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
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR
www.sccoplanning.com

ENVIRONMENTAL COORDINATOR

NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION
NOTICE OF PUBLIC REVIEW AND COMMENT PERIOD

Pursuant to the California Environmental Quality Act, the following project has been reviewed by the County Environmental Coordinator to determine if it has a potential to create significant impacts to the environment and, if so, how such impacts could be solved. A Negative Declaration is prepared in cases where the project is determined not to have any significant environmental impacts. Either a Mitigated Negative Declaration or Environmental Impact Report (EIR) is prepared for projects that may result in a significant impact to the environment.

Public review periods are provided for these Environmental Determinations according to the requirements of the County Environmental Review Guidelines. The environmental document is available for review at the County Planning Department located at 701 Ocean Street, in Santa Cruz. You may also view the environmental document on the web at www.sccoplanning.com under the Planning Department menu. If you have questions or comments about this Notice of Intent, please contact Matt Johnston of the Environmental Review staff at (831) 454-3201

The County of Santa Cruz does not discriminate on the basis of disability, and no person shall, by reason of a disability, be denied the benefits of its services, programs or activities. If you require special assistance in order to review this information, please contact Bernice Romero at (831) 454-3137 (TDD number (831) 454-2123 or (831) 763-8123) to make arrangements.

PROJECT: EAST CLIFF DRIVE PEDESTRIAN IMPROVEMENTS PHASE III
APP #: 111134
APN(S): N/A, COUNTY RIGHT-OF-WAY
PROJECT DESCRIPTION: Proposal to complete roadway and roadside improvements within the East Cliff Drive public right-of-way between 5th and 7th Avenue to include parking and circulation improvements (vehicle, bicycle, and pedestrian) and a bluff protection structure on the south side of the right-of-way. The project includes the removal of two significant trees, a 20-24 inch Monterey Cypress tree and a 24 inch Canary Island Date Palm. The project requires a Coastal Development Permit and a Geology, Geo-technology, Seawall Design, Arborist, Preliminary Grading, Drainage, and Biotic Report Reviews.

EXISTING ZONE DISTRICT: Parks, Recreation & Open Space AND County Right-of-Way
APPLICANT: Santa Cruz County Department of Public Works
OWNER: Santa Cruz County
PROJECT PLANNER: Sheila McDaniel, (831) 454-2255
EMAIL: pln056@co.santa-cruz.ca.us
ACTION: Negative Declaration with mitigations
REVIEW PERIOD: April 16, 2012 through May 16, 2012

The project will be considered at a public hearing by the County of Santa Cruz Zoning Administrator on June 1, 2012 at 9:00 a.m., in the Board of Supervisors Chambers, 701 Ocean Street, 5th Floor, Room 525, Santa Cruz, CA 95060.

Updated 6/29/11

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
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR
http://www.sccoplanning.com/

MITIGATED NEGATIVE DECLARATION

Project: East Cliff Drive Pedestrian Improvements Phase III APN(S): N/A, County Right-of-Way

Application #: 111134

Project Description: Proposal to complete roadway and roadside improvements within the East Cliff Drive public right-of-way between 5th and 7th Avenue to include parking and circulation improvements (vehicle, bicycle, and pedestrian) and a bluff protection structure on the south side of the right-of-way. The project includes the removal of two significant trees, a 20-24 inch Monterey Cypress tree and a 24 inch Canary Island Date Palm. The project requires a Coastal Development Permit and a Geology, Geotechnology, Seawall Design, Arborist, Preliminary Grading, Drainage, and Biotic Report Reviews.

Project Location: East Cliff Drive between 5th and 7th Avenue

Owner: Santa Cruz County Department of Public Works

Applicant: Santa Cruz County Department of Public Works

Staff Planner: Sheila McDaniel

Email: pln056@co.santa-cruz.ca.us

The project will be considered at a public hearing by the County of Santa Cruz Zoning Administrator on June 1, 2012 at 9:00 a.m., in the Board of Supervisors Chambers, 701 Ocean Street, 5th Floor, Room 525, Santa Cruz, CA 95060.

California Environmental Quality Act Mitigated Negative Declaration Findings:

Find, that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period; and, that revisions in the project plans or proposals made by or agreed to by the project applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and, on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project as revised will have a significant effect on the environment. The expected environmental impacts of the project are documented in the attached Initial Study on file with the County of Santa Cruz Planning Department located at 701 Ocean Street, 4th Floor, Santa Cruz, California.

Review Period Ends: May 16, 2012

Note: This Document is considered Draft until it is Adopted by the Appropriate County of Santa Cruz Decision-Making Body

Date: April 12, 2012

MATT JOHNSTON, Environmental Coordinator
(831) 454-3201

NAME: East Cliff Drive Pedestrian Improvements Phase III
APPLICATION: 111134
A.P.N: County Right-of-Way

NEGATIVE DECLARATION MITIGATIONS

1. In order to mitigate potential impacts to cormorants and other nesting birds, prior to site disturbance the project biologist will conduct preconstruction surveys for nesting birds. If active nests are present the biologist will establish buffer zones. The size of which will be determined based upon the species of birds. Work within the buffer zones will only proceed when birds have fledged.

2. In order to mitigate potential impacts due to unstable soils, prior to final approval, the recommendations contained in the geotechnical report, including construction of the wall with deep piers or piles or embedment of the wall into the bedrock platform or below design scour elevations, and proper design of engineered fills, shall be incorporated into the final design to reduce this potential hazard to a less than significant level.

3. In order to mitigate any potential noise-related impacts, the project will be required to include hours of operation for heavy construction machinery, restricting construction activities to after 8:30 am to minimize morning noise disturbance to surrounding residential uses. In addition, the contractor will be required to provide a noise notification sign alerting the public of the duration of the noise disturbance for this portion of the work.

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
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR
www.sccoplanning.com

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ENVIRONMENTAL REVIEW INITIAL STUDY

Date: April 9, 2012 **Application Number:** 111134

Staff Planner: Sheila McDaniel

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: County of Santa Cruz **APN(s)**: N/A, County right-of-way

OWNER: County of Santa Cruz **SUPERVISORAL DISTRICT**:

PROJECT LOCATION: The project is located within the East Cliff Drive right-of-way between 5th Avenue and 7th Avenue adjacent to Twin Lakes Beach and the Santa Cruz Yacht Harbor within the Live Oak Planning area.

SUMMARY PROJECT DESCRIPTION: Proposal to complete roadway and roadside improvements within the East Cliff Drive public right-of-way between 5th and 7th Avenue to include parking and circulation improvements (vehicle, bicycle, and pedestrian) and a bluff protection structure on the south side of the right-of-way. The project includes the removal of two significant trees, a 20- 24 inch Monterey Cypress tree and a 24 inch Canary Island Date Palm. The project requires a Coastal Development Permit and a Geology, Geo-technology, Seawall Design, Arborist, Preliminary Grading, Drainage, and Biotic Report Reviews.

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.

- ☒ Geology/Soils
- ☒ Hydrology/Water Supply/Water Quality
- ☒ Biological Resources
- ☐ Agriculture and Forestry Resources
- ☐ Mineral Resources
- ☒ Visual Resources & Aesthetics
- ☐ Cultural Resources
- ☐ Hazards & Hazardous Materials
- ☒ Noise
- ☒ Air Quality
- ☒ Greenhouse Gas Emissions
- ☐ Public Services
- ☒ Recreation
- ☐ Utilities & Service Systems
- ☐ Land Use and Planning
- ☐ Population and Housing

☒ Transportation/Traffic

☒ Mandatory Findings of Significance

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

☐ General Plan Amendment

☐ Land Division

☐ Rezoning

☐ Development Permit

☐ Coastal Development Permit

☐ Grading Permit

☐ Riparian Exception

☐ Other:

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:

California Coastal Commission Permit for work within the coastal jurisdiction area boundary to the mean high tide line

California State Parks right-of-entry encroachment permit for construction work

DETERMINATION: (To be completed by the lead agency)
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 — 4/11/12

Matthew Johnston
Environmental Coordinator

Date

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: N/A, County right-of-way
Existing Land Use: County right-of-way
Vegetation: Area adjacent to right-of-way contains eucalyptus and cypress trees, and groundcover along slopes
Slope in area affected by project: ☒ 0 - 30% ☐ 31 – 100%
Nearby Watercourse: Twin Lakes Beach, Schwan Lake outfall
Distance To: Adjacent to right-of-way

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Water Supply Watershed: Arana Rodeo
Groundwater Recharge: No
Timber or Mineral: No
Agricultural Resource: No
Biologically Sensitive Habitat: See attached Biotic Report
Fire Hazard: No
Floodplain: Yes
Erosion: Yes
Landslide: No
Liquefaction: Yes
Fault Zone: No
Scenic Corridor: Not mapped as a visual resource area
Historic: No
Archaeology: Not mapped
Noise Constraint: No
Electric Power Lines: Yes
Solar Access: N/A
Solar Orientation: N/A
Hazardous Materials: No
Other:

SERVICES

Fire Protection: Central
School District: N/A
Sewage Disposal: County Sanitation
Drainage District: County Flood Control Zone 5
Project Access: East Cliff Drive Public right-of-way
Water Supply: Santa Cruz Water Department

PLANNING POLICIES

Zone District: PR and R-1-3.5, both to the center of the right-of-way
General Plan: Existing Parks and Recreation, Urban High Residential, both to the center of the right-of-way
Special Designation:

Urban Services Line:	☒ Inside	☐ Outside
Coastal Zone:	☒ Inside	☐ Outside

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

The proposed project is located along East Cliff Drive between 5th and 7th Avenue, adjacent to Twin Lakes Beach within the Live Oak Planning Area. East Cliff Drive is

the main east/west coastal route between Capitola and Santa Cruz and provides access for vehicles, pedestrians and bicyclists to and from surrounding residential areas to the Santa Cruz Yacht Harbor and the beaches in the vicinity, including the California State Park Twin Lakes Beach.

This section of East Cliff Drive is a 60 foot to approximately 110 foot wide public right-of-way currently developed with two travel lanes and a narrow shoulder with informal parking along the north and south side of the street. Parked vehicles straddle the roadway shoulder and beach area. Roadway improvements on East Cliff Drive do not currently occupy the full right-of-way. Sidewalk and bicycle lanes are absent and pedestrians share the roadway with vehicles, which creates traffic safety hazards for all. The right-of-way is constrained by steep slopes on the north side that extend upward and alongside residential properties, though a portion of the northern edge of the right-of-way toward 5th Avenue is at grade level. On the south side of the street there is a steep slope adjacent to and downward toward Twin Lakes Beach from the roadway.

There are numerous Blue Gum Eucalyptus trees (67 inch, 40 inch, 43 inch, 41 inch, 48 inch, and 45 inch size) located on the south side of East Cliff Drive across from 7th Avenue on State Park Property. There is a 24 inch Canary Island Date Palm located in front of the residence at 2616 East Cliff Drive located on the north side of East Cliff Drive. There are two Monterey Cypress trees (20- 24 inch, and 36 inch size) located on the north side of East Cliff Drive in close proximity to 6th Avenue.

Existing drainage along the East Cliff Drive right-of-way generally drains along four drainage basins. Surface flows from 5th Avenue drain toward East Cliff Drive and west toward the harbor. Drainage flows between 6th Avenue and Assembly Avenue drain toward the east to an existing drainage culvert on the north side of the street that directs flows under East Cliff Drive to an outfall at Twin Lakes Beach. 7th Avenue flows drain in two directions, east along East Cliff Drive toward an existing 15 inch drainage pipe to an outlet at Twin Lakes Beach and across the street to an existing catch basin located on the south side of the roadway intersection.

Background

This roadway improvement project was originally proposed by the Public Works Department and Redevelopment Agency (prior to the elimination of the Redevelopment Agency) to improve pedestrian and bicycle access and safety, and formalize parking within the right-of-way where improvements are limited or absent. Initially, the Redevelopment Agency held community meetings for the Twin Lakes beachfront improvement project proposed on East Cliff Drive between 5th Avenue and 12th Avenue. Due to the complexity of the overall project, complicated community input, and ultimately a lack of community consensus on the beachfront portion of the project, the Agency divided the beachfront improvement project into three separate improvement projects, phases, if you will, so each segment could address the specific issues related to each and the Agency could provide additional community meetings as necessary. This resulted in the Lake and 5th Avenue improvement project (Phase 1), East Cliff

Drive improvement project from 9th Avenue to 12th Avenue (Phase 2), and East Cliff Drive Improvement project from 5th Avenue to 9th avenue (Phase 3).

Phase 1, the Lake and 5th Avenue improvement project, was completed in 2003. Prior to construction of the Phase 2, 9th to 12th Avenue, the project funding was cut by the Redevelopment Agency in anticipation of the elimination of the Redevelopment Agency by the State of California. The project has been put on-hold unless funding becomes available in the future.

For Phase 3, between 5th Avenue to 9th Avenue, the Redevelopment Agency held three community meetings on September 27, 2007, January 10, 2008, and on May 1, 2008, where a consensus was achieved. The Concept Plan was submitted to the Board of Supervisors and approved August 12, 2008. However, as a result of elimination of the Redevelopment Agency, construction funding was reduced by the Redevelopment Agency and the project scope has been revised from 5th Avenue to 7th Avenue instead of 5th to 9th Avenue as originally proposed

DETAILED PROJECT DESCRIPTION:

The proposed project improvements are located within the East Cliff Drive public right-of-way, with exception of a construction area encroachment within the California State Parks property on Twin Lakes Beach for construction of the bluff stabilization protection structure.

Right-of-way Improvements

On the south side of the street proposed improvements include the construction of a shoreline bluff protection structure from the 5th Avenue traffic circle to the vicinity of the Twin Lakes Beach restroom building location located south of 7th Avenue. Curb, gutter, and a six foot to approximately ten foot (in places) meandering sidewalk is proposed along the south side of the street. Fourteen diagonal parking spaces (including one handicapped space) are proposed on the south side. An accessible pathway is proposed from the traffic circle to Twin Lakes Beach. A pedestrian stairway access to Twin Lakes Beach is proposed on adjacent to the Twin Lakes Beach restroom.

On the north side of the street roadway improvements include curb, gutter, and an informal decomposed granite pathway between 5th and 6th Avenue and a 4 foot sidewalk between 6th and Assembly Avenue. Curb cuts are proposed at existing residential driveways. Pedestrian crosswalks are proposed across 6th Avenue and across East Cliff Drive at 6th Avenue, across Assembly Avenue, and at the 7th Avenue and East Cliff Drive intersection. A three foot retaining wall is proposed behind the sidewalk east of 6th Avenue to address grade issues at the corner and to protect an existing Monterey Cypress tree. Four diagonal parking spaces are proposed on the north side of the street between 5th and 6th Avenue and two motorcycle spaces are proposed to the east of Assembly Avenue.

Drainage

The proposed drainage improvements include the installation of curb and gutter along the entire length of the roadway project, which will direct existing run-off to existing or proposed drainage facilities. The project includes the removal and replacement of an existing 15 inch drainage pipe located on the south side of East Cliff Drive that outfalls to Twin Lakes Beach, opposite the intersection of 7th Avenue and East Cliff Drive. Four additional drainage inlets and associated water quality treatment units are proposed on the north side of East Cliff Drive, east and west of 6th Avenue, and on the south side of East Cliff Drive across from 6th Avenue. Finally, an 18 inch water quality treatment unit is proposed on each side of two existing drainage catch basins located on the north and south side of East Cliff Drive. These improvements are proposed to re-route and improve water quality of existing flows before they runoff into Twin Lakes Beach and Monterey Bay.

Grading

Overall project grading includes approximately 1158 cubic yards of cut and 2338 cubic yards of fill, which was determined by analysis of proposed versus existing road surface elevation. The volumes do not include asphalt and base rock removal, replacement of the existing roadway surface, or over-excavation and re-compaction of roadway materials. Plans show approximately 10,260 cubic yards excavation, of which 80 to 90 percent is beach sand, required for construction of bluff stabilization structure. This volume is proposed to be stock piled alongside the construction zone until it can be put back in place at the base of the structure.

A grading permit is not required for this project as Public Works Projects are exempt where the proposed work does not impact a mapped resource of hazardous or critical concern. No mapped resource has been identified at this location. Winter grading is proposed for this project due to biotic constraints and public access requirements of the State Parks Department.

Significant Tree Removal

Four eucalyptus trees adjacent to the roadway are recommended to be pruned to reduce potential hazards to existing and future improvements. Two eucalyptus trees will not be affected by the proposed work. In addition, an existing Canary Island Date Palm is located within the construction area and must be removed. The two Monterey Cypress trees are required to be removed due to their location within the roadway widening area. Plans call for replacement of removed significant trees with three 15 gallon Monterey Cypress trees.

Landscaping and Site Amenities

The plans provide native perennials and grasses within all right-of-way areas that are un-utilized for parking, circulation, walkways, or driveways. Seat-wall islands within the meandering walkway also provide native plantings. Two Monterey Cypress trees are proposed on the north side of the street and one Monterey Cypress tree is proposed on the south side of the street.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault 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.	☐	☐	☒	☐
B. Strong seismic ground shaking?	☐	☐	☒	☐
C. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
D. Landslides?	☐	☐	☒	☐

Discussion (A through D):

The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone (County of Santa Cruz GIS Mapping, California Division of Mines and Geology, 2001). However, this project is located in a seismically active region of northern California, as the October 17, 1989 earthquake amply demonstrated, and is relatively close to the San Andreas Fault. The Working Group on California Earthquake Probabilities[1] estimates that Northern California has a 30-year probability of 93% for the occurrence of an M≥6.7 earthquake, and a 15% probability of an M≥7.5 earthquake. The nearby San Andreas Fault by itself has a 30-year probability of 21% of generating an M≥6.7 earthquake. Very strong ground shaking is likely to occur at the site during the anticipated lifetime of the project and, therefore, proper grading, structural and foundation design is imperative. In addition to the San Andreas, other nearby fault systems capable of producing intense seismic shaking on this property include the San Gregorio, Zayante, Sargent, Hayward, Butano, and Calaveras faults,

[1] Working Group on California Earthquake Probabilities - Historic California Earthquake Catalog, 2007 Working Group on California Earthquake Probabilities, 2008, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2): U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 [http://pubs.usgs.gov/of/2007/1437/].

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

and the Monterey and Corralitos fault complexes.

Rogers E. Johnson prepared a geologic investigation, dated October 16, 1995 and an updated report, dated June 4, 2009 (Attachment 3). Haro, Kasunich and Associates prepared a geotechnical investigation, dated June 5, 2009 and an updated report, dated August 27, 2009 (Attachment 4). These reports have been reviewed and accepted by the Environmental Planning Section of the Planning Department (Attachment 5). The reports conclude that fault rupture would not be a potential threat to the proposed development, and that seismic shaking and liquefaction can be managed by constructing the wall with deep piers or piles, or embedment of the wall into the bedrock platform or below design scour elevations, and by following the recommendations in the geologic and geotechnical reports referenced above.

2. 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?	☐	☒	☐	☐

Discussion: The reports cited above concluded that there is a potential risk from liquefaction, shaking, settlement and scour of beach deposits by wave action that may result in wall failure as a result of the project. As recommended by the geotechnical engineer in the Geotechnical Review of Conceptual Project Plans, dated February 23, 2012 (Attachment 6) and the project engineering geologist in the Revised Preliminary Plan Review, dated February 21, 2012 (Attachment 7), additional subsurface exploration is recommended to be conducted along the entire seawall alignment of the project to determine depths to bedrock for project structural engineering design and construction planning to ensure that this potential risk is minimized. Prior to final approval, the recommendations contained in the geotechnical report, including construction of the wall with deep piers or piles or embedment of the wall into the bedrock platform or below design scour elevations, and proper design of engineered fills, shall be incorporated into the final design to reduce this potential hazard to a less than significant level.

3. Develop land with a slope exceeding 30%?	☐	☐	☒	☐

Discussion: There are slopes that exceed 30% on the property on the south side of East Cliff Drive. However, proposed improvements will reinforce the slope and be designed to increase stability for the road and pedestrian improvements.

4. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Discussion: An excavation and stockpile plan has been provided showing the volume and location of proposed stockpiles. In addition, an erosion control plan has been provided that includes provisions for protecting the stockpiled material and for

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

disturbed areas to be planted with ground cover at the completion of the project.

5.	Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007), creating substantial risks to life or property?	☐	☐	☐	☒

Discussion: There is no indication that the development site is subject to substantial risk caused by expansive soils.

6.	Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems where sewers are not available?	☐	☐	☒	☐

Discussion: No septic systems are required or proposed by the project. The project is a road improvement project.

7.	Result in coastal cliff erosion?	☐	☐	☒	☐

Discussion: The proposed project is for a coastal protection structure to reinforce the existing cliff overlooking Twin Lakes Beach and stabilize the roadway and pedestrian improvements. The project will not result in coastal cliff erosion as the wall will be designed to resist erosion as recommended by the project engineering geologist and soils engineer. The proposed project will reduce existing erosion through stabilization of the cliff, drainage control, landscaping, and maintenance. No erosion will result from the project.

B. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Would the project:

1.	Place development within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, a portion of the project site lies within the special flood hazard area. Still water levels (SWLs) and total water levels (TWLs) were developed for the project area in an analysis prepared by Halcrow, Inc, dated August 1, 2011 (Attachment 8). The analysis, acceptable by FEMA standards (Attachment 9), states that the proposed improvements will not negatively impact existing adjacent properties and structures.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, a portion of the project site lies within a 100-year flood hazard area. The proposed improvements are next to Twin Lakes Beach and will not impede flow or modify the geometry of the roadway in such a manner that redirects flood flows. In addition, the analysis by Halcrow, Inc. referenced in item 1above states that the proposed improvements will not negatively impact existing adjacent properties and structures. A plan review letter from Halcrow, Inc. has been provided, stating that the plans are consistent with the report's recommendations (Attachment 10).

3. Be inundated by a seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion: The proposed project is for a coastal protection structure to reinforce the existing cliff overlooking Twin Lakes Beach and stabilize the roadway and pedestrian improvements. There is a possibility that the proposed improvements would be inundated by a tsunami, however, the proposed improvements will not increase nor exacerbate this possibility. Rather, the coastal protection structure will provide better protection from a tsunami for the roadway and existing structures beyond it.

4. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒

Discussion: The project does not require ground water and is not located in a mapped groundwater recharge area.

5. Substantially degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).	☐	☐	☐	☒

Discussion: The project would not discharge runoff either directly or indirectly into a

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
public or private water supply.				
6. Degrade septic system functioning?	☐	☐	☐	☒

Discussion: There is no indication that existing septic systems in the vicinity would be affected by the project.

7. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding, on- or off-site?	☐	☐	☒	☐

Discussion: Although the proposed project is located adjacent to the outfall of Schwan Lake, a coastal lagoon, the proposed project would not alter the existing overall drainage pattern of the site. The Department of Public Works Drainage Section staff has reviewed and approved the drainage calculations dated November 22, 2011 (Attachment 5) and the proposed drainage plan included in the project plans. Drainage comments are attached as Attachment 8.

8. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

Discussion: Drainage Calculations prepared by rrmdesigngroup, dated November 22, 2011 (Attachment 11), have been reviewed for potential drainage impacts and accepted by the Department of Public Works (DPW) Drainage Section staff. (Attachment 8) The drainage report identifies that the project will result in a minimal increase in impervious area as a result of the project. The existing drainage infrastructure does not require significant changes. The calculations show that the storm drainage infiltration system can handle a 25 year design storm event. The proposed drainage improvements, including the installation of additional drainage inlets adjacent to 6th Avenue and across the street from 6th Avenue, and the addition of water quality treatment at two existing inlets located on the north and south side of East Cliff Drive will re-route and improve water quality of a portion of existing flows before they runoff into Twin Lakes Beach and Monterey Bay. DPW staff has determined that existing storm water facilities and proposed improvements are adequate to handle the small increase in drainage associated with the project. Refer to response B-5 for discussion of urban contaminants and/or other polluting runoff.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

Discussion: The project is not located within proximity to a levee or dam.

10. Otherwise substantially degrade water quality?	☐	☐	☒	☐

Discussion: The project includes the addition of water quality treatment units alongside two existing inlets along East Cliff Drive and the addition of water quality treatment units at each of the four proposed inlets in the vicinity of 6th Avenue. Public Works comments (Attachment 8) note that the 18th inch square water quality treatment inlets are too small for maintenance by County maintenance. Plans will be conditioned to ensure that inlet size complies with the minimum standard to ensure that water quality may be maintained and significant impacts do not occur.

C. 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 Game, or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Discussion: A Biotic Report was prepared for this project by Johns Gilchrist and Brian Mori, dated January 29, 2010 (Attachment 14). This report has been reviewed and accepted by Matt Johnston, County Planning Department (Attachment 13). The biotic assessment identifies potential impacts to nesting birds, and recommends preconstruction surveys and buffer zones should active nests be present in the work area. In order to ensure impacts are less than significant, prior to site disturbance the project biologist will conduct preconstruction surveys for nesting birds. If active nests are present the biologist will establish buffer zones. The size of which will be determined based upon the species of birds. Work within the buffer zones will only proceed when birds have fledged.

2. 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,	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
special forests, intertidal zone, etc.) or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				

Discussion: No sensitive habitat has been identified within the project disturbance area.

3. 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 or migratory wildlife nursery sites?	☐	☐	☒	☐

Discussion: See C-1 for discussion.

4. Produce nighttime lighting that would substantially illuminate wildlife habitats?	☐	☐	☒	☐

Discussion: The development area is adjacent to a small grove of eucalyptus trees, which are noted in the Biotic Report under C-1 to provide nesting habitat for a variety of nesting birds, including cormorants. The right-of-way development area is adjacent to residential development and existing power poles that generate nighttime lighting. The project does not propose additional street lighting and the will not adversely affect nesting habitat within the eucalyptus trees.

5. 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?	☐	☐	☒	☐

Discussion: Although the project site is within the vicinity of Schwan Lake, the project development improvements will not directly impact this wetland.

6. 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	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Ordinance)?

Discussion: The project includes the removal of two significant trees (a 24 inch Monterey Cypress and a 24 inch Palm tree) and recommended pruning of four Eucalyptus trees. Based upon the arborist report, prepared by Nigel Belton, dated August 4, 2009 and updated March 24, 2010 (Attachment 12), findings can be made for the tree removal. Removed trees will be replaced on a 3 to 1 basis, which will ensure that the project does not result in a significant impact. As the project is in conformance with the significant tree ordinance and there is no sensitive habitat on site, the project will not conflict with local policies.

7.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion: The proposed 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.

D. AGRICULTURE AND FOREST 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:

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?	☐	☐	☐	☒

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

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

use. No impact would occur from project implementation.

2.	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Discussion: The project site is a public right-of-way, 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.

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))?	☐	☐	☐	☒

Discussion: The project is not adjacent to land designated as Timber Resource.

4.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion: No forest land occurs on the project site or in the immediate vicinity. No impact is anticipated.

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?	☐	☐	☐	☒

Discussion: The project site and surrounding area is located within an urban area and does not contain any lands designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance or Farmland of Local Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide, or Farmland of Local Importance would be converted to a non-agricultural use. Therefore, no impacts are anticipated.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

E. 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?	☐	☐	☐	☒

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?	☐	☐	☐	☒

Discussion: The project site is located within a public right-of-way, 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.

F. VISUAL RESOURCES AND AESTHETICS

Would the project:

1.	Have an adverse effect on a scenic vista?	☐	☐	☒	☐

Discussion: The project would not directly impact any public scenic resources, as designated in the County's General Plan (1994), or obstruct any public views of these visual resources.

2.	Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐

Discussion: The project site is not located along a County designated scenic road, public view-shed area, scenic corridor, within a designated scenic resource area, or within a state scenic highway. Therefore, no impact is anticipated.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3. Substantially degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridgeline?	☐	☐	☒	☐

Discussion: Although the project is not mapped within a protected scenic resource area, as identified and mapped in the General Plan, the project is located along the coast and provides views of the surrounding ocean, coastal bluff, Twin Lakes State Beach and Schwan Lagoon by pedestrians and vehicle occupants. While County visual resource protection regulations only apply to public view sheds, coastal protection ordinances require that improvements within the coastal zone are designed to be visually compatible and integrated with the area and required to minimize site disturbance and to retain all mature trees over 6 inches in diameter where feasible.

