



**REGULAR MEETING AGENDA
PAJARO DUNES GEOLOGIC HAZARD ABATEMENT DISTRICT
VIRTUAL MEETING via ZOOM**

Governor Newsom through CA Executive Order N-33-20 (issued on March 19th, 2020) issued a shelter-in-place order for the State of California. The order was further strengthened by the County of Santa Cruz Health Officer Order issued on March 31st, 2020 which discourages residents from traveling (even between their own properties) for non-essential reasons. CA Executive Order N-25-20 allows for modifications to the Brown Act ensuring that public meetings can continue under this order through telephone or video conferencing.

Saturday, October 1st, 2022 8:00 a.m.

Join Zoom Meeting

<https://us02web.zoom.us/j/82435032771?pwd=cXEvSXZVNWU5VWNkVWFjTjN2THduQT09>

Meeting ID: 824 3503 2771

Passcode: 981336

Phone in: +1 669 900 9128 US

See below the agenda for how to download Zoom for a computer or smartphone (both audio and video available) or to participate via dial-in telephone (audio only). Also, please review the etiquette guidelines and reminders. If you have any questions please contact the District Clerk at pdghad@gmail.com

A. OPEN SESSION CALL TO ORDER – PLEDGE OF ALLEGIANCE

Roll Call

**John Cullen, President
David Ferrari, Vice-President
Raphael Kraw, Treasurer**

**Michael Butner, Director
Patrick Dobbins, Director
Sarah Mansergh, Clerk**

B. MEMBER COMMENTS

Matters under the jurisdiction of the Board and not on the posted agenda, may be addressed by members of the public before the Board for consideration. However, California law prohibits the Board from taking action on any matter which is not on the posted agenda unless it is determined to be an emergency by the Board of PDGHAD. Any person wishing to address the Board during the Member Comment period shall be permitted to be heard for up to 3 minutes, A) individuals may speak only once and B) the Board is unable to address any owner comments in depth but may choose to direct the Clerk to follow-up on the matter for a future meeting.

C. PRESIDENT’S REMARKS

The President will use this opportunity to inform the public of issues affecting the District and other items of a general nature not otherwise provided for on this agenda.

1. 2022 Upcoming Meeting Dates

December 10th, 2022

D. CONSENT CALENDAR

All matters listed on the Consent Calendar are considered to be routine by the Board of Directors and will be enacted by one motion at the appropriate time. There will be no separate discussion on these items. If discussion is desired, that item will be removed from the Consent Calendar and will be considered separately.

1. Approval of meeting minutes from August 6th, 2022

E. TREASURER’S REPORT

2. Financial Reports

- Financial Report through August 31st, 2022
- Warrant listing

F. MEETING reports

3. Meetings attended by Directors at District expense since the last meeting of the Board (per AB1234 requirements). Such reports may be made orally or in writing.

G. NEW BUSINESS

4. ITEM-Consider resolution for continuing teleconferenced meetings and discuss future meeting formats

- a. Board report
- b. Public comment
- c. Board discussion
- d. Board action /direction

5. ITEM-Review the 2022 Seawall Inspection Report

- a. Board report
- b. Public comment
- c. Board discussion

6. ITEM-Update on County application for grading permit, including discussion of seawall maintenance plan outline and costs.

- a. Board report
- b. Public comment
- c. Board discussion

H. DIRECTORS COMMENTS AND CONCERNS

Members of the Board of Directors may address items of concern at this time and may request that items be placed on future agendas in accordance with the By-laws of the Board.

I. ADJOURNMENT

The next Meeting of the Board of Directors is scheduled for December 10th, 2022, at 9:00 a.m. online via Zoom and if possible at the offices of the Pajaro Dunes Geologic Hazard Abatement District, Board Room, Pajaro Dunes, 2661 Beach Road, Watsonville, CA 95076. Individuals who require special accommodations are requested to contact the District Clerk by calling (831) 818-9253, no less than 72 hours prior to the meeting or in the case of a Special Meeting, as soon as possible after the Agenda is posted. Copies of the agenda will be available 72 hours prior to the meeting and may be obtained by contacting the District at (831) 761-7744. All meetings are noticed and conducted in accordance with the Ralph M. Brown Act.

PDGHAD

**REGULAR MEETING MINUTES
PAJARO DUNES GEOLOGIC HAZARD ABATEMENT DISTRICT
VIRTUAL MEETING via ZOOM**

Governor Newsom through CA Executive Order N-33-20 (issued on March 19th, 2020) issued a shelter-in-place order for the State of California. The order was further strengthened by the County of Santa Cruz Health Officer Order issued on March 31st, 2020 which discourages residents from traveling (even between their own properties) for non-essential reasons. CA Executive Order N-25-20 allows for modifications to the Brown Act ensuring that public meetings can continue under this order through telephone or video conferencing.

Saturday, August 6th, 2022 9:00 a.m.

Join Zoom Meeting

<https://us02web.zoom.us/j/84287444399?pwd=djg5bGxqbS9ybURTd1F6SHBRelA5UT09>

Meeting ID: 842 8744 4399

Passcode: 031913

Phone in: +1 669 900 9128 US

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A. OPEN SESSION CALL TO ORDER – PLEDGE OF ALLEGIANCE

Roll Call

**John Cullen, President-present
David Ferrari, Vice-President-present
Raphael Kraw, Treasurer-present**

**Michael Butner, Director-present
Patrick Dobbins, Director-present
Sarah Mansergh, Clerk-present**

Also in attendance: Mike Rodriquez, Stacey Stillman H84

B. MEMBER COMMENTS

Matters under the jurisdiction of the Board and not on the posted agenda, may be addressed by members of the public before the Board for consideration. However, California law prohibits the Board from taking action on any matter which is not on the posted agenda unless it is determined to be an emergency by the Board of PDGHAD. Any person wishing to address the Board during the Member Comment period shall be permitted to be heard for up to 3 minutes, A) individuals may speak only once and B) the Board is unable

to address any owner comments in depth but may choose to direct the Clerk to follow-up on the matter for a future meeting.

C. PRESIDENT'S REMARKS

The President will use this opportunity to inform the public of issues affecting the District and other items of a general nature not otherwise provided for on this agenda.

1. 2022 Upcoming Meeting Dates

October 1st, 2022

December 10th, 2022

D. CONSENT CALENDAR

All matters listed on the Consent Calendar are considered to be routine by the Board of Directors and will be enacted by one motion at the appropriate time. There will be no separate discussion on these items. If discussion is desired, that item will be removed from the Consent Calendar and will be considered separately.

1. Approval of meeting minutes from May 5th, 2022

Mike Butner moves to approve the minutes from May. Raphael Kraw seconds. Roll call- John Cullen-aye, David Ferrari-aye, Raphael Kraw-aye, Mike Butner-aye. Approved.

E. TREASURER'S REPORT

2. Financial Reports

- Financial Report through June 30th, 2022
- Warrant listing

Items discussed-no major changes to the budget. Bond payment was made and easy! Want to continue line of credit? -yes- bring back with a resolution in October.

F. MEETING reports

3. Meetings attended by Directors at District expense since the last meeting of the Board (per AB1234 requirements). Such reports may be made orally or in writing.

G. NEW BUSINESS

4. ITEM-Consider resolution for continuing teleconferenced meetings

- a. Board report
- b. Public comment
- c. Board discussion
- d. Board action /direction

Raphael Kraw moves to approve the resolution to continue teleconferencing meetings. David Ferrari seconds. Roll call-John Cullen-aye, David Ferrari-aye, Raphael Kraw-aye, Mike Butner-aye. Approved.

7. ITEM-Update on County application for grading permit, including discussion of seawall maintenance plan outline and costs.
- a. Board report
 - b. Public comment
 - c. Board discussion

Dan Peluso gave an overview of the permitting process. The County has granted approval for the grading permit with some conditions-need to establish a more detailed long term maintenance plan for the seawall. Dan reviewed an outline of that and a preliminary budget for the construction project.

Mike Rodriquez will provide a timeline and cost estimates for assessment election. He will also research the requirements for lowest bidder rules.

Dan will send outline and budget for review by each individual committee member. Sarah to provide emergency response plan to Dan. Mike Butner to provide the Riverwall maintenance plan from Pelicans.

H. DIRECTORS COMMENTS AND CONCERNS

Members of the Board of Directors may address items of concern at this time and may request that items be placed on future agendas in accordance with the By-laws of the Board.

I. ADJOURNMENT

Meeting was adjourned at 9:56am

The next Meeting of the Board of Directors is scheduled for October 1st, 2022, at 9:00 a.m. online via Zoom and if possible at the offices of the Pajaro Dunes Geologic Hazard Abatement District, Board Room, Pajaro Dunes, 2661 Beach Road, Watsonville, CA 95076. Individuals who require special accommodations are requested to contact the District Clerk by calling (831) 818-9253, no less than 72 hours prior to the meeting or in the case of a Special Meeting, as soon as possible after the Agenda is posted. Copies of the agenda will be available 72 hours prior to the meeting and may be obtained by contacting the District at (831) 761-7744. All meetings are noticed and conducted in accordance with the Ralph M. Brown Act.

