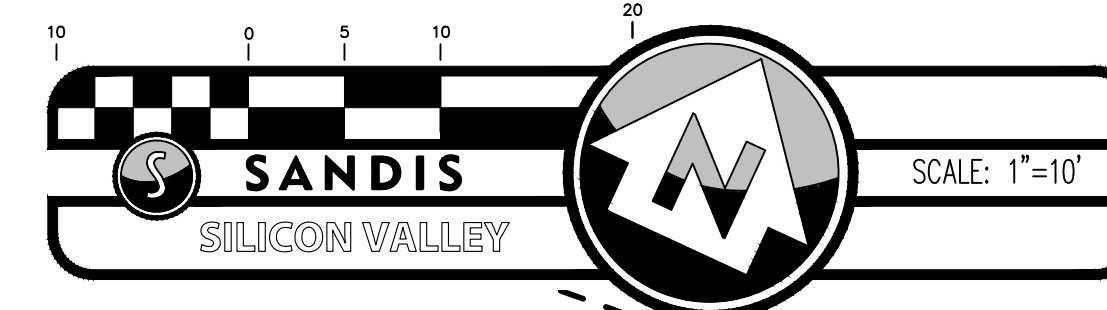
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145 RIO BOCA
TOPOGRAPHIC SURVEY
WATSONVILLE CALIFORNIA

SHEET
C-1.0
 OF 13 SHEETS



GRADING PLAN LEGEND

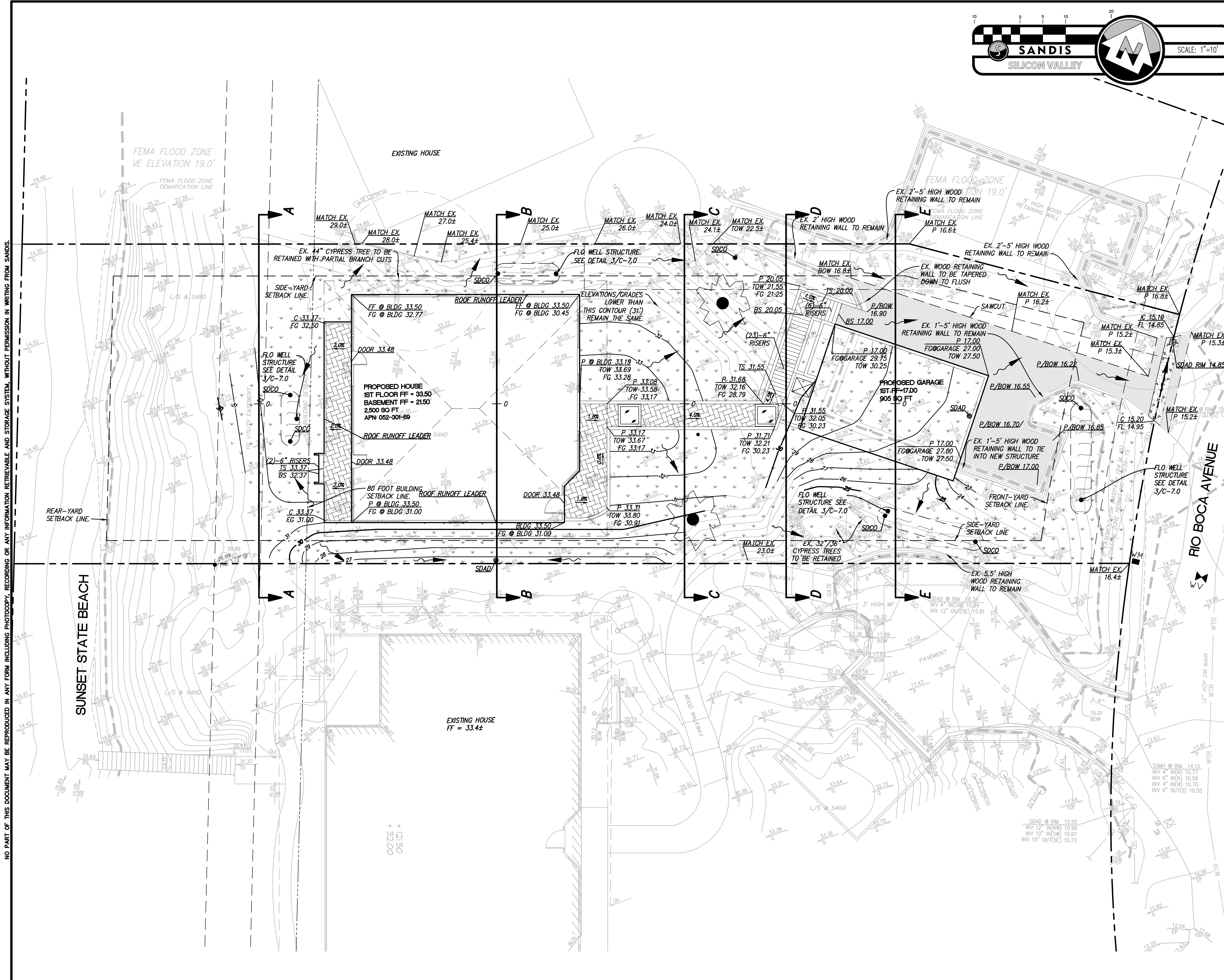
- ASPHALT CONCRETE PAVING (X-C-XX)
- GLASS SKYLIGHT, SEE ARCHITECTURAL PLANS FOR DETAILS
- LANDSCAPE AREA, SEE LANDSCAPE PLANS FOR DETAILS
- PEDESTRIAN PAVERS (X-C-XX)
- GRADE BREAK
- FLOW DIRECTION
- SAWCUT
- MINOR CONTOUR
- MAJOR CONTOUR

GENERAL NOTES

1. EXISTING (VACANT) 17,054 SQFT LOT TO BE DEVELOPED. NEW 2,500 SQFT ONE STORY HOME WITH BASEMENT AND 2 CAR GARAGE. PORTIONS OF LOT TO BE RAISED TO MATCH NEIGHBORING PROPERTY. (NEIGHBORING PROPERTY SAME OWNER).
2. SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UPDATED GEOTECHNICAL INVESTIGATION, FILE NO. SV1858A DATED MAY 3, 2021.

GRADING NOTES

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING ALL HARDSCAPE SURFACES AT 2% AND LANDSCAPE SURFACES AT 5% AWAY FROM STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.
2. STRUCTURE WALLS: PER CBC 2304.11.2.2 (WOOD SUPPORTED BY FOUNDATION) PROVIDE 8" MINIMUM CLEAR TO EXTERIOR GRADE.
3. ALL FILL, IMPORT SOILS AND GRADING SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL REPORT PERFORMED BY SILICON VALLEY SOIL ENGINEERING, DATED DECEMBER 11, 2018, PROJECT NUMBER SV1858
4. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
5. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1 OR THE ADA REQUIREMENTS BELOW. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
6. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
8. ALL GRADING SHALL CONFORM TO APPROVED SPECIFICATIONS PRESENTED HEREON OR ATTACHED HERETO. ALL GRADING WORK SHALL BE OBSERVED AND APPROVED BY THE SOILS ENGINEER. THE SOILS ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS BEFORE BEGINNING ANY GRADING. UNOBSERVED AND UNAPPROVED GRADING WORK SHALL BE REMOVED AND REDONE AT THE CONTRACTORS EXPENSE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY EXISTING IMPROVEMENTS OF UNDERGROUND FACILITIES DAMAGED DURING THE CONSTRUCTION PERIOD.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL ENCROACHMENT, EXCAVATION, CONCRETE, ELECTRICAL, PLUMBING, ETC. PERMITS NECESSARY PRIOR TO BEGINNING CONSTRUCTION FOR ANY WORK.
11. THE RISE/ RUN/ STEP COUNT IS FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND BUILDING CODE COMPLIANCE PRIOR TO ANY WORK.
12. AREAS LACKING TOPOGRAPHIC INFORMATION (ELEVATIONS) HAVE BEEN INTERPOLATED USING STANDARD ENGINEERING METHODS. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AT CONFORMS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT BACK ANY DISCREPANCIES TO THE CIVIL ENGINEER.
13. ADJUST ANY MANHOLE OR UTILITY STRUCTURES TO PROPOSED GRADE PRIOR TO INSTALLING FINAL LIFT OF AC OR POURING CONCRETE.
14. SITE ASSESSMENT HAS BEEN PERFORMED AND SHOWS A LOCAL LOW POINT IN THE SOUTHWEST PORTION OF THE SITE WAS OBSERVED. THIS AREA IS IN THE APPROXIMATE LOCATION OF THE PROPOSED RESIDENCE AND WILL BE GRADED TO FLOW INTO ON-SITE DRYWELLS, ELIMINATING THE DRAINAGE ISSUES. NO ANTICIPATED ADVERSE IMPACTS RESULTING FROM THE PROPOSED IMPROVEMENTS



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SCALE:	1"=10'
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APPROVED BY:	DIS
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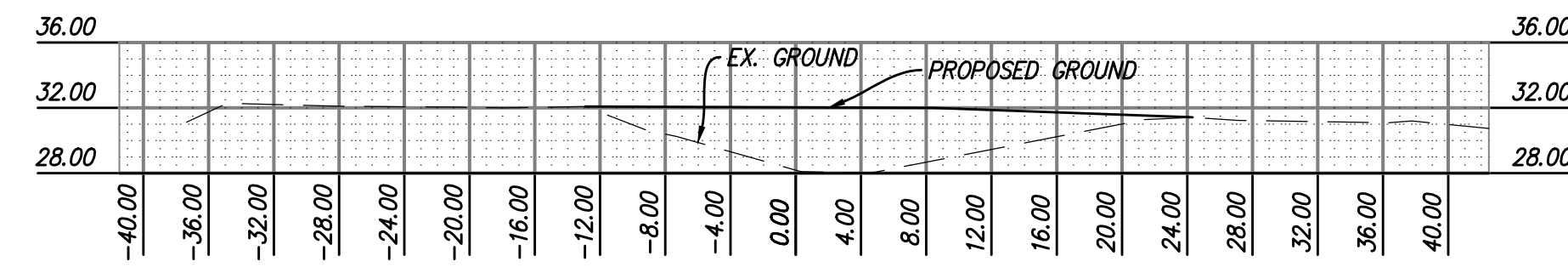
145 RIO BOCA GRADING PLAN
WATSONVILLE CALIFORNIA

SHEET
C-2.0
 OF 13 SHEETS

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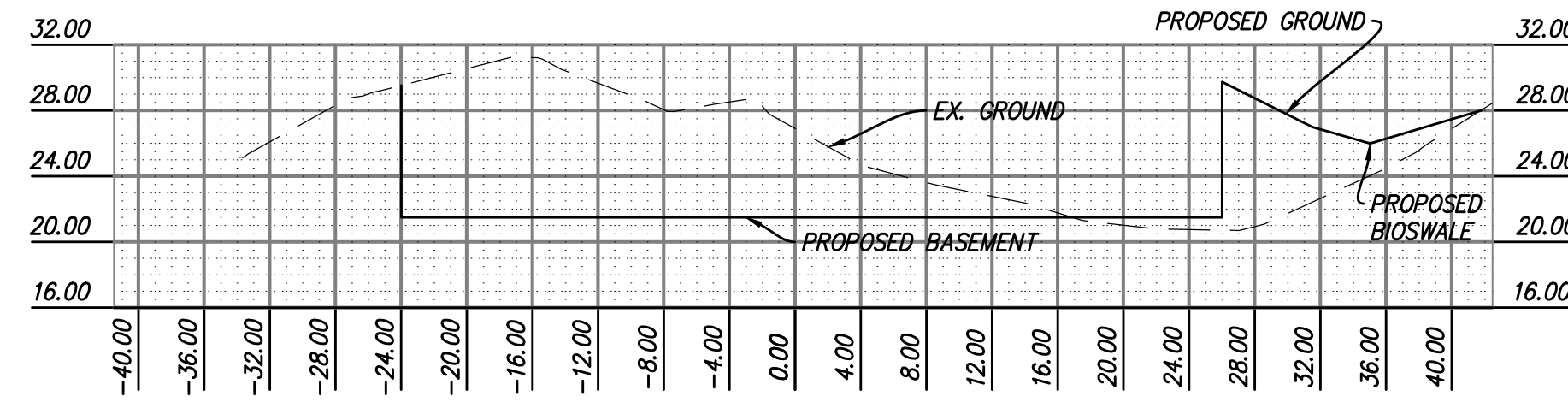
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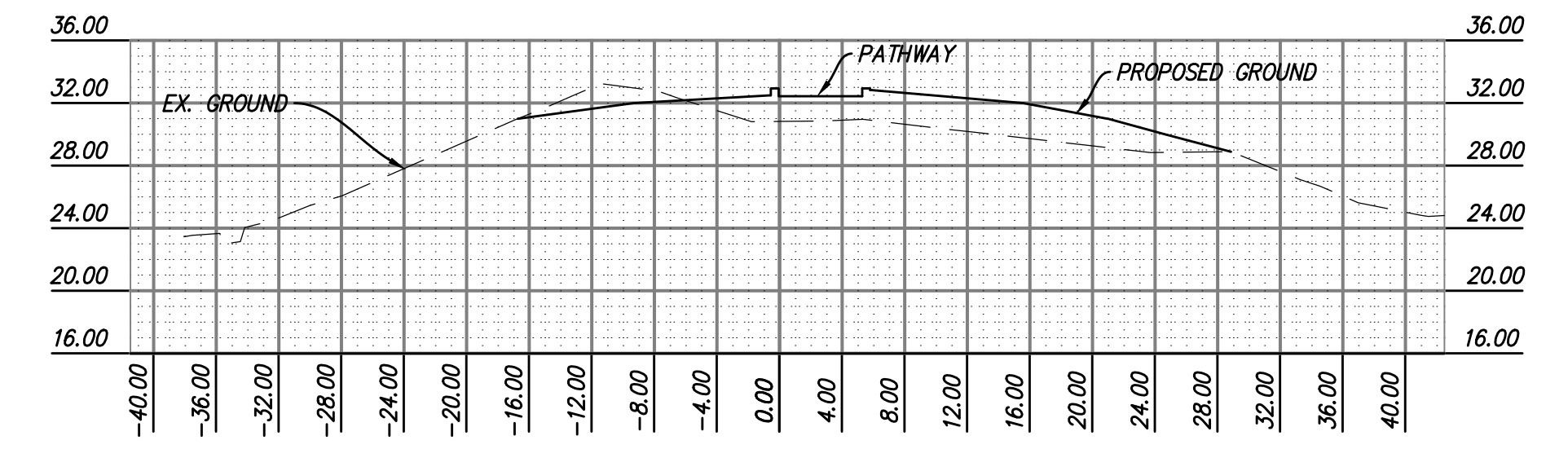
SECTION A-A

HORIZ: 1"=10'
VERT: 1"=10'



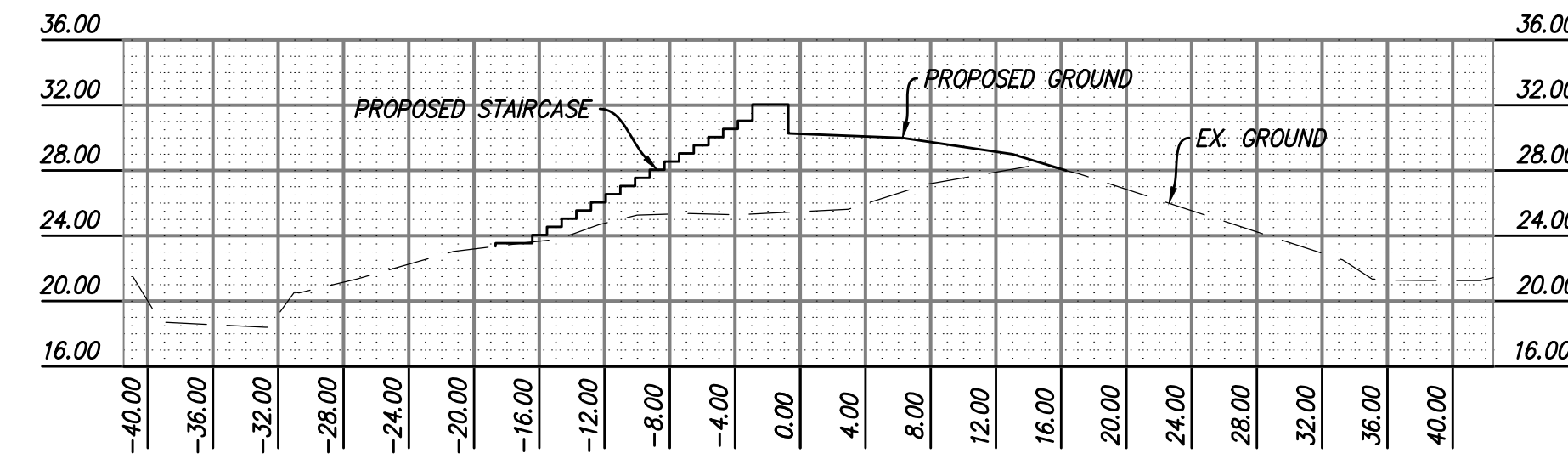
SECTION B-B

HORIZ: 1"=10'
VERT: 1"=10'



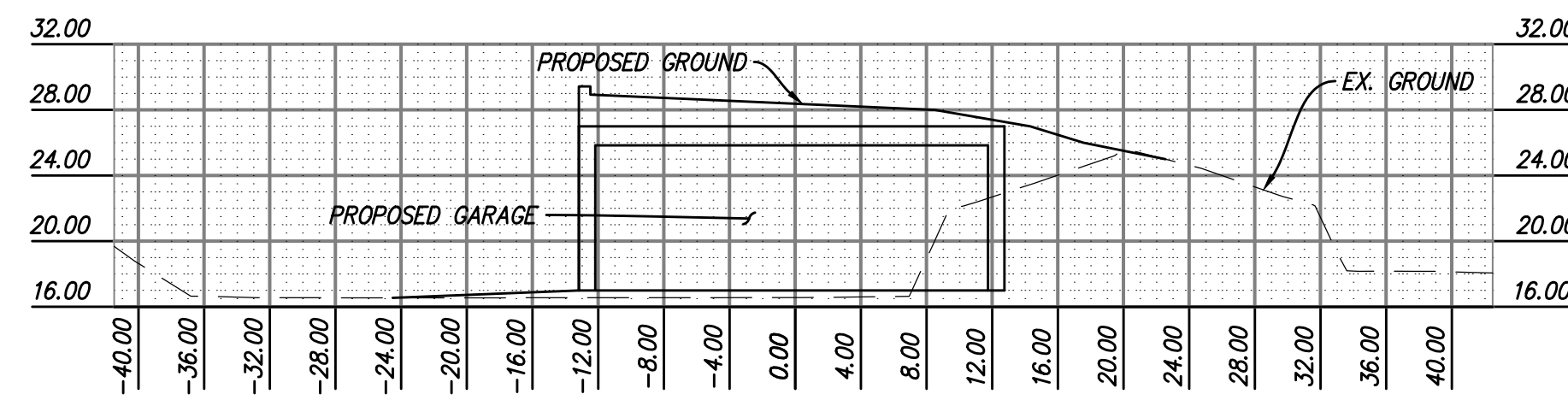
SECTION C-C

HORIZ: 1"=10'
VERT: 1"=10'



SECTION D-D

HORIZ: 1"=10'
VERT: 1"=10'



SECTION E-E

HORIZ: 1"=10'
VERT: 1"=10'



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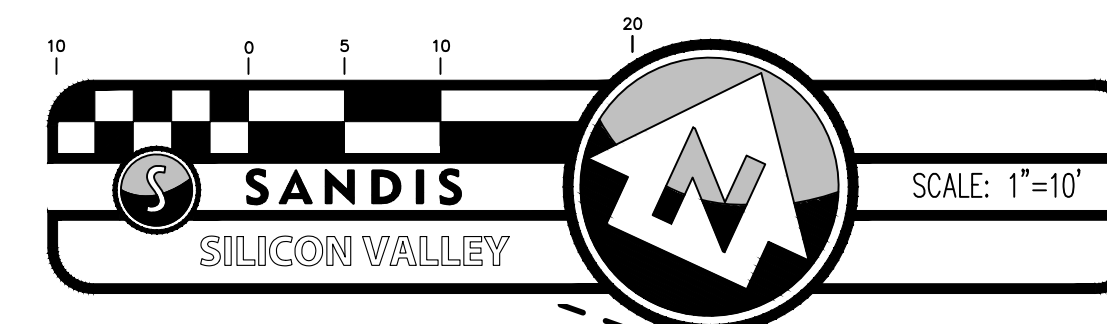
SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF

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**145 RIO BOCA
GRADING SECTIONS
WATSONVILLE CALIFORNIA**

SHEET
C-2.1
OF 13 SHEETS



LEGEND	
---	PROPERTY LINE
SD	STORM DRAIN SDR-35 PVC
SS	SANITARY SEWER SDR-26 PVC
WTR	DOMESTIC WATER C900 PVC
●	AREA DRAINS
●	CLEAN OUT

STORM DRAIN NOTES

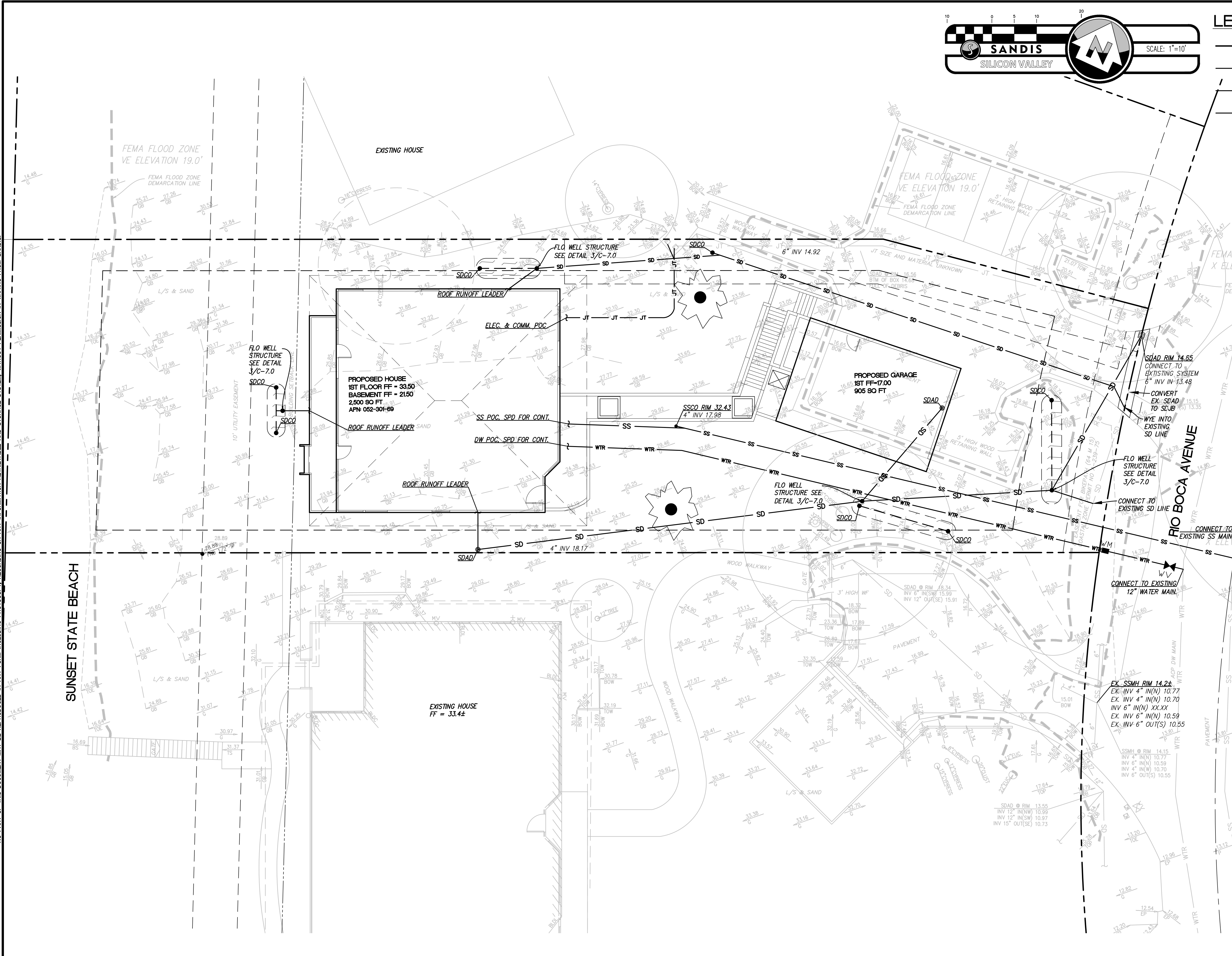
- PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH WITH A MINIMUM OF TWO (2) FEET OF COVER IN NON-TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 GREEN PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH BELLS AND SPIGOT CONNECTIONS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS, 45° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
- PRIVATE STORM DRAIN LINE 6-INCH THROUGH 12-INCH WITH LESS THAN THREE (3) FEET OF COVER IN VEHICULAR TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) C900, RATED FOR 150 PSI CLASS PIPE. PROVIDE AND INSTALL "STORM DRAIN" MARKER TAPE FOR THE ENTIRE LENGTH OF PIPE TRENCH. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, OBTUSE ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
- ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
- ALL TRENCHES SHALL BE BACK FILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.
- FOR GRAVITY FLOW SYSTEMS CONTRACTOR SHALL VERIFY (POTHOLE IF NECESSARY) SIZE, MATERIAL, LOCATION AND DEPTH OF ALL SYSTEMS THAT ARE TO BE CONNECTED TO OR CROSSED PRIOR TO THE TRENCHING OR INSTALLATION OF ANY GRAVITY FLOW SYSTEM.
- DRAINS SHOWN ON CIVIL PLANS ARE NOT INTENDED TO BE THE FINAL NUMBER AND LOCATION OF ALL DRAINS. PLACEMENT AND NUMBER OF LANDSCAPING DRAINS ARE HIGHLY DEPENDENT ON GROUND COVER TYPE AND PLANT MATERIAL. CONTRACTOR SHALL ADD ADDITIONAL AREA DRAINS AS NEEDED AND AS DIRECTED BY THE LANDSCAPE ARCHITECT.
- INSTALL SEPARATE SUB-DRAIN SYSTEM BEHIND RETAINING WALLS PER GEOTECHNICAL REPORT AND CONNECT TO STORM DRAIN SYSTEM AS SHOWN ON PLANS.
- ALL DOWN SPOUTS SHALL DISCHARGE DIRECTLY ON TO ADJACENT PERVIOUS SURFACES OR SPLASH BLOCKS UNLESS OTHERWISE NOTED ON PLANS. SEE ARCHITECTURE PLANS FOR EXACT LOCATION OF THE DOWN SPOUTS.

SANITARY SEWER NOTES

- ALL SEWER WORK SHALL BE IN CONFORMANCE WITH THE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT STANDARDS.
- PRIVATE SANITARY SEWER MAIN AND SERVICE LINE 4-INCH THROUGH 8-INCH SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 GREEN SEWER PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH BELL AND SPIGOT CONNECTIONS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS OR 45° ELBOWS AND TEE'S ARE PROHIBITED.
- ALL LATERALS SHALL HAVE A TWO WAY CLEANOUT AT FACE OF BUILDING AND AS SHOWN ON PLANS.
- IF (E) SEWER LATERAL IS TO BE USED, CONTRACTOR SHALL VIDEO INSPECT, PERFORM PRESSURE TEST ON (E) SEWER LATERAL, AND SHALL PERFORM ANY NEEDED REPAIRS.

WATER SYSTEM NOTES

- MAINTAIN WATER MAIN LINES 10' AWAY FROM SANITARY SEWER MAIN LINES. LATERALS SHALL BE SEPARATED PER PLAN DIMENSIONS.
- WHERE WATER LINES HAVE TO CROSS SANITARY SEWER LINES, DO SO AT A 90 DEGREE ANGLE AND WATER LINES SHALL BE MINIMUM OF 12" ABOVE TOP OF SANITARY SEWER LINES.
- ALL WATER SERVICE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE WATER DISTRICT STANDARDS.
- ALL WATER LINES SHALL BE INSTALLED WITH 36" MINIMUM COVER.
- THRUST RESTRAINTS SHALL BE DESIGNED AND INSTALLED AT ALL TEES, CROSSES, BENDS (HORIZONTAL AND VERTICAL), AT SIZE CHANGES AND AT FIRE HYDRANTS.



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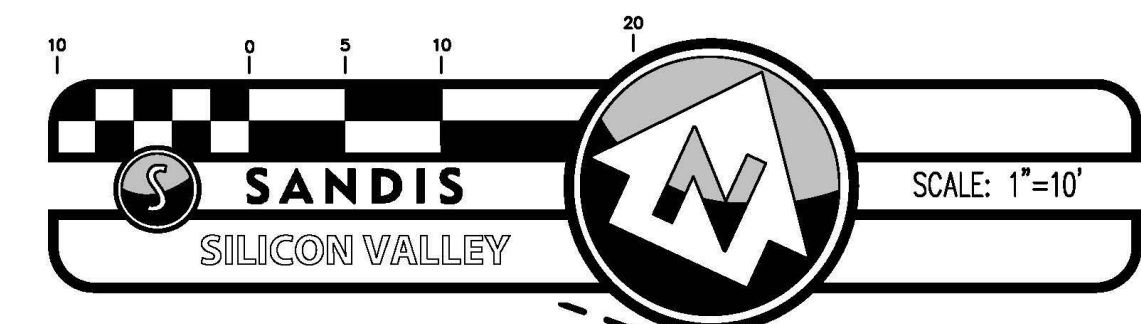
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 SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF 218593

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SCALE:	1"=10'
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APPROVED BY:	DIS
DRAWING NO.:	218593

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145 RIO BOCA
UTILITY PLAN
WATSONVILLE CALIFORNIA

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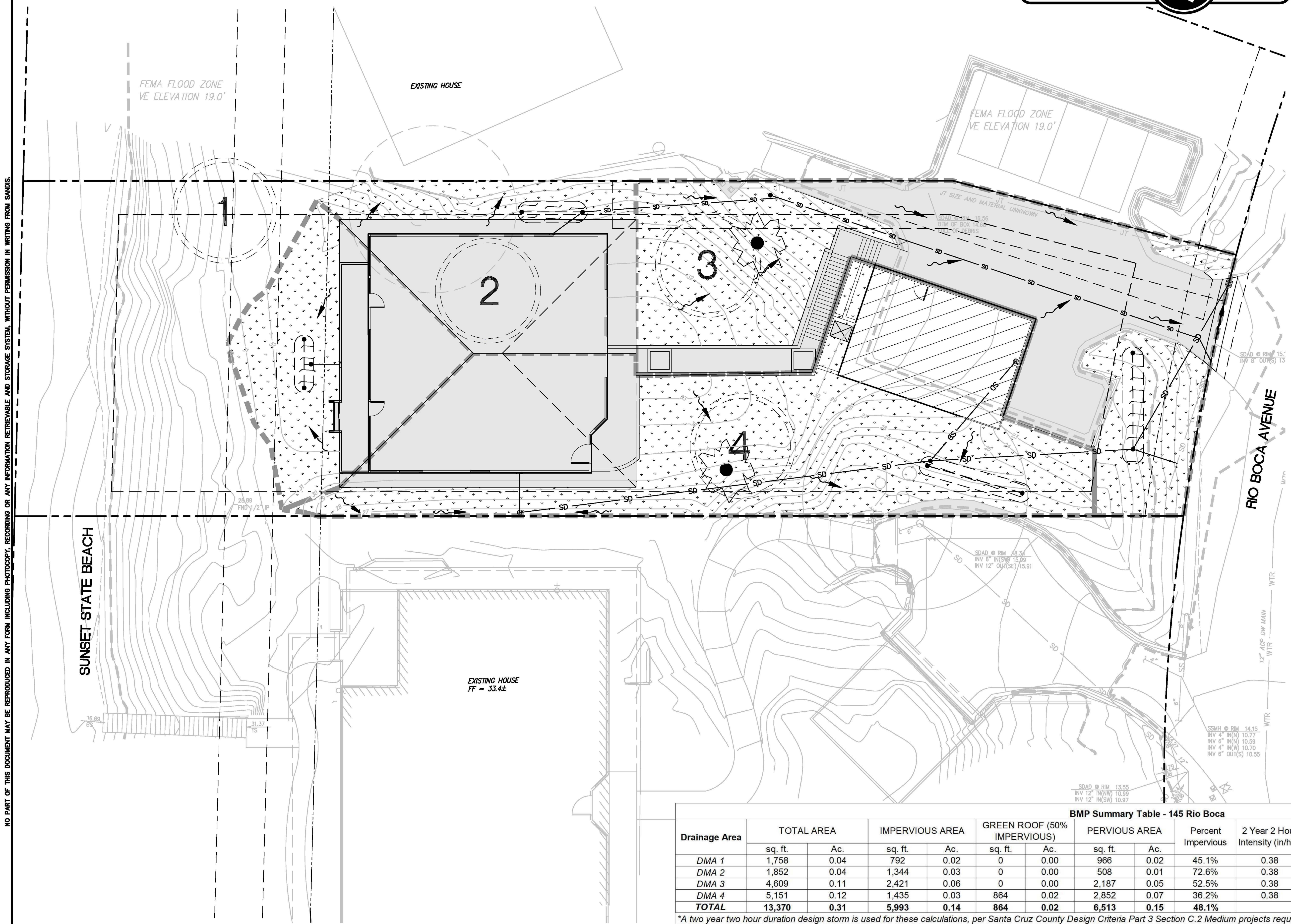
STORMWATER MANAGEMENT PLAN LEGEND

- PERVIOUS AREA
- IMPERVIOUS AREA
- PROPOSED DRY WELLS FOR STORMWATER TREATMENT
- PROPOSED GREEN ROOF AREA
- DRAINAGE AREA BOUNDARY
- FLOW DIRECTION

GENERAL NOTES

1. AS PER THE "GEOTECHNICAL INVESTIGATION" PREPARED BY SILICON VALLEY SOIL ENGINEERING ON DECEMBER 11TH OF 2018, THE SITE SOILS HAVE AN ESTIMATED INFILTRATION RATE OF APPROXIMATELY 2 INCHES PER HOUR.
2. THE SITE IS SPLIT UP BETWEEN TWO SEPARATE FLOOD ZONES. THE EASTERN PORTION OF THE SITE LIES IN ZONE X WITH A FLOOD ELEVATION OF 14.8 FEET. THE WESTERN PORTION OF THE SITE LIES WITHIN FLOOD ZONE VE WHICH HAS A FLOOD ELEVATION OF 19.0'.
3. THIS SITE ADDRESSED EACH OF THE ITEMS IN PART 3, SECTION C OF THE COUNTY DESIGN CRITERIA (CDC). BECAUSE THE SITE PROPOSES MORE THAN 500 SQFT AND LESS THAN 5,000 SQFT OF NEW AND REPLACED IMPERVIOUS AREA, THE PROJECT IS REGARDED AS 'MEDIUM' PER COUNTY REQUIREMENTS.
4. THE BREAKDOWN OF PERVIOUS TO IMPERVIOUS IS AS FOLLOWS:

PERVIOUS:	11,108 SQFT
- GREEN ROOF (50% PERVIOUS):	432 SQFT
IMPERVIOUS (NEW OR REPLACED):	4,775 SQFT
- NEW:	3,358 SQFT
- REPLACED:	985 SQFT
- EXISTING:	1,171 SQFT
- GREEN ROOF (50% IMPERVIOUS):	432 SQFT
TOTAL:	17,054 SQFT
5. BECAUSE THIS PROJECT IS REGARDED AS 'MEDIUM' PER THE SANTA CRUZ COUNTY DESIGN CRITERIA, THE PROJECT INCORPORATES A BIOSWALE (BMP) IN THE DESIGN TO MINIMIZE AND MITIGATE POLLUTANT AND HYDROLOGIC IMPACTS DUE TO DEVELOPMENT. ROOF RAINWATER LEADERS AND BUBBLERS ARE USED TO CONVEY WATER INTO THE BIOSWALE.