Project improvements are proposed within the East Cliff Drive right-of-way and within small portions of Twin Lakes State Beach. The proposed improvements will provide enhanced views of the lake and ocean, which is a beneficial impact of the project.

The project includes a bluff stabilization structure along the south side of the right-of-way that follows the natural topography of the coastal bluff and mimics the natural character of the bedrock. Visual simulations provided by the applicant show the appearance of the bluff stabilization structure upon construction. The proposed improvements provide neutral earth tone materials and colors intended to blend the improvements with the surroundings. No significant visual impacts are anticipated by the proposed bluff stabilization structure.

There are three significant trees, two Monterey Cypress trees, and a Date Palm tree, located within the East Cliff Drive right-of-way that are required to be removed for proposed roadway widening. The plans provide three 15 gallon replacement Monterey Cypress trees. Per the significant tree protection ordinance, it is recommended that removed trees be replaced on a three to one basis. This would mitigate the loss of the trees and ensure that the natural character of the coast is not significantly impacted as a result of the project.

4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion: The project does not propose additional light poles or include additional lighting on existing street poles and will therefore not adversely affect day or nighttime views in the area.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

G. CULTURAL RESOURCES

Would the project:

1.	Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	☐	☐	☐	☒

Discussion: There are no existing structures within the right-of-way. Therefore the project would not affect a historical resource.

2.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☒	☐

Discussion: No archeological resources have been identified in the project area. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, 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 County Code Chapter 16.40.040.

3.	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion: Pursuant to Section 16.40.040 of the Santa Cruz County Code, 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 archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

4.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Discussion: None have been identified on site.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

H. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

1.	Create a significant hazard to the public or the environment as a result of the routine transport, use or disposal of hazardous materials?	☐	☐	☐	☒

Discussion: The project does not involve the transport or use of hazardous materials.

2.	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?	☐	☐	☐	☒

Discussion: See Item H.1, above.

3.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

Discussion: See Item H.1, above.

4.	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?	☐	☐	☐	☒

Discussion: The project site is not included on the list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

5.	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 for people residing or working in the project area?	☐	☐	☐	☒

Discussion: No airport is located within close proximity to the site.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Discussion: See H. 5 above.

7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Discussion: The proposed road widening, pedestrian sidewalk, improved bicycle lanes and diagonal parking areas will not impair emergency response or emergency evacuation and may have a beneficial impact for pedestrian evacuation.

8. Expose people to electro-magnetic fields associated with electrical transmission lines?	☐	☐	☒	☐

Discussion: The project proposes to relocate existing electric poles. However, no new electrical transmissions lines are proposed as part of this project. This would result in a less than significant impact.

9. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion: The project design incorporates all applicable fire safety code requirements and includes two additional fire hydrants in the final design plans as required by the local fire agency.

I. TRANSPORTATION/TRAFFIC

Would the project:

1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				

Discussion: There would be no impact because no additional traffic would be generated as a result of roadway improvements. Proposed improvements would result in greater compliance with the arterial street improvement standards, which require two travel lanes, sidewalk on both sides of the street, and bicycle lanes, and improve traffic and pedestrian safety.

2. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

Discussion: There are no impacts to air traffic.

3. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Discussion: The proposed project provides improvements within the East Cliff Drive right-of-way between 5th Avenue and 7th Avenue that address existing traffic safety considerations. This includes provision of two full travel lanes, two full bicycle lanes, four foot walkway on the north side of the street where feasible, approximately six to ten foot sidewalk on the south side, pedestrian crosswalks, diagonal parking, accessible access to the beach, landscaping, and drainage improvements.

These improvements are designed to reduce hazards related to vehicle, bicycle, and pedestrian traffic and are a beneficial impact as a result of the project.

4. Result in inadequate emergency access?	☐	☐	☒	☐

Discussion: It is anticipated that one lane of traffic would be temporarily closed during hours of construction operations. The contractor shall implement a traffic control and local detour plan. This plan is required to be submitted to the Public Works Department for written approval a minimum of 5 days prior to construction. In order to mitigate impacts to emergency access, one lane of traffic will remain open at all times so that fire trucks, ambulances and other emergency vehicles will not be blocked from using the road at any time. Implementation of these construction practices will ensure that emergency access and/or traffic circulation impacts are less than significant impacts.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
5. Cause an increase in parking demand which cannot be accommodated by existing parking facilities?	☐	☐	☒	☐

Discussion: The project is not subject to parking requirements since it is a pedestrian, bicycle, and roadway improvement project that will not create new uses that generate additional parking needs.

Roadway improvements are proposed to address traffic safety issues along East Cliff Drive between 5th and 7th Avenue. This area currently provides informal parking along the shoulder of the roadway, with vehicles parking mostly on the beach, which is a hazard vehicles, pedestrians, and bicyclists due to limited developed right-of-way area. Roadway improvements will improve traffic, circulation, public safety, and maximize parking where feasible.

6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion: The proposed project would comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians by provision of two full travel lanes, two full bicycle lanes, sidewalk, and pedestrian crosswalks within the county right-of-way.

7. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the County General Plan for designated intersections, roads or highways?	☐	☐	☒	☐

Discussion: See response I-1 above.

J. NOISE

Would the project result in:

1. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒

Discussion: The project will not create a permanent incremental increase in the existing noise environment as the project is a roadway improvement project and does not involve on-going noisy operations.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☒	☐	☐

Discussion: Project construction involves saw cutting of pavement, which is a temporary noise impact. To mitigate for this noise, the project will be required to include hours of operation restricting these construction activities to after 8:30 am to minimize morning noise disturbance to surrounding residential uses. In addition, the contractor will be required to provide a noise notification sign alerting the public of the duration of the noise disturbance for this portion of the work. These measures will reduce the potential impacts to pedestrians and surrounding residential uses to less than significant.

3. Exposure of persons to or generation of noise levels in excess of standards established in the General Plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐

Discussion: See item J.2 above.

4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Discussion: Noise generated during construction would increase the ambient noise levels for adjoining areas. Construction would be temporary, however, and given the limited duration of this impact it is considered to be less than significant.

5. 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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: The project is not located within an airport land use plan area.

6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: The project is not located within an airport land use plan area.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

K. AIR QUALITY

Where available, the significance criteria established by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) may be relied upon to make the following determinations. Would the project:

1.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

Discussion: The North Central Coast Air Basin does not meet State standards for ozone and particulate matter (PM_{10}). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NO_x]), and dust.

The project will not result in any long term increases in pollutants because the project is intended as a roadway and pedestrian improvement project and is not expected to generate additional traffic that might result in new emissions of VOCs or NO_x pollutants and therefore there will not be a significant contribution to an existing air quality violation.

Project construction may result in a short-term, localized decrease in air quality due to generation of dust. However, standard dust control best management practices, such as periodic watering, are required to be implemented during construction to reduce impacts to a less than significant level. This is regulated by the Regional Air Quality Control Board Permit required prior to construction.

2.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Discussion: The project will not conflict with or obstruct implementation of the regional air quality plan. See K-1 above.

3.	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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

Discussion: See K1 above.

4.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Discussion: See K1 above.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
5. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion: The on-going operation does not involve objectionable odors.

L. GREENHOUSE GAS EMISSIONS

Would the project:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Discussion: The proposed project, like all development, would be responsible for an incremental increase in green house gas emissions by usage of fossil fuels during the site grading and construction. At this time, Santa Cruz County is in the process of developing a Climate Action Plan (CAP) intended to establish specific emission reduction goals and necessary actions to reduce greenhouse gas levels to pre-1990 levels as required under AB 32 legislation. Until the CAP is completed, there are no specific standards or criteria to apply to this project. All project construction equipment would be required to comply with the Regional Air Quality Control Board emissions requirements for construction equipment. As a result, impacts associated with the temporary increase in green house gas emissions are expected to be less than significant.

2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion: See the discussion under L-1 above. No impacts are anticipated.

M. PUBLIC SERVICES

Would the project:

1. 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:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks or other recreational activities?	☐	☐	☐	☒
e. Other public facilities; including the maintenance of roads?	☐	☐	☐	☒

***Discussion (a through e)*:** The project does not involve the development of increased land use intensity and therefore will have no impacts to public service requirements. The project may result in improved access to the Twin Lakes Beach and improved fire and police protection as a result of improved roadway standards.

N. RECREATION

Would the project:

1. 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?	☐	☐	☒	☐

***Discussion*:** The project is a roadway and roadside improvement project that addresses the need for improved parking, pedestrian, and bicycle access to existing coastal recreational uses at Twin Lakes Beach and the Harbor. The project will address needed public safety improvements and deterioration of public facilities, which is a beneficial impact.

2. 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?	☐	☐	☐	☒

***Discussion*:** The project is a roadway and roadside improvement project that addresses the need for improved parking, pedestrian and bicycle access to existing coastal recreational uses at Twin Lakes Beach and the Harbor. The project will address needed public safety improvements and deterioration of public facilities, which is a beneficial impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

O. UTILITIES AND SERVICE SYSTEMS

Would the project:

1.	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Discussion: Drainage reports prepared by rrmdesigngroup, dated July 19, 2011 and November 22, 2011 (Attachment 11) provides additional drainage inlets and siltation traps intended to improve the quality of the water treatment provided to existing run-off. The project does not result in an appreciable increase in run-off. Department of Public Works Drainage staff has reviewed the drainage information and have determined that downstream storm facilities are adequate to handle the small increase in drainage associated with the project (Attachment 16).

2.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

Discussion: The project does not involve or require connection to an existing municipal water supply because the project is a road improvement project. Per the attached project plans, municipal water lines will not be affected as a result of project construction.

The project does not require municipal sewer service either. Per the Sanitation District, the plans have been reviewed and approved as proposed.

3.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

Discussion: The project will not result in any wastewater flows.

4.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

Discussion: The project does not involve or require water supplies since it is a road improvement project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
5. 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?	☐	☐	☐	☒

Discussion: The project is a road improvement project and does not involve wastewater use.

6. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

Discussion: Per the Grading Report, prepared by rrmdesigngroup, dated July 19, 2011 (Attachment 15), the project requires grading of 1158 cubic yards of cut and 2338 cubic yards of fill, with an overall 1180 cubic yards of fill. Any required off-haul is required to be taken to the County landfill, which currently has adequate capacity for the project's disposal requirements.

7. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion: Adequate capacity exists for any required off-haul.

P. LAND USE AND PLANNING

Would the project:

1. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion: The proposed project does not conflict with any regulations or policies adopted for the purpose of avoiding or mitigating an environmental effect.

2. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion: The project is not located within a habitat conservation plan or natural

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

community conservation plan area.

3.	Physically divide an established community?	☐	☐	☐	☒

Discussion: The project would not include any element that would physically divide an established community.

Q. POPULATION AND HOUSING

Would the project:

1.	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Discussion: The proposed project would not induce substantial population growth in an area because the roadway improvement project does not propose any physical or regulatory change that would remove a restriction to or encourage population growth in an area including, but limited to the following: new or extended infrastructure or public facilities; new commercial or industrial facilities; large-scale residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes including General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations; or LAFCO annexation actions.

The proposed project would not extend the road or increase its capacity.

2.	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion: The proposed project would not displace any existing housing since the site is a roadway and does not contain housing.

3.	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Discussion: The proposed project would not displace a substantial number of people since the site is an existing roadway and does not contain housing.

R. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
1. Does the project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal community, 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?	☐	☒	☐	☐

Discussion: The potential to 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, 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 of this Initial Study. Resources that have been evaluated as significant include mitigation measures that clearly reduce these effects to a level below significance. These mitigation measures are identified in the body of the report. 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.

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
2. 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)?	☐	☐	☒	☐

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

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts to human beings were considered. As a result of this evaluation, there is no substantial evidence that, after mitigation, there are adverse effects to human beings associated with this project. See body of initial study for recommended mitigation measures. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. TECHNICAL REVIEW CHECKLIST

	REQUIRED	DATE COMPLETED
Agricultural Policy Advisory Commission (APAC) Review	Yes ☐ No ☒	
Archaeological Review	Yes ☐ No ☒	
Biotic Report/Assessment	Yes ☒ No ☐	January 29, 2010
Geologic Hazards Assessment (GHA)	Yes ☐ No ☒	
Geologic Report	Yes ☒ No ☐	Report dated June 4, 2009 and the Revised Preliminary Plan Review dated February 21, 2012 by Rogers E. Johnson and Associates; and Conceptual Design of Coastline Protection Structures by Halcrow, dated August 2011
Geotechnical (Soils) Report	Yes ☒ No ☐	Geotechnical and Coastal Engineering Investigation Report dated June 2009 and updated August 2009 by Haro, Kasunich, and Associates, Inc.
Riparian Pre-Site	Yes ☐ No ☒	
Septic Lot Check	Yes ☐ No ☒	
Other:	Yes ☒ No ☐	
Arborist Report		Dated, August 4, 2009 and updated March 4, 2010
Drainage Report		Dated, November 22, 2011
Grading Report		Dated, July 19, 2011

V. REFERENCES USED IN THE COMPLETION OF THIS eNVIRONMENTAL rEVIEW INITIAL STUDY

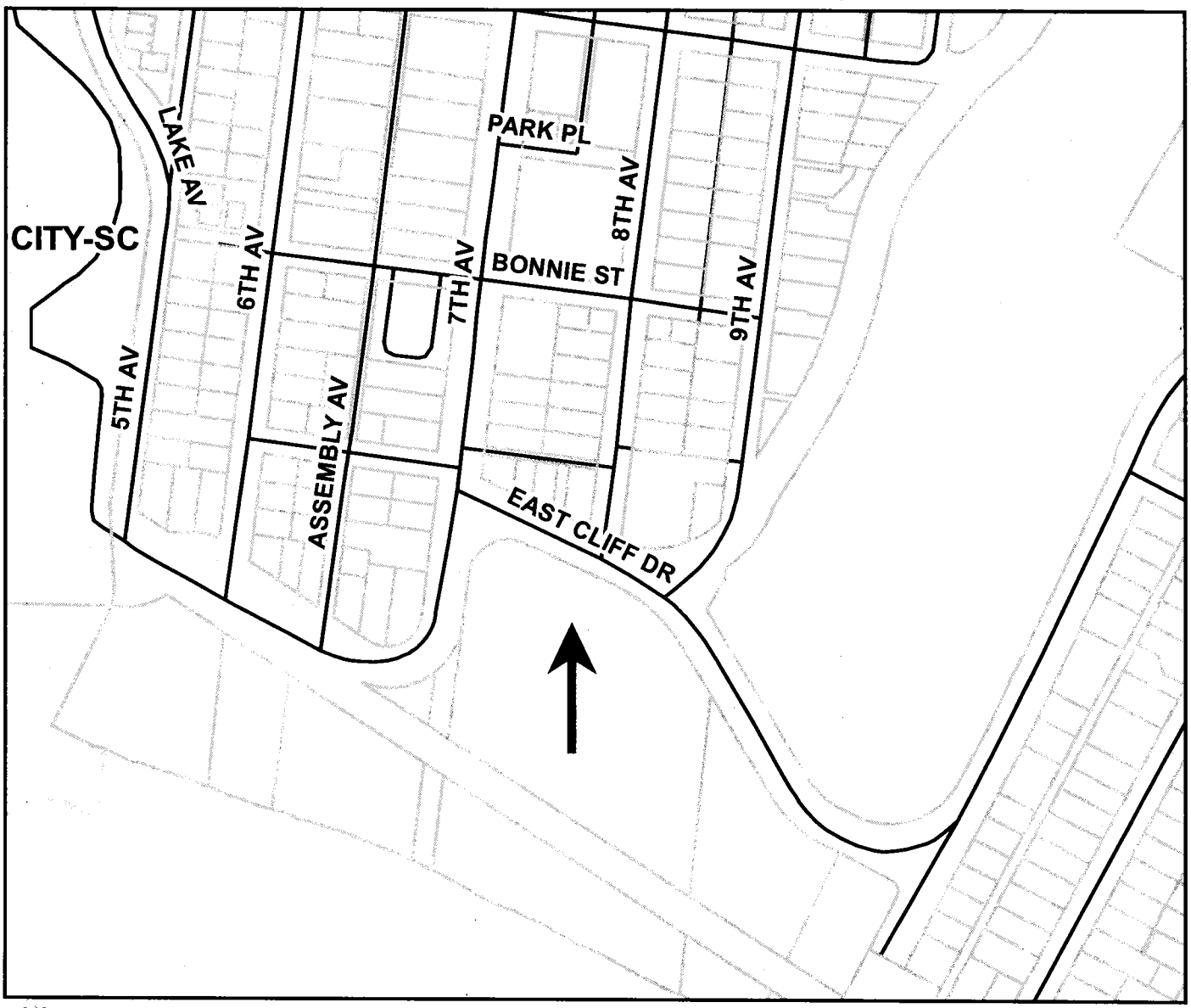
County of Santa Cruz 1994 *General Plan and Local Coastal Program for the County of Santa Cruz, California*. Adopted by the Board of Supervisors on May 24, 1994, and certified by the California Coastal Commission on December 15, 1994.
Santa Cruz County GIS Mapping System, Planning Department Web Site
2010 Santa Cruz County Regional Transportation Plan
Volume II of the Zoning Ordinance

VI. ATTACHMENTS

Report attachments include summary excerpts only - full report available on file at the County Planning Department

1. Vicinity Map, Map of Zoning Districts, Map of General Plan Designations, Assessor's Parcel Map
2. Project Plan Sheets 1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, prepared by rrmdesigngroup, dated November 22, 2011
3. Updated Geologic Investigation (Report Summary, Conclusions, Recommendations) by Rogers E. Johnson, dated June 4, 2009
4. Geotechnical Investigation (Summary, Conclusions and Recommendations), dated June 2009
5. Report Review by Joe Hanna, County Geologist, dated October 17, 2011 of the Halcrow Sea Wall Design Report, dated August 1, 2011; Engineering Geology Report by Rogers E. Johnson and Associates, dated June 4, 2009; and, Geotechnical Engineering Report by Haro, Kasunich, and Associates, dated June 4, 2011
6. Geotechnical Review of Conceptual Project plans by Haro, Kasunich and Associates, Inc., dated February 23, 2012
7. Revised Preliminary Plan Review dated February 21, 2012 by Rogers E. Johnson and Associates
8. Halcrow Sea Wall Design Report, dated August 1, 2011(Report Summary, Conclusions, Recommendations)
9. FEMA Plan Review, dated January 18, 2012 of the Halcrow Seawall Design Report, dated August 1, 2011
10. Design Development Plan Review by Halcrow, dated February 23, 2012
11. Drainage calculations excerpts prepared by rrmdesigngroup, dated November 22, 2011 (Report Summary, Conclusions, Recommendations)
12. Arborists Report excerpts prepared by Nigel Belton, dated August 4, 2009, updated March 4, 2010 (Report Summary, Conclusions, Recommendations)
13. Biotic Report Review Letter prepared by Matt Johnston, County Planning Department, dated September 16, 2011
14. Biotic Report excerpts prepared by John Gilcrest and Associates, dated January 29, 2010 (Report Summary, Conclusions, Recommendations)
15. Grading Report excerpts, prepared by rrmdesigngroup, dated July 2011 (Report Summary, Conclusions, Recommendations)
16. Discretionary Application Comments
17. Board of Supervisors Route Concept Letter, dated August 12, 2008

Location Map



340 170 0 340 680 1,020 1,360

Feet

LEGEND

Assessors Parcels

Streets

SANTA CRUZ

N

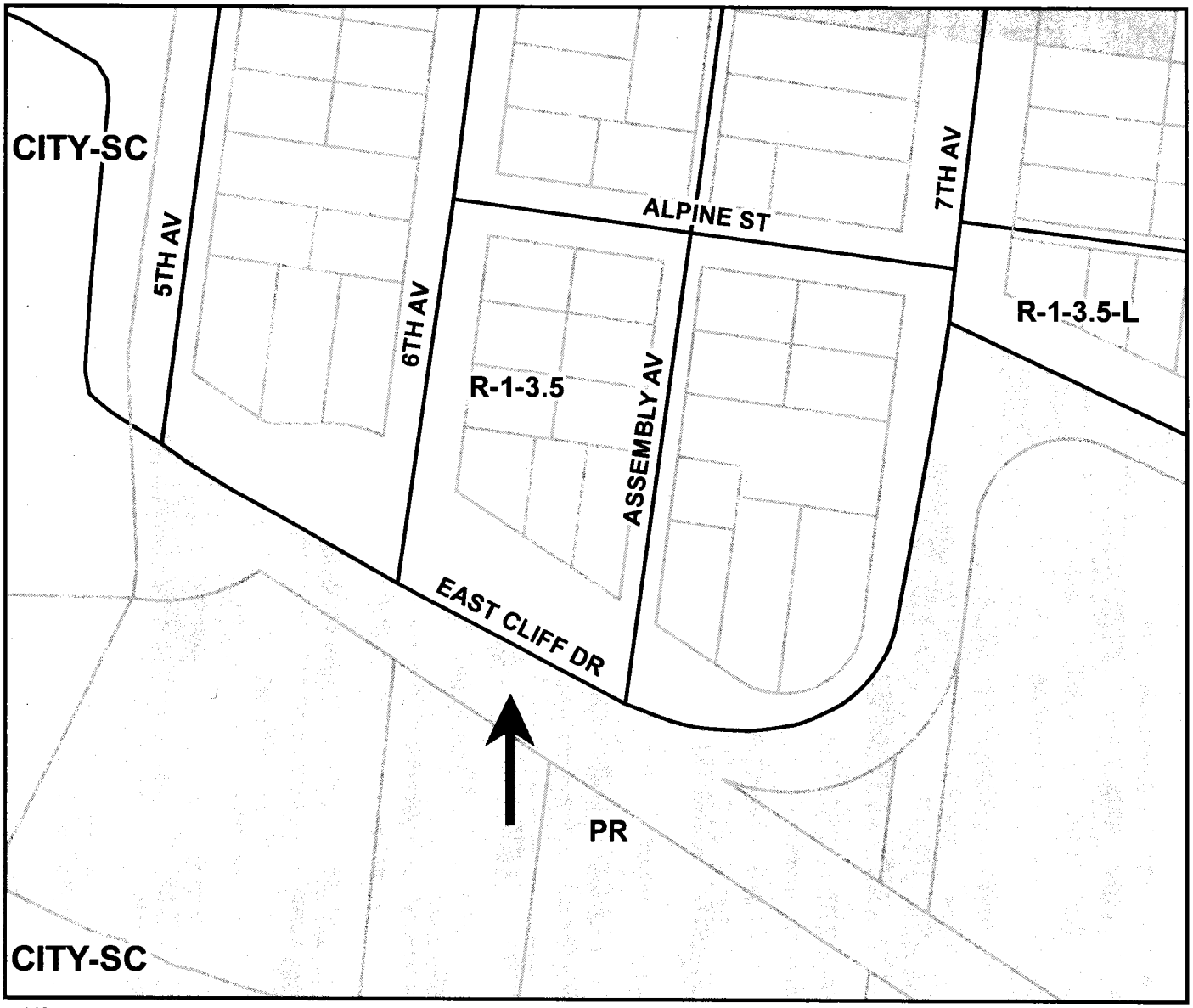
W E

S

Map Created by
County of Santa Cruz
Planning Department
August 2011

ATTACHMENT 1

Zoning Map



140 70 0 140 280 420 560 Feet

LEGEND

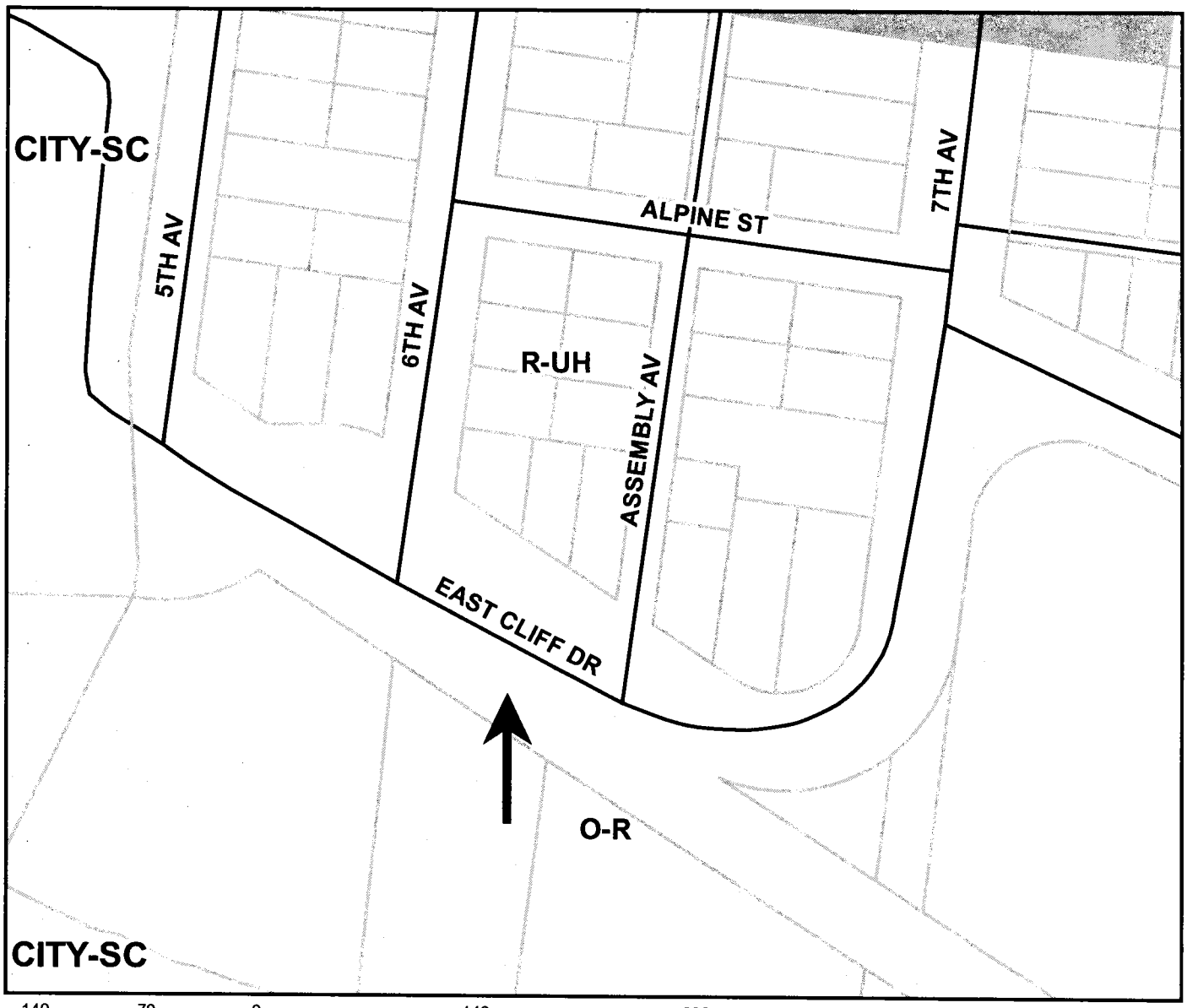
- Assessors Parcels
- Streets
- SANTA CRUZ
- RESIDENTIAL-SINGLE FAMILY
- PARK
- COMMERCIAL-NEIGHBORHOOD

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
August 2011

ATTACHMENT 1

General Plan Designation Map



140 70 0 140 280 420 560 Feet

LEGEND

- Assessors Parcels
- Streets
- SANTA CRUZ
- Residential - Urban High Density
- Parks and Recreation

N W E S

Map Created by
County of Santa Cruz
Planning Department
August 2011

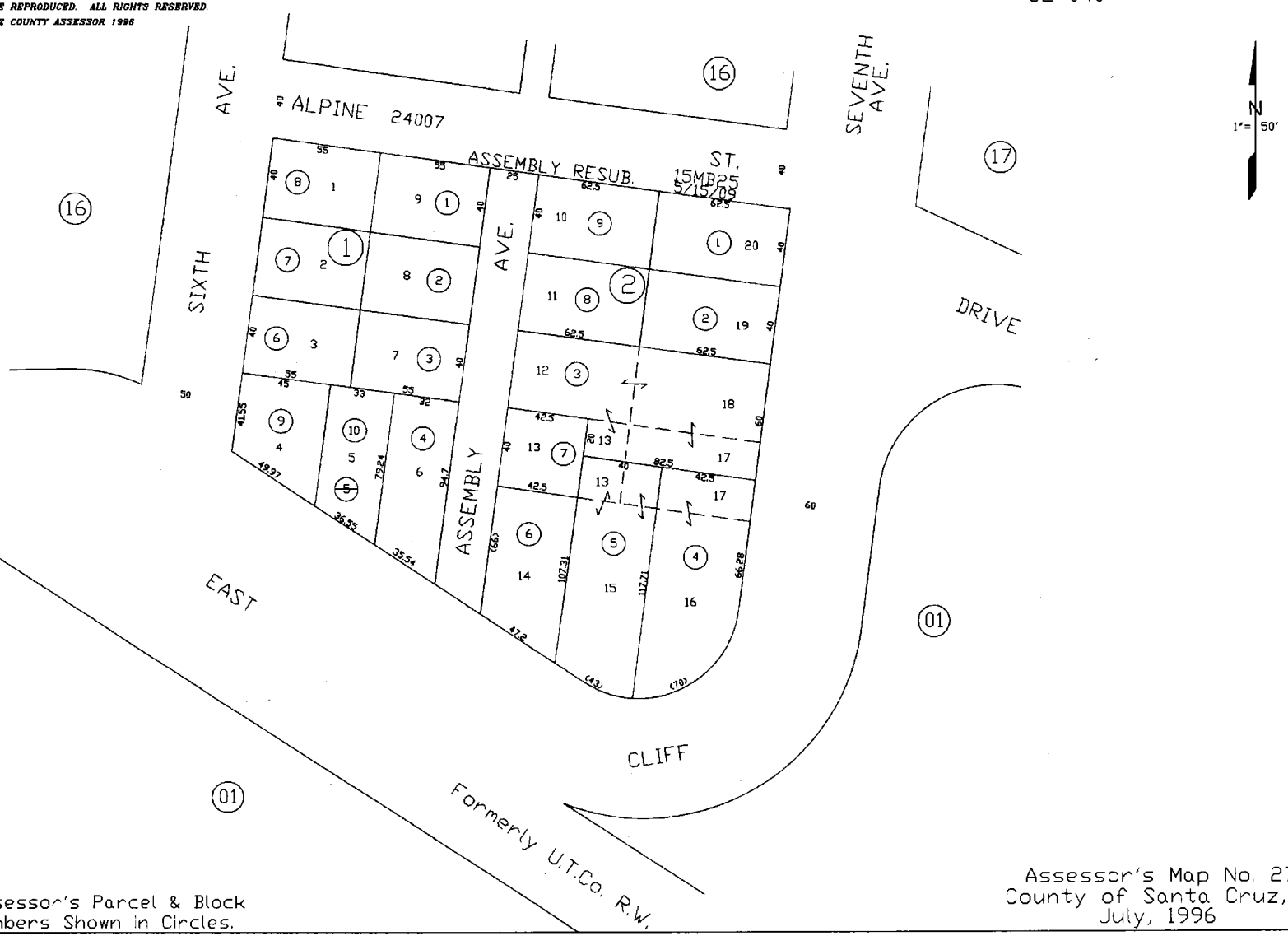
ATTACHMENT 1

FOR TAX PURPOSES ONLY

PTNR. OF N.W.1/4 SEC. 20, T.11S., R.1W., M.D.B. & M.