Pajaro Dunes Geologic Hazard Abatement District

Balance Sheet

As of August 31, 2022

Aug 31, 22

ASSETS

Current Assets

Checking/Savings

100000 · SCCB Zone 1 - 3957	222,581
100001 · SCCB Zone 2 - 3965	39,420
100002 · SCCB Z1 Emerg - 1877	601,541
100003 · SCCB LTD- 0208	49,257
100004 · SCCB Bond Holding	<u>198,988</u>

Total Checking/Savings 1,111,787

Accounts Receivable

120000 · Assessments Receivable	<u>311,031</u>
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Total Accounts Receivable 311,031

Other Current Assets

121500 · Prepaid Insurance	10,728
121600 · Prepaid Expenses	<u>1,000</u>

Total Other Current Assets 11,728

Total Current Assets 1,434,546

Fixed Assets

150000 · Riverwall	3,000,000
160000 · Accumulated Depreciation	<u>-1,766,666</u>

Total Fixed Assets 1,233,334

TOTAL ASSETS 2,667,880

LIABILITIES & EQUITY

Liabilities

Current Liabilities

Accounts Payable

200000 · Accounts Payable	<u>16,488</u>
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Total Accounts Payable 16,488

Other Current Liabilities

220000 · Accrued Interest	<u>5,397</u>
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Total Other Current Liabilities 5,397

Total Current Liabilities 21,885

Long Term Liabilities

285000 · Bonds Payable Z2	910,000
286000 · Bonds Payable Discount Z2	-52,250
286500 · Amort. Bond Discount Z2	<u>36,385</u>

Total Long Term Liabilities 894,135

Total Liabilities 916,020

Equity

30000 · Opening Balance Equity 608,448

32000 · Retained Earnings 1,152,408

Net Income -8,996

Total Equity 1,751,860

TOTAL LIABILITIES & EQUITY 2,667,880

Note ~ GHAD owns \$15k of rock that is stored at Granite Rock

Pajaro Dunes Geologic Hazard Abatement District
Profit & Loss Budget vs. Actual
 July through August 2022

	Zone 1			
	Jul - Aug 22	Budget	\$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
410000 · Assessment Income	26,266	26,266		100%
Total Income	26,266	26,266		100%
Expense				
610155 · Postage and Mailings		275	-275	
615115 · Office Expense		100	-100	
61518 · Clerk		1,538	-1,538	
615415 · Accounting	1,006	4,000	-2,994	25%
615416 · Assessment Admin. Expense		8,000	-8,000	
615617 · Website Maintenance		275	-275	
615656 · Board/Clerk Education				
616500 · Legal Fees	500	3,295	-2,795	15%
619010 · Technical Consulting Costs	23,726	21,671	2,055	109%
628500 · Insurance Expense	2,746	2,746	0	100%
629030 · SBA Repayment to PHA Z2				
650000 · Bank Service Charges				
750000 · Depreciation Expense Z2				
Total Expense	27,978	41,900	-13,922	67%
Net Ordinary Income	-1,712	-15,634	13,922	11%
Other Income/Expense				
Other Income				
410070 · Interest & Penalty Income	8	8	0	100%
Total Other Income	8	8	0	100%
Other Expense				
855000 · Interest Expense				
955500 · Interest Bond Discount				
Total Other Expense				
Net Other Income	8	8	0	100%
Net Income	-1,704	-15,626	13,922	11%

Pajaro Dunes Geologic Hazard Abatement District
Profit & Loss Budget vs. Actual
 July through August 2022

	Zone 2			
	<u>Jul - Aug 22</u>	<u>Budget</u>	<u>\$ Over Budget</u>	<u>% of Budget</u>
Ordinary Income/Expense				
Income				
410000 · Assessment Income	34,941	34,941	0	100%
Total Income	<u>34,941</u>	<u>34,941</u>	<u>0</u>	<u>100%</u>
Expense				
610155 · Postage and Mailings				
615115 · Office Expense				
61518 · Clerk				
615415 · Accounting				
615416 · Assessment Admin. Expense	1,269	1,141	128	111%
615617 · Website Maintenance				
615656 · Board/Clerk Education		476	-476	
616500 · Legal Fees				
619010 · Technical Consulting Costs				
628500 · Insurance Expense				
629030 · SBA Repayment to PHA Z2	15,476	15,476		100%
650000 · Bank Service Charges		92	-92	
750000 · Depreciation Expense Z2	16,666	16,666		100%
Total Expense	<u>33,411</u>	<u>33,851</u>	<u>-440</u>	<u>99%</u>
Net Ordinary Income	<u>1,530</u>	<u>1,090</u>	<u>440</u>	<u>140%</u>
Other Income/Expense				
Other Income				
410070 · Interest & Penalty Income	64	25	39	256%
Total Other Income	<u>64</u>	<u>25</u>	<u>39</u>	<u>256%</u>
Other Expense				
855000 · Interest Expense	8,538	8,538		100%
955500 · Interest Bond Discount	348	348		100%
Total Other Expense	<u>8,886</u>	<u>8,886</u>		<u>100%</u>
Net Other Income	<u>-8,822</u>	<u>-8,861</u>	<u>39</u>	<u>100%</u>
Net Income	<u><u>-7,292</u></u>	<u><u>-7,771</u></u>	<u><u>479</u></u>	<u><u>94%</u></u>

Pajaro Dunes Geologic Hazard Abatement District
Profit & Loss Budget vs. Actual
 July through August 2022

	TOTAL			
	Jul - Aug 22	Budget	\$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
410000 · Assessment Income	61,207	61,207	0	100%
Total Income	<u>61,207</u>	<u>61,207</u>	<u>0</u>	<u>100%</u>
Expense				
610155 · Postage and Mailings		275	-275	
615115 · Office Expense		100	-100	
61518 · Clerk		1,538	-1,538	
615415 · Accounting	1,006	4,000	-2,994	25%
615416 · Assessment Admin. Expense	1,269	9,141	-7,872	14%
615617 · Website Maintenance		275	-275	
615656 · Board/Clerk Education		476	-476	
616500 · Legal Fees	500	3,295	-2,795	15%
619010 · Technical Consulting Costs	23,726	21,671	2,055	109%
628500 · Insurance Expense	2,746	2,746	0	100%
629030 · SBA Repayment to PHA Z2	15,476	15,476		100%
650000 · Bank Service Charges		92	-92	
750000 · Depreciation Expense Z2	16,666	16,666		100%
Total Expense	<u>61,389</u>	<u>75,751</u>	<u>-14,362</u>	<u>81%</u>
Net Ordinary Income	<u>-182</u>	<u>-14,544</u>	<u>14,362</u>	<u>1%</u>
Other Income/Expense				
Other Income				
410070 · Interest & Penalty Income	72	33	39	218%
Total Other Income	<u>72</u>	<u>33</u>	<u>39</u>	<u>218%</u>
Other Expense				
855000 · Interest Expense	8,538	8,538		100%
955500 · Interest Bond Discount	348	348		100%
Total Other Expense	<u>8,886</u>	<u>8,886</u>		<u>100%</u>
Net Other Income	<u>-8,814</u>	<u>-8,853</u>	<u>39</u>	<u>100%</u>
Net Income	<u><u>-8,996</u></u>	<u><u>-23,397</u></u>	<u><u>14,401</u></u>	<u><u>38%</u></u>

Pajaro Dunes Geologic Hazard Abatement District
Bank Account Activity

As of August 31, 2022

<u>Type</u>	<u>Date</u>	<u>Num</u>	<u>Name</u>	<u>Debit</u>	<u>Credit</u>	<u>Balance</u>
100000 - SCCB Zone 1 - 3957						232,401.73
Bill Pmt -Check	07/25/2022	1448	Cal Engineering & Geology		6,945.00	225,456.73
Bill Pmt -Check	07/25/2022	1449	Jarvis, Fay, & Gibson, LLP		740.00	224,716.73
Bill Pmt -Check	07/25/2022	1450	Wendy L. Cumming, CPA		2,135.44	222,581.29
Total 100000 - SCCB Zone 1 - 3957				0.00	9,820.44	222,581.29
100001 - SCCB Zone 2 - 3965						62,773.55
Bill Pmt -Check	07/25/2022	1374	Pelican Home Owner's Association		23,214.00	39,559.55
Bill Pmt -Check	07/25/2022	1375	Wendy L. Cumming, CPA		139.56	39,419.99
Total 100001 - SCCB Zone 2 - 3965				0.00	23,353.56	39,419.99
100002 - SCCB Z1 Emerg - 1877						601,541.21
Total 100002 - SCCB Z1 Emerg - 1877						601,541.21
100003 - SCCB LTD- 0208						49,249.09
Deposit	07/31/2022			4.18		49,253.27
Deposit	08/31/2022			4.18		49,257.45
Total 100003 - SCCB LTD- 0208				8.36	0.00	49,257.45
100004 - SCCB Bond Holding						315,729.48
Check	07/28/2022	ATM	U.S. Bank St. Paul		116,805.00	198,924.48
Deposit	07/31/2022			38.31		198,962.79
Deposit	08/31/2022			25.35		198,988.14
Total 100004 - SCCB Bond Holding				63.66	116,805.00	198,988.14
TOTAL				72.02	149,979.00	1,111,788.08

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE PAJARO DUNES
GEOLOGIC HAZARD ABATEMENT DISTRICT AUTHORIZING THE CONTINUED
USE OF TELECONFERENCED MEETINGS PURSUANT TO ASSEMBLY BILL 361**

Resolution No. 2022-__

WHEREAS, on March 4, 2020, Governor Newsom declared a State of Emergency in the State of California, as defined under the California Emergency Services Act, due to the COVID-19 pandemic; and

WHEREAS, on March 4, 2020, the Health Officer of Santa Cruz County declared a similar declaration of “local health emergency” regarding COVID-19 for Santa Cruz County, which was subsequently ratified by the Santa Cruz County Board of Supervisors on March 10, 2020; and

WHEREAS, on March 17, 2020, due to the threats posed by COVID-19, Governor Newsom issued Executive Order N-29-20, which suspended certain requirements of Government Code Section 54950 *et seq.*, the Ralph M. Brown Act (“Brown Act”), in order to allow local legislative bodies to conduct meetings telephonically or electronically without a physical meeting place; and

WHEREAS, on June 11, 2021, Governor Newsom issued Executive Order N-08-21, which stated that the provisions suspending requirements of the Brown Act in Executive Order N-29-20 would remain in effect through September 30, 2021, at which point the suspensions would expire; and

WHEREAS, on September 16, 2021, Governor Newsom signed Assembly Bill 361 (“AB 361”) into law, an urgency measure effective upon adoption, amending the Brown Act to allow legislative bodies to continue to meet remotely during a proclaimed State of Emergency, when either state or local officials have imposed or recommended measures to promote social distancing, or the legislative body determines that meeting in person would present imminent risks to the health and safety of attendees; and

WHEREAS, the State of Emergency proclaimed by the Governor on March 4, 2020, and local health emergency declarations and recommendations, remain in effect; and

WHEREAS, highly contagious COVID-19 Delta and Omicron Variants emerged in the second half of 2021, causing an increase in positive cases and hospitalizations locally and throughout the State of California; and

WHEREAS, on February 16, 2022, Santa Cruz County lifted its November 18, 2021, Order requiring the use of face coverings in indoor settings, but continues to recommend indoor masking for unvaccinated individuals and strongly recommends the use of face masks as an effective tool against the spread of the COVID-19 virus; and