BMP Summary Table - 145 Rio Boca

Drainage Area	TOTAL AREA		IMPERVIOUS AREA		GREEN ROOF (50% IMPERVIOUS)		PERVIOUS AREA		Percent Impervious	2 Year 2 Hour Intensity (in/hr)*	Cw Value	Q (cfs)	Runoff Volume for Design Storm (cf)	Treatment Control Method	Treatment Provided (cf)
	sq. ft.	Ac.	sq. ft.	Ac.	sq. ft.	Ac.	sq. ft.	Ac.							
DMA 1	1,758	0.04	792	0.02	0	0.00	966	0.02	45.1%	0.38	0.57	0.009	63.00	RETENTION	64.00
DMA 2	1,852	0.04	1,344	0.03	0	0.00	508	0.01	72.6%	0.38	0.74	0.012	85.54	RETENTION	90.00
DMA 3	4,609	0.11	2,421	0.06	0	0.00	2,187	0.05	52.5%	0.38	0.62	0.025	178.10	RETENTION	180.00
DMA 4	5,151	0.12	1,435	0.03	864	0.02	2,852	0.07	36.2%	0.38	0.49	0.022	159.28	RETENTION	160.00
TOTAL	13,370	0.31	5,993	0.14	864	0.02	6,513	0.15	48.1%						

*A two year two hour duration design storm is used for these calculations, per Santa Cruz County Design Criteria Part 3 Section C.2 Medium projects requirements.

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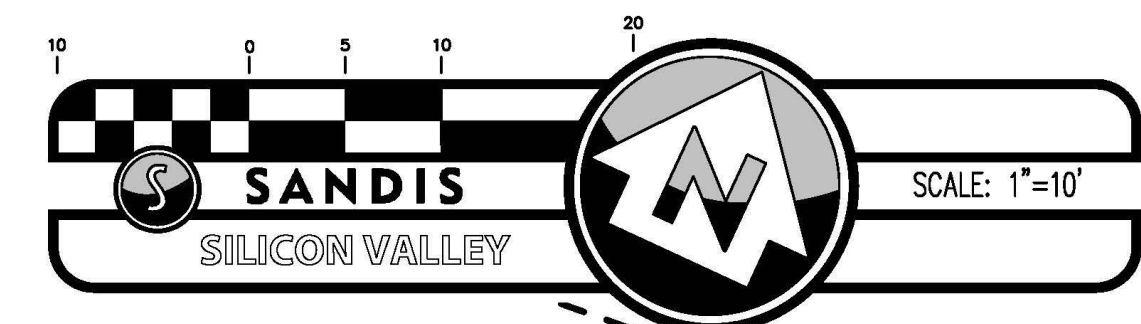
SILICON VALLEY TRI-VALLEY CENTRAL VALLEY SACRAMENTO EAST BAY/SF

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145 RIO BOCA
STORMWATER MANAGEMENT PLAN
WATSONVILLE CALIFORNIA

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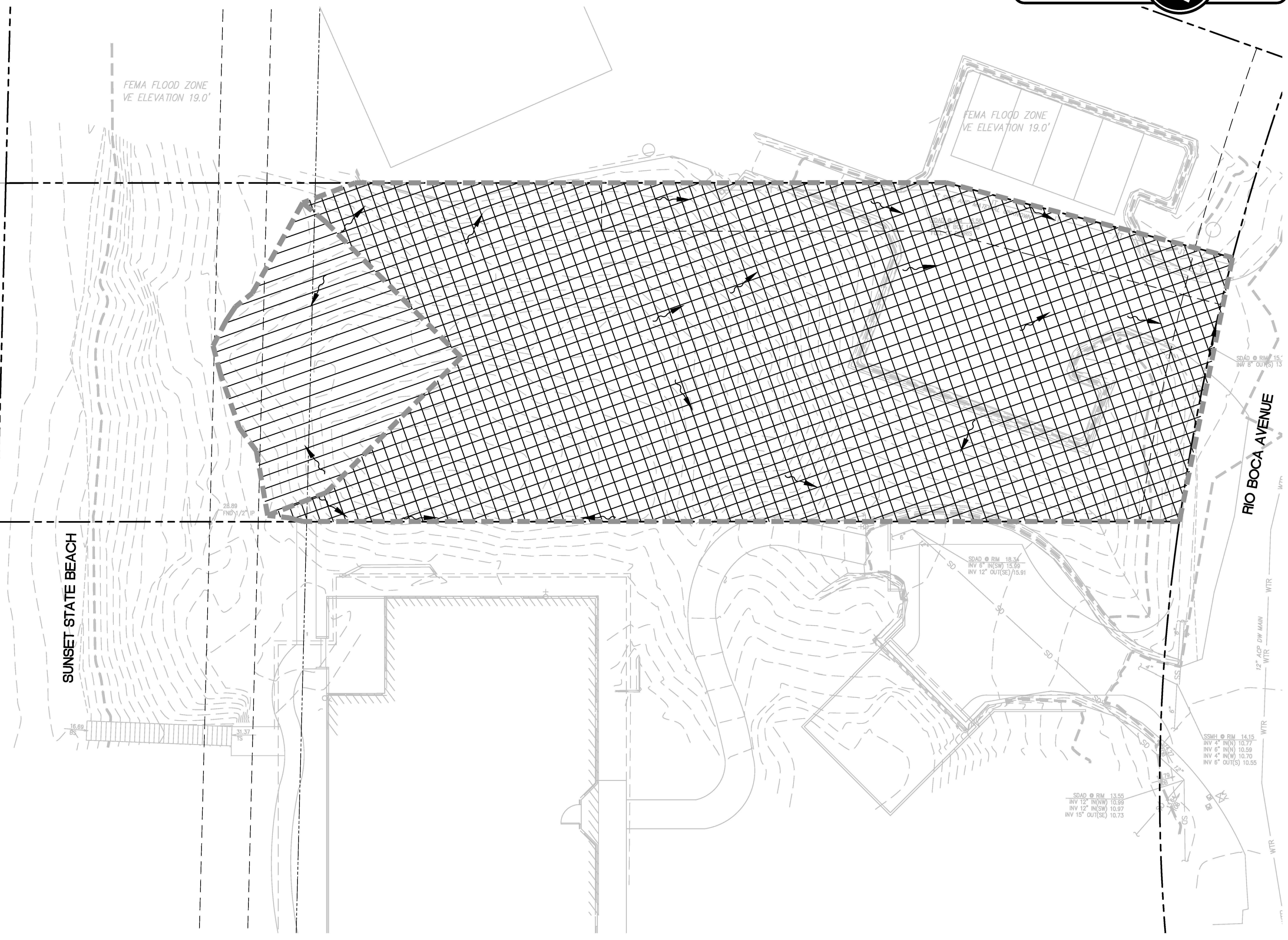
**EX. WATERSHED
PLAN AREA LEGEND**

- EXISTING AREA FLOWING WEST TO SUNSET STATE BEACH (DMA #1)
- EXISTING AREA FLOWING EAST TO RIO BOCA AVE. (DMA #2, 3, 4)
- DRAINAGE AREA BOUNDARY
- FLOW DIRECTION



SANTA CRUZ COUNTY WATERSHED MAP

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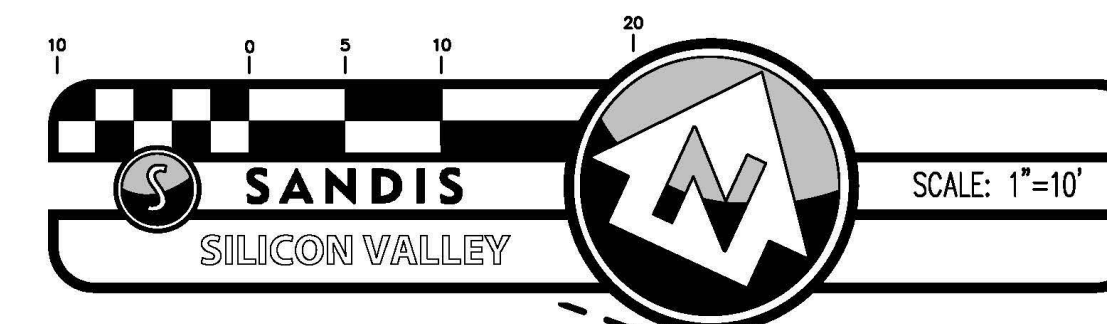
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	PLANNING RESUBMITTAL	5/28/21	AP





**145 RIO BOCA
EX. WATERSHED AREA MAP
WATSONVILLE CALIFORNIA**

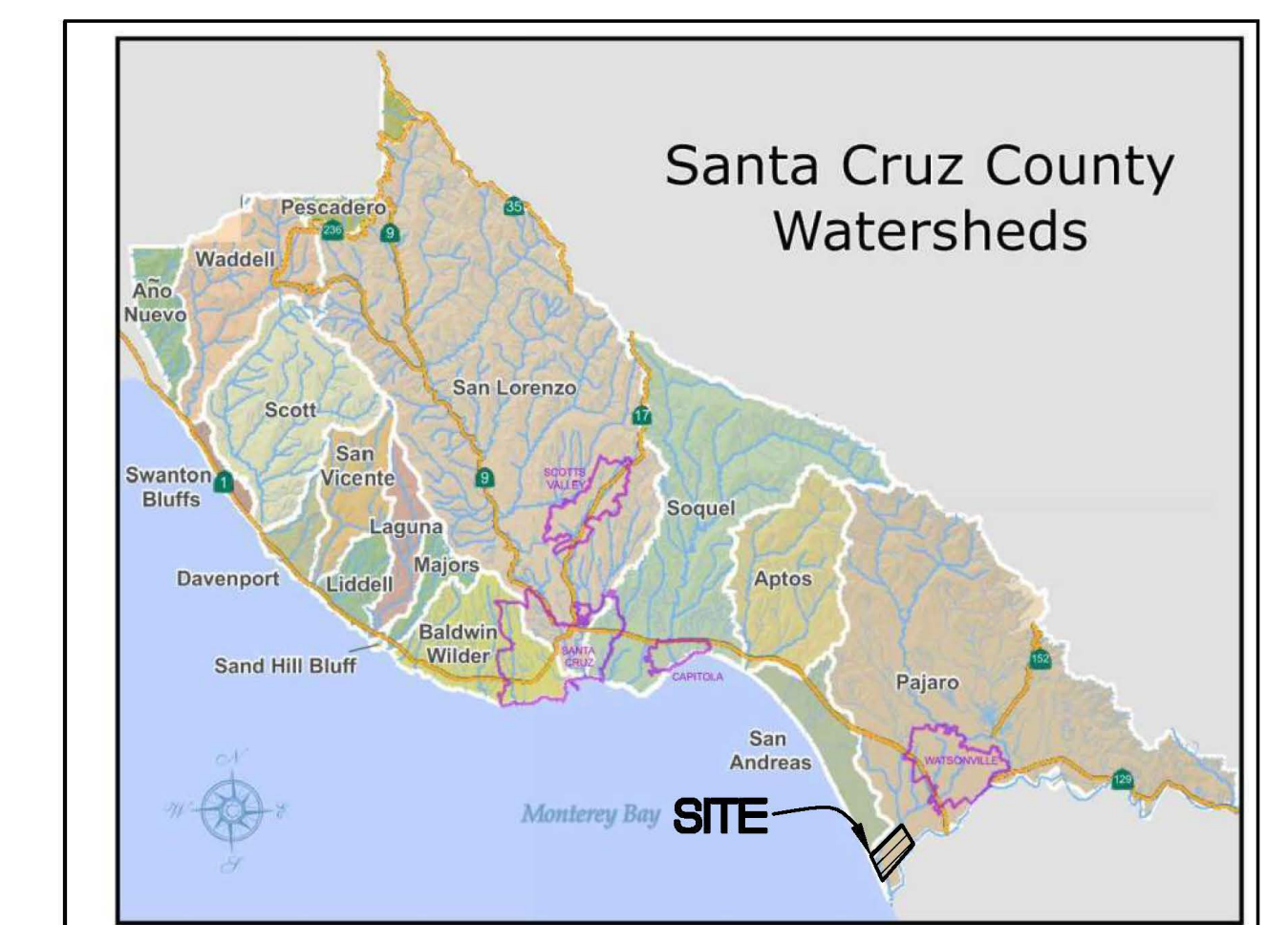
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OF 13 SHEETS
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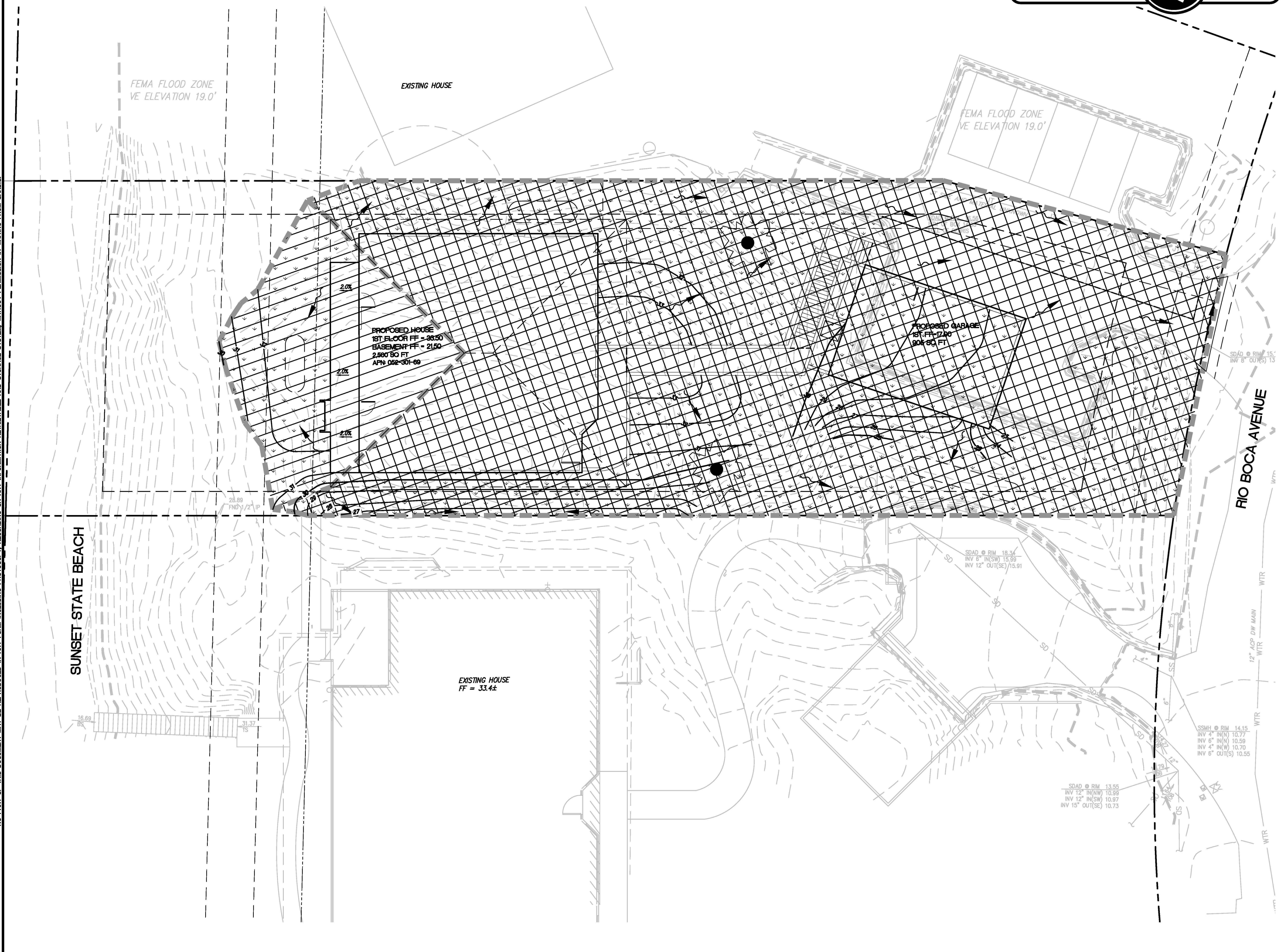
**PROPOSED WATERSHED
PLAN AREA LEGEND**

-  PROPOSED AREA FLOWING WEST TO SUNSET STATE BEACH (DMA #1)
-  PROPOSED AREA FLOWING EAST TO RIO BOCA AVE. (DMA #2, 3, 4)
-  DRAINAGE AREA BOUNDARY
-  FLOW DIRECTION



SANTA CRUZ COUNTY WATERSHED MAP

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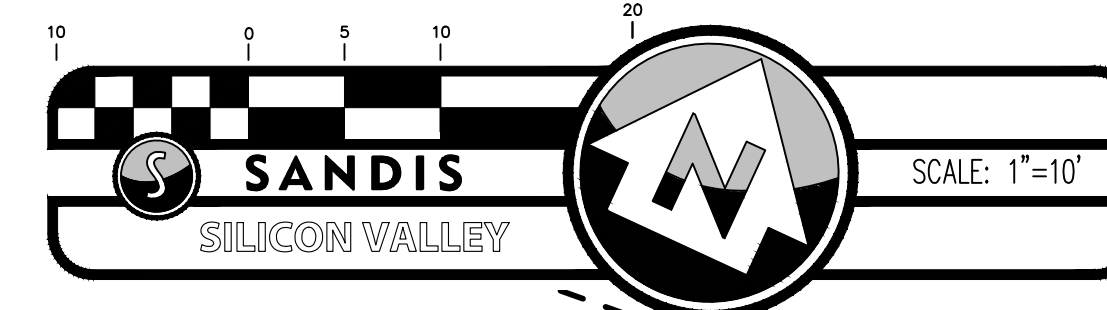
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**145 RIO BOCA
PROPOSED WATERSHED AREA MAP
WATSONVILLE CALIFORNIA**

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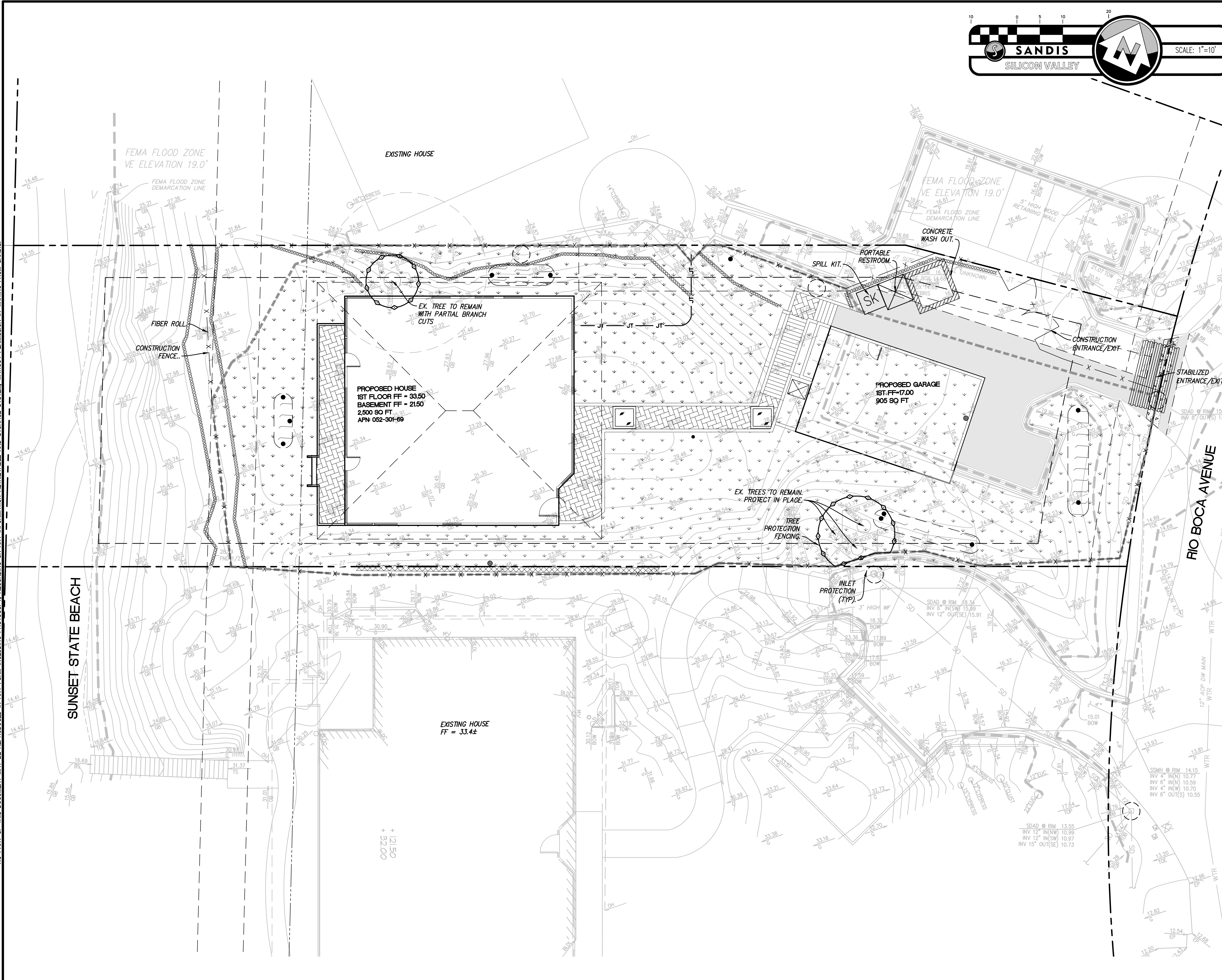


LEGEND

- STABILIZED EXIT
- CONCRETE WASHOUT $\frac{4}{C-6.0}$
- SPILL KIT
- PORTABLE RESTROOM
- STRAW WATTLES $\frac{3}{C-6.0}$
- CONSTRUCTION FENCE $\frac{5}{C-6.0}$
- TREE PROTECTION $\frac{1}{C-6.0}$
- INLET PROTECTION $\frac{2}{C-6.0}$
- APPROXIMATE AREA OF CONSTRUCTION DISTURBANCE

WATER POLLUTION CONTROL NOTES:

- A. TEMPORARY CONSTRUCTION ENTRANCE/EXIT LOCATION SHOWN IS APPROXIMATE. CONTRACTOR TO PROVIDE LOCATION WHERE APPROPRIATE.
- B. THIS PLAN REPRESENTS POSSIBLE WATER POLLUTION CONTROL MEASURES INCLUDING EROSION CONTROL AND SEDIMENT CONTROL.
- C. EXISTING SURFACES SHALL BE UNDISTURBED TO THE EXTENT PRACTICAL.
- D. GROUND WATER SHALL NOT BE DISCHARGED WITH STORM WATER. GROUND WATER DEWATERING OPERATIONS SHALL BE COORDINATED AS NEEDED WITH OWNER.
- E. CONTRACTOR SHALL PROVIDE EFFECTIVE SOIL COVER FOR AREAS OF CONSTRUCTION ACTIVITY THAT HAVE BEEN DISTURBED AND ARE NOT SCHEDULED TO BE ACTIVE FOR AT LEAST 14 DAYS.
- F. ALL EROSION CONTROL AND SEDIMENT CONTROLS TO BE OBTAINED INSTALLED AND MAINTAINED AS REQUIRED IN PROJECT SWPPP.
- G. CONTRACTOR TO INSTALL RUN-ON AND RUN-OFF CONTROL MEASURES ACCORDING TO PLANS OR AS NECESSARY TO ENSURE SEDIMENT IS NOT TRANSPORTED FROM SITE.
- H. CONTRACTOR TO PROVIDE BACK-UP EROSION PREVENTION MEASURES (SOIL STABILIZATION) WITH SEDIMENT CONTROL MEASURES SUCH AS STRAW WATTLES, SILT FENCE, GRAVEL INLET FILTERS, AND/OR SEDIMENT TRAPS OR BASINS. ENSURE SEDIMENT CONTROLS ARE ADEQUATE, IN PLACE, AND IN OPERABLE CONDITIONS. SEDIMENT CONTROLS, INCLUDING INLET PROTECTION, ARE NECESSARY BUT SHOULD BE A SECONDARY DEFENSE BEHIND GOOD EROSION CONTROL MEASURES.
- I. STOCKPILE LOCATION(S) TO BE DETERMINED BY THE CONTRACTOR. COORDINATE WITH SITE OSP.
- J. ALL CONCRETE TRUCKS TO USE CHUTE WASH BUCKETS FOR CONCRETE RINSE, ALL CONCRETE PUMPS TO CAPTURE CONCRETE RINSE IN SECONDARY CONTAINMENT AND PROPERLY DISPOSE.
- K. STREET SWEEPING SHALL BE CHECKED DAILY TO ENSURE DEPOSITED SEDIMENT AND DEBRIS DOES NOT ENTER THE STORM DRAIN SYSTEM. USE REGENERATIVE VACUUM STREET CLEANER TO MITIGATE AIR AND WATER POLLUTION.
- L. RUNOFF THAT HAS CONTACTED AMENDED SOIL AREAS SHALL NOT BE ALLOWED TO LEAVE THE SITE OR ENTER THE STORM DRAIN SYSTEM.
- M. PROPOSED CONSTRUCTION WILL BEGIN _____
- N. THIS PLAN MUST BE INSTALLED BY _____
- O. FOR PLANT SPECIES AND OTHER SPECIFICS REGARDING REVEGETATION PROPOSALS, PLEASE SEE THE LANDSCAPING PLAN ON PAGE L-1.0.



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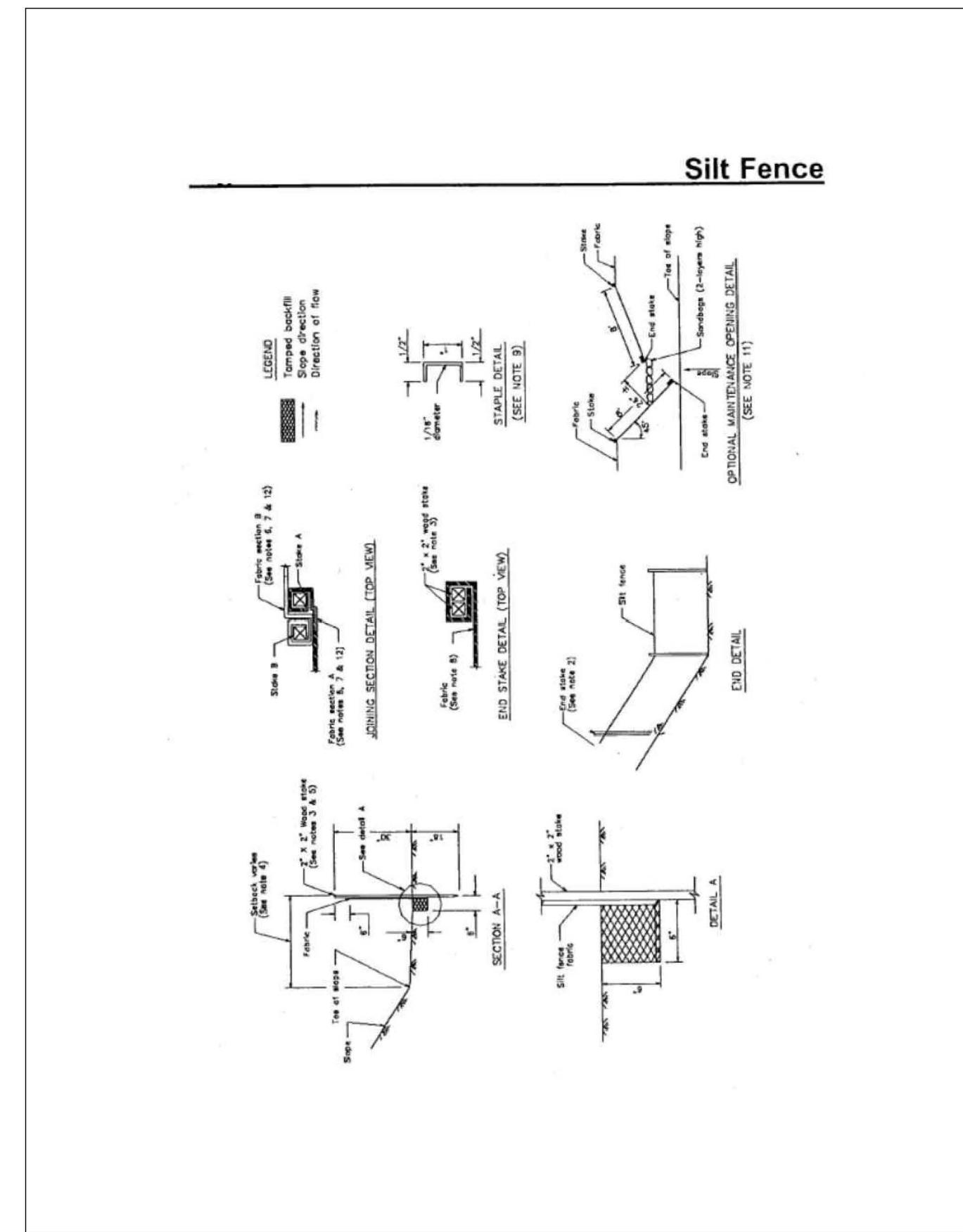
145 RIO BOCA
EROSION CONTROL PLAN
WATSONVILLE CALIFORNIA

SHEET
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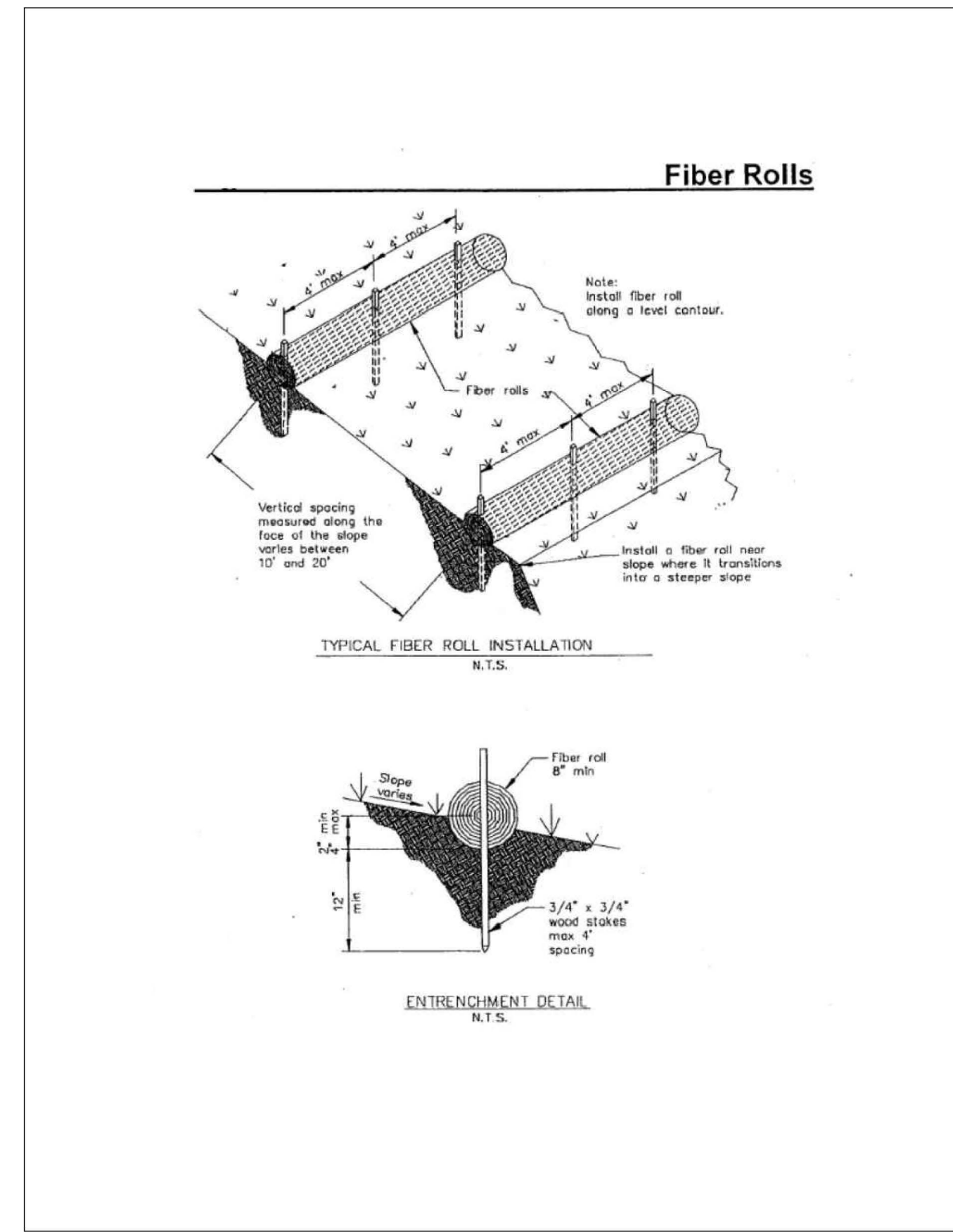
WATSONVILLE STANDARD NOTES:

- THIS PLAN MAY NOT COVER ALL THE SITUATIONS OR PHASES THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. IN GENERAL, THE CONTRACTOR IS RESPONSIBLE FOR KEEPING SEDIMENT STORM RUNOFF FROM LEAVING THE SITE. SEDIMENT ROLLS AND SILT FENCES SHALL BE USED BY THE CONTRACTOR ON AN AS NEEDED BASIS TO INHIBIT SILT FROM LEAVING THE SITE AND ENTERING THE STORM DRAIN SYSTEM. TEMPORARY EROSION CONTROL DEVICES SHOWN ON GRADING PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED WHEN THE INSPECTOR SO DIRECTS AS THE WORK PROGRESSES.
- EROSION CONTROL FACILITIES SHALL BE MAINTAINED DAILY. THESE FACILITIES SHALL CONTROL AND CONTAIN EROSION-CAUSED SILT DEPOSITS AND PROVIDE FOR THE SAFE DISCHARGE OF SILT FREE STORM WATER INTO EXISTING AND PROPOSED STORM DRAIN FACILITIES. DESIGN OF THESE FACILITIES MUST BE APPROVED AND UPDATED EACH YEAR BY THE ENGINEER (OCTOBER 1 TO APRIL 15).
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PROVISIONS OF THE ENGINEERING DIVISION OF THE PUBLIC SERVICES DEPARTMENT OR CITY OF SAN FRANCISCO DEPARTMENT OF PUBLIC WORKS. CONTROL MEASURES ARE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DIVISION OF THE PUBLIC SERVICES DEPARTMENT OR CITY OF SAN FRANCISCO DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUB-CONTRACTORS AND SUPPLIERS ARE AWARE OF ALL STORM WATER QUALITY MEASURES & IMPLEMENT SUCH MEASURES. FAILURE TO COMPLY WITH THE APPROVED CONSTRUCTION WILL RESULT IN THE ISSUANCE OF CORRECTION NOTICES, CITATIONS, AND / OR A PROJECT STOP ORDER.
- THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF TO ANY STORM DRAIN SYSTEM.
- IF EXISTING DRIVEWAY IS REMOVED DURING CONSTRUCTION, THE CONTRACTOR SHALL PLACE DRAIN ROCK AS A GRAVEL ROADWAY (8" MINIMUM THICKNESS FOR THE FULL WIDTH AND LENGTH OF SITE EGRESS AREA AS DEFINED IN THESE PLANS) AT ENTRANCE TO THE SITE. LOCATION TO BE APPROVED BY CITY ENGINEER IN THE FIELD. CONSTRUCTION EGRESS SHALL BE EQUIPPED WITH A TRUCK WASHING STATION. ALL TRUCKS SHALL WASH TIRES AND UNDERSIDE OF VEHICLES AS APPROPRIATE WHEN LEAVING THE SITE. ANY MUD THAT IS TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED THE SAME DAY AS REQUIRED BY THE CITY ENGINEER.
- DURING THE RAINY SEASON, ALL PAVED AREAS ARE TO BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE IS TO BE MAINTAINED SO AS TO MINIMIZE SEDIMENT RUNOFF TO ANY STORM DRAIN SYSTEM.
 - EXCAVATED SOILS SHOULD NOT BE PLACED IN STREETS OR ON PAVED AREAS.
 - ANY EXCAVATED SOILS SHOULD BE REMOVED FROM THE SITE BY THE END OF THE DAY.
 - WHERE STOCKPILING IS NECESSARY, USE A TARPULIN OR SURROUND THE STOCKPILED MATERIAL WITH FIBER ROLLS, GRAVEL SEDIMENT BARRIER, SILT FENCE, OR OTHER RUNOFF CONTROLS.
 - USE INLET CONTROLS AS NEEDED (E.G. BLOCK & GRAVEL SEDIMENT BARRIER) FOR STORM DRAIN ADJACENT TO THE PROJECT SITE OR STOCKPILED SOIL.
- THOROUGHLY SWEEP ALL PAVED AREAS EXPOSED TO SOIL EXCAVATION AND PLACEMENT.
- STAND-BY CREWS SHALL BE ALERTED BY THE PERMIT APPLICANT OR CONTRACTOR FOR EMERGENCY WORK DURING RAINSTORMS.
- AFTER OCTOBER 1ST TO APRIL 15TH, ALL EROSION CONTROL MEASURES WILL BE INSPECTED DAILY AND AFTER EACH STORM. BREACHES IN DIKES AND TEMPORARY SWALES WILL BE REPAIRED AT THE CLOSE OF EACH DAY AND WHENEVER RAIN IS FORECAST.
- AS A PART OF THE EROSION CONTROL MEASURES, UNDERGROUND STORM DRAIN FACILITIES SHALL BE INSTALLED COMPLETE AS SHOWN ON THE IMPROVEMENT PLANS.
- BORROW AREAS AND TEMPORARY STOCKPILES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES TO THE SATISFACTION OF THE CITY ENGINEER.
- SANDBAGS SHALL BE STOCKPILED ON SITE AND PLACED AT INTERVALS SHOWN ON EROSION CONTROL PLANS, WHEN THE RAIN FORECAST IS 40% OR GREATER, OR WHEN DIRECTED BY THE INSPECTOR.
- SANDBAGS REFERRED TO IN THE PRECEDING ITEMS MUST BE FULL. APPROVED SANDBAG FILL MATERIALS ARE SAND, DECOMPOSED GRANITE AND/OR GRAVEL, OR OTHER MATERIALS APPROVED BY THE INSPECTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING SAFETY OF VEHICLES OPERATING IN ROADWAY ADJACENT TO EROSION CONTROL FACILITIES.
- AFTER RAINSTORMS CONTRACTOR SHALL CHECK FOR AND REMOVE SEDIMENT TRAPPED BY SAND BAGS AT STAGING AREA. REPLACE SAND BAGS IF DETERIORATION IS EVIDENT.
- DUST CONTROL SHOULD BE PRACTICED ON ALL CONSTRUCTION SITES WITH EXPOSED SOILS AS NEEDED. IT IS IMPORTANT IN WINDY OR WIND-PRONE AREAS. DUST CONTROL IS CONSIDERED A TEMPORARY MEASURE AND AS AN INTERMEDIATE TREATMENT BETWEEN SITE DISTURBANCE AND CONSTRUCTION, PAVING, OR REVEGETATION. REFER TO EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 3RD EDITION, PREPARED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION.