Tax Area Code
82-040

27-18



Note - Assessor's Parcel & Block Numbers Shown in Circles.

Assessor's Map No. 27-18
County of Santa Cruz, Calif
July, 1996

Electronically Redrawn 1/9/97 rw
Rev. 4/22/98 GG (CA Consolidation)
Rev. 4/3/01 nvn (Changed page refs.)

ATTACHMENT 1

COUNTY OF SANTA CRUZ DEPARTMENT OF PUBLIC WORKS

PERMIT REVIEW PLANS FOR CONSTRUCTION OF

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

5th Avenue to 7th Avenue

PROJECT DIRECTORY

APPLICANT
County of Santa Cruz Department of Public Works
701 Ocean Street, Room 410 — Phone: 831.454.2160
Santa Cruz, CA 95060 — Fax: 831.454.2385
Betsey Lynberg, Project Administrator
Sheryl Bailey, Project Manager

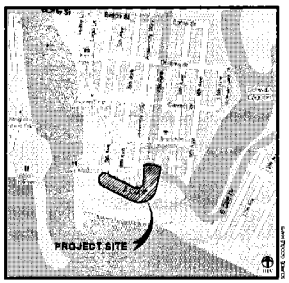
AGENT
Vanir Construction Management
4540 Duckhorn Drive, Suite 300 — Phone: 916.575.8888
Sacramento, CA 95834 — Fax: 916.575.8887
James R. Aboytes, Project Manger

LANDSCAPE ARCHITECT
RRM Design Group
3765 South Higuera Street, Suite 102 — Phone: 805.543.1794
San Luis Obispo, CA 93401 — Fax: 805.543.4609
Mike Sherrod, Project Manger

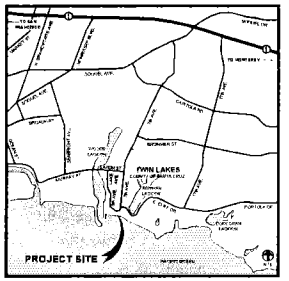
CIVIL ENGINEER
RRM Design Group
3765 South Higuera Street, Suite 102 — Phone: 805.543.1794
San Luis Obispo, CA 93401 — Fax: 805.543.4609
Jerry Michael, P.E.

COASTAL ENGINEER
Haltrory, Inc.
5740 Fleet Street, Suite 120 — Phone: 760.444.1130
Carlsbad, CA 92008 — Fax: -
Claudio Fassardi

STATE OF CALIFORNIA



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALTIC CONCRETE
ADJ	ADJACENT
AGG	AGGREGATE
ALT	ALTERNATE
APPROX/APPX	APPROXIMATE
BC / BOC	BACK OF CURB
BLDG	BUILDING
B/W	BACK OF WALK
CI	CAST IRON
C&G	CURB AND GUTTER
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUE
CP	CENTER POINT
CTR	CENTER
DET	DETAIL
DI	DRAIN INLET
DIA	DIAMETER
DIM	DIMENSION
DWY	DRIVEWAY
EA	EACH
ELEV	ELEVATION
EQ	EQUAL
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX, (E)	EXISTING
FC / FOC	FRONT OF CURB
FC	FINISHED GRADE
FIG	FIGURE
FL	FLOWLINE
FS	FINISHED SURFACE OF PAVING/SURFACING
FTG	FOOTING
G	GAS
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
LOC	LOCATION
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
PL	PROPERTY LINE
POB	POINT OF BEGINNING
PP	POWER POLE
PROP	PROPOSED
PUE	PUBLIC UTILITIES EASEMENT
PVMT/PVNG	PAVEMENT OR PAVING
R, RAD	RADIUS
REBAR	REINFORCING BAR
REF	REFERENCE
REM	REMOVE
REV	REVISION/S, REVISED
ROW	RIGHT OF WAY
S	SLOPE
SC	SAW CUT
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SHT	SHEET
SQ	SQUARE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SURF	SURFACE
SW	SIDEWALK
TC	TOP OF CURB
TF / TOF	TOP OF FOOTING
TW	TOP OF WALL
TYP	TYPICAL
VAR	VARIES
W	WATER
WM	WATER METER
WV	WATER VALVE
@	AT
℄	CENTERLINE

SHEET INDEX

PROJECT DESCRIPTION

The primary goal of the Twin Lakes Beachfront Project is to provide for pedestrian and bicycle access along East Cliff Drive from 5th Avenue to 7th Avenue, and also to provide connecting neighborhood access. In addition, the project will provide an upgraded storm drainage system, organized parking spaces, stabilization of the roadside and pathway edge, while at the same time designing these changes to protect the beachfront character and natural surroundings.

PROJECT BENCHMARK

County Benchmark #8
El.=18.85 (NGVD 29 Unadjusted)
Brass Disc in Concrete
Located 1' NE of Arnold M. Baldwin dedication plaque to the lands around Schwan Lake, 101' N from ℄ of East Cliff Drive at easterly edge of 5th Avenue.

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®
3765 South Higuera St., Ste. 102, San Luis Obispo, CA 93401
o: (805) 543-1794 | f: (805) 543-4609 | www.rrmdesign.com

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

TITLE SHEET

NO.	REVISION	DATE

PROJECT MANAGER: LM
DRAWN BY: MP
CHECKED BY: MS
DATE: February 10, 2012
CAD FILE: 1309513-TS.dwg
JOB NUMBER: 1309513
SHEET: 1.1

ATTACHMENT 2

SURVEY PROVIDED BY SANTA CRUZ COUNTY

EXISTING CONDITIONS

0 20 40 80 feet
SCALE 1"=20'
NORTH

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

EXISTING CONDITIONS

February 10, 2012
1309513
1.2

ATTACHMENT 2

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

ILLUSTRATIVE PLAN

rrmdesigngroup
creating environments people enjoy®

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

NO.	REVISION	DATE

PROJECT MANAGER: [redacted]
DESIGNED BY: [redacted]
DRAWN BY: [redacted]
CHECKED BY: [redacted]
DATE: February 10, 2012
SCALE:
1309513 ILLUST PLAN.dwg
JOB NUMBER: 1309513
SHEET: 2.1

ATTACHMENT 2

ATTACHMENT 2

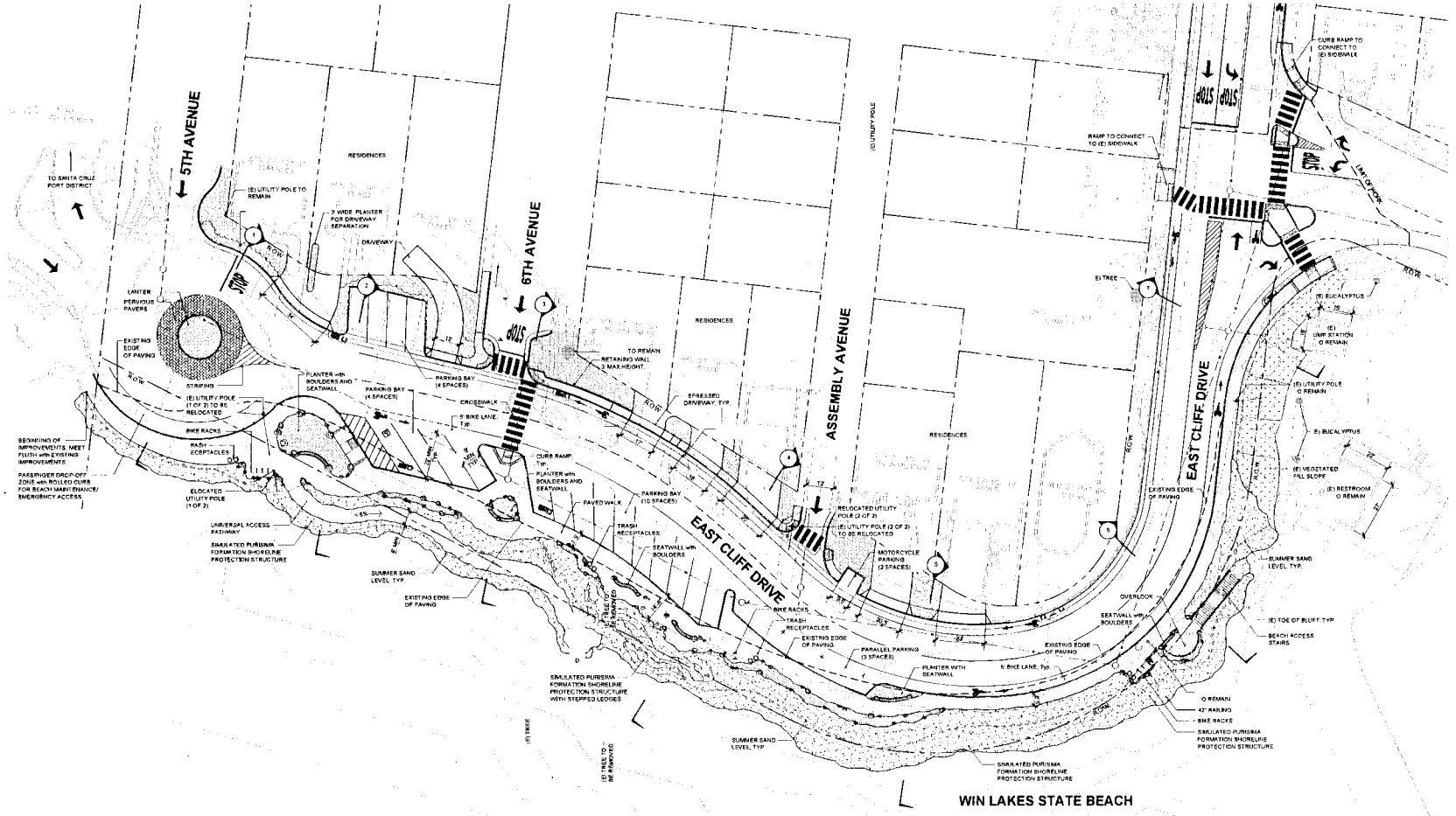
SUMMARY TABLE	
ITEM	QUANTITY
PROJECT AREA	74,685 SF
EXISTING IMPERVIOUS SURFACE AREA	44,877 SF
PROPOSED IMPERVIOUS SURFACE AREA	89,384 SF
CUT VOLUME	1,558 CY
FILL VOLUME	2,338 CY
OVER-EXCAVATION & RECOMPACTION	756 CY

PARKING SUMMARY	
PARKING SPACES*	20
ACCESSIBLE PARKING SPACES	1
MOTORCYCLE PARKING SPACES	2
TOTAL PARKING SPACES	23

* DOES NOT INCLUDE LOADING ZONES / SHORT-TERM PARKING SPACES

NOTE:

1. FOR LANDSCAPE ELEMENTS INCLUDING SITE FURNISHINGS, MATERIALS AND PLANTING INFORMATION SEE SHEET 7.1
2. SEE SHEETS 5.1 - 5.2 FOR SITE SECTIONS



SITE PLAN

SCALE: 1"=20'

NORTH

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®
3765 South Higuera St., Suite 102, San Luis Obispo, CA 93401
(805) 543-1794 FAX (805) 543-1796 www.rrmdesign.com

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

SITE PLAN

NO.	REVISION	DATE

PROJECT MANAGER: LM
DRAWN BY: MS
CHECKED BY: MS
DATE: February 10, 2012
JOB NUMBER: 1309513
SHEET: 3.1

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

ACCESSIBILITY PLAN

rrmdesigngroup

creating environments people enjoy®

2785 Mitchell Drive, Suite 100, Walnut Creek, CA 94598
P: (925) 943-7744 | F: (925) 943-8018 | www.rrmdesign.com

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

DESIGN | DRAWN | CHECKED | DATE: February 10, 2012

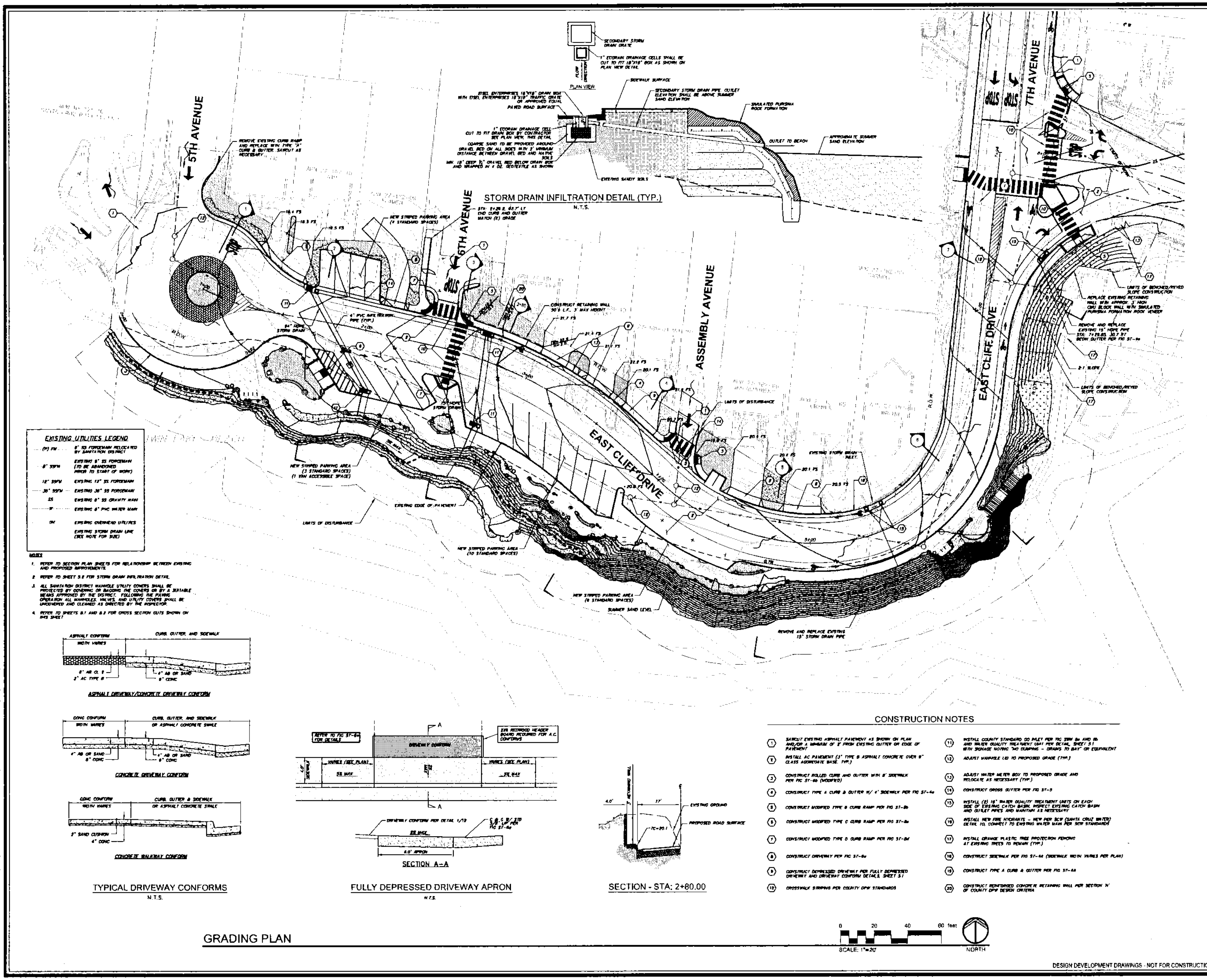
1309513

4.1

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

ACCESSIBILITY PLAN

ATTACHMENT 2



RRM DESIGN GROUP COPYRIGHT 2011
RRM is a California Corporation

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

GRADING PLAN

February 10, 2012

1309513

5.1

ATTACHMENT 2

ATTACHMENT 2

BMP NOTE:

THE FOLLOWING CALTRANS BMPS SHALL BE IN PLACE ON SITE AS DESCRIBED IN THE BMP FACT SHEET UNLESS OTHERWISE DIRECTED BY THE PROJECT PLANS. CALTRANS BMP FACT SHEETS CAN BE FOUND AT THE FOLLOWING WEBSITE: (NOTE THAT THE URL BELOW IS CASE SENSITIVE AND MUST BE TYPED EXACTLY)
[illegible]

SS-1	SCHEDULING
SS-2	PRESERVATION OF EXISTING VEGETATION
SS-7	GEOTEXTILES, PLASTIC COVERS, & EROSION CONTROL BLANKETS
SS-8	WOOD MULCHING
SS-9	EARTH DIKES/ DRAINAGE SWALES & LINED DITCHES
SS-10	OUTLET PROTECTION/ VELOCITY DISSIPATION DEVICES
SC-1	SILT FENCE
SC-2	SEDIMENT/ DESILTING BASIN (BAKER TANKS)
SC-5	FIBER ROLLS
SC-7	STREET SWEEPING & VACUUMING
SC-10	STORM DRAIN INLET PROTECTION
WE-1	WIND EROSION CONTROL
TC-1	STABILIZED CONSTRUCTION ENTRANCE/ EXIT (IF NEEDED)
NS-1	WATER CONSERVATION PRACTICES
NS-2	DEWATERING OPERATIONS
NS-3	PAVING & GRINDING OPERATIONS
NS-6	ILLICIT CONNECTION/ ILLEGAL DISCHARGE DETECTION AND REPORTING
NS-7	POTABLE WATER/ IRRIGATION
NS-8	VEHICLE AND EQUIPMENT CLEANING
NS-9	VEHICLE AND EQUIPMENT FUELING
NS-10	VEHICLE AND EQUIPMENT MAINTENANCE
NS-11	PILE DRIVING OPERATIONS (SHEET PILE)
NS-12	CONCRETE CURING
NS-14	CONCRETE FINISHING
WM-1	MATERIAL DELIVERY AND STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION AND CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SEPTIC/ SANITARY WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL SUBMIT A WPCP (WATER POLLUTION CONTROL PROGRAM) OR A SWPPP (STORM WATER POLLUTION PREVENTION PLAN) PER THE PROJECT SPECIFICATIONS UPON APPROVAL OF THE PROJECT CONTRACT. THE WPCP/SWPPP SHALL CONTAIN A PHASED CONSTRUCTION SCHEDULE WITH EROSION CONTROL & TEMPORARY DRAINAGE PLANS FOR EACH PHASE OF CONSTRUCTION. THE WPCP/SWPPP MUST BE APPROVED BY PUBLIC WORKS BEFORE CONSTRUCTION BEGINS. THE EROSION CONTROL PLANS SHOWN HEREON ARE A GUIDELINE ONLY, AND WILL BE SUPERCEDED BY THE WPCP/SWPPP.

2. EROSION IS TO BE CONTROLLED AT ALL TIMES ALTHOUGH SPECIFIC MEASURES SHOWN ARE TO BE IMPLEMENTED AT A MINIMUM BETWEEN OCTOBER 15TH AND APRIL 15TH. THE INTENT OF SITE EROSION CONTROL MEASURES IS TO PREVENT ON-SITE EROSION, AND TO PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING ANY WATERCOURSE OR RECEIVING INLET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ANY ADDITIONAL MEASURES NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.

3. UNNECESSARY GRADING AND DISTURBING OF SOIL SHALL BE AVOIDED (SEE SS-2).

4. RUNOFF FROM THE CONSTRUCTION SITE MUST NOT BE ALLOWED TO FLOW OVER ANY FILL SLOPES.

5. ALL EXCAVATED MATERIAL NOT SUITABLE FOR FILL OR OTHER USE ON-SITE SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE.

6. FOR ON-SITE CONSTRUCTION & STAGING AREAS: SITE HOUSEKEEPING, MATERIALS MANAGEMENT, & EQUIPMENT MANAGEMENT SHALL BE CONSISTENT WITH THE REQUIREMENTS OF THE APPROPRIATE CALTRANS BMP. ROADWAYS ADJACENT TO THE PROJECT SHALL BE KEPT CLEAN AND FREE OF DUST. ANY SOIL OR OTHER ERODIBLE MATERIAL STOCKPILED ON-SITE SHALL BE COVERED WITH PLASTIC (AND ALSO SURROUNDED WITH A SEDIMENT BARRIER IF NEEDED) TO PREVENT SEDIMENT TRANSPORT OFF-SITE.

7. CONSTRUCTION SITE PERIMETER FENCING SHALL BE PLACED AROUND THE PERIMETER OF THE WORK ZONE AND ON-SITE STAGING AREAS TO ENSURE PUBLIC SAFETY. FENCING ALONG ROADWAY MUST ALLOW FOR A MINIMUM OF TWO 10 FT VEHICULAR TRAVEL LANES AT END OF EACH WORK DAY. CONSTRUCTION ACTIVITIES DURING THE WORK DAY MAY EXTEND FURTHER INTO THE STREET SUCH THAT ONE VEHICULAR LANE REMAINS OPEN WITH TRAFFIC CONTROL PROVIDED BY THE CONTRACTOR. AN APPROVED AREA OF THE ROADWAY MUST ALSO BE RESERVED FOR BICYCLE AND PEDESTRIAN ACCESS TO REMAIN OPEN AT ALL TIMES. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL AND LOCAL DETOUR PLAN - SEE GENERAL NOTES ON COVER SHEET FOR SUBMITTAL & IMPLEMENTATION REQUIREMENTS.

8. SEDIMENT BARRIERS SHALL BE CONSTRUCTED ALONG THE BOTTOM OF ALL GRADED SLOPES OR WHERE OTHERWISE SHOWN ON THE EROSIONS CONTROL PLAN. SEDIMENT BARRIERS SHALL CONSIST OF SILT FENCE (SC-1) OR FIBER ROLLS (SC-5).

9. STORM DRAIN INLETS SHALL BE PROTECTED FROM SEDIMENT DURING CONSTRUCTION PER CALTRANS BMP SC-10. IF THE CATCH BASIN IS ABOVE GRADE, COVER OR PLACE SILT FABRIC UNDER GRATE. IF CATCH BASIN IS AT GRADE AND RECEIVING STORMWATER, SURROUND WITH SEDIMENT BARRIER. SEDIMENT BARRIER SHALL CONSIST OF GRAVEL BAGS IF INLET IS LOCATED IN A PAVED AREA. SEDIMENT BARRIER SHALL CONSIST OF SILT FENCE (SC-1) OR FIBER ROLL (SC-5) IF IN AN UNPAVED AREA.

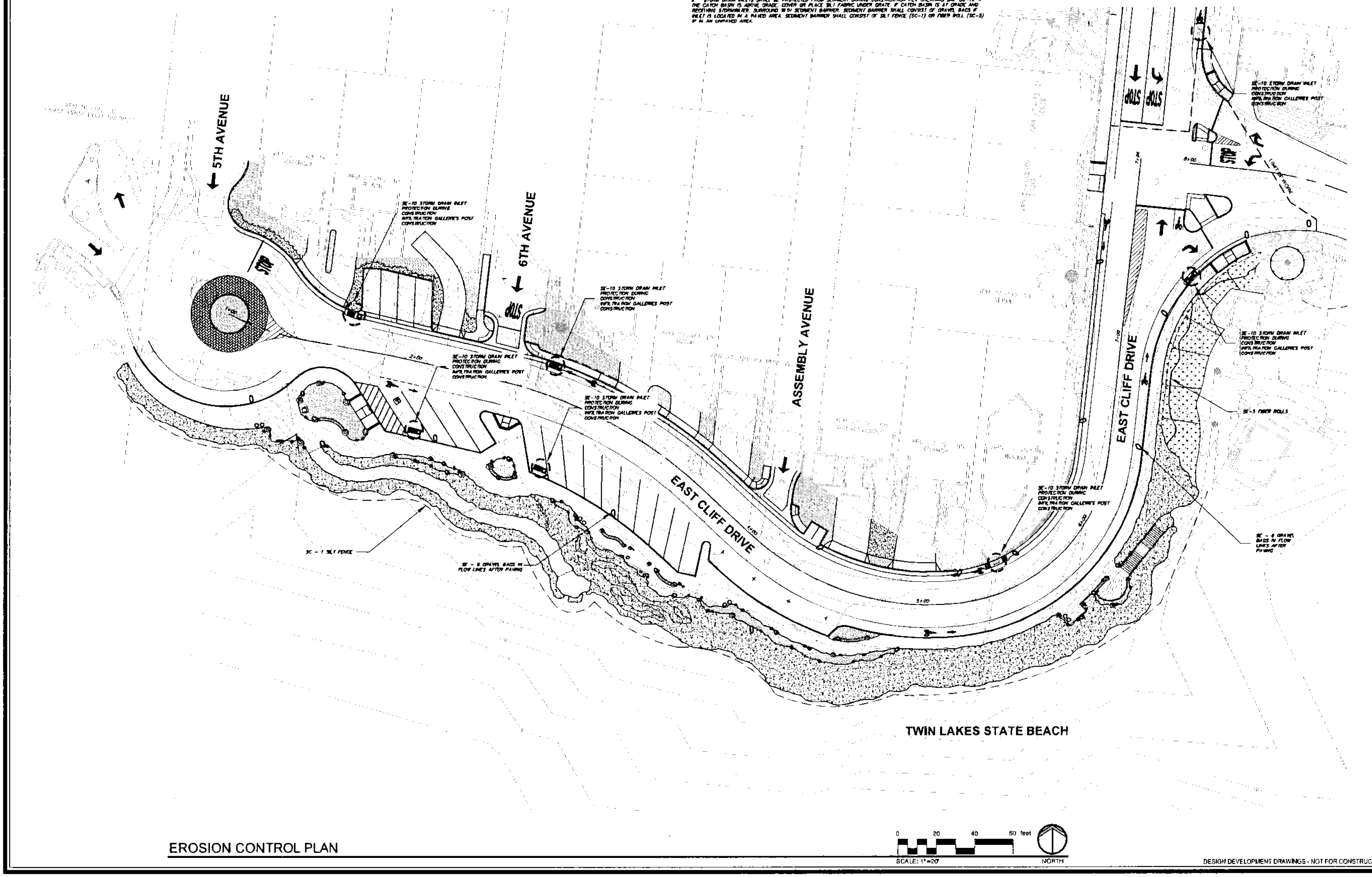
10. STRAW/COCONUT FIBER MATERIAL SUCH AS NORTH AMERICAN GREEN SC-150BN OR APPROVED EQUAL. SITE PREPARATION AND BLANKET INSTALLATION SHALL BE PER CALTRANS BMP SS-7 OR MANUFACTURER'S RECOMMENDATIONS, WHICHEVER IS MORE STRINGENT. BLANKET COVERAGE SHALL INCLUDE ALL DISTURBED SOIL REMAINING AFTER CONSTRUCTION. REPLANTING SHALL BE DONE PER LANDSCAPE PLANS (OR SEEDING AS SHOWN IN NOTE #10 IF NO LANDSCAPING IS SHOWN).

