CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
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Th14c

A-3-SLO-19-0026 (TIBBITTS SFD)

JUNE 13, 2019 HEARING

EXHIBITS

Table of Contents

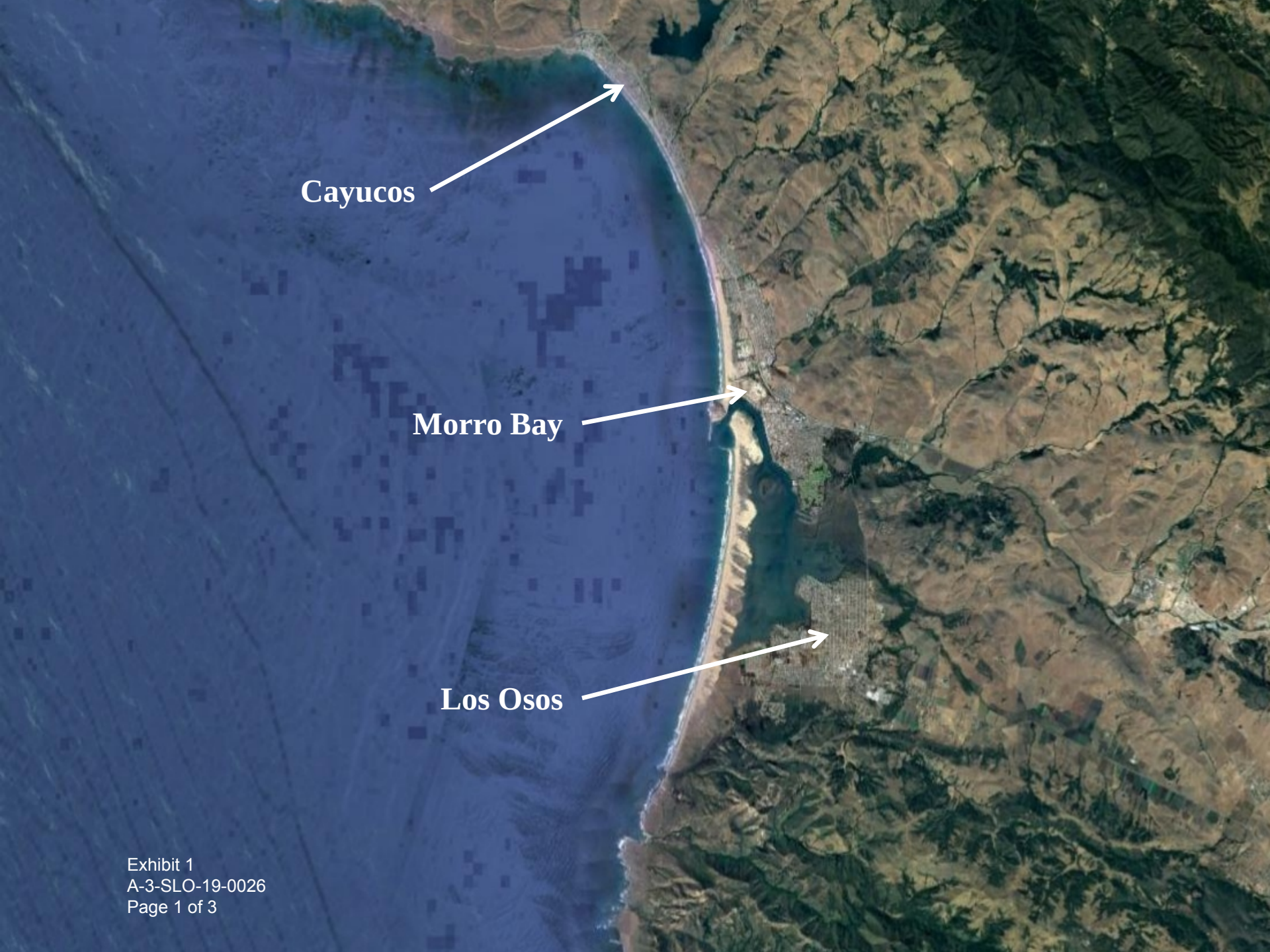


Exhibit 1
A-3-SLO-19-0026
Page 1 of 3


Highway 1
Cayucos State Beach
Project Site
Morro Strand State Beach

Exhibit 1
A-3-SLO-19-0026
Page 3 of 3


Project Site in 1979


Project Site in 1989

Project Site in 2002

Project Site in 2008


Project Site in 2015

COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF PLANNING & BUILDING
Trevor Keith *Director of Planning & Building*

March 26, 2019

JOHN MCDONALD
2813 SANTA BARBARA AVE.
CAYUCOS, CA 93430

SUBJECT: Notice of Final County Action, Minor Use Permit / Coastal Development Permit DRC2007-00114

Dear Sir/Madam,

LOCATED WITHIN COASTAL ZONE: YES

On **March 15, 2019**, the above-referenced application was approved by the **Planning Department Hearing Officer** based on the approved Findings, and subject to the approved Conditions, which are both enclosed for your records.

This action is appealable to the California Coastal Commission, pursuant to regulations contained in Coastal Act Section 30603 and the County Coastal Zone Land Use Ordinance 23.01.043. These regulations contain specific time limits to appeal, criteria, and procedures that must be followed to appeal this action. The appeal must be made directly to the California Coastal Commission. For further information on their appeal procedures, contact the Commission's Santa Cruz Office at (831) 427-4863.

County Coastal Zone Land Use Ordinance (CZLUO) Section 23.01.043 and applicable sections of the Coastal Act provide ten (10) working days for an appellant to appeal the County's Final Action. An appellant may include any of the following: an applicant, an aggrieved person as defined in CZLUO 23.01.043 and any two California Coastal Commissioners. This means the Applicant cannot commence development and the County cannot take any further administrative actions for the proposed development, including but not limited to, the request or issuance of a building permit, until the Coastal Commission Appeal period has expired without an appeal being filed and the County's notice of final action that it submitted to the Coastal Commission has been accepted by Commission staff as compliant with Title 14 CCR section 13571.

If you disagree with this action, pursuant to (County Real Property Ordinance Section 21.04.020 / County Land Use Ordinance Section 22.70.050 / County Coastal Zone Land Use Ordinance (CZLUO) Section 23.01.042), and in the manner described therein, you have the right to appeal this decision, or a portion of this decision, to the Board of Supervisors within 14 calendar days after the date of the action.

The appeal must be submitted to the Director of the Department of Planning and Building on the proper Department appeal form, as provided on the County website. The appeal form must be submitted with an original signature; a facsimile will not be accepted.

If the appeal is consistent with the standards set forth in CZLUO Section 23.01.043d, there is no fee to file an appeal. If the appeal is not consistent with CZLUO Section 23.01.043.d, a fee, set by the current fee schedule, will be required and must be submitted with the appeal form at time of filing. If the County requires that an appellant submit a fee to file an appeal, the action is directly appealable to the California Coastal Commission pursuant to the CZLUO Section 23.01.043, and in the manner contained therein, precluding the need to exhaust local administrative appeals.

Additionally, CZLUO Section 23.01.043 and applicable sections of the Coastal Act provide the California Coastal Commission 10 working days following the expiration of the County appeal period to appeal the County's Final Action. This means the Applicant cannot commence development and the County cannot take any further administrative actions for the proposed development, including but not limited to, the request or issuance of a building permit, until the County appeal period and the Coastal Commission Appeal period have expired without an appeal being filed, and the County's notice of final action that it submitted to the Coastal Commission has been accepted by Commission staff as compliant with Title 14 CCR Section 13571.

Please note that exhaustion of local appeals at the County level is almost always required prior to appealing the matter to the California Coastal Commission. Three exceptions apply to this requirement as provided in CZLUO Section 23.01.043b.(1)-(3).

If you have any questions regarding your project, please contact **Kerry Brown** at 1-805-781-5713.

Nicole Retana

Nicole Retana, Secretary
County of San Luis Obispo
Department of Planning & Building

CC: DAVID TIBBITTS
P.O. BOX 45411
JACKSON, WY 83001

EXHIBIT A - FINDINGS
TIBBITTS (DRC2007-00114)

CEQA Exemption

A. The project qualifies for Categorical Exemptions (Class 1 and 3) pursuant to CEQA Guidelines Section 15301 and15303 because the project is demolition of an existing residence and construction of a replacement residence.

Minor Use Permit

B. The proposed project or use is consistent with the San Luis Obispo County General Plan and Local Coastal Plan because the use is an allowed use and as conditioned is consistent with all of the General Plan and Local Coastal Plan policies.

C. As conditioned, the proposed project or use satisfies all applicable provisions of Title 23 of the County Code.

D. The establishment and subsequent operation or conduct of the use will not, because of the circumstances and conditions applied in the particular case, be detrimental to the health, safety or welfare of the general public or persons residing or working in the neighborhood of the use, or be detrimental or injurious to property or improvements in the vicinity of the use because the project (replacement residence) does not generate activity that presents a potential threat to the surrounding property and buildings. This project is subject to Ordinance and Building Code requirements designed to address health, safety and welfare concerns.

E. The proposed project or use will not be inconsistent with the character of the immediate neighborhood or contrary to its orderly development because the project (replacement residence) is similar to, and will not conflict with, the surrounding lands and uses.

F. The proposed project or use will not generate a volume of traffic beyond the safe capacity of all roads providing access to the project, either existing or to be improved with the project because the project is located on Pacific Street, a local road that is constructed to a level able to handle any additional traffic associated with the project.

Coastal Access

G. The project site is not located between the first public road and the ocean. The project site is within an urban reserve line (Cayucos) and an existing coastal access point exists within 40' of the project site; therefore, the proposed use is in conformity with the public access and recreation policies of Chapter 3 of the California Coastal Act.

Small Scale Neighborhood

H. The proposed project meets the Community Small Scale Neighborhood Design standards and is therefore consistent with the character and intent of the Cayucos Community Small Scale Design Neighborhood.

EXHIBIT B - CONDITIONS OF APPROVAL
TIBBITTS (DRC2007-00114)

Approved Demolition and Development

1. This approval authorizes the following:
   a. Demolition of an existing single-family residence;
   b. A new two-story 2,300 square foot single family residence with attached garage and decking;
   c. Height is limited to 15 feet (as measured from the centerline of Pacific).

Conditions required to be completed at the time of application for construction permits

Site Development

2. Submit revised site plan and floor plans to the Department of Planning and Building for review and approval. The revised plans shall show 30% (or less) of the upper floor wall aligning with the lower floor wall (Community Small Scale Design Neighborhood standard D3b) and development shall be consistent with this revised and approved plan.

3. The applicant shall provide details on any proposed exterior lighting, if applicable. The details shall include the height, location, and intensity of all exterior lighting. All lighting fixtures shall be shielded so that neither the lamp or the related reflector interior surface is visible from adjacent properties. Light hoods shall be dark colored.

4. The applicant shall submit a landscape plan that incorporates landscaping materials that help reduce the scale of the proposed residence

Fire Safety

5. All plans submitted to the Department of Planning and Building shall meet the fire and life safety requirements of the California Fire Code.

Services

6. The applicant shall provide a letter from Cayucos Beach Mutual Water Company stating they are willing and able to service the property.

7. The applicant shall provide a letter from Cayucos Sanitary District stating they are willing and able to service the property.

Access

8. **At the time of application for construction permits**, the applicant shall submit an encroachment permit application and plans to the Department of Public Works to secure an Encroachment Permit and post a cash damage bond to install improvements within the public right-of-way in accordance with County Public Improvement Standards. The plan is to include, as applicable:

   a. Construct new rural road driveway approach to Pacific Ave in accordance with B-1a driveway and A-5 sight distance standards.

   b. Utility plan, showing all existing utilities and installation of all new utilities to serve the site.

c. Traffic control plan for construction in accordance with the California Manual on Uniform Traffic Control Devices (CA-MUTCD).

9. **At the time of application for construction permits,** the applicant shall submit complete drainage plans for review and approval in accordance with Section 22.52.110 (Drainage) or 23.05.040 (Drainage) of the Land Use Ordinance.

10. **At the time of application for construction permits,** the applicant shall submit complete erosion and sedimentation control plan for review and approval in accordance with 22.52.120.

11. **At the time of application for construction permits,** the applicant shall demonstrate that the project construction plans are in conformance with their Stormwater Control Plan.

Stormwater Control Plan (SWCP)

12. **At the time of application for construction permits**, the applicant shall demonstrate whether the project is subject post-construction stormwater requirements by submitting a Stormwater Control Plan application.

    a. If required, the applicant must submit a Stormwater Control Plan (SWCP) prepared by an appropriately licensed professional to the County for review and approval. Applicants must utilize the County's latest SWCP template.

    b. If applicable, the applicant shall submit a draft stormwater operations and maintenance plan for review by the County. The operations and maintenance plan may be incorporated into existing or proposed CC&Rs or drafted as an Agreement.

    c. If applicable, following approval by the County, the applicant shall record with the County Clerk the stormwater operations and maintenance plan to document on-going and permanent storm drainage control, management, treatment, inspection and reporting.

    d. If applicable, the applicant shall submit a draft General Notice to document the location and type of control measures that were installed to mitigate Performance Requirement #2. Following approval by the County, the applicant shall record the General Notice with the County Clerk. The recorded control measures shall remain in good working order in perpetuity.

13. **At the time of submittal of the improvement plans or construction permits**, if necessary, the applicant shall submit a draft Stormwater Operations and Maintenance Plan for all structural post-construction stormwater treatment or retention facilities and it must be provided for review.

Conditions to be completed prior to issuance of a construction permit

14. **Prior to approval of the improvement plans or construction permits if necessary**, the approved Operations and Maintenance Plan may be recorded as an element of the Codes, Covenants and Restrictions, or as an Agreement with the County.

Fees

15. **Prior to issuance of a construction permit**, the applicant shall pay all applicable school and public facilities fees.

Lateral Access Dedication

16. **Prior to issuance of construction permits**, the applicant shall execute and record an offer of dedication for public access along the shoreline. The offer or dedication shall provide for lateral access of twenty-five (25) feet of dry sandy beach along the shore to be available at all times during the year, or from the mean high tide to the toe of the bluff where topography limits the dry sandy beach to less than 25 feet as well as room for any improvement requirements required by Coastal Zone Land Use Ordinance Section 23.04.420 - Coastal Access. The offer shall be in a form acceptable to County Counsel, and shall be approved by the Planning Director and the Executive Director the California Coastal Commission.

Liability

17. **Prior to issuance of any grading or construction permits,** the property owner shall execute and record a deed restriction which acknowledges and assumes the risks of wave action, erosion, flooding, landslides, or other hazards associated with development on a beach or bluff and waives any future claims of damage or liability against the permitting agency and agrees to indemnify the permitting agency against any liability, claims, damages or expenses arising from any injury or damage due to such hazards.

Conditions to be completed during project construction

Building Height

18. The maximum height of the residence is 15 feet as measured from the center line of Pacific Avenue at a point midway between the two side property lines projected to the street center line.

    a. **Prior to any site disturbance**, a licensed surveyor or civil engineer shall stake the lot corners, building corners, and establish average natural grade and set a reference point (benchmark).

    b. **Prior to approval of the foundation inspection,** the benchmark shall be inspected by a building inspector prior to pouring footings or retaining walls, as an added precaution.

    c. **Prior to approval of the roof nailing inspection**, the applicant shall provide the building inspector with documentation that gives the height reference, the allowable height and the actual height of the structure. This certification shall be prepared by a licensed surveyor or civil engineer.

Conditions to be completed prior to occupancy or final building inspection /establishment of the use

Fire Safety

19. The applicant shall obtain final inspection and approval from County Fire / CalFire of all required fire/life safety measures.

Access

20. **Prior to occupancy**, all work in the public right-of-way must be constructed or reconstructed to the satisfaction of the Public Works Inspector and in accordance with the County Public Improvement Standards; the project conditions of approval, including any related land use permit conditions; and the approved improvement plans.

Landscaping

21. Landscaping in accordance with the approved landscaping plan shall be installed or bonded for before final building inspection. If bonded for, landscaping shall be installed within 60 days after final building inspection and thereafter maintained in a viable condition in perpetuity.

Development Review Inspection

22. The applicant shall contact the Department of Planning and Building to have the site inspected for compliance with the conditions of this approval.

On-going conditions of approval (valid for the life of the project)

23. This land use permit is valid for a period of 24 months from its effective date unless time extensions are granted pursuant to Land Use Ordinance Section 23.02.050 or the land use permit is considered vested. This land use permit is considered to be vested once a construction permit has been issued and substantial site work has been completed. Substantial site work is defined by Land Use Ordinance Section 23.02.042 as site work progressed beyond grading and completion of structural foundations; and construction is occurring above grade.

24. All conditions of this approval shall be strictly adhered to, within the time frames specified, and in an on-going manner for the life of the project. Failure to comply with these conditions of approval may result in an immediate enforcement action by the Department of Planning and Building. If it is determined that violation(s) of these conditions of approval have occurred, or are occurring, this approval may be revoked pursuant to Section 23.10.160 of the Land Use Ordinance.

Promoting the wise use of land

Helping build great communities

COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF PLANNING AND BUILDING
STAFF REPORT

Tentative Notice of Action

MEETING DATE	CONTACT/PHONE	APPLICANT	FILE NO.
March 15, 2019	Kerry Brown, Project Manager	Dave Tibbitts	DRC2007-00114
LOCAL EFFECTIVE DATE March 29, 2019	805-781-5713		
APPROX FINAL EFFECTIVE DATE April 19, 2019	kbrown@co.slo.ca.us		

SUBJECT

A request by Dave Tibbitts for a Minor Use Permit/Coastal Development Permit (DRC2007-00114) to allow the demolition of an existing single-family residence and construction of a new two-story single-family residence with attached garage and decking, for a total gross structural area of 3,482 square feet. The project will result in the disturbance of approximately 3,500 square feet of an approximately 4,480-square-foot parcel. The proposed project is within the Residential Single-Family land use category, within the Small-Scale Design Neighborhood, and is located at 1210 Pacific Street, on the west side of Pacific Street, in the community of Cayucos. The site is in the Estero Planning area.

RECOMMENDED ACTION

Approve Minor Use Permit/ Coastal Development Permit DRC2007-00114 based on the findings listed in Exhibit A and the conditions listed in Exhibit B.

ENVIRONMENTAL DETERMINATION

Class 1 and 3 Categorical Exemptions (Sections 15301 and 15303) are proposed for this project.

LAND USE CATEGORY	COMBINING DESIGNATION	ASSESSOR PARCEL NUMBER	SUPERVISOR DISTRICT(S)
Residential Single Family	Local Coastal Plan Area, Residential Single Family, Small Scale Neighborhood	064-227-006	2

PLANNING AREA STANDARDS:

Small Scale Neighborhood

Does the project meet applicable Planning Area Standards: Yes - see discussion

LAND USE ORDINANCE STANDARDS:

Local Coastal Plan Area

Does the project conform to the Land Use Ordinance Standards: Yes - see discussion

FINAL ACTION

This tentative decision will become the final action on the project, unless the tentative decision is changed as a result of information obtained at the administrative hearing or is appealed to the County Board of Supervisors pursuant Section 23.01.042 of the Coastal Zone Land Use Ordinance; effective on the 10th working day after the receipt of the final action by the California Coastal Commission. The tentative decision will be transferred to the Coastal Commission following the required 14-calendar day local appeal period after the administrative hearing.

The applicant is encouraged to call the Central Coast District Office of the Coastal Commission in Santa Cruz at (831) 427-4863 to verify the date of final action. The County will not issue any construction permits prior to the end of the Coastal Commission process.

EXISTING USES: Single family residence	
SURROUNDING LAND USE CATEGORIES AND USES: *North:* Residential Single Family/ residences *East:* Residential Single Family/ residences *South:* Residential Single Family/ residences *West:* Recreation / Pacific Ocean	
OTHER AGENCY / ADVISORY GROUP INVOLVEMENT: The project was referred to: Public Works, Cayucos Fire Department, Cayucos Sanitary District, Cayucos Beach Mutual Water Company, Cayucos Citizens Advisory Council, and the California Coastal Commission.	
TOPOGRAPHY: Level to gently rolling	VEGETATION: Grasses and ornamentals
PROPOSED SERVICES: Water supply: Community system Sewage Disposal: Community sewage disposal system Fire Protection: County Fire / CalFire	ACCEPTANCE DATE: January 31, 2019

DISCUSSION

The existing residence was built in 1932. The applicant is proposing to demolish the existing single-family residence and construct a new two-story 3,482 square foot single family residence with attached garage and decking. The project will result in the disturbance of approximately 3,500 square feet of a 4,480-square foot parcel. The proposed project is within the Residential Single-Family land use category, within the Small-Scale Design Neighborhood, and is located at 1210 Pacific Street, in the community of Cayucos.

A Minor Use Permit / Coastal Development Permit is required because the site is within 300 feet of the beach and located between the first public road and the ocean.

PLANNING AREA STANDARDS

I. Shoreline Development
New Development or expansion of existing uses proposed to be located on or adjacent to a beach or coastal bluff are subject to the following standards:

Application Content:
An analysis of beach erosion, wave run-up, inundation and flood hazards prepared by a licensed civil engineer with expertise in coastal engineering and a slope stability analysis, prepared by a licensed Certified Engineering Geologist and/or Geotechnical Engineer or Registered Civil Engineer with expertise in soils, in accordance with the procedures detailed by Appendix G of the Estero Area Plan. The report shall include an alternatives analysis to avoid or minimize impacts to public access.

On lots with a legally established shoreline protective device, the analysis shall describe the condition of the existing seawall; identify any impacts it may be having on public access and recreation, scenic views, sand supplies, and other coastal resources; and evaluate opportunities to modify or replace the existing armoring device in a manner that would eliminate or reduce these impacts. The analysis shall also evaluate whether the development, as proposed or modified, could be safely established on the property for a one-hundred-year period without a shoreline protective device.

Measurements for the form, mass, scale, and roofing and yard features (such as fencing). To the maximum extent feasible, new development shall be compatible with the character of the surrounding neighborhood.

Surveyed location of all property lines and the mean high tide line by a licensed surveyor along with written evidence of full consent of any underlying land owner, including, but not limited to the County, State Parks, and State Lands. If application materials indicate that development may impact or encroach on tidelands or public trust lands, the County shall consult with Coastal Commission staff regarding the potential need for a Coastal Development Permit from the Coastal Commission.

A preliminary drainage, erosion, and sedimentation plan which demonstrates that no stockpiling of dirt or construction materials will occur on the beach; erosion, runoff, and sedimentation measures to be implemented at the end of each day's work; all construction debris will be removed from the beach daily and at the completion of development; and no machinery will be allowed in the intertidal zone. If there is no feasible way to keep machinery out of the intertidal zone, authorization from the Coastal Commission is required.

Bluff Setbacks. The bluff setback is to be determined by the engineering geology analysis required in I.1.a. above adequate to withstand bluff erosion and wave action for a period of 100 years. In no case shall bluff setbacks be less than 25 feet. On parcels with legally established shoreline protective devices, the setback distance may account for the additional stability provided by the permitted seawall, based on its existing design, condition, and routine repair and maintenance that maintain the seawall's approved design life. Expansion and/or other alteration to the seawall shall not be factored into setback calculations.