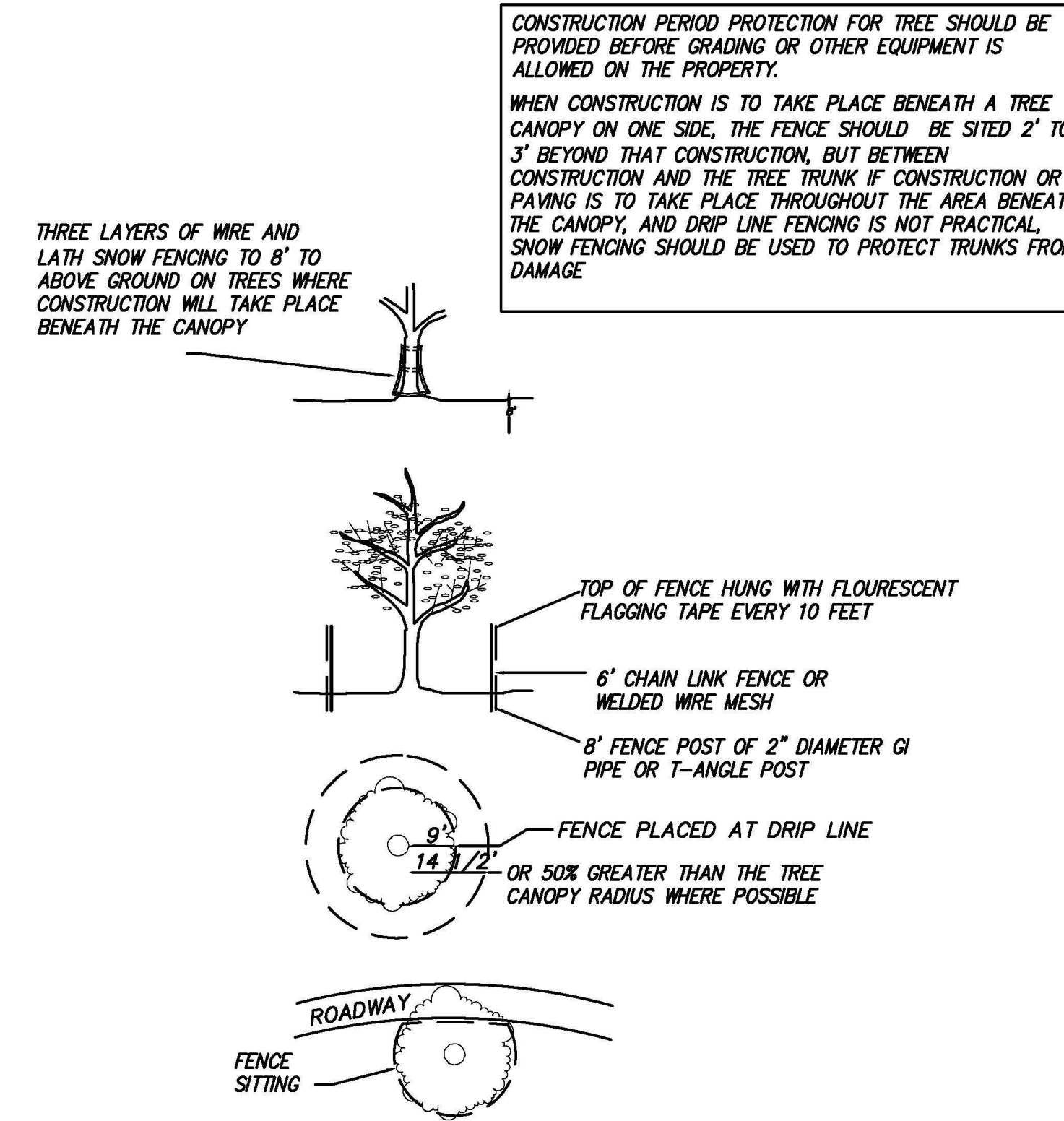
SILT FENCE
N.T.S.

5



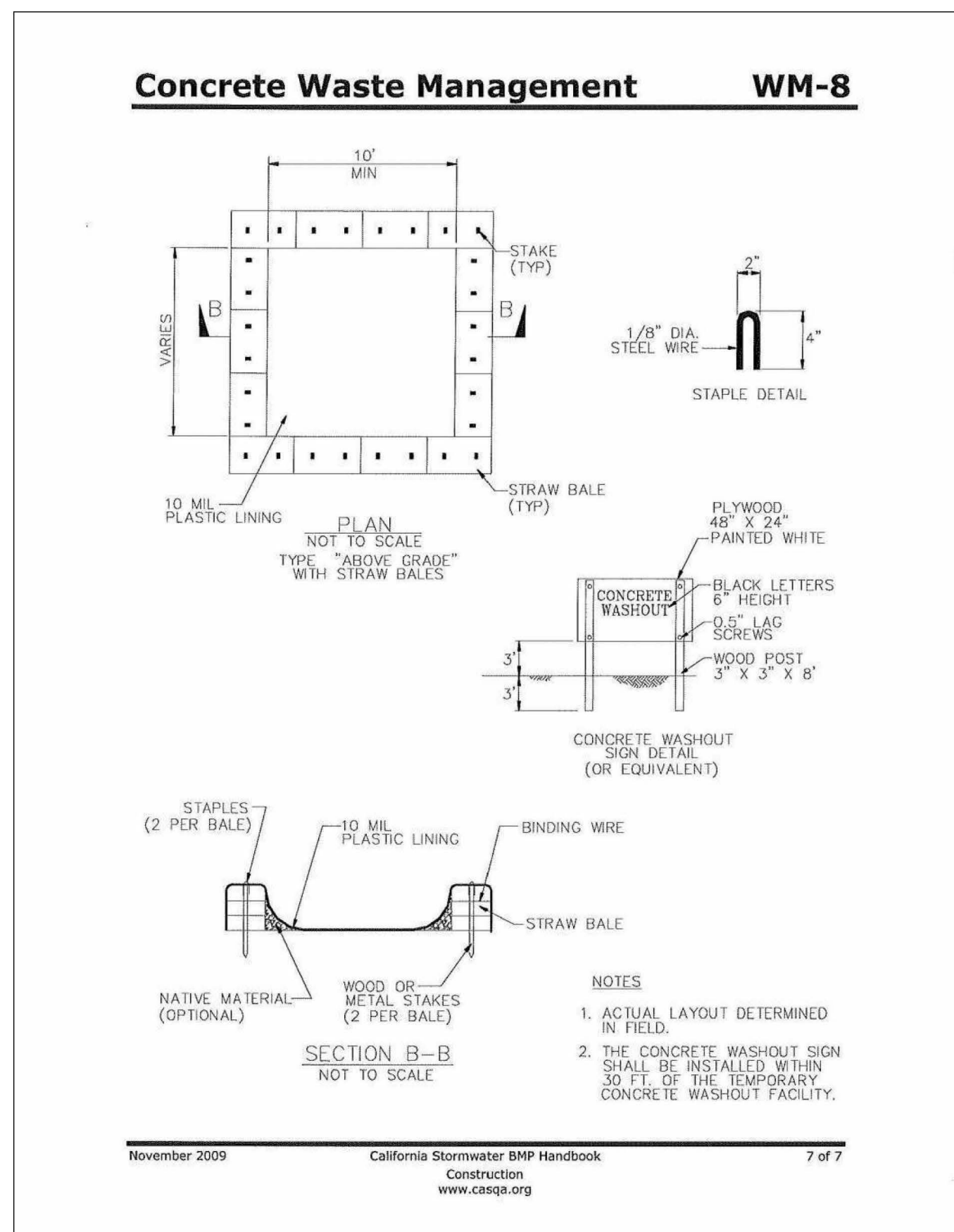
FIBER ROLL
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3



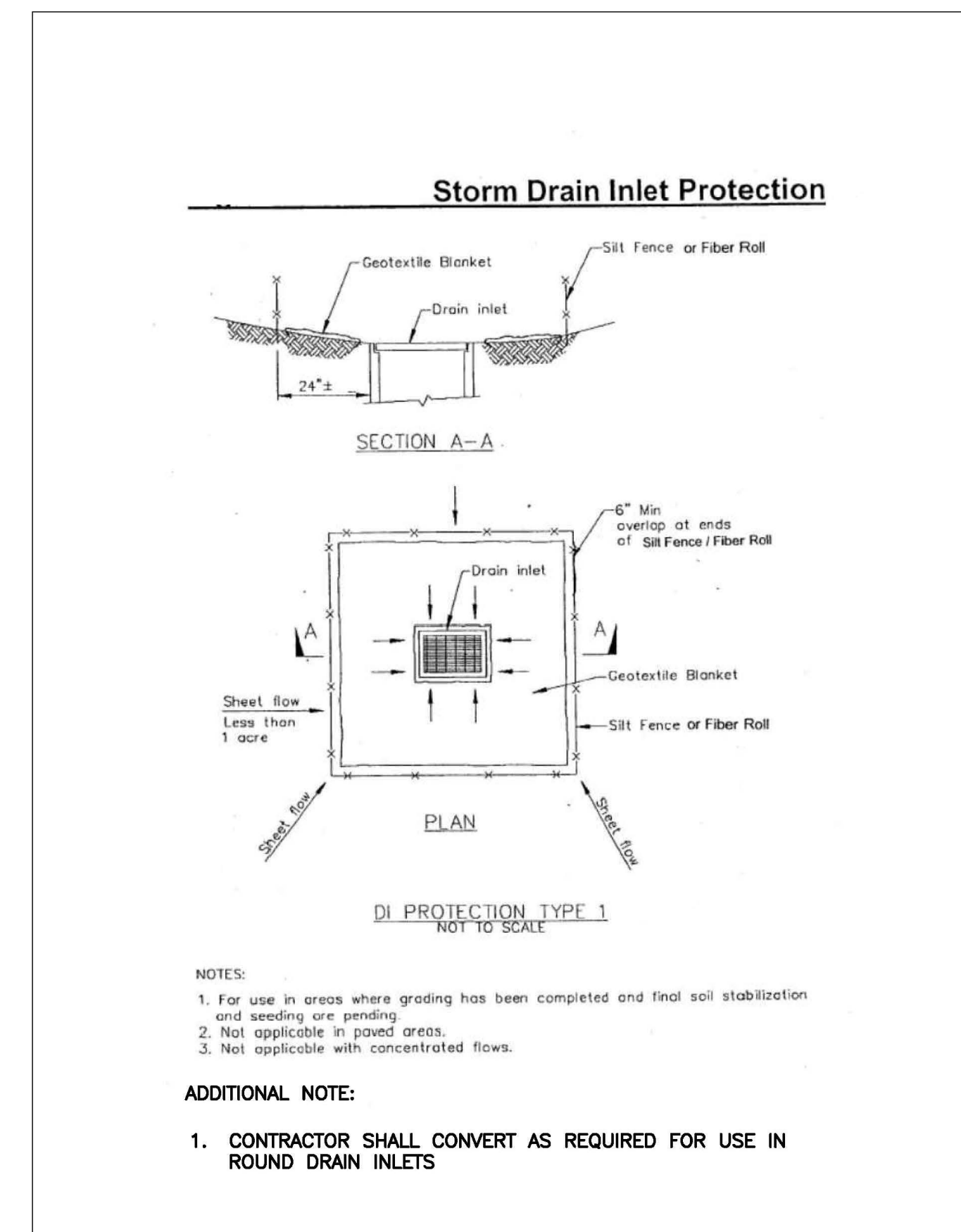
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CONCRETE WASHOUT DETAIL
N.T.S.

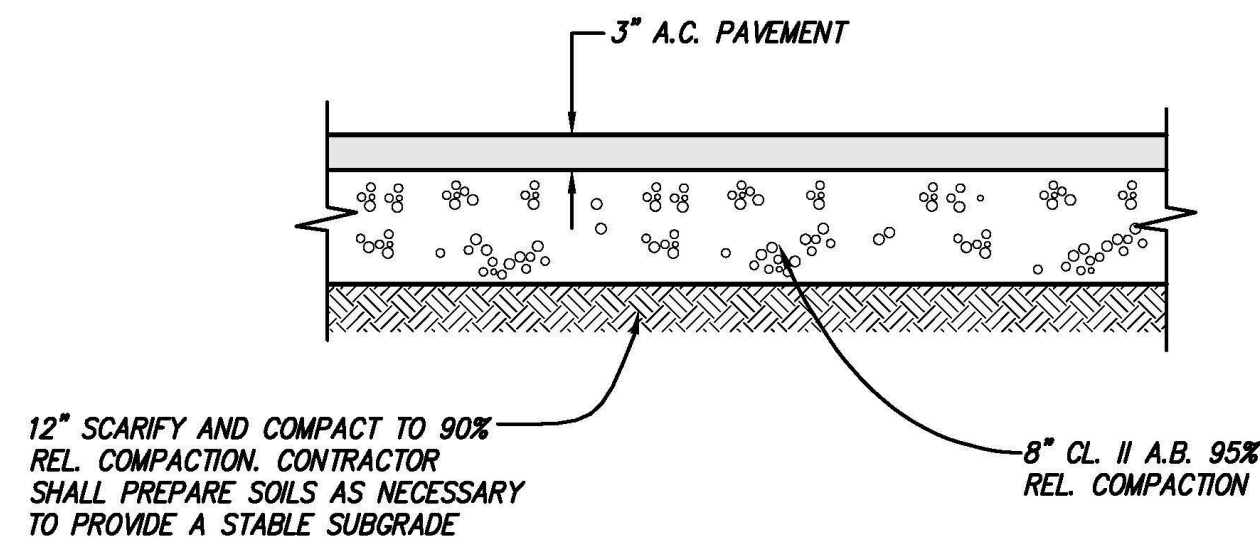
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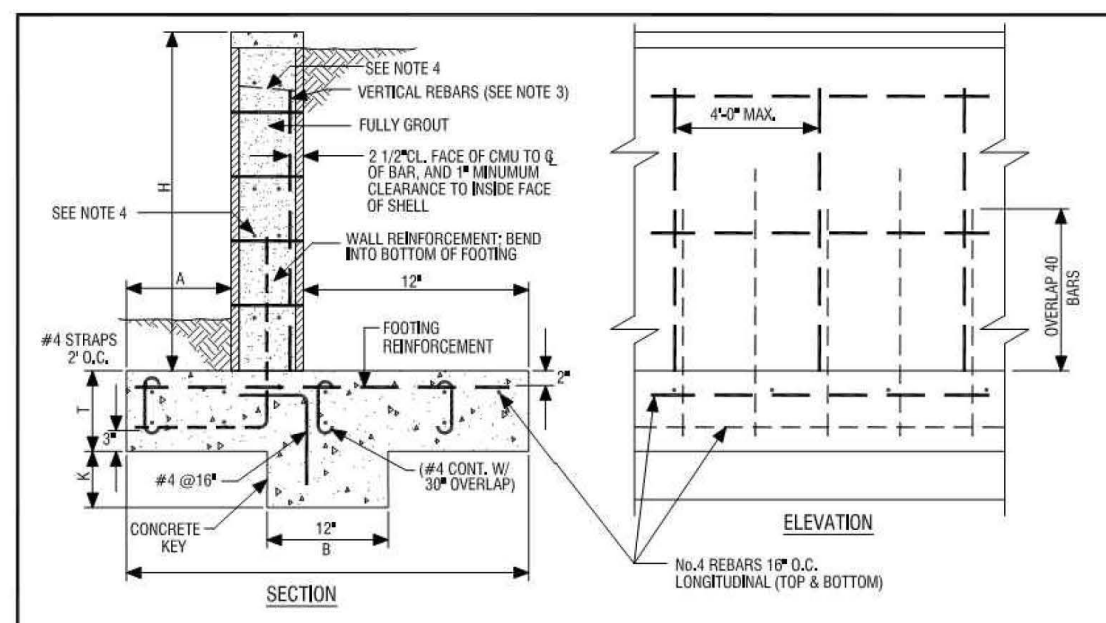
INLET PROTECTION DETAIL
N.T.S.

2

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ASPHALT PAVEMENT SECTION
N.T.S. **6**



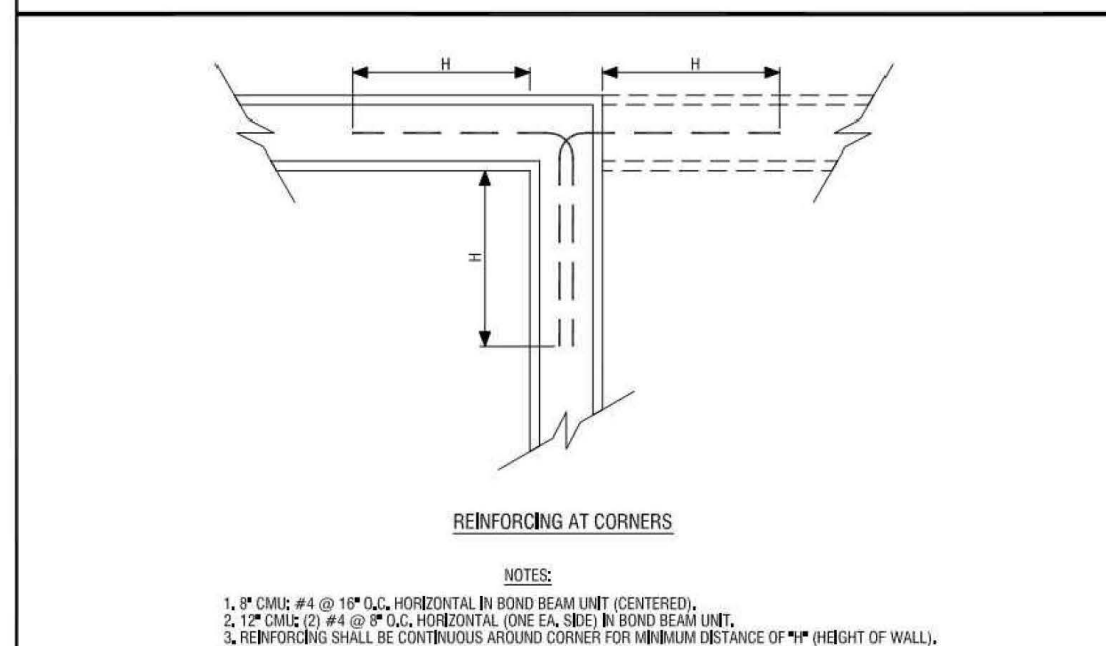
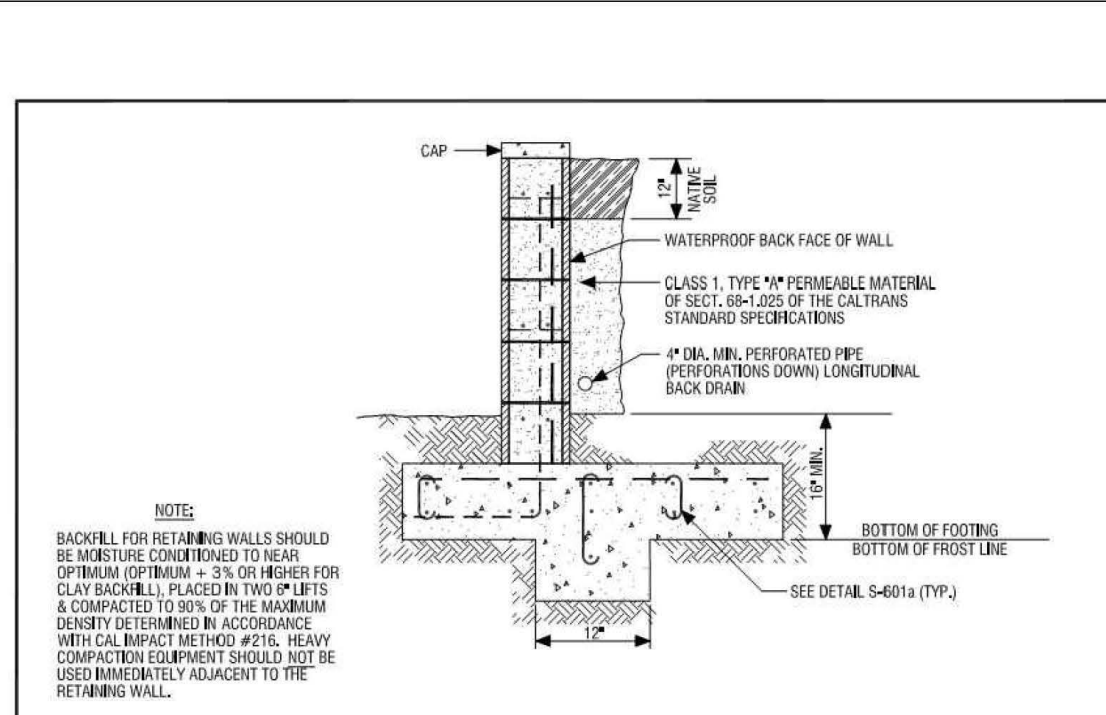
BLOCK HEIGHT	H	A	B	T	WALL REINFORCEMENT	FOOTING REINFORCEMENT
8'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
12'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
16'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
20'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
24'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
28'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
32'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
36'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
40'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
44'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
48'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
52'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
56'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
60'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
64'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
68'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
72'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
76'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
80'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
84'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
88'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
92'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
96'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.
100'	2'-0"	1'-0"	2'-0"	1'-0"	#4 @ 2'-0" O.C.	#4 @ 2'-0" O.C.

NOTES:

1. ALL RETAINING WALLS SHALL BE MASSIVE.
2. EDGE OF ROADWAY, SIDEWALK & CONCOURSE SHALL BE AT LEAST 2' HEIGHT OF WALL FROM BACK OF WALL.
3. REINFORCING BARS SHOULD HAVE STANDARD DEFORMATION AND A YIELD STRENGTH OF 40,000 PSI.
4. ALTERNATE VERTICAL REINFORCING BARS MAY BE TERMINATED AT THE UPPER END OF THE WALL HEIGHT.
5. ALL RETAINING WALLS SHALL HAVE A HORIZONTAL BOND BEAM AT TWO N/A BARS EVERY 10'.
6. WEIGHT OF ASSURED SOIL BACKFILL (GRANULAR SOIL WITH CONSISTENT CLAY CONTENT) IS 100 PCF AND EQUIVALENT FLUID PRESSURE IS 40 PSF. THE WALL IS NOT TO BE EXPOSED TO SURCHARGE, AND THE MAXIMUM SOIL BEARING PRESSURE IS 1,000 PSF.
7. THE LAST TOP OF GROUT SHALL BE CONSOLIDATED BY A REINFORCING BOND BEAM WITH 10# BARS FOR MINIMUM 10 FEET OF LENGTH IN EACH DIRECTION. THE BARS SHALL NOT BE ATTACHED TO OR HELD AGAINST THE BLOCK OR REINFORCING STEEL.
8. GROUT SHALL BE PLACED IN ALL CELLS. GROUT SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI.
9. SEE SHEET S-601b FOR BACKFILL DETAIL.
10. MASONRY UNITS SHALL BE GRADE "M".
11. SET SETTING OF THE BLOCKS INTO THE CONCRETE IS FORBIDDEN.
12. ALL CONCRETE FOOTINGS & KEYS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI.

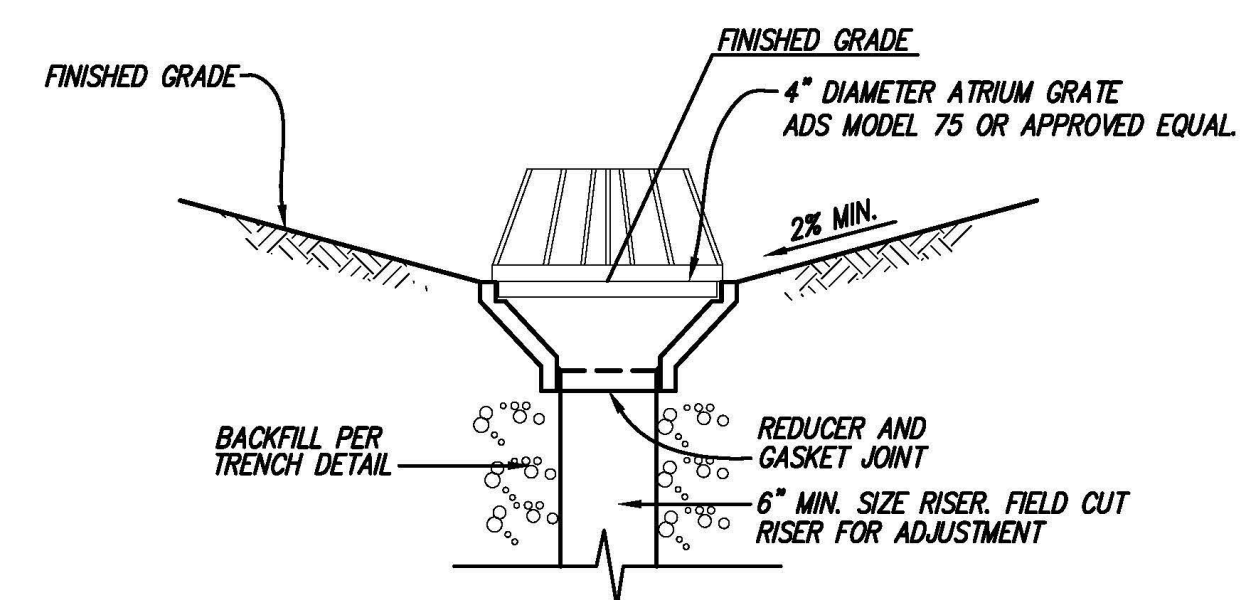
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DRAWN BY: P.A.C.	STANDARD DRAWING FOR RETAINING WALL	RESOLUTION: 76-113 (CM)	
CHECKED BY: P.T.	MARIA ESTHER RODRIGUEZ, CIVIL ENGINEER	DRAWING NO: S-601a	

RETAINING WALL DETAIL
N.T.S. **4**

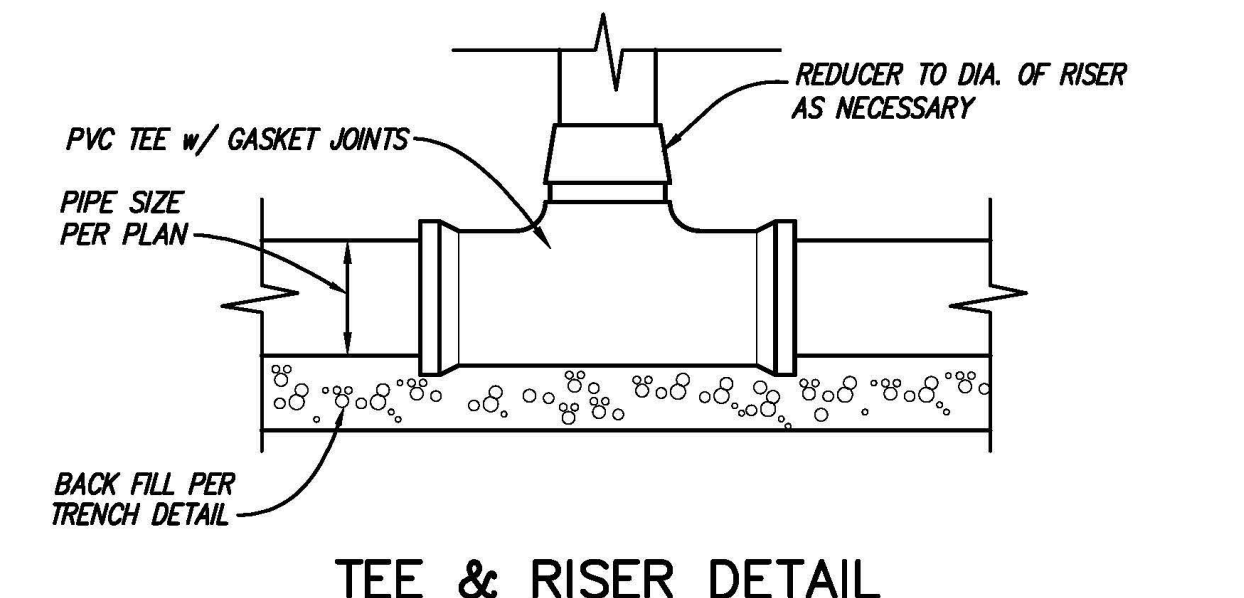


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DRAWN BY: P.A.C.	STANDARD DRAWING FOR RETAINING WALL	RESOLUTION: 76-113 (CM)	
CHECKED BY: P.T.	MARIA ESTHER RODRIGUEZ, CIVIL ENGINEER	DRAWING NO: S-601b	

RETAINING WALL DETAIL
N.T.S. **5**

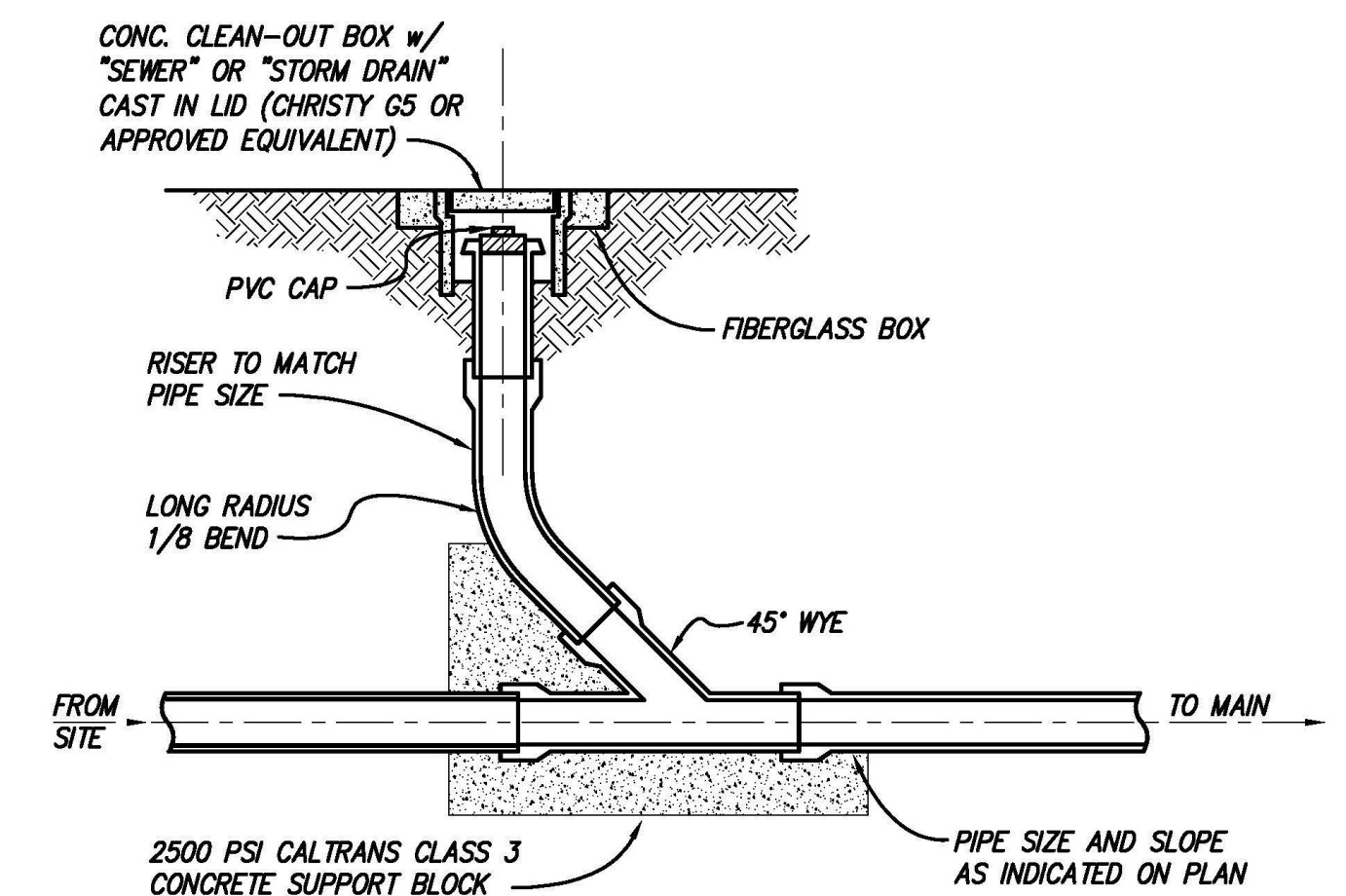


GRATE & RISER DETAIL
N.T.S. **1**

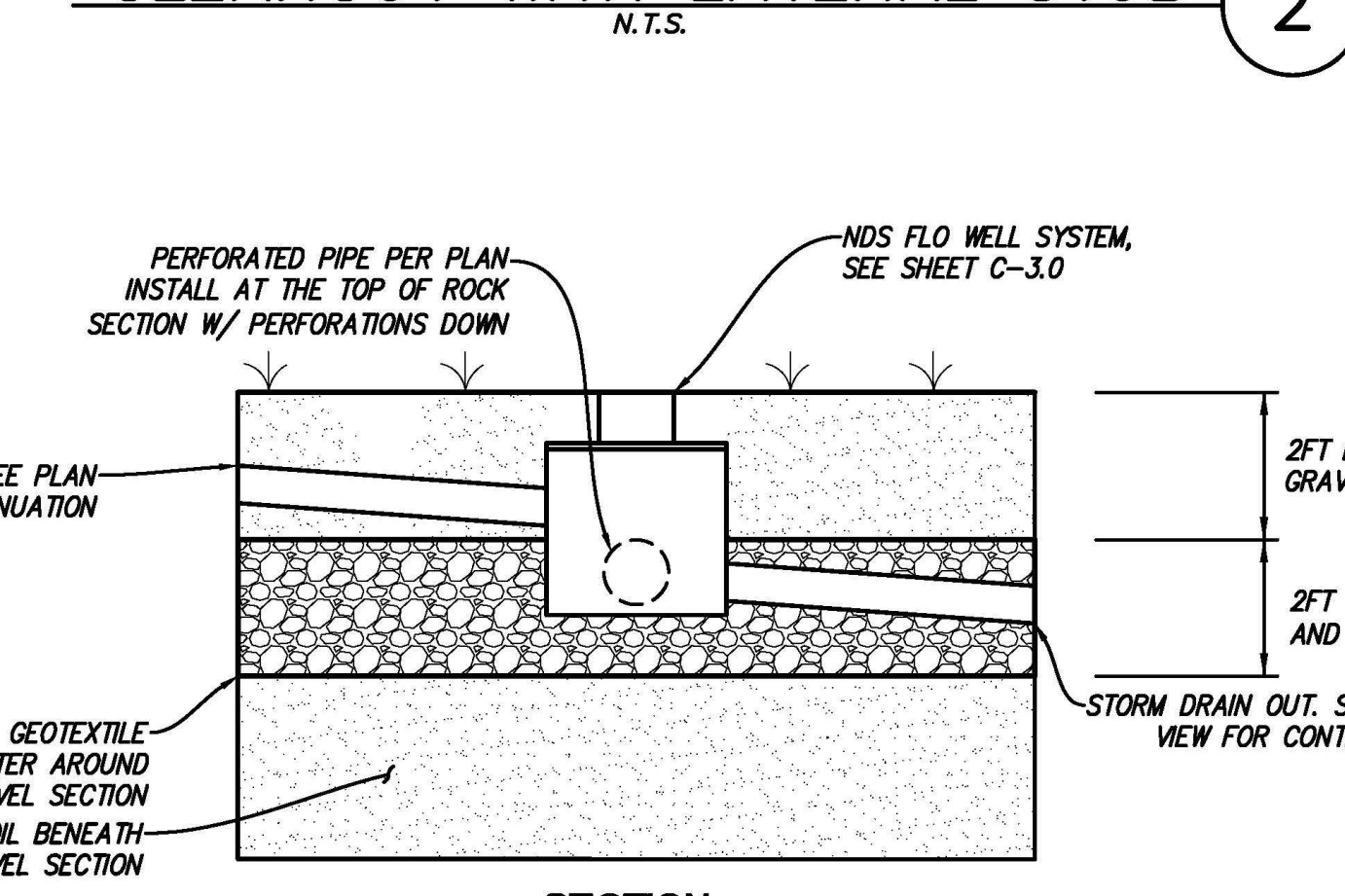


TEE & RISER DETAIL
N.T.S. **1**

AREA DRAIN
N.T.S. **1**



CLEANOUT WITH LATERAL STUB
N.T.S. **2**



SECTION DRY WELL
N.T.S. **3**

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APPROVED BY:	DIS
DRAWING NO.:	218593