WHEREAS, according to the CDC’s “Community Transmission” metric, which provides a four-tiered system that measures the level of community transmission in each county, as of September 27, 2022, Santa Cruz County was reported as having a “Low” Community Transmission rate, and

WHEREAS, although there has been a recent decrease in reported cases of COVID-19 throughout the County, State and Country, it is clear that COVID infections are not going away and that the potential for new variants and infectious surges exists; and

WHEREAS, due to the continued threat of infections posed by the Omicron, BA.5, and newer variants, the District is concerned about the health and safety of attendees at public meetings should they be held in person and in a shared indoor public meeting space; and

WHEREAS, regular meetings of the Board of Directors of the Pajaro Dunes Geologic Hazard Abatement District (the “Board”), comprised of homeowners and constituents who often reside in other counties in the State, pose a unique risk of gatherings of individuals from a variety of locales with differing Community Transmission rates; and

WHEREAS, on November 13, 2021, in recognition of much of the information referenced above, the Board adopted initial Resolution No. 2021-02 “Authorizing the Continued Use of Teleconferenced Meetings Pursuant to AB 361” as a means of protecting the Board and the public from the transmission of the COVID-19 virus; and

WHEREAS, at the last District Board meeting, on August 6, 2022, the Board adopted Resolution No. 2022-05 “Authorizing the Continued Use of Teleconferenced Meetings Pursuant to Assembly Bill 361”; and

WHEREAS, pursuant to the provisions of AB 361, after adoption of an initial resolution stating the desire to continue to use teleconferencing, if a governmental entity wishes to continue to conduct business via teleconferencing it must adopt a subsequent resolution establishing facts and findings that justify the use of such meeting procedures; and

WHEREAS, in light of the foregoing, the Board desires to take action in substantial compliance with AB 361 to continue to hold its meetings remotely.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Board of the Directors of the Pajaro Dunes Geologic Hazard Abatement District as follows:

1. All of the recitals set forth above are true and correct to the best of its knowledge and by this reference are incorporated herein as findings.
2. The Board hereby acknowledges that the Governor’s State of Emergency proclamation issued on March 4, 2020, remains in effect.

3. The Board finds that due to the ongoing periodic emergence of COVID-19 Variants, and the continued threat of COVID-19 infectious surges, holding in-person Board meetings would present an imminent risk to the health and safety of attendees.

4. The Board is hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution, including conducting open and public meetings in accordance with Government Code Section 54953(e) and other applicable provisions of the Brown Act to allow teleconferenced meetings.

5. This Resolution shall take effect on October 1, 2022, and shall be effective until the earlier of thirty days from said date or such time the Board adopts a subsequent resolution in accordance with Government Code Section 54953(e)(3) to extend the time during which the Board may continue teleconferencing without compliance with the Brown Act's prior rules regarding teleconferencing.

PASSED AND ADOPTED by the Board of Directors of the Pajaro Dunes Geologic Hazard Abatement District of the County of Santa Cruz, State of California, this 1st day of October, 2022, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

President John Cullen, Board of Directors

ATTEST _____
Sarah Mansergh, Clerk of the Board

MEMORANDUM

To: Sarah Mansergh, Clerk of the Board
Pajaro Dunes GHAD
2661 West Beach Road
Watsonville, California 95076

From: Dan Peluso, P.E., G.E., & Kevin Loeb, P.G., C.E.G.
Cal Engineering & Geology, Inc.
6455 Almaden Expressway, Suite 100
San Jose, California 95120

Date: August 29, 2022

RE: Annual Inspection of Rock Revetment and River Wall
Pajaro Dunes Resort
Santa Cruz County, California
CE&G Document 190780.006

1.0 INTRODUCTION

This report presents the results of observations from our annual inspection of the rock revetment (seawall) and river wall at the subject property. The inspection services presented in this report were undertaken at the request of the Pajaro Dunes Geologic Hazards Abatement District (PDGHAD). This report presents a summary of our Second inspection report of the rock revetment and river wall. Our first inspection results are presented in our previous inspection memo, dated September 6, 2019. In addition, three previous inspections were performed by Arup. The results of Arup's previous annual inspections are presented in their reports, dated January 9, 2012; April 29, 2013; and November 7, 2014.

2.0 DEVELOPMENT DESCRIPTION AND BACKGROUND

The Pajaro Dunes community includes private single-family residences, including detached single-family residences, as well as groups of townhouses and condominiums. These buildings were constructed along a narrow strip of land bounded by the Pacific Ocean on the southwest, the Watsonville Slough on the northeast, Palm Beach State Park on the northwest, and the Pajaro River on the southeast (Figure 1). We understand the

development of the community began in the 1960s and continued into the 1970s. Following several episodes of severe coastal erosion in the 1970s and 1980s, approximately 6,000 feet of rock revetment was constructed in three segments between 1986 and 1988 along the ocean-side of the development. The rock revetment is relatively straight for most of its length, except on the south end, where it curves around the Pelican townhouses and terminates after turning inland for a distance of about 200 feet. In addition, there is a steel sheet pile wall that was constructed in 2003 that begins near the terminus of the rock revetment and trends for about 500 feet around the Pelican townhouses, curves around the townhouses, and terminates about 200 feet up the Watsonville Slough. The sheet piles are approximately 58 feet deep, with about the upper 5 feet exposed above the ground surface. This steel sheet pile wall is referred to as the “river wall”.

The rock revetment is comprised of approximately 110,000 tons of riprap. The top of the revetment varies in elevation from 19.5 to 22.0 feet above mean sea level and the base of the revetment is at an elevation of -2.0 feet below mean sea level (NGVD 1929 Datum). The revetment ranges in height from about 10 to 15 feet above the current beach level at the toe of the revetment. The rock revetment has been repeatedly damaged by coastal erosion, occurring during relatively severe winter storms since its original construction at least two times: in 2002/2003 and 2004. Following each damaging storm event, emergency repairs were implemented in the form of placing riprap in selected areas along the revetment. The repaired area in 2003 measured a total length of approximately 420 feet of revetment using approximately 675 tons of riprap. The repaired area in 2004 measured a total length of approximately 55 feet of revetment using approximately 185 tons of riprap. Relative to the overall length of the revetment, both of these storm events appear to us to have caused limited damage, affecting a total of approximately 8 percent of the overall revetment length and less than 1 percent of the overall volume of riprap comprising the revetment. We are not aware of any storm damage to the river wall.

The Pajaro Dunes development has, in the past, utilized the engineering services of Haro Kasunich & Associates (HKA) and Arup North America, Ltd. (Arup) for periodic inspections as well as engineering design of repair alternatives. Key staff at HKA had worked on the original design and construction of the revetment before the rock revetment was constructed in the late 1980s. More recently, Arup prepared repair and maintenance recommendations and an initial repair design for a segment of the rock revetment. This repair design has undergone initial reviews by stakeholder agencies. More recent reviews by the California Coastal Commission have indicated that a permit cannot be issued for the repair design originally developed by Arup and that any repairs or maintenance to the rock

revetment must not extend outside of the geometry of the rock revetment documented under the original development permit.

3.0 SUMMARY OF OBSERVATIONS

3.1 GENERAL

A California Coastal Commission letter dated May 9, 2007, notes their request for a photographic record of the revetment, which should at a minimum include photographs of the entire length of the revetment. We consider this request as guidance for the scope of our annual inspections.

The purpose of the annual inspection is to observe and document the condition of the existing rock revetment (seawall) and river wall adjacent to the Pajaro Dunes Resort property. This provides a basis for evaluating the impact of future coastal erosion. The current report contains the most recent inspection results for the rock revetment and the river wall.

We performed our inspection on July 14, 2022. Our site observations included taking photographs of the rock revetment and river wall at the Pajaro Dunes development and documenting observable changes from our last monitoring event. Our inspection generally included observing and photographing the revetment and river wall from the beach-side of the residences, as well as photographing other features of the revetment and river wall. A site plan showing the approximate location of the photos (referenced by photograph number) is presented in Figures 2A and 2B. Selected photos are appended to this memorandum. Photographs were taken at similar locations and scales as our previous inspection, dated September 6, 2019, to observe changes more easily. Photo numbers in each inspection report also remain the same.

3.2 SITE OBSERVATIONS

Evidence of erosion/sand loss from prior storm events is no longer observable in the vicinity of previous emergency repairs to the rock revetment. These emergency repairs consisted of the placement of riprap at the exposed toe of the seawall to help stabilize the seawall during severe coastal erosion events. As previously discussed by Arup (2014), the revetment wall near various lots including lots 15, 54, 55, 56, 59, 98, and 99 was either more prone to erosion or was already showing signs of erosion. During our site reconnaissance, lots 15, 54, 55, 56, 59, 98, and 99 as well as most others showed an increase in sand cover from our previous inspection in 2019. The increase in the sand has covered the lower and mid portions of most of the rock revetment, and in some areas (lots

4, 70, 71, 72, 99) has developed small sand dunes on the beach in front of the lots, also resulting in sandy swales separating the dunes from the base of the rock revetment. Minimal to no changes were observed along the rock revetment for lots 44, 73, 74, 75, 77, 90, 96, 97, and 106.

We did not observe damage to the river wall adjacent to the Pelican Point townhouses. In each of the site visits, both recent and past years, the condition of the river wall and adjacent beach area has remained relatively constant, as shown in the photos appended. However, as shown in the photos, we understand that this accumulation of sand at the mouth of the Pajaro River has created a flooding hazard in some years by impeding high winter river flows from reaching the Pacific Ocean.

3.3 MONITORING

We recommend the condition of the revetment be monitored on an annual basis and/or after major storm events, especially after significant changes are noted by residents.

We recognize some houses are in a more vulnerable position due to their proximity to the top of the revetment. Thus, if the revetment is severely damaged by coastal erosion during a storm event or other natural hazards, such as a tsunami or earthquake, the homes that are closest to or directly over the revetment will likely have a higher probability of being damaged.

3.4 CONCLUSIONS AND DISCUSSION

During the inspection, we did not identify areas along the rock revetment and river wall requiring immediate maintenance or corrective action. However, control of runoff discharged from downspouts for residences adjacent to the rock revetment should be considered to minimize seepage below the rock revetment that may cause migration of the finer soils below the revetment. This is considered a relatively small expense.