Seawall Prohibition. Shoreline and bluff protection structures shall not be permitted to protect new development. All permits for development on blufftop or shoreline lots that do not have a legally established shoreline protection structure shall be conditioned to require that prior to issuance of any grading or construction permits, the property owner record a deed restriction against the property that ensures that no shoreline protection structure shall be proposed or constructed to protect the development, and which expressly waives any future right to construct such devices that may exist pursuant to Public Resources Code Section 30235 and the San Luis Obispo County certified LCP.

Liability. As a condition of approval of development on a beach or shoreline which is subject to wave action, erosion, flooding, landslides, or other hazards associated with development on a beach or bluff, the property owner shall be required to execute and record a deed restriction which acknowledges and assumes these risks and waives any future claims of damage or liability against the permitting agency and agrees to indemnify the permitting agency against any liability, claims, damages or expenses arising from any injury or damage due to such hazards.

Staff comments: A Geologic Coastal Bluff Evaluation was prepared by GeoSolutions, Inc. (June 13, 2008 and April 2011) and reviewed by LandSet Engineers, Inc. (December 2008 and May 2011). LandSet determined that the project engineering constraints had been adequately characterized and concurred with the recommendations and conclusions of the report. The new residence will be set back 25 feet from the top of bluff (adequate to withstand bluff erosion and wave action for a period of 100 years). The project is compatible with the surrounding character

as it is consistent with the Cayucos Community Small Scale Neighborhood Design standards. The proposed development meets these requirements.

Land Divisions and Land Use Permits: Application Content.
All applications for new land divisions and land use permits for new development shall be accompanied by letters from the applicable water purveyor and the Cayucos Sanitary District stating their intent to serve the proposed project.

Staff comments: The proposed project complies with this standard because the existing residence currently has water service and the proposed project is conditioned to obtain confirmation of continued service at the time of construction permit application.

Building Permits
All applications for building permits approval within the community of Cayucos are to be accompanied by a letter or other verification from the Cayucos Sanitary District indicating that the proposed project has received sewer connection approval.

Staff comments: The proposed project is currently served by Cayucos Sanitary District and is conditioned to obtain clearance for the new residence at the time of construction permit application and will comply with this standard.

RESIDENTIAL SINGLE FAMILY:
Community Small Scale Design Neighborhoods

The following table outlines the design standards for developments in Community Small Scale Design Neighborhoods and that pertain to this project:

PROJECT REVIEW	ALLOWABLE	PROPOSED	STATUS
HEIGHT	15'	15'	OK
ROOF PITCH	Not required (less than 18')	Not required (less than 18")	OK
LOWER STORY WALL HEIGHT	12'	11'	OK
GSA	3,500	3,482	OK
SECOND STORY SQUARE FOOTAGE	60% of Lower Floor	53% of Lower Floor (1188 of 2230)	OK
DECK RAIL HEIGHT	36 Inches (42" per CBC 2016)	42 inches	OK
PARKING	2	2	OK
GARAGE SIZE	20' (L) x 10' (W)	26'' x 31'6"	OK
DRIVEWAY DIMENSIONS	18' (W) max	18'	OK
GROUND FLOOR SETBACKS			
FRONT	0' (20' if parking on driveway)	2'6"	OK
REAR	10'	25'	OK
SIDES	4'	4'	OK
UPPER STORY SETBACKS			

FRONT	3' from lower wall	35' 8" from lower wall	OK
SIDE	2' 6" from lower wall	2' 6" from lower wall	OK
SIDE WALL ALIGNMENT	30% may align with lower wall, when located in the rear 2/3 of the structure	37%*	OK (conditions of approval require revised plans to reduce alignment to maximum 30%)

Staff comments: California Building Code 2016 (CBC) requires minimum of 42-inches of deck rail height. The project is conditioned to reduce the upper story wall alignment to 30%. With this condition, the proposed project meets the Community Small Scale Neighborhood Design standards.

COASTAL ZONE LAND USE ORDINANCE STANDARDS:

Section 23.07.120 - Local Coastal Program
The project site is located within the California Coastal Zone as determined by the California Coastal Act of 1976 and is subject to the provisions of the Local Coastal Plan.

Section 23.07.080 – Geologic Study Area
All land use permit applications for projects located within a Geologic Study Area (except those exempted by Section 23.07.082) shall be accompanied by a report prepared by a certified engineering geologist and/or registered civil engineer (as to soils engineering), as appropriate.

Staff comments: The proposed project complies with this standard, a geological report was prepared for the project (GeoSolutions, June 13, 2008 and April 2011). The geologic report found that the site is geologically suitable for the proposed development. The geologic report determined the bluff setback to be 25 feet (adequate to withstand bluff erosion and wave action for a period of 100 years).

COASTAL PLAN POLICIES:

Public Works
Policy 1: Availability of Service Capacity.
New development (including divisions of land) shall demonstrate that adequate public or private service capacities are available to serve the proposed development. Prior to permitting all new development, a finding shall be made that there are sufficient services to serve the proposed development given the already outstanding commitment to existing lots within the urban service line for which services will be needed consistent with the Resource Management System where applicable.

Staff comments: The applicant has demonstrated that adequate public service capacities are available to serve the proposed project because services already exist for the existing residence and will serve letters are required.

Coastal Watersheds
Policy 7: Siting of new development.
Grading for the purpose of creating a site for a structure or other development shall be limited to slopes of less than 20 percent slope.

Staff comments: The proposed project is consistent with this policy because the replacement residence will be located on an existing lot of record in the Residential Single-Family category on a slope less than 20 percent.

Policy 8: Timing of new construction.
Land clearing and grading shall be avoided during the rainy season if there is a potential for serious erosion and sedimentation problems. All slope and erosion control measures should be in place before the start of the rainy season. Soil exposure should be kept to the smallest area and the shortest feasible period.

Staff comments: The proposed project is consistent with this policy because the project is required to have an erosion and sedimentation control plan and all slope and erosion control measures will be in place before the start of the rainy season.

Policy 10: Drainage Provisions.
Site design shall ensure that drainage does not increase erosion. This may be achieved either through on-site drainage retention, or conveyance to storm drains or suitable watercourses.

Staff comments: The proposed project is consistent with this policy because the project is required to have a drainage plan that shows the construction of the replacement residence will not increase erosion or runoff

Visual and Scenic Resources:
Policy 6: Special Communities and Small-Scale Neighborhoods
Within the urbanized areas defined as small-scale neighborhoods or special communities, new development shall be designed and sited to complement and be visually compatible with existing characteristics of the community which may include concerns for the scale of new structures, compatibility with unique or distinguished architectural historical style, or natural features that add to the overall attractiveness of the community.

Staff comments: The proposed project is consistent with this policy because the development has been designed and sited to complement and be visually compatible with existing characteristics of the community.

Policy 7: Preservation of Trees and Native Vegetation
The location and design of new development shall minimize the need for tree removal. When trees must be removed to accommodate new development or because they are determined to be a safety hazard, the site is to be replanted with similar species or other species which are reflective of the community character.

Staff comments: The proposed project is consistent with this policy because no native trees are proposed for removal.

Does the project meet applicable Coastal Plan Policies: Yes, as conditioned

COMMUNITY ADVISORY GROUP COMMENTS: The Land Use Committee of the Cayucos Citizens' Advisory Council reviewed the proposed project and recommended approval.

AGENCY REVIEW:
Public Works – Driveway approach to be built to County standards for B-1, compliance with 5-b driveway sight distance for vehicles backing out into Pacific Ave. Regulated project for Stormwater management.
Cayucos Sanitary District – No response
Cayucos Beach Mutual Water Company – No response
California Coastal Commission – No response

LEGAL LOT STATUS:
The existing lot was legally created by a recorded map at a time when that was a legal method of creating lots.

Staff report prepared by Kerry Brown and reviewed by Terry Wahler.

DRC2007-00114 TIBBITTS
EXHIBIT A - FINDINGS

CEQA Exemption

A. The project qualifies for Categorical Exemptions (Class 1 and 3) pursuant to CEQA Guidelines Section 15301 and15303 because the project is demolition of an existing residence and construction of a replacement residence.

Minor Use Permit

B. The proposed project or use is consistent with the San Luis Obispo County General Plan and Local Coastal Plan because the use is an allowed use and as conditioned is consistent with all of the General Plan and Local Coastal Plan policies.

C. As conditioned, the proposed project or use satisfies all applicable provisions of Title 23 of the County Code.

D. The establishment and subsequent operation or conduct of the use will not, because of the circumstances and conditions applied in the particular case, be detrimental to the health, safety or welfare of the general public or persons residing or working in the neighborhood of the use, or be detrimental or injurious to property or improvements in the vicinity of the use because the project (replacement residence) does not generate activity that presents a potential threat to the surrounding property and buildings. This project is subject to Ordinance and Building Code requirements designed to address health, safety and welfare concerns.

E. The proposed project or use will not be inconsistent with the character of the immediate neighborhood or contrary to its orderly development because the project (replacement residence) is similar to, and will not conflict with, the surrounding lands and uses.

F. The proposed project or use will not generate a volume of traffic beyond the safe capacity of all roads providing access to the project, either existing or to be improved with the project because the project is located on Pacific Street, a local road that is constructed to a level able to handle any additional traffic associated with the project.

Coastal Access

G. The project site is not located between the first public road and the ocean. The project site is within an urban reserve line (Cayucos) and an existing coastal access point exists within 40' of the project site; therefore, the proposed use is in conformity with the public access and recreation policies of Chapter 3 of the California Coastal Act.

Small Scale Neighborhood

H. The proposed project meets the Community Small Scale Neighborhood Design standards and is therefore consistent with the character and intent of the Cayucos Community Small Scale Design Neighborhood.

DRC2007-00114 TIBBITTS
EXHIBIT B - CONDITIONS OF APPROVAL

Approved Demolition and Development

1. This approval authorizes the following:
   a. Demolition of an existing single-family residence;
   b. A new two-story 2,300 square foot single family residence with attached garage and decking;
   c. Height is limited to 15 feet (as measured from the centerline of Pacific).

Conditions required to be completed at the time of application for construction permits

Site Development

2. Submit revised site plan and floor plans to the Department of Planning and Building for review and approval. The revised plans shall show 30% (or less) of the upper floor wall aligning with the lower floor wall (Community Small Scale Design Neighborhood standard D3b) and development shall be consistent with this revised and approved plan.

3. The applicant shall provide details on any proposed exterior lighting, if applicable. The details shall include the height, location, and intensity of all exterior lighting. All lighting fixtures shall be shielded so that neither the lamp or the related reflector interior surface is visible from adjacent properties. Light hoods shall be dark colored.

4. The applicant shall submit a landscape plan that incorporates landscaping materials that help reduce the scale of the proposed residence

Fire Safety

5. All plans submitted to the Department of Planning and Building shall meet the fire and life safety requirements of the California Fire Code.

Services

6. The applicant shall provide a letter from Cayucos Beach Mutual Water Company stating they are willing and able to service the property.

7. The applicant shall provide a letter from Cayucos Sanitary District stating they are willing and able to service the property.

Access

8. **At the time of application for construction permits**, the applicant shall submit an encroachment permit application and plans to the Department of Public Works to secure an Encroachment Permit and post a cash damage bond to install improvements within the public right-of-way in accordance with County Public Improvement Standards. The plan is to include, as applicable:
   a. Construct new rural road driveway approach to Pacific Ave in accordance with B-1a driveway and A-5 sight distance standards.
   b. Utility plan, showing all existing utilities and installation of all new utilities to serve the site.
   c. Traffic control plan for construction in accordance with the California Manual on Uniform Traffic Control Devices (CA-MUTCD).

9. **At the time of application for construction permits,** the applicant shall submit complete drainage plans for review and approval in accordance with Section 22.52.110 (Drainage) or 23.05.040 (Drainage) of the Land Use Ordinance.

10. **At the time of application for construction permits,** the applicant shall submit complete erosion and sedimentation control plan for review and approval in accordance with 22.52.120.

11. **At the time of application for construction permits,** the applicant shall demonstrate that the project construction plans are in conformance with their Stormwater Control Plan.

Stormwater Control Plan (SWCP)

12. **At the time of application for construction permits**, the applicant shall demonstrate whether the project is subject post-construction stormwater requirements by submitting a Stormwater Control Plan application.

    a. If required, the applicant must submit a Stormwater Control Plan (SWCP) prepared by an appropriately licensed professional to the County for review and approval. Applicants must utilize the County's latest SWCP template.

    b. If applicable, the applicant shall submit a draft stormwater operations and maintenance plan for review by the County. The operations and maintenance plan may be incorporated into existing or proposed CC&Rs or drafted as an Agreement.

    c. If applicable, following approval by the County, the applicant shall record with the County Clerk the stormwater operations and maintenance plan to document on-going and permanent storm drainage control, management, treatment, inspection and reporting.

    d. If applicable, the applicant shall submit a draft General Notice to document the location and type of control measures that were installed to mitigate Performance Requirement #2. Following approval by the County, the applicant shall record the General Notice with the County Clerk. The recorded control measures shall remain in good working order in perpetuity.

13. **At the time of submittal of the improvement plans or construction permits**, if necessary, the applicant shall submit a draft Stormwater Operations and Maintenance Plan for all structural post-construction stormwater treatment or retention facilities and it must be provided for review.

Conditions to be completed prior to issuance of a construction permit

14. **Prior to approval of the improvement plans or construction permits if necessary**, the approved Operations and Maintenance Plan may be recorded as an element of the Codes, Covenants and Restrictions, or as an Agreement with the County.

Fees

15. **Prior to issuance of a construction permit**, the applicant shall pay all applicable school and public facilities fees.

Lateral Access Dedication

16. **Prior to issuance of construction permits**, the applicant shall execute and record an offer of dedication for public access along the shoreline. The offer or dedication shall provide for lateral access of twenty-five (25) feet of dry sandy beach along the shore to be available at all times during the year, or from the mean high tide to the toe of the bluff where topography limits the dry sandy beach to less than 25 feet as well as room for any improvement requirements required by Coastal Zone Land Use Ordinance Section 23.04.420 - Coastal Access. The offer shall be in a form acceptable to County Counsel, and shall be approved by the Planning Director and the Executive Director the California Coastal Commission.

Liability

17. **Prior to issuance of any grading or construction permits,** the property owner shall execute and record a deed restriction which acknowledges and assumes the risks of wave action, erosion, flooding, landslides, or other hazards associated with development on a beach or bluff and waives any future claims of damage or liability against the permitting agency and agrees to indemnify the permitting agency against any liability, claims, damages or expenses arising from any injury or damage due to such hazards.

Conditions to be completed during project construction

Building Height

18. The maximum height of the residence is 15 feet as measured from the center line of Pacific Avenue at a point midway between the two side property lines projected to the street center line.

    a. **Prior to any site disturbance**, a licensed surveyor or civil engineer shall stake the lot corners, building corners, and establish average natural grade and set a reference point (benchmark).

    b. **Prior to approval of the foundation inspection,** the benchmark shall be inspected by a building inspector prior to pouring footings or retaining walls, as an added precaution.

    c. **Prior to approval of the roof nailing inspection**, the applicant shall provide the building inspector with documentation that gives the height reference, the allowable height and the actual height of the structure. This certification shall be prepared by a licensed surveyor or civil engineer.

Conditions to be completed prior to occupancy or final building inspection /establishment of the use

Fire Safety

19. The applicant shall obtain final inspection and approval from County Fire / CalFire of all required fire/life safety measures.

Access

20. **Prior to occupancy**, all work in the public right-of-way must be constructed or reconstructed to the satisfaction of the Public Works Inspector and in accordance with the County Public Improvement Standards; the project conditions of approval, including any related land use permit conditions; and the approved improvement plans.

Landscaping

21. Landscaping in accordance with the approved landscaping plan shall be installed or bonded for before final building inspection. If bonded for, landscaping shall be installed within 60 days after final building inspection and thereafter maintained in a viable condition in perpetuity.

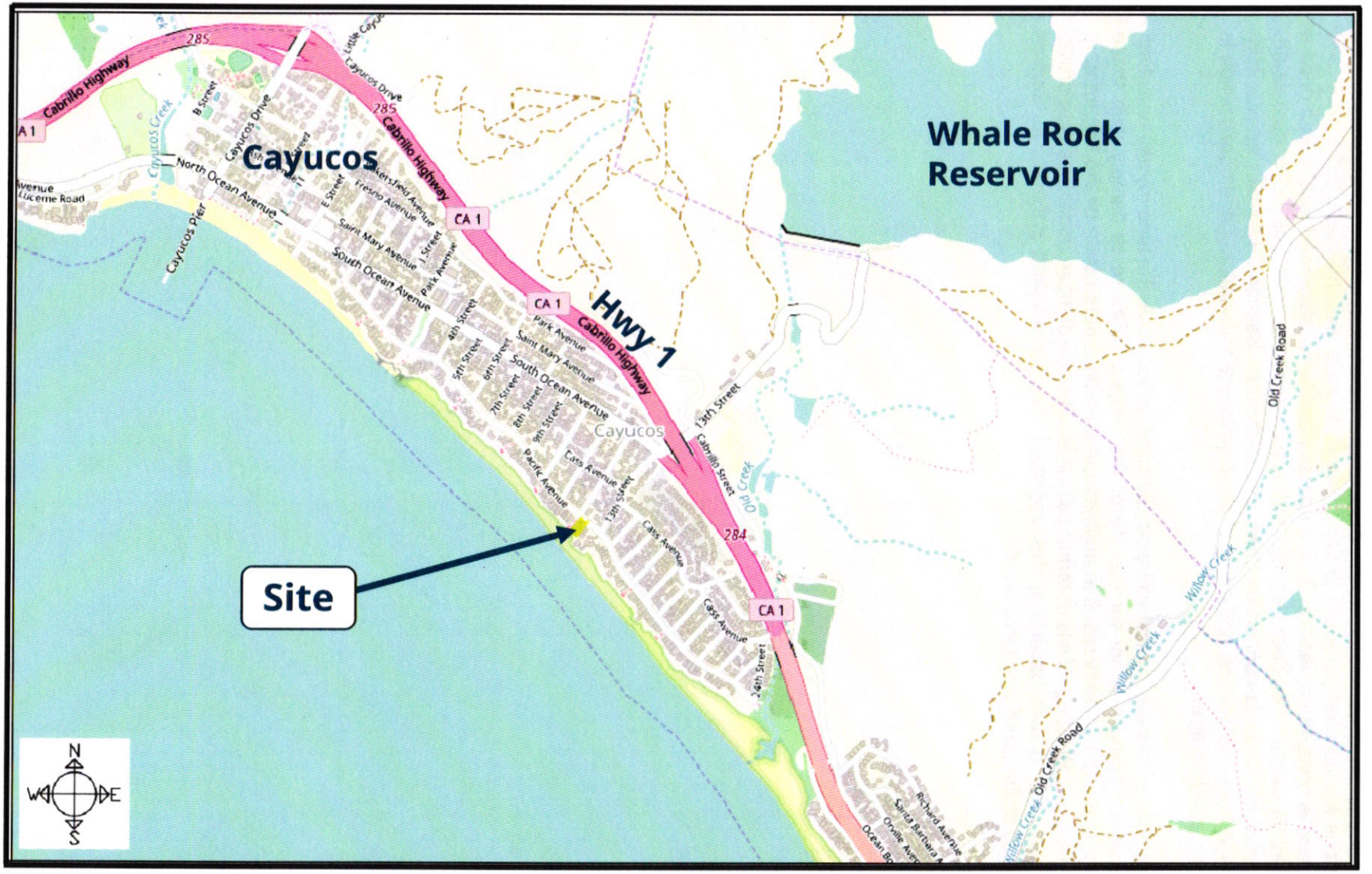
Development Review Inspection

22. The applicant shall contact the Department of Planning and Building to have the site inspected for compliance with the conditions of this approval.

On-going conditions of approval (valid for the life of the project)

23. This land use permit is valid for a period of 24 months from its effective date unless time extensions are granted pursuant to Land Use Ordinance Section 23.02.050 or the land use permit is considered vested. This land use permit is considered to be vested once a construction permit has been issued and substantial site work has been completed. Substantial site work is defined by Land Use Ordinance Section 23.02.042 as site work progressed beyond grading and completion of structural foundations; and construction is occurring above grade.

24. All conditions of this approval shall be strictly adhered to, within the time frames specified, and in an on-going manner for the life of the project. Failure to comply with these conditions of approval may result in an immediate enforcement action by the Department of Planning and Building. If it is determined that violation(s) of these conditions of approval have occurred, or are occurring, this approval may be revoked pursuant to Section 23.10.160 of the Land Use Ordinance.



COUNTY OF SAN LUIS OBISPO

Vicinity Map
DRC2007-00114

PROPOSED RESIDENCE FOR :

DAVID TIBBITTS

CAYUCOS, CALIFORNIA.