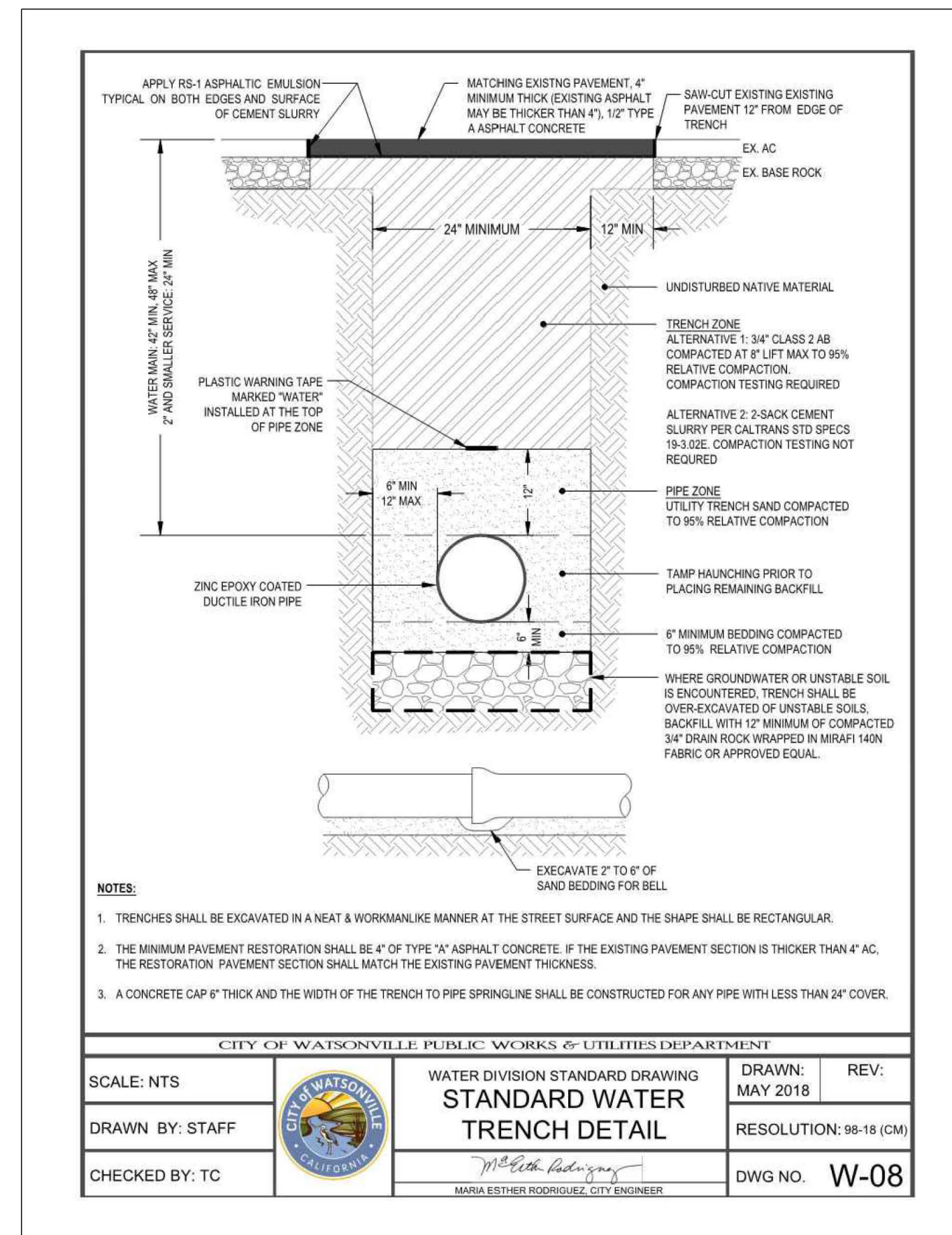
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	PLANNING RESUBMITTAL	2/5/21	DB
	PLANNING RESUBMITTAL	5/28/21	AP

145 RIO BOCA
CONSTRUCTION DETAILS
WATSONVILLE CALIFORNIA

SHEET **C-7.0**
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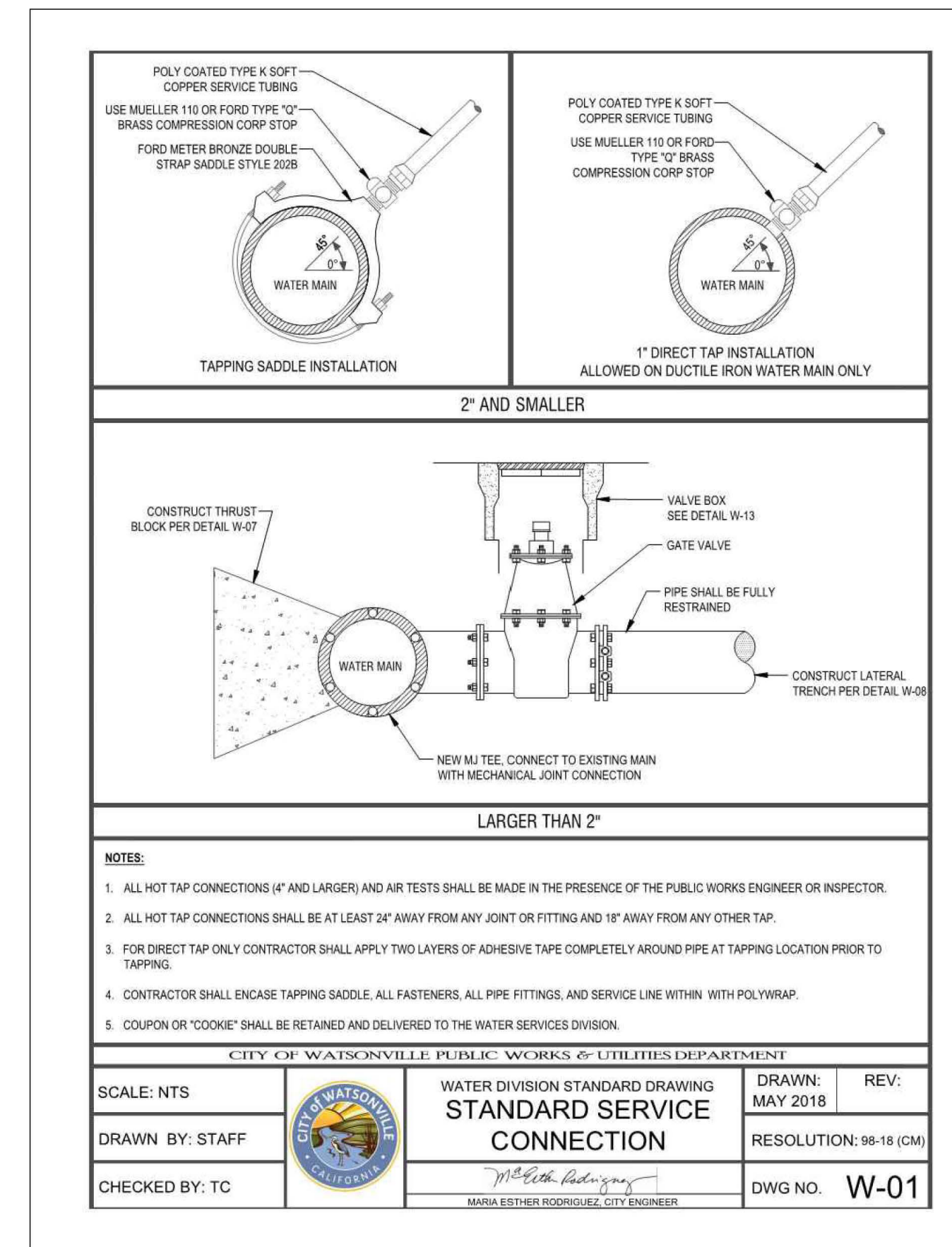
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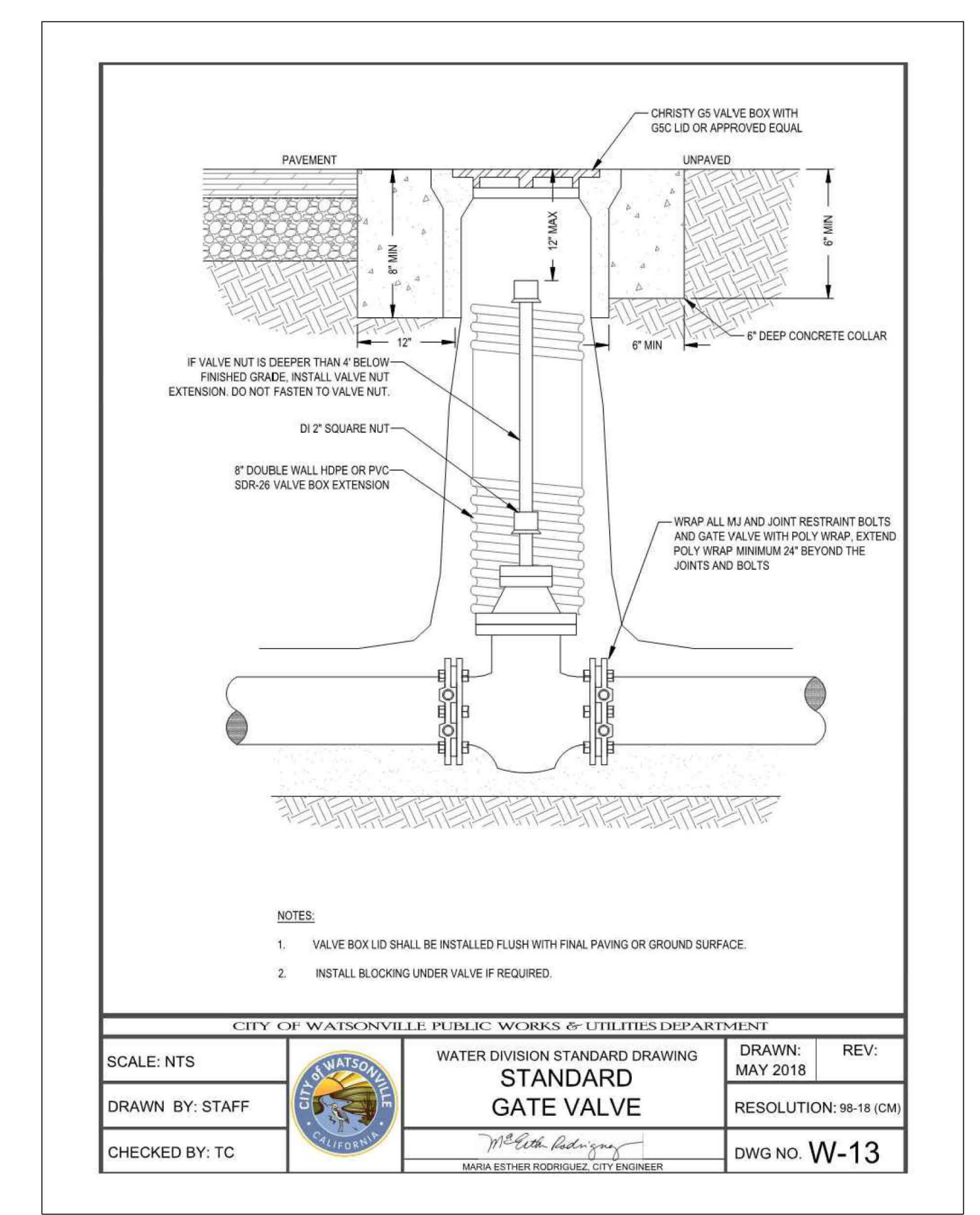
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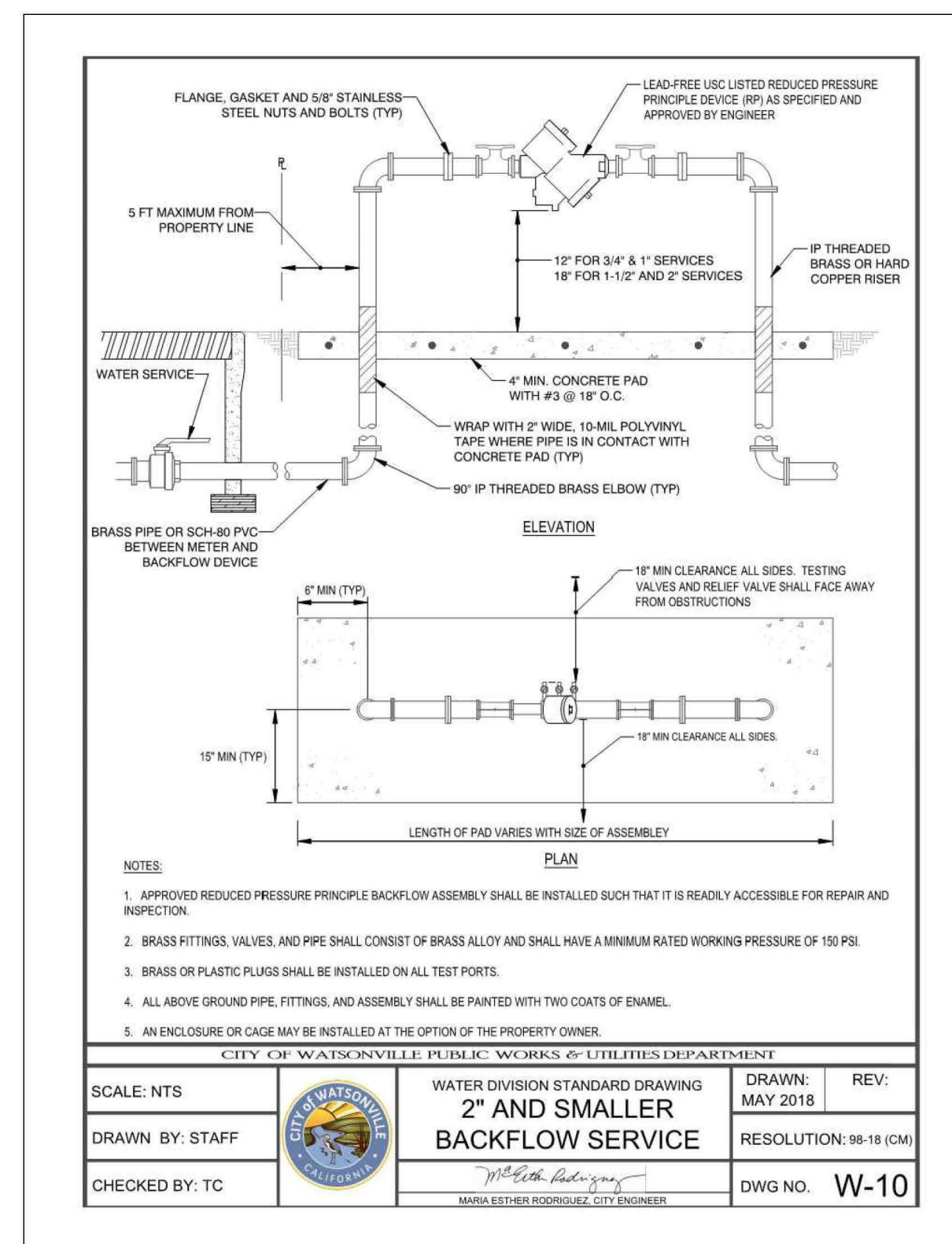
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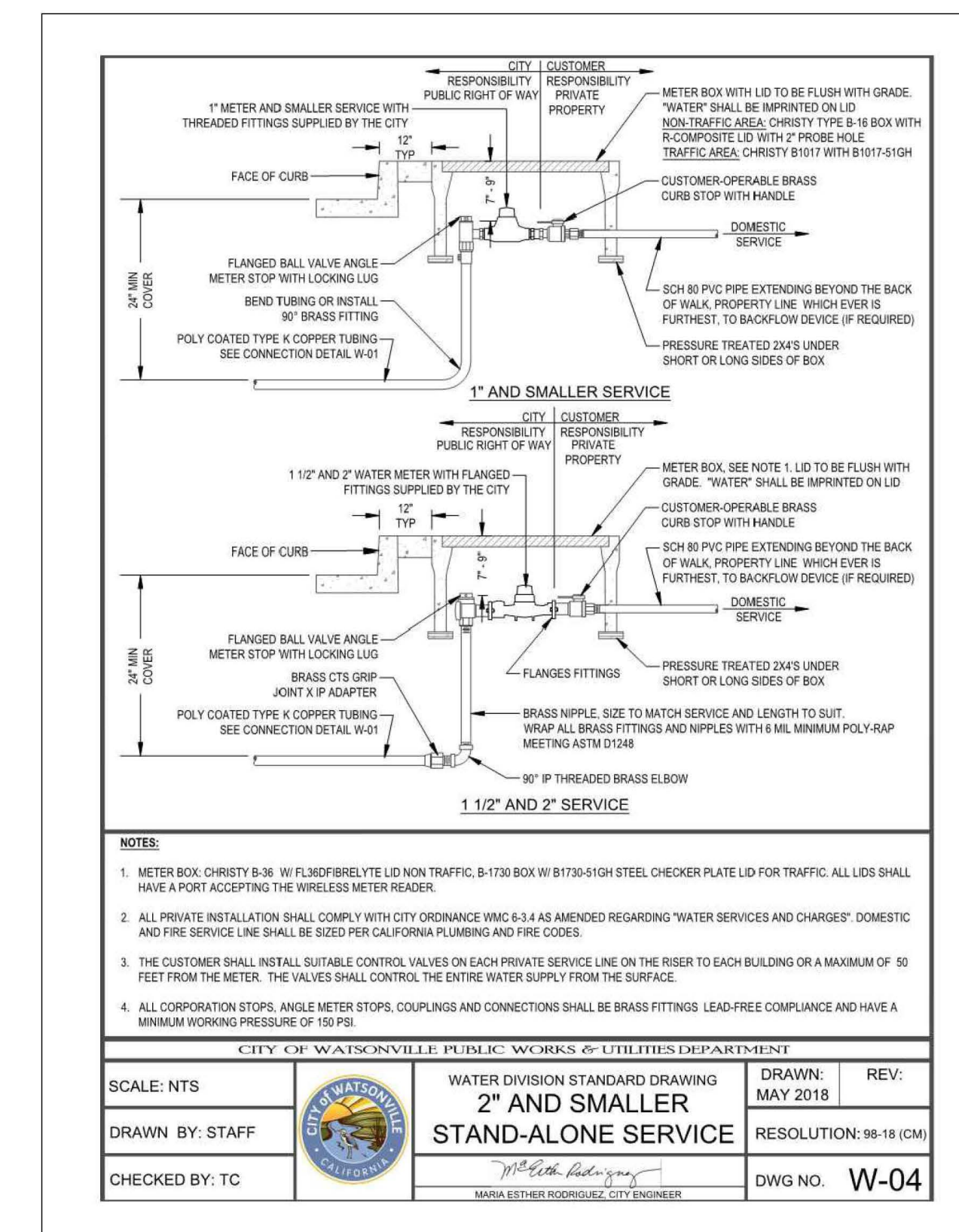
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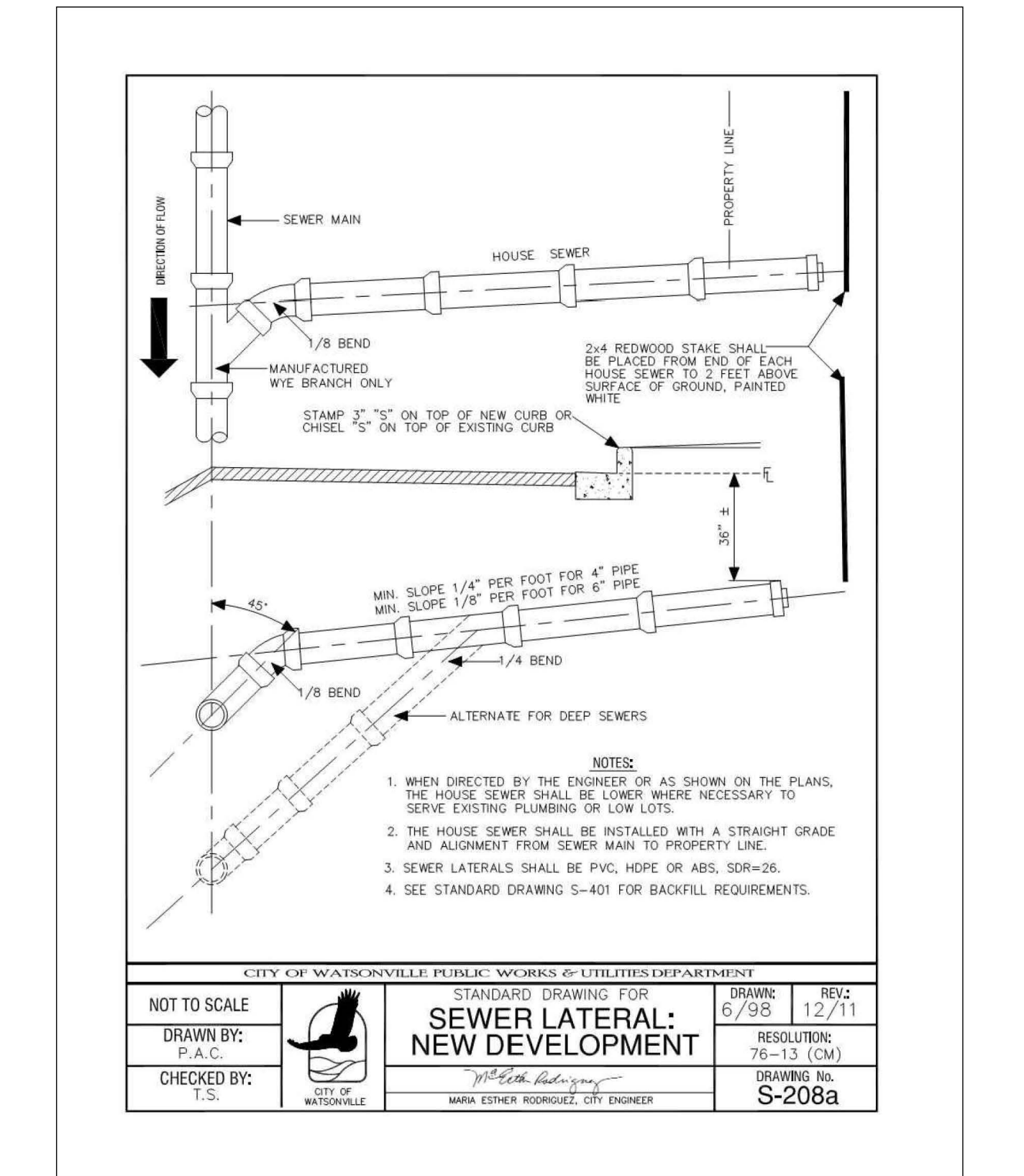
BACKFLOW
N.T.S.

6



WATER METER
N.T.S.

4



SEWER LATERAL
N.T.S.

2

DATE:	02/05/2021
SCALE:	N.T.S.
DRAWN BY:	SAN
APPROVED BY:	DIS
DRAWING NO.:	218593

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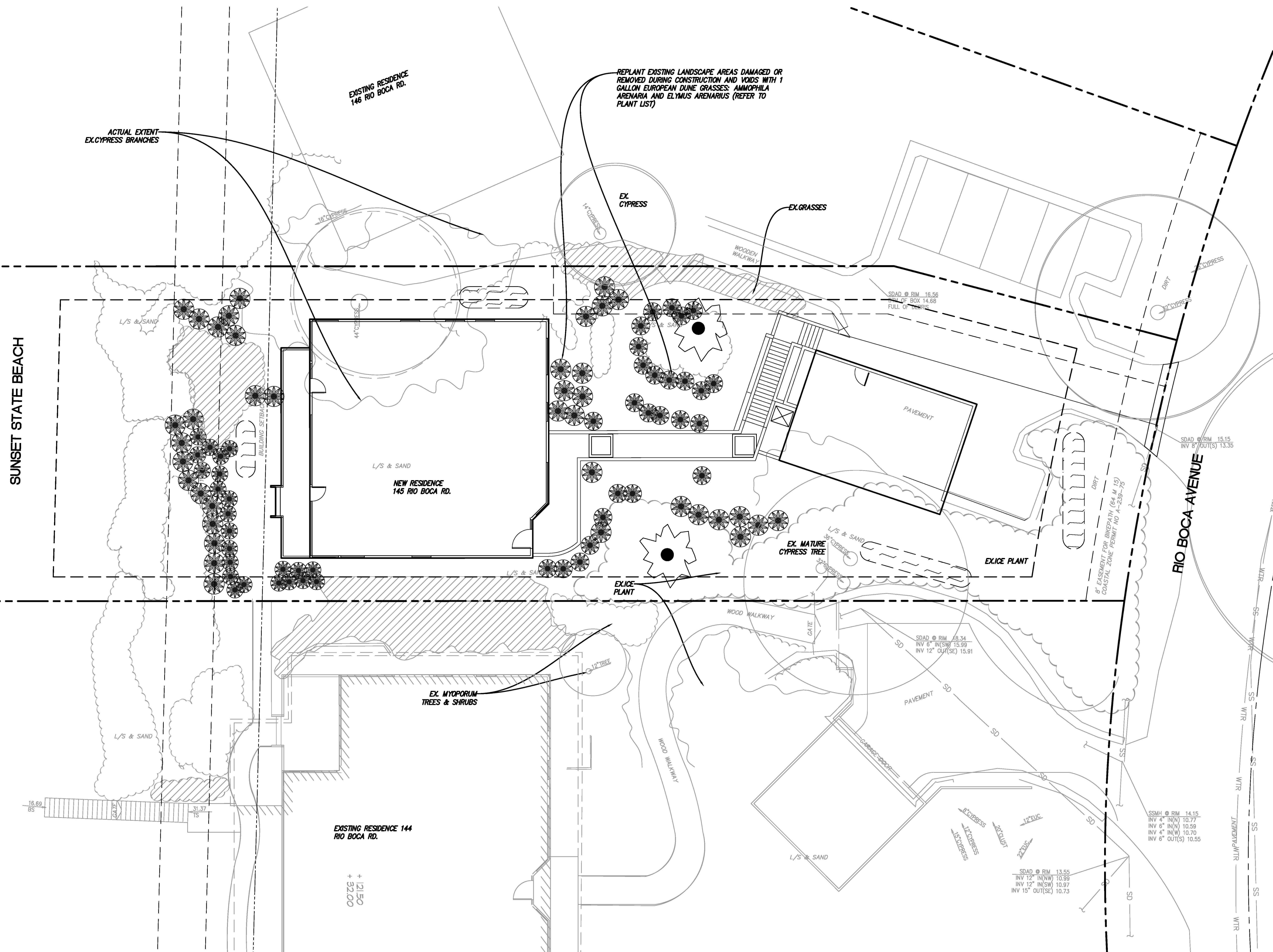
GENERAL NOTES

1. ALL TREES ARE TO BE 15-GALLON UNLESS NOTED OTHERWISE. ALL SHRUBS ARE TO BE 5-GALLON UNLESS NOTED OTHERWISE. AN AUTOMATICALLY TIMED IRRIGATION SYSTEM WITH SPRAY AND DRIP COMPONENTS WILL BE USED. PER BIOLOGICAL RESOURCES EVALUATION REPORT, THERE SHALL BE NO NON-NATIVE (INVASIVE) SPECIES ONSITE.
2. TO PROTECT MONTEREY SPINEFLOWER PLANT, EITHER ON-SITE RESTORATION AREA TO BE DETERMINED OR OFFSITE HABITAT PRESERVATION TO BE CLAIMED.

Landscape Renovation Plant List

Botanical Name	Common Name	Size	Spacing
Elymus Mollis	American Dunegrass	1 Gal	24" OC
Eriogonum Parvifolium	Sea Cliff Buckwheat	1 Gal	24" OC
Eriogonum Latifolium	Coast Buckwheat	1 Gal	24" OC
Lupinus Albifrons	Silver Lupine	1 Gal	24" OC

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DATE: 05/28/2021
SCALE: 1"=10'
DRAWN BY: JL
APPROVED BY: JL
DRAWING NO.: 218593

LAUDERBAUGH ASSOCIATES
Landscape Architecture/Planning
128 Newton Street
Hayward, California 94544-2026
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145 RIO BOCA
LANDSCAPE PLANS
WATSONVILLE CALIFORNIA

SHEET
L-1.0
OF 13 SHEETS
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REPORT TO

**JOHN ARRILLAGA TRUSTEE
PALO ALTO, CALIFORNIA**

FOR

PROPOSED RESIDENCE

**145 RIO BOCA ROAD
WATSONVILLE, CALIFORNIA**

**UPDATED GEOTECHNICAL INVESTIGATION
MAY 2021 (REVISED NOVEMBER 2022)**

PREPARED BY

**SILICON VALLEY SOIL ENGINEERING
1916 O'TOOLE WAY
SAN JOSE, CALIFORNIA**

SILICON VALLEY SOIL ENGINEERING

GEOTECHNICAL CONSULTANTS

File No. SV1858A
May 3, 2021 (Revised 11/11/22)

John Arrillaga Trustee
2450 Watson Court
Palo Alto, CA 94303

Subject: Proposed Residence
145 Rio Boca Road
Watsonville, California
UPDATED GEOTECHNICAL INVESTIGATION (REVISED 11/20/22)

Pursuant to the request of Mr. Matt Gallagher from Vance Brown Builders, we are pleased to present herein an updated geotechnical investigation for the proposed residence. The subject site is located at 145 Rio Boca Road in Pajaro Dunes, Watsonville, unincorporated area of County of Santa Cruz, California.

Our findings indicate that the site is suitable for the development provided the recommendations contained in this report are carefully followed. Field reconnaissance, drilling, sampling, and laboratory testing of the surface and subsurface material evaluated the suitability of the site. The following report details our investigation, outlines our findings, and presents our conclusions based on those findings.

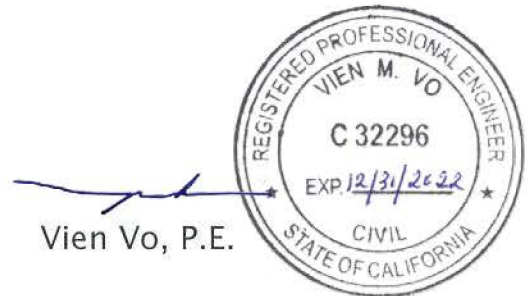
If you have any questions or require additional information, please feel free to contact our office at your convenience.

Very truly yours,

SILICON VALLEY SOIL ENGINEERING



Sean Deivert
Project Manager



SV1858A.UGI/Copies: 1 to John Arrillaga Trustee

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(EXTRACTED FROM USE FILE NO. 4412-S1)

PREVIOUS EXPLORATORY BORING LOG (B-1)
(EXTRACTED FROM HHA PROJECT NO. SC3214)

LIQUEFACTION ANALYSIS SUMMARY

VERTICAL ANALYSIS AND LATERAL ANALYSIS SUMMARY

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INTRODUCTION

Per your authorization, Silicon Valley Soil Engineering (SVSE) conducted an updated geotechnical investigation. The purpose of this updated geotechnical investigation was to determine the nature of the surface and subsurface soil conditions at the subject site through field investigations and laboratory testing. This report presents an explanation of our investigative procedures, results of the testing program, our conclusions, and our recommendations for earthwork and foundation design to adapt the proposed development to the existing soil conditions.

SITE LOCATION AND DESCRIPTION

The subject site is located 145 Rio Boca Road in Pajaro Dunes, Watsonville, unincorporated area of County of Santa Cruz, California (Figure 1). The subject site is bounded by Rio Boca Road to the east-northeast, an existing residence to the northwest and southwest, Monterey Bay to the west-southwest. At the time of our investigation, the site was an irregular shaped parcel of land with the vertical elevation ranging from 10 to 30 feet. An existing asphalt pavement driveway is located in the northeast corner of the property. The proposed new residence with basement and detached garage will be located approximately at the central and northeastern portion of the property. The approximate location of the proposed residence and current exploratory soil borings are shown on the Site Plan (Figure 2).

PREVIOUS FIELD INVESTIGATION

In 1992, a geotechnical investigation for the site was performed by the office of Harro, Hasumich, and Associates, Inc. (HHA) (Project No. SC 3214 dated August 6, 1992). One boring was drilled to the depth of 50 feet below ground surface. The subsurface soil data obtained from the above-mentioned investigation was reviewed for the preparation of this report.

In 1998, United Soil Engineering, Inc. performed a *Geotechnical Investigation* for the proposed new residence. A total of three exploratory borings was drilled to the depths ranging from 5 to 8 feet below existing ground surface. The results of the investigation were presented in a report; File No. 4412-S1 dated April 3, 1998.

Our geotechnical engineer conducted a field site inspection on December 10, 2018 at the subject site. It included a site reconnaissance to detect any unusual surface features.

CURRENT FIELD INVESTIGATION

After considering the nature of the proposed development and reviewing available data on the area, our geotechnical engineer conducted a field investigation at the subject site. It included a site reconnaissance to detect any unusual surface features, and the drilling of one exploratory test boring to determine the subsurface soil characteristics. The boring was drilled on February 23, 2021. The approximate location of the boring is shown on the Site Plan (Figure 2). The boring was drilled to the depths of 50 feet below the existing pavement surface with a truck mounted drill rig using 8-inch diameter hollow stem augers.

The soils encountered were logged continuously in the field during the drilling operations. Relatively undisturbed soil samples were obtained by hammering a 2.0-inch outside diameter (O.D.) split-tube sampler a Standard Penetration Test (SPT), ASTM Standard D1586, into the ground at various depths. A 2.5-inch diameter split-tube sampler (Modified California) sampler was utilized to obtain soil sample for direct shear tests at the depths of 1.5 feet to 3 feet. A 140-pound hammer with a free fall of 30 inches was used to drive the sampler 18 inches into the ground. Blow counts were recorded on each 6-inch increment of the sampled interval. The blows required for advancing the sampler the last 12 inches of the 18-inch sampled interval were recorded on the boring logs as penetration resistance.

In addition, one disturbed bulk sample of the near-surface soil was collected for laboratory analyses. The Exploratory Boring Log, a graphic representation of the

encountered soil profile which also shows the depths at which the relatively undisturbed soil samples were obtained, can be found in the Appendix at the end of this report. After the completion of the drilling operation, the exploratory borings were backfilled from the bottom of the borehole to the surface with neat cement.

LABORATORY INVESTIGATION

A laboratory testing program was performed to determine the physical and engineering properties of the soils underlying the site.