As noted in previous inspection reports, the revetment adjacent to Lots 97 thru 104 and Lots 15, 54, and 55, inclusive, should receive maintenance at the discretion of PDGHAD in the form of re-stacking the rock revetment to its original slope configuration where it has become over-steepened. This work is not urgent and can be done in the normal course of business. The reconstruction of the existing rock revetment in this area will require, as a minimum, approval from the California Coastal Commission, Santa Cruz County, and access permission from the State of California Parks Department. In addition, design plans and specifications have been prepared, which may require updates. In terms of previous

expenditures that we are aware of by PDGHAD for seawall maintenance, this is considered a small to moderate expense.

4.0 LIMITATIONS

CE&G has performed its services in a manner consistent with the level of care and skill ordinarily exercised by a member of the same profession currently practicing in the same location under similar circumstances. No warranty or representation, either expressed or implied, is included or intended hereunder.

This report was prepared by CE&G at the request of and for the benefit of Pajaro Dunes GHAD ("PDGHAD") in CE&G's contractual capacity as geotechnical engineer. The limited purpose of the report is to present CE&G's observations of the condition of the existing rock revetment and steel sheet pile river wall at the subject site. This report is limited to this purpose and does not address the structural stability of the buildings; the serviceability of the buildings; or the current or intended functions of the buildings. CE&G did not conduct geotechnical or structural reviews of the buildings. This report shall not expand CE&G's liability to parties outside of its contractual obligations.

5.0 CLOSURE

We trust this report provides you with the information necessary to proceed. If you have any questions, please contact us

Sincerely,

CAL ENGINEERING & GEOLOGY, INC.



Dan Peluso, C.E. 49562, G.E. 2367
Senior Principal Engineer

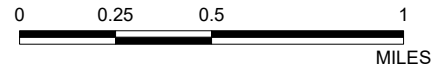


Kevin Loeb, P.G. 9665, C.E.G. 2763
Senior Geologist



BASEMAP REFERENCE

1. ORTHOIMAGERY FROM SANTA CRUZ COUNTY, 2020.
2. STREET CENTERLINES FROM CALTRANS CALIFORNIA ROAD SYSTEM, DOWNLOADED ON 15 MAY 2016.



\\granite\CEG Master Files\2019\190780-PajaroDunesGHAD-SeawallMonitoring\GIS\ArcGIS\190780.007-Fig1-SiteLocation.mxd; 7/28/2022; kdrozynska



6455 Almaden Expwy.
Suite 100
San Jose, CA 95120
Phone: (408) 440-4542

PAJARO DUNES SEAWALL
ANNUAL INSPECTION OF ROCK REVETMENT AND RIVER WALL
SANTA CRUZ COUNTY, CALIFORNIA

SITE LOCATION MAP

190780

AUGUST 2022

FIGURE 1

\\granite\CEG_Master_Files\2018\190780-PajaroDunesGHAD-SeaWallMonitoring\GIS\ArcGIS\190780_007-Fig2-PhotoLocations.mxd; 7/28/2022; kdrozynska



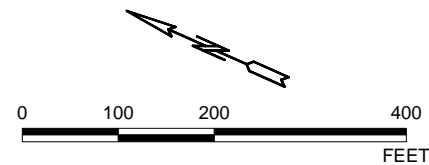
MATCHLINE - SEE FIGURE 2B

BASEMAP REFERENCE

1. PHOTOGRAPHS TAKEN ON 07/14/2022.
2. PARCEL DATA FROM COUNTY OF SANTA CRUZ GEOGRAPHIC INFORMATION SERVICES, ACCESSED ONLINE ON 08/03/2018.
3. ORTHOIMAGERY FROM SANTA CRUZ COUNTY (2020).

LEGEND

86 ● PHOTO NUMBER AND LOCATION



6455 Almaden Expwy.
Suite 100
San Jose, CA 95120
Phone: (408) 440-4542

PAJARO DUNES SEAWALL
ANNUAL INSPECTION OF ROCK REVETMENT AND RIVER WALL
SANTA CRUZ COUNTY, CALIFORNIA

PHOTO LOCATION MAP (1 OF 2)

190780

AUGUST 2022

FIGURE 2A

\\granite\CEG_Master_Files\2018\190780-PajaroDunesGHAD-SeaWallMonitoring\GIS\ArcGIS\190780_007-Fig2-PhotoLocations.mxd; 7/28/2022; kdzyznyska

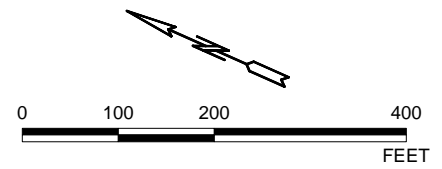


BASEMAP REFERENCE

1. PHOTOGRAPHS TAKEN ON 07/14/2022.
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3. ORTHOIMAGERY FROM SANTA CRUZ COUNTY (2020).

LEGEND

86 ● PHOTO NUMBER AND LOCATION



6455 Almaden Expwy.
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San Jose, CA 95120
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PAJARO DUNES SEAWALL
ANNUAL INSPECTION OF ROCK REVETMENT AND RIVER WALL
SANTA CRUZ COUNTY, CALIFORNIA
PHOTO LOCATION MAP (2 OF 2)

190780	AUGUST 2022	FIGURE 2B
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Attachment A. Photo Documentation



Photo 1D: Sand dunes northwest of 1 Cypress Lane.



Photo 2D: Sand dunes northwest of 1 Cypress Lane.



Photo 3D: Sand dunes northwest of 1 Cypress Lane.



Photo 4D: Sand dunes northwest of 1 Cypress Lane.



Photo 5D: Sand dunes northwest of 1 Cypress Lane.



Photo 6D: Sand dunes northwest of 1 Cypress Lane.



Photo 1: Units 1 - 10 Cypress Lane



Photo 2: Units 8 - 14 Cypress Lane



Photo 3: Units 14 - 17 Cypress Lane



Photo 4: Units 17 - 20 Cypress Lane



Photo 5: Units 20 - 23 Cypress Lane



Photo 6: Lot 24/146



Photo 7: Lot 145



Photo 8: Lot 144



Photo 9: Lot 60



Photo 10: Lot 59



Photo 11: Lot 58



Photo 12: Lot 57



Photo 13: Lot 56



Photo 14: Lot 55



Photo 15: Lot 54



Photo 16: Lot 15



Photo 17: Lot 14



Photo 18: Lot 13



Photo 19: Lot 12



Photo 20: Lot 11



Photo 21: Lot 10



Photo 22: Lot 9



Photo 23: Lot 8



Photo 24: Lot 7



Photo 25: Lot 6



Photo 26: Lot 5



Photo 27: Lot 4



Photo 28: Lot 3



Photo 29: Lot 2



Photo 30: Lot 1



Photo 31: Lot 107



Photo 32: Lot 106



Photo 33: Lot 105



Photo 34: Lot 104



Photo 35: Lot 103



Photo 36: Lot 102



Photo 37: Lot 101



Photo 38: Lot 100



Photo 39: Lot 99



Photo 40: Lot 98



Photo 41: Lot 97



Photo 42: Lot 96



Photo 43: Lot 95



Photo 44: Lot 94



Photo 45: Lot 93



Photo 46: Lot 92



Photo 47: Lot 91



Photo 48: Lot 90



Photo 49: Lot 48



Photo 50: Lot 47



Photo 51: Lot 46



Photo 52: Lot 45



Photo 53: Lot 44



Photo 54: Lot 43



Photo 55: Lot 42



Photo 56: Lot 41



Photo 57: Lot 40



Photo 58: Lot 80



Photo 59: Lot 79



Photo 60: Lot 78



Photo 61: Lot 77



Photo 62: Lot 76



Photo 63: Lot 75



Photo 64: Lot 74



Photo 65: Lot 73



Photo 66: Lot 72



Photo 67: Lot 71



Photo 68: Lot 70



Photo 69: Lot 69



Photo 70: Lot 68



Photo 71: Lot 140



Photo 72: Lot 141



Photo 73: Pelican Drive - Complex A



Photo 74: Pelican Drive - Complex A



Photo 75: Pelican Drive - Complex A



Photo 76: Pelican Drive - Complex B



Photo 76.5: Pelican Drive - Complex B



Photo 77: Pelican Drive - Complex B



Photo 77.5: Pelican Drive - Complex B & C



Photo 78: Pelican Drive - Complex B & C



Photo 79: Pelican Drive - Complex C & Sheetpile Wall



Photo 80: Sheetpile wall south of Pelican Drive - Complex C



Photo 80.5: Sheetpile wall south of Pelican Drive - Complex C



Photo 81: Sheetpile wall south of Pelican Drive - Complex C & D



Photo 82: Sheetpile wall south of Pelican Drive - Complex D



Photo 83 : Sheetpile wall south of Pelican Drive - Complex E



Photo 83.5: Sheetpile wall & dunes south of Pelican Drive - Complex D & E



Photo 84: Sheetpile wall southeast of Pelican Drive - Complex E



Photo 85: Sheetpile wall east of Pelican Drive - Complex E



Photo 86 Sheetpile wall northeast of Pelican Drive - Complex E

LONG-TERM ROCK REVETMENT OPERATIONS & MAINTENANCE PLAN (O&M)

PAJARO DUNES GEOHAZARD ABATEMENT DISTRICT

CE&G DOCUMENT: 190782-001

60% DRAFT-SEPTEMBER 26, 2022

Prepared for:

Pajaro Dunes GHAD
2661 West Beach Road
Santa Cruz County, California 95076

Christopher R. Nardi, P.E., G.E.
Principal Engineer

Kate Krug, P.G.,
Associate Geologist

The report Cover page and header/footer will need to be updated with Pajaro Dunes GHAD graphics. The document is not CE&G but will indicate it was prepared by Stamps and signatures pending report finalization.