GENERAL NOTES

1. ALL WORK,MATERIALS AND METHODS SHALL BE IN CONFORMANCE WITH THE 2010 CBC CODE, 2010 CRC, 2010 CPC, 2010 CEC , 2001 California Energy Code.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND EXISTING CONDITIONS THEREON BEFORE COMMENCING WORK. REPORT ANY DISCREPANCIES AND/OR POTENTIAL PROBLEMS TO THE ARCHITECT PRIOR TO PROCEEDING WITH AFFECTED WORK.
3. CONTRACTORS ARE RESPONSIBLE FOR ALL WORK REGARDLESS OF THE LOCATION OF THE INFORMATION OF THE DOCUMENTS.
4. CONTRACTOR SHALL CONFIRM THAT PROPER FINISH GRADE ELEVATIONS HAVE BEEN PROVIDED AT THE PERIMETER OF THE BUILDING AREAS, REFER TO BUILDING AND ADJOINING AREAS, REFER TO BUILDING PLANS . REPORT ANY DISCREPANCIES TO THE DESIGNER PRIOR TO PROCEEDING WITH ROUGH GRADING.
5. PROVIDE PIPE GUARDS AT ALL ABOVE GROUND UTILITY EQUIPMENT AS DICTATED BY GOVERNING AGENCIES.
6. PROVIDE PEDESTRIAN OR VEHICULAR PROTECTION BARRICADES TEMPORARY GUARD RAILS, AND / OR CANOPIES AS REQUIRED BY THE LOCAL AGENCIES OR AS NECESSARY FOR PEDESTRIAN AND VEHICULAR SAFETY.
7. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR COORDINATION AMONG HIS VARIOUS SUBCONTRACTORS.
8. IN THE EVENT OF DISCREPANCIES BETWEEN ANY DRAWINGS AND/OR SPECIFICATIONS, THE MORE COSTLY OR MORE RESTRICTIVE CONDITIONS SHALL BE DEEMED THE CONTRACT REQUIREMENT, UNLESS OTHERWISE STATED IN WRITING, FROM THE DESIGNER.
9. GENERAL CONTRACTOR SHALL COORDINATE ALL UNDERGROUND ITEMS WITH THE PLUMBING, ELECTRICAL, GAS, TELEPHONE, AND CABLE TV DRAWINGS.
10. CONTRACTOR SHALL VERIFY DIMENSIONS OF ALL EQUIPMENT MANUFACTURERS.
11. GENERAL CONTRACTOR SHALL NOTIFY ALL APPLICABLE LOCAL GOVERNING, AUTHORITIES AND UTILITIES PRIOR TO COVERING UP ANY WORK REQUIRING INSPECTION.
12. PROVIDE GALVANIC PROTECTION BETWEEN DISSIMILAR MATERIALS WHERE REQUIRED.
13. ALL PENETRATIONS THROUGH ANY SURFACE SHALL BE THOROUGHLY SEALED WITH APPROPRIATE SEALANT MATERIAL.
14. UNLESS OTHERWISE NOTED, ALL EXTERIOR AND INTERIOR EXPOSED METAL TRIM, TRELLAGE,RAILINGS, MOLDING, FRAMES, CASTING, ETC., SHALL BE PAINTED.
15. SEE SOILS REPORT FOR RECOMMENDATIONS REGARDING CORROSIVE SOILS. ALL METALLIC UTILITY LINES SHALL BE CORROSION PROTECTION.
16. SPECIFY WEATHER-RESISTANCE BARRIER AT ALL EXTERIOR WALLS UBC 14CII.1 NOTE TWO (2) LAYERS OF GRADE "D" TYPE PAPER REQUIRED OVER WOOD BASED SHEATING.
17. THE INSULATION INSTALLER SHALL POST IN A CONSPICUOUS PLACE IN THE BLDG. A STATE INSULATION CERTIFICATE SIGNED BY THE INSTALLER STATING THAT THE INSULATION IS CONSISTENT WITH THE PLANS AND CONFORMS TO THE STATE ENERGY REGULATIONS NOTE ON PLANS TITLE 24 , PART II, CHAPTER 12-13 STANDARDS FOR INSULATING MATERIAL
18. THE BUILDER SHALL PROVIDE THE BLDG OWNER MANAGER AND ORIGINAL OCCUPANTS WITH A LIST OF THE FEATURE, MATERIALS, COMPONENTS AND MECHANICAL DEVICES INSTALLED IN THE BUILDING. INSTRUCTIONS ON HOW TO USE THEM EFFICIENTLY AND MAINTENANCE FOR EFFICIENT OPERATION NOTE ON THE PLANS TITLE 24 , SECTION 10-103(B)
19. ALL SHOP WELDING SHALL BE DONE BY AN "APPROVED" ICBO FABRICATING SHOP PRIOR TO ANY STEEL BEING FABRICATED AND SENT TO THE JOBSITE. THE FABRICATING COMPANY SHALL BE APPROVED BY THE DEPARTMENT OF BUILDING AND SAFETY PER CBC
20. THE CONTRACTOR SHALL FIELD VERIFY THE SITE CONDITIONS AS REPRESENTED IN THE PLANS AND REPORT ANY DISCREPANCIES TO THE DESIGNER BEFORE PROCEEDING WITH THE WORK.
21. UNLESS NOTED OTHERWISE AS INDICATED, DIMENSIONS ARE TO CENTER LINES OF COLUMNS, AND TO FACE OF WALLS.
22. ALL CONSTRUCTION AND DETAILS SHALL COMPLY WITH THE GOVERNING AGENCY'S BUILDING CODE AND ITS ADOPTIONS, AND WITH ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL ORDINANCES.
23. WRITTEN DIMENSIONS GOVERN, DO NOT SCALE DRAWINGS. ANY QUESTIONS REGARDING SAME SHALL BE REFERED TO THE DESIGNER.
24. ANY/ALL LUMBER IN CONTACT WITH CONCRETE FLOOR OR FOOTINGS SHALL BE F.G. REDWOOD OR PRESSURE TREATED, "DOUNAMIZED" . CBC.
25. ALL FRAMING LUMBER SHALL BE GRADE MARKED WITH QUALITY PER CBC. (CALIFORNIA BUILDING CODE) REQUIREMENTS.
26. USE APPROVED FLASHING MATERIALS AT ALL EXTERIOR OPENINGS, UNLESS NOTED OTHERWISE, ALL SHEET METAL SHALL BE 24 GAUGE G.I. OR BETTER, PAINTED WITH G.I. VINYL WASH PRIMER AND A ZINC DUST PRIMER, EXCEPTING PRE-FINISHED METAL AS APPROVED BY THE DESIGNER.
27. PROVIDE ONE IS POUND WATERPROOF FELT MINIMUM UNDER ALL EXTERIOR COVERING.
28. ALL EXTERIOR WALL OPENINGS, FLASHING, COUNTER FLASHING, EXPANSION JOINTS, SHALL BE CONSTRUCTED IN SUCH A MANNER TO MAKE THEM WATERPROOF, CAULK AND FLASH WHERE NECESSARY FOR A COMPLETE AND SERVICABLE INSTALLATION.
29. CERTIFIED INSULATION MATERIALS . TITLE 24 SECTION 118.
30. INSULATION INSTALLED TO MEET FLAME SPREAD AND SMOKE DENSITY REQUIREMENTS . NOT MORE THAN 25 AND SMOKE NOT MORE THAN 450
31. AIR INFILTRATION IS MINIMIZED BY SPECIFICATION OF TESTED MANUFACTURED DOORS AND WINDOWS AND PROPER SEALING AND WEATHER-STRIPPING .
32. CONTRACTORS MUST GANG AND CONCEAL FROM VIEW, ROOF VENTS WHEREVER POSSIBLE.
33. ROOF DRAIN DOWN SPOUTS MUST NOT DRAIN ONTO HARD OR BE VISIBLE FROM TRAFFIC AREAS.
34. ALL "OR EQUAL" SUBSTITUTIONS MUST BE SUBMITTED TO, AND APPROVED BY THE BUILDING OFFICIAL PRIOR TO INSTALLATION OF THE ITEM.
35. PROVIDE PRESSURE REGULATOR FOR WATER SERVICE WHERE STATIC PRESSURE EXCEEDS 80 PSI. (CPC 608.2)

SYMBOLS & ABBREVIATIONS

COLUMN LINES, GRID LINES

DOOR SYMBOL

WINDOW SYMBOL

REVISION
CLOUD AROUND REVISION

MATCH LINE
SHADED PORTION IS THE SIDE CONSIDERED

WORK POINT
CONTROL POINT
OR DATUM POINT

SECTION IDENTIFICATION

SHEET WHERE SECTION IS DRAWN

DETAIL NUMBER

SHEET NUMBER

KEYNOTES

CONCRETE

MASONRY VENEER

CONCRETE BLOCK

GYPSUM BOARD
NO DOUBLE LINES AT SMALL SCALE

BATT INSULATION

PLYWOOD

PROPERTY LINE

NEW FINISH GRADE
SHOWN HORIZONTALLY

EXISTING GRADE
NEW OR FINISHED CONTOURS

EXISTING CONTOURS

TOP OF WALL
TOP OF CURB
TOP OF PAVEMENT

SIM.	SIMILAR
STD.	STANDARD
STRUC.	STRUCTURAL
T.O.P.	TOP OF PARAPET
T.F.	TOP OF FOOTING
(T.F.C.)	(TOP OF FLUSH CURB) TYP.
T.P.	TOP OF PAVING
T.W.	TOP OF WALL
TYP.	TYPICAL
W.	WEST
W/	WITH
W.O.	WHERE OCCURS
REINF.	REINFORCEMENT
RET.	RETENTION
SEC.	SECTION

ABV.	ABOVE
A.C.	ASPHALTIC CONCRETE
ADJ.	ADJACENT
A.P.L.	ASSUMED PROPERTY LINE
B.C.R.	BEGIN CURB RETURN
B.F.	BOTTOM OF FOOTING
B.O.F.	BOTTOM OF FASCIA
BRD	BOARD
BTWN	BETWEEN
C.B.	CATCH BASIN
C.L.	CENTERLINE
C.O.	CLEANOUT
CLR.	CLEAR
C.M.U.	CONCRETE MASONRY UNIT
CONC.	CONCRETE
CONT.	CONTINUOUS
C.Y.	CUBIC YARD
DET.	DETAIL
DN.	DOWN
DRWG.	DRAWING
E.	EAST
EA.	EACH
E.G.	EXISTING GRADE
EL.	ELEVATION
ELEC	ELECTRICAL
ELEV.	ELEVATION
EQ.	EQUAL
EXIST.	EXISTING
EXP.	EXPANSION
ETC.	ETCETERA
FIN.	FINISH
F.G.	FINISH GRADE
F.P.	FINISH PAVING
FLR.	FLOOR
F.H.	FIRE HYDRANT
F.L.	FLOW LINE
(F.T.C.)	FUTURE TOP OF PAVING OR CONCRETE
(F.T.P.)	FUTURE TOP OF CURB
FTG	FOOTING
G.	GUTTER
GA	GAUGE
GYP. BRD.	GYPSUM BOARD
GALV.	GALVANIZED
H/C	HANDICAP
HT.	HEIGHT
HP.	HIGH POINT
JT.	JOINT
MAX.	MAXIMUM
MIN.	MINIMUM
MTL.	METAL
N.	NORTH
N.G.	NATURAL GRADE
N.I.C.	NOT IN CONTRACT
O.C.	ON CENTER
P.L.	PROPERTY LINE
SCHDL.	SCHEDULE

1. ALL CONTRACTORS AND/OR OWNER-BUILDERS MUST SUBMIT CERTIFICATE OF WORKER'S COMPENSATION INSURANCE COVERAGE PRIOR TO THE ISSUANCE OF A BUILDING PERMIT PER CALIFORNIA LABOR CODE, SECTION 3800.
2. GENERAL CONTRACTORS AND/OR OWNER-BUILDERS SHALL COMPLETE AND SUBMIT A CONTRACTOR'S LIST PRIOR TO THE DEPARTMENT OF CODE COMPLIANCE PRIOR TO REQUEST FOR FINAL INSPECTION.
3. THE DEVELOPER / CONTRACTOR / OWNER IS RESPONSIBLE FOR THE VERIFICATION OF EXISTING CURB (OR EDGE OF STREET PAVING IF NO PAVING CURB EXISTING) LOCATION FROM THE PROPERTY LINE (S) WITH THE PUBLIC WORK DEPARTMENT.

A. APPROVED TEMPORARY SANITARY FACILITIES (I.E. CHEMICAL TOILETS) SHALL BE IN THE CONSTRUCTION SITE PRIOR TO REQUEST FOR FIRST INSPECTION). HEALTH AND SAFETY CODE SECTION 5416.

B. CONTRACTOR AND/OR OWNER SHALL PROVIDE A TRASH BIN TO INSURE PROPER CLEANUP OF ALL BUILDING MATERIALS.

C. STORAGE OF BUILDING MATERIALS OR DEBRIS SHALL BE CONFINED TO THE LOT FOR WHICH THE PERMIT IS ISSUED. ADJACENT VACANT PROPERTIES MAY NOT BE UTILIZED FOR THIS PURPOSE UNLESS WRITTEN PERMISSION OF THE OWNER IS ON FILE WITH THIS OFFICE. THE PUBLIC RIGHT-OF-WAY SHALL BE MAINTAINED IN A CLEAN CONDITION AT ALL TYMES.

RESIDENTIAL CAL GREEN MANDATORY MEASURES

JOINTS AND OPENINGS. ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS OR OTHER OPENINGS IN PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OF RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR SIMILAR METHODS ACCEPTABLE TO ENFORCING AGENCY.

A MINIMUM OF 50% OF THE CONSTRUCTION WASTE GENERATED AT THE SITE IS DIVERTED TO RECYCLE OR SALVAGE.

AN OPERATION AND MAINTENANCE MANUAL SHALL BE PROVIDED TO THE BUILDING OCCUPANT OWNER.

ANY INSTALLED GAS FIREPLACE SHALL BE DIRECT-VENT SEALED-COMBUSTION TYPE. ANY INSTALLED WOOD STOVE OR PELLET STOVE SHALL COMPLY WITH US EPA PHASE II EMISSION LIMITS WHERE APPLICABLE. WOODSTOVES, PELLET STOVES AND FIREPLACES SHALL ALSO COMPLY WITH LOCAL ORDINANCES.

V.O.C.'S
DOCUMENTATION SHALL BE PROVIDED TO VERIFY THAT COMPLIANT VOC LIMIT FINISH MATERIALS HAVE BEEN USED.

DUCT OPENINGS AND OTHER RELATED AIR DISTRIBUTION COMPONENTS OPENINGS SHALL BE COVERED DURING CONSTRUCTION.

ADHESIVES, SEALANTS AND OTHER COATINGS SHALL BE COMPLIANT WITH VOC AND OTHER TOXIC LIMITS.

PAINTS, STAINS AND OTHER COATINGS SHALL BE COMPLIANT WITH PRODUCT WEIGHTED MIR LIMITS FOR ROC AND OTHER TOXIC COMPOUNDS.

AEROSOL PAINTS AND COATINGS SHALL BE COMPLIANT WITH PRODUCT WEIGHTED MIR LIMITS FOR ROC AND OTHER TOXIC COMPOUNDS.

DOCUMENTATION SHALL BE PROVIDED TO VERIFY THAT COMPLIANT VOC LIMIT FINISH MATERIALS HAVE BEEN USED.

CARPET AND CARPET SYSTEMS SHALL BE COMPLIANT WITH VOC LIMITS.

50% OF FLOOR AREA RECEIVING RESILIENT FLOORING SHALL COMPLY WITH THE VOC-EMISSIONS LIMITS DEFINED IN THE COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS (CHPS) LOW-EMITTING MATERIALS LIST OR BE CERTIFIED UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSCORE PROGRAM.

PARTICLE BOARD, MEDIUM DENSITY FIBERBOARD (MDF) AND HARDWOOD PLYWOOD USED IN INTERIOR FINISH SYSTEMS SHALL COMPLY WITH LOW FORMALDEHYDE EMISSION STANDARDS.

INTERIOR MOISTURE CONTROL

VAPOR RETARDER AND CAPILLARY BREAK IS INSTALLED ON SLAB ON GRADE FOUNDATIONS.

MOISTURE CONTENT OF BUILDING MATERIALS USED IN WALL AND FLOOR FRAMING IS CHECKED BEFORE ENCLOSURE.

EXHAUST FANS WHICH TERMINATE OUTSIDE THE BUILDING ARE INSTALLED IN EVERY BATHROOM.

WHOLE HOUSE EXHAUST FANS SHALL HAVE INSULATED LOUVERS OR COVERS WHICH CLOSE WHEN THE FAN IS OFF. COVERS OR LOUVERS SHALL HAVE MINIMUM INSULATION VALUE OF R-4.2

DUCT SYSTEMS ARE SIZED, DESIGNED AND EQUIPMENT IS SELECTED USING THE FOLLOWING METHODS:
1. ESTABLISHED HEAD LOSS AND HEAT GAIN VALUES ACCORDING TO ACCA MANUAL J OR EQUIVALENT.
2. SIZE DUCT SYSTEMS ACCORDING TO ACC 29-D OR EQUIVALENT.
3. SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ACCA 36-S OR EQUIVALENT.

HVAC SYSTEM INSTALLERS ARE TRAINED AND CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS.

SPECIAL INSPECTORS EMPLOYED BY THE ENFORCING AGENCY MUST BE QUALIFIED AND ABLE TO DEMONSTRATE COMPETANCE IN THE DISCIPLINE THEY ARE INSPECTING.

VERIFICATION OF COMPLIANCE WITH THIS CODE MAY INCLUDE CONSTRUCTION DOCUMENTATS, PLANS, SPECIFICATIONS, BUILDER OR INSTALLER CERTIFICATION INSPECTION REPORTS, OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY WHICH SHOW SUBSTANTIAL CONFORMANCE.

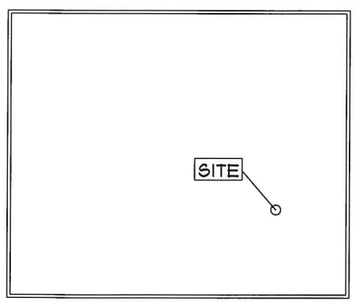
AUTOMATICE IRRIGATION SYSTEMS INSTALLED AT TIME OF FINAL INSPECTION SHALL BE WEATHER-BASED

SHEET INDEX

THIRD PARTY VERIFICATION:

NEW HOMES GREATER THAN 2500 S.F. SHALL COMPLETE A THIRD PARTY VERIFICATION OF THE COMPLETION OF THE ATTACHED GREEN POINTS CHECKLIST WITH 75 POINTS - MINIMUM

VICINITY MAP



PROJECT DATA

OWNER:
DAVE TIBBBITTS
1210 PACIFIC AVENUE
CAYUCOS, CA 93430
805-995-1039

LEGAL DESCRIPTION:
LOT 13 OF BLOCK 19
PASO ROBLES BEACH #1
APN# 064.227.006

SQUARE FOOTAGE:

LOWER LIVING	1510 S.F.
UPPER LIVING	1188 S.F.
TOTAL LIVING	2698 S.F.
GARAGE	720 S.F.
TOTAL GSA	3482 S.F.
COVERED PORCH/ WALKWAY (100 S.F. ALLOW)	98 S.F.

PROJECT SUMMARY:
DEMOLISH EXISTING +/- 1116 S.F.
SINGLE FAMILY RESIDENCE WITH
ATTACHED 286 S.F. GARAGE
AND REPLACE WITH NEW 2698 S.F.
RESIDENCE WITH 720 S.F. GARAGE

PROJECT TEAM

ARCHITECT:
John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

TITLE-24 :
CARSTAIRS ENERGY
P.O. BOX 4736
SAN LUIS OBISPO, CA 93403
805.904.9048

STRUCTURAL :
MSD PROFESSIONAL ENGINEERING, INC
NICK McCLURE
4555 EL CAMINO REAL, SUITE H
ATASCADERO, CA 93422
805.462.2282

SOILS ENGINEER:
GeoSolutions
720 HIGH STREET
SAN LUIS OBISPO, CA 93401
805.543.8539

John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

WRITTEN DIMENSIONS ON THESE DOCUMENTS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER NO ARCHITECT FOR RESOLUTION PRIOR TO COMMENCING WORK IN QUESTION.

PROPOSED RESIDENCE FOR
DAVID TIBBITTS
1210 PACIFIC AVENUE
CAYUCOS CA

DRC2007-00114
Minor Use Permit
064-227-006 / 1210 PACIFIC AVE
TIBBITTS DAVID
DEMO EXISTING +/- 1116 S.F. SFR, AND CONSTRUCTION
NEW 2692 S.F. SFR W/782 S.F. GARAGE.

DRAWN BY:	JHM
DATE:	6.26.14

REVISIONS	DATE
PLAN CHECK	2.1.14

SHEET
T-1
OF 18 SHEETS

GRADING AND EROSION CONTROL NOTES

ALL GRADING CONSTRUCTION SHALL CONFORM TO CBC-2010 GRADING-33.

DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION

NO CUT OR FILL SLOPES SHALL BE CONSTRUCTED STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1)

ALL DISTURBED AREA SHALL BE HYDRO-SEEDED OR PLANTED WITH APPROVED EROSION CONTROL VEGETATION AS SOON AS PRACTICAL AFTER COMPLETED CONSTRUCTION

MINIMUM SLOPE AWAY FROM BUILDINGS SHALL BE 2% FOR FIRST TWO FEET

RESPONSIBLE PARTY FOR SEDIMENTATION AND EROSION CONTROL
DAVE TIBBETS - (805) 235-8100

DUST MITIGATION MEASURES:

A) CONSTRUCTION VEHICLE SPEED AT WORK SITE MUST BE LIMITED TO FIFTEEN (15) MPH OR LESS.
B) PRIOR TO ANY GROUND DISTURBANCE, SUFFICIENT WATER MUST BE APPLIED TO THE AREAS TO BE DISTURBED TO PREVENT VISIBLE EMISSIONS FROM CROSSING PROPERY LINE
C) AREAS TO BE GRADED OR EXCAVATED MUST BE KEPT ADEQUATELY WETTED TO PREVENT VISIBLE EMISSIONS FROM CROSSING THE PROPERTY LINE.
D) STORAGE PILES MUST BE KEPT ADEQUATELY WETTED, TREATED WITH A CHEMICAL DUST SUPPRESSANT, OR COVERED WHEN MATERIAL IS NOT BEING ADDED OR REMOVED FROM PILE.
E) EQUIPMENT MUST BE WASHED DOWN BEFORE MOVING FROM PROPERTY ONTO A PAVED PUBLIC ROAD; AND
F) VISIBLE TRACK-OUT ON THE PAVED PUBLIC ROAD MUST BE CLEANED USING WET SWEEPING OR A HEPA FILTER EQUIPPED VACUUM DEVICE WITH-IN 24 HOURS

EROSION CONTROL AND BEST MANAGEMENT PRACTICES MUST BE IN PLACE AND FUNCTIONAL PRIOR TO THE FIRST INSPECTION. NO INSPECTIONS CAN BE PERFORMED IF THEY ARE NOT IN PLACE OR HAVE FAILED TO PROVIDE EROSION CONTROL. FAILURE TO MAINTAIN EROSION CONTROL WILL CAUSE INSPECTIONS TO BE DELAYED UNTIL EROSION CONTROL MEASURES ARE FUNCTIONAL.

PRIOR TO ANY SITE DISTURBANCE, A LICENCED SURVEYOR OR CIVIL ENGINEER SHALL STAKE THE BUILDING CORNERS, ESTABLISH AVERAGE NATURAL GRADE AND SET A BENCHMARK

PRIOR TO APPROVAL OF ROOF NAILING INSPECTION, THE APPLICANT SHALL PROVIDE THE BUILDING INSPECTOR WITH DOCUMENTATION THAT GIVES THE HIEGHT REFERENCE, THE ALLOUABLE HIEGHT AND THE ACTUAL HIEGHT OF THE STRUCTURE. THIS CERTIFICATION SHALL BE PREPARED BY A LICENSED SURVEYOR OR CIVIL ENGINEER.