1. Moisture content and dry density tests were performed on the relatively undisturbed soil samples in order to determine soil consistency and the moisture variation throughout the explored soil profile (Table I).
2. The strength parameters of the foundation soils were determined from direct shear tests that were performed on selected relatively undisturbed soil samples (Table I).
3. Atterberg Limits tests were also performed on the near-surface soil to assist in the classification of these soils and to obtain an evaluation of their expansion and shrinkage potential (Figure 4).
4. A laboratory compaction test was performed on the near-surface material per the ASTM D1557 test procedure (Figure 5).
5. Sieve analysis were performed on the relatively undisturbed soil samples to determine the fine contents of the potential liquefiable sandy material (Table I).

The results of the laboratory testing program are presented in the tables and figures at the end of this report.

SOIL CONDITIONS

The existing pavement surface consists of 3.0 inches of Asphalt Concrete (AC) over 9.0 inches of Aggregate Base (AB). Below the existing pavement section to the end of the boring at 50 feet, a light gray, damp, medium dense sand layer was encountered. The sand was medium-grained and poorly graded. The sand became dense at a depth of 15 feet.

Groundwater was initially encountered in the Boring B-1 (SVSE 2021) at the depth of 13 feet and stabilized at the depth of 12 feet. It should be noted that the groundwater level would fluctuate as a result of seasonal changes and hydrogeological variations such as groundwater pumping and/or recharging. A graphic description of the explored soil profiles is presented in the Exploratory Boring Log contained in the Appendix.

GENERAL GEOLOGY

The subject site lies in the Monterey Bay Area, within the Coast Range Geomorphic Province. The regional structure of the area is dominated by the northwest trending Santa Cruz Mountains to the north, the San Lucia Range to the south, the Gabilan Range to the southeast, and Monterey Bay to the southwest. Folds, thrust faults, steep reverse faults, and strike-slip faults that developed as a consequence of Cenozoic deformations have occurred very often within the Coast Range Geomorphic Province and are continuing today.

The Santa Cruz Mountains consist of two entirely different, incompatible core complexes, lying side by side and separated from each other by large faults. These two core complexes are Early Cretaceous Granitic intrusions, and an Upper Jurassic to Lower Cretaceous eugosynclinal assemblage known as the Franciscan Formation. The Franciscan Formation is primarily a rapidly deposited complexly intercalated and deformed mixture of clastic sedimentary, and altered mafic volcanic rocks, with

some chert, limestone, and subordinate amounts of metamorphic rocks (CDMG; 1966). Additionally, the Franciscan Formation has been intruded by numerous tabular masses of serpentine, probably in the Late Cretaceous. The two core complexes present in the Santa Cruz Mountains are generally blanketed by thick layers of Lower Miocene marine and Plio–Pleistocene nonmarine deposits. Some Tertiary volcanic intrusions are also present in the Santa Cruz Mountains (Jennings & Burnett; 1973).

The core complex of the San Lucia and Gabilan Ranges to the south and southeast of the subject site are comprised of Early Cretaceous Granitic intrusions. The core complex of the San Lucia Range is covered predominantly by Pre–Cretaceous metamorphic rocks, with some Middle–Miocene marine and non–marine deposits. The core complex of the Gabilan Range has been predominantly exposed near the subject site, with very few outcroppings of Pre–Cretaceous metamorphic rocks, Lower Miocene marine deposits and Miocene volcanic deposits (Jennings & Strand; 1971).

The subject site is located on Quaternary alluvial deposits, in a near coastal alluvial flood plain. The Quaternary history of the region is recorded by sedimentary marine strata alternating with non–marine strata. The changes of the depositional environment are related to the fluctuation of sea level corresponding to the glacial and interglacial periods (CDMG; 1966).

FAULTS AND SEISMICITY

The site lies in an area of active tectonics, but is not located within, or immediately adjacent to, any of the published Special Studies Zones defined by the Alquist–Priolo Geologic Hazards Act of 1972. Three major faults, the San Andreas, the Hayward, and the Calaveras, are close enough to pose a significant potential hazard due to seismic activity (Figure 3). The site can be expected to undergo strong shaking during a major earthquake on any of these faults.

Studies of the frequency and intensity of earthquakes on the major fault systems in the vicinity of the subject site suggest a general pattern of reoccurrence. The San Andreas passes approximately 9.3 miles to the northeast of the site and has produced several large earthquakes within historic time. Scientists generally agree that a major earthquake will occur on the Bay Area segment of the San Andreas fault on the average of one every 50 years, and that an earthquake (magnitude 8 – 8.3 on the Richter Scale) will occur on the Bay Area segment of the San Andreas fault on the average of one every 100 years (Rogers T.H., and Williams J.W.; 1974). Historical seismic activity on the San Andreas fault includes an earthquake measuring 6.5 on the Richter Scale which occurred in 1865, the famous 1906 earthquake with a magnitude of 8.2 on the Richter Scale, and the recent Loma Prieta earthquake in 1989 measuring 7.1 on the Richter Scale.

The southern end of the Hayward fault is located approximately 27.8 miles north-northeast, and the Calaveras fault is located approximately 21.8 miles northeast of the subject site. Several moderately large earthquakes have occurred on the Hayward and Calaveras faults within historic time. These include earthquakes on of the Hayward fault measuring 7.0 on the Richter Scale in 1868 and measuring 6.6 on the Richter Scale in 1911, and an earthquake on the Calaveras fault measuring 6.2 on the Richter Scale in 1984.

Other faults in the general vicinity may also pose a significant, albeit lesser, potential hazard to the site. The Zayante/Vergeles fault passes approximately 6.3 miles to the northeast of the subject site, the Palo Colorado-San Gregorio fault zone passes approximately 13.2 miles to the southwest of the subject site, and the northern end of the King City fault is located approximately 7.7 miles to the south-southwest of the subject site (Greene, et. al.; 1973; Jennings & Burnett; 1973). All of these faults are northwest-southeast trending, right lateral strike-slip faults.

GEOLOGIC AND SEISMIC HAZARDS

The evaluation of site-specific geologic and seismic hazards is based upon reviewed references, field investigation and laboratory test results. These hazards include ground shaking, ground rupture, ground failure, and inundation potential.

GROUND SHAKING

This primary seismic phenomenon involves horizontal and vertical vibratory motion of the earth surface. The intensity of ground motion for any earthquake is basically a function of the following parameters: 1) the magnitude of an earthquake; 2) the distance from the causative fault; and 3) the competence and consolidation of materials at or near the ground surface (WCA; 1978). In general, the ground shaking associated with an earthquake is greater with increasing earthquake magnitudes and is less with increasing distances from the causative fault. A copy of the Modified Mercalli Intensity Scale, a subjective assessment of the damage associated with differing earthquake magnitudes, is presented in the Appendix.

Poorly consolidated materials commonly respond more violently to a given magnitude earthquake than more solid, well consolidated bedrock materials within the same area (Borcherdt, et al.; 1977). Therefore, for an earthquake on the San Andreas, Hayward or Calaveras faults, amplification of seismic energy will be greater in alluvial material than bedrock, but less than bay muds.

GROUND RUPTURE

Rupturing of the earth's surface occurs when subsurface fault displacement extends upward to the ground surface and is usually confined to rather narrow zones along fault traces. Generally, this zone is estimated to extend approximately 1,000 to 1,500 feet beyond the fault trace (WCA, 1978). Because the subject site is

not located over or immediately adjacent to any known active faults, the likelihood of ground rupture at the site is low.

GROUND FAILURE

The secondary effects resulting from strong ground shaking may take forms such as landslides, ground lurching and liquefaction. All of these involve displacement of the ground surface due to loss of strength or failure of the underlying materials during shaking. There are no known (mapped) active or potentially active faults crossing the site. Therefore, the potential for fault ground rupture and ground lurching along the project site is considered insignificant including potential for landsliding. Only liquefaction is the ground failure to be considered.

LIQUEFACTION ANALYSIS:

The site is located within the State of California Seismic Hazard Zone for susceptible liquefaction (CGS & USGS). Therefore, a liquefaction analysis was performed.

A. GROUNDWATER

Groundwater was initially encountered in Boring B-1 to the depth of 13 feet and rose to a static level of 12 feet below the pavement surface (16.4 feet -NAVD88) at the end of the drilling operation. Based on the flood elevation of 19 feet (NAVD88), the highest expected groundwater table is above the existing pavement surface. The elevation of the pavement surface will be used for the liquefaction analysis.

B. SUSPECTED LIQUEFIABLE SOIL LAYERS

The State Guidelines (CGS Special Publication 117A, revised 2008, Southern California Earthquake Center, 1999) were followed by this study. Based on recent

studies (Bray and Sancio, 2006, Boulanger and Idriss, 2004), the “Chinese Criteria”, previously used as the liquefaction screening (CGS SP 117, SCEC, 1999) is no longer valid indicator of liquefaction susceptibility. The revised screening criteria clearly stated that liquefaction is the transformation of loose saturated silts, sands, and clay with a Plasticity Index (PI) < 12 and moisture content (MC) > 85% of the liquid limits are susceptible to liquefaction and $12 < PI < 18$ and $MC > 80\%$ of LL are moderately susceptible to liquefaction. Moreover, sensitive soils having $PI > 18$ can undergo severe strength loss, so engineering judgement must be applied when using screening criteria. Therefore, it is recommended that both PI and water content criteria be considered for screening criteria. This occurs under vibratory conditions such as those induced by a seismic event. To help evaluate liquefaction potential, samples of potentially liquefiable soil were obtained by hammering the split tube sampler into the ground. The number of blows required driving the sampler the last 12 inches of the 18-inch sampled interval were recorded on the log of test boring. The number of blows was recorded as a Standard Penetration Test (SPT), ASTM Standard D1586–92.

The results from our exploratory boring show that the subsurface soil material in Boring B-1 to the depth of 50.0 feet consists of medium dense sand to dense sand. The following is the determination of the liquefiable soil for each soil layer in Boring B-1.

1. The medium dense sand layer from the surface to the depth of 15 feet is liquefiable soil based on the medium high blow counts.
2. The dense sand layer from the depths of 15 feet to the end of the boring at 50 feet is not liquefiable soil based on the high blow counts.

In summary, there is one liquefiable soil layers underlying the subject site and it is the sand layer at the pavement surface to a depth of 15 feet.

A computer program named LiquefyPro Version 5.8n (CivilTech Corporation) was used in the liquefaction analysis for Boring B-1. This program is based on the most

recent publications of NCEER Workshop and procedure outline in SP117A Implementation. The program was also used to identify liquefiable soil layers in Boring B-1. The results show that potential liquefiable soil layer identified by LiquefyPro matched the layer identified by the screening process. The potential liquefiable soil layers are shown on Figure 6.

C. PEAK GROUND ACCELERATION

The ground motion caused by earthquakes is generally characterizes in terms of ground surface displacement, velocity, and acceleration. For this liquefaction study, the measure of the cyclic ground motion is represented by the maximum horizontal acceleration at the ground surface, a_{max} . The maximum horizontal acceleration at ground surface is also called the peak horizontal ground acceleration. The value of peak ground acceleration is usually based on prior earthquake and faults studies because it is not possible to predict earthquakes. Based on the seismic design maps, the adjusted peak ground acceleration value of 0.837g was used for the liquefaction analysis.

D. LIQUEFACTION ANALYSIS

The evaluation procedure is a semi-empirical method for a moment magnitude Mw7.9 earthquake, an adjusted peak ground acceleration of 0.837g, and highest expected groundwater table at the pavement surface. Based on our analysis, it is our opinion that the liquefaction of the liquefiable soil layers at this site is low. In addition, based on our analysis using Modified Robertson and Ishihara & Yosemine, we estimated maximum total settlements from liquefaction and the maximum differential settlements at Boring B-1 is 0.88 inch and 0.58 inch, respectively.

The results of the analysis including the liquefaction-induced settlements are enclosed at the end of this report.

E. LIQUEFACTION-INDUCED GROUND DAMAGE

In addition to the ground surface settlements, there could be also liquefaction-induced ground damage that causes settlement of structures. The ground damage may include sand boils and/or surface fissures. To evaluate liquefaction-induced ground damage, we use Figure 7. These figures were reproduced from Kramer 1996, which was originally developed by Ishihara 1985. In plotting the coordinates of the suspected liquefiable soil layers of Boring B-1 in Figure 7, the thickness of surface non-liquefiable soil layer (*H1*) and the cumulative thickness of the liquefiable soil layers (*H2*) were entered with a maximum peak acceleration of adjusted $a_{\max} = 0.837g$. The following is the determination of *H1* and *H2* in Boring B-1.

Boring B-1: *H1* = 0 meter (0 feet); *H2* = 5 meters (15 feet)

Based on Figure 4, we have concluded that the liquefaction-induced ground surface damage at the site is moderately high.

F. LATERAL SPREADING

In addition to liquefaction-induced ground damage, the liquefaction may also cause lateral movement of the ground surface. The liquefaction-induced lateral spreading may damage the building foundation and underground utility lines. Due to the close proximity to the existing Watsonville Slough easterly of the site, a lateral spreading study was performed for the site. A revised empirical method developed by *Youd, Hansen and Barlett* (2002) was used in this study to estimate the amount of lateral movement of the ground surface. The following revised multi-linear regression equation was used for the gently sloping ground condition:

$$\text{Log DH} = -16.213 + 1.532M - 1.406 \log R^* - 0.012R + 0.338 \log S + \\ 0.540 \log T_{15} + 3.413 \log (100 - F_{15}) - 0.795 \log (D_{50_{15}} + 0.1 \text{ mm})$$

Where:

DH = Horizontal ground displacement in meters

M = Earthquake magnitude

R = Distance to the nearest fault rupture in kilometers

T_{15} = Cumulative thickness of saturated granular layers with corrected blow counts, $(N_1)_{60}$, less than 15, in meters

F_{15} = Percent finer than No. 200 sieve for granular materials included within T_{15}

$D50_{15}$ = Average mean grain size for granular materials within T_{15} in millimeters

S = Slope gradient of the ground surface

$R^* = R + R_0$

$R_0 = 10^{(0.89M-5.64)}$

For this study:

M = 8.5, R = 15 kilometer from San Andreas Fault, $R_0 = 84$, $R^* = 99$

$T_{15} = 2.67$ meter, $F_{15} = 0.1\%$, $D50_{15} = 1.5$ millimeter, S = 2%

The lateral movement of the ground surface soil is calculated to be approximately 0.2 meters (0.6 feet or 6 inches) with respect to the San Andreas Fault. Based on the insignificant magnitude of the lateral movement, we concluded that the liquefaction-induced lateral spreading is minimal.

G. LIQUEFACTION CONCLUSION

The followings are the conclusions of this study.

- The liquefaction-induced total maximum settlements at the site is 0.88 inch. The potential settlement is minimal.
- The liquefaction-induced maximum differential settlements at the site is 0.58 inch. The potential differential settlement is minimal.
- The potential of liquefaction-induced ground surface damage at the site is moderately high.
- The potential of liquefaction-induced lateral spreading is minimal.

H. MITIGATIONS

1. The liquefaction-induced total maximum settlement at the site is 0.88 inch. It is indicated in the most recent publications of NCEER Workshop and procedure outline in SP117A Implementation (*Guidelines*) that generally only removal and/or densification of the potentially liquefiable soil or drainage of the groundwater can fully eliminate the liquefaction hazards. However, the *guidelines* also suggested that if the total settlement is less than 12 inches (1/3 meter) and if the foundation can be designed to withstand one-third increase of the total settlement of 0.88 inches then the desired acceptable level of risk might be achieved. We believe that this mitigation in the form of mat slab foundation system and pre-stress and pre-cast concrete piles would bring the level of risk as far as liquefaction-induced settlement is concerned to an acceptable level.
2. The liquefaction-induced differential settlement at the site is 0.58 inch. We believe that the mitigation in the form of a structural/mat slab foundation system would bring the level of risk as far as liquefaction-induced differential settlement is concerned to an acceptable level.
3. The potential of liquefaction-induced ground surface damage at the site is moderately high. However, the subgrade surface damage would be minimal because the main house and garage structural/mat slab foundation would span the distressed area, if any.

INUNDATION POTENTIAL

The subject site is located at 145 Rio Boca Road in Pajaro Dunes, Watsonville, unincorporated area of County of Santa Cruz, California. According to the Limerinos and others, 1973 report, portion of the site is located in an area that has potential for inundation as the result of a 100-year flood (Limerinos; 1973). Based on FEMA map, the site is located in a flood hazard zone as a VE Zone with a Base Flood Elevation (BFE) of 19 feet (NAVD88).

CONCLUSIONS

1. The site covered by this investigation is suitable for the proposed development provided the recommendations set forth in this report are carefully followed.
2. Based on the laboratory testing results, the native surface soil at the subject site has been found to have a low expansion potential when subjected to fluctuations in moisture.
4. The proposed residence with basement and detached garage should be supported by pre-stress pre-cast concrete pile foundation. If assuming any portion of dune sand would erode from coastal flood hazard or any potential liquefaction as far as liquefaction-induced settlement, we believe that the mitigation in the form of the proposed foundation system would bring the level of risk to an acceptable level.
3. Since the detached garage will be below Base Flood Elevation, damp-proofing materials for the garage walls should be installed on the exterior and interior side of the walls. The acceptable material shall be Class 5 or 4 per FEMA technical bulletin 2 (2008).
4. Also, additionally, project design and construction should conform to the current edition of the FEMA (P-55) Coastal Construction Manual.
5. A reference to our report should be stated in the grading and foundation plans that includes the geotechnical investigation file number and date.
6. On the basis of the engineering reconnaissance and exploratory soil borings, it is our opinion that trenches to excavate to depths less than 4 feet below the existing ground surface will not need shoring. However, for trenches greater than 4 feet in depth including basement excavation,

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- shoring should be required or excavated in conformance to OSHA guidelines.
7. For pile installation, both neighboring residences are supported with deep pile foundation. Vibration induced damage/settlement will not occur. However, we recommend that the contractor establish survey points prior to the start of the pile installation to verify if movement occurred. We also recommend monitoring the vibration within 100 feet of the site to check if pile-driving activities affected the adjacent structures.
 8. Specific recommendations are presented in the remainder of this report.
 9. All earthwork including pile driving, grading, backfilling and foundation excavation shall be observed and inspected by a representative from Silicon Valley Soil Engineering (SVSE). Contact our office 48 hours prior to the commencement of any earthwork operations for inspection.
 10. The owner should be aware of and willing to accept that there could be a risk for the proposed development subject to coastal hazards.

RECOMMENDATIONS:**GRADING**

1. The placement of fill and control of any grading operations at the site should be performed in accordance with the recommendations of this report. These recommendations set forth the minimum standards to satisfy other requirements of this report.
2. All existing surface and subsurface structures that will not be incorporated in the final development shall be removed from the subject site prior to any grading operations. These objects should be accurately located on the grading plans to assist the field engineer in establishing proper control over their removal. All utility lines in the new building pad area must be removed prior to any grading at the site.
3. The depressions left by the removal of subsurface structures, if any, should be cleaned of all debris, backfilled and compacted with clean, native soil. This backfill must be engineered fill and should be conducted under the supervision of a SVSE representative.
4. All organic surface material and debris shall be stripped prior to any other grading operations and transported away from all areas that are to receive structures or structural fills. Soil containing organic material may be stockpiled for later use in landscaping areas only.
5. After removing all the subsurface structures or existing pavement section and after stripping the organic material from the soil, the building pad area should be scarified by machine to a depth of 12 inches and thoroughly cleaned of vegetation and other deleterious matter.

6. After stripping, scarifying and cleaning operations, native soil should be compacted to not less than 95% relative maximum density using ASTM D1557 procedure over the entire building pad, 5 feet beyond the perimeter of the pad, and 3 feet beyond the edge of the driveway area as permitted.
7. All engineered fill or imported soil should be placed in uniform horizontal lifts of not more than 8 inches in un-compacted thickness and compacted to not less than 95% relative maximum density. The baserock material also should be compacted to at least 95%. Before compaction begins, the subgrade and/or fill material shall be brought to a water content that will permit proper compaction by either; 1) aerating the material if it is too wet, or 2) spraying the material with water if it is too dry. Each lift shall be thoroughly mixed before compaction to assure a uniform distribution of water content.
8. When fill material includes rocks, nesting of rocks will not be allowed, and all voids must be carefully filled by proper compaction. Rocks larger than 4 inches in diameter should not be used for the final 2 feet of the improved area.
9. Unstable (yielding) subgrade should be aerated or moisture conditioned as necessary. Yielding isolated area in the subgrade can be stabilized with an excavation of the subgrade to the depth of 12 to 18 inches, lined with stabilization fabric membrane (Mirafi 500X or equivalent) and backfilled with aggregate base.
10. All imported soil, if any, must be approved by SVSE before being brought to the site. Import soil must have a plasticity index no greater than 15, an R-Value greater than 25, and environmentally clean (non-hazardous).

11. Silicon Valley Soil Engineering (SVSE) should be notified at least two days prior to commencement of any grading operations so that our office may coordinate the work in the field with the contractor.
12. All grading work shall be observed and approved by a representative from SVSE. The geotechnical engineer shall prepare a final report upon completion of the grading operations.

WATER WELLS

13. Any water wells and/or monitoring wells on the site which are to be discovered and abandoned, shall be capped according to the requirements of the Santa Cruz Environmental Health Department. The final elevation of the top of the abandoned well casing must be a minimum of 3 feet below the adjacent grade prior to any grading operation.

FOUNDATION DESIGN CRITERIA

14. We recommend that the proposed residence with basement and detached garage should be supported on driven pre-stress, pre-cast concrete pile foundation. These foundations shall conform to the current edition of the FEMA (P-55) Coastal Construction Manual.
15. The pre-stress pre-cast concrete pile should be a minimum of 12-inch square and be embedded below the scour depth and terminated at a minimum depth of 30 feet below existing ground surface. If any scour erosion occurs, the erosion area should be backfilled with cement sand slurry (75 psi minimum compressive strength).
16. The finished floor elevation of the basement for the residence is proposed at 21.5 feet NAVD88 and 17 feet NAVD88 for the detached garage. Therefore,

- the minimum pile tip elevation should be -11 feet NAVD88 for the residence and -15.5 feet NAVD88 for the detached garage for 30 feet long piles.
17. The residence basement structure should be supported on piles with structural slab. The structural slab will be approximately 2.5 feet in thickness and should be waterproofed with Paraseal LG, Pre-Prufe or equivalent.
 18. The detached garage structure should be supported on piles with structural grade beam system ("open" foundation) interconnecting the piles. The non-structural garage slab will be approximately 0.5 feet in thickness and shall be independent of the building foundation.
 19. Localized scour can occur when water flows at high velocities past an object (pile) embedded in erodible soil. Per Section 8.5.11 of the FEMA (P-55) Coastal Construction Manual, Volume II, the scour depth is determined to be $S_{max} = 2 \times 1.41 (12'' \text{ square pile}) = 2.82$ below the Stillwater Elevation of 10.6 feet NAVD88.
 20. The elevation below the proposed detached garage slab and foundation grade beam system, which is the lowest of the two structures in elevation, is ~14.5 (17' NAVD88 - 2.5' thickness of the slab and foundation grade beam system) feet NAVD88. As a result, the total scour depth would be (14.5' - 10.6' + 2.82') 6.72 feet NAVD88 for the upper portion of the pile foundation below the slab and foundation grade beam system elevation (14.5 feet NAVD88).
 21. The slab pad subgrade should be compacted to at least 95% relative maximum density. If the concrete slab would receive a floor covering or sealant, a Stego 15-mil vapor barrier should be placed between the finished grade and concrete slab. The vapor barrier membrane should be overlapped, taped at seams and/or mastic applied for protrusions.

22. We estimated that the total and differential settlements of the proposed structures would be negligible.

23. A computer program ALLPile7 was used in the vertical and lateral analysis of the pile and soil interaction. The results are included in the figures and the computer analyses are included at the end of the report.

24. VERTICAL ANALYSIS

- The allowable vertical load carrying capacity and uplift capacity for 30 feet length pile are 198.7 kips and 24.2 kips, respectively.
- The soil stress, side resistance, and axial force versus depth for 30 ft length pile are shown in Figure 8.
- The vertical load versus total settlement for 30 feet length pile are shown in Figure 9.
- The allowable capacity versus foundation depth for 30 feet length pile are shown in Figure 10.
- The side resistance versus relative movement between soil and shaft for 32 feet length pile are shown in Figure 11.
- The tip resistance versus the tip moment for 30 feet length pile are shown in Figure 12.
- The total settlement of the pile due to vertical loading for 30 feet length pile is negligible.

25. LATERAL ANALYSIS

- The pile deflection and force versus depth for 30 feet length pile are shown in Figure 13 (restricted end).

- The maximum allowable lateral shear force for 30 feet length pile should be limited to 32 kips.
- The maximum allowable lateral deflection at the top of the pile for 32 feet length pile is 0.537 inch.
- The pile deflection versus loading for 30 feet length pile are shown in Figure 14 (restricted end).
- The pile moment versus loading for 30 feet length pile are shown in Figure 15 (restricted end).
- The soil resistance versus pile deflection for 30 feet length pile are shown in Figure 16 (restricted end).
- The lateral load versus deflection and maximum moment for 30 feet length pile are shown in Figure 17 (restricted end).

10. The minimum pile spacing clearance should be 2.5 times the pile diameter.

26. Pile specifications are included at the end of the report.
27. The aforementioned bearing values are for dead plus live loads and may be increased by one-third for short term seismic and wind loads. The design of the structures and the foundation shall meet local building code requirements.

2019 CBC SEISMIC VALUES

28. Chapter 16 of the 2019 California Building Code (CBC) outlines the procedure for seismic design. The site categorization and site coefficients are shown in the following table.

Classification/Coefficient*	Design Value
Site Latitude	36.864675° N.
Site Longitude	121.818181° W.
Site Class (ASCE 7-16)	D
Risk Category	I,II,III
0.2-second Mapped Spectra Acceleration ¹ , S_s	1.850g
1-second Mapped Spectra Acceleration ¹ , S_I	0.683g
Short-Period Site Coefficient, F_a	1.0
Long-Period Site Coefficient, F_V	1.7
0.2-second Period, Maximum considered Earthquake Spectral Response Acceleration, S_{MS} ($S_{MS} = F_a S_s$)	1.850g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration, S_{MI} ($S_{MI} = F_V S_I$)	1.161g
0.2-second Period, Designed Spectra Acceleration, S_{DS} ($S_{DS} = 2/3 S_{MS}$)	1.233g
1-second Period, Designed Spectra Acceleration, S_{D1} ($S_{D1} = 2/3 S_{MI}$)	0.774g

*2019 CBC

RETAINING WALLS

29. The basement retaining walls should be design for seismic loading condition. The pseudo-static method by Seed and Whitman can be used ($PE = (3/8)(0.45a_{max}/g)(H^2)wt$; where $a_{max} = 0.761g$; H = height of the retaining wall; wt = total unit weight of retained soil). This pseudo-static force is acting at a point located at a distance 1/3 of the height from the top and should be added to the active pressure for total loading condition.
30. Any facilities that will retain a soil mass above grade (near existing ground surface) shall be designed for a lateral earth pressure (active) equivalent to

- 55 pounds equivalent fluid pressure for cantilevered condition, plus surcharge loads. If the retaining walls are restrained from free movement at both ends, the walls shall be designed for the earth pressure resulting from 65 pounds equivalent fluid pressure.
31. In designing for allowable resistive lateral earth pressure (passive), a value of 250 pounds equivalent fluid pressure may be used with the resultant acting at the third point. The top foot of subgrade soil shall be neglected for computation of passive resistance.
 32. A friction coefficient of 0.3 shall be used for retaining wall design. This value may be increased by 1/3 for short-term seismic loads.
 33. The aforementioned values assume an un-drained condition. No subdrain system is required.
 34. The entire retaining walls should be waterproofed to prevent water intrusion with Paraseal LG, Pre-Prufe or equivalent.
 35. We recommend a thorough review by our office of all designs pertaining to facilities retaining a soil mass.

EXCAVATION & GROUNDWATER

36. No difficulties due to soil conditions are anticipated in excavating the on-site material. Conventional earth moving equipment will be adequate for this project.
37. Any vertical cuts deeper than 4 feet must be properly shored or excavated in conformance with OSHA guidelines. The minimum cut slope for excavation to the desired elevation is one horizontal to one vertical (1:1). The cut slope should be increased to 2:1 if the excavation is conducted during the rainy season or when the soil is highly saturated with water.

38. Groundwater was initially encountered in Boring B-1 to the depth of 13 feet and rose to a static level of 12 feet (4.4 feet – NAVD88) below the pavement surface (16.4 feet – NAVD88) at the end of the drilling operation. Based on the flood elevation of 19 feet NAVD88, the highest expected groundwater table is above the existing pavement surface. Therefore, if excavation for the construction of the basement would extend to the depth of 21.5 feet NAVD88 minus 2.5 feet for slab thickness, dewatering during the excavation for the basement should be scheduled to avoid flood water.

SHORING FOR THE BASEMENT EXCAVATION

39. Shoring would be required during the excavation of the basement also due to adjacent property boundary and/or neighbor's existing foundation if open cut cannot be achieved.
40. The basement would be excavated to the approximate maximum depth of 12 feet below the most elevated existing ground surface. Therefore, the excavation should be supported with steel "H" beams and a 3 x 12 wood lagging or equivalent. Prior to any excavation, the steel "H" beams should be placed in pre-drilled minimum 24-inch diameter holes to a minimum depth of 22 feet (-3 feet NAVD88). The "H" beams should be placed a maximum distance of 8 feet apart. Shoring depths vary throughout the proposed building area.
41. The holes should be filled with concrete to one foot below the bottom of the excavation. At this point, excavation can begin. As the excavation operation proceeds, the 3 x 12 wood lagging should be placed between the steel "H" beams.
42. There should be no voids between the soil wall excavation and wood lagging. However, if a void occurs, the void should be filled with sand slurry or pressure grouted.

43. Proper attention should be considered during the construction. Introduction of any heavy equipment on the top of the vertical cut may damage the excavated slope.
44. The lateral soil pressure acting on the shoring system is 55 pounds equivalent fluid pressure. The passive pressure of 250 pounds equivalent fluid pressure can be used for short term shoring purposes.
45. Since caving of the piers should be expected due to sandy material, soldier beam pier holes should be cased and tremied during the concrete placement if encounter groundwater. Groundwater elevation is approximately 4.4 feet (NAVD88). If temporary casing is used, the casing should be removed as concrete is placed with at least a 3-foot head of concrete maintained within the casing to prevent side wall collapse.
46. Alternately, sheet pile or the proposed pile columns could support the basement excavation.
47. The shoring should be designed by the structural engineer or shoring design engineer and our office should review the shoring plan for approval. We recommend a thorough review by our office of all designs pertaining to facilities retaining a soil mass.

DRAINAGE

48. It is considered essential that positive surface drainage be provided during construction and be maintained throughout the life of the proposed structures.
49. The final exterior grade adjacent to the proposed garage should be such that the surface drainage will flow away from the structures. Rainwater discharge at downspouts should be directed onto pavement sections, splash blocks, or

other acceptable facilities, which will prevent water from collecting in the soil adjacent to the foundations.

50. Consideration should be given to collection and diversion of roof runoff and the elimination of planted areas or other surfaces which could retain water in areas adjoining the buildings. The landscape grade adjacent to the foundation should be sloped away from the structure at a minimum of 5 percent.
51. Based on laboratory test results of the near surface soil at the subject site, we estimated that the infiltration rate is approximately 2 inches per hour ($KSAT = 1.4 \times 10^{-3}$ cm/sec). This rate can be used in the design of the bio-retention system for on-site storm drainage.

ON-SITE UTILITY TRENCHING

52. Utility trenches within the public right-of-way should be excavated, bedded, and backfilled in accordance with local or governing jurisdiction requirements.
53. The excavated area should be backfilled with native on-site material or imported fill and compacted to at least 95% relative maximum density. Backfill should be placed in uniform 8 to 12 inch lifts and compacted. Jetting of trench backfill is not recommended. An engineer from our firm should be notified at least 48 hours before the start of any utility trench backfilling operations.
54. The utility trenches running parallel to the garage foundation should not be located in an influence zone that will undermine the stability of the foundation. The influence zone is defined as the imaginary line extending at the outer edge of the footing at a downward slope of 1:1 (one unit horizontal distance to one unit vertical distance). If the utility trenches were encroaching

the influence zone, the encroached area should be stabilized with cement sand slurry (75 psi minimum compressive strength).

55. If utility trench excavation is to encounter groundwater, our office should be notified for dewatering recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations presented herein are based on the soil conditions revealed by the previous test boring(s) and evaluated for the proposed construction planned at the present time. If any unusual soil conditions are encountered during the construction, or if the proposed construction will differ from that planned at the present time, Silicon Valley Soil Engineering (SVSE) should be notified for supplemental recommendations.
2. This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the necessary steps are taken to see that the contractor carries out the recommendations of this report in the field.
3. The findings of this report are valid, as of the present time. However, the passing of time will change the conditions of the existing property due to natural processes, works of man, from legislation or the broadening of knowledge. Therefore, this report is subjected to review and should not be relied upon after a period of three years.
4. The conclusions and recommendations presented in this report are professional opinions derived from current standards of geotechnical practice and no warranty is intended, expressed, or implied, is made or should be inferred.
5. The area of the boring(s) is very small compared to the site area. As a result, buried structures such as septic tanks, storage tanks, abandoned utilities, or etc. may not be revealed in the boring(s) during our field investigation. Therefore, if buried structures are encountered during grading or construction, our office should be notified immediately for proper disposal recommendations.

-
6. Standard maintenance should be expected after the initial construction has been completed. Should ownership of this property change hands, the prospective owner should be informed of this report and recommendations so as not to change the grading or block drainage facilities of this subject site.
 7. Stormwater management, structure, foundation design, and calculations are not part of our investigation or scope.
 8. This report has been prepared solely for the purpose of geotechnical investigation and does not include investigations for toxic contamination studies of soil or groundwater of any type. If there are any environmental concerns, our firm can provide additional studies.
 9. Any work related to grading and/or foundation operations during construction performed without direct observation from SVSE personnel will invalidate the recommendations of this report and, furthermore, if we are not retained for observation services during construction, SVSE will cease to be the Geotechnical Engineer of Record for this subject site.

REFERENCES

Borcherdt R.D., Gibbs J. F., Lajoie K.R., 1977 – Maps showing maximum earthquake intensity predicted in the southern San Francisco Bay Region, California, for large earthquakes on the San Andreas and Hayward faults. U.S.G.S. MF-709.

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2019 (CBC) California Building Code, Title 24, Part 2.

TABLES

TABLE I – SUMMARY OF LABORATORY TESTS

TABLE II – PROPOSED ASPHALT PAVEMENT SECTIONS

TABLE III – PROPOSED CONCRETE PAVEMENT SECTIONS

TABLE IV – PROPOSED PAVER PAVEMENT SECTIONS

TABLE I**SUMMARY OF LABORATORY TESTS**

Sample No. (2/23/21)	Depth (Feet)	In-Place Conditions		Direct Shear Testing		Sieve Analysis	
		Moisture Content (% Dry Wt.)	Dry Density (pcf)	Unit Cohesion (ksf)	Angle of Internal Friction (Degrees)	% Passing #200 Sieve	
1-1	3	1.5	101.2	0	28	3	
1-2	5	1.7	100.8			3	
1-3	10	3.2	106.6			2	
1-4	15	18.2	105.0				
1-5	20	18.5	104.7			3	
1-6	25	17.3	105.0				
1-7	30	18.9	106.8			3	
1-8	35	16.0	104.1				
1-9	40	16.5	101.5			2	
1-10	50	16.8	107.2			3	

TABLE II

PROPOSED ASPHALT PAVEMENT SECTIONS

Location: Proposed Residence
 145 Rio Boca Road
 Watsonville, California

	<u>DRIVEWAY</u>		
Design R-Value	24.0		
Traffic Index	4.5		
Gravel Equivalent	16.0		
Recommended Alternate Pavement Sections:	<u>1A</u>	<u>1B</u>	<u>1C</u>
Asphalt Concrete	3.0"	3.5"	4.0"
Class II Baserock (R=78 min.) compacted to at least 95% relative maximum density	8.0"	7.0"	6.0"
Subgrade soil scarified and compacted to at least 95% relative maximum density	12.0"	12.0"	12.0"

TABLE III

PROPOSED CONCRETE PAVEMENT SECTIONS

Location: Proposed Residence
 145 Rio Boca Road
 Watsonville, California

	<u>DRIVEWAY*</u>	<u>PEDESTRIAN** WALK/PATIO</u>
Recommended Concrete Pavement Sections:		-
P.C. Concrete*	6.0"	4.0"
Class II Baserock (R=78 min.) compacted to at least 95% relative maximum density	6.0"	4.0"
Subgrade soil scarified and compacted to at least 95% relative maximum density	12.0"	12.0"

* Reinforcement: Rebar No. 4 at 18" on-center, maximum spacing both ways. Control joints maximum spacing at 10' by 10'.