Reviewed by:

Dan Peluso, P.E., G.E.
Senior Principal Engineer

TABLE OF CONTENTS

1.0	Overview	1
2.0	Normal Operation and Maintenance.....	2
2.1	Operation	2
2.2	Maintenance Activities.....	2
2.2.1	Rock Revetment.....	2
2.2.2	Additional Facilities.....	2
3.0	Inspection And Reports	3
3.1	Inspection And Reporting Frequency.....	3
3.2	Inspection Guidelines	3
3.2.1	Physical Inspection.....	3
3.2.2	Photo Documentation	4
3.2.3	UAV Change Detection Scan.....	4
3.2.4	Reporting.....	4
4.0	Repair And Replacement.....	5
4.1	Introduction.....	5
4.2	Rock Revetment	5
4.3	Permitting & Access for Repairs.....	5
5.0	Emergency Operations/ Emergency Action Plan	6
5.1	Santa Cruz County Emergency Alerts and Warnings.....	6
5.2	Structures or Facilities that are not operated or Maintained by the Pajaro Dunes GHAD.....	6
6.0	General	8
6.1	Project Description	8
6.2	Project Features	9
6.2.1	Rock Revetment.....	9
6.2.2	Sheet Pile Wall.....	10
6.2.3	Stairways.....	10
6.2.4	Access	11
7.0	References	12

FIGURES

Figure 1.	Location Map.....	
Figure 2.	Project Features (3 sheets).....	
Figure 3.	100-year flood plain, Storm waves, and Tsunami inundation Map	

APPENDICES

- Appendix A. [Permit Documents- Content Pending](#)
- Appendix B. [Example Inspections and Reports- Content Pending](#)
- Appendix C. [Emergency Operations Plan- Content Pending](#)
- Appendix D. [Biotic Resources Report, 2015- Content Pending](#)

1.0 OVERVIEW

This Operations and Maintenance (O&M) Manual has been prepared by the Pajaro Dunes Geologic Hazard Abatement District (Pajaro Dunes GHAD), to identify the operation and maintenance activities (O&M) needed to maintain the coastal flood and erosion protection benefits provided by the **Pajaro Dunes Rock Revetment** and associated facilities (access points, stairways, and sheet pile wall). The Rock Revetment resides along the boundary of the Pajaro dunes and beach and the homes/ developments that parallel the shoreline.

This Manual covers the portion of the erosion and flood protection facilities (rock revetment) that begins at the Palm Beach State Park in the north and ends in the south, where the Pajaro River outflows into Monterey Bay. **Figure 1 – Location Map** shows the approximate extent of the rock revetment and the local access roads in the vicinity of the Pajaro Dunes development. This Manual and the activities described herein are necessary for the facilities to adhere to Santa Cruz County permit requirements (Appendix A- Permit Documents). See Figure 1 and **Figure 2 – Project Features** for the extent of the facilities to which this O&M Manual is applicable and for associated facilities not covered by the Manual but pertinent to O&M activities. The Manual also provides recommendations for repair and replacement, as well as recommendations for emergency procedures that can be implemented by the Pajaro Dunes GHAD to minimize flood and erosion damage and facilitate recovery efforts following a flood, tsunami, or coastal storm event (**Figure 3 -100-year flood plain, Storm waves, and Tsunami Inundation Map**)

Although the flood control facilities are not part of a federal flood control project, the Manual was prepared in general conformance with the instructions contained in USACE Engineering Regulation (ER) 1110-2-401 but was reorganized to generally conform to a format adopted by the Pajaro Dunes GHAD for the operation and maintenance of both the rock revetment.

The O&M manual is presented in the order of activities expected for the standard operations and maintenance of the rock revetment. Additional information regarding nonstandard O&M activities is presented in the rear of the Manual (Emergency scenarios and general descriptions of the project site and associated facilities).

It is anticipated that the Pajaro Dunes GHAD will update this Manual when changes occur to the facilities, O&M activities have occurred, or emergency procedures have been implemented. Proposals for significant changes to the facilities or procedures that could potentially impact the performance of the facilities or the permit status of the facilities should be developed with the concurrence of Sanat Cruz County and the California Coastal Commission.

2.0 NORMAL OPERATION AND MAINTENANCE

The performance of shoreline protection facilities is dependent on periodic inspection and regular maintenance or repair to ensure that the facilities perform as designed and constructed. This section provides recommendations regarding the operation and maintenance of the Pajaro Dunes GHAD rock revetment structure. See Figure 2 for the location and extent of the features associated with the shoreline protection facilities.

2.1 OPERATION

The operation requirements for the Pajaro Dunes rock revetment consist of the monitoring and possible emergency measures performed as required during and following severe storm events, as described in Section 5 – Emergency Operations/Emergency Action Plan (EOP).

2.2 MAINTENANCE ACTIVITIES

The maintenance activities for the Pajaro Dunes rock revetment are described below.

2.2.1 Rock Revetment

Maintenance for the rock revetment begins with observing the existing conditions along the revetment. Observations should note changes in the apparent slope angle, i.e., flatter or steeper slope gradient, as well as displaced or translated rocks. They should also focus on embedded debris, sand cover, and vegetation cover.

Standard maintenance activities may include; restacking of rock materials to the original permitted extent and gradient (see Section 6.0).

2.2.2 Additional Facilities

The sheet pile wall and access stairways, while appurtenant to the rock revetment, do not fall under the O&M activities described in this document.

3.0 INSPECTION AND REPORTS

3.1 INSPECTION AND REPORTING FREQUENCY

Inspections of the Pajaro Dunes rock revetment and associated facilities (sheet pile wall and staircases) are to be performed on an annual basis and after a large storm or seismic event as described in Section 5 (Appendix C- Emergency Operation Plan). A total of five annual inspections have been performed by Arup and CE&G between 2012 and 2022, which included physically inspecting the entire length of the rock revetment, photo documenting its condition, and noting any observable changes since previous monitoring events (Arup, 2012, 2013, 2014; and CE&G 2019, 2022).

Inspection activities are expected to be conducted on foot as vehicle access, and use along the beach area is limited and may require permitting and approval. Observations should be recorded referencing the stationing location presented in Figure 2. Biologically sensitive areas exist along and around the rock revetment (Biotic Resources Group, 2015). Any inspection activities should avoid impacting any vegetation or zones of potential biotic resource sensitivity (“Protected Biom”- Figure 2).

While the rock revetment is the main facility requiring inspection, associated facilities (sheet pile wall and stairways) should also be inspected and documented, as their upkeep may impact the rock revetment. Maintenance recommendations for the associate facilities are not required, but any damage to these features that are noted during site observations should be reported to the owner/agency in control of these facilities, see Table 5.1.

3.2 INSPECTION GUIDELINES

Based on the findings from previous monitoring events by Arup and CE&G (Appendix B- Example Inspections and Reports), future annual inspections should include the following tasks for the rock revetment, sheet pile wall, and staircases:

- Physical inspection of the site features
- Photo documentation
- UAV (Unmanned Aerial Vehicle) Change Detection Scan (once every two years)
- Reporting

3.2.1 Physical Inspection

The rock revetment, sheet pile wall, and staircases are to be inspected by an experienced engineer or geologist to document the site conditions and determine whether maintenance is required, including emergency repairs. Emergency repairs have been required in the

past due to large storm events resulting in excessive amounts of focused erosion along the rock revetment. During the inspection, notable changes, including but not limited to increases and decreases in sand dunes along the revetment, sheet pile wall, and staircases; evidence of focused erosion, any damages, etc.

3.2.2 Photo Documentation

Photographs should be taken from the locations specified in Figure 2 to provide consistency with previous annual monitoring events (Appendix B- Example Inspections and Reports). The purpose of taking photographs from the same locations during each event is to facilitate the detection of changes more easily from previous inspections. A single representative photograph shall be selected for each location.

3.2.3 UAV Change Detection Scan

A LiDAR scan of the rock revetment should be performed utilizing an unmanned aerial vehicle (UAV) once every two years and after major seismic or storm events, as described in Section 5. Data from new LiDAR scans will be compared to data from a baseline scan (currently scheduled for July 2023) to generate change detection maps and determine what areas have undergone significant changes, especially after major storm or seismic events.

3.2.4 Reporting

Findings from each monitoring event shall be summarized in a memorandum that includes updated site photos and associated figures. The summary should include a description of the site conditions during the time of the site visit as well as notable changes from previous site visits. The memorandum should also include repair recommendations if needed.

4.0 REPAIR AND REPLACEMENT

4.1 INTRODUCTION

This section outlines approaches to repair the rock revetment, which could include the replacement of sections depending on the severity of the damage.

4.2 ROCK REVETMENT

Rock revetment repairs should be performed if displacement or damage impairs the ability of the revetment to serve its intended function. Minor repairs may include removing debris and/or relocating displaced rock and re-establishing the design grades.

Replacement of a damaged section may be warranted if a significant amount of rock has been displaced. If this is the case, the revetment material should be removed to expose the supporting ground or undisturbed rock, whichever is shallower. The revetment section should then be reconstructed to restore it to the original design section.

4.3 PERMITTING & ACCESS FOR REPAIRS

Content pending Owner review of 60% submittal

5.0 EMERGENCY OPERATIONS/ EMERGENCY ACTION PLAN

The following section outlines what conditions (storms, flood warnings, tsunamis) may trigger the need for an inspection independent of the annual inspections outlined in the Manual. If one of the events described below has been indicated or reported to occur in the Rock Revetment area, the annual inspection protocol should be initiated.

Emergency operations are described in the Pajaro Dunes GHAD Emergency Operations Plan (EOP), which conforms to the state-mandated Standardized Emergency Management System (SEMS). Refer to the EOP in Appendix C for information regarding the chain of responsibility, emergency communications, and local and state emergency response assistance. The EOP is included in Appendix C for reference.

-The Pajaro Dunes GHAD has indicated that the EOP exists. Finalization of this section is pending the review and incorporation of the EOP once it is made available.

5.1 SANTA CRUZ COUNTY EMERGENCY ALERTS AND WARNINGS

Santa Cruz County has implemented an emergency alert and warning system for floods, coastal storms, tsunamis, and earthquake events. The warning system provided by the County will be uploaded and subscribed to by the Pajaro Dunes GHAD, and any incidents which have impacted the rock revetment area will trigger an inspection and report at the scale of an annual review (<https://www.co.santa-cruz.ca.us/OR3/Response/DigitalLibrary/EmergencyAlertsandWarnings.aspx>).

The County of Santa Cruz utilizes the information and warning provided through the “Tsunami Zone” website (<https://www.tsunamizone.org/>). An official tsunami warning will be broadcast through local radio and television, wireless emergency alerts, NOAA Weather Radio, and NOAA websites (like Tsunami.gov). It may also come through outdoor sirens, local officials, text message alerts, and telephone notifications.

The warning system provided by the County will be uploaded and subscribed to by the Pajaro Dunes GHAD, and any incidents which have impacted the rock revetment area will trigger an inspection and report at the scale of an annual review.