FIRE SAFETY PLAN
THE APPROVED PROJECT COVERED BY THIS PERMIT SHALL CONFORM TO THE FIRE SAFETY PLAN REQUIREMENTS DEEMED NECESSARY BY THE FIRE DEPARTMENT HAVING JURISDICTION FOR THIS PERMIT. PRIOR TO STARTING CONSTRUCTION THE PROPERTY OWNER SHALL READ THE FIRE SAFETY PLAN AND BECOME AWARE OF ALL NECESSARY FIRE PROTECTION REQUIREMENTS. REQUIREMENTS MAY INCLUDE, FIRE SPRINKLERS / SPECIAL SAFETY GLAZING / NON-COMBUSTIBLE EXTERIOR CONSTRUCTION AND ROOFING / SETBACKS / DRIVEWAY-ROADWAY REQUIREMENTS AND OTHER SPECIAL CONSTRUCTION

PROJECT DATA

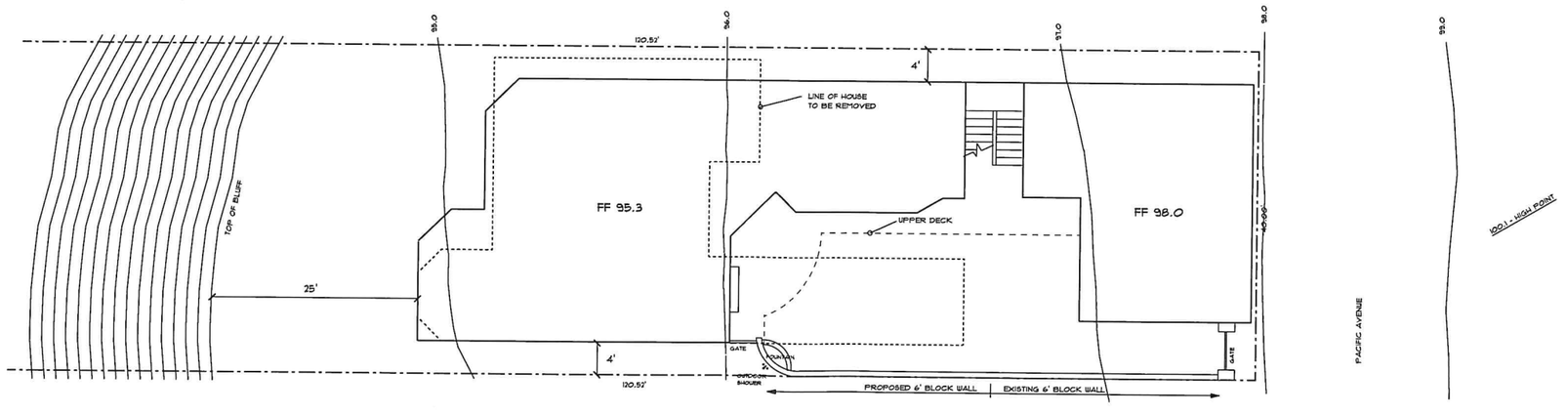
OWNER:
DAVE TIBBITTS
1210 PACIFIC AVENUE
CAYUCOS, CA 93430
805-995-1039

LEGAL DESCRIPTION:
LOT 13 OF BLOCK 13
PASO ROBLES BEACH #1
APN# 064.221.006

SQUARE FOOTAGE:

LOWER LIVING	1510 S.F.
UPPER LIVING	1188 S.F.
TOTAL LIVING	2698 S.F.
GARAGE	720 S.F.
EXTERIOR STAIR	80 S.F.
TOTAL GSA	3474 S.F.
COVERED PORCH/ WALKWAY (100 S.F. ALLOW)	98 S.F.

PROJECT SUMMARY:
DEMOLISH EXISTING +/- 1116 S.F. SINGLE FAMILY RESIDENCE WITH ATTACHED 286 S.F. GARAGE AND REPLACE WITH NEW 2698 S.F. RESIDENCE WITH 720 S.F. GARAGE



SITE PLAN

1/8" = 1'-0"

John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

WRITTEN DIMENSIONS ON THESE DOCUMENTS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER NO ARCHITECT FOR RESOLUTION PRIOR TO COMMENCING WORK IN QUESTION.

STRUCTURAL ENGINEER:

MSD PROFESSIONAL ENGINEERING, INC
NICK McCLURE
4555 EL CAMINO REAL, SUITE H
ATASCADERO, CA 93422
805.462.2282

ENERGY ANALYSIS:

CARSTAIRS ENERGY
P.O. BOX 4736
SAN LUIS OBISPO, CA 93403
805.904.9048

SOILS ENGINEER:

GeoSolutions
220 HIGH STREET
SAN LUIS OBISPO, CA 93401
805.543.8539

RESIDENCE FOR
DAVE TIBBITTS
1210 PACIFIC AVE
CAYUCOS, CA 93430

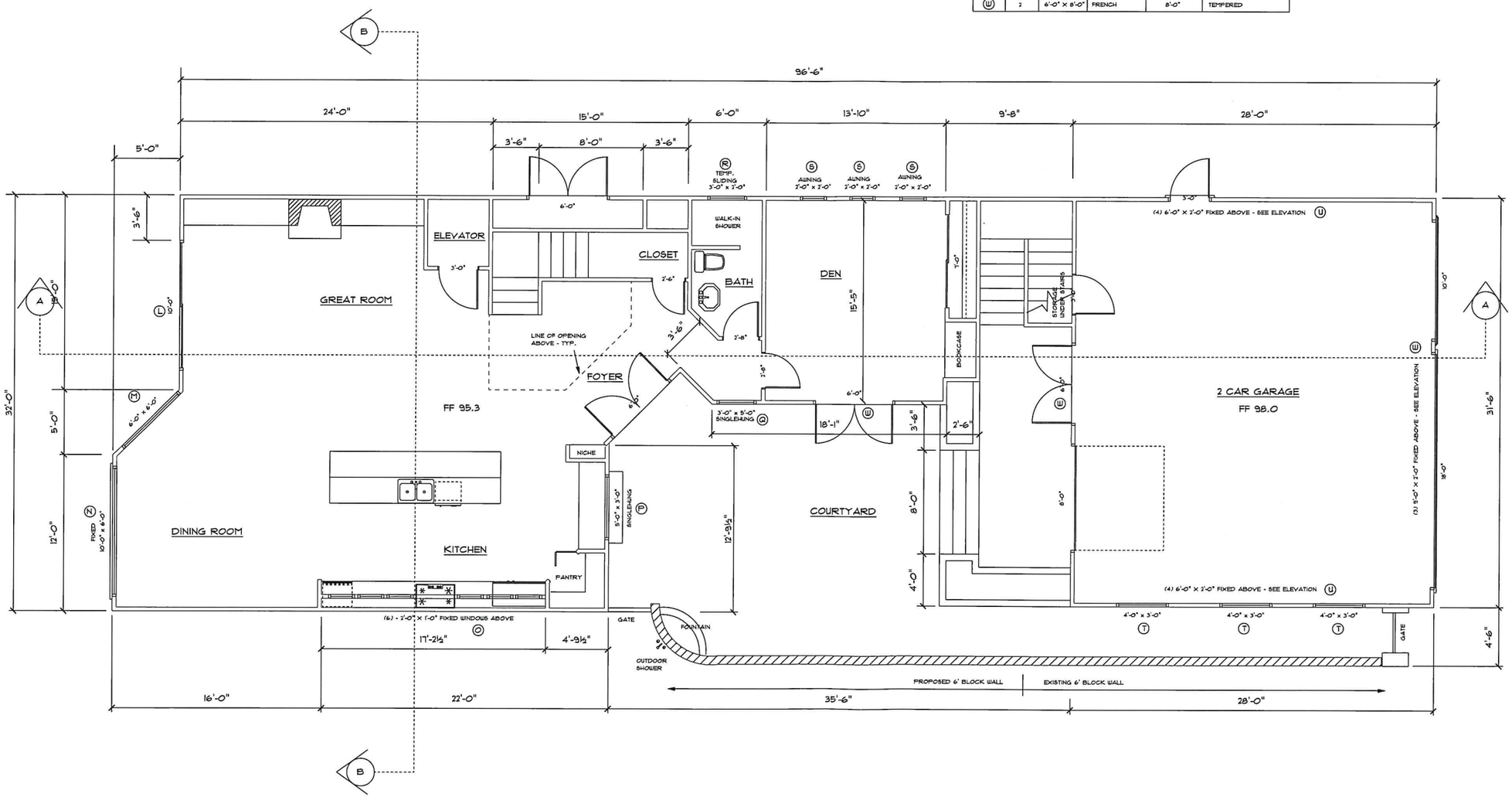
SITE PLAN

DRAWN BY:	JHM
DATE:	6.26.14
REVISIONS	DATE

SHEET
A-1
OF 18 SHEETS

WINDOW SCHEDULE

SYMBOL	QUANTITY	SIZE	TYPE	HEADER HEIGHT	REMARKS
L	1	10'-0" X 8'-0"	FOLDING DOOR	8'-0"	TEMPERED
M	1	6'-0" X 6'-0"	FIXED	8'-0"	
N	1	10'-0" X 6'-0"	FIXED	8'-0"	
O	6	2'-0" X 1'-0"	FIXED	8'-8"	
P	1	5'-0" X 3'-0"	SINGLEHUNG	8'-0"	
Q	1	3'-0" X 5'-0"	SINGLEHUNG	8'-0"	
R	1	3'-0" X 2'-0"	SLIDING	8'-0"	TEMPERED
S	3	2'-0" X 2'-0"	AWNING	8'-0"	
T	3	4'-0" X 3'-0"	SLIDING	7'-0"	
U	8	6'-0" X 2'-0"	FIXED	11'-0"	
V	3	9'-0" X 2'-0"	FIXED	11'-0"	
W	2	6'-0" X 8'-0"	FRENCH	8'-0"	TEMPERED



LOWER FLOOR PLAN

1/4" = 1'-0"

John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

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805.462.2282

ENERGY ANALYSIS:

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805.904.9048

SOILS ENGINEER:

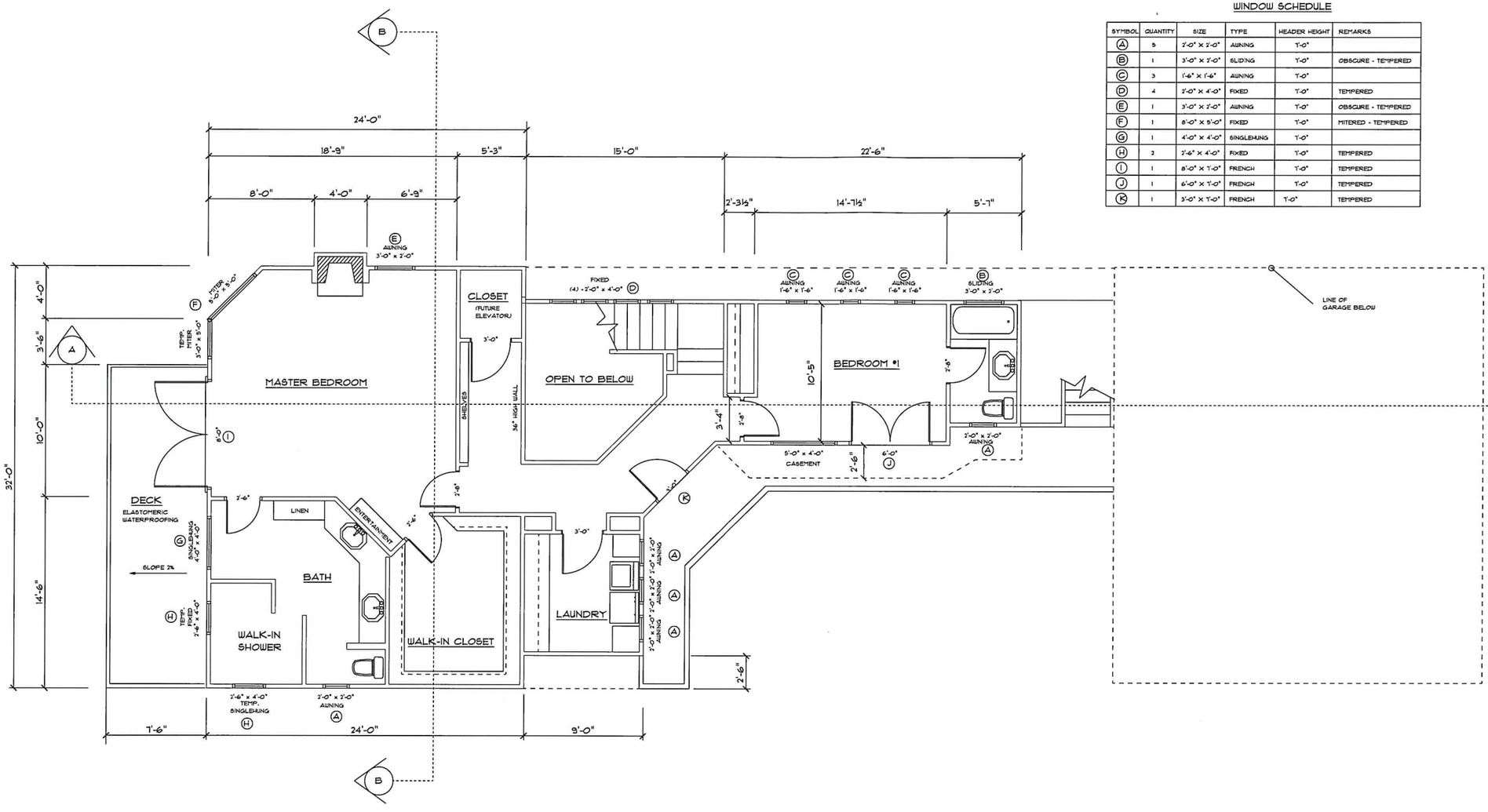
GeoSolutions
220 HIGH STREET
SAN LUIS OBISPO, CA 93401
805.543.8539

RESIDENCE FOR
DAVE TIBBITTS
1210 PACIFIC AVE
CAYUCOS, CA 93430

LOWER FLOOR PLAN

DRAWN BY:	JHM
DATE:	6.26.14
REVISIONS	DATE

SHEET
A-2
OF 18 SHEETS



UPPER FLOOR PLAN

1/4" = 1'-0"

WINDOW SCHEDULE

SYMBOL	QUANTITY	SIZE	TYPE	HEADER HEIGHT	REMARKS
A	5	2'-0" X 2'-0"	AWNING	7'-0"	
B	1	3'-0" X 2'-0"	SLIDING	7'-0"	OBSCURE - TEMPERED
C	3	1'-6" X 1'-6"	AWNING	7'-0"	
D	4	2'-0" X 4'-0"	FIXED	7'-0"	TEMPERED
E	1	3'-0" X 2'-0"	AWNING	7'-0"	OBSCURE - TEMPERED
F	1	8'-0" X 5'-0"	FIXED	7'-0"	MITERED - TEMPERED
G	1	4'-0" X 4'-0"	SINGLEHUNG	7'-0"	
H	2	2'-6" X 4'-0"	FIXED	7'-0"	TEMPERED
I	1	8'-0" X 7'-0"	FRENCH	7'-0"	TEMPERED
J	1	6'-0" X 7'-0"	FRENCH	7'-0"	TEMPERED
K	1	3'-0" X 7'-0"	FRENCH	7'-0"	TEMPERED

John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

WRITTEN DIMENSIONS ON THESE DOCUMENTS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER NO ARCHITECT FOR RESOLUTION PRIOR TO COMMENCING WORK IN QUESTION.

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NICK McCLURE
4555 EL CAMINO REAL, SUITE H
ATASCADERO, CA 93422
805.462.2282

ENERGY ANALYSIS:

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P.O. BOX 4136
SAN LUIS OBISPO, CA 93403
805.904.9048

SOILS ENGINEER:

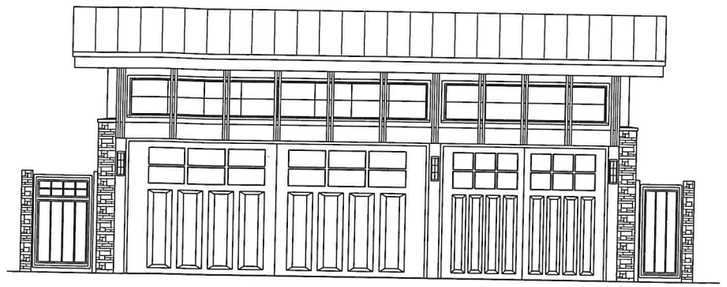
GeoSolutions
220 HIGH STREET
SAN LUIS OBISPO, CA 93401
805.543.8539

RESIDENCE FOR
DAVE TIBBITTS
1210 PACIFIC AVE
CAYUCOS, CA 93430

UPPER FLOOR PLAN

DRAWN BY:	JHM
DATE:	6.26.14
REVISIONS	DATE

SHEET
A-3
OF 18 SHEETS



FRONT ELEVATION

1/4" = 1-0"

LEFT ELEVATION

1/4" = 1-0"

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Cayucos, CA 93430
Office 805.995.1398
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ENERGY ANALYSIS:

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805.543.8539

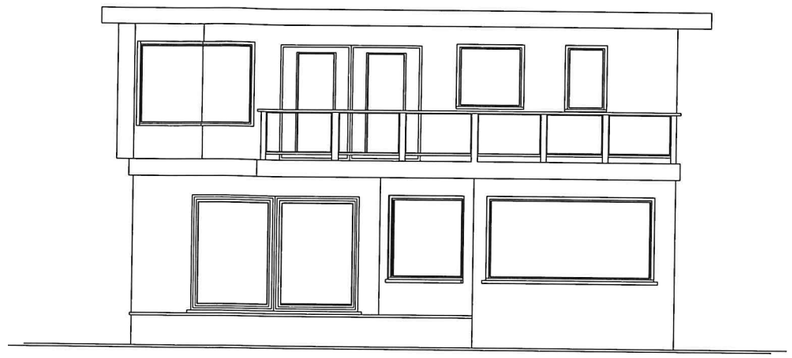
RESIDENCE FOR
DAVE TIBBITTS
1210 PACIFIC AVE
CAYUCOS, CA 93430

EXTERIOR ELEVATIONS

DRAWN BY:	JHM
DATE:	6.26.14

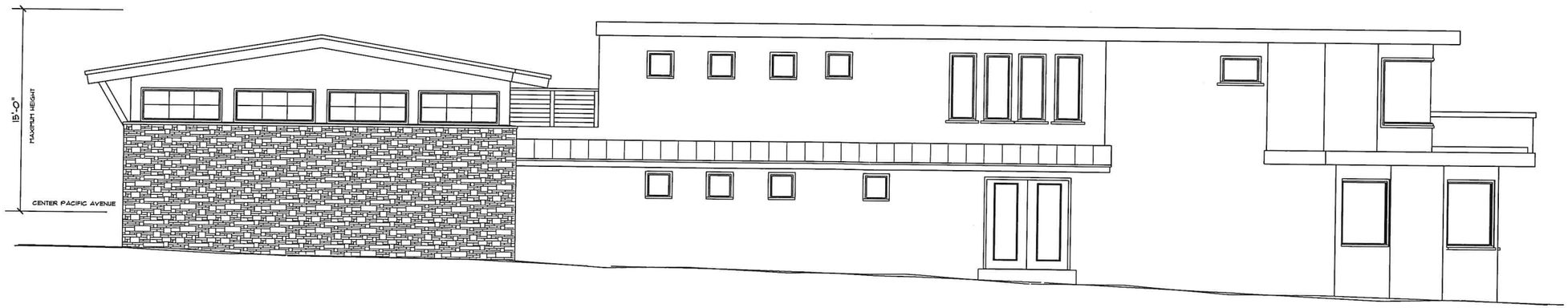
REVISIONS	DATE

SHEET
A-4
OF 18 SHEETS



REAR ELEVATION

1/4" = 1-0"



RIGHT ELEVATION

1/4" = 1-0"

John MacDonald, Architect
2813 Santa Barbara Avenue
Cayucos, CA 93430
Office 805.995.1398
FAX 805.995.1544

STRUCTURAL ENGINEER:

MSD PROFESSIONAL ENGINEERING, INC
NICK McCLURE
4555 EL CAMINO REAL, SUITE H
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805.462.2282

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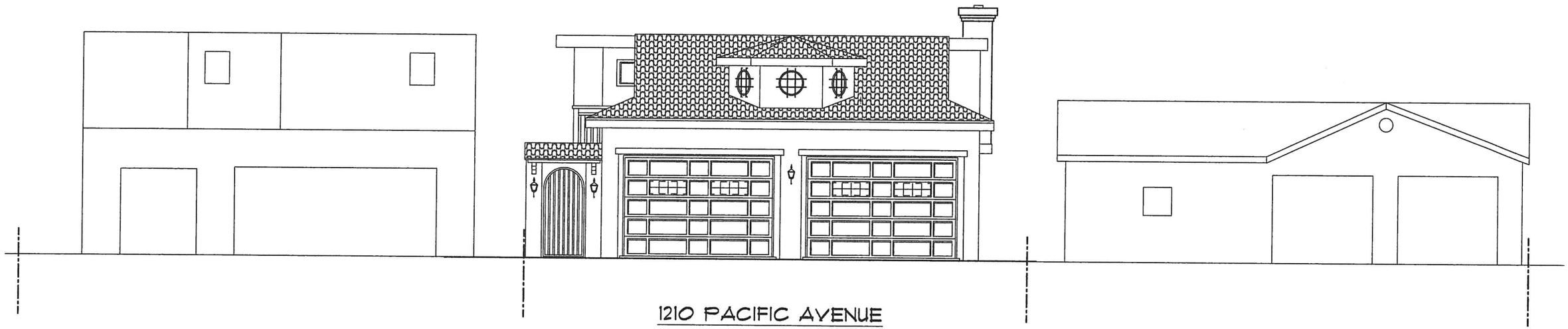
SAN LUIS OBISPO, CA 93401
805.543.8539

RESIDENCE FOR
DAVE TIBBITTS
1210 PACIFIC AVE
CAYUCOS, CA 93430

EXTERIOR ELEVATIONS

DRAWN BY:	JHM
DATE:	6.26.14
REVISIONS	DATE

SHEET
A-5
OF 18 SHEETS



1210 PACIFIC AVENUE

CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060-4508
VOICE (831) 427-4863 FAX (831) 427-4877

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant(s)

Name: Commissioners Peskin & Howell

Mailing Address: 45 Freemont St., Ste. 2000

City: San Francisco | Zip Code: 94105 | Phone: (415) 904-5200

SECTION II. Decision Being Appealed

1. Name of local/port government:

County of San Luis Obispo Department of Planning & Building

2. Brief description of development being appealed:

The demolition of an existing single-family residence and construction of a new two-story single-family residence with attached garage and decking, for a total gross structural area of 3,482 square feet. The project will result in the disturbance of approximately 3,500 square feet of an approximately 4,480-square-foot parcel.

3. Development's location (street address, assessor's parcel no., cross street, etc.):

1210 Pacific Street, in the community of Cayucos.

4. Description of decision being appealed (check one.):

☐ Approval; no special conditions

☑ Approval with special conditions:

☐ Denial

Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-3-SLO-19-0026

DATE FILED: 4/22/2019

DISTRICT: Central Coast

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (Page 2)

5. Decision being appealed was made by (check one):

- ☑ Planning Director/Zoning Administrator
- ☐ City Council/Board of Supervisors
- ☐ Planning Commission
- ☐ Other

6. Date of local government's decision: March 15, 2019

7. Local government's file number (if any): DRC2007-00114

SECTION III. Identification of Other Interested Persons

Give the names and addresses of the following parties. (Use additional paper as necessary.)

a. Name and mailing address of permit applicant:

Dave Tibbitts
PO BOX 45411
Jackson, WY 83001

b. Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearing(s). Include other parties which you know to be interested and should receive notice of this appeal.

(1) John McDonald
2813 Santa Barbara Ave.
Cayucos, CA 93430

(2)

(3)

(4)

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (Page 3)

SECTION IV. Reasons Supporting This Appeal

PLEASE NOTE:

- Appeals of local government coastal permit decisions are limited by a variety of factors and requirements of the Coastal Act. Please review the appeal information sheet for assistance in completing this section.
- State briefly **your reasons for this appeal.** Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)
- This need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

See attached pages

SECTION V. **Certification**

The information and facts stated above are correct to the best of my/our knowledge.

Signature of Appellant(s) or Authorized Agent

Date: 4-18-19

Note: If signed by agent, appellant(s) must also sign below.