11. CONCRETE WASHOUT SHALL NOT TAKE PLACE ON-SITE. CONCRETE WASTE SHALL BE MANAGED PER CALTRANS BMP WM-8. REGULATIONS GOVERNING CONCRETE WASHOUT STIPULATE A MINIMUM SETBACK OF 150' FROM WATER BODIES AND 50' FROM STORM DRAIN INLETS.

12. SITE GRADING DONE BY HEAVY MACHINERY IS PLANNED TO TAKE PLACE FROM THE EXISTING ROADWAY, THEREFORE NO SITE ENTRANCE MEASURES ARE REQUIRED. IF THE WPCP/SWPPP DETERMINES THAT ANY HEAVY MACHINERY WORK NEEDS TO BE DONE OFF OF THE ROADWAY, A SITE ENTRANCE AND STABILIZED ROADWAY SHALL BE CONSTRUCTED PER CALTRANS BMP TC-1.

13. NO MAINTENANCE OF EQUIPMENT OR MACHINERY SHALL TAKE PLACE ON-SITE.

14. 48 HOUR NOTICE SHALL BE GIVEN TO ENVIRONMENTAL PLANNING AT (831) 454-3168 PRIOR TO COMMENCING WORK, AND UPON COMPLETION OF GRADING AND EROSION CONTROL. FAILURE TO COMPLY MAY RESULT IN ISSUANCE OF A STOP WORK ORDER.



EROSION CONTROL PLAN

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

EROSION CONTROL PLAN

NO.	REVISION	DATE

PROJECT MANAGER	LM
DRAWN BY	MP
CHECKED BY	MS
DATE	February 10, 2012
CAD FILE	1309513_EC.dwg
JOB NUMBER	1309513
SHEET	6.1

ATTACHMENT 2

ATTACHMENT 2

CONCEPTUAL PLANT LEGEND

EVERGREEN TREE — 3
Cupressus macrocarpa / Monterey Cypress

NATIVE SHRUBS, PERENNIALS AND GRASSES — 4,600 sf
Achillea millefolium / Common Yarrow
Arctostaphylos edmundsii 'Carmel Sur' / Carmel Sur Manzanita
Artemisia californica 'Canyon Gray' / Prostrate California Sagebrush
Aster chilensis 'Point Sl. George' / Point St. George Aster
Ceanothus griseus horizontalis 'Yankee Point' / California Lilac
Ceanothus maritimus 'Frosty Dawn' / Maritime Ceanothus
Distichlis bifloris / Distichlis
Erigeron glaucus 'Wayne Roderick' / Seaside Daisy
Eriogonum spp. / Buckwheat
Eschscholzia californica / California Poppy
Festuca californica 'Serpentine Blue' / California Fescue
Grindelia stricta platyphylla / Spreading Grindelia
Lepechinia calycina 'Rocky Pt.' / Pitcher Sage
Lessingia filaginifolia 'Silver Carpet' / Branching Sea Aster
Leymus condensatus 'Canyon Prince' / Native Blue Rye
Muhlenbergia rigens / Deer Grass
Rhamnus californica 'Leatherleaf' / California Coffeeberry
Rhus integrifolia / Lemonade Berry
Salvia leucophylla / Purple Leaf Sage

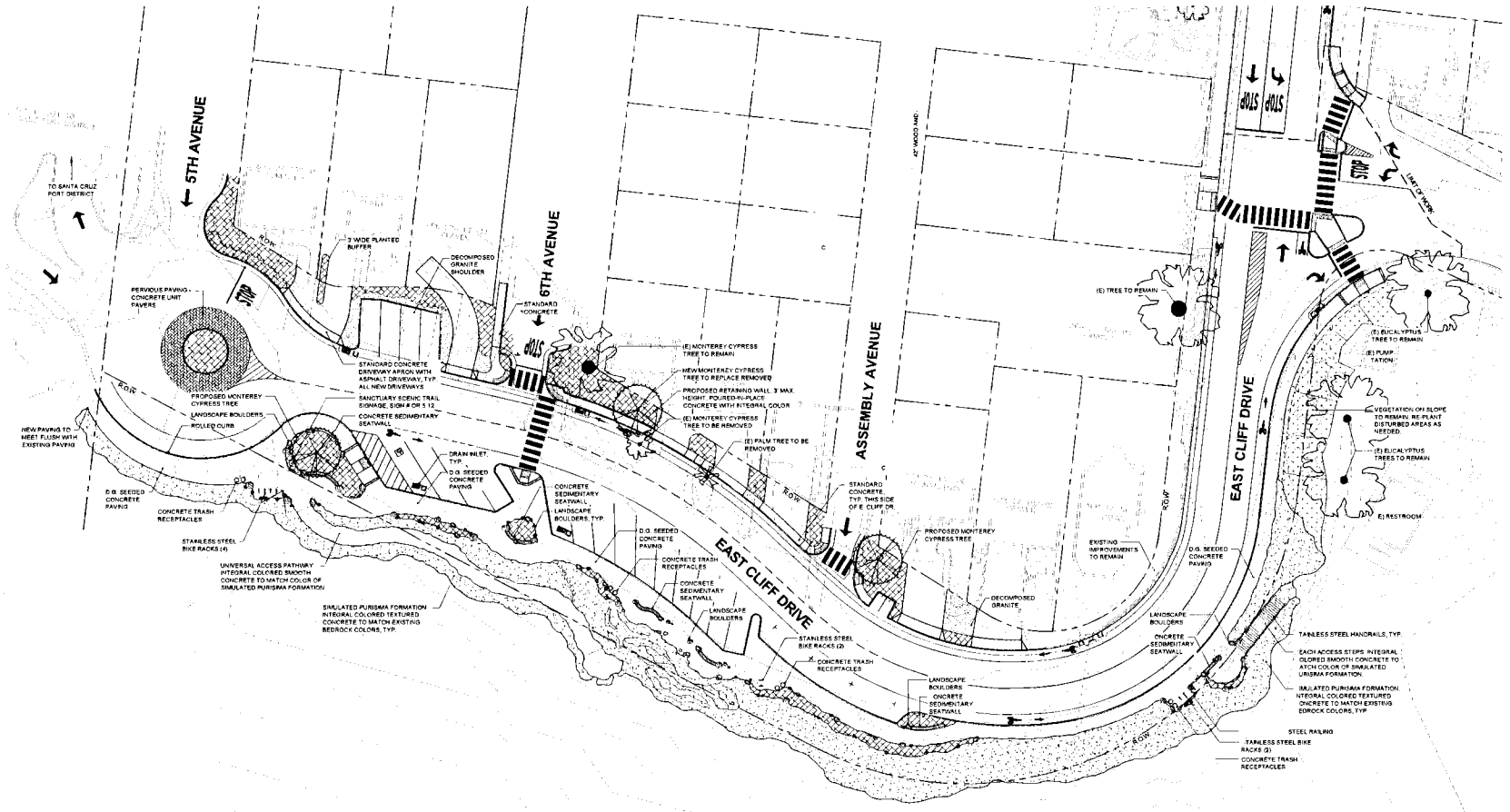
Decomposed Granite

NOTES

A. ALL TREES ARE TO BE 15 GAL. CONTAINER SIZE UNLESS OTHERWISE NOTED.

B. ALL SHRUBS ARE TO BE 5 GAL. CONTAINER SIZE UNLESS OTHERWISE NOTED.

C. PLANTER AREAS SHALL BE IRRIGATED WITH A COMBINATION OF WATER-EFFICIENT SPRAY AND DRIP COMPONENTS, AND OPERATED WITH AN AUTOMATIC CONTROLLER CAPABLE OF RECEIVING LOCAL WEATHER DATA



LANDSCAPE PLAN

SCALE: 1"=20' — 0, 20, 40, 80 feet — NORTH

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

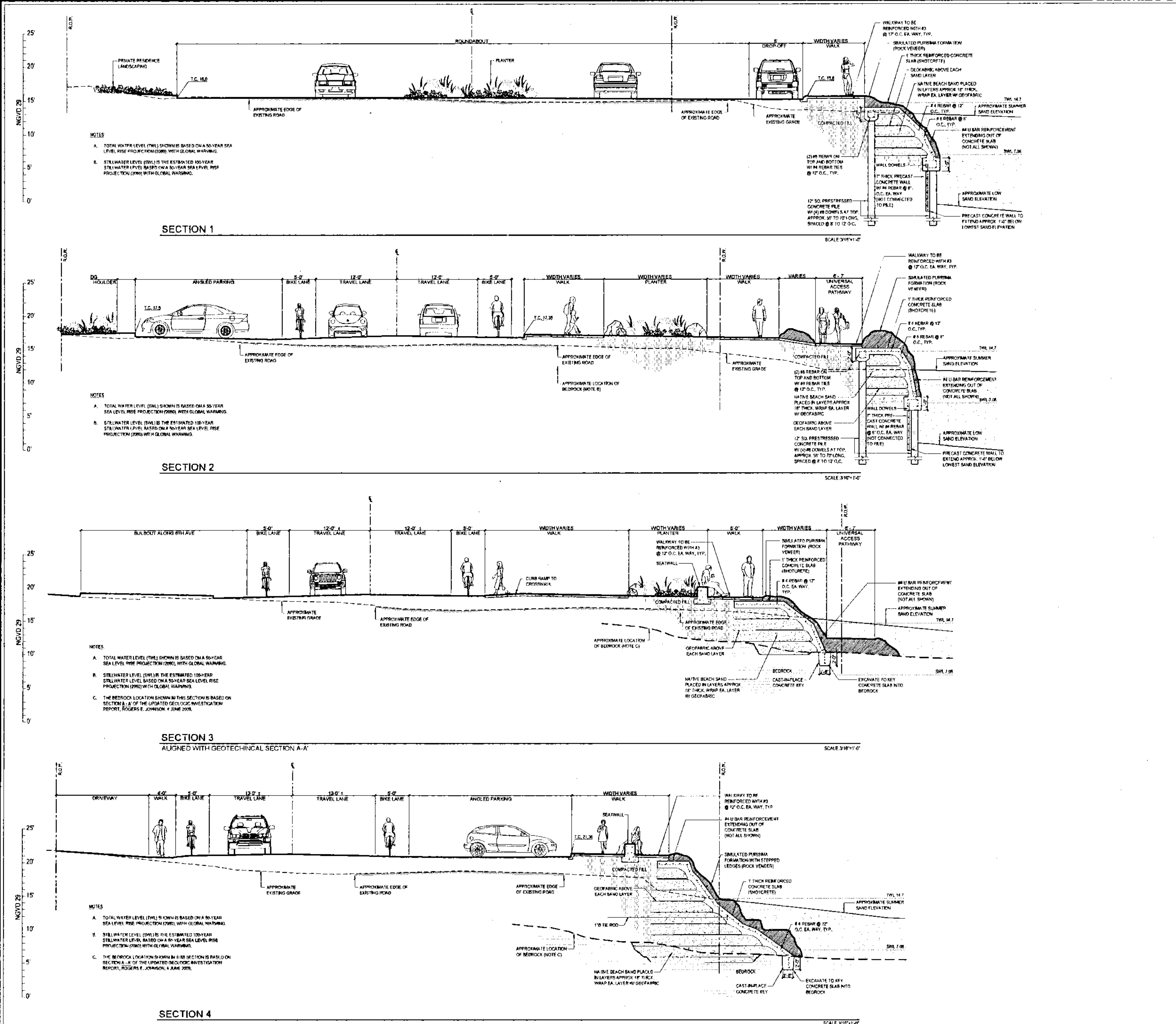
rrm design group
creating environments people enjoy®
2765 South Higuera St., Ste. 102, San Luis Obispo, CA 93401
P: (805) 543-1794 | F: (805) 543-4609 | www.rrmdesign.com

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

LANDSCAPE PLAN

NO.	REVISION	DATE

PROJECT MANAGER: LM
DRAWN BY: MP
CHECKED BY: MS
DATE: February 10, 2012
CAD FILE: 130513-LP1.dwg
JOB NUMBER: 1309513
SHEET: 7.1



ABBREVIATIONS LEGEND	
APPROX.	APPROXIMATE
EA.	EACH
O.C.	ON CENTER
R.O.W.	RIGHT-OF-WAY
T.C.	TOP OF CURB
TYP.	TYPICAL
TWL	TOTAL WATER LEVEL
W/	WITH

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

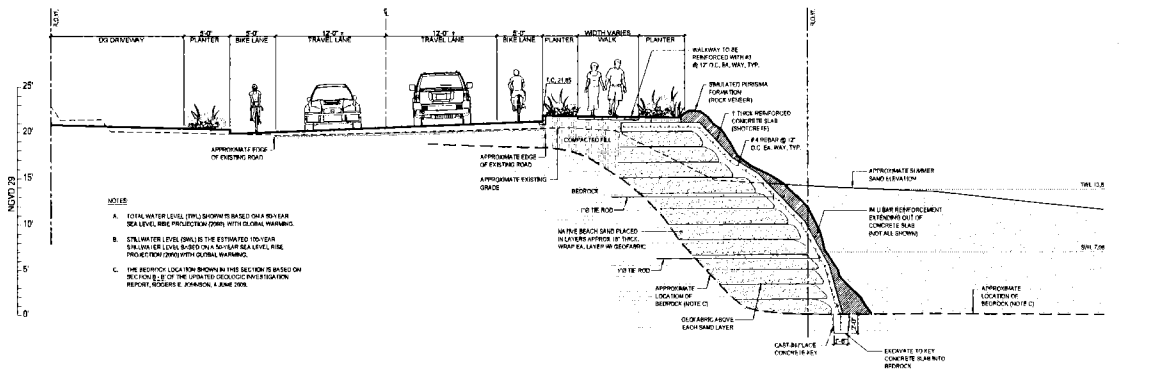
rrmdesigngroup
creating environments people enjoy®
3765 South Higuera St., Ste. 102 San Luis Obispo, CA 93401
P: (805) 543-1794 | F: (805) 543-4609 | www.rrmdesign.com

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

SITE SECTIONS

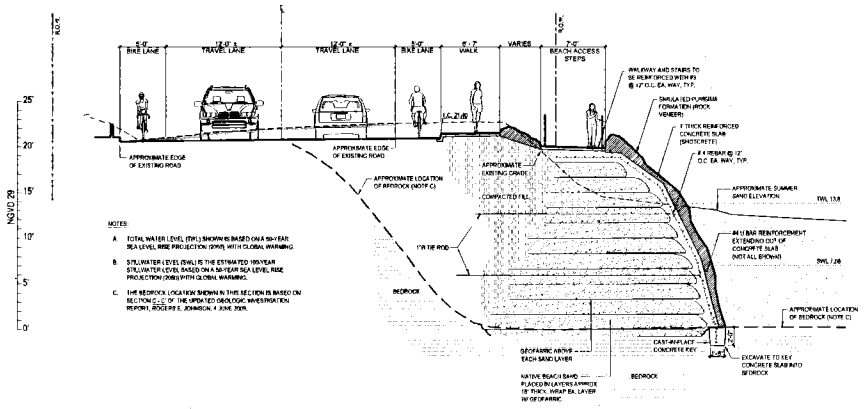
PROJECT MANAGER: LM
DRAWN BY: MP
CHECKED BY: MS
DATE: February 10, 2012
CAD FILE: 1309513-SECTIONS.dwg
JOB NUMBER: 1309513
SHEET: 8.1

ATTACHMENT 2



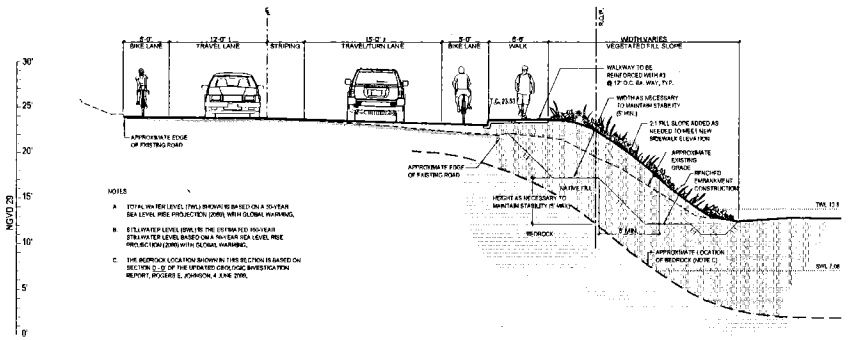
SECTION 5
ALIGNED WITH GEOTECHINCAL SECTION B-B'

SCALE 3/16"=1'-0"



SECTION 6
ALIGNED WITH GEOTECHINCAL SECTION C-C'

SCALE 3/16"=1'-0"



SECTION 7
ALIGNED WITH GEOTECHINCAL SECTION D-D'

SCALE 3/16"=1'-0"

ABBREVIATIONS LEGEND	
APPROX.	APPROXIMATE
EA.	EACH
O.C.	ON CENTER
R.O.W.	RIGHT-OF-WAY
T.C.	TOP OF CURB
TYP.	TYPICAL
TWL	TOTAL WATER LEVEL
W/	WITH

DESIGN DEVELOPMENT DRAWINGS - NOT FOR CONSTRUCTION

Santa Cruz County
Department of Public Works
701 Ocean St., Room 410,
Santa Cruz, CA 95060

rrmdesigngroup
creating environments people enjoy®
3765 South Higuera St., Ste. 102, San Luis Obispo, CA 93401
P: (805) 543-1794 | F: (805) 543-0147 | www.rrmdesign.com

PUBLIC RIGHT-OF-WAY AND ROAD IMPROVEMENTS FOR EAST CLIFF DRIVE AT TWIN LAKES BEACHFRONT

SITE SECTIONS

NO.	REVISION	DATE

PROJECT MANAGER: LM
DRAWN BY: MP
CHECKED BY: MS
DATE: February 10, 2012
DWG FILE: 1309513-SECTIONS.dwg
JOB NUMBER: 1309513
SHEET: 8.2

ATTACHMENT 2

ROGERS E. JOHNSON & ASSOCIATES
CONSULTING ENGINEERING GEOLOGISTS
41 Hangar Way, Suite B
Watsonville, California 95076
e-mail: rogersjohnson@sbcglobal.net
Ofc (831) 728-7200 • Fax (831) 728-7218

UPDATED GEOLOGIC INVESTIGATION
PROPOSED IMPROVEMENTS TO TWIN LAKES BEACHFRONT
EAST CLIFF DRIVE - 5TH AVENUE TO SCHWAN LAKE
SANTA CRUZ, CALIFORNIA

REJA Job No. C09001-54
4 June 2009

ATTACHMENT 3

ROGERS E. JOHNSON & ASSOCIATES
CONSULTING ENGINEERING GEOLOGISTS
41 Hangar Way, Suite B
Watsonville, California 95076-2458
e-mail: rogersjohnson@sbcglobal.net
Ofc (831) 728-7200 • Fax (831) 728-7218

4 June 2009

Jim Davies
Santa Cruz County Redevelopment Agency
701 Ocean Street, Room 510
Santa Cruz, CA 95060-4000

Job No. C09001-54

Re: Update to Geologic Investigation
Proposed Improvements to Twin Lakes Beachfront
East Cliff Drive - 5th Avenue to Schwan Lake
Santa Cruz, California

Dear Mr. Davies:

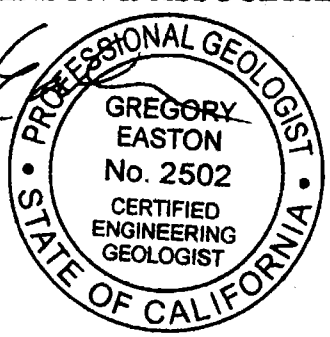
As requested, we have completed our updated geologic investigation of the Twin Lakes Beachfront Project on East Cliff Drive in Santa Cruz California. The project area lies between Fifth Avenue and Schwan Lake. Our initial investigation of the project area was completed in 1995, the text of which is included at the back of this report. The proposed improvements for the project include realigning portions of East Cliff Drive, widening the roadway to accommodate bike lanes, creating off-street parking spaces and creating a pedestrian walkway with access to Twin Lakes State Beach. Much of the proposed improvements will extend seaward of the existing roadway. The purpose of our work was to provide an updated evaluation of the current geologic conditions at the project area. Specifically, we have analyzed the proposed improvements with respect to the underlying geologic conditions. In addition we, along with the project coastal engineers, evaluated the potential impact of coastal erosion in order to provide recommendations on the best methods to construct the proposed improvements.

Please contact us if you have any questions regarding this report.

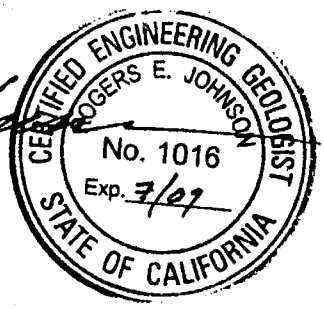
Sincerely,

ROGERS E. JOHNSON & ASSOCIATES

Gregory Easton
Project Geologist
C.E.G. No. 2502



Rogers E. Johnson
Principal Geologist
C.E.G. No. 1016



GFE/REJ/gfe

Copies: Addressee (4)
Haro, Kasunich and Associates, attn: Rick Parks (1)

ATTACHMENT 3

The liquefaction analysis performed by the project coastal engineer indicates that the beach sands in the subject area will liquefy during a seismic event.

CONCLUSIONS

The Twin Lakes Beachfront improvement area is situated along East Cliff Drive between 5th Avenue and Schwan Lake in Santa Cruz County, California. The Santa Cruz County Redevelopment Agency is proposing to construct the improvements seaward of the existing alignment of East Cliff Drive.

We initially investigated the subject area in 1995. We revisited the site in during winter in 1998 to document the geologic conditions. During our current update investigation, we collected subsurface data utilizing a cone penetration test rig and track-mounted excavator.

The proposed improvements will be constructed across areas underlain by artificial fill, rip-rap, beach sand, lagoonal deposits and bedrock and will be subject to wave runup and erosion, coastal flooding, seismic shaking and liquefaction. With continued sea level rise, the proposed improvements will be subject to more frequent wave attack, erosion and flooding during their lifetime. The existing restrooms, pump house and various underground utilities will also be subject to wave runup, erosion and flooding during the lifetime of the project.

During the winter storms of 1997-1998 at Twin Lakes Beach, the beach sand fronting the western portion of the project area was scoured away, exposing the underlying bedrock and artificial fill to surf erosion. The eastern portion of the project area was subject to wave runup as well as erosion and flooding. Since the 1998 storms, wind and wave action has deposited sand to the beach, restoring it to pre-storm conditions.

The Federal Emergency Management Agency indicates that the 100-year base flood zone extends up to elevation +13 feet mean sea level (NGVD) in the vicinity of the Schwan Lake outflow structure. This flood elevation does not take into account wave heights nor velocities, nor does it take into account potential accelerated sea level rise due to Greenhouse Effects.

Since measurements began in the late 19th century, global sea levels have risen at increasing rates. Because of uncertainties in the modeling process, rates of sea level rise vary greatly. Current estimates indicate between 7 and 40 inches of sea level rise may occur by 2100.

The site is located in an area of high seismic activity and will be subject to strong seismic shaking in the future. Modified Mercalli Intensities of up to VIII are possible. The controlling seismogenic source for the subject property is the San Andreas fault, 17.5 kilometers to the northeast. The design earthquake on this fault should be M_w 7.9. Expected duration of strong shaking for this event is about 31 seconds. Deterministic analysis for the site yields a mean peak ground acceleration plus one dispersion of 0.48g. Pseudostatic slope stability analysis fo the coastal bluff, if performed by the project geotechnical engineer, should utilize our geologic cross sections and a

site-specific seismic coefficient (k), or a minimum coefficient of 0.15 which produces a factor of safety greater than 1.2.

The liquefaction hazard is high where proposed improvements in the project area are underlain by beach sand. In particular, the portion of East Cliff Drive between 8th Avenue and extending southeast of the Schwan Lake outflow structure is highly prone to liquefaction.

Provided our recommendations are followed we project the proposed improvements should remain protected from significant bluff-top erosion over the next 100 years. *This requires that the constructed improvements, existing and proposed, are constructed and maintained to protect the entire project area along East Cliff Drive.*

The proposed improvements will be subject to "ordinary" risks (as defined in Appendix D) over the assumed design lifetime of 100 years if our recommendations and those of the project coastal engineer are followed. Appendix D should be reviewed in detail by the Santa Cruz County Redevelopment Agency to determine whether an "ordinary" level of risk is acceptable. If "ordinary" risks as defined are unacceptable, then the geologic hazards in question should be further mitigated to reduce the corresponding risks to a lower level.

RECOMMENDATIONS

1. The proposed improvements should be founded in bedrock where possible. Where improvements will not be embedded in bedrock, they should penetrate below the depth of wave scour (i.e. beneath the beach sand). The project coastal engineers have provided design criteria for several types of structures for founding the proposed improvements in their report.

2. Because of the existence of abundant underground utilities in the vicinity of the existing restrooms and pump station, we recommend hand excavated pits to obtain subsurface geologic information in this area. Alternatively, field inspection of construction excavations can be made by a representative of our firm to determine the type and position of geologic materials.

3. The project engineers should review our seismic shaking parameters and choose a value appropriate for their particular analyses.

4. Drainage from improved surfaces such as walkways, roadways and parking areas along the project area should be collected in impermeable gutters or pipes and either carried to the beach level via closed conduit or discharged into an established storm drain system that does not issue onto the exposed bluff. Any drain water on paved areas should not be allowed to flow toward the bluff-top. The control of runoff is essential for control of erosion and prevention of ponding.

5. We request the privilege of reviewing all geotechnical engineering, civil engineering, drainage, and architectural reports and plans pertaining to the proposed improvements.

INVESTIGATION LIMITATIONS

1. The conclusions and recommendations contained herein are based on probability and in no way imply that the proposed development will not possibly be subjected to ground failure, seismic shaking, coastal erosion or landsliding of such a magnitude that it overwhelms the site. The report does suggest that using the site for residential purposes in compliance with the recommendations contained herein is an acceptable risk.

2. This report is issued with the understanding that it is the duty and responsibility of the owner or his representative or agent to ensure that the recommendations contained in this report are brought to the attention of the architect and engineers for the project, incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. If any unexpected variations in soil conditions or if any undesirable conditions are encountered during construction, Rogers E. Johnson and Associates should be notified so that supplemental recommendations may be given.