5.2 STRUCTURES OR FACILITIES THAT ARE NOT OPERATED OR MAINTAINED BY THE PAJARO DUNES GHAD

Table 5-1 provides a list of structures and facilities located along or in proximity to the rock revetment that are owned, operated, and maintained by others. Contact information is also provided if needed during emergency or non-emergency situations.

Table 5-1 – Structures or Facilities Maintained by Others This information is based on preliminary information and will be updated at a later date.

Structure or Facility	Contact Information
a) Access	<p>Santa Cruz County, Public Works Phone: (non-emergency) (emergency) https://cityof Caltrans http://www.dot.ca.gov/hq/maint/msrsubmit/ California State Parks- Sunset Beach/ Palm Beach State Park Day Parking Area Phone: (non-emergency) (emergency) Pajaro Dunes GHAD- gate access Phone: (non-emergency) (emergency)</p>
b) Stairways	<p>Pajaro Dunes GHAD Phone: (non-emergency) (emergency) Home Owner</p>
c) Sheet Pile wall	<p>Pajaro Dunes GHAD Phone: (non-emergency) (emergency) USACE Phone: (non-emergency) (emergency)</p>

6.0 GENERAL

6.1 PROJECT DESCRIPTION

The Pajaro Dunes community includes private residences consisting of 146 single-family lots, 87 condominiums, and 23 townhouses. These buildings were constructed on a narrow strip of land bounded by the Pacific Ocean on the southwest and by the Pajaro River on the northeast and southeast. The development of the community began in the 1960s and continued into the 1970s. Following several episodes of severe coastal erosion in the 1970s and 1980s, approximately 6,000 feet of rock revetment was constructed in three segments between 1986 and 1988 along the ocean-side of the development. The rock revetment is relatively linear for most of its length, except on the southern end, where it curves around the Pelican townhouses and terminates after turning inland for a distance of about 200 feet. In addition, there is a steel sheet pile wall that was constructed in 2003 that trends for about 500 feet around the Pelican townhouses, curves around the townhouses, and terminates about 200 feet up the slough. The sheet piles are 58 feet deep and extend about 5 feet above the existing adjacent ground surface on the development side of the wall. This steel sheet pile wall is referred to as the “river wall” and was placed to reduce the risk of erosion and flood impacts of the Pajaro River on the proximal homes and infrastructure.

The rock revetment is comprised of approximately 110,000 tons of riprap. The top of the revetment varies in elevation from 19.5 to 22.0 feet above mean sea level, and the base of the revetment is at an elevation of -2.0 feet below mean sea level (NGVD 1929 Datum). The revetment ranges in height from about 10 to 15 feet above the adjacent beach elevation during the majority of the year. During major storm events, much of the beach sand is typically eroded, exposing more of the rock revetment. The rock revetment has been damaged by coastal erosion, occurring during severe winter storms since its original construction at least two times: in 2002/2003 and 2004. Following each damaging storm event, emergency repairs were implemented in the form of placing new riprap in selected areas along the revetment to prevent the collapse of the revetment. The repaired area in 2003 measured a total length of approximately 420 feet of revetment using approximately 675 tons of riprap. The repaired area in 2004 measured a total length of approximately 55 feet of revetment using approximately 185 tons of riprap. In relation to the overall length of the revetment, both of these storm events would appear to us to have caused limited damage, affecting a total of approximately 8 percent of the overall revetment length and less than 1 percent of the overall volume of riprap comprising the revetment. We are not aware of any storm damage to the river wall.

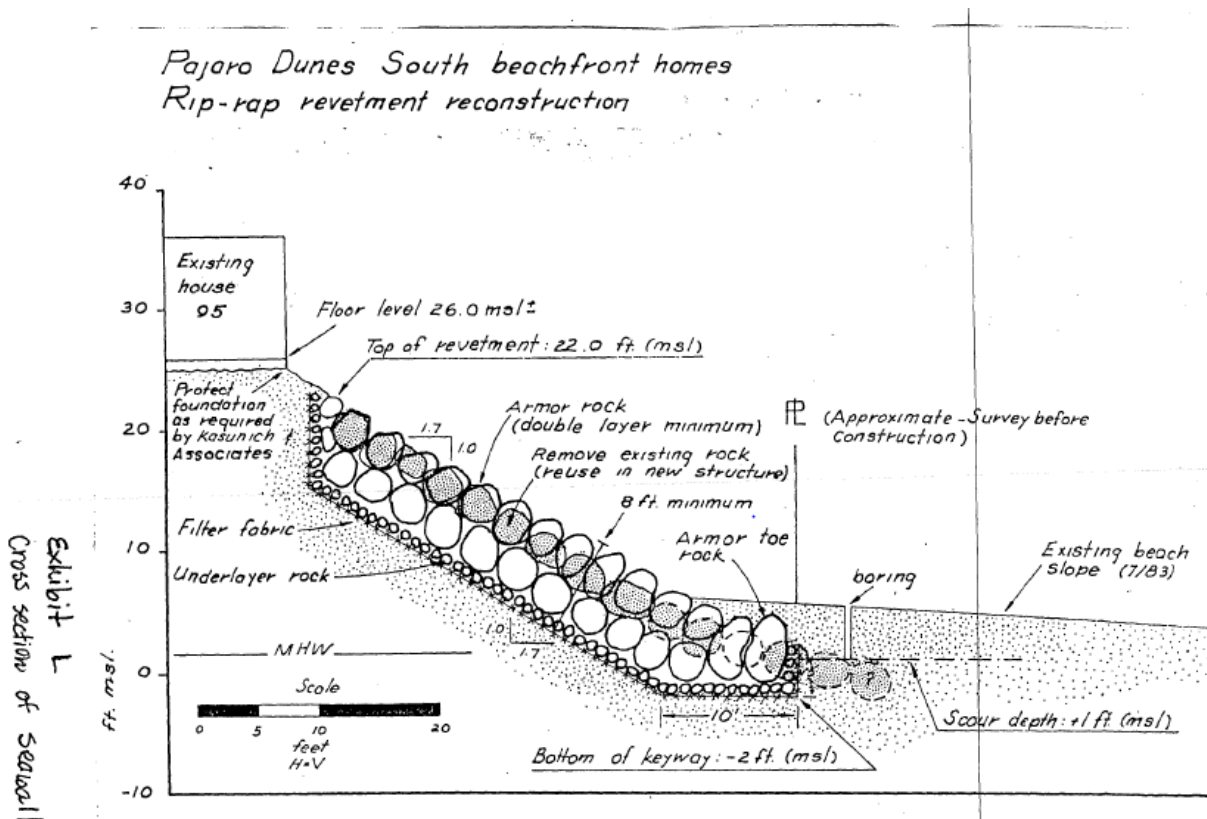
The Pajaro Dunes development has, in the past, retained the engineering services of Haro Kasunich & Associates (HKA) and Arup North America, Ltd. (Arup) for annual inspections as well as engineering design of repair alternatives. Key staff at HKA had worked on the original design and construction of the revetment before the rock revetment was constructed in the late 1980s. More recently, Arup prepared the repair and maintenance recommendations and an initial repair design for a segment of the rock revetment (ARUP, 2012). This repair design has undergone initial reviews by stakeholder agencies.

6.2 PROJECT FEATURES

6.2.1 Rock Revetment

The rock revetment (referred to as “seawall” in the original permit) extends approximately 6,000 feet along the beach and is comprised of approximately 110,000 tons of rip rap. The original design was completed by Rodgers E. Johnsen & Associates (RJ&A) and was approved under permit No. 2370, dated 6/10/1986, and the associated Santa Cruz County Use Permit Number 84-57-CZ (SCC, 1986) and 8-1194-CZ (SCC, 1988). Key specifications for the approved rock revetment are listed below and a cross-section of the original design is shown in **Inset-Figure 01- Final Sea Wall Permit Schematic**. Some specifications (e.g., slope and height) vary depending on the location along the rock revetment at the Pajaro Dunes properties. Following are some key attributes of the rock revetment:

- Revetment slopes = 1.5:1 to 2:1. (RJ&A, 1986)
- Top of revetment elevations = 19.5 to 22 feet above MSL (SCC, 1986)
- Bottom of keyway elevation = -2.0 feet below MSL (SCC, 1986)
- Length = 6,000 feet (ARUP, 2012)
- Volume of rip-rap = 110,000 tons (ARUP, 2012)
- Rip-Rap size = (based on 2.6 specific gravity) (“Revetment Specifications”- SCC, 1986)
- Armor Rock = 6,000-8,000 pounds / 2.8-4.5 feet in diameter
- Armor Toe Rock = 8,000-10,000 pounds / 4.5-4.9 feet in diameter
- Rip-Rap Type = Angular quarried granite that: must be hard, durable, sound, free from laminations and cleavage planes, and will not break during handling, or disintegrate in salt air or salt water (“Revetment Specifications”)
- Base of keyway width = 10 feet (SCC, 1986)
- Rip-rap thickness = min 8 feet (SCC, 1986)
- Filter fabric at base of revetment = either plastic filter cloth or 700X “Mirafi.” (“Revetment Specifications” - SCC, 1986)
- Revetment = armor rock (double layer minimum) (SCC, 1986)



Inset Figure -01 Final Sea Wall Permit Schematic (SCC,1986)

6.2.2 Sheet Pile Wall

The sheet pile wall is located on the southern edge of the Pajaro Dunes development and ties into the southern termination of the rock revetment. The general extent of the feature is as described below:

- Length = 700 feet (ARUP, 2012)
- Depth = 58 feet (ARUP, 2012)
- Stick-up = 5 feet (ARUP, 2012)

6.2.3 Stairways

There are currently 16 wooden staircases that provide beach access from the Pajaro Dunes community properties. The staircases start at the upper portions of the rock revetment and extend down the surface of the revetment and onto the beach. Aside from one private staircase that extends directly from the center of lot 144, all other staircases are located between residential lots, condominiums, and/or townhouses, as listed below (ARUP, 2008).