** Reinforcement: Rebar No. 3 at 18" on-center, maximum spacing both ways. Control joints maximum spacing at 5' by 5'.

TABLE IV

PROPOSED PAVER PAVEMENT SECTIONS

Location: Proposed Residence
 145 Rio Boca Road
 Watsonville, California

	<u>DRIVEWAY AREA*</u>		
Recommended Paver Pavement Sections:	<u>1A</u>	<u>1B</u>	<u>1C</u>
Vehicular Rated Pavers	Min. 3.25" ± Permeable Paver without Subdrain	Min. 3.25" ± Permeable Paver without Subdrain	Min. 3.25" ± Non-Permeable Paver without Subdrain
ASTM No. 8 Bedding Course & Paver Filler	2.0"	2.0"	2.0"
3/4" Clean Crushed Rock (ASTM No. 57 Stone)	12.0" +	4.0"	---
ASTM No. 2 Stone	---	12.0"	---
Class II Baserock (R=78 min.) compacted to at least 95% relative maximum density	---	---	12.0"
Subgrade soil scarified and compacted to at least 90% relative maximum density	12.0"	12.0"	12.0"

* The subgrade should be lined with a geotextile membrane Mirafi 500X or equivalent. The membrane should be placed and overlapped properly for drainage. The pavers should be bordered with a concrete curb/band. Typically, minor maintenance would be required during the life of the pavers.

+ Class II Permeable Baserock compacted to at least 92% relative maximum density

FIGURES

FIGURE 1 – VICINITY MAP

FIGURE 2 – SITE PLAN

FIGURE 3 – EARTHQUAKE PROBABILITY MAP

FIGURE 4 – PLASTICITY INDEX

FIGURE 5 – COMPACTION TEST A

FIGURE 6 – LIQUEFACTION ANALYSIS – BORING B-1

FIGURE 7 – LIQUEFACTION-INDUCED GROUND DAMAGE

FIGURE 8 – SOIL STRESS, SIDE RESISTANCE, & AXIAL FORCE vs
DEPTH

FIGURE 9 – VERTICAL LOAD vs TOTAL SETTLEMENT

FIGURE 10 – ALLOWABLE CAPACITY vs FOUNDATION DEPTH

FIGURE 11 – SIDE RESISTANCE vs RELATIVE MOVEMENT BETWEEN
SOIL AND SHAFT

FIGURE 12 – TIP RESISTANCE vs TIP MOVEMENT

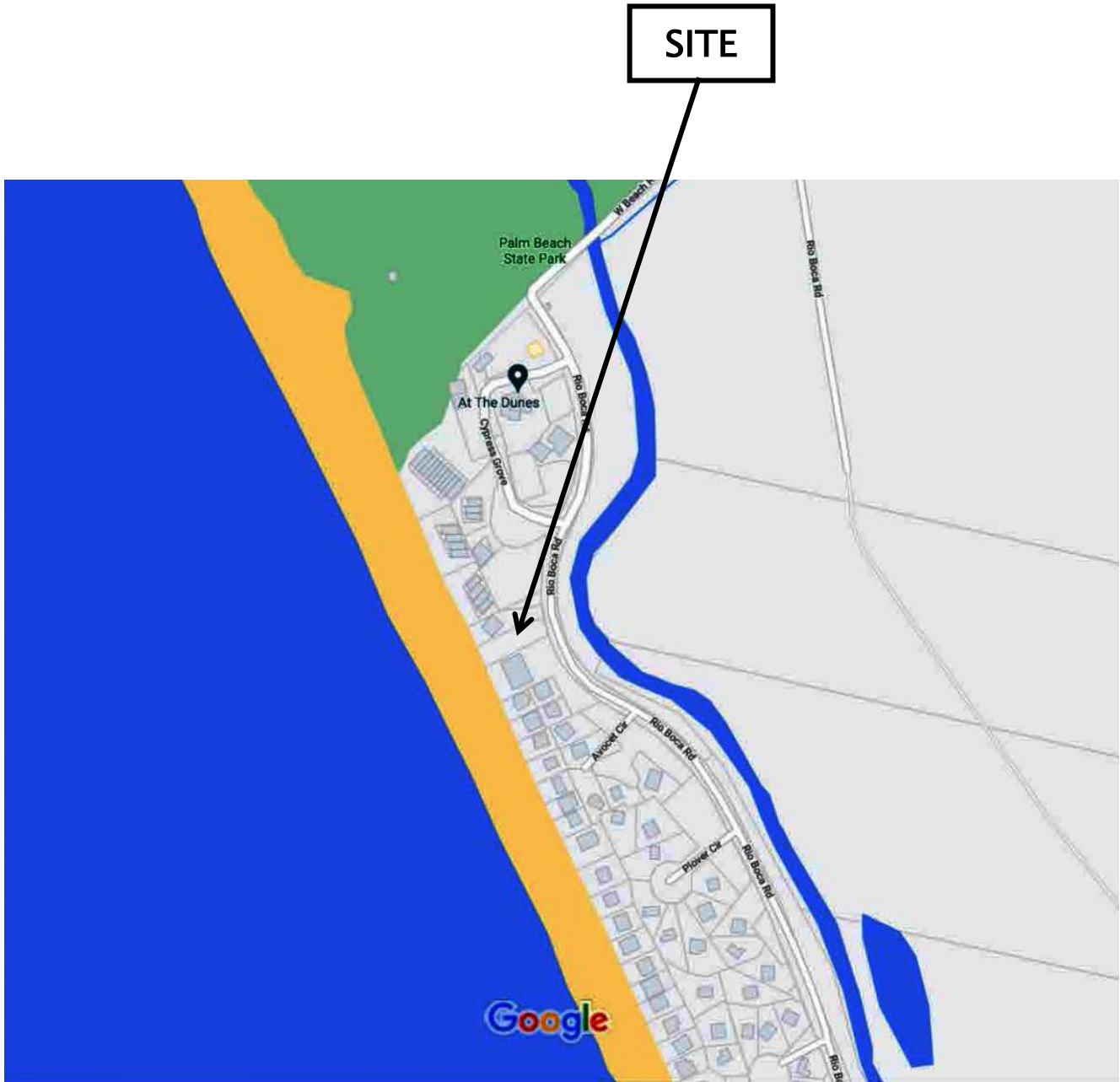
FIGURE 13 – PILE DEFLECTION & FORCE vs DEPTH (RESTRICTED END)

FIGURE 14 – PILE DEFLECTION vs LOADING (RESTRICTED END)

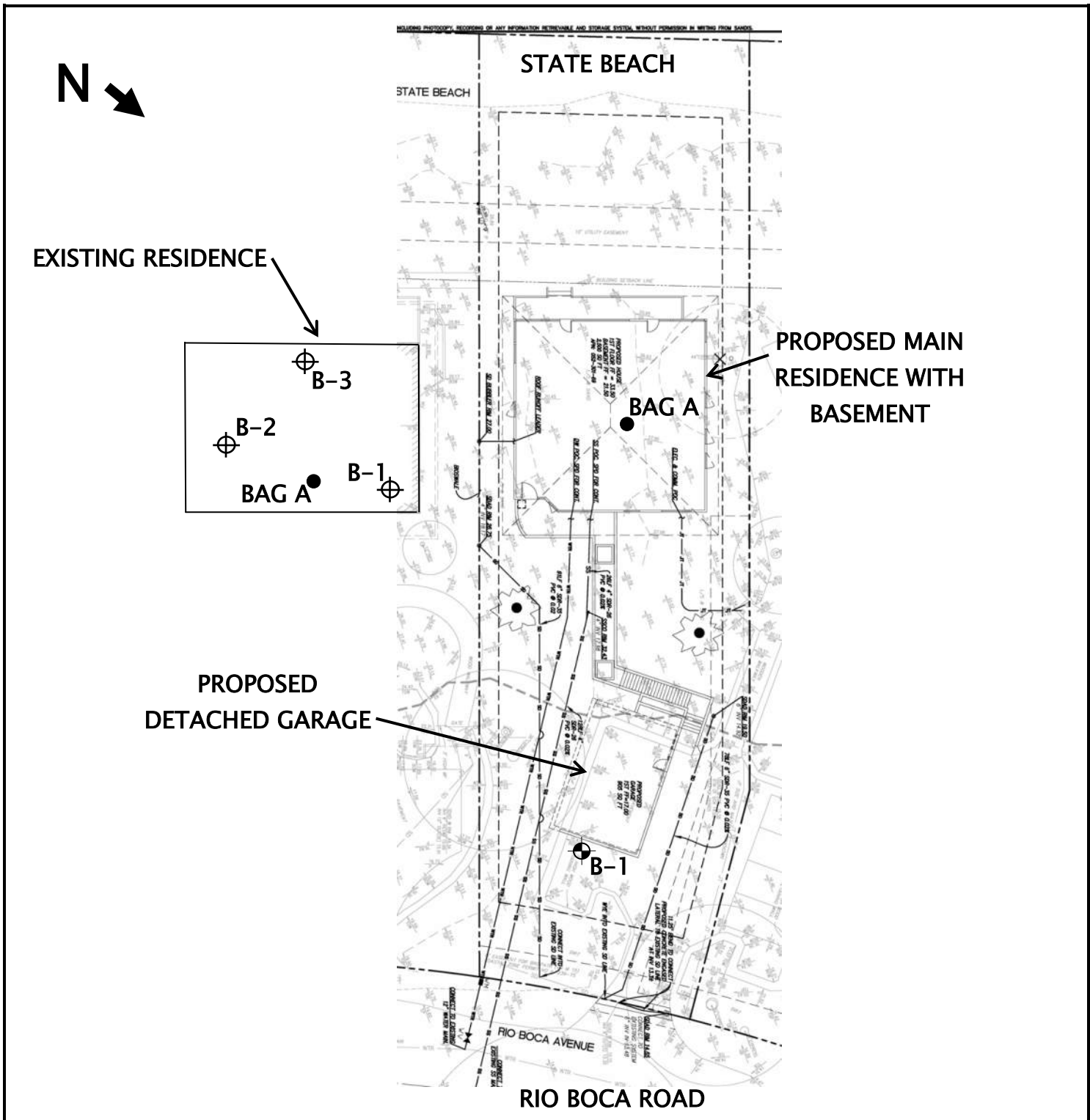
FIGURE 15 – PILE MOMENT vs LOADING (RESTRICTED END)

FIGURE 16 – SOIL RESISTANCE vs PILE DEFLECTION (RESTRICTED
END)

FIGURE 17 – LATERAL LOAD vs DEFLECTION & MAXIMUM MOMENT
(RESTRICTED END)

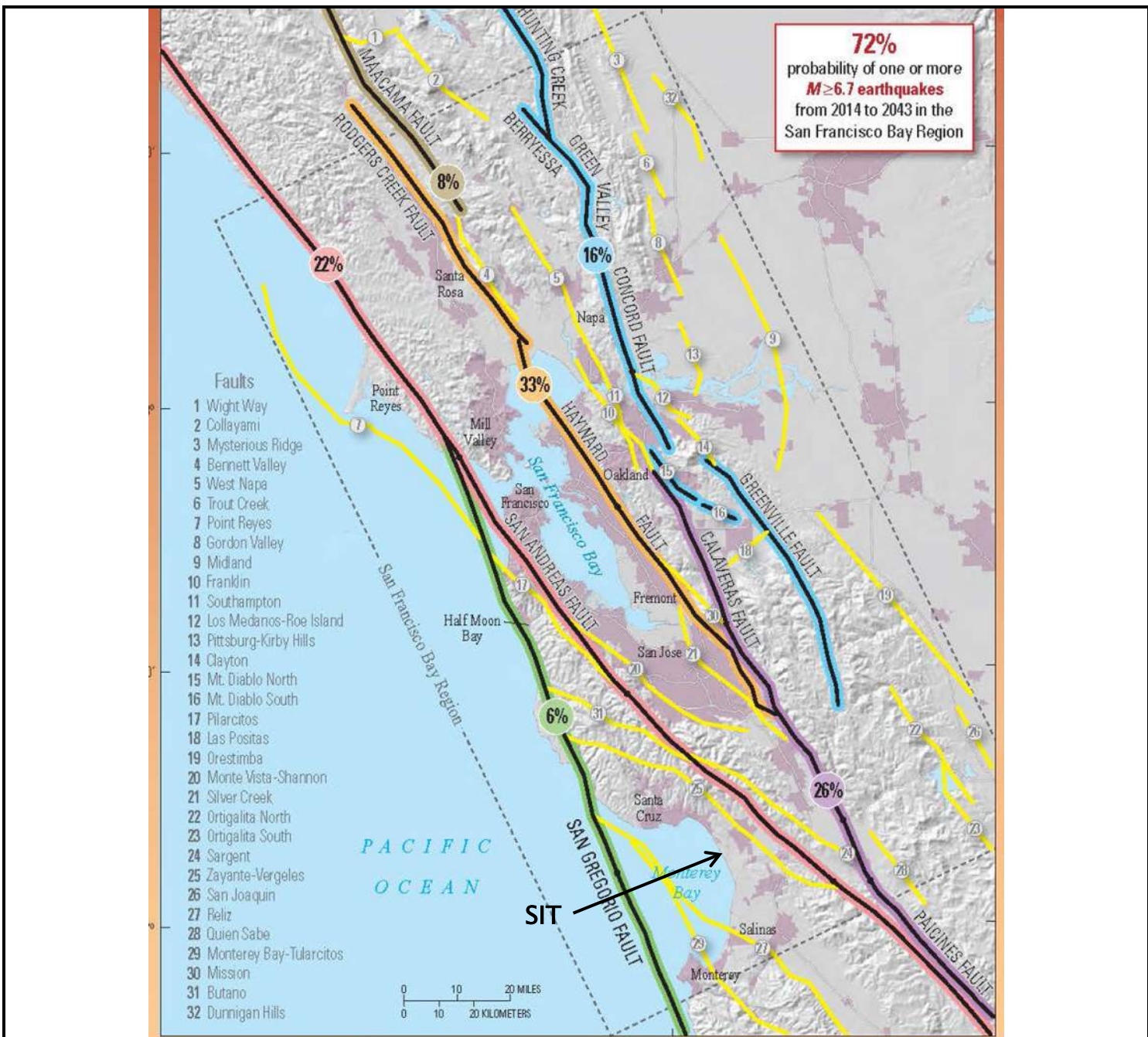


<p>Silicon Valley Soil Engineering</p> <p>1916 O'Toole Way San Jose, CA 95131 (408) 324-1400</p>	<p>VICINITY MAP</p> <p>Proposed Residence</p> <p>145 Rio Boca Road Watsonville, California</p>	<p>File No.: SV1858A</p>	<p>FIGURE</p>
		<p>Drawn by: V.V.</p>	<p>1</p>
		<p>Scale: NOT TO SCALE</p>	<p>May 2021</p>



NOTE: ● DENOTES APPROXIMATE EXPLORATORY SOIL BORING LOCATION (SVSE 2021)
 ⊕ DENOTES APPROXIMATE EXPLORATORY SOIL BORING LOCATION (USE 1998)
 ● DENOTES APPROXIMATE BAG SAMPLE LOCATION

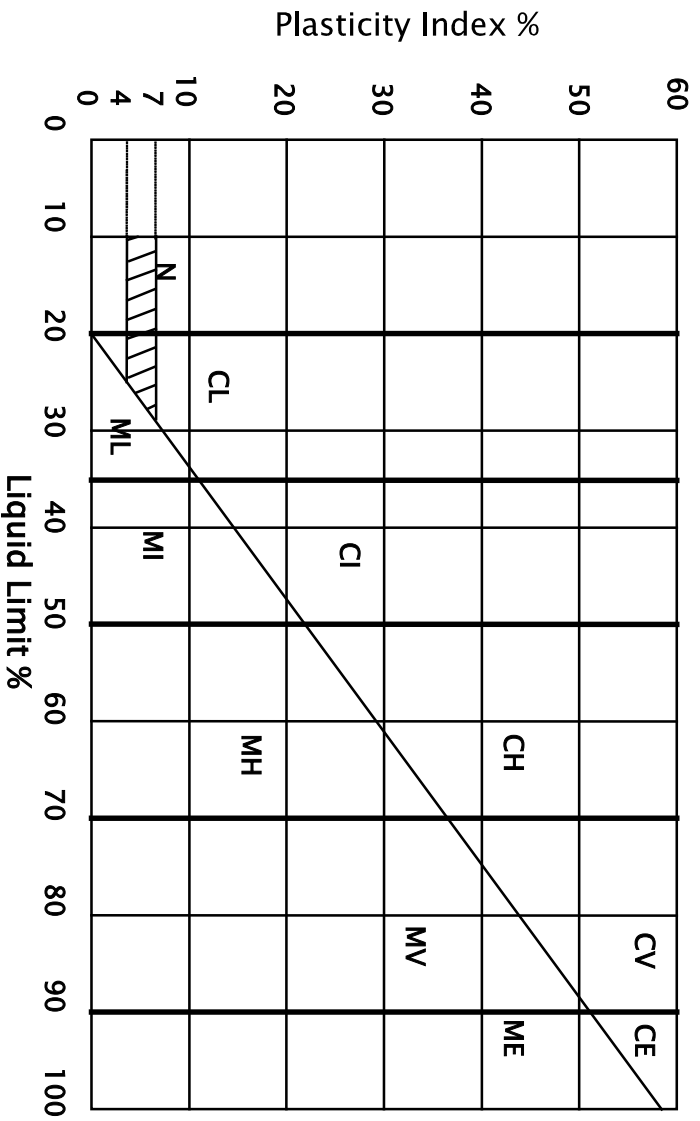
Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	SITE PLAN Proposed Residence 145 Rio Boca Road Watsonville, California	File No. SV1858A	FIGURE
		Drawn by: J.P.	2
		Scale: NOT TO SCALE	May 2021



Map of known active faults in the San Francisco Bay region. The 72 percent probability of a magnitude 6.7 or greater earthquake includes the well-known major plate-boundary faults, lesser-known faults, and unknown faults. The percentage shown within each colored circle is the probability that a magnitude 6.7 or greater earthquake will occur somewhere on that fault system by the year 2043. The probability that a magnitude 6.7 or greater earthquake will involve one of the lesser-known faults is 13 percent.

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	EARTHQUAKE PROBABILITY MAP Proposed Residence	File No.: SV1858A	FIGURE
	145 Rio Boca Road Watsonville, California	Drawn by: V.V.	3
		Scale: NOT TO SCALE	May 2021

PLASTICITY CHART

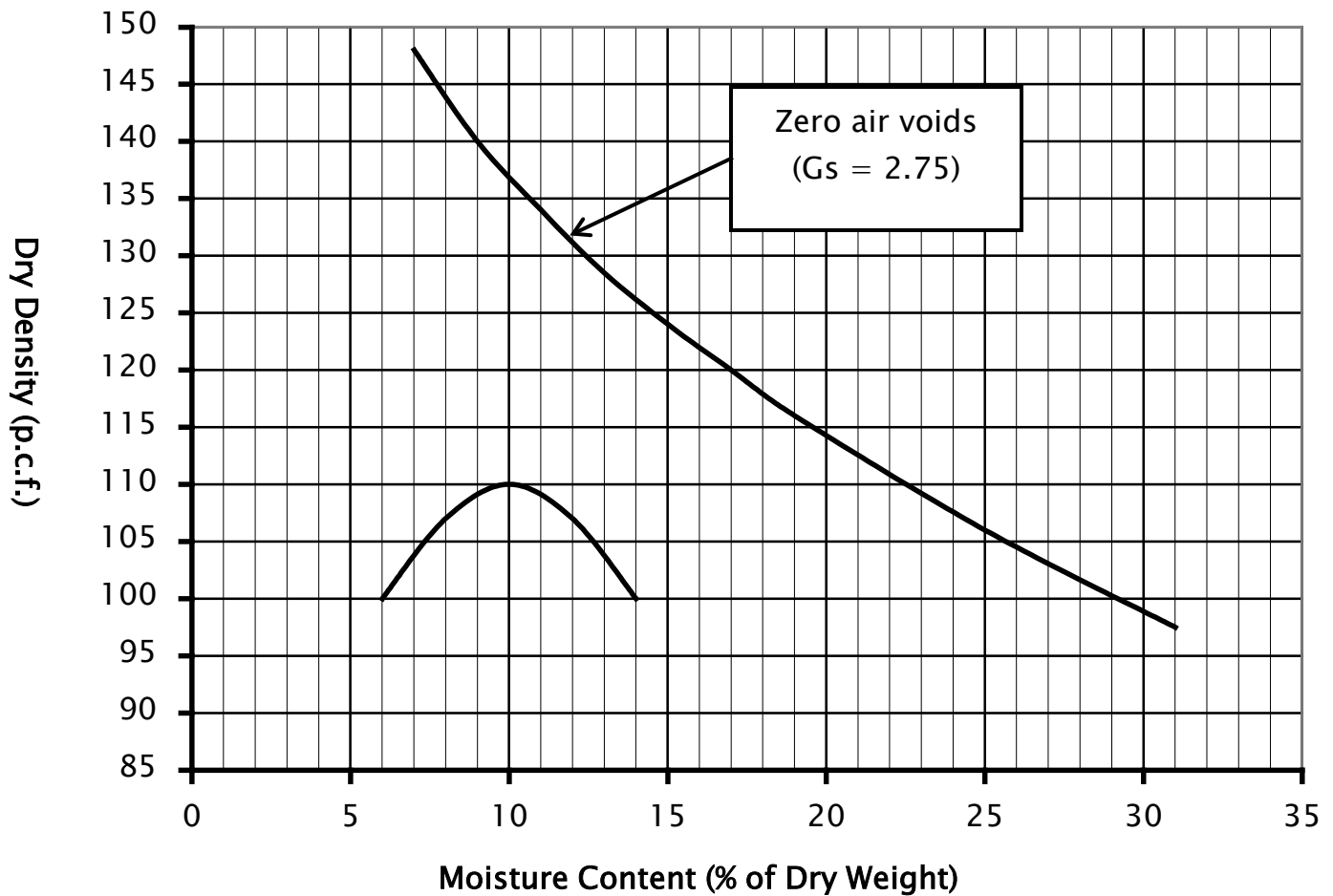


PLASTICITY DATA

Key Symbol	Sample No.	Depth (ft.)	Liquid Limit %	Plasticity Index %	Unified Soil Classification Symbol *
●	BAC A	0-1.0	----	----	NON-PLASTIC

*Soil type classification Based on British suggested revisions to Unified Soil Classification System

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	PLASTICITY INDEX Proposed Residence	File No.: SV1958A Drawn by: V.V.	FIGURE 4
145 Rio Boca Road Watsonville, California	Scale: NOT TO SCALE	May 2021	



SAMPLE: A

DESCRIPTION: Light Gray SAND

LABORATORY TEST PROCEDURE: ASTM D1557

MAXIMUM DRY DENSITY: 110.0 p.c.f.

OPTIMUM MOISTURE CONTENT: 10.0 %

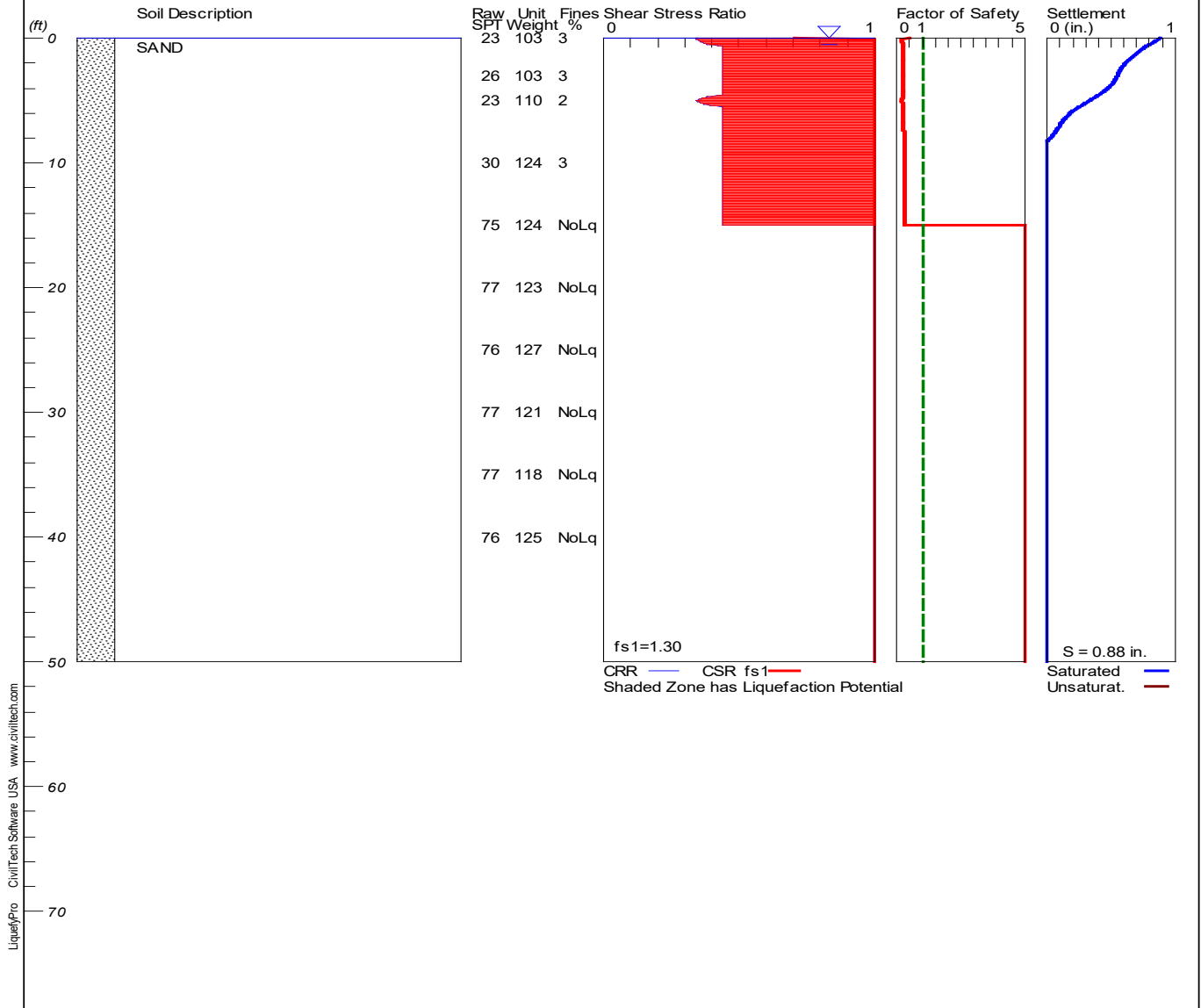
Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	COMPACTION TEST A Proposed Residence 145 Rio Boca Road Watsonville, California	File No. SV1858A	FIGURE
		Drawn by: V.V.	5
		Scale: NOT TO SCALE	May 2021

LIQUEFACTION ANALYSIS

SV1858A - Proposed Residence

Hole No.=B-1 Water Depth=0 ft Surface Elev.=16.4

Magnitude=7.9
Acceleration=0.837g



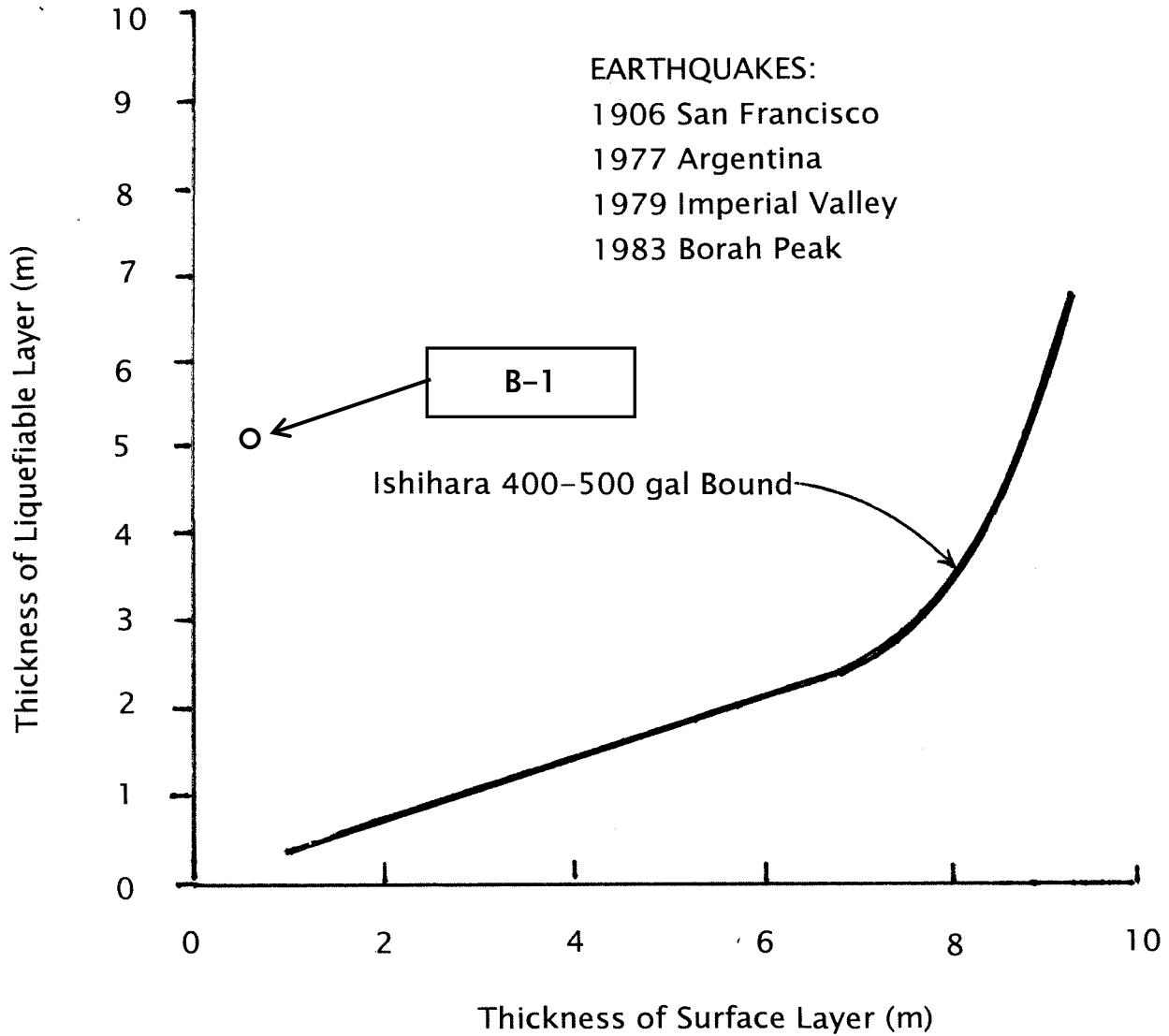
CivilTech Corporation

145 Rio Boca Road, Watsonville, CA

Plate A-1

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	LIQUEFACTION ANALYSIS BORING B-1 Proposed Residence 145 Rio Boca Road Watsonville, California	File No. SV1858A	FIGURE
		Drawn by: V.V.	6
		Scale: NOT TO SCALE	May 2021

Magnitude Range: 5.9 to 8.0 M_w
 Acceleration Range: 0.56 to 0.78g



Silicon Valley Soil Engineering
 1916 O'Toole Way
 San Jose, CA 95131
 (408) 324-1400

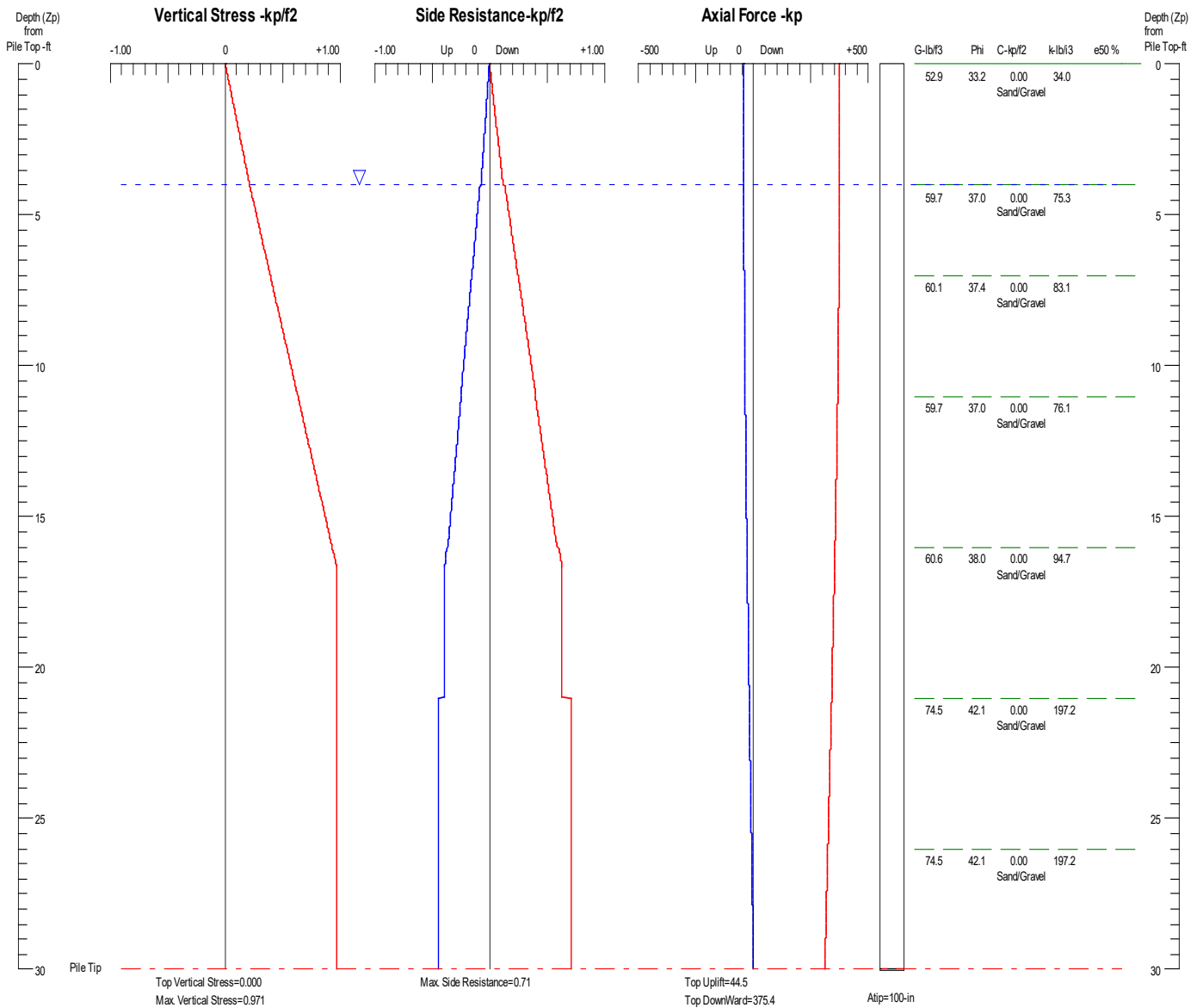
**LIQUEFACTION-INDUCED
 GROUND DAMAGE**
 Proposed Residence
 145 Rio Boca Road
 San Jose, California