UPDATE
GEOTECHNICAL and COASTAL ENGINEERING INVESTIGATION
For the
Twin Lakes Beachfront Project
Santa Cruz Harbor to Schwan Lake
Santa Cruz County, California

Prepared for the
Santa Cruz County Redevelopment Agency
Santa Cruz, California

Prepared By
HARO, KASUNICH AND ASSOCIATES, INC
Geotechnical & Coastal Engineers
Project No. SC9809
June 2009
Revised August 2009

ATTACHMENT 4

Project No. SC9809
5 June 2009
Revised 27 August 2009

SANTA CRUZ COUNTY REDEVELOPMENT AGENCY
701 Ocean Street, Room 510
Santa Cruz, California 95060-4000

Attention: Mr. Jim Davies, Project Manager

Subject: Update Geotechnical and Coastal Engineering Investigation

Reference: Twin Lakes Beachfront Project
Santa Cruz Harbor to Schwan Lake
Santa Cruz County, California

Dear Mr. Davies:

In accordance with your authorization, we have performed an Update Geotechnical and Coastal Engineering Investigation for the proposed Twin Lakes Beachfront Project along East Cliff Drive, from 5th Avenue adjacent the Santa Cruz Harbor to Schwan Lake in Santa Cruz County, California. This report provides an update and supplemental analyses to our 6 December 1995 Geotechnical and Coastal Engineering Investigation - East Cliff Drive Improvements – Santa Cruz Harbor to Schwan Lake prepared for the Santa Cruz County Department of Public Works.

The Santa Cruz County Redevelopment Agency is proposing to enhance public access to the project site area by widening East Cliff Drive from about 5th Avenue to about the existing outfall at Schwan Lake near 9th Avenue. A pedestrian path, a bicycle path and parking areas are proposed along the seaward perimeter of East Cliff Drive.

Our update investigation was performed in conjunction with the engineering geology firm of Rogers E. Johnson & Associates. The Update Geology Investigation is dated 4 June 2009. Working with the project engineering geologists we explored the soil and bedrock profile beneath Twin Lakes State Beach to enhance the 1995 geologic map and cross sections in order to develop accurate winter scour beach platform profiles along the toe of the proposed project alignment.

Using the May 2009 Rogers E. Johnson & Associates Road and Beach Profiles, our firm performed wave runup analyses to evaluate the potential effect of the

ATTACHMENT 4

project upon the existing landward improvements and to develop wave pressures for preliminary structural engineering design of new shoreline protection structures to stabilize the low elevation coastal bluff along the project alignment and protect the proposed improvements from wave action erosion.

Our coastal engineering analyses were conducted using four design storm Stillwater Levels representing: current sea level; and future sea level rise rates of 5mm/yr (1.7 feet), 10 mm/yr (3.3 feet) and 15 mm/yr (5.0 feet) for the next 100 years. The rate of sea level rise is widely thought to be exponential rather than linear and this is illustrated in the graphs of sea level rise presented by the 2007 Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC). Due to the exponential acceleration of sea level rise that is occurring, sea level rise during the next 50 years is likely to be less than half of the total sea level rise during the next 100 years

Armoring the proposed project alignment with an erosion resistant shoreline protection system will preserve the existing configuration of East Cliff Drive, protect proposed improvements and substantially reduce coastal flooding of the existing residences along the landward perimeter of the project alignment.

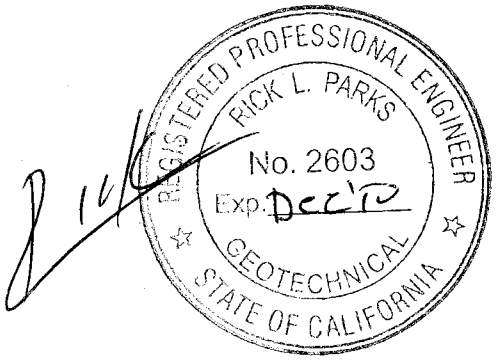
The effects of anticipated sea level rise upon the relatively low elevation project alignment will be dramatic. As sea level rises, the water column depth adjacent the project site increases allowing larger waves to break closer to the seaward perimeter of the project alignment. Larger breaking waves will increase wave action erosion, wave forces on shoreline protection structures and wave runup overtopping of shoreline barriers. For presentation of our wave force analyses or wave pressure calculations, we used the sea level rise rate of 10 mm/yr for the next 100 years. From an economic perspective, it may not be feasible to construct shoreline protection structures to accommodate the upper ranges of the estimated sea level rise over the next 100 years. An alternative approach may be to design the project for less than 100 years and maintain the project alignment seawalls and revetments as needed.

The wave runup analysis included with this update report was based upon the existing measured winter scour platform elevations. As sea level rises, the winter scour platform, whether lagoon deposits or sandstone bedrock, will become exposed more often and erode/abrade. As the elevation of the winter scour platform is lowered the water column adjacent the proposed improvements becomes deeper and the effects of wave runup will increase. As the winter scour platform deepens, seawall conventional spread footings embedded into bedrock will become exposed as will the keyways of any project site revetments. Once a project design life has been established based on projected sea level rise, the

down wearing of the winter scour platform should be estimated by the project engineering geologists and utilized by the project structural engineers to design foundation elements. The final project design should also include the increase in wave impact pressures to the project shoreline protection structures associated with the increased water column depth and wave runup due to the down wearing of the winter scour platform.

The results of our update coastal and geotechnical engineering investigation are included in the body and Appendix of this report.

If you have any questions concerning the data or conclusions presented in this report, please call our office.



Respectfully submitted,

HARO, KASUNICH AND ASSOCIATES, INC

Rick L. Parks, GE
Senior Geotechnical and Coastal Engineer

RLP/dk
Copies: 6 to Addressee w/digital copy on CD
1 to Rogers E. Johnson & Associates
Attn: Greg Easton, CEG

ATTACHMENT 4

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
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

October 17, 2011

Sheryl Bailey
Parks Division of the Department of Public Works
Simpkins Swim Center
C/O Department of Public Works
701 Ocean Street, 4th Floor
Santa Cruz, 95060

Subject: Review of Halcrow Sea Wall Design Report dated August 1, 2011,

And,

Engineering Geology Report by Rogers E. Johnson and Associates dated June 4, 2009, Job Number C09001-54;

And,

Geotechnical Engineering Report by Haro, Kasunich, and Associates, dated June 4, 2011, Project Number SC9809.

APN** (no specific APN), **Application #: REV111054

Dear Sheryl Bailey:

The purpose of this letter is to inform you that the Planning Department has accepted the subject report for the portion of the reports content that deals with the improvements proposed between 5th and 7th avenue. The following items shall be required:

1. All construction shall comply with the recommendations of the reports.

2. Final plans shall reference the reports and include a statement that the project shall conform to the reports' recommendations.

3. The project must comply with FEMA regulations.

4. After plans are prepared that are acceptable to all reviewing agencies (and prior to completeness), please submit plan review letters from the Halcrow; Haro, Kasunich and Associates; and Rogers E. Johnson and Associates to the County Planning Department. The review letters must states the project plans conform to the recommendations of the respective reports, and shall be written by the authors of the reports. They must also conclude that the proposed improvements will not adversely affect the residential structures between 5th and 7th.

(over)

ATTACHMENT 5

5. Please submit an electronic copy of the soils report in .pdf format via compact disk or email to: pln829@co.santa-cruz.ca.us. Please note that the reports must be generated and/or sent directly from the consultants of record.

After building permit issuance the soils engineer *must remain involved with the project* during construction. Please review the *Notice to Permits Holders* (attached).

Please note: *Please note the Halcrow work has not address compliance with FEMA regulations and some grading issues. Please see the August 31, 2011 comments from A. Gentile Discretionary completeness comments 111134 for the FEMA items that must be still be addressed.*

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: http://www.sccoplanning.com/html/devrev/plnappeal_bldg.htm

Please call the undersigned at (831) 454-3175 if we can be of any further assistance.

Sincerely,

Joe Hanna CEG 1313
County Geologist

Cc: Antonella Gentile, Planning
Sheila McDaniel, Planning
consultants

ATTACHMENT 5

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 that your Coastal Engineer, Geotechnical Engineer, and Engineering Geologist to remain 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**, letters from the soils engineer and engineering geologist must be submitted to the Planning Department stating that the consultants have observed the excavation, and conclude that that excavations meet the recommendations of the reports.

3. **At the completion of construction,** final letters from your Coastal Engineer, Geotechnical Engineer, and Engineering Geologist are required to be submitted to the Planning Department that summarize the observations and the tests completed by your consultants. The final letter must also state the following: "Based upon our observations and tests, the project has been completed in conformance with our report's recommendations."

   If the *letter*s identify any items of work remaining to be completed or that any portions of the project were not observed by the consultants, you must complete the remaining items of work.

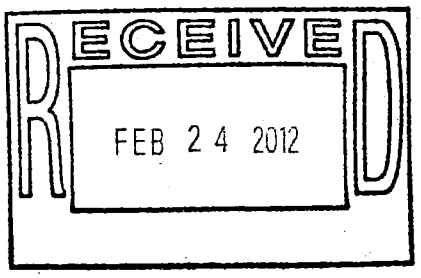
(over)

HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC10287
23 February 2012

RRM DESIGN GROUP
3765 S. Higuera Street, Suite 102
San Luis Obispo, California 93401



Attention: Mike Sherrod, ASLA

Subject: Geotechnical Review of Conceptual Project Plans

Reference: Twin Lakes Beachfront Project
5th to 7th Avenue
Santa Cruz County, California

Dear Mr. Sherrod:

This letter outlines our review of the geotechnical aspects of the conceptual project plans for the proposed Public Right-of-Way and Road Improvements for East Cliff Drive at Twin Lakes Beachfront from 5th to 7th Avenue in Santa Cruz County, California. The project plan set was prepared by the RRM Design Group.

We previously prepared the 6 December 1995 Geotechnical and Coastal Engineering Investigation - East Cliff Drive Improvements – Santa Cruz Harbor to Schwan Lake and the Update Geotechnical and Coastal Engineering Investigation - Santa Cruz Harbor to Schwan Lake for the project dated 27 August 2009.

It is our understanding that a new coastal engineering study and investigation has been completed for the project by Halcrow, Inc. dated August 2011. We also understand the new coastal engineering study has been reviewed and accepted by the appropriate regulatory agencies for project design. As such, we have been asked to serve only as the geotechnical engineers of record for the project and not address coastal engineering components such as sea level rise, Stillwater Level elevations, wave runup, overtopping, and wave impact force analyses.

The proposed project will enhance public access to the project site area by widening East Cliff Drive from the 5th Avenue roundabout to the 7th Avenue intersection. Additional parking will provided on the both the landward and seaward sides of the proposed new alignment of East Cliff Drive. A combined pedestrian/bicycle path is planned along the seaward perimeter of the new roadway alignment. The outboard portion of the new roadway/parking alignment and the universal access pathway will be supported by an engineered fill slope and protected from wave action by a seawall.

The conceptual project plan set was prepared by the RRM Design Group and is dated 10 February 2012. Specifically we reviewed the following plan sheets:

a. Sheet 1.1 – Title Sheet;
b. Sheet 1.2 – Existing Conditions;
c. Sheet 2.1 – Illustrative Plan;
d. Sheet 3.1 – Site Plan;
e. Sheet 4.1 – Accessibility Plan;
f. Sheet 5.1 – Grading Plan;
g. Sheet 6.1 – Erosion Control Plan;
h. Sheet 7.1 – Landscape Plan;
i. Sheet 8.1 – Site Sections dated; and
j. Sheet 8.2 – Site Sections.

The project alignment from the 5th Avenue roundabout to 6th Avenue is underlain by beach sand, lagoon deposits and from a construction perspective, deep bedrock.

From 6th Avenue to 7th Avenue, shallow sandstone bedrock is available to support the seaward perimeter of the proposed project improvements.

The 7th Avenue curve area has been designated as an area of low wave erosion potential and no seawall is proposed for this section.

A composite seawall system is proposed to protect the project alignment from wave action and to buttress the fill slope needed to accommodate the proposed improvements. The proposed seawall consists of a reinforced, engineered fill slope tied to a structural shotcrete face. The reinforced or mechanically stabilized fill slope will be constructed by placing wire or plastic mesh between layers of engineered fill. Soil reinforcement facilitates placement of engineered fill at finish slope gradients much steeper than the 2:1 (Horizontal to Vertical) slope maximum currently allowed by building codes. Beach sand is proposed as an economic fill material that allows compaction over a range of moisture conditions. The reinforced mass of soil performs as a gravity type retaining wall where the weight of the reinforced section overcomes sliding and overturning.

The reinforced sand fill, composite seawall system must be vertically supported throughout the design life of the project. The project plans show the composite seawall being supported by either a deep piles/piers or by placement upon cut sandstone bedrock.

The conceptual project plan set was prepared by the RRM Design Group and is dated 10 February 2012. Specifically we reviewed the following plan sheets:

a. Sheet 1.1 – Title Sheet;
b. Sheet 1.2 – Existing Conditions;
c. Sheet 2.1 – Illustrative Plan;
d. Sheet 3.1 – Site Plan;
e. Sheet 4.1 – Accessibility Plan;
f. Sheet 5.1 – Grading Plan;
g. Sheet 6.1 – Erosion Control Plan;
h. Sheet 7.1 – Landscape Plan;
i. Sheet 8.1 – Site Sections dated; and
j. Sheet 8.2 – Site Sections.

The project alignment from the 5th Avenue roundabout to 6th Avenue is underlain by beach sand, lagoon deposits and from a construction perspective, deep bedrock.

From 6th Avenue to 7th Avenue, shallow sandstone bedrock is available to support the seaward perimeter of the proposed project improvements.

The 7th Avenue curve area has been designated as an area of low wave erosion potential and no seawall is proposed for this section.

A composite seawall system is proposed to protect the project alignment from wave action and to buttress the fill slope needed to accommodate the proposed improvements. The proposed seawall consists of a reinforced, engineered fill slope tied to a structural shotcrete face. The reinforced or mechanically stabilized fill slope will be constructed by placing wire or plastic mesh between layers of engineered fill. Soil reinforcement facilitates placement of engineered fill at finish slope gradients much steeper than the 2:1 (Horizontal to Vertical) slope maximum currently allowed by building codes. Beach sand is proposed as an economic fill material that allows compaction over a range of moisture conditions. The reinforced mass of soil performs as a gravity type retaining wall where the weight of the reinforced section overcomes sliding and overturning.

The reinforced sand fill, composite seawall system must be vertically supported throughout the design life of the project. The project plans show the composite seawall being supported by either a deep piles/piers or by placement upon cut sandstone bedrock.

The project plans show deep piers or piles being used to support the composite seawall from 5th to 6th Avenue. During the final design of the project, we recommend additional subsurface exploration be conducted along the seawall alignment of the project from 5th to 6th Avenue to determine depths to bedrock for project structural engineering design and construction planning. The final project design for the 5th to 6th Avenue alignment section should support of the entire composite seawall system, including the reinforced sand backfill, in order to mitigate the predicted seismic settlement of about 3 inches. Deep foundation support will also mitigate potential consolidation of the underlying lagoon deposits, soft silts and clays.

As shown on the conceptual project plans, the composite seawall will be placed upon cut sandstone bedrock from 6th Avenue to the 7th Avenue curve. Liquefaction is not a concern along this section of the alignment. The structural shotcrete seawall face is shown to be embedded into the bedrock platform or below design scour elevations. Minimum embedment depth into bedrock should be provided by the project engineering geologists, Rogers E. Johnson & Associates. Embedment depths into the undulating bedrock platform should also be dependent upon the configuration of the bedrock platform seaward of the footing excavations.

At the 7th Avenue curve area, an engineered fill slope is proposed to support the outboard perimeter of the proposed improvements. Final design drawings should show the engineered fill placed upon level benches with a keyway at the toe of the fill slope.

The retaining wall/seawall system should be designed for active earth pressures, seismic surcharge and traffic surcharge. Portions of the seawall that cannot be drained during design storm conditions should be designed for submerged earth pressures and hydrostatic head.

The structural integrity of the proposed composite seawall is dependent upon continued vertical support and the compacted sand backfill staying intact. The wall ends and any access openings should be protected from outflanking and wave erosion. The sand backfill should be protected from both terrestrial drainage and wave overtopping. Water flowing through or adjacent the relatively fine grained, fill material can induce internal erosion or piping. Overtime soil piping would result in the loss of sand backfill and the development of a sinkhole at the surface. The reinforced soil backfill and the wall face will need to be drained unless the composite seawall system is to be designed for undrained conditions (full hydrostatic head and submerged earth active pressure). The street drain/storm drain system and any internal drains such as the reinforced sand backfill drain, or a drain between the reinforced slope face and inside of the concrete wall face must all be designed in a manner not to induce piping.

The geotechnical aspects of the outlined conceptual project plan set have been prepared in general conformance with our recommendations. We will work with the project team to incorporate our geotechnical recommendations into the project design drawings.

Haro Kasunich & Associates has reviewed only the geotechnical aspects of these plans. We are not the Civil or Structural Engineers of Record for this project. We provide no warranties, either expressed or implied, concerning the dimensions or accuracy of the plans and analysis.

If you have any questions concerning this letter or the geotechnical aspects of the project, please call our office.

Respectfully submitted,

HARO, KASUNICH & ASSOCIATES, INC.

Rick L. Parks, GE 2603
Senior Geotechnical Engineer

RLP/dk

Copies: 4 to Addressee
1 to Rogers Johnson and Associates
Attention: Greg Easton, CEG

ROGERS E. JOHNSON AND ASSOCIATES
Consulting Engineering Geologists

41 Hangar Way, Suite B
Watsonville, California 95076-2458
e-mail: greg_easton@sbcglobal.net
Ofc (831) 728-7200 • Fax (831) 728-7218

21 February 2012

Sheryl Bailey, Project Manager
County of Santa Cruz Department of Public Works
701 Ocean Street, Room 410
Santa Cruz, CA 95060

Job No. C09001-54

Re: Revised Preliminary Plan Review
Twin Lakes Beachfront
East Cliff Drive between 5th and 7th Avenues
Santa Cruz, California

Dear Ms. Bailey:

As requested and as required by the Santa Cruz County Planning Department, we have reviewed plans pertaining to the proposed improvements of the Twin Lakes beachfront between 5th and 7th Avenues in Santa Cruz, California. The preliminary plans were prepared by RRM, the project civil and landscape engineers (RRM, 2012). We performed a geologic investigation of the subject area in 1995, with an update report completed in 2009 (REJA, 1995; 2009).

The plans depict the currently proposed improvements extending seaward beyond the present edge of bluff. The improvements will be protected by a shoreline protection structure consisting of layered, geofabric-wrapped sand, encased with a reinforced concrete slab keyed into the bedrock wave-cut platform. The surface of the bedrock platform is highly irregular, and may vary in elevation by perhaps 10 feet over short distances. Based on follow-up conversations with the project civil engineers, we understand the seaward edge of the proposed structure will be embedded into the bedrock wave-cut platform to below the 50 year project design scour elevation. It is also our understanding the keyway design and construction will take into account the irregular nature of the platform so as to protect the improvements from scour and undercutting for the project's 50 year design life. The embedment depths will be verified with additional detailed field study and outlined in final design plans.

As depicted on Sheet 8.1: Section 3, the lower portion of the seaward edge of the access pathway is not embedded into the bedrock platform and is subject to undercutting. This will be addressed in final design plans.

ATTACHMENT 7

In the vicinity of 5th Avenue, there is no bedrock wave-cut platform. The seaward edge of the proposed improvements will be supported by deep, precast concrete piles. In addition, a precast concrete wall will protect the base of the improvements from scour. The pilings and wall will extend below the 50 year design scour elevation. This piling and wall system should be incorporated wherever bedrock is not encountered along the seaward edge of the proposed project where subject to wave attack. The piling and wall system, and the entire shoreline protection structure as a whole, should be designed to withstand liquefaction and shaking effects generated by the design earthquake.

Please note: Figures 2 and 3 in our update investigation illustrate the irregularity of the shore platform (REJA, 2009). We did not elaborate on the unevenness of the platform in our 2009 update report as the proposed development plans depicted the improvements, for the most part, upon the blufftop.

The proposed improvements will allow for the infiltration of runoff into the native materials comprising the blufftop, with an allowance for excess runoff to flow into the storm drain system in the event of larger runoff events. We understand that provisions will be made to prevent the buildup of groundwater behind the proposed shoreline protection structure to prevent high pore pressures and piping. Alternatively, the shoreline protection structure should be designed to accommodate saturated undrained conditions.

The fill slope underlying East Cliff Drive between the landward end of the proposed shoreline protection structure and the corner of 7th Avenue is susceptible to scour during the project design life. Provisions to protect the toe of the fill slope from erosion will be outlined in the final design phase of the project.

The improvement area and shoreline protection structure should be periodically inspected, especially after significant wave runup events and/or oceanic storms scour the beach and expose the bedrock platform and the base of the shoreline protection structure.

We would be pleased to assist in additional detailed field studies to help determine and verify the depths and/or extent of the bedrock platform upon which much of the shoreline protection structure will be founded.

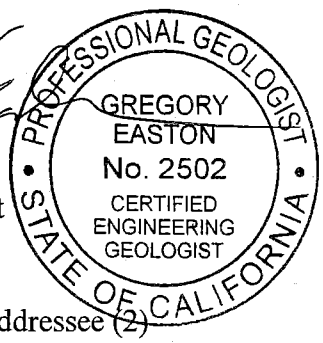
We request the privilege of performing final plan reviews when the final design phase of this project has been completed.

The preliminary plans are in general geologic conformance with the recommendations of our reports.

Please contact us if you have any questions or comments.

Sincerely,

ROGERS E. JOHNSON & ASSOCIATES



Gregory Easton
Project Geologist
C.E.G. No. 2502

Rogers E. Johnson
Principal Geologist
C.E.G. No. 1016

Copies: Addressee (2)
RRM, attn: Mike Sherrod
Haro, Kasunich and Associates, attn: Rick Parks

References:

Rogers Johnson & Associates, 1995, Geologic Report, Proposed Improvements to East Cliff Drive, Santa Cruz Harbor to Schwan Lake, Santa Cruz County, California, unpublished consultants report, job no. C95033-68, prepared 16 October 1995, 57p.

Rogers Johnson and Associates, 2009, Update to Geologic Investigation, Proposed Improvements to Twin Lakes Beachfront, East Cliff Drive - 5th Avenue to Schwan Lake, Santa Cruz, California, Job No. C09001-54, prepared 4 June 2009, 69p.

RRM Design Group, 2012, County of Santa Cruz Department of Public Works, Permit Review Plans for Construction of Public Right-of-Way and Road Improvements for East Cliff Drive at Twin Lakes Beachfront, 5th Avenue to 7th Avenue, Job No. 1309513, 11 sheets dated 10 February 2012.

Halcrow, Inc.
6700 East Pacific Coast Highway, Suite 180
Long Beach, CA 90803
Tel (562) 493 8300 Fax (562) 493 8308
www.halcrow.com

Halcrow

August 1, 2011

Mr. James Davies
Project Manager
County of Santa Cruz
701 Ocean Street, Room 510
Santa Cruz, CA 95060

RE: Twin Lakes Beachfront Improvements Project

Dear Jim:

Attached is our Conceptual Design of Coastline Protection Structures report for the Twin Lakes Beachfront Improvements Project. The project consists of roadway realignment, bicycle lanes, pedestrian walkways, and improved parking and beach access on the stretch of coastline along East Cliff Drive from 5th to 7th Avenue.

As part of the RRM Design Group team, Halcrow, Inc. was responsible for developing, evaluating and recommending alternatives for coastal protection structures. We performed coastal studies and investigations to characterize the site and assess local conditions from the marine perspective; developed conceptual designs, evaluated protective structures and structural system alternatives, and recommended preferred alternatives.

Please feel free to contact us if you have any questions about this report.

Very truly yours,

HALCROW, INC.

Claudio Fassardi
Principal

Robert Andrews, P.E.
Vice President
Civil Engineer, CA #45405
Exp. 9/30/12

SJ/nc

ATTACHMENT

County of Santa Cruz

Twin Lakes Beachfront Improvements

Conceptual Design of Coastline Protection Structures

August 2011

Final Report

Halcrow, Inc.

Halcrow, Inc.
6700 E. Pacific Coast Highway, Suite 180, Long Beach, CA 90803
Tel: (562) 493-8300, Fax: (562) 493-8308
www.halcrow.com

ATTACHMENT 3

1 Executive Summary

As part of the RRM Design Group (RRM) team, Halcrow, Inc. (Halcrow) performed coastal studies and investigations to support the development of architectural plans for the Twin Lakes Beachfront Improvements Project. In addition, Halcrow developed conceptual designs and evaluated protective structures and structural system alternatives, and recommended preferred alternatives. The County of Santa Cruz (County) project, which in August of 2009 consisted of the development of conceptual designs of a series improvements on the stretch of coastline from 5th Avenue to 9th Avenue at Schwan Lake, was expanded on October 2010 to include the stretch of coastline from 9th Avenue to 11th Avenue along which the construction of a pedestrian pathway across the lake's inlet was under consideration by the County. Subsequently, in mid 2011, the project was scaled back to accommodate a reduced project budget. The extents of the improvements were therefore limited to East Cliff Drive from 5th Avenue to 7th Avenue. This report describes the work performed by Halcrow as the design moved through the different stages since inception.

Halcrow performed a comprehensive collection and analysis of data and information, and performed two visits to characterize the project site and assess local conditions. In order to determine the need of structures to protect the planned improvements, an assessment of the risk of bluff erosion was performed. This assessment was of qualitative nature given the very limited data and information available for the project site. The analysis of the anecdotal evidence, scientific research, and results of previous investigations showed that during years of severe winter storms or less than planned beach nourishment, the beach would be depleted of sand due to the erosive action of the waves; exposing the bluffs, adjacent roadway at East Cliff Drive and the planned improvements to potential damage due to wave erosion, overtopping and flooding. It was concluded that on the basis of this analysis and in conjunction with current projected trends in sea level rise due to global warming and the exposed location of the project to ocean waves, the risk of bluff erosion is high and protection structures are considered necessary to stabilize the bluffs and protect the planned beachfront improvements.

Marine conditions at Twin Lakes State Beach (TLSB) consisting of wave, tide levels, wave runup and setup were defined by means of numerical modeling. Using the marine conditions and previous beach surveys performed on behalf of the County, 100-year return period Total Water Levels (TWL's) were estimated for three sea level rise scenarios: a) no global warming year 2110, b) with global warming year 2060 and c) with global warming year 2090.

As the architectural plans evolved, a preliminary wave overtopping analysis was performed to determine initial estimates of the required crest elevations of the protective structures for each sea level rise scenario. The results of the analysis indicated that architectural plans featuring improvements and protective structures with crest elevations equal or marginally higher than the existing East Cliff Drive elevations would provide sufficient wave overtopping protection at least for the next 50 years in a sea level rise scenario with global warming, and that the elevations necessary to provide protection in a scenario of sea level rise with global warming in the next 100 years would be excessive and impractical.

Eight alternatives of structures/structural systems were analyzed including: cast-in-place retaining structures, pre-cast caissons, cement deep soil mixing, rip-rap revetment, and mechanically stabilized earth systems. Constructability, impacts to public access during construction, foundation effectiveness and relative cost were evaluated for each alternative.

Upon evaluating the advantages and disadvantages of each structure and structural system, and considering the requirements of the project and site conditions, structures consisting predominantly of a mechanically stabilized earth (MSE) structural system with a concrete facing finished to emulate the local Purisima geologic formation were recommended from 5th Avenue to 9th Avenue; and a rip-rap revetment from 9th Avenue to 11th Avenue.

A detailed wave overtopping analysis was performed on the final conceptual design sections, which showed that the architectural plan of November 2010 featuring improvements and protective structures with crest elevations equal or marginally higher than the existing East Cliff Drive elevations would provide sufficient wave overtopping protection at least for the next 50 years in a sea level rise scenario with global warming. On the basis of these initial findings and on a preliminary basis it can be concluded that existing adjacent properties and structures will not be negatively impacted by the proposed improvements.

Antonella Gentile

From: Hornick, Michael [Michael.Hornick@fema.dhs.gov]
Sent: Thursday, January 19, 2012 9:26 AM
To: Antonella Gentile
Subject: Fw: Twin Lakes Beachfront Improvement Project

Antonella.....this just in from Ed Curtis. It should suffice as a "peer" review. See you later.