Section VI. **Agent Authorization**

I/We hereby authorize _____ to act as my/our representative and to bind me/us in all matters concerning this appeal.

Signature of Appellant(s)

Date: _____

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (Page 4)

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Earl Howell

Signature of Appellant(s) or Authorized Agent

Date: April 22, 2019

Note: If signed by agent, appellant(s) must also sign below.

Section VI. Agent Authorization

I/We hereby
authorize _____
to act as my/our representative and to bind me/us in all matters concerning this appeal.

_____
Signature of Appellant(s)

Date: _____

Appeal Contentions: San Luis Obispo County CDP DRC2007-00114 (Tibbitts) approval

On March 15, 2019 San Luis Obispo County approved a coastal development permit (CDP) for the demolition of an existing single-family residence and construction of a new 2,300 square-foot single-family residence, attached garage, and decking on a blufftop lot located at 1210 Pacific Street in Cayucos fronted by riprap (and a built-in private stairway) along Cayucos State Beach, a popular public sandy beach that is located directly adjacent to the project site. Although photographic evidence suggests that some riprap at this location may have been present prior to the Coastal Act, it appears that restacking/augmentation of the riprap has periodically occurred over the last 40+ years without any CDPs, and it appears that some or all of the riprap may be located on California Department of Parks and Recreation's Cayucos State Beach property. The County's approval raises issues of consistency with County Local Coastal Program (LCP) policies related to shoreline armoring, public access, and related beach area coastal resources.

With regard to shoreline armoring, Chapter 7.III.I of the LCP's Estero Area Plan (EAP) guides all shoreline development within Cayucos. EAP Policy 7.III.I.5 expressly prohibits shoreline armoring to protect new development, and requires property owners to record a deed restriction to ensure no future armoring will be proposed or constructed on the site and expressly waiving any right to such armoring. In addition, EAP Policy 4.3.6.F.4 states that any development that alters 50 percent or more of an existing structure requires that the entire structure be brought into conformance with all policies and standards of the LCP, which includes the prohibition on shoreline armoring and restriction of future armoring requirement. Here, the entire existing structure will be demolished and an entirely new structure will be constructed, which is above the 50 percent alteration trigger that requires conformance with the prohibition on shoreline armoring and restriction of future armoring requirement. In other words, because the project constitutes new development, the LCP prohibits shoreline armoring to protect the new structure and the existing riprap must be removed. However, the County's approval failed to require removal of the existing riprap and did not require a deed restriction to ensure no future armoring will be constructed as required by the LCP. Moreover, the County's approval references a Geological Coastal Bluff Report that was prepared for the project, which explicitly states that the existing riprap should be repaired and restacked as necessary, which appears to be a part of the approved project. Because the project allows for shoreline armoring (and what appears to be unpermitted armoring at that) to protect new development, including apparently repair of such armoring in the future moving forward, the County's approval raises questions as to the project's consistency with the LCP's shoreline armoring policies.

Additionally, EAP Policy 7.III.I.3 includes requirements for development on coastal bluffs with legally established shoreline armoring. Even though it is unclear whether all of the existing riprap is legally permitted (and, as stated above, all of the riprap should be removed under the LCP because shoreline armoring is prohibited for new development), the County's approval also raises issues of consistency with these requirements. First, EAP Policy 7.III.I.3.a requires that a detailed coastal hazards analysis be completed that includes "an alternatives analysis to avoid or minimize impacts to public access." Here, the Geological Coastal Bluff Report did not analyze potential alternatives to allowing the existing riprap to remain, including removal of the riprap and restoration of the natural bluff and beach, even though the report concluded that the proposed new structure will be safe from coastal hazards for 100 years with or without the riprap. Second, EAP Policy 7.III.I.3.b requires the coastal hazards analysis to identify whether the armoring will have any impacts to "public access and recreation, scenic views, sand supplies,

and other coastal resources; and evaluate opportunities to modify or replace the existing armoring device in a manner that would eliminate or reduce these impacts." Here, the report did not evaluate, analyze, or even mention any coastal resources that may be impacted by retaining the existing riprap moving forward. Because the impacts to public access, recreation, scenic resources, and sand supply were not identified, the County's approval did not include any mitigation for, or reduction of, any such potential impacts as required by the LCP. Finally, EAP Policy 7.III.I.3.d requires a survey "of all property lines and the mean high tide line by a licensed surveyor along with written evidence of full consent of any underlying land owner, including, but not limited to the County, State Parks, and State Lands." The County has stated that no such survey for this property was completed as required by the LCP and that the County does not know whether the existing riprap is located on the applicant's property or on the California Department of Parks and Recreation's Cayucos State Beach property, or some combination thereof. Because the project did not evaluate or mitigate, including modification or removal, for the potential impacts of the existing armoring and failed to determine whether the private armoring is located on public property, the County's approval raises questions as to the project's consistency with the LCP's shoreline armoring and related coastal resource policies.

Finally, with regard to public access, EAP Policy 8.VI.b requires maximum public access and prohibits interference with the public's right of access to the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. Additionally, because the development is between the sea and the first public road, the public access and recreation policies of the Coastal Act are also applicable to the project, which also protect beach access and related coastal resources. In this case, the project site is located directly adjacent to (and potentially on, in relation to the riprap) Cayucos State Beach, a very popular and heavily used public access and recreation destination, and is within 50 feet of a public access beach staircase. As noted above, the County's approval did not identify, evaluate, or mitigate for any potential impacts to public access (or sand supply or other coastal resources) associated with the retention of the existing riprap moving forward, nor did the approval evaluate whether the private armoring device is actually located on and preventing the public from accessing an area of public beach. Thus the County's approval raises questions of consistency with the public access and recreation policies of both the LCP and the Coastal Act.

CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CALIFORNIA 95060-4508
(831) 427-4863 FAX (831) 427-4877
WWW.COASTAL.CA.GOV

COMMISSION NOTIFICATION OF APPEAL

April 22, 2019

To: Trevor Keith, Director
County of San Luis Obispo Department of Planning and Building
976 Osos St., Room 300
San Luis Obispo, CA 93408

From: Susan Craig, Central Coast District Manager

Re: **Commission Appeal No. A-3-SLO-19-0026**

Please be advised that the coastal development permit decision described below has been appealed to the California Coastal Commission pursuant to Public Resources Code Sections 30603 and 30625. Therefore, the decision has been stayed pending Commission action on the appeal pursuant to the Public Resources Code Section 30623.

LOCAL PERMIT #:	**DRC2007-00114**
APPLICANT:	**Attn: David Tibbitts**
DESCRIPTION:	Demolition of an existing single-family residence and construction of a new two-story single-family residence with attached garage and decking, for a total gross structural area of 3,482 square feet. The project will result in the disturbance of approximately 3,500 square feet of an approximately 4,480-square-foot parcel. The proposed project is within the Residential Single-Family land use category, within the Small-Scale Design Neighborhood and is located at 1210 Pacific Street, in the community of Cayucos.
LOCATION:	1210 Pacific St, Cayucos, CA (APN: 064-227-006)
LOCAL DECISION:	Approval with Special Conditions
APPELLANT(S):	California Coastal Commission, California Coastal Commission
DATE APPEAL FILED:	04/22/2019

The Commission appeal number assigned to this appeal is A-3-SLO-19-0026. The Commission hearing date has not been scheduled at this time. Within 5 working days of receipt of this Commission Notification

COMMISSION NOTIFICATION OF APPEAL

of Appeal, copies of all relevant documents and materials used in the San Luis Obispo County's consideration of this coastal development permit must be delivered to the Central Coast District Office of the Coastal Commission (California Administrative Code Section 13112). Please include copies of plans, relevant photographs, staff reports and related documents, findings (if not already forwarded), all correspondence, and a list, with addresses, of all who provided verbal testimony.

A Commission staff report and notice of the hearing will be forwarded to you prior to the hearing. If you have any questions, please contact Susan Craig at the Central Coast District Office.

cc: California Coastal Commission, Attn: Erik Howell
David Tibbitts
California Coastal Commission, Attn: Aaron Peskin
John McDonald

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
FAX: (831) 427-4877

MEMORANDUM

TO: Persons whose City or County Development Permits Have Been Appealed to the Coastal Commission
FROM: Coastal Commission
RE: Notice Concerning Important Disclosure Requirements

On January 1, 1993, a new California law required that all persons who apply to the Coastal Commission for a coastal development permit must provide to the Commission "the names and addresses of all persons who, for compensation, will be communicating with the Commission or Commission Staff on their behalf". (Public Resources Code section 30319.) As of January 1, 1994, the law also required that applicants disclose the same information with respect to persons who will communicate, for compensation, on behalf of their business partners. The law also applies to persons whose permits have been appealed to the Coastal Commission. The law provides that failure to comply with the disclosure requirement prior to the time that a communication occurs is a misdemeanor that is punishable by a fine or imprisonment. Additionally, a violation may lead to denial of the permit.

In order to implement this requirement, you are required to do two things. The first is that you must fill in the enclosed form and submit it to the appropriate Coastal Commission area office as soon as possible. Please list all representatives who will communicate on your behalf or on the behalf of your business partners for compensation with the Commission or the staff. This could include a wide variety of people such as lawyers, architects, biologists, engineers, etc.

Second, if you determine after you have submitted the enclosed form that one or more people will be communicating on your behalf or on behalf of your business partners for compensation who were not listed on the completed form, you must provide a list in writing of those people and their addresses to the Coastal Commission area office. The list must be received before the communication occurs.

List of Persons Who Will Communicate on Behalf of Persons Whose Permits Have Been Appealed To the Coastal Commission

Name of Person Whose Permit Has Been Appealed: David Tibbitts
Project and Location: PO Box 45411
Jackson, WY 83001

Commission Appeal No. A-3-SLO-19-0026

Persons who will Communicate for Compensation on Behalf of Applicant or Applicant's Business Partners with Commission or Staff:

Names	Addresses

Signature of Permit Applicant Date

Applicable LCP and Coastal Act Policies

Estero Area Plan Shoreline Development Policies

Estero Area Plan Chapter 7 Section III. Policy I.5. Seawall Prohibition. *Shoreline and bluff protection structures shall not be permitted to protect new development. All permits for development on blufftop or shoreline lots that do not have a legally established shoreline protection structure shall be conditioned to require that prior to issuance of any grading or construction permits, the property owner record a deed restriction against the property that ensures that no shoreline protection structure shall be proposed or constructed to protect the development, and which expressly waives any future right to construct such devices that may exist pursuant to Public Resources Code Section 30235 and the San Luis Obispo County certified LCP.*

Estero Area Plan Chapter 7 Section III. Policy I.4. Bluff Setbacks. *The bluff setback is to be determined by the engineering geology analysis required in I.1.a. above adequate to withstand bluff erosion and wave action for a period of 100 years. In no case shall bluff setbacks be less than 25 feet. Alteration or additions to existing development that is non-conforming with respect to bluff setbacks that equals or exceeds 50 percent of the size of the existing structure, on a cumulative basis beginning July 10, 2008, shall not be authorized unless the entire structure is brought into conformance with this setback requirement and all other policies and standards of the LCP. On parcels with legally established shoreline protective devices, the setback distance may account for the additional stability provided by the permitted seawall, based on its existing design, condition, and routine repair and maintenance that maintain the seawall's approved design life. Expansion and/or other alteration to the seawall shall not be factored into setback calculations.*

Estero Area Plan Chapter 7 Section III. Policy I.3. Application Content. *In addition to the application requirements of the Coastal Zone Land Use Ordinance and other Estero Urban Area Plan Standards, applications for new development or expansion of existing uses proposed to be located on or adjacent to a beach or coastal bluff shall include the following:*

> *a. An analysis of beach erosion, wave run-up, inundation and flood hazards prepared by a licensed civil engineer with expertise in coastal engineering and a slope stability analysis, prepared by a licensed Certified Engineering Geologist and/or Geotechnical Engineer or Registered Civil Engineer with expertise in soils, in accordance with the procedures detailed by Appendix G of this Plan. The report shall include an alternatives analysis to avoid or minimize impacts to public access.*
>
> *b. On lots with a legally established shoreline protective device, the analysis shall describe the condition of the existing seawall; identify any impacts it may be having on public access and recreation, scenic views, sand supplies, and other coastal resources; and evaluate opportunities to modify or replace the existing armoring device in a manner that would eliminate or reduce these impacts. The analysis shall also evaluate whether the development, as proposed or modified, could be safely established on the property for a one hundred year period without a shoreline protective device.*

c. Measurements for the form, mass, scale, and roofing and yard features (such as fencing). To the maximum extent feasible, new development shall be compatible with the character of the surrounding neighborhood.

d. Surveyed location of all property lines and the mean high tide line by a licensed surveyor along with written evidence of full consent of any underlying land owner, including, but not limited to the County, State Parks, and State Lands. If application materials indicate that development may impact or encroach on tidelands or public trust lands, the County shall consult with Coastal Commission staff regarding the potential need for a Coastal Development Permit from the Coastal Commission.

e. A preliminary drainage, erosion, and sedimentation plan which demonstrates that no stockpiling of dirt or construction materials will occur on the beach; erosion, runoff, and sedimentation measures to be implemented at the end of each day's work; all construction debris will be removed from the beach daily and at the completion of development; and no machinery will be allowed in the intertidal zone. If there is no feasible way to keep machinery out of the intertidal zone, authorization from the Coastal Commission is required.

Public Access and Recreation Policies

Estero Area Plan Chapter 8 Section VI. Policy b.2. *Prevent interference with the public's right of access to the sea, whether acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Estero Area Plan Chapter 8 Section VI. Policy b.3. *Require new development between the nearest public roadway and the shoreline and along the coast to provide public access consistent with sound resource management and consistent with public safety, military security needs, and the protection of fragile coastal resources and agricultural operations.*

Coast Act Section 30210. *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coast Act Section 30211. *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coast Act Section 30212(a). *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated*

accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the ***accessway.***

Coast Act Section 30220. *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Coast Act Section 30221. *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

GEOLOGIC COASTAL BLUFF EVALUATION
1210 PACIFIC AVENUE, APN: 064-227-006
CAYUCOS AREA, SAN LUIS OBISPO COUNTY, CALIFORNIA

PROJECT SL06635-1

Prepared for

Dave Tibbitts
1210 Pacific Avenue
Cayucos, California 93430

Prepared by

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(805) 543-8539

June 13, 2008

GeoSolutions, INC.

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(805) 543-8539, 543-2171 fax
info@GeoSolutions.net

June 13, 2008
Project No. SI.06635-1

David Tibbitts
1210 Pacific Avenue
Cayucos, California 93430

Subject: **Geologic Coastal Bluff Evaluation**
1210 Pacific Avenue, APN: 064-227-006,
Cayucos Area, San Luis Obispo County, California

Dear Mr. Tibbitts:

This Geologic Assessment of Bluff Erosion has been performed for 1210 Pacific Avenue, APN: 064-227-006 in the Cayucos area of San Luis Obispo County, California. Franciscan Complex formational units were encountered approximately 8 feet below ground surface as identified during the sub-surface investigation. Overlying the formational unit was Marine Terrace Deposits. A bluff retreat rate of approximately 0.54-inches per year has been calculated for the Site.

Results of the slope stability analysis show that the minimum factor of safety is met at the site and the greater of either the 10-foot setback or the slope stability analysis is the 10-foot buffer. The 10-foot buffer has been added to the calculated retreat at the site (5-feet in 100 years) and the conservative building setback at the property is 15 feet. It is understood that this is a very conservative estimate of development setback based upon an almost full-height rock revetment structure at the bluff.

Thank you for the opportunity to have been of service in preparing this report. If you have any questions or require additional assistance, please feel free to contact the undersigned at (805) 543-8539.

Sincerely,
GeoSolutions, Inc.

Luke Zimmerman, GIT #218
Staff Geologist

John M.D. Kammer, C.E.G. #2118
Senior Engineering Geologist

PROFESSIONAL GEOLOGIST
JOHN M.D. KAMMER
NO. 2118
CERTIFIED
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GEOLOGIST
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TABLE OF CONTENTS

LIST OF ATTACHMENTS

REFERENCES

PLATES

Plate 1 - Site Engineering Geologic Map
Plate 2 – Site Cross Section
Plate 3A, 3B – Regional Geologic Map, Hall and Prior, 1975 and Geologic Explanations
Plate 4A, 4B – Regional Geologic Map, Hall et al., 1979 and Geologic Explanations
Plate 5A, 5B – Regional Geologic Map, Weber, 1979 and Geologic Explanations
Plate 6A, 6B – Regional Geologic Map, Dibblee, 2005 and Geologic Explanations
Plate 7A, 7B, 7C, 7D, 7E, 7F – Aerial Photograph, Caltrans, 1953, UCSB, 1973, UCSB, 1982
Plate 8A, 8B, 8C – Regional Fault Map, Jennings, 1994 and Explanations
Plate 9A, 9B – Historical Seismicity Map and Historical Seismicity List
Plate 10A, 10B – Flood Insurance Rate Map, FEMA, 1985 and Explanations
Plate 11– Landslide Hazards Map, San Luis Obispo County Department of Building and Planning, 1999
Plate 12 – Dam Inundation Map, San Luis Obispo County Department of Building and Planning, 1999
Plate 13 – Whale Rock Vulnerability Assessment Map, Fugro West, Inc., 1997 and Explanations
Plate 14A, 14B – Geologic Study Area Map, San Luis Obispo County Department of Building and Planning, 1996 and Explanations
Plate 15A, 15B – Photographs of the Site

APPENDIX A

Probability of Exceedance

APPENDIX B

Boring Logs
Laboratory Testing

LIST OF FIGURES

LIST OF TABLES

GEOLOGIC COASTAL BLUFF EVALUATION
1210 PACIFIC AVENUE, APN: 064-227-006, CAYUCOS AREA, SAN LUIS OBISPO COUNTY, CALIFORNIA

PROJECT SL06635-1

1.0 INTRODUCTION

In accordance with GeoSolutions, Inc. proposal dated March 13, 2008, a Geologic Evaluation of the Coastal Bluff has been performed for the parcel located at 1210 Pacific Avenue, in the Cayucos area of San Luis Obispo County, California. Figure 1, Area Location Map, depicts the location of the project and Figure 2 (see page 5) is a photograph of the site from the bluff side of the property. The purpose of this evaluation was to determine the geologic coastal bluff hazard on the property and determine the geologic rate of bluff erosion or retreat for a minimum 100-year period. Included in this report are recommendations for reducing site erosion and bluff loss. Plate 1 is a Site Engineering Geologic Map that depicts local geologic conditions. Plate 2, Site Cross Section, presents an interpretive section through the property. Plates 3A, 4A, 5A and 6A, Regional Geologic Maps (Hall and Prior, 1975, Hall et al, 1979, Weber, 1979 and Dibblee, 2006), depict geologic conditions in the vicinity of the property. Plates 3B, 4B, 5B and 6B present Geologic Explanations. Plate 7A, 7B, 7C, 7D, 7E, and 7F are aerial photographs in the vicinity of the Site (Caltrans, 1953, UCSB, 1973, UCSB, 1982). Plate 7C and 7D are enlargements of Plates 7A and 7B and depict the method for determination of top of bluff in the vicinity of the Site. Plate 8A, Regional Fault Map (Jennings, 1994), depicts fault locations in the vicinity of the site. Plates 8B and 8C present the Fault Explanations. Plate 9A, Historical Seismicity Map and Plate 9B, Historical Seismicity List depict significant historical earthquakes in the region. Plate 10A and 10B are the Flood Insurance Rate Map and Explanations showing the location of the 100-year flood zone in the vicinity of the Site (FEMA, 1985). Plate 11, Landslide Hazards Map (San Luis Obispo County Department of Planning and Building, 1999) depicts the County of San Luis Obispo landslide hazard potential in the vicinity of the Site. Plate 12, Dam Inundation Map (San Luis Obispo County Department of Building and Planning, 1999) depicts the dam inundation zone in the vicinity of the Site. Plate 13, Whale Rock Vulnerability Assessment Map (Fugro West, Inc., 1997) depicts geologic hazards in the vicinity of the Site. Plate 14A and 14B, Geologic Study Area Map depicts the location of the site within a geologic study area (San Luis Obispo County Department of Building and Planning, 1996). Plates 15A and 15B present various photographs of the site and adjacent properties.

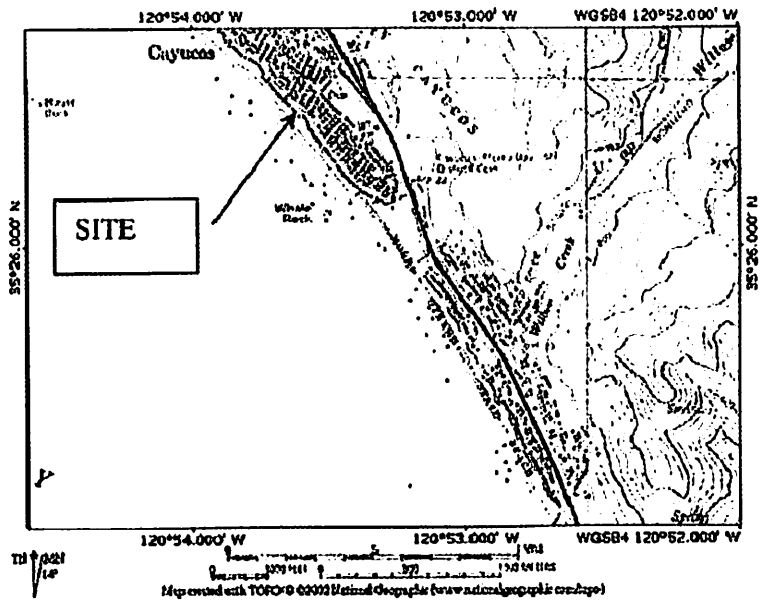

Figure 1: Area Location Map

This report is in accordance with requirements outlined in the State of California Coastal Commission "State-wide Interpretative Guidelines," adopted May 5, 1981, as well as in accordance with requirements outlined in County of San Luis Obispo Planning and Building Department, Coastal Land Use Ordinance Section 23.05.080 - Shoreline Structures, Bluff Hazard and Section 23.07.084 - Application Contents - Geologic and Soils Reports.

The following specific tasks were performed as part of our assessment:

1. Review of historical aerial photographs, pertinent published and unpublished geotechnical studies and literature, and geologic maps for the subject project area.

2. Field exploration consisted of three borings. Boring B-1 at 1210 Pacific Avenue in the front yard (street side) to a depth of 15.0 feet. Boring B-2 at 1210 Pacific Avenue at the bluff portion of the property to a depth of 11.5 feet below ground surface (via modified hand auger equipment). Boring B-1 at 1200 Pacific Avenue (adjacent parcel to 1210 Pacific Avenue utilizing modified hand auger equipment) at the bluff portion of the property to a depth of 12.0 feet below ground surface.

3. Logging of borings under the direction of a Project Geologist and obtaining bulk soil/bedrock samples for classification and laboratory testing.

4. Geologic reconnaissance of the property and adjacent areas by the signing engineering geologist on March 21 and 25, 2008 and April 3, 2008.