File No. SV1858A
 Drawn by: V.V.
 Scale: NOT TO SCALE

FIGURE
 7
 May 2021

SOIL STRESS, SIDE RESISTANCE, & AXIAL FORCE vs DEPTH

Based on Ultimate Load Condition

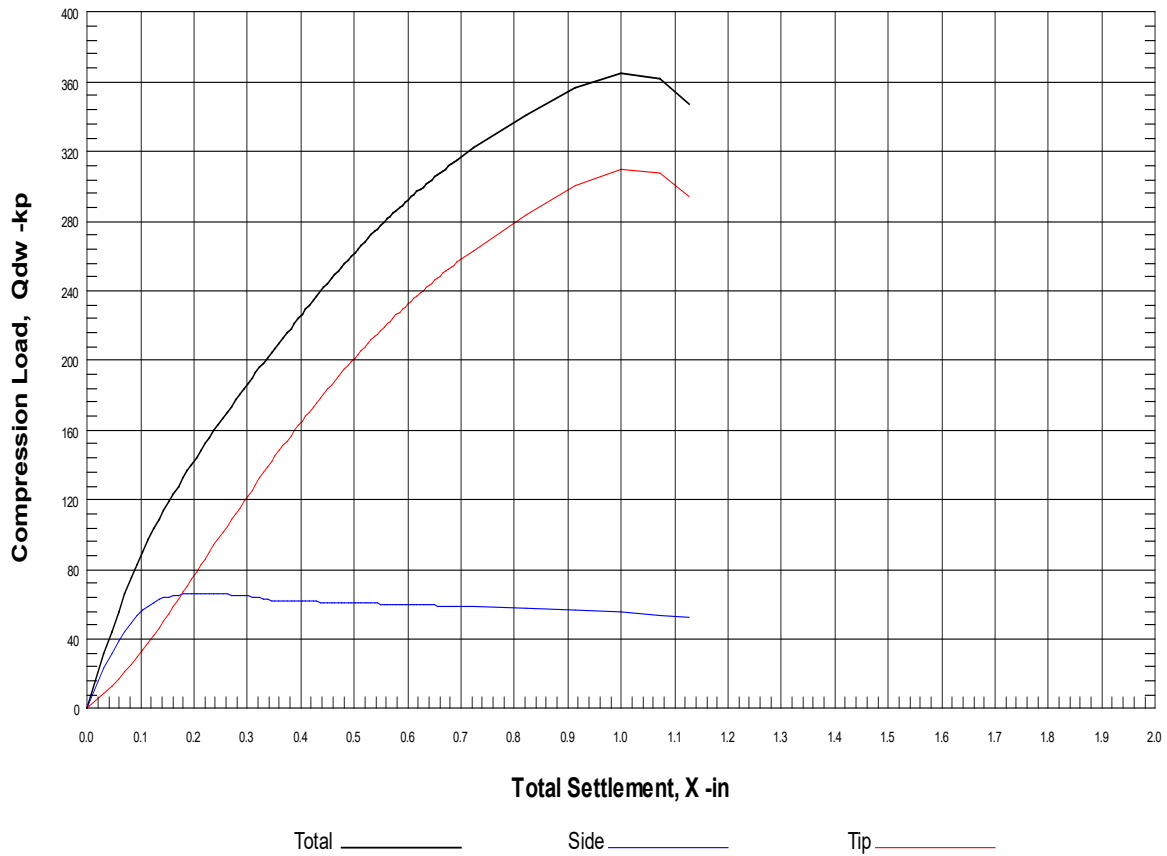


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 1

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	SOIL STRESS, SIDE RESISTANCE, & AXIAL FORCE vs DEPTH Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE 8
		Drawn by: V.V.	
		Scale: NOT TO SCALE	May 2021

Vertical Load vs. Total Settlement

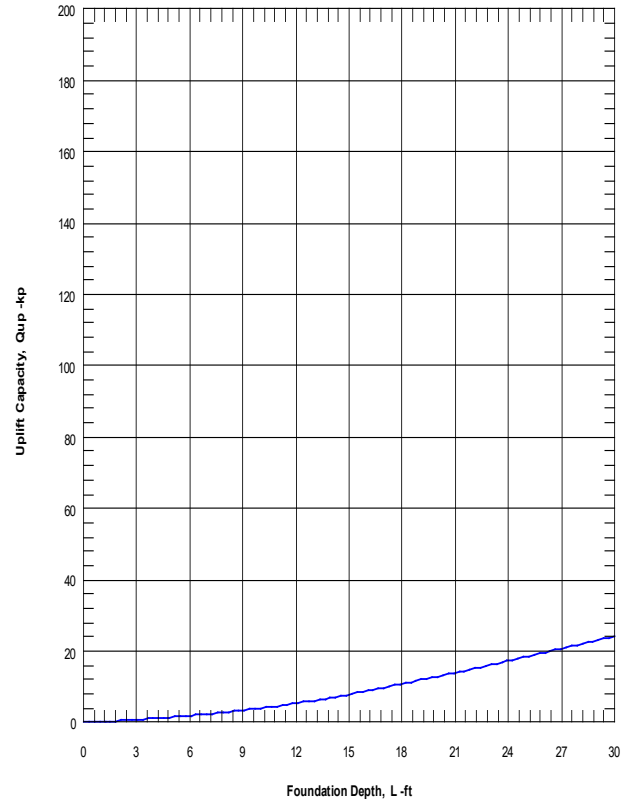
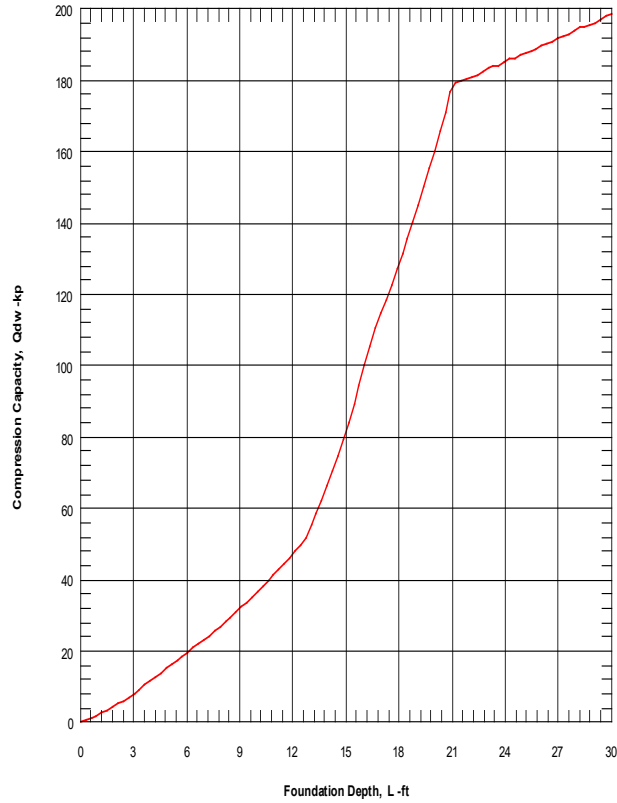


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 1

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	VERTICAL LOAD VS TOTAL SETTLEMENT Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE 9
		Drawn by: V.V.	
		Scale: NOT TO SCALE	May 2021

ALLOWABLE CAPACITY vs FOUNDATION DEPTH

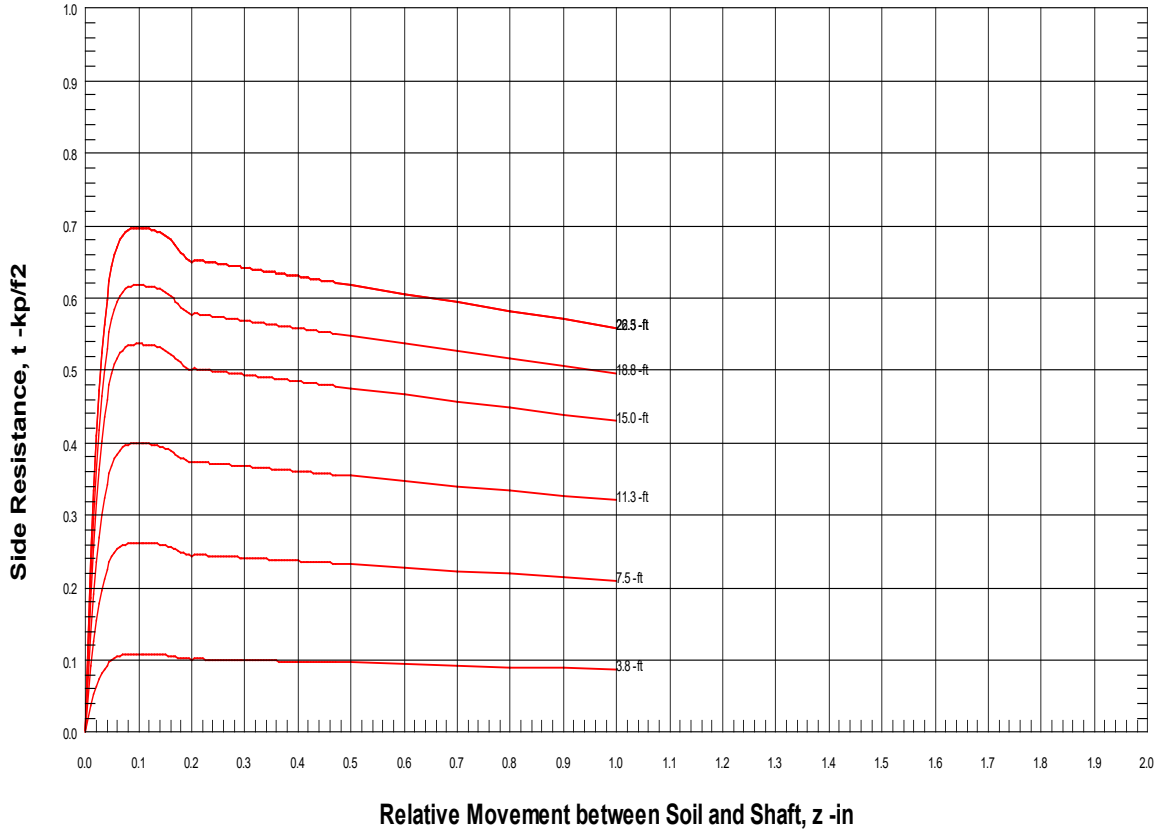


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 1

<p>Silicon Valley Soil Engineering</p> <p>1916 O'Toole Way San Jose, CA 95131 (408) 324-1400</p>	<p>ALLOWABLE CAPACITY vs FOUNDATION DEPTH</p> <p>Proposed Residence</p> <p>145 Rio Boca Road Watsonville, California</p>	<p>File No.: SV1858A</p> <hr/> <p>Drawn by: V.V.</p> <hr/> <p>Scale: NOT TO SCALE</p>	<p>FIGURE</p> <p>10</p> <p>May 2021</p>
--	---	---	---

Side Resistance vs. Relative Movement between Soil and Shaft (t-z)



Soil Depth (Zs): 3.8, 7.5, 11.3, 15.0, 18.8, 22.5, 26.3 -ft

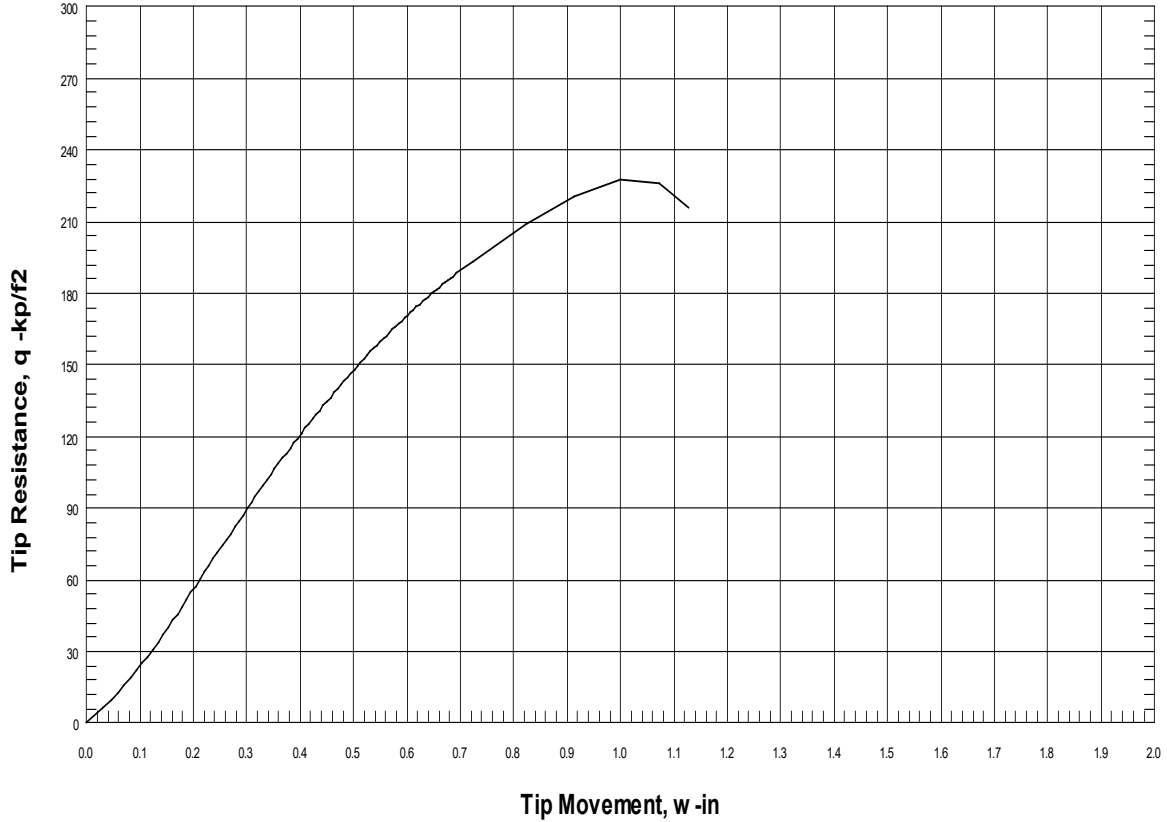


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 1

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	SIDE RESISTANCE VS RELATIVE MOVEMENT BETWEEN SOIL AND SHAFT Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE
		Drawn by: V.V.	11
		Scale: NOT TO SCALE	May 2021

Tip Resistance vs. Tip Movement (q-w)



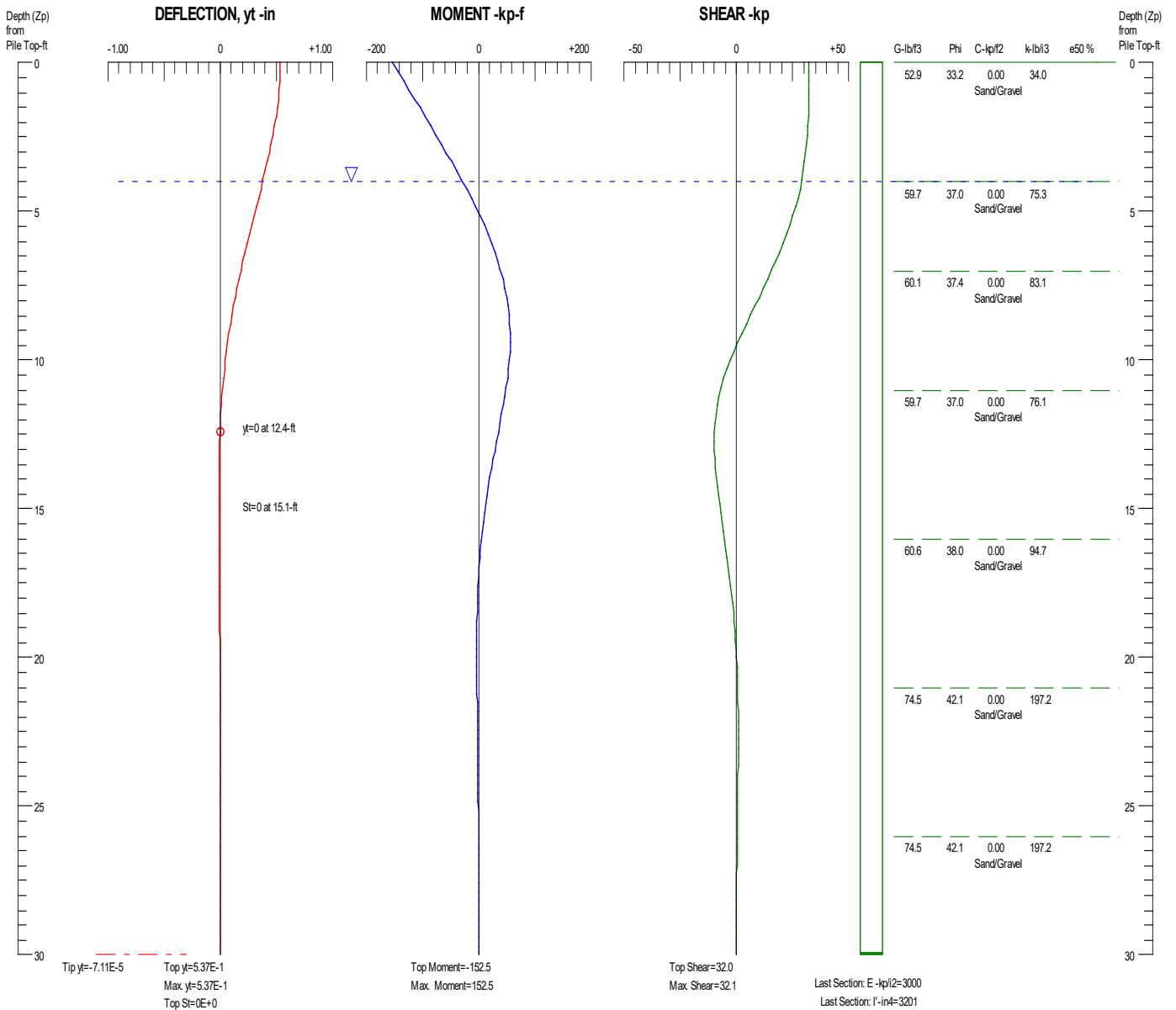
**CivilTech
Software**

**SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA**

Figure 1

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	TIP RESISTANCE VS TIP MOVEMENT Proposed Residence 145 Rio Boca Road Watsonville, California	File No. SV1858A	FIGURE 12
		Drawn by: V.V.	
		Scale: NOT TO SCALE	May 2021

PILE DEFLECTION & FORCE vs DEPTH
Single Pile, Khead=4, Kbc=2

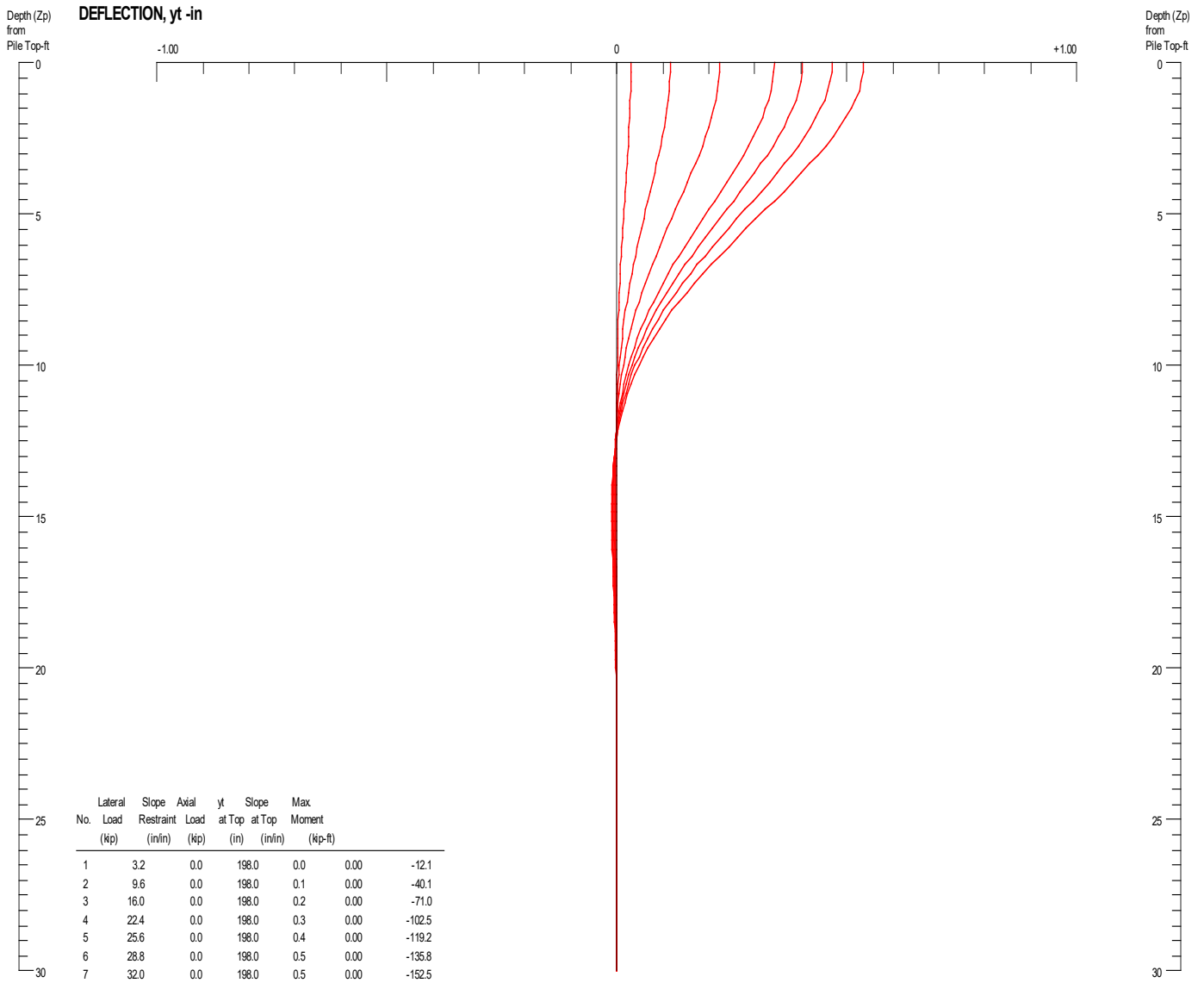


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 2

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	PILE DEFLECTION & FORCE vs DEPTH (RESTRICTED END) Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE
		Drawn by: V.V.	13
		Scale: NOT TO SCALE	May 2021

PILE DEFLECTION vs LOADING
Single Pile, Khead=4, Kbc=2



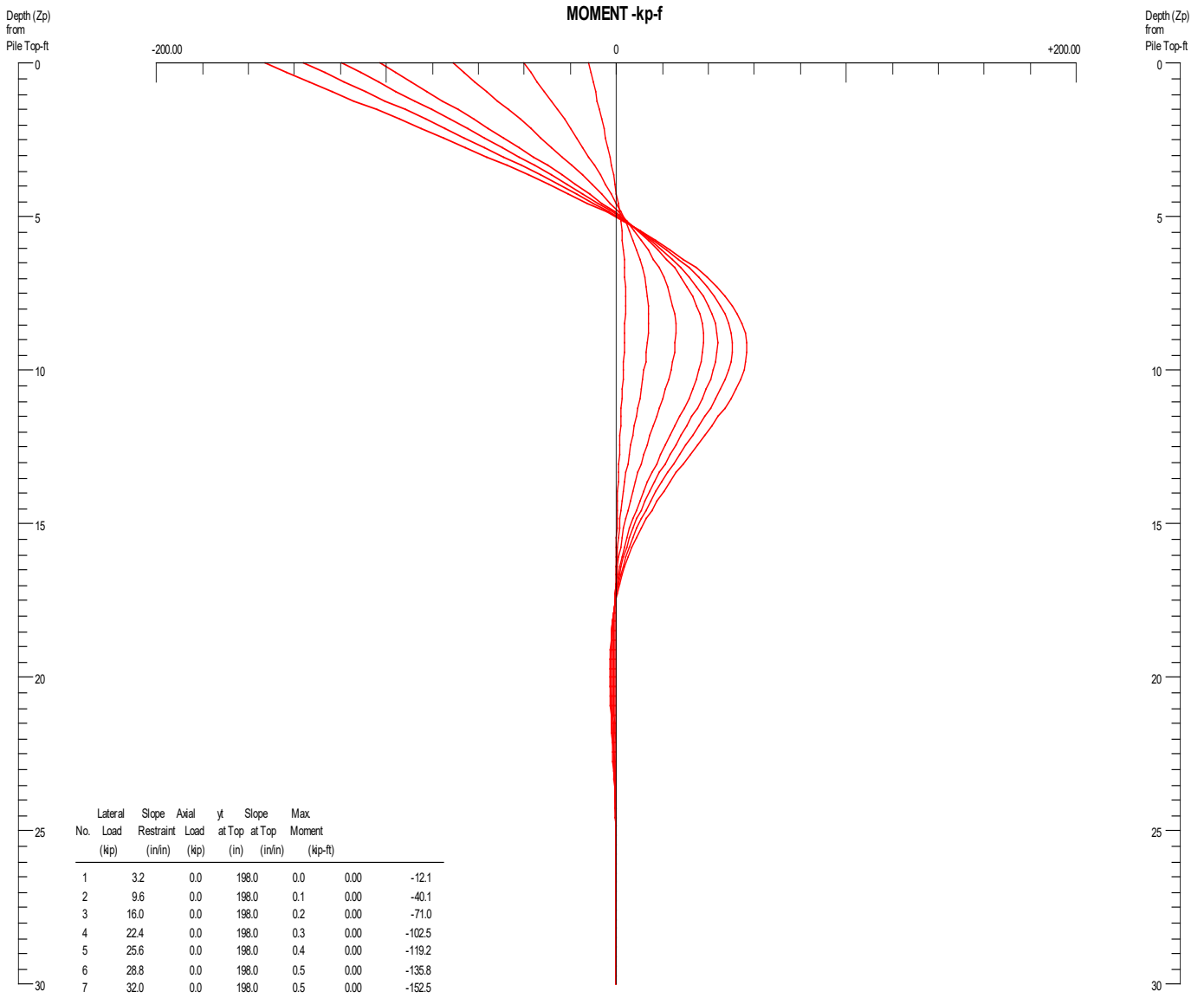
CivilTech Software

SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 2

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	PILE DEFLECTION vs LOADING (RESTRICTED END) Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE 14
		Drawn by: V.V.	
		Scale: NOT TO SCALE	May 2021

PILE MOMENT vs LOADING
Single Pile, Khead=4, Kbc=2

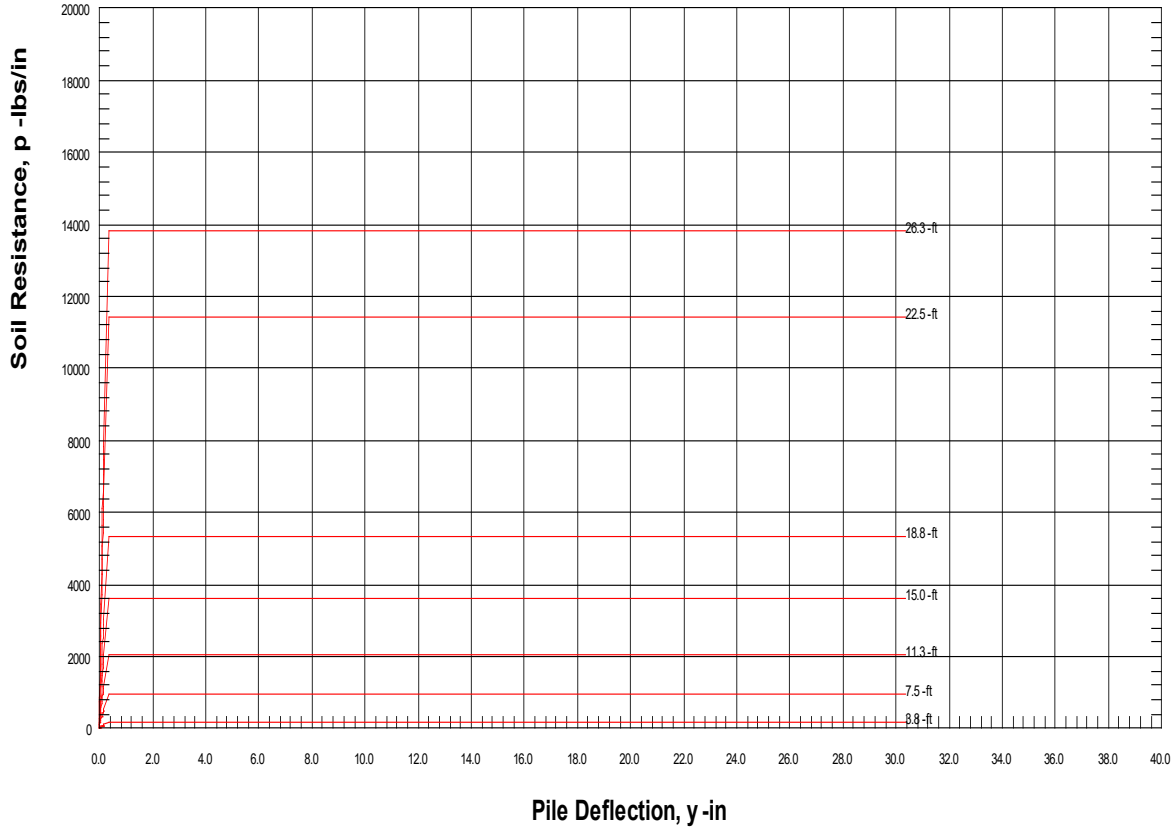


SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA

Figure 2

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	PILE MOMENT vs LOADING (RESTRICTED END) Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE
		Drawn by: V.V.	15
		Scale: NOT TO SCALE	May 2021

Soil Resistance vs. Pile Deflection (p-y)



Soil Depth (Zs): 3.8, 7.5, 11.3, 15.0, 18.8, 22.5, 26.3 -ft



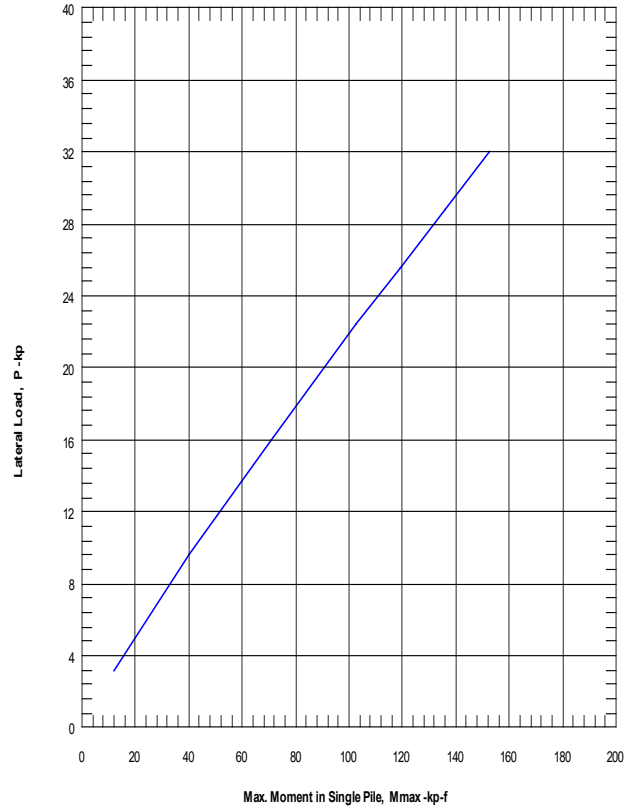
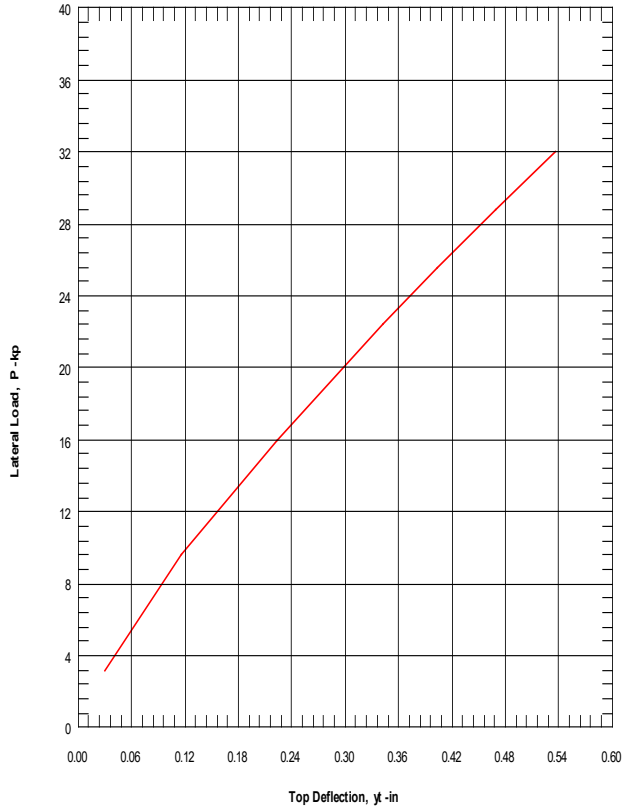
**CivilTech
Software**

**SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA**

Figure 2

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	SOIL RESISTANCE vs PILE DEFLECTION (RESTRICTED END) Proposed Residence 145 Rio Boca Road Watsonville, California	File No.: SV1858A	FIGURE
		Drawn by: V.V.	16
		Scale: NOT TO SCALE	May 2021

LATERAL LOAD vs DEFLECTION & MAX. MOMENT



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**SV1858A - Proposed Residence
145 Rio Boca Road, Watsonville, CA**

Figure 2

Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	LATERAL LOAD vs DEFLECTION & MAXIMUM MOMENT (RESTRICTED END) Proposed Residence 145 Rio Boca Road Watsonville, California	File No. SV1858A	FIGURE
		Drawn by: V.V.	17
		Scale: NOT TO SCALE	May 2021

APPENDICES

MODIFIED MERCALLI SCALE

METHOD OF SOIL CLASSIFICATION

KEY TO LOG OF BORING

EXPLORATORY BORING LOG (B-1) (SVSE - 2021)

PREVIOUS EXPLORATORY BORING LOGS (B-1 THROUGH B-3)
(EXTRACTED FROM USE FILE NO. 4412-S1)

PREVIOUS EXPLORATORY BORING LOG (B-1)
(EXTRACTED FROM HHA PROJECT NO. SC3214)

LIQUEFACTION ANALYSIS SUMMARY

VERTICAL ANALYSIS AND LATERAL ANALYSIS SUMMARY

PILE SPECIFICATIONS

**GENERAL COMPARISON BETWEEN EARTHQUAKE MAGNITUDE
AND THE EARTHQUAKE EFFECTS DUE TO GROUND SHAKING**

Earthquake Category	Richter Magnitude	Modified Mercalli Intensity Scale* (After Housner, 1970)	Damage to Structure
		I – Detected only by sensitive instruments.	
	2.0	II – Felt by few persons at rest, especially on upper floors; delicate suspended objects may swing.	
	3.0	III – Felt noticeably indoors, but not always recognized as an earthquake; standing cars rock slightly, vibration like passing truck.	No Damage
Minor		IV – Felt indoors by many, outdoors by a few; at night some awaken; dishes, windows, doors disturbed; cars rock noticeably.	
	4.0	V – Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects.	Architectural Damage
		VI – Felt by all; many are frightened and run outdoors; falling plaster and chimneys; damage small.	
5.3	5.0	VII – Everybody runs outdoors. Damage to building varies, depending on quality of construction; noticed by drivers of cars.	
Moderate	6.0	VIII – Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of cars disturbed.	
6.9		IX – Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked, underground pipes broken; serious damage to reservoirs and embankments.	Structural Damage
Major	7.0	X – Most masonry and frame structures destroyed; ground cracked; rail bent slightly; landslides.	
7.7		XI – Few structures remain standing; bridges destroyed; fissures in ground; pipes broken; landslides; rails bent.	
Great	8.0	XII – Damage total; waves seen on ground surface; lines of sight and level distorted; objects thrown into the air; large rock masses displaced.	Near Total Destruction

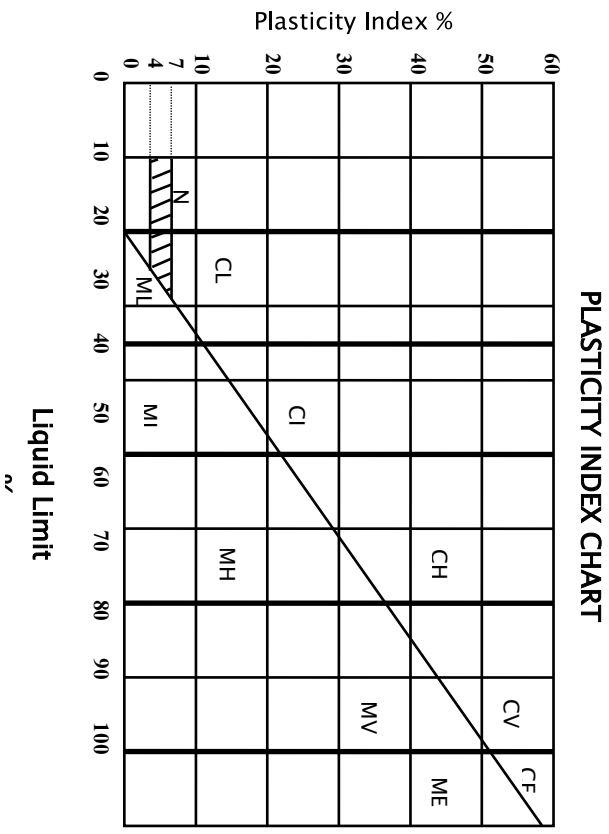
*Intensity is a subject measure of the effect of the ground shaking, and is not engineering measure of the ground acceleration.