From: Curtis, Edward
Sent: Wednesday, January 18, 2012 09:31 PM
To: Hornick, Michael
Subject: Twin Lakes Beachfront Improvement Project

Michael –

I reviewed the August 2011 Final Report prepared by Halcrow, Inc. (Halcrow) titled "County of Santa Cruz Twin Lakes Beachfront Improvements – Conceptual Design of Coastline Protection Structures". The methodology used by Halcrow to determine 1% annual chance (100-year) Total Water Levels for various sea level rise scenarios is in accordance with the FEMA Final Draft Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States (FEMA Guidelines). The FEMA Region IX California Open Pacific Coast study is using the same FEMA Guidelines to analyze and re-map the Santa Cruz County for an update of the Flood Insurance Rate Map panels along the county coastline. FEMA's Production and Technical Services contractor, BakerAECOM LLC, will apply the same basic approach as Halcrow, but will start with base map data (topography, tidal data, and wave hindcast data) current to the year 2010 rather than 2008 data used for the Halcrow study. I believe that both studies will be based on the same set of bathymetry data. The FEMA study will not include any forecast sea level rise, so the resulting FIRM panels will be based on 1% annual chance TWLs for current (2010) shore and sea level conditions.

Please contact me if you need additional information.

Ed Curtis, P.E., CFM
Risk Analysis Branch
FEMA Region IX
(510) 627-7207 - office
(510) 295-5249 - mobile

As of November 30 my e-mail address changed to "edward.curtis@fema.dhs.gov". Addresses ending in "@dhs.gov" or "@fema.gov" will no longer function and you will likely see a bounce-back error message. Please update my email address in your Contacts list. Thank you.

ATTACHMENT 9

Halcrow, Inc.
6700 E. Pacific Coast Highway, Suite 180
Long Beach, CA 90803
Tel: (562) 493-8300
www.halcrow.com

Halcrow

February 23, 2012

Mr. Mike Sherrod, ASLA, LEED AP
RRM Design Group
3765 South Higuera St., Suite 102
San Luis Obispo, CA 93401

RE: Twin Lakes Beachfront Improvement Project
Design Development Review

Dear Mr. Sherrod:

After reviewing the Design Development Concepts drawings dated February 10, 2012 developed by RRM Design Group, it appears that the proposed design development is consistent with the recommendations provided in our Conceptual Design of Coastline Protection Structures report, dated August 1, 2011.

Sincerely,

HALCROW, INC.

Claudio Fassardi
Principal

Robert Andrews, P.E.
Vice President
Civil Engineer, CA #45405
Exp. 9/30/12

ATTACHMENT 10

DRAINAGE REPORT FOR

Public Right-of-Way and Road Improvements for East Cliff Drive at Twin Lakes Beachfront

Santa Cruz, California
County of Santa Cruz

Prepared for
County of Santa Cruz - Public Works

Prepared by

rrmdesigngroup

creating environments people enjoy®

November 22, 2011

ATTACHMENT 11

1.0 INTRODUCTION

The proposed project is located on East Cliff Drive between the cross streets of 5th Avenue and 7th Avenue in the Leona Creek Drainage Basin of Flood Zone 5 in Santa Cruz County. Project improvements cover an area of approximately 1.71 acres. The project consists of bluff stabilization and coastal armoring along the Twin Lakes beach front, along with an all new parking configuration and multi-use path layout. The new parking configuration along the beach front will lend itself to a slightly revised road alignment and additional storm drainage facilities with an infiltration component to accommodate first flush storm runoff. Impacts to site drainage will be minimal due to project construction with only a minimal increase in impervious area and an overall upgrade and enhancement to the existing storm drainage system. This report covers the drainage system within the project site area as well as the upstream watershed between 5th Avenue and 7th Avenue. Refer to *the Stormwater Management Report for Schwan Lake Pedestrian Improvements – East Cliff Drive – 9th Ave to 12th Ave.* for analysis of watersheds between 7th Avenue and 12th Avenue.

2.0 BASIS OF CALCULATIONS

The **Rational Formula** is used to determine surface flow rates:

Q=CiA

Where:

Q= Estimated Peak Surface Runoff Coefficient (CFS)
Ca= Antecedent Moisture Facture (Unitless)
C= Runoff Coefficient (Unitless)
i_a= Rainfall Intensity Adjustment Factor (Unitless)
i= Rainfall Intensity (in/hr)
A= Area of Site (Acres)

ATTACHMENT 11

3.0 DESCRIPTION OF SITE DRAINAGE PATTERNS

Existing Conditions	
Basin	
A	Basin drains down 5th Ave. to E. Cliff Drive to surface flow west towards harbor. This basin drains offsite and will does not affect proposed improvements.
B	Basin drains primarily east to road side berm/channel where existing culvert structure passes drainage below existing park road and on to defined swale/creek.
C	Basin drains down 7th Ave. and east down E. Cliff Dr. to existing catch basin with 15" CMP outlet to beach.
D	Basin drains down 7th Avenue towards E. Cliff Dr. intersection and in to existing catch basin at return.

Proposed Conditions	
Basin	
B1	Area drains to parking bay with proposed infiltration and standard catch basin adjacent to roundabout and bluff improvements.
B2	Area drains to central proposed parking bay equipped with proposed infiltration and standard catch basins
B3	Area drains to parking bay with proposed infiltration catch basin and standard catch basin with outlet
B4	Area drains to proposed catch basin on north side of roundabout adjacent to parking bay
B5	Area drains to proposed catch basin at eastern corner of 6th Ave. and E. Cliff Dr. intersection
C	Area drains to existing catch basin with 15" CMP outlet to beach
D	Basin drains down 7th Avenue towards E. Cliff Dr. intersection and in to existing catch basin at return.

Refer to "Project Drainage Basin" Maps for delineated areas

ATTACHMENT 11

4.0 ANALYSIS & DISCUSSION

HYDROLOGY (OVERLAND FLOW):

Calculations for project post-development overland flows are shown in the "Hydrology Calculations" section of the report. Overland flows were calculated for all sub-basins individually for the 10 and 25 year storm events. These values are used for further analysis in subsequent of the report. A table summarizing these calculations is shown in Section 5.0

GUTTER CAPACITY CHECK

Calculations for gutter capacity check are located within the Hydraflow Storm Sewers analysis "Inlet Report" spreadsheet under the spread heading. Sub-basin B4 calculations show a large gutter spread width due to inadequate storm drain infrastructure upstream of the project area. The installation of additional inlets is recommended in the upper portions of Basin B to reduce drainage impacts and gutter spread within the proposed project area.

HYDRAULIC CAPACITY CHECK

Calculations for project post-development hydraulic capacity for existing and proposed storm drain infrastructure within the project area are shown on the Hydraflow Storm Sewers analysis spreadsheets. Hydraulic capacity was checked for 10 and 25-year storm events and proposed systems have been designed to adequately handle a 25-year storm event. Calculations show that all inlets and pipes will handle a 25-year storm event with additional freeboard in the system. It should be noted that existing storm drain pipes within the project boundary show evidence of reduced effectiveness due to lack of maintenance and clogging. All existing pipes should be maintained or replaced during project construction.

WATER QUALITY TREATMENT UNITS

A secondary storm drain system designed to capture first flush flows will be utilized alongside the standard storm drain system. The secondary system will capture the more heavily polluted dry weather and initial storm event runoff, and route to an infiltration system that will filter and cleanse the water. The proposed storm drain facilities are designed as a flow based BMP for infiltration of first flush flows through the gravel bed and surrounding sandy soils, in-lieu of draining untreated run-off directly to the beach. The Uniform Intensity Approach where the flow of runoff from a rain event equal to at least 0.2 inches per hour intensity has been used to size the facilities. The proposed

ATTACHMENT 11

facilities are very similar to the Santa Cruz County Standard – Fig. SWM-12 "Water Quality Treatment Unit for Small Drainage Areas" and will perform in a comparable fashion. Actual infiltration rates will be dependent on soil conditions surrounding the treatment unit. A treatment drain box of larger dimensions can be used as a method of storing a larger volume of water if deemed necessary. An appropriate sand and gravel mixture will need to be determined that will be able to filter and cleanse the water at a rate able to handle the Standard California Water Quality Treatment Intensity of 0.2 inches per hour. Storm water will simply back up out of the secondary catch basin and into the adjacent primary storm drain system once capacity of the secondary system occurs. Please refer to the details and product cut-sheets within this report for more information.

5.0 SUMMARY OF RESULTS

The table below summarizes all storm runoff data and water quality treatment flows.

STORMWATER FLOW SUMMARY				
Sub-Basin	Area (ac)	Q10 (CFS)	Q25 (CFS)	Q_{WQ} (CFS)
A	2.90	4.72	6.23	0.51
B	4.75	7.71	10.18	0.84
B1	0.08	0.15	0.19	0.01
B2	0.09	0.16	0.22	0.02
B3	0.06	0.11	0.14	0.01
B4	4.48	8.18	9.6	0.72
B5	0.17	0.31	0.41	0.03
C	1.35	2.19	2.89	0.22
D	0.15	0.27	0.36	0.03

Q10 = Post Development flow for a 10-Year Storm Event
Q25= Post Development flow for a 25-Year Storm Event
Qwq = Required treatment flow based on California Water Quality Standards

6.0 CONCLUSIONS

Based on analysis shown in this report, all storm drain components have been checked to adequately handle a 25 year design storm event. In addition, the proposed storm drain infiltration system will effectively re-route and improve the water quality of a portion of these flows before they reach Twin Lakes Beach and adjacent coast waters.

ATTACHMENT 11

AN OVERVIEW REGARDING THE IMPACT OF THE PROPOSED STREET IMPROVEMENTS ON SIGNIFICANT TREES WITHIN THE TWIN LAKES BEACHFRONT PROJECT

REQUESTED BY:
JAMES DAVIES
PROJECT MANAGER
SANTA CRUZ COUNTY REDEVELOPMENT AGENCY
701 OCEAN STREET, ROOM 510
SANTA CRUZ, CA 95060

SITE INSPECTION ON AUGUST 4, 2009
REPORT UPDATED - MARCH 24, 2010
BY NIGEL BELTON
ISA CERTIFIED ARBORIST WE410A

JOB: RDA – TWIN LAKES BEACHFRONT PROJECT

ATTACHMENT 12

AN OVERVIEW REGARDING THE IMPACT OF THE PROPOSED STREET IMPROVEMENTS ON SIGNIFICANT TREES WITHIN THE TWIN LAKES BEACHFRONT PROJECT

PAGE 10.

Summary:

Care must be taken in close proximity to the three Blue Gum Eucalyptus Trees located on the State Beach and one Eucalyptus Tree located on the bank below the county right of way. (Trees #1 though #4) regarding any construction activities that could be injurious to their roots. Design considerations and construction methodologies must be compatible with the goal of reducing damage to the roots of these trees.

Recommendations:

The utilization of pier and grade beam foundations (or appropriate alternative designs) for the proposed retaining walls adjacent to the Eucalyptus trees will most likely be required to ensure root protection. Hand excavation of the proposed wall foot print profiles and pier locations in the adjacent slopes will be needed to determine if excessive root damage will occur during construction work. The design of the stair way in close proximity to Tree #4.will require care to minimize grade changes and the potential for root loss.

Note that this report is a preliminary overview of concerns regarding the impact of the proposed improvements. I will need to review the detailed design plans concerning the welfare of these trees before the final construction plans are approved.

The conceptual plan identifies the following activities that have potential to damage the roots of these trees:

- The installation of retaining walls in close proximity to the tree root collars.
- The removal of the existing access roadway near tree #1.
- The raising of grades under the canopy drip line of tree #1.
- The construction of a new access roadway in close proximity to tree #1.
- The construction of a pedestrian walkway and stairs in close proximity to tree #4.

I recommend that State Parks be approached regarding pruning trees #1.through #4.to reduce potential hazards from limb failures over the roadway, parking areas, walkways and the beach area before improvements are installed.

The two other Blue Gum Eucalyptus trees (tree numbers 5. and 6.) are not likely to be significantly impacted by the improvement project.

AN OVERVIEW REGARDING THE IMPACT OF THE PROPOSED STREET IMPROVEMENTS ON SIGNIFICANT TREES WITHIN THE TWIN LAKES BEACHFRONT PROJECT

PAGE 11.

Recommendations - Continued

The two Palms that are located in the right of way in front of 2616 East Cliff Drive (trees number 7. and 8.) are within the improvement area and must be transplanted at another location or removed.

The two Monterey Cypress Trees located in the right of way adjacent to 2610 East Cliff Drive (tree numbers 9. and 10.) will have to be removed because they are in the improvement area. Tree number 10. is declining in health. The large dead scaffold limb on the south side of this tree is a hazard and should be removed as soon as possible.

Please contact me if you have any questions.

Sincerely yours

Nigel Belton

Two Attachments – A photograph of the Monterey Cypress on the corner of 6th Avenue
- A tree inventory map of the project

ATTACHMENT 12

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
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

Sheryl Bailey
701 Ocean Street, 4th Floor
Santa Cruz, CA 95060

September 16, 2011

Re: Application: REV111053

Dear Ms. Bailey:

The review of your biotic assessment, authored by Johns Gilchrist and Brian Mori, dated January 29, 2010, has been completed and the report has been accepted.

The proposal is for beachfront improvements to East Cliff Drive, between 5th and 9th Avenues, to provide an adequate bikeway and safe pedestrian path, with formalized parking and landscaping.

The biotic assessment identifies potential impacts to nesting birds, and recommends preconstruction surveys and buffer zones should active nest be present in the work area.

If the development proceeds as proposed and the recommendations put forth in the above-cited report, as described below, are implemented, we find this project will have no significant biological impacts.

Conditions for nesting birds:

Construction shall be timed, as much as feasible, to avoid the bird nesting season (March 1 to September 1). If construction must take place during the nesting season, pre-construction surveys shall be conducted for nesting birds at least two weeks before but not more than four weeks before construction begins. The survey area shall include the disturbance area plus up to 250 feet where nesting habitat for cormorants or raptors is present.

If active nests or nesting behavior is observed, a 60-foot buffer around songbird nests and a minimum 250-foot buffer around cormorant or raptor nests shall be established. No construction shall take place within a buffer until such time as the nests are no longer active. During construction activities a biological monitor shall record the behavior of nesting birds and shall have the authority to increase the buffer as needed.

Please call me if you have any questions about this letter. A copy will also be sent to the project

ATTACHMENT 13

planner so that the conditions can be properly incorporated into any future permit.

Sincerely,

Matthew Johnston
Environmental Coordinator

CC: Antonella Gentile, Resource Planner
Sheila McDaniel, Project Planner

ATTACHMENT 13

BIOTIC ASSESSMENT

TWIN LAKES BEACHFRONT PROJECT
EAST CLIFF DRIVE, 5TH TO 9TH AVENUES
SANTA CRUZ COUNTY, CALIFORNIA

Prepared for:

James Davies
County of Santa Cruz
Redevelopment Agency

Prepared by:

John Gilchrist and Bryan Mori
John Gilchrist & Associates

January 29, 2010

ATTACHMENT 14

BIRD SPECIES PROTECTED BY THE MIGRATORY BIRD TREATY ACT (MBTA)

The MBTA prohibits the take (e.g., capture, harm, killing, etc.) of virtually all birds, their eggs and nestlings, except for rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*), which are introduced non-native species.

Bird nesting surveys were conducted along the project alignment and in the project vicinity in summer 2009. During those surveys, species were recorded, including those protected by the MBTA.

Double-crested Cormorant

Double-crested cormorants (rookery sites) are considered both state (CDFG 2009b) and MBTA protected. Double-crested cormorant nests have been identified at Schwan Lake in 2005, 2007 and 2009 (J. Gilchrist and Associates 2009). Due to the proximity of Schwan Lake to the subject area, site surveys focused on possibility of cormorant nesting in eucalyptus trees. No confirmed evidence of nesting was detected, and eucalyptus trees in the study area lacked snag limbs that are common to nest sites at Schwan Lake. Double-crested cormorants at Schwan Lake do not appear to be sensitive to normal, ongoing human activities such as car, bicycle and pedestrian traffic on East Cliff Drive. However, heavy seasonal pedestrian and recreational use under and around the eucalyptus trees in the project area make nesting within the project site unlikely.

Other Nesting Birds

No confirmed nesting for other native species was recorded in 2009. However an inactive platform type nest was seen and believed to be from an American crow (*Corvus brachyrhynchos*). In addition, during the 2009 site survey other species were observed including chestnut-backed chickadee (*Poecile rufescens*), Brewer's blackbird (*Euphagus cyanocephalus*), brown creeper (*Certhia americana*) and house finch (*Carpodacus mexicanus*). These and other land birds have the potential to nest in the trees along the project alignment.

Raptors were not considered further in this report due to heavy pedestrian use beneath the eucalyptus trees in the project alignment, rendering the trees unsuitable as nesting sites. These trees, however, may be used as occasional roost sites.

IMPACTS and MITIGATION

The proposed project involves construction of a series of improvements to facilitate traffic, parking, pedestrian and bicycle circulation. The installation of bluff stabilization and landscaping is also part of the project. The standard thresholds of significance presented in CEQA were used to evaluate project impacts and to determine if the proposed project poses significant impacts to biological resources. For this analysis, significant impacts are those that substantially affect either:

- A plant species or community listed as sensitive or rare by the State
- A wildlife species listed or proposed for listing by State or Federal governments as rare, threatened or endangered, including its habitat.
- Nesting habitat for a State species of special concern.
- Nesting birds protected under the Federal Migratory Bird Treaty Act or Section 3503.5 of CDFG Code.
- A habitat recognized as sensitive by State and County of Santa Cruz (i.e., riparian or wetland habitat, native coastal strand community).

VEGETATION

Impact: The project occurs largely within non-native ruderal vegetation, requiring removal of that vegetation type. This is not considered a significant biotic impact. In fact iceplant (*Carpobrotus edulis*) is considered an invasive species and its removal would be beneficial. The disjunct non-native annual grassland areas are also not biologically important. The mature eucalyptus and cypress trees will be retained and incorporated into the landscape plan for the project site. Measures are planned (temporary fencing, contractor education) to identify and isolate these trees from the construction zone.

1. **Recommended Mitigation:** None needed

WILDLIFE

Impact--Double-crested Cormorant and other Nesting Birds. Construction-related disturbances and habitat removal could result in the disruption of nesting activities of birds inhabiting the project alignment. No nesting was found during the 2009 surveys, however those surveys were conducted late in the nesting season and during a single year. Nesting of native land bird species is a possibility in trees and large shrubs within the project site. All native bird species that could nest in the project area are protected by the Migratory Bird Treaty Act. No special-status species are expected to use trees as nesting habitat.

Recommended Mitigations—Nesting Birds:

2. Updated pre-construction nesting surveys should be conducted by a qualified wildlife biologist prior to the start of construction activities. Results of those surveys should be incorporated into contractor construction documents. Construction activity conducted after September 1 and before March 1 does not require a nesting survey.

3. If active nesting or nesting behavior is observed, a 60-foot buffer shall be established around a songbird nesting area or a minimum of 250 feet from a cormorant rookery or raptor nest. A monitoring biologist should be present to record the behavior of nesting cormorants and to

ATTACHMENT 14

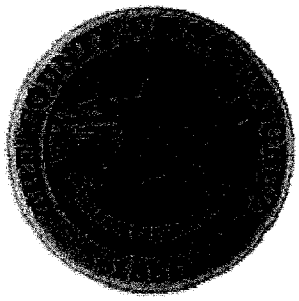
increase the buffer zone distance, as needed. No construction activities should be allowed within these buffer zones. Construction activities would be allowed elsewhere outside of the buffer areas. If the wildlife biologist determines evidence of nesting is no longer observed, project activities can be allowed to start immediately

GRADING REPORT FOR

Public Right-of-Way and Road Improvements for East Cliff Drive at Twin Lakes Beachfront

Santa Cruz, California
County of Santa Cruz

Prepared for
County of Santa Cruz - Public Works



Prepared by

rrmdesigngroup

creating environments people enjoy®

July 19, 2011

ATTACHMENT 1

1.0 INTRODUCTION

The proposed project is located on East Cliff Drive between the cross streets of 5th Avenue and 7th Avenue in the Leona Creek Drainage Basin of Flood Zone 5 in Santa Cruz County. Project improvements cover an area of approximately 1.71 acres. The project consists of bluff stabilization and coastal armoring along the Twin Lakes beach front, along with an all new parking configuration and multi-use path layout. The new parking configuration along the beach front will lend itself to a slightly revised road alignment along with proposed curb and sidewalk along the entire frontage of the project.

2.0 BASIS & METHOD OF CALCULATIONS

Site paving quantities are computed by quantifying the amount of area for the proposed paved area and multiplying by the depth of each material. Overall grading quantities have been determined through proposed vs. existing surface analysis in Autocad Civil 3D.

3.0 CONCLUSIONS

The overall grading quantities show that the project site will produce an excess cut of soils and beach sand. All cut shall be hauled off site and disposed of at a county landfill or other appropriate facility. However, a large portion of the cut generated will be from beach sand and can be reused at Twin Lakes Beach as part of the beach re-nourishment program. Required demolition on the project site will also generate materials in the form of asphalt, base rock, and concrete. These materials will need to be hauled off to an appropriate facility as well.

ATTACHMENT 15

Public Right-of-Way and Road Improvements for East Cliff Drive at Twin Lakes Beachfront				
Roadway Paving Calculations	**Area (SF)**	**Depth (ft)**	**Vol (CF)**	**Vol (CY)**
Existing AC Removal (3" Depth assumed)	37070	0.25	9268	343
Existing Baserock Removal (9" Depth assumed)	37070	0.75	27803	1030
Proposed AC Pavement	40850	0.25	10213	378
Proposed Baserock	40850	0.75	30638	1135
Overexcavation and Recompaction	40850	0.5	20425	756

Grading Volume Calculations		
Project Site Area	**Cut Vol (CY)**	**Fill Vol (CY)**
5th Ave. to 7th Ave.	1158	2338

Total Cut: 1158 CY Total Fill: 2338 CY

Project Site Net Total : 1180 CY (FILL)*

Notes: * A large portion of the cut shown above is excavated beach sand and can be reused at Twin Lakes Beach as part of a beach re-nourishment program.

ATTACHMENT 15

County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 111134

APN --

Your plans have been sent to several agencies for review. The comments that were received are printed below. Please read each comment, noting who the reviewer is and which of the three categories (Completeness, Policy Considerations/Compliance, and Permit Conditions/Additional Information) the comment is in.

Completeness: A comment in this section indicates that your application is lacking certain information that is necessary for your plans to be reviewed and your project to proceed.

Policy Considerations/Compliance: Comments in this section indicate that there are conflicts or possible conflicts between your project and the County General Plan, County Code, and/or Design Criteria. We recommend that you address these issues with the project planner and the reviewer before investing in revising your plans in any particular direction.

Permit Conditions/Additional Information: These comments are for your information. No action is required at this time. You may contact the project planner or the reviewer for clarification if needed.

Accessibility Review

Routing No: 2 | Review Date: 12/19/2011

SHEILA MCDANIEL (SMCDANIEL) : Complete

Comments were pasted from Email to Hansen.

This Development Application, 111134, is up for a 2nd review.

Comments were not addressed in revised plans. Condition the project to require the project to address the following prior to building permit/construction.

1.□Abrupt changes in level adjacent to the cliff side paths of travel, exceeding 4 inches in a vertical dimension, shall be identified by curbs projecting at least 6 inches in height above the walk or sidewalk surface to warn the blind of a potential drop off. When a guard or handrail is provided, no curb is required when a guide rail is provided centered 3 inches plus or minus 1 inch above the surface of the walk or sidewalk, the walk is 5 percent or less gradient or no adjacent hazard exists. (CBC 1133B.8.1)

2. An accessible curb ramp at the passenger loading zone is required. (CBC 113

3. Directional signage to identify accessible beach access point(s) to be located stairs and accessible parking space. (CBC 1117B)

Coastal Commission Review

Routing No: 1 | Review Date: 08/30/2011

SHEILA MCDANIEL (SMCDANIEL) : No Response

ATTACHMENT 1

County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 111134

APN --

Coastal Commission Review

Routing No: 1 | Review Date: 08/30/2011

SHEILA MCDANIEL (SMCDANIEL) : No Response

Drainage Review

Routing No: 2 | Review Date: 12/19/2011

SHEILA MCDANIEL (SMCDANIEL) : Complete

APP 111134-
Sent via email 12/16/11
Plans and Drainage Report dated 11/22/11 has been received.

Compliance/Condition Comments:

1) The drainage analysis does not include evaluation of drainage at the intersection of 5th and East Cliff except to say that it drains down the harbor. Based on input from road maintenance personnel this area currently has ponding and drainage problems. Please provide evaluation of proposed drainage patterns in this area including flow line profiles, cross-sections and update the plans to include drainage facilities as needed to provide positive drainage in this area considering sand build-up from the beach.

2) Provide valley gutters at road intersections.

3) There are inconsistencies in the response to comments, drainage report, and plans regarding the existing storm drain facilities. Please update all notes so that it is clear that these pipes will be replaced with this project. The proposed replacement storm drains in East Cliff Drive should be 18" HDPE pipes to meet the County Design Standard minimum.

4) The response to comments states that the landscape island at 5th Avenue will be depressed but the proposed grading plan does not show this. Please add information on the grading and/or landscape plans consistent with this concept. Please also describe how road runoff will be allowed to enter this landscape area (curb cuts, flush curb, etc.) and provide overflow drains as necessary based on site soils.

5) Per DPW road maintenance the proposed 18" square inlets for water quality treatment are too small for maintenance with the County vactor equipment. Please consult with road maintenance to determine what the minimum size inlet is that is acceptable if the standard sized G-O inlet is not proposed. How will the eco rain drainage cell and the gravel bed at the base of the water quality inlets be designed so as to withstand maintenance and cleaning with vactor equipement?

6) Provide a final drainage plan and analysis demonstrating that the drainage facilities located within the project boundaries (existing to remain and proposed) meet design criteria requirements. And

Drainage Review

Routing No: 2 | Review Date: 12/19/2011

SHEILA MCDANIEL (SMCDANIEL) : Complete

final details such as invert elevations, slopes, etc. to the plans. Assume full pipe or expected water surface flood elevation (the total water level shown on sheets 8.1 and 8.2 are adequate) in the drainage system analysis for conservative outlet boundary condition. The final analysis will be checked relative to County Standard Figure SWM-6. Add an additional inlet or enlarged inlet at the bottom of Basin B as necessary to capture the 10 and 25 year flows in the system. The final plans should provide elevation and drainage patterns for the proposed sidewalk areas.

7) Per discussion with the design engineer infiltration of small storms via the treatment boxes and perforated pipes will be the mode of water quality treatment. Please provide elevation information on the plans that described how runoff will first be directed to the treatment boxes. Provide analysis based on site soils demonstrating the proposed surface areas in the boxes will be adequate to treat the water quality treatment rates quantified in the drainage report. Soil infiltration data should take into account compaction occurring due to construction and traffic. Provide construction details for the proposed perforated pipes. Are there perforated pipes outlets to the beach? What are the grey lines shown from the infiltration inlets toward the beach meant to represent? Provide analysis demonstrating that standing water in the infiltration inlets and perforated pipes will infiltrate within 48 hours so as not to cause vector control problems.

9) Provide details/specifications for the proposed outlets. Please include some type of signage or marker at the outlets for ease of maintenance.

10) Will the proposed drainage facilities outside of the County road right of way be maintained by County Roads or State Parks? If these facilities are to maintained by the County an easement for the installation and maintenance of these facilities is required. Please provide a copy of the easement prior to recordation for review and a copy of the final recorded document for our records.

11) Final drainage plans shall be consistent with final landscape and grading plans.

12) Provide a final geotechnical review letter approving of the proposed drainage plan and confirming that the infiltration rate/percolation rates used for water quality treatment design are appropriate for the site conditions.
Informational Items

13) The perforated pipes and existing pipes and shown on sheet 5.1 are very difficult to see. Please use a different line type so that they are legible. If these pipes are to be replaced they should show up as proposed pipe linetypes.

INFORMATIONAL ITEMS

Drainage Review

Routing No: 2 | Review Date: 12/19/2011

SHEILA MCDANIEL (SMCDANIEL) : Complete

14) Public Works will inspect the installation of the drainage items. Provide specifications/construction notes on the plans regarding any specific guidelines such as non-disturbance areas to limit soil compaction, construction staging, infiltration rate testing for amended soils, decompaction of soils. Prior to building permit issuance, once all other reviewing agencies have approved the plans, submit a copy of reproducible civil plans to DPW for routing and signature (allow 1-2 weeks for this process). A deposit will be required for inspection fees which will be charged at cost.