5. Define the bluff edge and conduct a numerical slope stability analysis to establish a setback for slope stability for both static and pseudo-static conditions.

6. Establish a long-term bluff retreat rate.

7. Preparation of this report including findings, conclusions, recommendations, and exhibits.

2.0 COASTAL BLUFF ASSESSMENT CONCLUSIONS

It is our understanding that a remodel to an existing single-family residence is proposed for the parcel. Generally, site development usually contributes to a decrease in top of bluff erosion by decreasing the amount of uncontrolled surface water runoff. General recommendations regarding proposed development are provided and should improve and promote stability of the coastal bluff. Provided the recommendations are implemented for the project, the general opinion is that the site is geologically suitable for proposed development. The following conclusions are made regarding the Site.

2.1 Geologic Conditions

Site geology consists of two main geologic units, Marine Terrace Deposits and Franciscan Complex units. Plate 1, Site Engineering Geologic Map, depicts geologic conditions at the property. Plate 3A, 4A, 5A and 6A are Regional Geologic Maps of the area (Hall and Prior, 1975, Hall et al., 1979, Weber, 1979, and Dibblee, 2006). Approximately two feet of fill/soil and colluvium overlie approximately 6 feet of Marine Terrace deposits. Franciscan Complex was observed within borings and on portions of the base of the bluff. The Franciscan Complex is composed of blueshist and serpentinite. A rock revetment structure is present at the bluff at the site with a geometry of approximately 1.3:1 (horizontal to vertical). Beach sand is present at the beach.

2.2 Bluff Retreat Rates

A site-specific average current bluff erosion rate was calculated in the vicinity of the proposed residence. It is anticipated that the "estimated foreseeable" erosion rates may continue at this measured rate although

the presence of a rock revetment structure may reduce this erosion rate. The bluff is actively retreating along the bluff and is expected to continue. As a conservative value, a retreat rate of 0.54 inches per year was calculated and applied to the site. This retreat rate was observed at a property located approximately 70 feet northwest from the subject property and had only a small seawall. For a period of 100 years, a retreat rate of approximately 5 feet may be anticipated. Plate 1, Site Engineering Geologic Map, depicts the 100-year setback with an additional 10-foot buffer (total of 15 feet from top of bluff). It is understood that this is a very conservative estimate of setback for development at the property due to the presence of a rock revetment structure at the property.

2.3 Seismic

The potential for ground rupture at the Site during ground shaking from a fault passing through the site is considered low since no known fault passes through the site. However, ground shaking from off-site faults may cause failure of loose soil or loose rock on the face of the bluff. The closest mapped known active Quaternary age fault is the Hosgri fault located approximately 5.8 miles west of the Site. However, the closest known active portion of a Holocene age fault is the active Hosgri fault that is located approximately 8.8 miles southwest of the Site. The Seismic Design Category for the proposed structure is D. The subject site is not located within an Earthquake Fault Zone. The Cayucos fault is mapped approximately 1100 feet northeast of the Site (Hall and Prior, 1975). The design basis earthquake is between 0.3 g and 0.246 g. Structural building design parameters are presented in tabular form in the report.

2.4 Groundwater and Drainage

Moisture was observed within fractures along the bluff face and a small amount of free flowing water was observed at the base of the bluff. Groundwater was encountered at 10.8 feet below ground surface in subsurface boring B-1, 1210 Pacific. The property maintains a southwesterly surface gradient toward the top of the bluff.

2.5 Landslides

No landslide hazard was observed at the property. The potential for catastrophic slope instability to affect the proposed residence is considered low since no landslides are mapped at the site. The slope stability analysis has modeled the site; very small surficial failures within the colluvium were observed at factor of safeties lower than 1.5 and 1.1 however, an approximate 1-foot high timber wall is located at this location which cannot be modeled in the software. The liquefaction hazard at the Site is considered low due to the amount of clay in the subsurface, the subsurface densities, and the absence of groundwater in the Marine Terrace Deposits. However, this liquefaction potential has been recommended to be assessed by the project soils engineer. Accelerated bluff erosion will occur during periods of rainfall, storm activity, seismic activity, and direct wave action.

2.6 Slope Stability Analysis

A numerical slope stability analysis was completed to verify stability on the coastal bluff in the vicinity of the proposed residence. The static analysis resulted in a critical factor of safety (minimum factor of safety) greater than 1.5; the horizontal distance from the top of the bluff to the back of the slip surface for a static factor of safety of 2.64 was 4.5 feet. The psuedo-static analysis resulted in a critical factor of safety (minimum factor of safety) greater than 1.1; the horizontal distance for psuedo-static conditions is based off of a factor of safety of 1.91, and was determined to be approximately 14 feet. According to Johnsson, 2003 if the existing coastal bluff meets minimum requirement for slope stability, then no

setback is necessary for slope stability considerations. Since the minimum factor of safety was met for the existing bluff, slope stability setbacks were not used (the default 10-foot buffer was used instead).

2.7 Tsunami

The potential for seismic water waves to affect the property is considered moderate to high due to the elevation the property (property is approximately 20 feet above the beach). The estimated 500-year tsunami run-up is considered to be 39 feet above sea level. There is a moderate to high potential for seismically induced flooding due to the location of the property in the vicinity of the Whale Rock Reservoir. Plate 10A depicts a portion of the property likely within the 500-year flood zone. However, the exact location of line between the 500-year and the 100-year flood zones is unknown at the property. The 100-year flood zone line may be at the base of the bluff, at the top of bluff, or any point within the bluff. Because the 100-year flood zone line is not definitive, GeoSolutions, Inc. assumes that the property is also within the 100-year flood zone.

3.0 GEOLOGIC RECOMMENDATIONS

The following are recommended for implementation at the Site.

1. It is recommended that proposed new residence construction be setback a minimum of the combined distance of the 100-year retreat rate with an additional buffer factor of the slope stability analysis or 10-feet (whichever is greater) as measured from the existing bluff top. This would be a setback of 5 feet plus a 10-foot buffer for a total of 15 feet. The 100-year retreat with the additional 10-foot buffer has been approximated on Plate 1, Site Engineering Geologic Map. This setback line should be established in the field as a series of stakes prior to initiation of construction.

2. It is recommended that concentrated surface water not be allowed to flow uncontrolled over the top of the bluff. Gutters are recommended along eaves of rooflines. Gutter downspouts should not allow concentrated drainage to discharge near the foundations but should convey the water in solid piping that extends at least to the base of the bluff at the beach or approved alternate (sump or storm drain). A concrete, asphalt, or approved alternate berm is recommended to be constructed along the top of the bluff and surface drainage should be directed to a drop-inlet(s) that outfalls over the bluff to the formational unit below or approved alternate. It is recommended that separate drain lines be used for surface and subsurface water.

3. It is recommended that the proposed residence be built to a height above the worst case scenario of a tsunami with a meteorological high tide (storm surge) which is approximately 24 to 39 feet above mean sea level. Mitigation measures could include raising the living space above run-up levels including breakaway utility connections, or well-designed exit routes for persons in the lower level of the structure. It is understood that the San Luis Obispo Coastal Zone Land Use Ordinance has standards for building heights that may conflict with flood mitigation measures, but the San Luis Obispo County Department of Planning and Building should weigh these differences as part of the planning process.

4. It is recommended that the ground floor of all structures be constructed at a minimum of one-foot above the 100-year storm flood profile level as per San Luis Obispo County CZLUO section 23.07.066. The 100-year flood elevation at the site is unknown and is recommended to be determined. It is understood that the San Luis Obispo Coastal Zone Land Use Ordinance has standards for building that may conflict with flood mitigation measures, but the San Luis Obispo County Department of Planning and Building should weigh these differences as part of the planning process.

5. It is recommended that maintenance be provided to the existing rip-rap when necessary. A maintenance program may consist of removing loose and unstable rocks and restack with 1 to 2 ton (or similar to existing size) hard rock (i.e. granite) to the original height with a recommended 3-point contact between the rocks. It is recommended that the engineering geologist review the revetment on a periodic basis or after major storm and wave events.

6. The Engineering Geologist and Soil Engineer is recommended to review the final grading plan prior to construction. In addition, at the time of Site development, the Engineering Geologist should periodically observe grading operations to confirm assumptions of this Site.

7. The Soils Engineer should test for corrosivity of Site soils.

8. It is recommended that recommendations within the Soils Engineering Report be incorporated into design.

9. The Soil Engineer is recommended to quantify the liquefaction potential at the site.

10. The project structural engineer is recommended to incorporate the more conservative design basis earthquake for the site (0.3 g and 0.246 g). The project structural engineer is recommended to incorporate the more conservative 2007 California Building Code, Chapter 16, Structural Design Parameters for the site.

11. As the development is anticipated to be less than one acre, we are providing the following dust mitigation measures recommended to be initiated at the start and maintained throughout the duration of the construction or grading activity.

    a. Construction vehicle speed at the work site must be limited to fifteen (15) miles per hour or less;
    b. Prior to any ground disturbance, sufficient water must be applied to the areas to be disturbed to prevent visible emissions from crossing the property line;
    c. Areas to be graded or excavated must be kept adequately wetted to prevent visible emissions from crossing the property line;
    d. Storage piles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile;
    e. Equipment must be washed down before moving from the property onto a paved public road; and
    f. Visible track-out on the paved public road must be cleaned using wet sweeping or a HEPA filter equipped vacuum device within twenty-four (24) hours.

4.0 SITE DESCRIPTION

A single-family residence remodel is proposed on the lot at 1210 Pacific Avenue in the Community of Cayucos in San Luis Obispo County, California. A rock revetment structure is present at the bluff of the property and formational rock is exposed within the base of the bluff. The parcel maintains approximately 40 feet of frontage along Pacific Avenue and is approximately 112 feet along the southeast property boundary. The property will hereafter be referred to as the Site. Coordinates for the Site are 35.44014 degrees latitude, -120.893720 degrees longitude.

Figure 2: Photograph of the Site

The upper bluff region of the Site is relatively flat with a slight slope to the southwest towards the coastal bluff. An existing single-family residence occupies the Site and the bluff maintains vegetation over the rock revetment. The top of bluff is approximately 20 feet above the beach. True elevation is not known and the site topographic map is based upon an assumed datum, not a true datum.

The base of the bluff maintains exposed outcrops of serpentinite and blueshist of the Franciscan Complex. Marine Terrace Deposits consisting of sand, clay, and pebbles (Qt) overlie the formational unit. Sub-surface soil conditions were verified by two borings, B-1 at 1210 Pacific and B-2 at 1210 Pacific, and one boring, B-1 at 1200 Pacific Avenue drilled on the adjacent lot (north of the site). Rock rip-rap is exposed at the site, and adjacent property to the northwest. A concrete revetment is present at the southeasterly adjacent property. The site is served by municipal sewage and water.

5.0 GEOLOGIC FINDINGS

5.1 Regional Geologic Conditions

The Site is located in the vicinity of the San Luis Range of the Coast Range Geomorphic Province of California. The Coast Ranges lie between the Pacific Ocean and the Sacramento-San Joaquin Valley and trend northwesterly along the California Coast for approximately 600 miles between Santa Maria and the Oregon border.

Regionally, the Site is located on the Cambrian Slab composed of a large, thick block of Cretaceous age sediments that are surrounded by Franciscan Complex rocks. The Cambrian Slab extends from the Los Osos fault approximately 8.5 miles south of the property and northward to San Simeon Creek approximately 19 miles to the northwest.

5.2 Local Geology

Locally, the site is located within the Franciscan Complex (KJfm) as depicted on Plate 1, Site Engineering Geology Map. Plate 3A, 4A, 5A and 6A are Regional Geologic Maps of the general vicinity of the Site and Plates 3B, 4B, 5B and 6B provide descriptions of the Regional Geologic Maps (Hall and Prior, 1975, Hall et al, 1979, Weber, 1979 and Dibblee, 2006).

Hall and Prior, 1975, Hall et al., 1979, Weber, 1979 and Dibblee, 2006 have mapped the specific site as within Jurassic and Cretaceous age (205-63 mybp) Franciscan Complex units (KJfme, KJfm, and fm) overlain by late Pleistocene age (130,000 to 140,000 years before present) Marine Terrace Deposits (Qt and Qtm), Older Surficial Deposits (Qos), or alluvium (Qal). Weber, 1979 has mapped the specific site as within late Pleistocene age (130,000 to 140,000 years before present) Marine Terrace Deposits (pb-Δ). Our investigation of the area encountered units of the Franciscan Complex underlying Marine Terrace Deposits. Information derived from subsurface exploration was used to classify subsurface soil and formational units and to supplement geologic mapping.

5.2.1 Surficial Units

Surface materials at the site generally consist of dark brown sandy CLAY (CL) termed Fill, a brown clayey SAND (SC) termed colluvium (Qc) and a brown SAND (SC) with clay termed Marine Terrace Deposits (Qt). Hall and Prior, 1975 describes the Marine Terrace Deposits (Qt) as "loosely consolidated, white to buff sandstone and conglomerate. Clasts, subrounded to angular, as large as 1.2 meters (4 feet) in diameter, consists of Franciscan rocks, Cambria Felsite, or Monterey Shale." Hall et al., 1979 describes the Marine Terrace Deposits (Qtm) as "loosely consolidated, white to orangish-brown sandstone and conglomerate. Clasts subrounded to angular, as large as 1.2 m in diameter, consist locally of Jurassic ophiolite, Franciscan rocks, Cambria Felsite, dacite, Monterey chert, and Cretaceous sandstone." Weber, 1979 identifies the marine terrace deposits as the Piedras Blancas Terrace (pb-Δ) and describes the marine terrace deposits as containing "a late Pleistocene fauna dated at 120,000-140,000 years B.P." Dibblee, 2006 describes the Older Surficial Deposits (Qos) as "Older alluvium, sand and gravel." For simplicity of this report, surficial materials are identified as Marine Terrace Deposits (Qtm). Hall and Prior, 1975, identifies the unit as approximately 0.6 to 3 meters (2 to 10 feet) thick and Hall et al., 1979 identifies the unit as approximately 0.9 to 6 meters (3 to 20 feet). The thickness of the Marine Terrace Deposits at the site is approximately 6 feet. Hall and Prior, 1975 show alluvial deposits at the bluff and beach area composed of cobbles, gravel, sand, silt, and clay. Beach sand comprises the beach area at the base of the bluff. Some fill/topsoil was observed during drilling as depicted on the boring logs.

5.2.2 Formational Units

Formational units were exposed along the bluff face at the site and adjacent to the site and consist of units of the Franciscan Complex material. Plate 1, Site Engineering Geology Map, depicts the proposed building area as within Franciscan Complex (KJfm) units overlain by Marine Terrace Deposits (Qt). Plate 2 presents a cross section through the building site and surrounding area.

Hall, 1975 describes the Franciscan Complex (KJfme) as "mélange of graywacke, pervasively sheared and in large part composed of sheared greenish-black claystone. This includes exotic fragments or clasts of conglomerate, blueschist, schist, metavolcanic rocks or greenstone, white, red, or green chert, serpentinite, shale, silica-carbonate rocks, and gabbro. Original structure of unit destroyed by shearing and mixing." Hall et al., 1979 describes the Franciscan Complex (KJfm) as "mélange - graywacke, pervasively sheared and in large part composed of sheared

greenish-black claystone. Includes exotic fragments or clasts of conglomerate; blueschist; schist; metavolcanic rocks or greenstone; white, red, or green chert; shale; diabase and serpentinite; serpentinite; tuff; gabbro; and silica-carbonate rocks. The original structure of the unit was destroyed by shearing and mixing." Dibblee, 2006 describes the Franciscan Rocks (fm) as "Melange of severely deformed rocks, mostly graywacke and sheared argillite; includes tectonic fragments of chert, greenstone, graywacke, serpentine and blueschist." The thickness is unknown but is likely several thousand feet. The Franciscan Complex encountered during the geologic mapping and subsurface investigation included blueschist and serpentinite. The thickness of Franciscan Complex at the Site is unknown.

No structural attitudes were obtained at the site due to the massive composition of the formational units. Cross section A-A' on Plate 2 presents a subsurface interpretation of the area. Mapping revealed Franciscan Complex (KJfm) exposed in the bluff face of 1210 and 1200 Pacific Avenue. Two types of rock were mapped and are described both as Franciscan Complex (KJfm). The first is a blue grey blueschist described as hard (H3), dense, slightly weathered to fresh to slightly weathered (W2-W3). The Fractures within the Blueschist are described as very closely spaced (SP6), discontinuous (C1), zero ends leave the exposure (both ends of the fracture can be seen in the exposure) (E0), tight to slightly open (O0 –O1), clean to thin filling (T0-T3), totally to partly healed (HL0-HL3), rough to polished (R2-R6) and the fracture is dry, tight, or filling is of sufficient density or composition to impede water flow to the fracture shows seepage and is wet with occasional drops of water (M1-M5). The second rock type is a green-grey Serpentinite described as very hard to hard (H2-H3), slightly weathered to fresh to slightly weathered (W2-W3. The fractures within the Serpentinite are described as closely to very closely spaced (SP5-SP6), discontinuous (C1), zero ends leave the exposure (both ends of the fracture can be seen in the exposure) (E0), tight to slightly open (O0-O1), clean to thin filling (T0-T3), totally to moderately healed (HL0-HL2), moderately rough to polished (R3-R6) and the fracture is dry, tight, or filling is sufficient density or composition to impede water flow to the fracture shows seepage and is wet with occasional drops of water (M1-M5). Fractures within the Franciscan Complex were observed along the bluff face. The outcrops within the bluff face are approximately six feet in height measured from the beach sand with granitic rock of the revetment covering the majority remaining face of the bluff.

Three borings were drilled during the investigation for this field study to determine the depth to formational units. Two borings, B-1 at 1210 Pacific and B-2 at 1210 Pacific, were completed on site. B-1 at 1200 Pacific was completed on the adjacent lot (to the northwest). The boring locations are depicted on Plate 1. A Central Mine Equipment 55 track mounted drill equipped with eight-inch hollow stem auger was used for B-1 at 1210 Pacific. B-1 at 1200 Pacific and B-2 at 1210 Pacific utilized a 60-lb jackhammer and a sampler to conduct a continuous sample boring. This equipment is considered hand-augering and was used due to limited access to the bluff side of the property. Boring logs are presented in Appendix A. Boring B-1 at 1210 Pacific encountered fill/topsoil to a depth of 1 foot below ground surface (bgs) underlain by colluvium (Qc) to a depth of 2 feet bgs underlain by Marine Terrace Deposits (Qt) to a depth of 8 feet bgs underlain by Franciscan Complex (KJfm) to a termination depth of 15 feet bgs. Groundwater was observed at a depth of 10.8 feet. Boring B-2 at 1210 Pacific encountered fill/topsoil to a depth of 1-foot bgs, colluvium (Qc) to a depth of approximately 2 feet bgs underlain by Marine Terrace Deposits (Qt) to a depth of approximately 8 feet bgs underlain by Franciscan Complex (KJfm) to a termination depth of 11.5 feet bgs. Boring B-1 at 1200 Pacific encountered fill/topsoil to a depth of approximately 1-foot bgs, colluvium (Qc) to a depth of approximately 2 feet bgs underlain by Marine Terrace Deposits (Qt) to a depth of 8.5 bgs underlain by Franciscan Complex (KJfm) to a termination depth of 12 feet bgs.

Two borings were completed at 1221 Pacific Avenue on April 10, 2008 (GeoSolutions, Inc., 2008). Boring logs are presented in Appendix A. 1221 Pacific Avenue is located approximately 80 feet northeast across Pacific Avenue from the 1210 Pacific Avenue lot. The sub-surface investigation was completed using a Central Mine Equipment 55 drill equipped with eight-inch diameter hollow stem auger. B-1 at 1221 Pacific was completed approximately 120 feet northeast of B-1 at 1210 Pacific Avenue. Boring B-1 at 1221 Pacific encountered colluvium (Qc) to a depth of 2 feet bgs underlain by Marine Terrace Deposits (Qt) to a depth of 7 feet bgs underlain by Franciscan Complex (KJfm) to a termination depth of 10 feet bgs. B-2 at 1221 Pacific was completed approximately 160 feet due northeast of B-1 at 1210 Pacific. B-2 at 1221 Pacific encountered colluvium (Qc) to a depth of 1.5 feet bgs underlain by Marine Terrace Deposits (Qt) to a depth of 7 feet bgs underlain by Franciscan Complex (KJfm) to a termination depth of 10 feet bgs. No groundwater was encountered at 1221 Pacific Avenue to a depth of 10 feet bgs.

5.3 Surface and Ground Water Conditions

Surface drainage across the Site at 1210 Pacific Avenue generally follows existing topography, flowing southwesterly towards the bluff. No evidence of ponding of water was observed on the Site. Moisture was observed within fractures along the bluff face and a slight amount of ponded water was observed at the base of the bluff. Small springs were observed in the bluff and noted on Plate 1. Boring B-1 at 1210 Pacific remained open after completion for a period of approximately twenty (20) minutes to measure groundwater depth. Groundwater was observed in boring B-1 at 1210 Pacific at a depth of approximately 10.8 feet below ground surface. The borings at 1221 Pacific were allowed to remain open during the subsurface investigation and no water was observed in these borings to a depth of 10 feet. The slope stability analysis utilizes a high-groundwater level in the analysis for a conservative estimation of stability at the site although no evidence for this high groundwater was observed at the site or adjacent site at 1200 Pacific Avenue or 1221 Pacific Avenue.

5.4 Bluff Erosion and Retreat Processes

Bluff erosion and sea cliff retreat along the central coast of California is generally controlled by a combination of factors including: rock type, geologic structure, soil type, bluff height, direction and magnitude of wave attack, coastline configuration, surf zone profile, amount of surface runoff over bluff tops, degree of water seepage, and other adverse man-made conditions. The effects of erosive agents acting on the bluff are greater on weaker rock types or soils.

The principal causes of sea cliff erosion and retreat along the bluff-top include the forces of natural erosion and weathering of the Marine Terrace Deposits, spalling of weathered rock, and wave attack concentrated at the base of the bluff. Static and Intrinsic sea cliff erosion are on-going active processes that act upon sea cliff bluffs. Static erosion is a process whereby a loss of soil strength is exacerbated through increased pore water within the soil. This is seen as landsliding and rock falls within a sea cliff. This process is controlled by the availability of surface and subsurface water to the face of the sea cliff.

Marine Terrace Deposits tend to fail by slumping when they become over-weighted by precipitation during winter seasons and when there is no support from underlying sediments. Less significant erosional agents involved in bluff erosion include direct impact of precipitation on the cliff face, runoff down the cliff face, and sapping and winnowing of soils in areas of ground-water seepage.

Bluff erosion at the Site is also based upon the ability of the formational units of the Franciscan Complex to resist wave attack. Storm surge coupled with large wave activity acts to weaken, dislodge, or even remove sections of the formational units or Marine Terrace Deposits. Wave energy, especially winter

storm wave activity, exacerbates erosion on both the Marine Terrace Deposits and underlying Franciscan Complex.

Intrinsic erosion is a process of rock and soil weathering due to chemical reaction with available water. This is the process that accounts for loosening, spalling, flaking, granulation, and pulverization of the blueschist/serpentinite and Marine Terrace Deposits due to cycles of wet-dry, alkali-acid, and heat-cold conditions. Intrinsic weathering is the cause of Marine Terrace Deposit or formational unit breakdown, resulting in accumulation of slope wash debris along bluff faces.