METHOD OF SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOL	TYPICAL NAMES
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	GRAVELS	
	GW	Well graded gravel or gravel-sand mixtures, little or no fines
	GP	Poorly graded gravel or gravel-sand mixtures, little or no fines
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey Gravels, gravel-sand-clay mixtures
	SANDS	
	SW	Well graded sands or gravelly sands, no fines
	SP	Poorly graded sands or gravelly sands, no fines
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
SILTS & CLAYS		
ML	Inorganic silts and very fine sand, rock, flour, silty or clayey fine sand or clayey silt/slight plasticity	
CL	Inorganic clay of low to medium plasticity, gravelly clays, sandy clay, silty clay, lean clays	
OL	Organic silty and organic silty clay of low plasticity	
SILTS & CLAYS		
MH	Inorganic silts, micaceous or diatomaceous fine sandy, or silty soils, elastic silt	
CH	Inorganic clays of high plasticity, fat clays	
OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	
HIGHLY ORGANIC SOIL	PT	Peat and other highly organic soils

CLASSIFICATION CHART - UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size In Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVELS Coarse Fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND Coarse Medium Fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT AND CLAY	Below No. 200	Below 0.074



Project: Proposed Residence
Project Location: 145 Rio Boca Road
 Watsonville, California
Project Number: SV1858A

Silicon Valley Soil Engineering
 1916 O'Toole Way
 San Jose, CA 95131
 (408) 324-1400

Key to Log of Boring
Sheet 1 of 1

Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Unit Weight, pcf	Direct Shear Test - Cohesion in ksf	Direct Shear Test - Internal Friction Angle in degrees	Liquid Limit - LL, %	Plasticity Index - PI, %
1	2	3	4	5	6	7	8	9	10	11	12	13

COLUMN DESCRIPTIONS

- 1** Depth (feet): Depth in feet below the ground surface.
- 2** Sample Type: Type of soil sample collected at the depth interval shown.
- 3** Sample Number: Sample identification number.
- 4** Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
- 5** Material Type: Type of material encountered.
- 6** Graphic Log: Graphic depiction of the subsurface material encountered.
- 7** MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
- 8** Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
- 9** Dry Unit Weight, pcf: Dry weight per unit volume of soil sample measured in laboratory, in pounds per cubic foot.
- 10** Direct Shear Test - Cohesion in ksf: Cohesion is the y-axis intercept of the failure envelope tangent to the Mohr circles.
- 11** Direct Shear Test - Internal Friction Angle in degrees: The internal friction angle (Phi) is the angle inclination of the failure envelope.
- 12** Liquid Limit - LL, %: Liquid Limit, expressed as a water content.
- 13** Plasticity Index - PI, %: Plasticity Index, expressed as a water content.










FIELD AND LABORATORY TEST ABBREVIATIONS

- CHEM: Chemical tests to assess corrosivity
- COMP: Compaction test
- CONS: One-dimensional consolidation test
- LL: Liquid Limit, percent
- PI: Plasticity Index, percent
- SA: Sieve analysis (percent passing No. 200 Sieve)
- UC: Unconfined compressive strength test, Qu, in ksf
- WA: Wash sieve (percent passing No. 200 Sieve)






MATERIAL GRAPHIC SYMBOLS

-  Asphaltic Concrete (AC)
-  Aggregate Base (AB)
-  Poorly graded SAND (SP)

TYPICAL SAMPLER GRAPHIC SYMBOLS

-  Auger sampler
-  Bulk Sample
-  3-inch-OD California w/ brass rings
-  CME Sampler
-  Grab Sample
-  2.5-inch-OD Modified California w/ brass liners
-  Pitcher Sample
-  2-inch-OD unlined split spoon (SPT)
-  Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

-  Water level (at time of drilling, ATD)
-  Water level (after waiting)
-  Minor change in material properties within a stratum
-  Inferred/gradational contact between strata
-  Queried contact between strata

GENERAL NOTES


- 1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- 2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: Proposed Residence Project Location: 145 Rio Boca Road Watsonville, California Project Number: SV1858A	Silicon Valley Soil Engineering 1916 O'Toole Way San Jose, CA 95131 (408) 324-1400	Log of Boring B-1 Sheet 1 of 2
---	--	---


Date(s) Drilled: 02/23/2021	Logged By: V.V.	Checked By:
Drilling Method: Hollow Stem Auger	Drill Bit Size/Type: 8-inch	Total Depth of Borehole: 50.0 feet
		Approximate Surface Elevation: 16.4 feet
Groundwater Level and Date Measured: 12 feet (02/23/2021)	Sampling Method(s): SPT	Hammer Data: 140 lbs
Borehole Backfill: Grout	Location:	


Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Unit Weight, pcf	Direct Shear Test - Cohesion in ksf	Direct Shear Test - Internal Friction Angle in degrees	Liquid Limit - LL, %	Plasticity Index - PI, %
0				Asphalt		3.0 inches of Asphalt Concrete (AC)						
1				SP		9.0 inches of Aggregate Base (AB)						
1-1		1-1	23			Light Gray SAND Damp, medium dense SAND: medium-grained, poorly graded	1.5	101.2	0	28		
1-2		1-2	26				1.7	100.8				
5												
10		1-3	23				3.2	106.6				
15		1-4	30			Became dense	18.2	105.0				
20		1-5	75				18.5	104.7				
25		1-6	77				17.3	105.0				
30		1-7	76				18.9	106.8				
						Stabilized at drilling completion ▼						
						First encountered ▽						

Logged By: V.V.	EXPLORATORY BORING LOG	Boring No. B-1
Date Drilled: 4/2/98		

Dry Density p.c.f.	Moisture Content %	Penet. Resist. Blows/ft.	Unconf. Comp. Strength, k .s.f.	Direct Shear Test		Sample Number	Depth in Feet	Boring Log	File No. 4412-S1
				"C" k.s.f.	"Ø" Degree				DESCRIPTION
91.7	8.2			0	30°	1-1	4		Brown Silty SAND moist, dense (medium grain)
									BORING TERMINATED AT 5 FEET

Remarks:

Logged By: V.V.				EXPLORATORY BORING LOG				Boring No.	
Date Drilled: 4/2/98								B-2	
Dry Density p.c.f.	Moisture Content %	Penet. Resist. Blows/ft.	Unconf. Comp. Strength, k .s.f.	Direct Shear Test		Sample Number	Depth in Feet	Boring Log	File No. 4412-S1
				"C" k.s.f.	"Ø" Degree				DESCRIPTION
104.4	8.5					2-1	4		Brown Silty Sand moist, dense (medium grain)
101.7	7.7					2-2	8		BORING TERMINATED AT 8 FEET
Remarks:									

Logged By: V.V.		EXPLORATORY BORING LOG					Boring No. B-3		
Date Drilled: 4/2/98		File No. 4412-S1							
Dry Density p.c.f.	Moisture Content %	Penet. Resist. Blows/ft.	Unconf. Comp. Strength, k .s.f.	Direct Shear Test		Sample Number	Depth in Feet	Boring Log	DESCRIPTION
				"C" k.s.f.	"Ø" Degree				
96.9	7.8					3-1	4		Brown Silty SAND moist, dense (medium grain)
BORING TERMINATED AT 5 FEET									
Remarks:									

File No. 4412-S1

LOGGED BY		DATE DRILLED		BORING DIAMETER		BORING NO.			
VO		8/6/92		6"		1			
Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft.-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1		•••••	6 inches Baserock						
2	1-1	□	White clean dune SAND, moist, medium dense						
3		□							
4	T	□			10			4.3	
5		□	Gray, medium to coarse grained						
6		□							
7		□							
8		□							
9		□							
10	1-2	□	Medium dense to dense, moist						
11		□							
12	T	□			26			7.0	
13		□							
14		□							
15		□							
16		□							
17		□							
18		□							
19		□							
20	1-3	□	Gray, fine to medium grained, moist, dense						
21		□							
22	T	□			34			20.8	% Passing #200 Sieve 3.0
23		□							

FIGURE NO. LOG OF TEST BORING

File No. 4412-S1


LOGGED BY		VO		DATE DRILLED		8/6/92		BORING DIAMETER		6"		BORING NO.		1(cont)	
Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION				Unified Soil Classification	Blows/foot 350 ft.-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS			
25			Coarse grained												
26															
27															
28			 Water at 28 feet												
29															
30	1-4														
31	T		Fine grained gray SAND, wet, medium dense					26							
32															
33															
47			Break in Log Increase in density, trace Gravel												
48	1-5 B										13.6	% Passing #200 Sieve 2.1			
49															
50															
			BORING TERMINATED AT 50.0'												

FIGURE NO. LOG OF TEST BORING

LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: Z:\SV MAIN FILE\SV MAIN FILE\SV (1850-1859)\SV1858 - Rio
Boca Rd\SV1858A.LFS\SV1858A - Boring B-1.liq
Title: SV1858A - Proposed Residence
Subtitle: 145 Rio Boca Road, Watsonville, CA

Surface Elev.=16.4
Hole No.=B-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 0.00 ft
Water Table during In-Situ Testing= 12.00 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.90

Input Data:

Surface Elev.=16.4
Hole No.=B-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 0.00 ft
Water Table during In-Situ Testing= 12.00 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.90
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
 2. Settlement Analysis Method: Ishihara / Yoshimine
 3. Fines Correction for Liquefaction: Stark/Olson et al.*
 4. Fine Correction for Settlement: During Liquefaction*
 5. Settlement Calculation in: All zones*
 6. Hammer Energy Ratio, Ce = 1
 7. Borehole Diameter, Cb= 1
 8. Sampling Method, Cs= 1
 9. User request factor of safety (apply to CSR) , User= 1.3
Plot one CSR curve (fs1=User)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	23.00	103.00	3.00
3.00	26.00	103.00	3.00
5.00	23.00	110.00	2.00
10.00	30.00	124.00	3.00
15.00	75.00	124.00	NoLiq
20.00	77.00	123.00	NoLiq
25.00	76.00	127.00	NoLiq
30.00	77.00	121.00	NoLiq
35.00	77.00	118.00	NoLiq
40.00	76.00	125.00	NoLiq

Output Results:

Settlement of Saturated Sands=0.88 in.

Settlement of Unsaturated Sands=0.00 in.

Total Settlement of Saturated and Unsaturated Sands=0.88 in.

Differential Settlement=0.440 to 0.580 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.34	0.71	0.48*	0.88	0.00	0.88
1.00	0.44	1.79	0.24*	0.72	0.00	0.72
2.00	0.44	1.79	0.25*	0.61	0.00	0.61
3.00	0.44	1.78	0.25*	0.55	0.00	0.55
4.00	0.44	1.77	0.25*	0.47	0.00	0.47
5.00	0.34	1.74	0.20*	0.33	0.00	0.33
6.00	0.44	1.71	0.26*	0.18	0.00	0.18
7.00	0.44	1.67	0.26*	0.10	0.00	0.10
8.00	0.44	1.64	0.27*	0.02	0.00	0.02
9.00	0.44	1.61	0.27*	0.00	0.00	0.00
10.00	0.44	1.58	0.28*	0.00	0.00	0.00
11.00	0.44	1.56	0.28*	0.00	0.00	0.00
12.00	0.44	1.54	0.28*	0.00	0.00	0.00
13.00	0.44	1.52	0.29*	0.00	0.00	0.00
14.00	0.44	1.50	0.29*	0.00	0.00	0.00
15.00	2.00	1.49	5.00	0.00	0.00	0.00
16.00	2.00	1.48	5.00	0.00	0.00	0.00
17.00	2.00	1.47	5.00	0.00	0.00	0.00
18.00	2.00	1.46	5.00	0.00	0.00	0.00
19.00	2.00	1.45	5.00	0.00	0.00	0.00
20.00	2.00	1.44	5.00	0.00	0.00	0.00
21.00	2.00	1.43	5.00	0.00	0.00	0.00
22.00	2.00	1.43	5.00	0.00	0.00	0.00
23.00	2.00	1.42	5.00	0.00	0.00	0.00
24.00	2.00	1.41	5.00	0.00	0.00	0.00
25.00	2.00	1.40	5.00	0.00	0.00	0.00

26.00	2.00	1.40	5.00	0.00	0.00	0.00
27.00	2.00	1.39	5.00	0.00	0.00	0.00
28.00	2.00	1.38	5.00	0.00	0.00	0.00
29.00	2.00	1.38	5.00	0.00	0.00	0.00
30.00	2.00	1.37	5.00	0.00	0.00	0.00
31.00	2.00	1.36	5.00	0.00	0.00	0.00
32.00	2.00	1.35	5.00	0.00	0.00	0.00
33.00	2.00	1.34	5.00	0.00	0.00	0.00
34.00	2.00	1.33	5.00	0.00	0.00	0.00
35.00	2.00	1.31	5.00	0.00	0.00	0.00
36.00	2.00	1.30	5.00	0.00	0.00	0.00
37.00	2.00	1.29	5.00	0.00	0.00	0.00
38.00	2.00	1.28	5.00	0.00	0.00	0.00
39.00	2.00	1.27	5.00	0.00	0.00	0.00
40.00	2.00	1.25	5.00	0.00	0.00	0.00
41.00	2.00	1.24	5.00	0.00	0.00	0.00
42.00	2.00	1.23	5.00	0.00	0.00	0.00
43.00	2.00	1.21	5.00	0.00	0.00	0.00
44.00	2.00	1.20	5.00	0.00	0.00	0.00
45.00	2.00	1.19	5.00	0.00	0.00	0.00
46.00	2.00	1.17	5.00	0.00	0.00	0.00
47.00	2.00	1.16	5.00	0.00	0.00	0.00
48.00	2.00	1.15	5.00	0.00	0.00	0.00
49.00	2.00	1.13	5.00	0.00	0.00	0.00
50.00	2.00	1.12	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft²)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

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TOTAL LOADS:

Vertical Load, Q: 80.0 -kp
 Vertical Load with Load Factor, Q: 80.0 -kp
 Vertical Load with Load factor and Pile Cap, Q= 80.0 -kp
 Load Factor for Vertical Load and Torsion= 1.0
 Vertical Loads Supported by Pile Cap: 0 %
 Load Factor for Vertical Loads: 1.0

PILE PROFILE:

Pile Length, L= 30.0 -ft
 Top Height, H= 0 -ft
 Slope Angle, As= 0
 Batter Angle, Ab= 0.00 Batter Factor, Kbat= 1.00

SINGLE PILE:

Kdown= 1.3 Kup= 0.8 Ka= 1.25

Single Pile Vertical Analysis:

Total Ultimate Capacity (Down)= 375.442-kp Total Ultimate Capacity (Up)=
 44.504-kp
 Total Allowable Capacity (Down)= 198.714-kp Total Allowable Capacity (Up)=
 24.209-kp

Weight above Ground= 0.00 Total Weight= 3.91-kp *Soil Weight is
 not included

Side Resistance (Down)= 65.960-kp Side Resistance (Up)= 40.590-kp
 Tip Resistance (Down)= 309.482-kp Tip Resistance (Up)= 0.000-kp
 Negative Friction, Qneg= 0.000-kp, which has been subtracted from Total
 Ultimate Capacity (Down)

Negative friction does not affect Total Ultimate Capacity (Up)

At Work Load= 80.00-kp, Settlement= 0.08941-in
 At Work Load= 80.00-kp, Secant Stiffness Kqx= 894.77-kp/-in
 At Allowable Settlement= 1.000000-in, Capacity= 364.59-kp
 Work Load, 80.00-kp, OK with the Capacity at Allowable Settlement=
 1.00000-in, Capacity= 364.59-kp
 Work Load, 80.00-kp, OK with the Allowable Capacity (Down)= 198.71-kp

FACTOR OF SAFETY:

FSside	FStip	FSuplif	FSweight
1.5	2.0	2.0	1.0

Note: If the program cannot find a result or the result exceeds the upper limit.
The result will be displayed as 99999.

1 1 1 1 1

ALLPILE 7
LATERAL ANALYSIS SUMMARY OUTPUT
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FACTORS AND CONDITIONS:

Load Factor for Vertical Loads: 1.0
Load Factor for Lateral Loads: 1.0
Loads Supported by Pile Cap: 0 %
Shear Condition: Static

SINGLE PILE:

(with Load Factor)
Vertical Load= 198.00 -kp
Shear= 32.00 -kp
Slope Restrain St= 0.00000 -in/-in

Results:

Top Deflection, yt= 0.53700-in
Max. Moment, M= -152.50-kp-f
Top Deflection Slope, St= 0.00000

Top Deflection, 0.5370-in, OK with the Allowable Deflection= 1.00-in

Note: If the program cannot find a result or the result exceeds the upper limit.
The result will be displayed as 99999.

Notes:

Q - Vertical Load at pile top
P - Lateral Shear Load at pile top
M - Moment at pile top
Xtop - Pile top total settlement
yt - Pile top deflection
St - Pile top deflection slope (deflection/unit length)

The Max. Moment calculated by program is an internal moment of shaft due to the loading. Engineers have to check whether the pile has enough moment capacity to resist the Max. Moment with adequate factor of safety. If not, the pile may be damaged under the loading.

1 1 1 1 1

**PRE-CAST PRE-STRESS SKIN-FRICTION
PILE SPECIFICATIONS**

FOR

**PROPOSED RESIDENCE
145 RIO BOCA ROAD
WATSONVILLE, CALIFORNIA**

I. GENERAL SPECIFICATIONS

a. Qualifications

Piling subcontractor shall be qualified and experienced in this type of work.

b. Responsibility

Owners shall accept no responsibility for drivability of piles as shown and specified.

c. Ground Vibration

Contractor should establish survey points prior to the start of the pile installation to verify if movement occurred. We also recommend monitoring the vibration within 100 feet of the site to check if pile-driving activities affected the adjacent structures.

d. Grading

Necessary clearing, excavation and filling shall be done by the contractor.

d. Pile Locations

Civil engineer will stake out pile locations. Cost for replacing moved and damage stakes shall be borne by the contractor.

f. Available Data

Records of the borings made at these sites are included in the contract drawings available from the civil engineer. These records pertain to conditions at the boring locations. Contractors are expected to make a personal inspection of the sites and to otherwise satisfy themselves as to the conditions affecting the work. No claims for extra compensation or extension of time shall be allowed on account of near subsurface conditions inconsistent with the data given.

g. Pile Depth

All piles shall be given to minimum depths as indicated on the plans and shall meet the requirements set in the Standard Specifications.

h. Inspection

The soil engineer will inspect the driving of all piles. At least one week's notice shall be given before the first pile is to be driven.

II. PILE TYPES

a. Type 1

Pre-cast, pre-stress pile (Alternate X – Class 70).

b. Type 2

Pre-cast pile (Alternate X – Class 70).

c. Type 3

Concrete casing filled with Class "A" P.C.C.

III. PILE MATERIALS

Piles should meet the requirements of standard specifications set by the State of California Department of Public Works.

IV. HANDLING OF PILES

All piles shall be handled with care to avoid damage. Damage to any pile to driving shall be cause for immediate rejection.

V. INSTALLATION

a. General

After the first pile row is driven, the driving criteria will be reviewed and if necessary, modified by the engineer. Each pile should be driven without interruption, except for splicing, only by written permission shall deviation from this procedure be allowed. Under no condition will a pile be started if it cannot be finished the same day.

b. Record of Driving

Kept by soil engineer

1. Reference

All piles recorded with an appropriate numbering system.

2. Dimensions

Include elevations of tip and butt before and after cutting.

3. Driving resistance

Complete record with number of blows required to drive each foot for full length of each pile.

4. Time

Include time of starting, completion, interruptions (if any), and condition of pile after driving.

c. Minimum Spacing

All piles shall have a minimum clear spacing between outside dimensions equal to 2.5 times the pile butt's greatest dimension, or 4 feet, whichever is greater.

d. Alignment

Do not exceed 2 percent maximum deviation from vertical on any section of length. Keep pile center at cutoff within 3 inches of design location. Pulling piles into position shall not be permitted. The contractor shall provide substitute piles where driven piles exceed specified tolerances; all correction costs under this section, including any structural redesign, additional materials, and labor, shall be paid by the contractor.

e. Damaged Piles

1. General

Any pile driven into previously driven pile automatically rejects both piles. Replace whose handling or driving record indicates possible damage or defect; replace as directed with a substitute pile at no expense to owner. Do not drive piles damaged or suspected damage until inspected and approved.

2. Diving Damage

- Type "X" and "Y" (Pre-cast, pre-stress piles). Development of tension cracks, spall or chips in the concrete within the pay length shall be cause for rejection.
- Type "W" (concrete casing filled by P.C.C.). General criteria as for type "X" and type "Y" piling applies. In addition, any crimping or buckling within the pay length due excessive hard driving, shall be cause for rejection.

f. Driving Equipment

Use approved type as generally used in standard pile driving practice. Use driving hammers of such size and type able to consistently deliver effective dynamic energy suitable to piles and materials which they are driving; operate at manufacturer's recommended speeds and pressures. Swing leads not permitted; use fixed leads or other suitable means for holding pile firmly in position and alignment with the hammer. Pile shall be plumb before driving. Take special precautions to insure against leading away of pile from plumb to true position. Care shall be taken during driving to prevent and correct any tendency of piles to twist, rotate, or walk.

VI. DRIVING CRITERIA

a. Driving Energy

Use hammers developing minimum driving energies for the various classes of piles as follows:

<u>Pile Type</u>	<u>Minimum Rated Hammer Energy</u>
Class I	24,000 ft-lbs.
Class II	19,000 ft-lbs.

Hammers developing greater or lesser energies, or sonic hammers, may be used upon written authorization of the engineer.

b. Reduction of Hammer Energy

When piles have settled into the ground under their own weight and the weight of the hammer, and the point of the pile is passing through soft soil so that there is little resistance, there is a possibility that longitudinal tensile stress will be set up in the pile. For such driving conditions, the first hammer blows delivered to the pile shall have a lesser energy by reducing the stroke of the hammer to approximately 24 inches. In no case shall the stroke of the hammer exceed 42 inches.

c. Driving Criteria

Estimated termination of pile penetrations is given in the Recommendation section of this report. Actual pile tip elevation shall be determined, at time of driving, by the soil engineer in the field.

VII. PILE TYPES NOT SPECIFIED

a. General

Consideration will be given to pile types other than those shown or specified. If the contractor proposes to use a type other than those shown, he shall submit to the owner or the structural engineer for review a description of the pile and shall demonstrate by calculations and other corroborating evidence the ability of the pile to sustain required loads.

b. Prequalification

Review proposed foundation pile plans at no cost to owner; plans to be prepared and stamped by licensed civil engineer. Comply with all local jurisdictional codes.

c. Engineering Design

Prepare revised foundation pile plans at no cost to owner; plans to be prepared and stamped by licensed civil engineer. Comply with all local jurisdictional codes.

d. Pile Tests

If, in the opinion of the owner or his representative, pile load tests are required to confirm the load bearing capacity, the costs of such tests shall be borne by the contractors.

Project No. SC12191
28 December 2022

SANDIS

Attn: Chad Browning, PE
1700 Winchester Blvd., Ste. 200
Campbell, CA 95005

Subject: FEMA Flood, Wave, & Debris Impact Force Analysis

Reference: 145 Rio Boca Road
APN: 052-301-69
Watsonville, CA 95076

To whom it may concern:

At your request, Haro Kasunich and Associates, Inc. (HKA) has calculated wave and debris impact forces for the proposed development at the referenced site. A force analysis was requested in review comments provided by the County of Santa Cruz Planning Department dated 29 November 2021.

In preparation of the aforementioned analysis HKA:

1. Reviewed County of Santa Cruz Planning Department comments dated 29 November 2021
2. Had working meetings with Sandis to discuss the Geotechnical Investigation Report, the current FEMA VE Zone Base Flood impact requirements and resultant wave force analysis.
3. Reviewed the revised May 2021 Geotechnical Investigation Report prepared by Silicon Valley Soil Engineering dated November 2022.

Specifically, this letter addresses comment #3 posed by the County of Santa Cruz Planning Department. Comments #1 and #2 have been addressed in the most recent updated Geotechnical Investigation Report and Updated Civil Plans. Comment #3 is presented below for reference:

3. *During the design 100-year storm, the proposed residence will be subject to wave impact forces/flood forces as well as forces due to flood-borne debris impact. Please request your soils engineer utilize Chapter 8 of the FEMA (P-55) Coastal Construction Manual (CCM) to determine flood forces and debris impact force for the structural design of the proposed pile foundation system.*

Wave, Flood, and Debris impact loads were computed using the design principles presented in the FEMA P-55, Volume II, Coastal Construction Manual. The following parameters taken from review of the proposed Civil Plans and Geotechnical Investigation were used to develop impact forces;

- Top of Main House Concrete Slab EL. = 21.50 Feet NAVD8
- Top of Garage Slab EL. = 17.00 Feet NAVD88
- Bas Flood Elevation (BFE) = 19.00 Feet NAVD88 (See FEMA Flood Panel, 06087C0452F)
- Still Water Level (SWL) = 10.60 Feet NAVD88
- Scour Elevation = 7.78 Feet NAVD88

Results of the analysis are summarized in Table 1 Below:

Table 1: Force Analysis Summary (FEMA P-55)

Loading Type	Equation	Total Force	Elevation of Resultant
Breaking Wave	8.5	625 lbs	10.6 Feet NAVD88
Broken Wave	8.8	509 lbs	10.6 Feet NAVD88
Debris Impact	8.9	1900 lbs	10.6 Feet NAVD88
Wave Slam	8.7	812 lbs/lf	19.0 Feet NAVD88

Hand calculations are presented as attachments to this letter. For use in structural design apply only the highest of the load conditions i.e. the debris impact loading to pile

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Project No. SC12191
28 December 2022
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foundations. A force load of 1900 lbs should be applied at elevation 10.6 feet NAVD88 for pile foundations for both the main house and garage.

Additionally apply a wave slam load of 812 lbs/lf at elevation 19.0 Feet NAVD88 acting over the seaward wall width of the garage. The garage slab sits below the BFE and should be designed with breakaway walls that could encounter a wave slam load.



Respectfully Submitted,

HARO, KASUNICH AND ASSOCIATES, INC.

Andrew Kasunich P.E.
C.E. 93471

John E. Kasunich P.E.
G.E. 455

AK/jk
Copies: pdf email to Sandis Team
Attachments: Hand Calculation Sheets



Determination of flood forces & debris impact forces for the structural design of the proposed pile foundation system.

Main House

NAVD88

EL. 21.50 FT.

BFE = 19.0 FT

Concrete Slab

SWL = 10.6 FT

Breaking Wave Load on Vertical Piles

$$F_{brkp} = \frac{1}{2} C_d \gamma_w D H_b^2 \quad (\text{Eq. 8.5 FEMA})$$

Scow = 7.78 FT

$$F_{brkp} = \frac{1}{2} \times 2.25 \times 64 \times 1.4 \times 0.78 \times (10.6 - 7.78)^2$$

$$F_{brkp} = 625 \text{ lb's}$$

Pile Foundation
Tip at EL. -16.0 FT

Hydrodynamic Load, Broken Wave

$$F_{dyn} = \frac{1}{2} C_d \rho V^2 A \quad (\text{Eq. 8.8 FEMA})$$

Debris Impact Load

$$F_{dyn} = \frac{1}{2} \times 2 \times 1.99 V^2 (1) (10.6 - 7.78)$$

$$F_x = W V C_d C_s C_{stc} \quad (\text{Eq. 8.9})$$

$$F_{dyn} = 5.6 V^2$$

$$F_x = \frac{1000 \times 9.5 \times 1 \times 1 \times 0.4}{2}$$

$$V = (g d_s)^{0.5} \quad (\text{Eq. 8.26 FEMA})$$

$$F_x = 1900 \text{ lb's}$$

$$V = [(32.2 \times (10.6 - 7.78))^{0.5}]$$

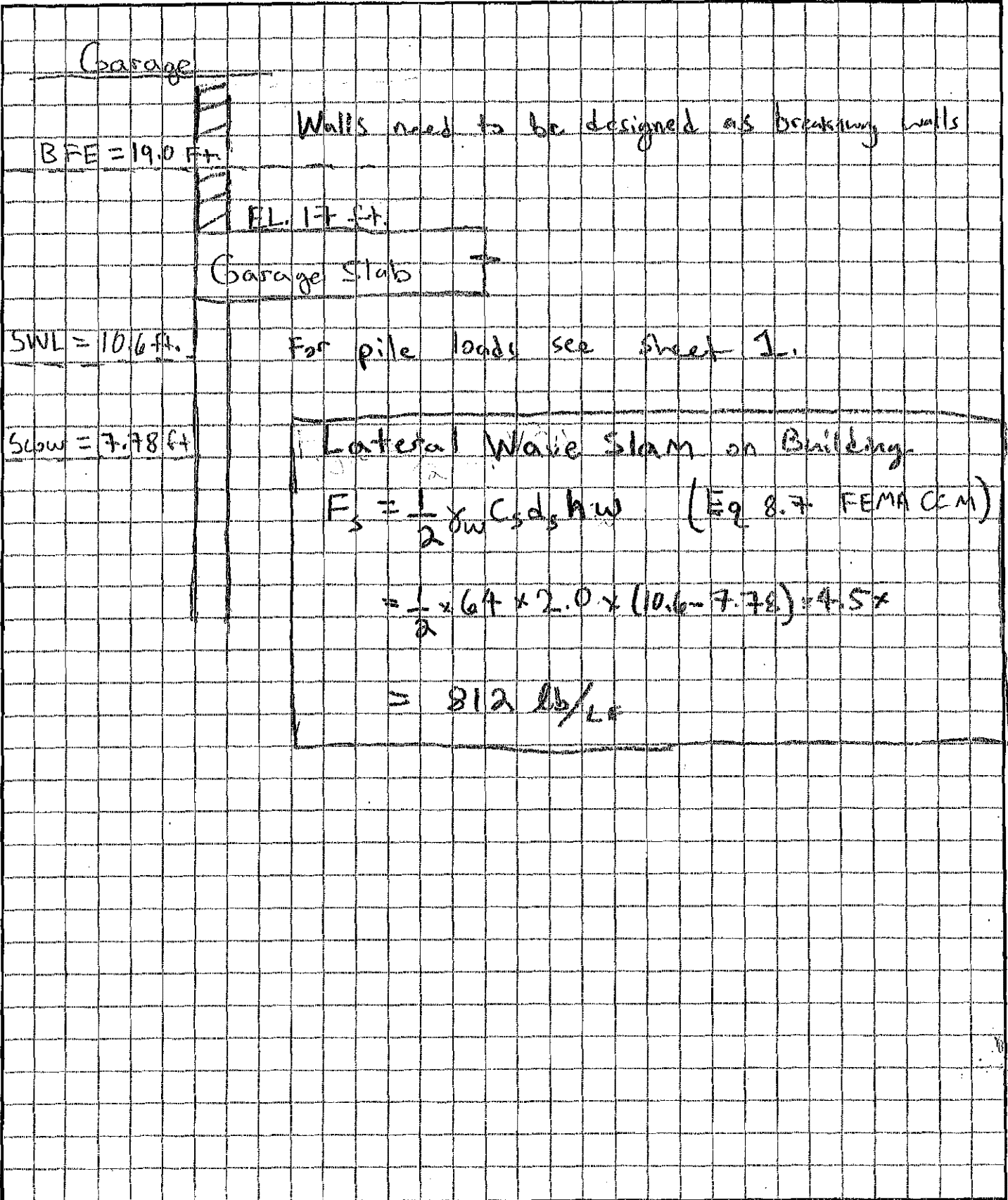
$$V = 9.5$$

$$F_{dyn} = 5.6 (9.5)^2$$

$$F_{dyn} = 509 \text{ lb's}$$

**HARO, KASUNICH
& ASSOCIATES, INC.**
116 East Lake Avenue
WATSONVILLE, CALIFORNIA 95076
(831) 722-4175 FAX 722-3202

JOB SC12191-145 Rio Boca Road
SHEET NO. 2 OF 2
CALCULATED BY AK DATE 12/22/22
CHECKED BY _____ DATE _____
SCALE Not to Scale





County of Santa Cruz

Department of Community Development and Infrastructure

701 Ocean Street, Fourth Floor, Santa Cruz, CA 95060
Planning (831) 454-2580 Public Works (831) 454-2160
sccoplanning.com dpw.co.santa-cruz.ca.us

9 March 2023

John Arrillaga <jschirtzinger@perry-arrillaga.com>
2450 Watson Court
Palo Alto, CA 94303

Subject: Review of the Updated Geotechnical Investigation for the Proposed Residence at 145 Rio Boca Road, Watsonville, CA revised 20 November 2022 by Silicon Valley Soil Engineering – File No.SV1858A; and the

Review of the FEMA Flood, Wave.& Debris Impact Force Analysis for 145 Rio Boca Road/APN 052-301-69, Watsonville, CA report dated 28 December 2022 by Haro, Kasunich and Associates Inc. - Project No. SC12191

Project Site: 145 Rio Boca Road
 APN 052-301-69
 Application No. REV201134

Dear Applicant:

The Planning Department has accepted the project site updated geotechnical investigation report and the wave force analysis report. The following items shall be required:

1. All project design and construction shall comply with the recommendations of the reports;
2. Final plans shall reference the subject reports by titles, authors, and dates. Final Plans should also include a statement that the project shall conform to the reports' recommendations; and
3. After plans are prepared that are acceptable to all reviewing agencies, please submit a completed Geotechnical Engineer Plan Review Form to Environmental Planning. The Consultants Plan Review Form (Form PLG-300) is available on the Planning Department's web page. The author of the geotechnical investigation report shall sign and stamp the completed form. Please note that the plan review form must reference the final plan set by last revision date.

Electronic copies of all forms required to be completed by the Geotechnical Engineer may be found on our website: www.sccoplanning.com, under "Environmental", "Geology & Soils", and "Assistance & Forms".

After building permit issuance the soils engineer *must remain involved with the project* during construction. Please review the Notice to Permits Holders (attached).

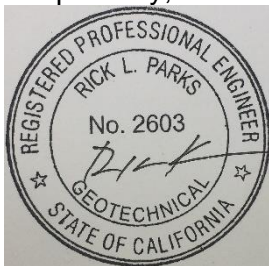
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Our acceptance of the report is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please note that this determination may be appealed within 14 calendar days of the date of service. Additional information regarding the appeals process may be found online at: <https://www.sccoplanning.com/PlanningHome/ZoningDevelopment/Appeals/PlanningAppealsforDiscretionaryPermits.aspx>

If we can be of any further assistance, please contact the undersigned at: 831.454.3168 or rick.parks@santacruzcounty.us

Respectfully,



Rick Parks, GE 2603
Civil Engineer – Environmental Planning Section
County of Santa Cruz Planning Department

Cc: Environmental Planning Department, Attn: Leah MacCarter
Planning Department, Attn: Nathan MacBeth
Silicon Valley Soil Engineering, Attn.: Vien Vo, PE
Haro, Kasunich and Associates, Attn: John Kasunich, GE
Owner's Agent: Rodney Humble <rodney.humble@vancebrown.com>

Attachments: [Notice to Permit Holders](#)

**NOTICE TO PERMIT HOLDERS WHEN A SOILS REPORT HAS BEEN PREPARED,
REVIEWED AND ACCEPTED FOR THE PROJECT**

After issuance of the building permit, the County requires your soils engineer to be involved during construction. Several letters or reports are required to be submitted to the County at various times during construction. They are as follows:

1. **When a project has engineered fills and / or grading**, a letter from your soils engineer must be submitted to the Environmental Planning section of the Planning Department prior to foundations being excavated. This letter must state that the grading has been completed in conformance with the recommendations of the soils report. Compaction reports or a summary thereof must be submitted.
2. **Prior to placing concrete for foundations**, a letter from the soils engineer must be submitted to the building inspector and to Environmental Planning stating that the soils engineer has observed the foundation excavation and that it meets the recommendations of the soils report.
3. **At the completion of construction**, a *Soils (Geotechnical) Engineer Final Inspection Form* from your soils engineer is required to be submitted to Environmental Planning that includes copies of all observations and the tests the soils engineer has made during construction and is stamped and signed, certifying that the project was constructed in conformance with the recommendations of the soils report.

If the *Final Inspection Form* identifies any portions of the project that were not observed by the soils engineer, you may be required to perform destructive testing in order for your permit to obtain a final inspection. The soils engineer then must complete and initial an *Exceptions Addendum Form* that certifies that the features not observed will not pose a life safety risk to occupants.