15) Construction activity resulting in a land disturbance of one acre or more, or less than one acre but part of a larger common plan of development or sale must obtain the Construction Activities Storm Water General NPDES Permit from the State Water Resources Control Board. Construction activity includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. For more information see: http://www.waterboards.ca.gov/water_issues/programs/stormwater/gen_const_faq.shtml

Driveway/Encroachment Review

Routing No: 1 | Review Date: 08/25/2011

DEBRA LOCATELLI (DLOCATELLI) : Complete

Completeness Comments: Application Complete? _X_ Yes ____ No

Policy Considerations and Compliance Issues:

The following items shall be addressed at the time of BUILDING PERMIT SUBMITTAL:

1. Construction notes - Sheet 5.1 of plans indicate the installation of new fire hydrants. Please indicate location on plans. Also, please include dimensions for sidewalk transition at obstruction, for the obstructions that can not be placed behind the curb, (obstructions include utility poles, fire hydrants, etc.) with a 4' clear sidewalk per County of Santa Cruz Design Criteria FIG ST-12.
2. Curb ramps, driveway approaches (including ADA wraps) - Construction notes on Sheet 5.1 indicate the construction is "modified" from the detail noted. Please note on plans that the details are per the County of Santa Cruz Design Criteria. If modification is required, please contact Encroachment Section to discuss, prior to submittal of building plans.
3. Please provide construction details, for improvements within the County right-of-way, per the County of Santa Cruz Design Criteria.

Permit Conditions and Additional Information:

Encroachment Permit required for all work proposed within County right-of-way; to be submitted at the time of building permit submittal. Please submit an Encroachment Permit Application with two copies of full set of plans.

Environmental Planning

Routing No: 3 | Review Date: 03/16/2012

ATTACHMENT 16

County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 111134

APN --

Environmental Planning

ANTONELLA GENTILE (AGENTILE) : Complete

Project conditions:

1. Project shall comply with all recommendations provided in the Engineering Geology Report dated 6/4/2009 and the Revised Preliminary Plan Review dated 2/21/2012 by Rogers E. Johnson and Associates.
2. Project shall comply with all recommendations provided in the Geotechnical Engineering Report dated 6/4/2011 and Geotechnical Review of Conceptual Plans dated 2/23/2012 by Haro, Kasunich, and Associates, Inc.
3. Project shall comply with all requirements set forth in the Biotic Report Review Acceptance Letter by Matt Johnston.

Fire Review

Routing No: 1 | Review Date: 08/17/2011

KAREN MILLER (KMILLER) : Complete

Date: August 12, 2011

To: County of Santa Cruz Public Works

Applicant: same

From: Tom Wiley

Subject: 111134

Address N/A

APN: None

OCC: None

Permit: 20110161

We have reviewed plans for the above subject project.

The following NOTES must be added to notes on velums by the designer/architect in order to satisfy District requirements when submitting for **Application for Building Permit:**

Show on the plans new public fire hydrants, meeting the minimum required fire flow. Place one new hydrant in the area of 6th and East Cliff on the N/W corner, and one fire hydrant next to 027-182-04 prior to the corner of East Cliff Dr.

Show on the plans DETAILS of compliance with the District Access Requirements outlined on the enclosed handout. The roadway(s) are required to be designated as fire lanes, and painted with a red curb with FIRE LANE NO PARKING in contrasting color every 30 feet on the top of the red curb. If the roadway is 27' or less, both sides of the street/roadway shall be painted, 35' and down to 28' in width, the roadway curbs shall be painted on one side, and 36' and wider no red curb is required. All cul-de-sacs shall be fire lane, red curbed.

Submit a check in the amount of $115.00 for this particular plan check, made payable to Central Fire Protection District. A $35.00 **Late Fee** may be added to your plan check fees if payment is not received within 30 days of the date of this Discretionary Letter. INVOICE MAILED TO APPLICANT. Please contact the Fire Prevention Secretary at (831) 479-6843 for total fees due for your project.

If you should have any questions regarding the plan check comments, please call me at (831) 479-6843 and leave

Fire Review

Routing No: 1 | Review Date: 08/17/2011

KAREN MILLER (KMILLER) : Complete

a message, or email me at tomw@centralfpd.com. All other questions may be directed to Fire Prevention at (831)479-6843.

CC: File & County

As a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with applicable Specifications, Standards, Codes and Ordinances, agree that they are solely responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source. Further, the submitter, designer, and installer agrees to hold harmless from any and all alleged claims to have arisen from any compliance deficiencies, without prejudice, the reviewer and the Central FPD of Santa Cruz County.
East Cliff-081211

Road Engineering Review

Routing No: 1 | Review Date: 08/31/2011

RODOLFO RIVAS (RRIVAS) : Complete

Completeness Comments:

Permit Conditions and Additional Information:

1) Replace pavement bike symbol with "BIKE LANE" legend.
2) Provide ADA parking signs and markings per CAMUTCD.
3) Provide road striping and marking details.

County of Santa Cruz

REDEVELOPMENT AGENCY

701 OCEAN STREET, ROOM 510, SANTA CRUZ, CA 95060-4073
(831) 454-2280 FAX: (831) 454-3420 TDD: (831) 454-2123
BETSEY LYNBERG, AGENCY ADMINISTRATOR

July 31, 2008

Agenda: August 12, 2008

Board of Directors
County of Santa Cruz Redevelopment Agency
701 Ocean Street
Santa Cruz, CA 95060

TWIN LAKES BEACHFRONT CONCEPTUAL DESIGN
East Cliff Drive from 5TH Avenue to 9TH Avenue

Dear Members of the Board:

Presented herein for your Board's consideration is a conceptual design for improvements to East Cliff Drive, between 5th Avenue and 9th Avenue in the Twin Lakes Beach area of Live Oak. This concept was initiated as a result of the community's interest in pedestrian, bicycle and vehicle circulation improvements to East Cliff Drive. This letter describes the project background and setting, community process, plan goals and the proposed conceptual design.

BACKGROUND

East Cliff Drive, from 5th Avenue to 9th Avenue, provides access to the Santa Cruz Harbor, access to adjacent residential properties, serves as access and parking for Twin Lakes State Beach, serves as one of the few east-west corridors through Live Oak, and boasts scenic views of the Monterey Bay. The demands on this section of road are heavy, yet the roadway itself is relatively unimproved and does not include sidewalks, continuous bike lanes or organized parking. These conditions result in a variety of pedestrian, bicycle, and vehicle circulation issues. In addition, parking, congestion, and difficulties negotiating through the area interfere with the scenic quality of the beach and Monterey Bay.

Heavy multi-modal use, combined with a lack of standard public improvements and crumbling roadway infrastructure, has resulted in community interest and the need for improving this area. Planning efforts begun in 2000 have resulted in the construction of initial improvements along the harbor frontage of Lake and 5th Avenues (Phase 1), plans for improvements to the lakeside edge of East Cliff Drive between 9th and 12th Avenues (Phase 2 concept design approved in November 2004), as well as conceptual design proposals for the beachfront areas of East Cliff Drive. The final planning effort for the beachfront area of East Cliff Drive (Phase 3) began with community meetings in the fall

of 2007. Through the community workshop process, goals and objectives for improvements to the area have been developed, and consensus reached on a conceptual design for future improvements. These include new pedestrian paths, crosswalks, bicycle lanes, curbs, gutters, drainage, roadway and parking improvements, utility work, landscaping, and bluff stabilization. The proposed improvements will connect to the existing improvements at the end of 5th Avenue and extend to the proposed improvements at 9th Avenue and Schwan Lake (Phase 2).

EXISTING CONDITIONS AND SETTING

East Cliff Drive

This section of East Cliff Drive is an east-west arterial street that provides a scenic route along the Monterey Bay beginning at the East Lower Harbor entrance at the end of 5th Avenue, and follows along the beachfront to Schwan Lake. The area is heavily used by pedestrians, bicyclists, and motor vehicles especially during weekends and the summer.

East Cliff Drive is designated as an arterial street in the County's General Plan, and has a 60-to-I IO-foot right-of-way in the project area. The existing two lane road from 5th to 7th Avenues has no bicycle lanes and has a narrow or no shoulder, with informal and unorganized parking, and no sidewalks. Pedestrians and bicyclists in the area have a difficult time negotiating between the traffic and the parked vehicles. The main entrance to the harbor concession area is located at the west end of East Cliff Drive providing access to restaurants, a bait shop and commercial spaces. The Port District recently completed a new plaza and beachfront walkway at the end of 5th Avenue. Current conditions in the circle at the end of 5th Avenue make it difficult for large vehicles to negotiate. East Cliff Drive serves as an important cross town link for the residents of Live Oak and Santa Cruz. In addition, it also provides the main emergency access route for the port district businesses and the entire western portion of the beach area.

Between 7th and 9th Avenues the road is wider and carries a higher volume of traffic; there are bicycle lanes on each side, some sidewalk area, and informal parking. In many areas the terrain adjacent to the roadway slopes steeply down to the beach, and in some areas is protected by rip rap. There are a number of large eucalyptus trees between 7th and 9th along the beachfront.

In certain locations the bluffs, roadway, and public improvements are subject to high surf and storm conditions. Winter storm events will often pull sand off of the beach, revealing existing rip rap and bed rock. This condition has been mitigated in recent years by the harbor dredging operation which pumps sand just off shore and onto the beach. Large storm events throw debris onto East Cliff Drive at Schwan Lake and can result in temporary road closures.

Twin Lakes State Beach

Other than the harbor area at the end of 5th Avenue, all of the parcels along the beachfront are owned by the State of California and operated by California State Parks as Twin Lakes State Beach. Beach goers enjoy views of the bay and boats coming and going from the harbor. Wave and water conditions are generally safe for swimming and the harbor restaurants and neighborhoods are an easy walk. As a result, Twin Lakes State Beach is popular with local residents and visitors alike, and is a favorite spot for family and group gatherings throughout the year. The beach is heavily used with over one-half million visitors a year. Access to the beach is convenient and informal from parking spaces located along the eroding road edge. However because the state does not have any parking facilities to support the beach, parking along the road edge creates safety and circulation problems along East Cliff Drive. The only state facility is an old shower house/restroom building which is in need of repair and improvement. Beach goers also use the restrooms located in the new O'Neill building located in the harbor. State Parks runs the lifeguard program, beach patrol, and also collects refuse from containers located near and on the beach. The County Sanitation District also operates the sanitary sewer pump station located near the shower house.

Adjacent Residential Properties

Residential properties line the north side of East Cliff Drive. The roadway serves as the only access to most of these properties, and in many cases driveways and front yard landscaping extend into the right-of-way, out to the existing paved road edge. Because of the high demand for beach parking, residents contend with unauthorized parking blocking driveways, ad hoc parking along the road edge, and have also observed unauthorized use of private property.

Parking

This area is included in the Live Oak Parking Program (County's Department of Public Works) which issues visitor parking permits during weekends and holidays from late spring to the fall from a trailer parked at the intersection of 9th Avenue and East Cliff Drive. Program staff also provides parking enforcement during the permit season. Based upon parking surveys conducted by RDA staff, it is estimated that under the current unorganized, ad hoc parking conditions up to about 70 standard size vehicles can park in the study area. Staff estimates that during the off-peak season parking demand on weekdays is from about 22 to 24 vehicles. During the peak season parking demand on weekdays is from about 31 to 53 vehicles. All parking areas are used during most peak season weekends.

COMMUNITY PROCESS

The current proposed project has developed out of three separate community meetings over the past year led by the Redevelopment Agency in conjunction with the Department of Public Works. The first meeting was held on September 27, 2007. Over 150 residents and interested community members were presented with a summary of the Redevelopment Agency's efforts to date to develop pedestrian improvements for the

area. Attendees were given the opportunity to review the previous design concept plan prepared for the beachfront in 2001, and were asked to discuss issues and concerns in smaller workshop groups and respond to a questionnaire. Verbal reports for each group were presented at the end of the meeting. The majority of attendees stated that the 2001 concept plan closely reflected the key issues and opportunities they identified. These included:

- Pedestrian access and safety features
- Safe bicycle access
- Parking and vehicular circulation improvements
- Maintaining scenic qualities
- Planning for other improvements including drainage, undergrounding utilities, bluff stabilization, restricting large vehicles from obstructing views and the roadside, and utilizing more of the public right-of-way for the proposed project.

At the second community meeting, on January 8, 2008, staff presented goals and objectives summarizing the key issues and opportunities stated by the participants at the first meeting (see attachment). Numerous concepts were presented illustrating different approaches and options for pedestrian access, bicycle access, and parking layouts. The advantages and disadvantages of the various approaches, as well as community priorities for resolving key issues were discussed. Meeting participants discussed the options in working groups and reported back to the larger group at the end of the meeting. This process re-affirmed that the primary goal for the community is to address pedestrian access and safety concerns with the recognition that this may require some compromise with regards to solutions for other potentially competing goals. Comment cards from the participants showed that a strong and decisive majority agreed that the design process was on track and addressed the priorities of the group. Many expressed appreciation for being included in the process, and for being asked to share their ideas.

After retaining the services of Bellinger Foster Steinmetz Landscape Architects, staff worked closely with them to prepare a conceptual design for the beachfront. On May 1, 2008, a third and final community meeting was held to present that plan. After a brief review of the previous meetings and a summary of the goals and objectives, the concept plan was presented along with several sections, renderings and examples of similar coastal projects. The resulting comment summaries from the meeting attendees showed overwhelming approval of the proposed concept plan.

TWIN LAKES BEACHFRONT DESIGN CONCEPT

The overall proposed design concept for East Cliff Drive between 5th Avenue and 9th Avenue provides for continuous pedestrian access (separated from bicycles and vehicles), and bicycle lanes through the area, while also organizing parking and improving vehicle circulation. It does so in a manner that results in an improved but

informal and natural beachfront character. The proposed concept plan, with sections, is included in Attachment 1.

Pedestrian and Bicycle Improvements

The concept plan provides a continuous 6 to 10 foot wide pedestrian pathway along the beach side of East Cliff Drive from the 5th Avenue circle to the headwall of the Schwan Lake overflow weir, sidewalk infill from 7th to 8th Avenues (inland side), and an informal path between 6th and Assembly Avenues (inland side). The west end of the beachfront pathway will connect to the existing sidewalk at the harbor concession parking lot and Marine Sanctuary Interpretive Site where there is an existing crosswalk and connecting sidewalk at 5th Avenue. An additional crosswalk will be added to connect pedestrians from the 6th Avenue neighborhood (from the north) to the beachfront pathway. The existing crosswalk at the end of 9th Avenue will be upgraded. This will allow pedestrians to have access to Schwan Lake and to the planned pathway around the lake up to 12th Avenue (Phase 2) where it ties in to an existing sidewalk. The plan also provides for continuous 5-foot wide bike lanes on each side of East Cliff Drive through the area.

The proposed pathway will be resin stabilized decomposed granite, similar to the nearby Lake and 5th Avenues Improvements project. The material has a more natural character and has been positively received by the community. Many areas along the pathway will include native landscape plantings and boulders. Bike racks will be strategically located along the pathway. During most of the year the pathway surface between the harbor and Assembly Avenue will be flush with the beach to provide direct accessibility. In addition, at the east end of the pathway at the Schwan Lake outfall, an accessible ramp down to the sand will be provided. The service road down onto the beach from the 9th Avenue circle will also provide an accessible path of travel. Other access points to the beach include two stairways down the slopes just southwest of the state restroom, and north of the Sanitation District pump station.

Circulation and Parking Improvements

Vehicle circulation, in particular for trucks and buses, is improved by increasing the diameter of the traffic circle at 5th Avenue harbor parking lot entrance, by modifying the road layout changing the 7th Avenue curve radius to the west along the beach, and by realigning the road to the north of its existing location (away from beach parking). The proposed plan fully utilizes the right-of-way, providing room for new improvements, while limiting encroachment onto beach areas. The design also provides passenger loading areas at the 5th Avenue circle and on East Cliff Drive across from 8th Avenue, providing a safe location to pull out of the flow of traffic during peak use times when beach goers must park in other locations. Two alternative locations for the Live Oak parking permit sales are also shown. Future planning work will also include new area signage.

The plan calls for organizing parking in diagonal parking spaces between 5th and 6th Avenues (on the inland side), between 5th and Assembly Avenues (beach side), between 8th and 9th Avenues (beach side), and parallel parking spaces around the

modified 9th Avenue circle, plus motorcycle parking east of Assembly Avenue (inland side). The diagonal parking arrangement maximizes the number of parking spaces, while allowing sufficient room to also provide for pedestrian and bicycle improvements. The total number of proposed parking is approximately 60 spaces as compared to the existing, random parking that numbers about 70 spaces. Clustering the parking will also improve views to the beach and bay, and provide visual relief from long rows of parked cars and large vehicles such as RV's and commercial trucks.

Staff also prepared conceptual design plans for redesign of the parking area at the 11th Avenue spur where East Cliff curves around Schwan Lake at the east end of Twin Lakes Beach (see Attachment 2). With community support for parking and scenic overlook improvements, staff now recommends including this work in the Phase 2 project currently in the planning stage.

Coastal Protection and Other Improvements

Protection of the proposed and existing public improvements along East Cliff Drive from winter storm events and coastal erosion will be an important component of any future project. Recommendations for coastal protection measures have been prepared to address several distinct problems and situations along different areas of the beachfront. These include:

- 5th Avenue to the curve at 7th Avenue: Exposure to significant storm wave run up results in the scouring of sand deposits that cover the Purissma bedrock. A concrete retaining wall with simulated rock facing (as used on the bluff along East Cliff Drive in Pleasure Point) is proposed from bedrock to desired finish grade. The beach face of the wall will be backfilled with sand and replenished regularly as part of the harbor dredging work to maintain on-grade beach access.

- Curve at 7th Avenue north to State Park restroom: The grade change in this area is exposed to significant storm wave run up impact. A stepped concrete retaining wall is proposed from finished bluff grade to bedrock, then backfilled with sand and planted with native vegetation to stabilize the slope. A split rail fence would be installed near the top to discourage access down the sandy slope.

- Segment from 7th Avenue intersection curve to Schwan Lake headwall: This area has less exposure to storm wave run up. Short retaining walls with drilled piers are proposed to support pedestrian improvements at the top and conform to existing hillside slopes. Existing rip rap would be retained.

These conceptual approaches will require further study and technical analysis as planning and design for this project moves forward. In addition, storm drainage and water quality enhancement and requirements for undergrounding of overhead utility lines will be studied and incorporated into future preliminary design plans. Based upon

the conceptual design plans which are very preliminary in nature, it is estimated that construction of the proposed improvements to East Cliff Drive, including coastal protection measures, will range from $3 to **$4** million.

The community also expressed interest in replacement of the existing State Park restroom and showers. We have learned that replacement of this facility is low on the State priority and funding list. Staff recommends engaging the regional State Park staff in further discussions on the feasibility of replacing this structure and potential funding arrangements, including cost share approaches, with a future report back to your Board on options for replacement of this facility.

East Cliff Drive has also been identified for a future utility undergrounding project. Once preliminary design plans have been prepared, further coordination with PG&E, cable, and phone companies will be required, if the undergrounding is to occur prior to the construction of the planned improvements.

NEXT STEPS

With approval of the conceptual design, additional steps will need to be taken to move forward with this project, including a tidal study, coastal erosion report, biotic study, drainage assessment, input from and coordination with Coastal Commission and State Parks staffs, and the preparation of project development plans for the Planning permit application. It will be necessary to use consultant services for much of this work. Funds are available in the current RDA budget to complete these next steps. Easement acquisition and preparation of final construction documents will follow the permit process. Construction could begin in 2011 pending funding.

CONCLUSION

We are pleased to have successfully concluded this phase of the community input process. Difficult trade-offs are often required when addressing the need for public improvements in existing developed areas. However, community interest and support for improvements to the Twin Lakes Beachfront area of Live Oak is strong. Staff believes that the proposed concept plan addresses the goals of the community, and that implementation of this plan will improve the community's enjoyment and use of this scenic and recreational area along the beach. With approval of the conceptual design, staff will move forward with the preparation of studies and design plans necessary for the permit process, and continue to coordinate these efforts with staff of reviewing agencies and State Parks.

It is therefore RECOMMENDED that your Board, as the Board of Directors for the Redevelopment Agency, take the following actions:

1. Accept and file this report;

2. Approve the proposed design concept for the Twin Lakes Beachfront – East Cliff Drive from 5th to 9th Avenues as shown in Attachment 1 and described in this report; and

3. Direct staff to include scenic overlook and parking improvements at the 11th Avenue spur of East Cliff Drive, as shown in Attachment 2, in the Phase 2 – East Cliff Drive Pedestrian Walkway 9th to 12th Avenues Project;

Very truly yours,

Betsey Lynberg
Redevelopment Agency Administrator
BL:jd

RECOMMENDED:

Susan A. Mauriello
Redevelopment Agency Executive Director

Attachment 1: Twin Lakes Beachfront Conceptual Plan Exhibit Package
Attachment 2: Conceptual Design for the Scenic Overlook and Parking at the 11th Avenue Spur

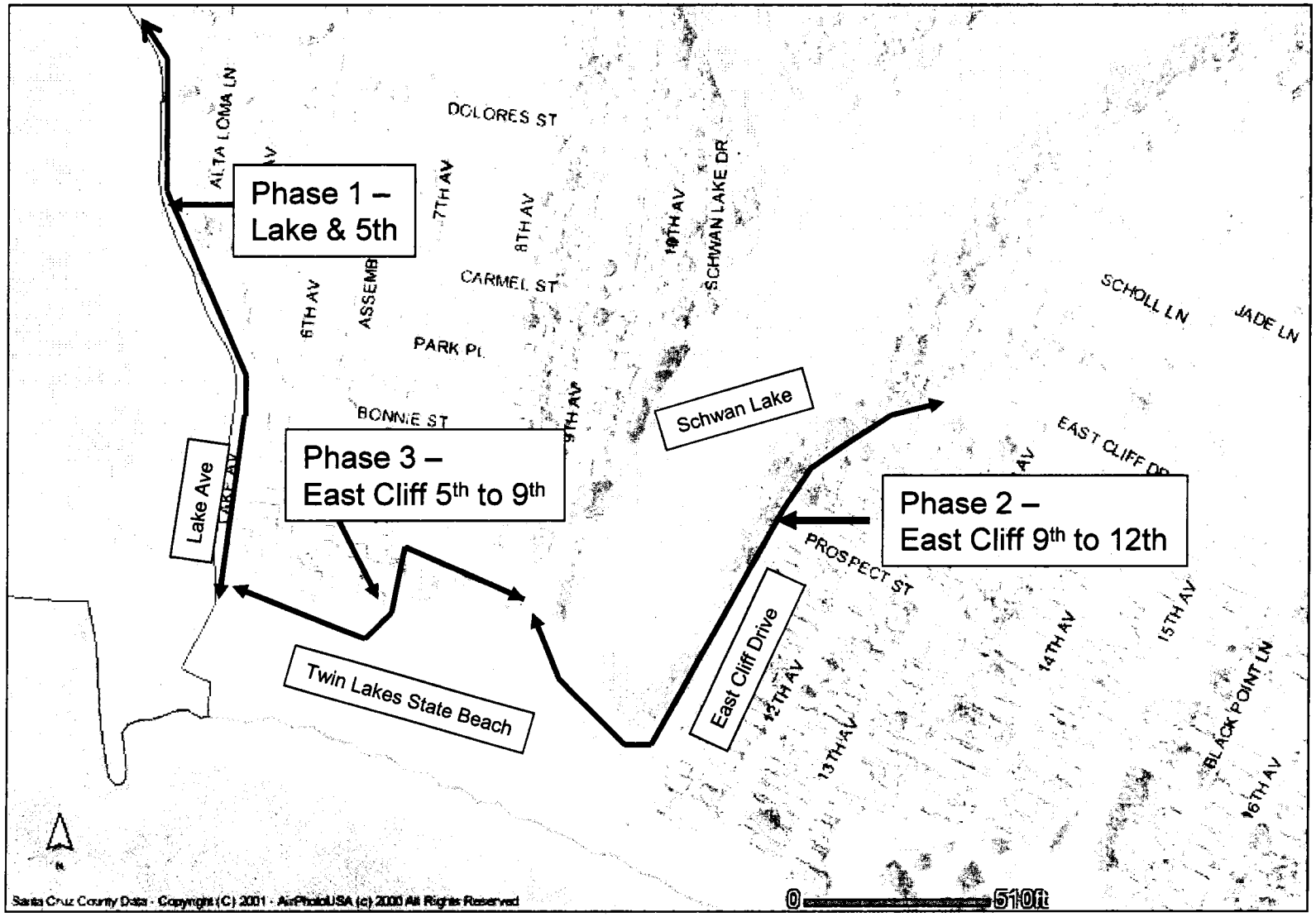
cc. Department of Public Works
Parks Department
California State Parks
Santa Cruz Port District