Unique local geology at the base of the bluff below the Site acts to reduce wave erosion at this location. Outcrops of indurated (hard) blueschist and serpentinite are present on the cliff face. Bluff erosion and retreat are occurring at the Site. Through time, the erosive power of waves and storm surge will weaken and erode the rock within the bluff. Wave energy, especially winter storm wave activity, exacerbates erosion on the bluff. The rock revetment structure at the site and adjacent sites may provide additional reduction in wave erosion of the bluff.

Other parameters involving erosion include geologic units, bluff geometry, wave action, coastal configuration, surface drainage, and seismicity. The following is a brief discussion of the factors and how they relate to the subject area.

5.4.1 Surficial Drainage

In the current state, surficial drainage is directed toward the bluff top and acts as one of the primary mechanisms for bluff erosion. Accelerated rates of cliff erosion will occur along the bluff top as long as surficial drainage is unchecked. Surface drainage from the top of bluff should be directed to surface drainage inlets via onsite drains and pipes. Development usually reduces the amount of erosion of the Marine Terrace Deposits.

5.4.2 Coastal Configuration

The predominant wave direction along the Central California coastline is from the northwest during the spring, summer, and fall months. During the winter months, wave direction can either be from the northwest or southwest, depending upon the source of the current offshore storm. As this area faces southwest, it would be expected to receive wave action from the northwest as well as southern storms.

5.4.3 Seismicity

The Site, like all other sites in the general area, can be affected by moderate to major earthquakes centered on one of the known large Holocene age active faults listed in Table 1. The maximum moment magnitudes are expressed, although any event on these faults could result in moderate to severe ground shaking at the subject property. Ground shaking can weaken bluff material. Rocks within the revetment may become dislodged and may tumble due to a seismic event. Due to the long interval between seismic events, the long-term retreat rate is not expected to be substantially affected.

Table 1: Distance and Moment Magnitude of Closest Faults

Closest Active Faults to Site	Approximate Distance from Site to Active Fault	Moment Magnitude
Los Osos	7.5 miles	7.0
Hosgri	5.8 miles	7.5
San Andreas	39.0 miles	8.0

The closest known active Quaternary age fault is the Hosgri fault located approximately 5.8 miles south of the Site. However, the closest known active portion of a Holocene age fault is the active Hosgri fault that is located approximately 8.8 miles southwest of the Site. Plate 8A is a Regional Fault Map for the area. The San Andreas fault is the most likely active fault to produce ground shaking at the Site although it is not expected to generate the highest ground accelerations because of its distance from the Site.

On December 22, 2003, an earthquake of moment magnitude 6.5 is attributed to have occurred on the Oceanic-West Huasna fault. This fault is located approximately 4.2 miles northeast of the property. Until more specific information regarding this fault is available, GeoSolutions, Inc. considers this fault as an active fault.

The potential for ridge-top shattering or ridge-top spreading is considered low since the property is not located on the top of a ridge.

5.4.4 Seismically-Induced Slope Failure and Settlement

Slope failure can occur as the result of horizontal ground accelerations associated with an earthquake event. The potential for ground rupture at the Site during ground shaking from a fault passing through the site is considered low since no known fault passes through the site. However, ground shaking from off-site faults may cause failure of loose soil or loose rock on the face of the bluff. The potential for a large slope instability to occur at the property during a seismic event is low due to the presence of underlying bedrock material and densities of the Marine Terrace Deposits. Due to the relative densities of the subsurface materials, there is a low potential for seismically induced settlement. Due to the slope being covered in rock revetment and vegetation, it is unknown if slope failures have occurred in the past.

5.4.5 Seismically-Induced Water Waves and Flooding

Tsunamis and seiches are two types of water waves that are generated by earthquake events. Tsunamis are broad-wavelength ocean waves and seiches are standing waves within confined bodies of water, typically reservoirs. PG&E, 1988 reported that the historical record for San Luis Obispo County includes no tsunamis that have exceeded the normal tidal range. PG&E, 1988 suggests that faulting on the offshore area could generate tsunami wave height as great as six feet.

The San Luis Obispo County Safety Element states "the worst case scenario would occur if a tsunami occurred during a meteorological high tide (storm surge) which would add an estimated 14.5 feet to the runup values... thus with a worst case scenario, the estimated tsunami runup for the 100-year and 500-year events would be approximately elevation 24 and 39 feet above mean sea level, respectively" (San Luis Obispo County Department of Planning and Building, 1999). The potential for a 100-year and 500-year seismic water wave event to affect the proposed building area is considered moderate to high. There is a moderate to high potential for seismically

induced flooding due to the location of the property in the vicinity of the Whale Rock Reservoir.

It is recommended that the proposed residence be constructed to a height above the worst case scenario of a tsunami with a metcorological high tide (storm surge) which is approximately 24 to 39 feet above mean sea level. Mitigation measures could include raising the living space above run-up levels including breakaway utility connections, or well-designed exit routes for persons in the lower level of the structure. It is understood that the San Luis Obispo Coastal Zone Land Use Ordinance has standards for building heights that could conflict with flood mitigation measures. These differences need to be weighed as part of the planning process by the County of San Luis Obispo.

The client should be aware that there is a potential for increased sea level due to climate changes used to determine the flood level. Based on information from a United Nations Environment Programme website, an increase in global mean sea level of between 13 to 94 centimeters (5 to 37 inches) is possible to the year 2100. This is an average of approximately 53 centimeters (21 inches).

The site is located within the 500-year flood zone based on the Flood Insurance Rate Map (FEMA, 1985) (Plate 14A). The exact location of the boundary between the 100-year flood zone and 500-year flood zone cannot be determined because there are no contour intervals on the map. A portion of the Site may lie within the 100-year flood zone. Based on the Federal Emergency Management Agency Flood Insurance Rate Map, 1985 (Plate 14A) there is a moderate to high potential for flooding (FEMA, 1985).

5.4.6 Landslides and Liquefaction

No landslides were observed at the Site. The potential for a large landslide to affect the Site is low based upon densities in the subsurface, slope stability modeling, and the presence of a rock revetment structure at the bluff.

California Division of Mines and Geology Special Publication 117 (CDMG, 1997) states the screening criteria for the liquefaction potential at the site are (p.5):

- If the estimated maximum-past-, current-, and maximum-future-ground-water-levels (i.e., the highest ground water level applicable for liquefaction analyses) are determined to be deeper than 50 feet below the existing ground surface or proposed finished grade (whichever is deeper), liquefaction assessments are not required.

- If "bedrock" or similar lithified formational material underlies the site, those materials need not be considered liquefiable and no analysis of their liquefaction potential is necessary.

- If the corrected standard penetration blow count, $(N_1)_{60}$, is greater than or equal to 30 in all samples with a sufficient number of tests, liquefaction assessments are not required.

- If clayey soil materials are encountered during site exploration, those materials may be considered non-liquefiable. For purpose of this screening, clayey soils are those that have a clay content (particle size <0.005 mm) greater than 15 percent.

Based on the boring logs, groundwater was encountered at 10.8 feet within fractures of the Franciscan Complex. Formational Franciscan Complex units or "bedrock" was encountered at a

depth of 8 to 8.5 feet below ground surface. Based on the blow counts and clay content there appears to be a low liquefaction potential at the site. It is recommended that the Soil Engineer quantify the liquefaction potential at the site.

5.5 Probabilistic Seismic Hazard Analysis

For discussion purposes, ground shaking is typically reduced to ground motion components of wave velocity and acceleration. The velocity, acceleration, and predominant period of a site are dependent upon the distance to the causative fault, the magnitude and failure mechanics of the earthquake, and the nature of the formational units, alluvium, and soil through which the energy waves must travel. Generally, energy waves attenuate with distance from the focus of an earthquake.

Analysis of seismic stability of slopes and structures requires estimation of peak ground acceleration (PGA) at the property. It is understood that San Luis Obispo County has adopted the new 2007 building code but San Luis Obispo County Engineering Geology Report guidelines state that the Design Basis Earthquake also be specified. The PGA is a measure of ground shaking force and is a function of the distance of the Site from a seismic source, the type and magnitude of fault movement, the shear wave velocity of the soil or rock, and the period of time under consideration. The California Building Code (CBC) requires use of the PGA with a 10 percent probability of being exceeded in 50 years or a 475-year return period (CDMG, 1999, ICBO, 2003). Estimates of the PGA can be obtained from a computerized assessment program that calculates probabilistic seismic hazard at a specific site. The computer model program FRISKSP (Blake, 2000) calculated a PGA (10% probability of being exceeded in 50 years) of approximately 0.30g (see Appendix A, Probability of Exceedance Graph and Return Period vs Acceleration Graph). Table 2 presents the Design Basis Ground Motion for the Site. The Design Basis Ground Motion for the Site is a value of approximately 0.30g, which is the earthquake with a 10 percent chance of exceedance in 50 years ground motion. It is understood that this design basis ground motion is different from the one stated in the project soils report (0.246g, GeoSolutions, Inc., in press). The differences are due to the type of subsurface material defined in the subsurface. The project soils report defines the subsurface material by n-values (blow counts); this report defines the subsurface material from geologic interpretation during site drilling.

Table 2: Peak Ground Acceleration (10% Probability of Being Exceeded in 50 years)

Method of Analysis	Design Basis Ground Motion (acceleration)
FRISKSP Calculation	0.30g

5.6 Structural Building Design Parameters

Structural building design parameters within Chapter 16 of the 2007 CBC (ICBO, 2007) are dependent upon several factors, which include site soil characteristics and faults near the Site. As per section 1613.5.5 of the 2007 CBC (ICBO, 2007), the site classification is determined by the average properties in the upper 100 feet of the site profile. Spectral Response Accelerations and Site Coefficients were obtained from the Seismic Hazard Curves and Uniform Hazard Response Spectra, Earthquake Ground Motion Tool computer application (USGS, 2007); this program is available from the United States Geological Survey website (USGS, 2008). This computer program utilizes the methods developed in the 2006 edition of the International Building Code and user-inputted Site latitude and longitude coordinates to calculate seismic design parameters and response spectra (both for period and displacement), for Site Classifications A through E. This data is presented in tabular form in Table 3: 2007 California Building Code, Chapter 16, Structural Design Parameters.

Table 3: 2007 California Building Code, Chapter 16, Structural Design Parameters

Site Class- Soil Profile Type	D – Stiff Soil
Mapped Spectral Response Accelerations and Site Coefficients	$S_S = 1.147$, $S_1 = 0.457$ $F_a = 1.041$, $F_v = 1.544$
Adjusted Maximum Considered Earthquake Spectral Response Accelerations	$S_{MS} = S_S * F_a = 1.147 * 1.041 = 1.194$ $S_{M1} = S_1 * F_V = 0.457 * 1.544 = 0.704$
Design Spectral Response Acceleration Parameters	$S_{DS} = 2/3(S_{MS}) = 2/3(1.194) = 0.796$ $S_{D1} = 2/3(S_{M1}) = 2/3(0.704) = 0.469$
Occupancy Category (from Table 1604.5, 2007 CBC)	II
Seismic Design Category – Short Period Accel. (from Table 1613.5.6(1), 2007 CBC)	D
Seismic Design Category – Long Period Accel. (from Table 1613.5.6(2), 2007 CBC)	D

5.7 Design Response Spectra – 2007 CBC

According to the 2007 CBC, a representation of Site ground motion having a 10 percent probability of being exceeded in 50 years should be used in the design of structures to resist lateral forces caused by ground motion at the Site. An elastic design response spectrum constructed according to chapter 16 of the 2007 CBC can be used for these design purposes. A design response spectrum, constructed for the Site using the Seismic Hazard Curves and Uniform Hazard Response Spectra computer program (USGS, 2007) in accordance with the 2007 CBC procedures outlined in chapter 16, is shown in Figure 3: Design Response Spectra – 2007 CBC.

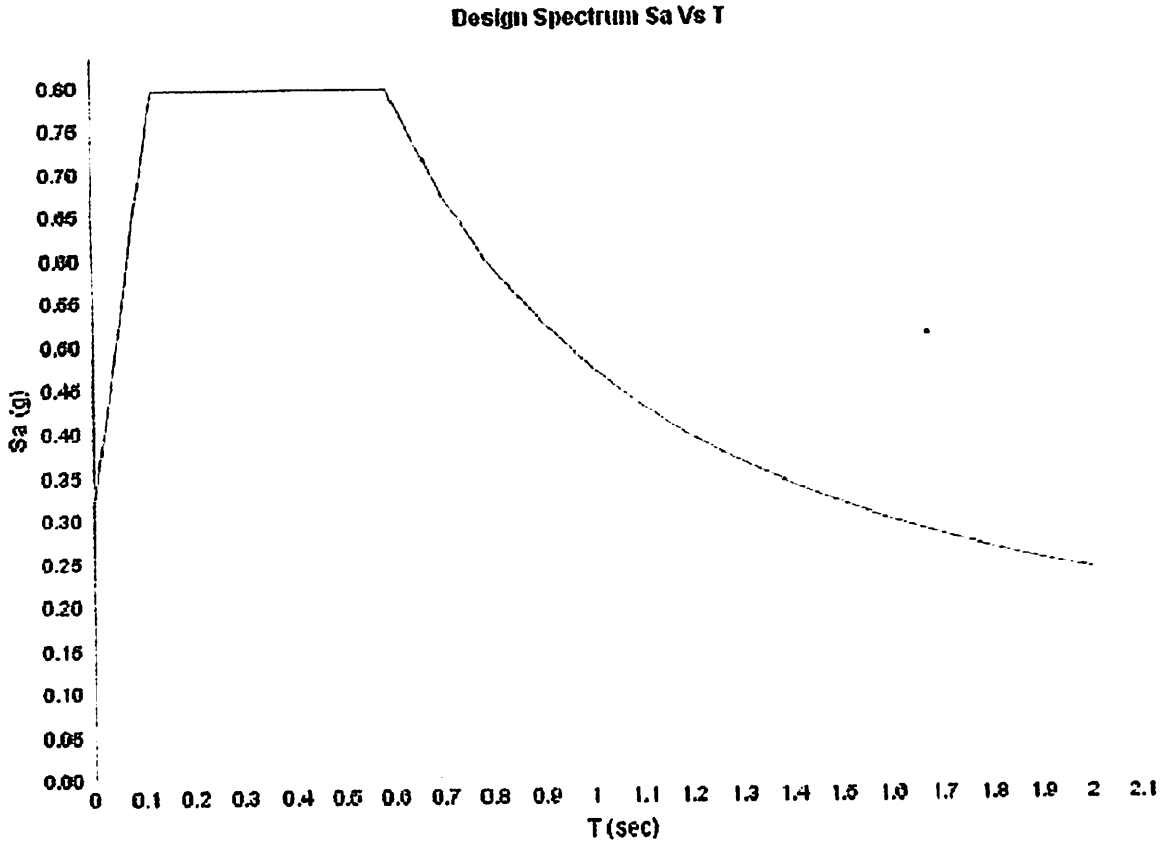

Figure 3: Design Response Spectra – 2007 CBC

5.8 Active Faulting and Coseismic Deformation

The Alquist-Priolo Earthquake Fault Zoning Act passed in 1972 requires that the State Geologist establish Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The closest Earthquake Fault Zone is on a section of the Hosgri fault located approximately 8.8 miles southwest of the Site. The subject site is not located within an Earthquake Fault Zone (Jennings, 1994).

6.0 GEOLOGIC HAZARDS

6.1 Expansive Soils

Based on laboratory testing, Site materials have a low expansive index (Appendix A).

6.2 Corrosive Soils

The Soil Engineer is recommended to determine the potential for corrosive soils.

6.3 Naturally Occurring Asbestos

As the development is less than one acre and maybe within deposits that are derived from Franciscan Complex material, dust mitigation measures are provided in the recommendation section of this report.

6.4 Radon and Other Hazardous Gases

The potential for radon or other hazardous gases is low due to the absence of Monterey Formation formational units and other radon producing formations.

7.0 SUBSIDENCE

Causes of significant land subsidence in California include compaction and decreased void space as a result of reduced pore pressure due to de-watering or withdrawal of oil and gas; hydro-compaction of dry, loose, clayey soils; and oxidation of organic material and subsequent compaction of remaining soil material. Due to the presence of near-surface Marine Terrace Deposits and the densities of the subsurface materials, there is a low potential for subsidence at the Site.

8.0 VOLCANIC ERUPTION

Volcanism in California is typically associated with the Cascade Ranges Geomorphic Province in northern California, and the Basin and Range Province on the eastern side of the Sierra Nevada Mountains. Prevailing westerly winds would most likely reduce the chance of ash fallout in the central California coastal area from volcanic activity on the eastern side of the Sierra Nevada. Other hazards generally related to volcanism are not pertinent to the subject site.

9.0 BLUFF RETREAT RATES

The bluff within the study area is actively retreating and is expected to continue to retreat. A historic bluff retreat rate for the Site based upon a reliable aerial photograph evaluation was completed. Our evaluation required site-specific research, with an established rate based upon the actual data interpretation by a Certified Engineering Geologist with experience and knowledge of coastal processes and local bluff conditions.

An aerial photogrammetry investigation was conducted to determine the long-term retreat rate of the bluff in the vicinity of the proposed residence. A residence is apparent on the subject property in a 1953 aerial image; aerial photography was determined to be the best option to determine bluff erosion through time.

9.1 Aerial Photo Analysis

Aerial photographs dated December 12, 1953 were reviewed for use in this analysis (Plates 7A, 7B, 7C, and 7D). Aerial photographs dated October 24, 1973 (Plate 7E) and March 4, 1982 (Plate 7F) were also obtained, however the bluff is not as clear as compared to the 1953 photos. An existing residence at 1210 Pacific Avenue was observed in the aerial photographs. Residences are present on adjacent properties to the southeast and northwest. The 1953 photo depicts the bluff at the Site with no revetment structure although the subject site currently (year 2008) maintains a rock revetment structure. Rock outcrop appears at the base of the bluff in this photo and vegetation appears to cover most of the remaining bluff face. It is difficult to discern exact type of material and heights of material on the bluff face from the photo. The property at 1200 Pacific Avenue (northwest of the subject property) currently (year 2008) maintains a rock revetment structure along the bluff. It is unknown when this seawall was constructed. The 1953 aerial depicts the 1200 Pacific Avenue property with what appears to be a concrete structure at the top of the bluff; this structure is assumed to be the same structure as what is currently present at the top of bluff at this property. The properties located at 1200 and 1210 Pacific Avenue may have had disturbed bluff (ie grading of bluff top to accommodate addition of revetment structures) between the time of the 1953 photo and current (year 2008) conditions. Because of possible bluff disturbance, a bluff retreat rate has been calculated from a property near the subject property that may not have had bluff disturbance.

The property located at 1168 Pacific Avenue appears to have the least amount of bluff disturbance in the general area of the subject property. The property at 1168 currently maintains some stacked rock revetment at the bluff. However, there is less of this rock than compared to other properties in the general area of the 1210 Pacific Avenue property. The top of bluff at this property appears to have had less or little top-of-bluff disturbance compared to the properties at 1200, 1210, or 1234 Pacific Avenue. A retreat rate of the property at 1168 was calculated and is used for the subject property at 1210 Pacific. It is understood that this would be a very conservative estimate of retreat at the 1210 Pacific Avenue site due to the full rock revetment structure at the 1210 Pacific Avenue site.

Property corners (fence line) in the 1953 images were measured and compared to present day property corners to obtain a scale of the photos. Actual photographs were used for the retreat measurements as depicted on Plates 7A and 7B. The enlargements of Plates 7A and 7B are depicted on Plates 7C and 7D. The distance to the bluff edge from the roofline at 1168 Pacific Avenue in the images was then compared with the present distance to determine the rate of retreat. Plate 7C and 7D show the method for determination of bluff retreat at the 1168 Pacific Avenue. The scale of the photo was identified as 6.1 feet per $1/60^{th}$ of an inch or 366 feet per inch. It is recognized that there is a limit to accuracy involved in the procedure of measuring the images. Clarity, exact bluff location, and lack of features add to uncertainty in defining the bluff edge. Limits of accuracy of the interpretation of the bluff edge is recognized with the addition of a buffer (in this case 10 feet) to the bluff retreat rate and conservative (rounding up) values used in calculations.

There appears to have been modifications to the existing structure at 1168 Pacific Avenue since the 1953 aerial image was taken but the roofline appears to have remained in a similar position (this is an assumption made in the retreat analysis). The current distance from the southern side of the existing residence roofline at 1168 Pacific to the top of bluff was measured with a measuring tape in the field. This distance was 19 feet. The top of bluff location measured was where the slope gradient started down slope toward the beach from the approximate flat-lying rear yard. The distance from the bluff to the roofline of the house was also measured on the aerial image (date 1953). This distance was $3.5/60^{th}$ of an inch. The calculation used to obtain the retreat rate (at neighboring residence at 1168 Pacific Avenue) was:

$3.5/60^{th}$ inch x 366 feet to the inch = 21.5 feet from roof-line to top of bluff in 1953.

The current distance from top of bluff to roof-line is 19 feet.

21.5 feet – 19 feet = 2.5 feet of erosion during the time period from 1953 to 2008 (55 years).

This equates to a retreat rate of approximately 0.045 feet per year (rounded to 0.05 feet per year {0.54 inches per year} or approximately 5 feet in 100 years) at the 1168 Pacific Avenue site.

It is understood that this retreat rate of 0.05 feet per year has been obtained from a parcel located approximately 70 feet northwest of the subject property and different geologic and man-made conditions appear at each parcel. This retreat rate is considered a very conservative retreat rate for the property at 1210 Pacific Avenue and is utilized for this report. It is understood that the existing rock revetment structure at 1210 Pacific Avenue may severely reduce the retreat rate at this property. GeoSolutions, Inc. has conducted retreat rate studies at other properties along Pacific Avenue and a discussion of retreat rates at these parcels is provided in the following paragraphs for a comparison of retreat rates along the Cayucos coast. These retreat rates are provided for comparison purposes but it is understood that each property has specific geologic characteristics.

9.2 1234 PACIFIC AVENUE

The current (year 2008) residence at 1234 Pacific Avenue (east of subject property) appears to have been altered when compared to the residence observed at this same property within the 1953 air photo. However, the roofline appears to have remained in a similar position. In the 1953 airphoto, a well-defined top of bluff line is apparent. Currently (year 2008) there is a concrete revetment at the base of the bluff at this 1234 Pacific Avenue site and the date of construction of this revetment is unknown. The current top of bluff as measured from the mid-section of the current residence roofline was a distance of 21 feet. As measured in the 1953 photo, this distance is 24.4 feet (utilizing the scale as obtained in the previous discussion of retreat at 1168 Pacific Avenue).

> 24.4 feet – 21 feet = 3.4 feet of erosion during the time period from 1953 to 2008 (55 years with seawall added at some unknown point in time).