- Between Cypress Condominiums 10 & 14

- Between Cypress Condominiums 17 & 20
- Between Cypress Condominiums 23 & Lot 24/146
- Between Lot 144 (Private)
- Between Lots 56 & 57
- Between Lots 14 & 15
- Between Lots 10 & 11
- Between Lots 4 & 5
- Between Lots 106 & 107
- Between Lots 102 & 103
- Between Lots 98 & 99
- Between Lots 92 & 93
- Between Lots 43 & 44
- Between Lots 78 & 79
- Between Lots 74 & 75
- Between Lot 141 & Pelican Point Townhouses

6.2.4 Access

The Pajaro Dunes GHAD coastal flood and erosion control facilities (rock revetment) are located along the Pajaro Dunes and beach, in Southern Santa Cruz County, California. Figure 1 highlights the public roads that can be used to access areas along the Pajaro Dunes development and adjacent State beach. Figure 2 shows the extent of the rock revetment, and the location of the vehicle access roads, gates, and stairways/ foot access adjacent to the rock revetment.

7.0 REFERENCES

- ARUP, 2012. Pajaro Dunes Seawall- Seawall Assessment & Pre-Conceptual Recommendations. Prepared for Pajaro Dunes GHAD. ARUP Report # 217563, issued, 6/14/2012.
- ARUP, 2008. Chronology for Staircase Building Permit. Project notes and documentation provided to CE&G. Document dated 2/14/2008.
- Biotic Resources Group, 2015. Pajaro Dunes Seawall-Revised Revetment Design Repair. Pajaro Dunes, Santa Cruz County. Prepared for ARUP. Dated 10/14/2015.
- California Emergency Management Agency (CEMA), 2009. Tsunami Inundation Map For Emergency Planning: Watsonville West Quadrangle. Dated July 1, 2009
- FEMA, 2017. Flood Insurance Study-Santa Cruz County, California and incorporated areas. FEMA Flood Insurance Study Number 06087CV001C, Version 2.3.2.0. Dated September 29, 2017.
- Haro Kasunich & Associates (HKA), 2008. Revetment Repair and Maintenance Plan - Long Term Revetment Modifications. Prepared for the -Pajaro Dunes Geologic Abatement District. Dated 12/10/2008. 14 Plan Sheets.
- Santa Cruz County Planning Department (SCC), 1986. Final Grading and Coastal Permit to construct seawall. Grading permit No. 2370, dated 6/10/1986, and associated Santa Cruz County Use Permit Number 84-57-CZ and 8-1194-CZ. 103-page document set.
- Santa Cruz County Planning commission (SCC), 1988. Permit to construct riprap seawall to protect 87 existing condominiums. Development permit No. 87-0644, dated 1/8/1988. 15-page document set.
- Rodgers E. Johnson & Associates (RJ&A), 1986. Proposed Revetment Design. Prepared for Pajaro Dunes South Homeowners Association. Dated 2/7/1986.

FIGURES

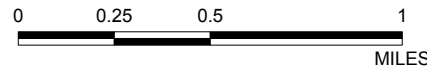


Rock Revetment

BASEMAP REFERENCE

1. STREET CENTERLINES FROM CALTRANS CALIFORNIA ROAD SYSTEM, DOWNLOADED ON 18 FEB 2020.
2. ORTHOIMAGERY FROM ESRI (MAXAR), 2021.

— VEHICLE ACCESS ROAD



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LONG TERM ROCK REVETMENT OPERATIONS & MAINTENANCE PLAN (O&M)
PAJARO DUNES GEOHAZARD ABATEMENT DISTRICT
WATSONVILLE, SANTA CRUZ COUNTY, CALIFORNIA

LOCATION MAP

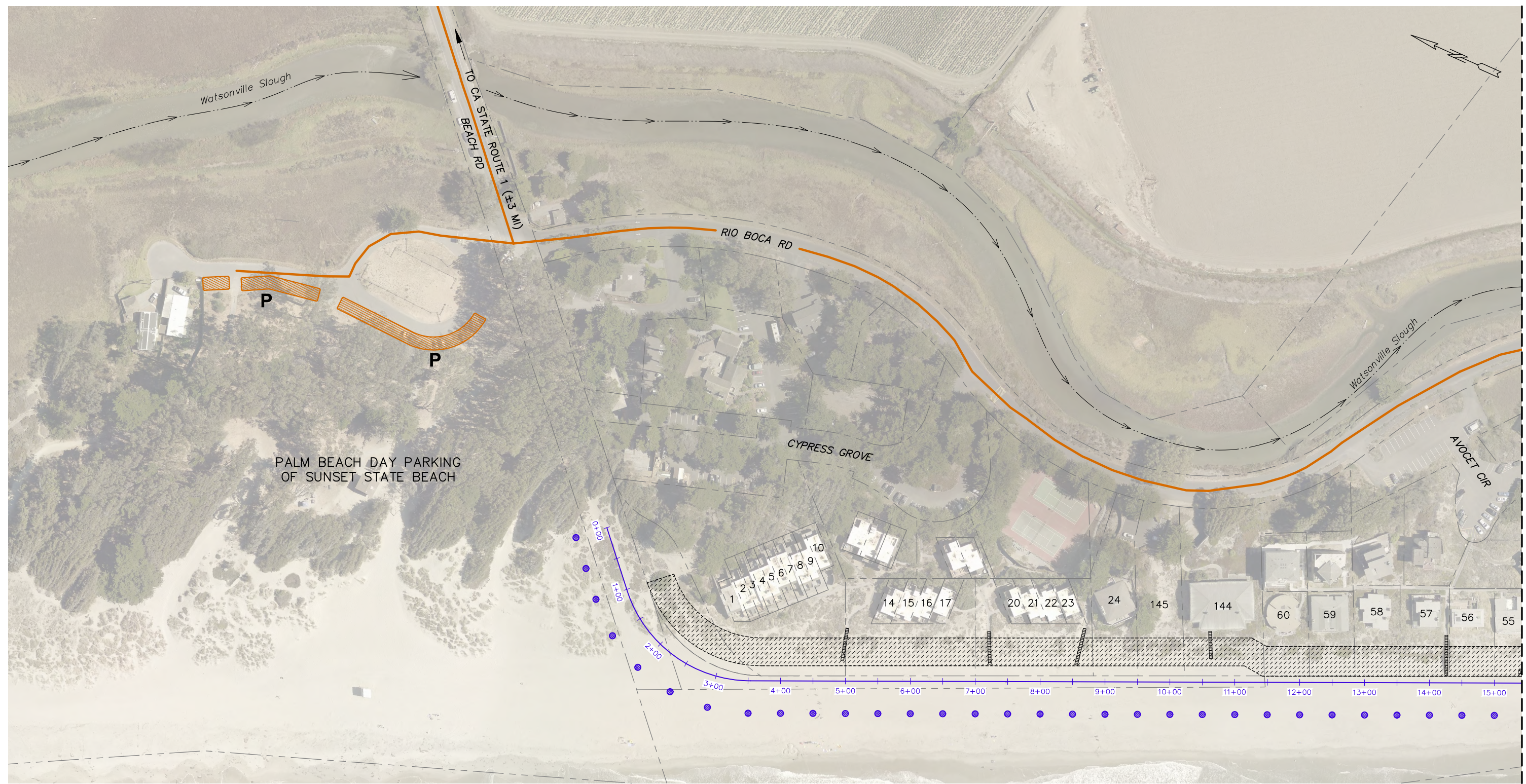
190782

SEPTEMBER 2022

FIGURE 1

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MATCHLINE - SEE FIGURE 2B

- LEGEND**
- EXISTING STAIRCASE/BEACH ACCESS ON FOOT
 - EXISTING ROCK REVETMENT
 - EXISTING ROCK REVETMENT, BURIED
 - PARCEL BOUNDARY AND BUILDING NUMBERS
 - EMERGENCY ROCK
 - PROTECTED BIOM (DATA PENDING)
 - VEHICLE ACCESS AND PARKING
 - ACTIVE WATER WAY AND FLOW DIRECTION

- ALIGNMENT AND STATIONING TO BE USED FOR ANNUAL INSPECTIONS
- PHOTOGRAPH OBSERVATION POINTS

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- BASEMAP REFERENCE**
- ORTHOIMAGERY FROM SANTA CRUZ COUNTY, 2016.
 - PARCELS FROM SANTA CRUZ COUNTY GIS, ACCESSED ONLINE ON 8/3/2022.



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	<p>PROJECT FEATURES (1 OF 3)</p>		<p>190782</p>	<p>SEPTEMBER 2022</p>

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MATCHLINE - SEE FIGURE 2A

MATCHLINE - SEE FIGURE 2C



LEGEND

- EXISTING STAIRCASE/BEACH ACCESS ON FOOT
- EXISTING ROCK REVETMENT
- EXISTING ROCK REVETMENT, BURIED
- PARCEL BOUNDARY AND BUILDING NUMBERS
- EMERGENCY ROCK
- PROTECTED BIOM (DATA PENDING)
- VEHICLE ACCESS AND PARKING
- ACTIVE WATER WAY AND FLOW DIRECTION
- ALIGNMENT AND STATIONING TO BE USED FOR ANNUAL INSPECTIONS
- PHOTOGRAPH OBSERVATION POINTS