ATTACHMENT 17

TWIN LAKES BEACHFRONT - PHASE 3
ATTACHMENT 1 - CONCEPTUAL PLAN EXHIBIT PACKAGE
AUGUST 12, 2008

Concept Plan 11X17 on file with Clerk of Board

ATTACHMENT 1



Vicinity Map

Santa Cruz County Redevelopment Agency

TWIN LAKES

PROJECT

ATTACHMENT 1

pln056

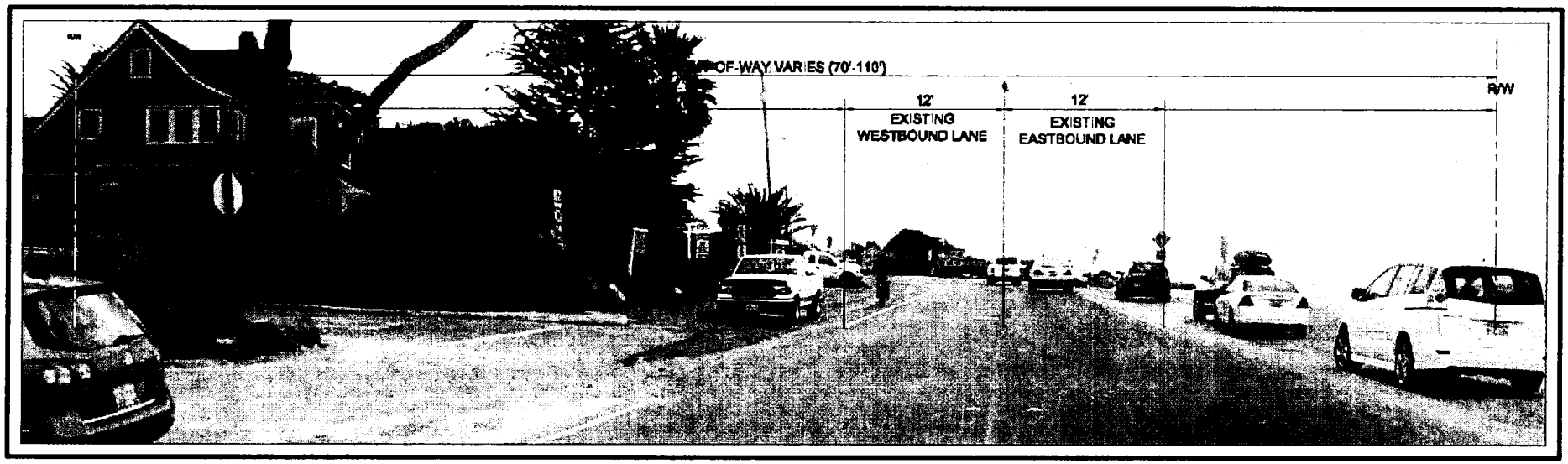
Santa Cruz County Redevelopment Agency

TWIN LAKES PROJECT

EXISTING CONDITIONS

ATTACHMENT 17

p1n056

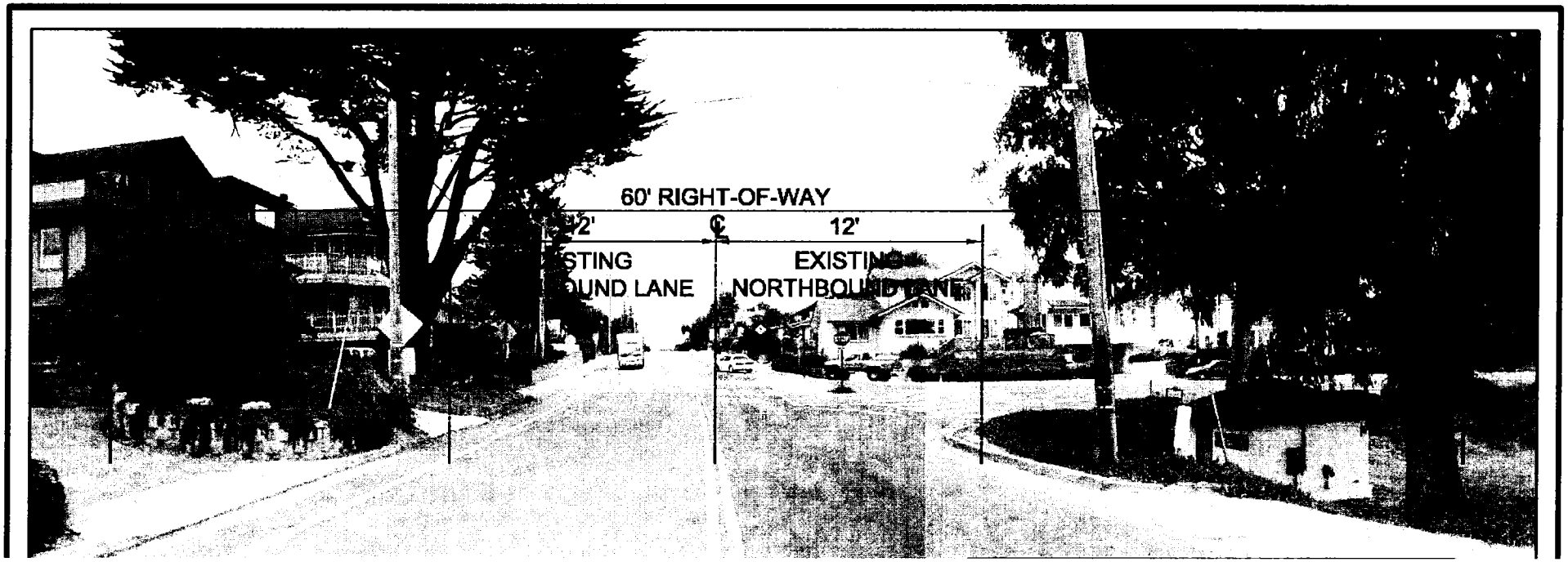


Section A
East Cliff Drive at 6th Avenue looking east

Santa Cruz County Redevelopment Agency
TWIN LAKES
PROJECT

ATTACHMENT 17

plm056

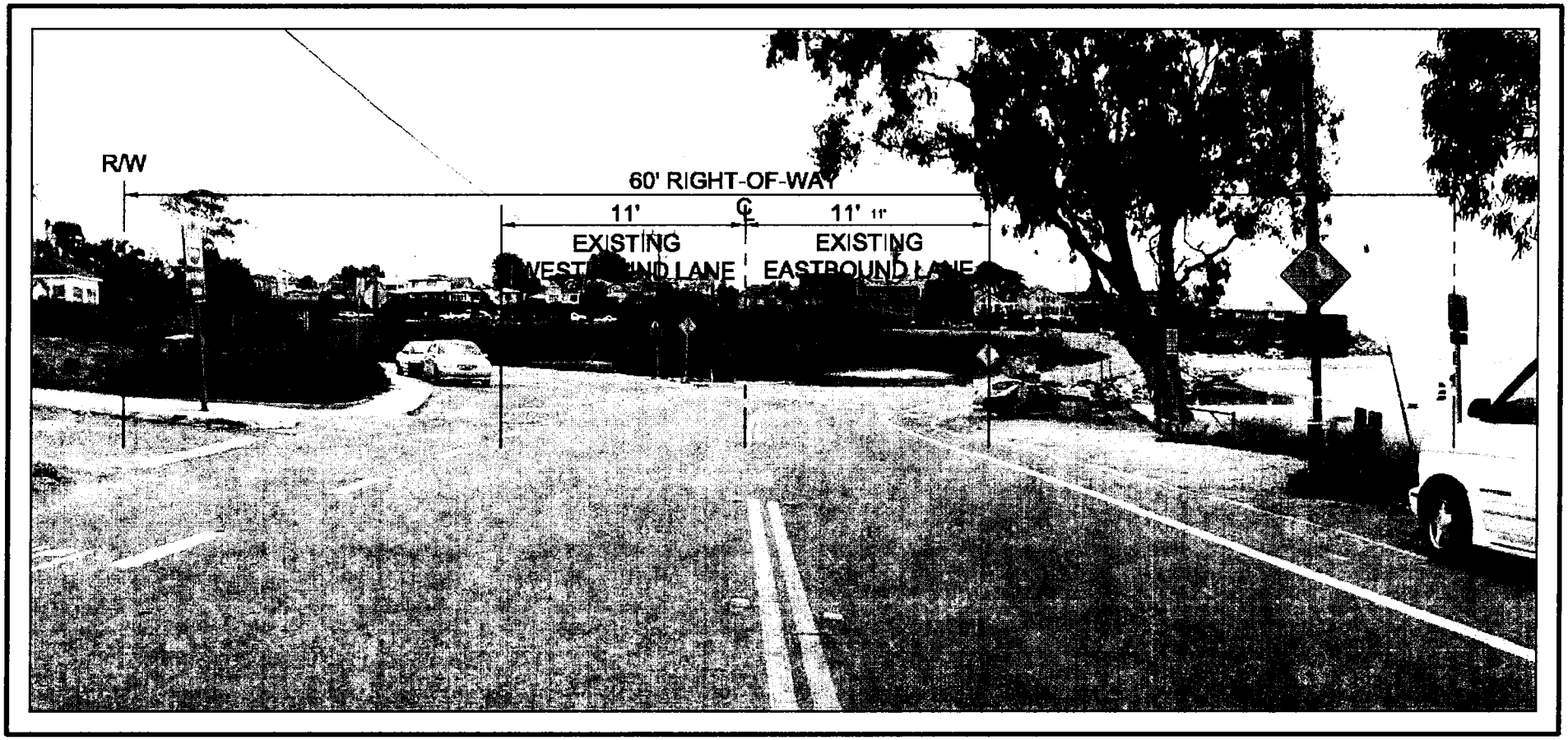


Section B
7th Ave at East Cliff Drive looking north

Santa Cruz County Redevelopment Agency
TWIN LAKES
PROJECT

ATTACHMENT 17

plm056



Section C
East Cliff Drive at 8th Ave looking east

Santa Cruz County Redevelopment Agency
TWIN LAKES
BEACH-FRONT
PROJECT

ATTACHMENT 17

plm056

Twin Lakes Beachfront Phase 3

GOALS AND OBJECTIVES

Goal A Maximize Pedestrian Access and Safety

1. Provide pedestrian crosswalks at major intersections from the surrounding neighborhoods to the beach.
2. Provide adequate space so that pedestrians and bicyclists are separated and have their own space.
3. As much as possible, provide continuous access along the beach frontage.
4. Provide for additional disabled access to the beach as part of any new improvements.
5. Provide some places for people to sit.

Goal B Provide for Safe Bicycle Access

1. Provide bicycle lanes along East Cliff Drive to conform to current county standards.
2. Provide bicycle parking areas in various locations along the beach front area.
3. Resolve potential conflicts between bicycle lanes and vehicle parking as much as possible.

Goal C Improve Parking and Vehicular Circulation

1. Vehicular circulation and parking should be designed to minimize pedestrian vehicular conflicts.
2. Maintain two-way traffic flow along East Cliff Drive.
3. Organize layout of parking so as to control and limit random parking and conflicts with pedestrians and bicycles. Provide clearly defined parking spaces.
4. Provide sufficient parking to mitigate the demand for additional parking on neighborhood streets, and obtain permit approvals.
5. Provide drop-off and pick-up areas for people to load and unload beach and picnic gear.
6. Enlarge circle/turnaround at Fifth Avenue to accommodate large vehicles.
7. Provide adequate signage to orient first time visitors to the area.
8. Parking layout should minimize disruption of the views to the bay and the beach.
9. Eliminate the bus stop at the foot of Fifth Avenue.
10. A median dividing traffic lanes is not necessary.

Goal D Maintain Scenic Quality

1. Where possible, underground electric wires along the ocean side of the road.
2. Utilize native plantings for new landscape areas. Major trees in the area should be protected.
3. Minimize the use of tall vegetation which would block views of the beach.
4. Keep improvements simple and utilize natural materials as possible. Character of the area should not be "urban".

Goal E Plan for Other Improvements

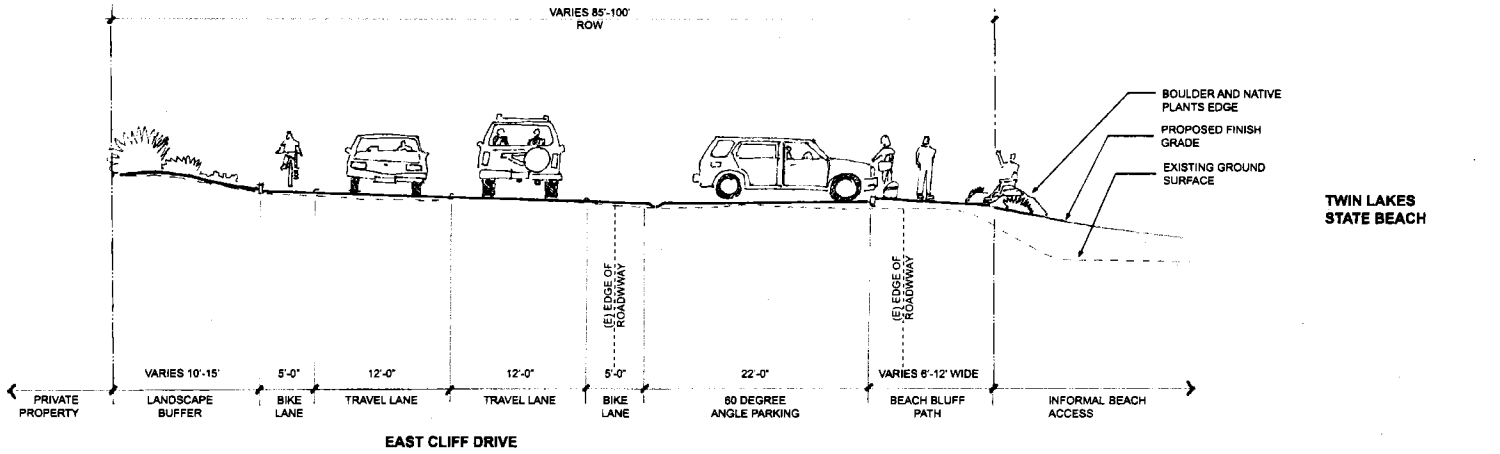
1. Provide adequate drainage facilities which meet storm water quality requirements.
2. Provide adequate stabilization for the area where there is danger of erosion of the road and the adjacent bluff. Materials should blend in with the natural character of the area as much as possible.
3. Do not allow campers or RV's to dominate the public access to the area

ATTACHMENT 17

Santa Cruz County Redevelopment Agency

TWIN LAKES

PROJECT



SECTION A

REVISED JULY 2, 2008

5 0 5 10

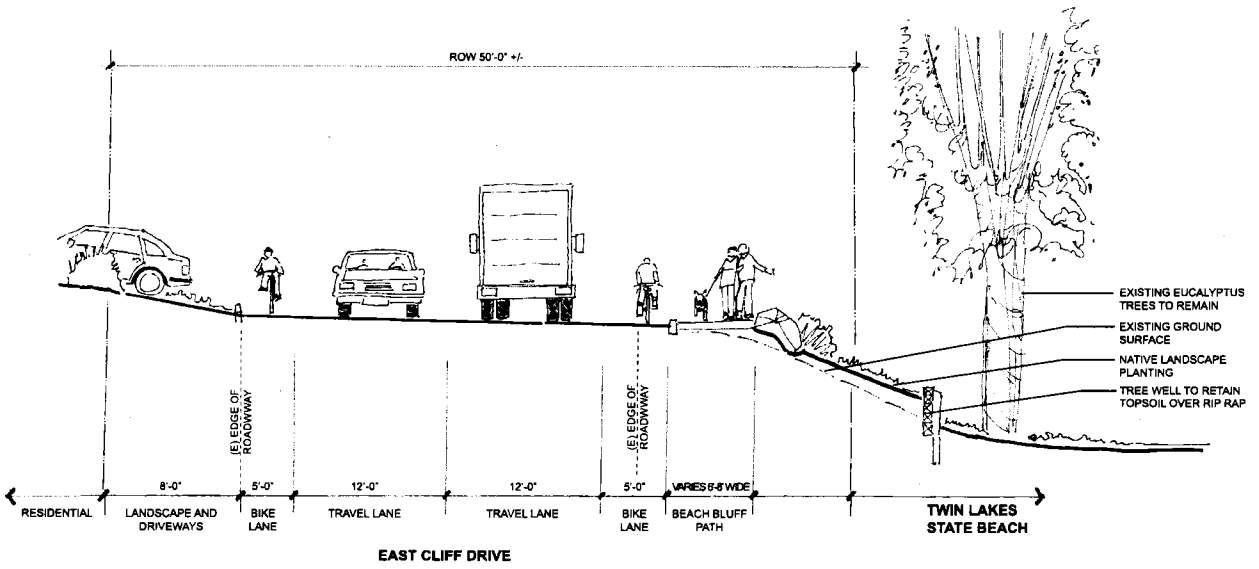
ATTACHMENT 17

plan056

Santa Cruz County Redevelopment Agency

TWIN LAKES

PROJECT



SECTION B

REVISED JULY 2, 2008

5 0 5 10

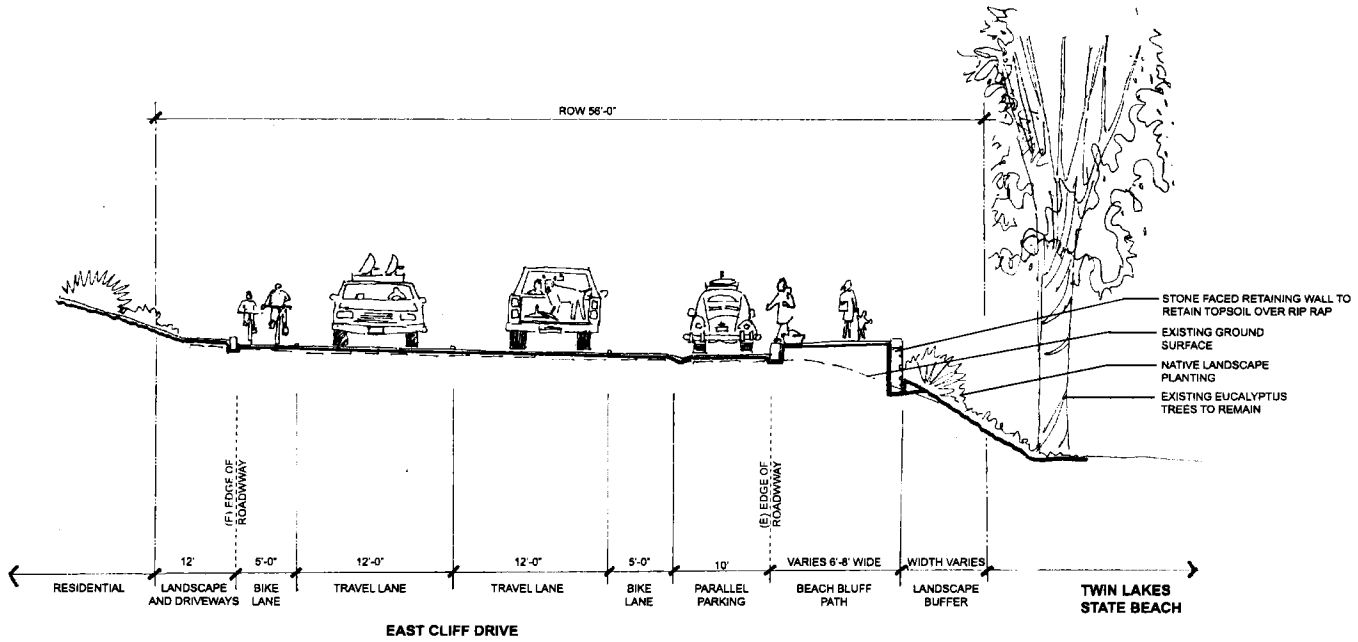
ATTACHMENT 17

plan056

Santa Cruz County Redevelopment Agency

TWIN LAKES

PROJECT



SECTION C

REVISED JULY 2, 2008

5 0 5 10

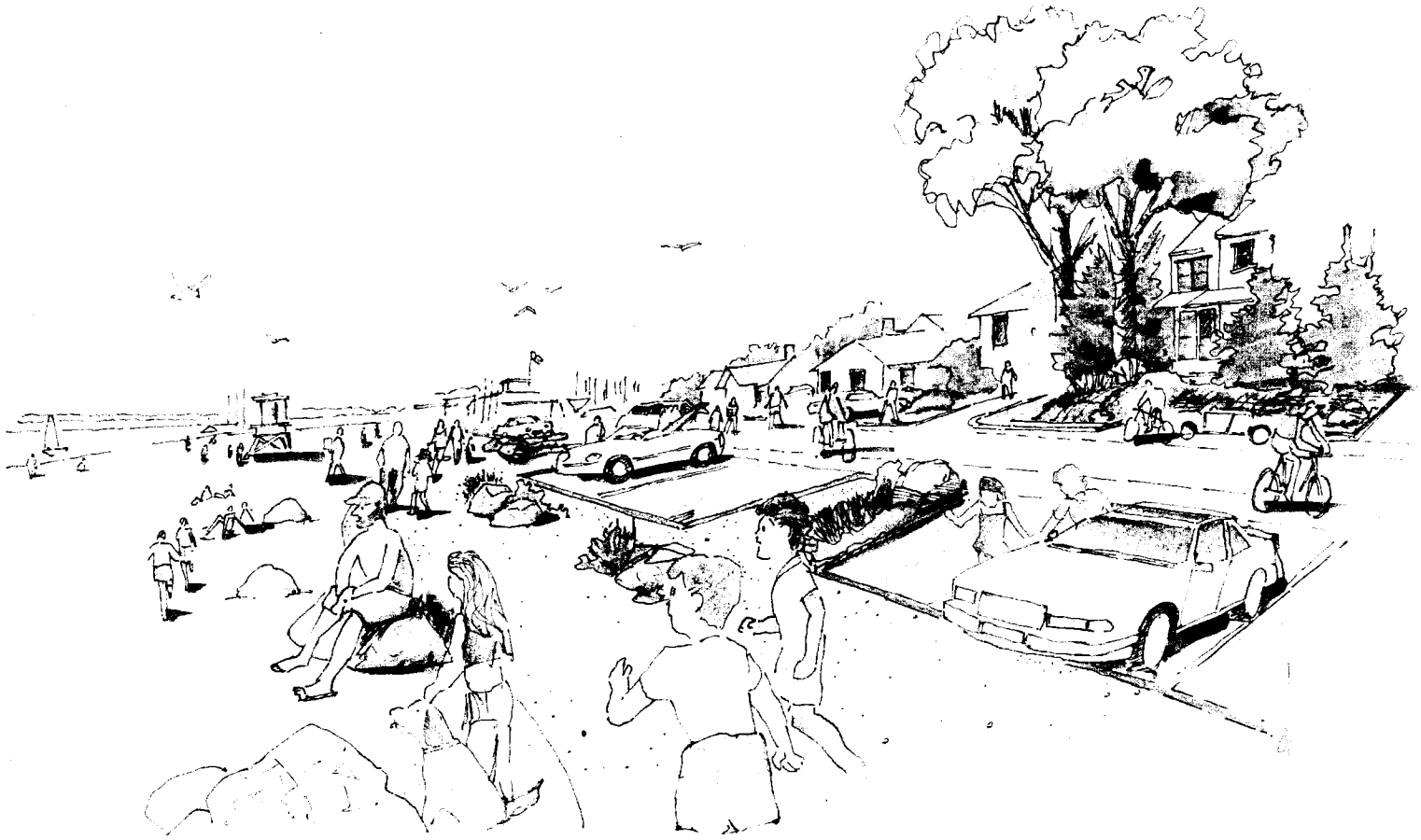
ATTACHMENT 17

plm056

Santa Cruz County Redevelopment Agency

TWIN LAKES

PROJECT



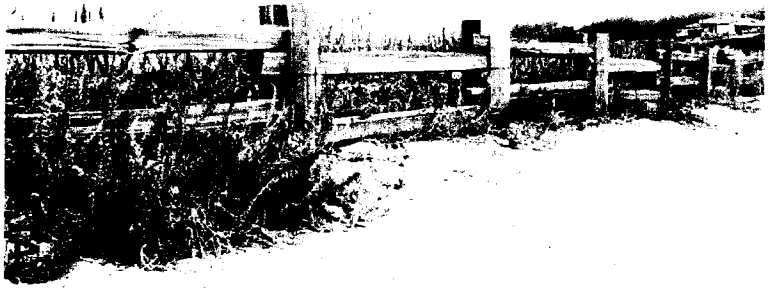
BEACH PATHWAY AND PARKING

ATTACHMENT 17

pln056

Santa Cruz County Redevelopment Agency

TWIN LAKES PROJECT

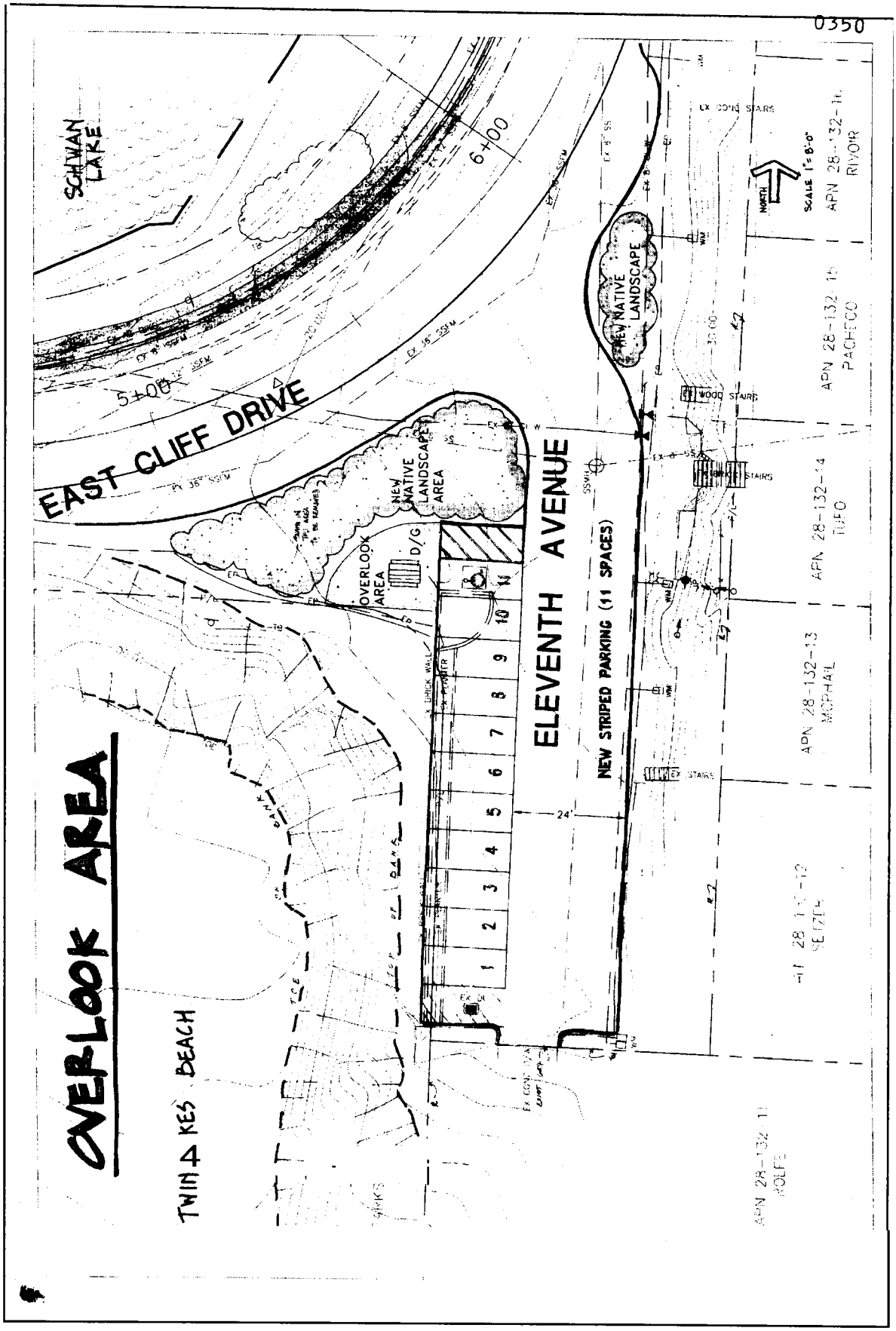


ATTACHMENT 1

7

plan056

DESIGN IMAGES


0350
SCHWAN LAKE
EAST CLIFF DRIVE
5+00
6+00
OVERLOOK AREA
TWIN 4 KES BEACH
NEW NATIVE LANDSCAPE AREA
OVERLOOK AREA
D/G
ELEVENTH AVENUE
NEW STRIPED PARKING (11 SPACES)
NEW NATIVE LANDSCAPE
EX CONC STAIRS
WOOD STAIRS
STAIRS
EX STAIRS
NORTH
SCALE 1"=8'-0"
APN 28-132-14
RUFO
APN 28-132-13
MCPHAIL
APN 28-132-11
ROLFE
APN 28-132-1
RIVOIR
APN 28-132-1
PACHECO
24'
BANK

CBD BOSMAIL

From: CBD BOSMAIL
Sent: Friday, August 08, 2008 7:16 AM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 8/12/2008

Item Number : 41

Name : Michael A. Guth

Email : mguth@guthpatents.com

Address : 2-2905 East Cliff Drive
Santa Cruz

Phone : 831 462-8270

Comments :
In general, I support the proposed plan for the 5th to 7th Avenue beachfront. I greatly appreciate the level of outreach done by the RDA and do believe the goals identified, that of improving pedestrian and bicycle use and safety in this area, are paramount, as well as working towards continuous bicycle and pedestrian pathways from 5th(Lake) Ave to Pleasure Point.

One item that I must point out is this: The concept plan refers to backfilling of the new protection walls with sand, this being done by the Port District's dredging. I believe that the project is fine without depending upon this, and would like confirmation that it indeed is. THE COUNTY SHOULD IN NO WAY BE PUTTING A STAMP OF APPROVAL ON HARBOR DREDGE DISPOSAL PROTOCOLS VIA THIS PROJECT. The disposal of dredge spoils is a complicated issue, involves numerous tradeoffs and of the limited amount of sand in the annual littoral drift, any sand diverted above the tide lines to supplant this beach area is sand removed from the natural flow, and impacts downflow areas, especially Pleasure Point. The Port District's diversion of sand into their own beach area has always needed to be reviewed by a larger regional working group, to review just these sort of issues. The RDA should be very careful of buying into the current system of management here, and should be sure that thier concept plan here works with or without sand being filled up to grade (I believe that it does; this should be confirmed).

I support the RDA work here, I see that is a good compromise to achieve some not completely complementary goals, and urge you to approve the plan, subject to the concern stated above.

Thank you.

41

CBD BOSMAIL

From: CBD BOSMAIL
Sent: Monday, August 11, 2008 8:34 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 8/12/2008

Item Number : 41

Name : Linda Wilshusen

Email : l-j-w@pacbell.net

Address : 1115 Live Oak Ave.
Santa Cruz 95062

Phone : 462-6241

Comments :
I enthusiastically support this project. It will be a terrific enhancement to the Twin Lakes/Live Oak beach neighborhood, which is used primarily by local Santa Cruz County residents. There is demonstrated strong community support for these much needed and long overdue pedestrian and parking improvements along our local beachfront.

Thank you very much to the Redevelopment Agency and our 3rd & 1st District Supervisors for their ongoing support of improvements to the beautiful Twin Lakes area.

Linda Wilshusen, Founder and Steering Committee, Live Oak Neighbors

ATTACHMENT 17
41