BASEMAP REFERENCE

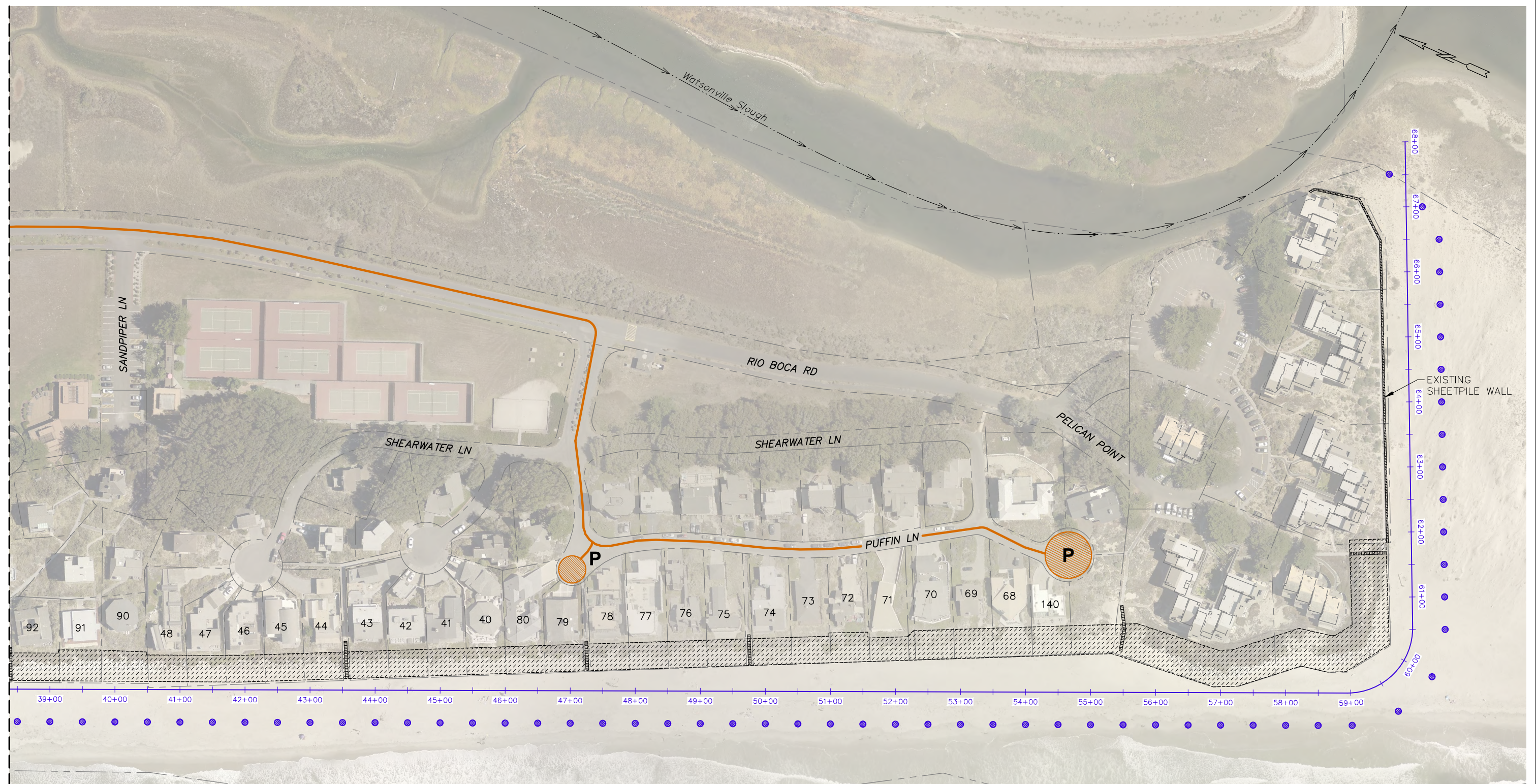
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2. PARCELS FROM SANTA CRUZ COUNTY GIS, ACCESSED ONLINE ON 8/3/2022.

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




<p>CAL ENGINEERING & GEOLOGY</p>	<p>PREPARED BY:</p> <p>785 Ygnacio Valley Road Walnut Creek, CA 94596 Phone: (925) 935-9771</p>	<p>LONG TERM ROCK REVETMENT OPERATIONS & MAINTENANCE PLAN (O&M) PAJARO DUNES GEOHAZARD ABATEMENT DISTRICT WATSONVILLE, SANTA CRUZ COUNTY, CALIFORNIA</p> <p>PROJECT FEATURES (2 OF 3)</p>	
	<p>190782</p>	<p>SEPTEMBER 2022</p>	<p>FIGURE 2B</p>

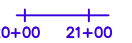

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MATCHLINE - SEE FIGURE 2B



LEGEND


-  EXISTING STAIRCASE/BEACH ACCESS ON FOOT
-  EXISTING ROCK REVETMENT
-  EXISTING ROCK REVETMENT, BURIED
-  PARCEL BOUNDARY AND BUILDING NUMBERS
-  EMERGENCY ROCK
-  PROTECTED BIOM (DATA PENDING)
-  VEHICLE ACCESS AND PARKING
-  ACTIVE WATER WAY AND FLOW DIRECTION

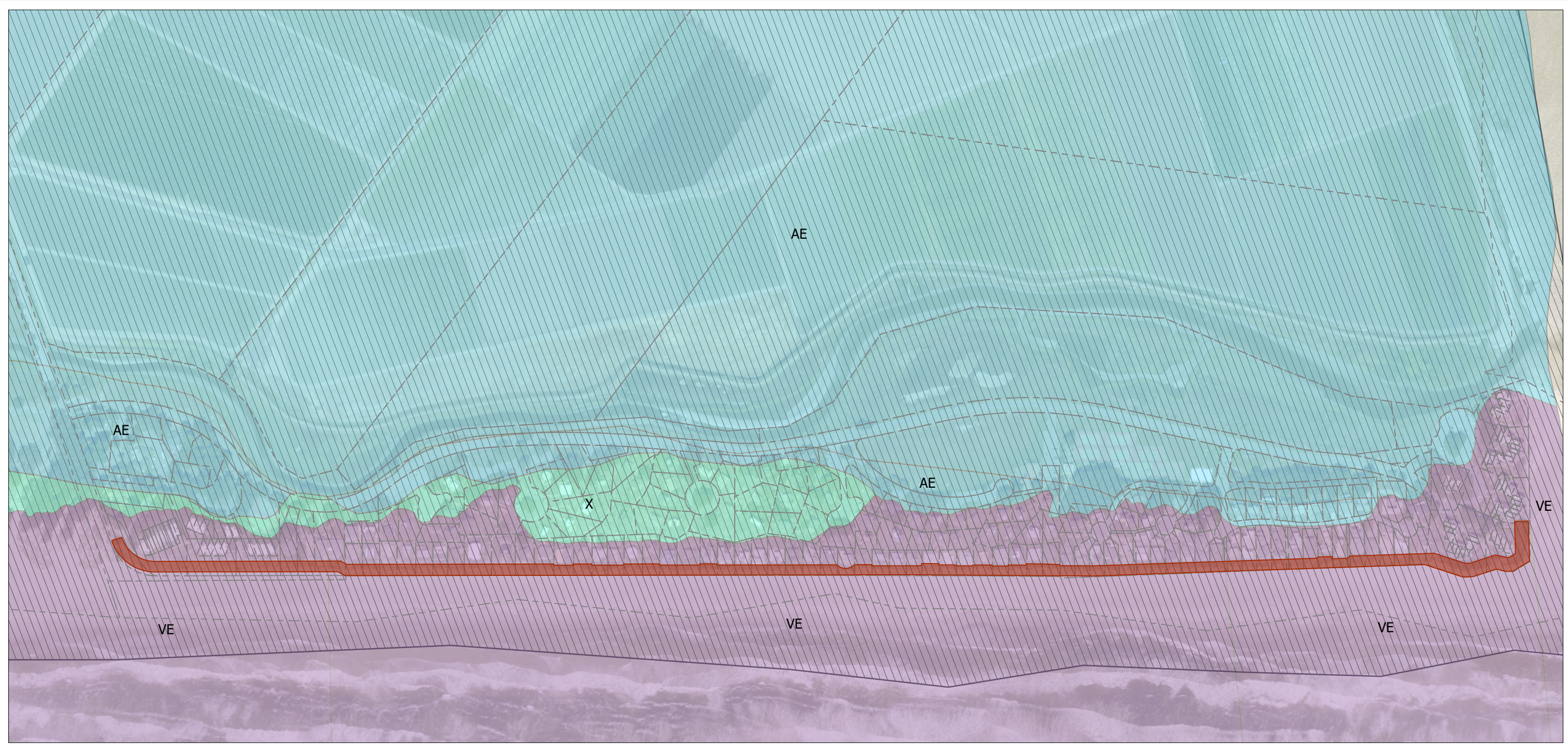
-  ALIGNMENT AND STATIONING TO BE USED FOR ANNUAL INSPECTIONS
-  PHOTOGRAPH OBSERVATION POINTS

BASEMAP REFERENCE

1. ORTHOIMAGERY FROM SANTA CRUZ COUNTY, 2016.
2. PARCELS FROM SANTA CRUZ COUNTY GIS, ACCESSED ONLINE ON 8/3/2022.

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 CE&G CAL ENGINEERING & GEOLOGY	PREPARED BY: 785 Ygnacio Valley Road Walnut Creek, CA 94596 Phone: (925) 935-9771	LONG TERM ROCK REVETMENT OPERATIONS & MAINTENANCE PLAN (O&M) PAJARO DUNES GEOHAZARD ABATEMENT DISTRICT WATSONVILLE, SANTA CRUZ COUNTY, CALIFORNIA PROJECT FEATURES (3 OF 3)	
	190782	SEPTEMBER 2022	FIGURE 2C



FEMA INSURANCE ZONES

- A/A99/AE/AH/AO 100-YEAR FLOOD ZONES
- X 500-YEAR FLOOD ZONES
- VE 100-YEAR FLOOD ZONE (HIGH VELOCITY WAVE)

TSUNAMI WET AREAS

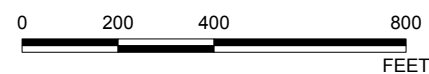
- TSUNAMI INUNDATION AREA

PROJECT FEATURES

- AREA OF INTEREST (ROCK REVETMENT)

BASEMAP REFERENCE

1. INSURANCE ZONES FROM "FLOOD INSURANCE STUDY" BY FEMA (DOCUMENT DATED SEPT 29, 2017); GIS DATA FROM [HTTPS://GIS.SANTACRUZCOUNTY.US/GISWEB/](https://gis.santacruzcounty.us/gisweb/) ACCESSED ONLINE ON 9/13/2022.
2. TSUNAMI WET AREAS FROM "TSUNAMI INUNDATION MAP FOR EMERGENCY PLANNING, WATSONVILLE WEST QUADRANGLE" DATED JULY 1, 2009. GIS DATA FROM [HTTPS://GIS.SANTACRUZCOUNTY.US/GISWEB/](https://gis.santacruzcounty.us/gisweb/) ACCESSED ONLINE ON 9/13/2022.



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WATSONVILLE, SANTA CRUZ COUNTY, CALIFORNIA
**100-YEAR FLOOD PLAIN, STORM WAVES,
AND TSUNAMI INUNDATION MAP**

190782	SEPTEMBER 2022	FIGURE 3
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Appendix A. Permit Documents

Appendix B. Example Inspections and Reports

Appendix C. Emergency Operations Plan (EMPTY as of 9/23/2022)

Appendix D. Biotic Resources Report, 2015