This equates to a retreat rate of approximately 0.06 feet per year (or approximately 6 feet in 100 years or 0.72 inches per year). It is understood that grading may have taken place at the top of bluff at this 1234 Pacific Avenue property which may have altered the true retreat rate. In addition, the concrete seawall at this property may have severely reduced the retreat rate of this property. However, the retreat rate at this 1234 Pacific Avenue property is offered as a general guide to bluff erosion in the immediate vicinity of the 1210 Pacific Avenue property.

9.3 1750 PACIFIC AVENUE

During a bluff retreat rate study conducted by GeoSolutions, Inc. at 1750 Pacific Avenue (Project No. SL3826-3), a bluff retreat rate was calculated from a measurement taken from the easterly adjacent house to 1750 Pacific Avenue. The presence of a seawall at the majority of the 1750 Pacific Avenue site precluded measurement of unprotected bluff at the Site. A 1953 air-photo of the area depicts homes at the subject site and easterly adjacent parcel. Measurement of the roofline of the easterly adjacent house to the bluff in the photo reveals a distance of approximately 26 feet. Currently, field measurements show this distance at 22 feet. The scale of the air-photo was verified by comparing known distances that were present on the air-photo and those known at the property. A difference of 4 feet over 51 years is measured and assumed for unprotected bluff at the property. A bluff retreat rate for the top of bluff (Terrace Deposits) was calculated to be:

$$1750\ Pacific\ Avenue\ BLUFF\ RETREAT\ RATE = \frac{4\,feet \times 12\,{}^{inches}/_{foot}}{51 years} = \frac{48 inches}{51 years} \approx 1\,{}^{inch}/_{year}$$

An average retreat rate for unprotected bluff at the subject property (1750 Pacific Avenue) is assumed to be approximately 1 inch per year. Although there is a concrete seawall at the majority of bluff at the property (1750 Pacific Avenue), the 1-inch per year rate is assumed to be occurring within unprotected bluff at and adjacent to the subject property.

9.4 502 PACIFIC AVENUE

During a bluff retreat rate study conducted by GeoSolutions, Inc. at 502 Pacific Avenue (Project No. SLO2362) a concrete masonry wall was found to comprise the very western portion of the bluff at the Site (502 Pacific Avenue). The remainder of the bluff is comprised of bedrock that is dense and fractured. Exposed bedrock comprises approximately 16 vertical feet of bluff overlain by approximately 7 feet of Marine Terrace deposits. The bedrock is vertical to subvertical while Terrace deposits slope at approximately 50%. The density of bedrock is reflected in the promontory of rock that extends ocean-

ward compared to adjacent properties. Masonry block seawalls are present at the adjacent properties to the east and west. A stairway at the western side of the Site provides access from the bluff top to the beach.

During air-photo review of the Site, a bluff retreat rate was calculated from the central portion of the Site along the bluff. A 1953 air-photo of the Site depicts the current house at the Site but vacant parcels on either side of the property. The clearest representation of bluff retreat was exemplified in the horizontal distance from the southeast corner of the house to the base of the bluff. This distance was measured in the photograph and compared to current conditions. In the 1953 photograph, the distance between the house and the central bluff was measured as 54 feet. The distance to the same location as measured on the topographic map reveals the horizontal distance to be 52 feet (difference of 2 feet over 48 years). A bluff retreat rate for the top of bluff (Terrace Deposits) was calculated to be:

502 PACIFIC AVENUE BLUFF RETREAT: $\frac{2 \text{ feet x } 12 \text{ inches per foot}}{48 \text{ years}} = \frac{24 \text{ inches}}{48 \text{ years}} = 0.5$ inches per year

9.5 RETREAT RATE SUMMARY

As stated above, it is recognized that there is a limit to accuracy involved in the procedure of measuring bluff retreat rates from the images. Clarity, exact bluff location, and lack of features, and errors in measuring add to uncertainty in defining the bluff edge. Limits of accuracy of the interpretation of the bluff edge is recognized with the addition of a buffer (in this case 10 feet) to the bluff retreat rate and conservative (rounding up) values used in calculations. As a conservative value, the retreat rate of 0.05 feet per year as observed from the nearest parcel (1168 Pacific Avenue) to the subject property is used for the site. Other sites near the subject property at 1210 Pacific Street have similar retreat rates; properties at 1234 Pacific Avenue, 1750 Pacific Avenue, and 502 Pacific Avenue had similar or slightly higher retreat rates but are further away from the subject property and since geologic conditions vary greatly along the bluff in the Cayucos area, it is our opinion that the 1168 Pacific Avenue rate best represents bluff retreat in the vicinity of the 1210 Pacific Avenue property. These retreat rates are listed in the Table 4 below. For a period of 100 years, a retreat rate of approximately 5 feet may be anticipated. An additional 10-foot buffer is added to this 100-year retreat for an approximate setback from bluff edge for development at approximately 15 feet.

It should be understood that the subject property maintains an almost full-height rock revetment seawall at the bluff. This seawall should aid in protecting the property from direct wave activity and help reduce the bluff retreat rate at the site. The 5-foot retreat rate was calculated from a nearby property that maintains a small seawall. If the seawall at the subject property is maintained, the erosion rate at 1210 Pacific may be less than the retreat rate specified.

Table 4: Rate of Bluff Erosion

Area of Retreat	Bluff Retreat Rate	100 year Bluff Retreat*	100 year Bluff Retreat with 10 foot Buffer
Bluff at 1168 Pacific	0.05 ft/yr (0.54 in/yr)	5 feet	15 feet
1234 Pacific	0.06 ft/yr (0.72 in/yr)	6 feet	16 feet
1750 Pacific	0.08 ft/yr (1 in/yr)	8.3 feet	18.3 feet
502 Pacific	0.04 ft/yr (0.5 in/yr)	4 feet	14 feet

* as measured from current top of bluff

Table 5 presents erosion rates for the historic, current, and future periods for the Site at 1210 Pacific.

Table 5: Periods of Bluff Erosion

Time Period	Rate of Erosion
Historic (pre 1970's, pre-seawall)	Approximately 0.54 inches per year
Current (with seawall)	Approximately 0.54 inches per year or less due to presence of seawall
Future (residence + 100 years, with seawall)	Approximately 0.54 inches per year or less due to control of surface erosion and presence of seawall

If a 100-year lifespan is assumed for the proposed residence and if a 0.54-inch per year bluff erosion rate is assumed, approximately 5 feet of bluff erosion may occur on the bluff for a 100-year period. According to Johnsson (2003), total development setbacks should include an additional buffer, generally 10 feet, that serves to allow for uncertainty in aspects of the analysis, allows for future increase in bluff retreat due to sea level rise, and assures that at the end of the design life of the structure that the foundation is not being undermined. An additional setback to the 100-year retreat rate would be the greater of either a 10-foot buffer or a slope stability analysis that shows instability greater than 10 feet. According to Johnsson (2003) if the existing coastal bluff meets minimum requirement for slope stability, then no setback is necessary for slope stability considerations. Since the minimum factor of safety was met for the existing bluff, slope stability setbacks were not used (the default 10-foot buffer was used instead).

The numerical slope stability analysis (as described in Section 10.0) shows that the Marine Terrace Deposits maintain a factor of safety of greater than 1.5 and that the greater of the two (stability analysis or 10-foot buffer) setbacks is the slope stability analysis. A total setback for the house is 15 feet, which is the addition of the 100-year retreat rate plus the default factor of 10-feet. This total setback line is depicted on Plate 1, Site Engineering Geology Map.

It is recommended that periodic maintenance be provided to the existing rip-rap revetment structure. Maintenance may include removing loose and unstable rocks and restacking with 1 to 2 ton (or similar to existing size) hard rock (i.e. granite) to the original height with a recommended 3-point contact of rocks. The revetment appears is good condition at this time. The client should understand that if maintenance is provided to the seawall and if surface erosion measures are implemented, the coastal bluff erosion rates may be reduced. However, the retreat rate is still implemented and the determined setback is included in the design of the proposed building location.

10.0 NUMERICAL SLOPE STABILITY ANALYSIS

The purpose of the numerical slope stability analysis was to determine the horizontal distance from the top of the bluff to the back of the potential slip surface for a factor of safety of 1.5 for static conditions and 1.1 for psuedo-static conditions. As the slope may be affected by seismic events, a dynamic loading condition was applied to the existing slope (pseudo-static conditions). As stated in *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (Special Publication, 1997), "In California, many state and local agencies, on the basis of local experience, require the use of a seismic coefficient of 0.15, and a minimum computed pseudo-static factor of safety of 1.0 to 1.2 for analysis of natural, cut, and fill slopes. Basic guidelines for making preliminary evaluations of embankments to ensure acceptable performance...were: using a pseudo-static coefficient of 0.10 for magnitude 6.5 earthquakes and 0.15 for magnitude 8.25 earthquakes, with an acceptable factor of safety of the order of 1.15." Calculations for pseudo-static numerical analysis utilized a seismic coefficient of 0.15 g.

10.1 Modeling Conditions

General modeling conditions included: 1) approximately 2.0 feet of colluvium (Qc) overlying approximately 6.0 feet of marine terrace deposits (Qt) 2) underlying Franciscan Complex units (KJfm)); and 3) groundwater within the Marine Terrace Deposit layer. The stability analysis was performed utilizing the subsurface materials observed during boring operations. The engineering properties of the materials utilized in the numerical analysis are presented in Table 6. The Engineering Geologist determined the final profile by studying surface geologic conditions, geologic maps, and observations made during the field investigation.

Table 6: Engineering Properties Utilized in Numerical Analysis

The Numerical Analysis was Performed Utilizing Following Data:

Colluvium (Qc):
- γ_w = 127.8- from laboratory test data (Sample A @ 1.5')
- ϕ = 32.7° - from laboratory test data (B-1 @ 1')
- c = 0 psf - from laboratory test data (B-1 @ 1')

Marine Terrace Deposits (Qt):
- γ_w = 138.2 - from laboratory test data (Sample B @ 5')
- ϕ = 22.3° - from laboratory test data (B-1 @ 5')
- c = 261.67 psf - from laboratory test data (B-1 @ 5')

Franciscan Complex (KJfm):
- It was assumed that the slip surface would not traverse this material.

10.2 Discussion of Results of Numerical Analysis

The global critical factor of safety values for both static and psuedo-static conditions along Profile A-A' were above 1.5 and 1.1, respectively. Very small surficial failures within the colluvium were observed at factor of safeties lower than 1.5 and 1.1 however, an approximate 1-foot high timber wall is located at this location which cannot be modeled in the software. It was assumed that the small failures would not occur due to the presence of the timber wall. The static analysis resulted in a critical factor of safety of 2.64 with a respective horizontal distance from the top of the bluff to the back of the potential slip surface of 4.5 feet. The psuedo-static analysis resulted in a critical factor of safety of 1.91 with a respective

Table 7: Horizontal Distance from Top of Bluff to Potential Slip Surfaces

Profile	Static		Psuedo-Static	
	Factor of Safety	Horizontal Distance*	Factor of Safety	Horizontal Distance*
Profile A-A'	2.64	4.5 feet	1.91	14 feet

*Horizontal Distance refers to the horizontal distance from the top of the bluff to the back of the potential critical slip surface (or that slip surface associated with a minimum static factor of safety of 1.5 or psuedo-static factor of safety of 1.1).

horizontal distance from the top of the bluff to the back of the potential slip surface of 14 feet. The horizontal distance for Profile A-A' from the top of bluff to the potential critical slip surface, as well as the respective factor of safety values are presented in Table 7. Figures 4 and 5 illustrate Profile A-A' with the potential critical slip surfaces and their respective horizontal distances for static and psuedo-static conditions. Groundwater was added to the profile and was modeled as 2-feet below ground surface at the north side (Pacific Avenue side) of the property and 2-feet above the contact of the Franciscan Complex and Terrace Deposits at the southern end of the property. This addition of water is considered very conservative since groundwater was observed at a depth of 10.8 feet bgs in boring B-1 at 1210 Pacific Avenue.

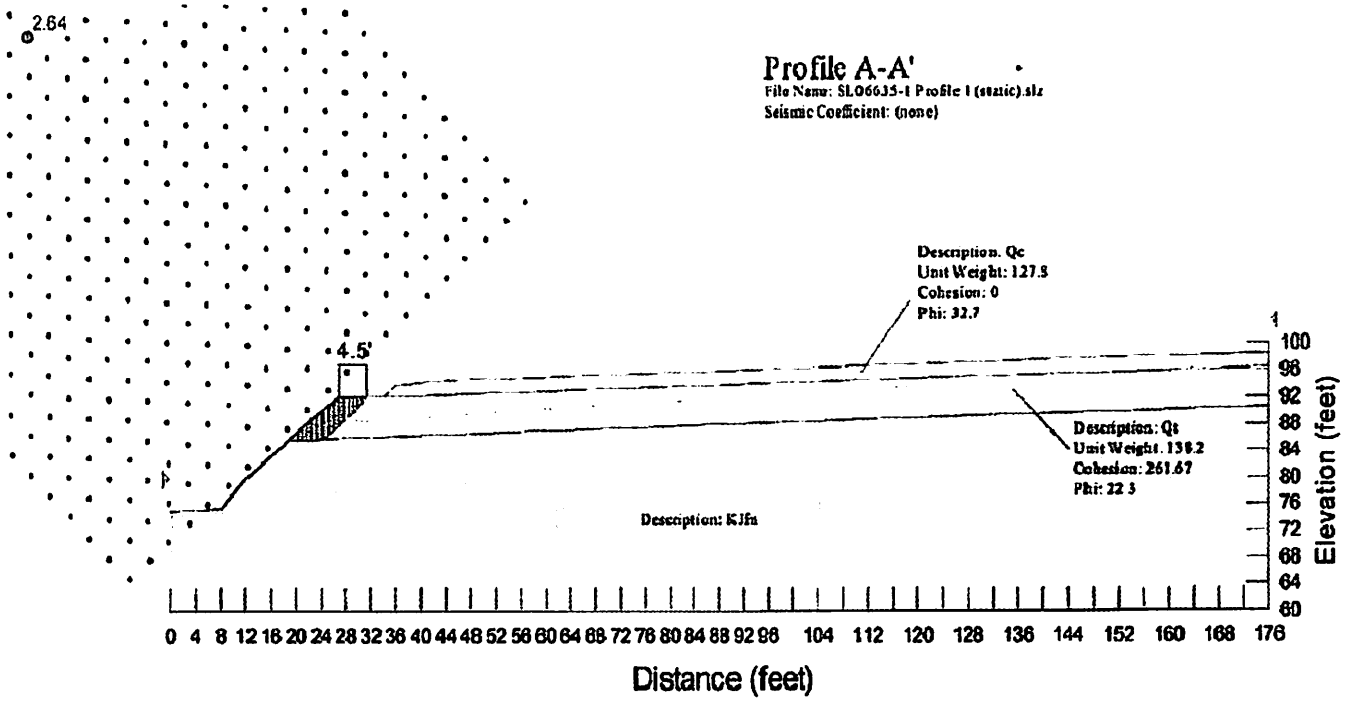

Figure 4: Profile A-A' (Static Analysis)

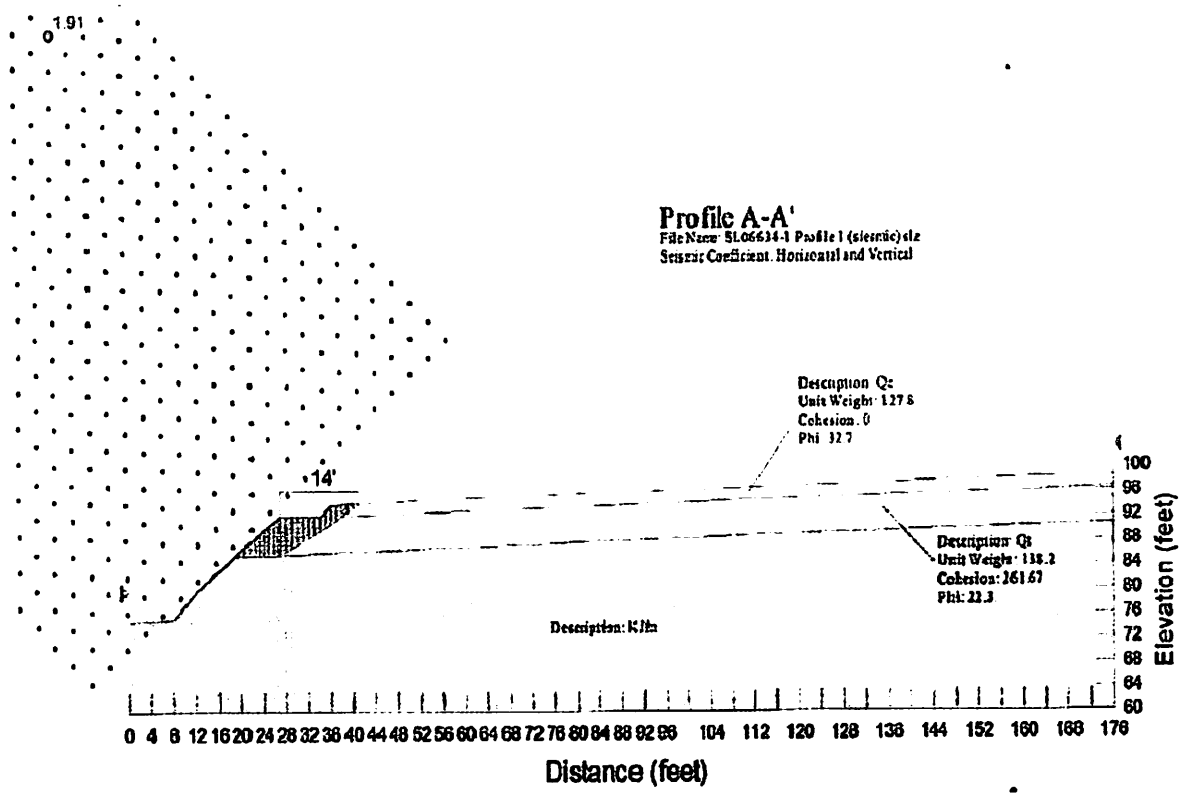

Figure 5: Profile A-A' (Psuedo-Static Analysis)

Results of the slope stability analysis show that the minimum factor of safety is met at the site, therefore the 10-foot buffer was applied. The 10-foot setback has been added to the calculated retreat at the site (5-feet in 100 years) and the conservative building setback at the property is 15 feet. It is understood that this is a very conservative estimate of development setback based upon an almost full-height rock revetment structure at the bluff.

11.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed during our study. Should any variations or undesirable conditions be encountered during the development of the Site, GeoSolutions, Inc. will provide supplemental recommendations as dictated by the field conditions.

This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and incorporated into the project plans and specifications. The owner or his/her representative is responsible to ensure that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field. Information contained within this study must be reevaluated after an engineered site plan has been prepared.

As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they are due to natural processes or to the works of man

on this or adjacent properties. Therefore, this report should not be relied upon after a period of one year without our review nor should it be used or is it applicable for any properties other than those studied.

END OF TEXT

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REFERENCES

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PLATES

Plate 1 - Site Engineering Geologic Map

Plate 2 – Site Cross Section

Plate 3A, 3B – Regional Geologic Map, Hall and Prior, 1975 and Geologic Explanations

Plate 4A, 4B – Regional Geologic Map, Hall et al., 1979 and Geologic Explanations

Plate 5A, 5B – Regional Geologic Map, Weber, 1979 and Geologic Explanations

Plate 6A, 6B – Regional Geologic Map, Dibblee, 2005 and Geologic Explanations

Plate 7A, 7B, 7C, 7D, 7E, 7F – Aerial Photograph, Caltrans, 1953, UCSB, 1973, UCSB, 1982

Plate 8A, 8B, 8C – Regional Fault Map, Jennings, 1994 and Explanations

Plate 9A, 9B – Historical Seismicity Map and Historical Seismicity List

Plate 10A, 10B – Flood Insurance Rate Map, FEMA, 1985 and Explanations

Plate 11– Landslide Hazards Map, San Luis Obispo County Department of Building and Planning, 1999

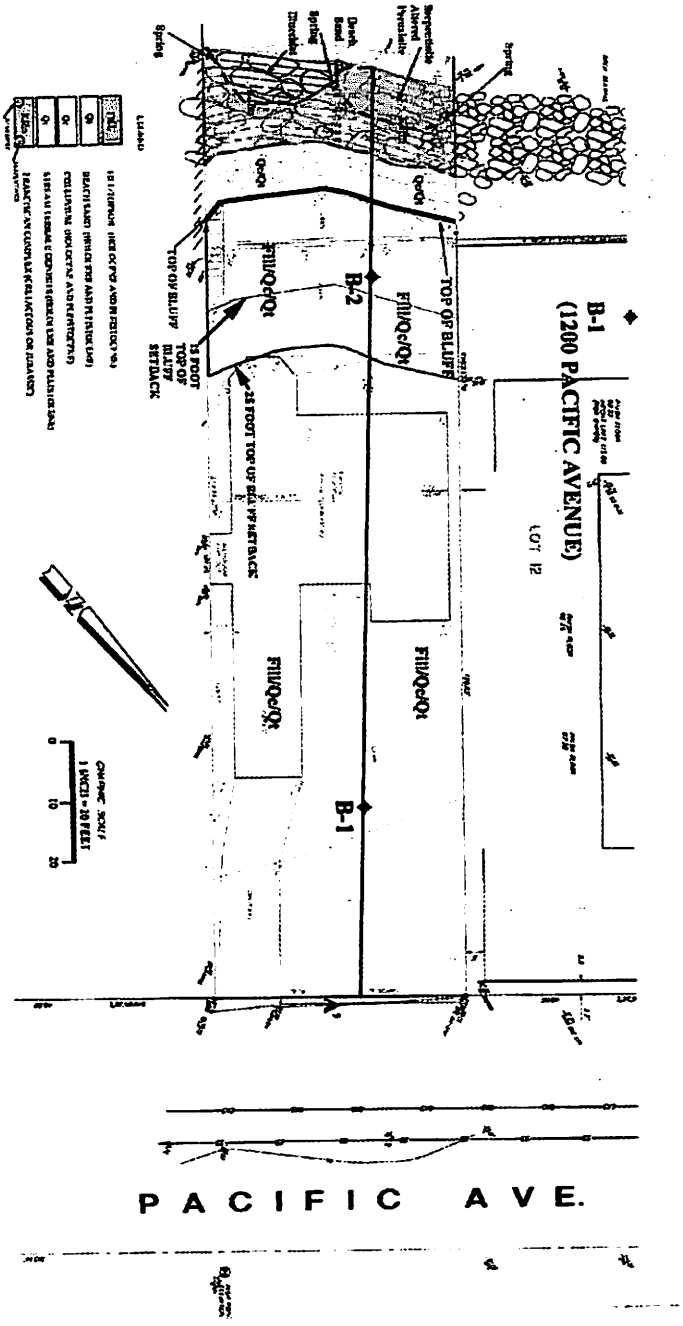
Plate 12 – Dam Inundation Map, San Luis Obispo County Department of Building and Planning, 1999

Plate 13 – Whale Rock Vulnerability Assessment Map, Fugro West, Inc., 1997 and Explanations

Plate 14A, 14B – Geologic Study Area Map, San Luis Obispo County

Department of Building and Planning, 1996 and Explanations

Plate 15A, 15B – Photographs of the Site



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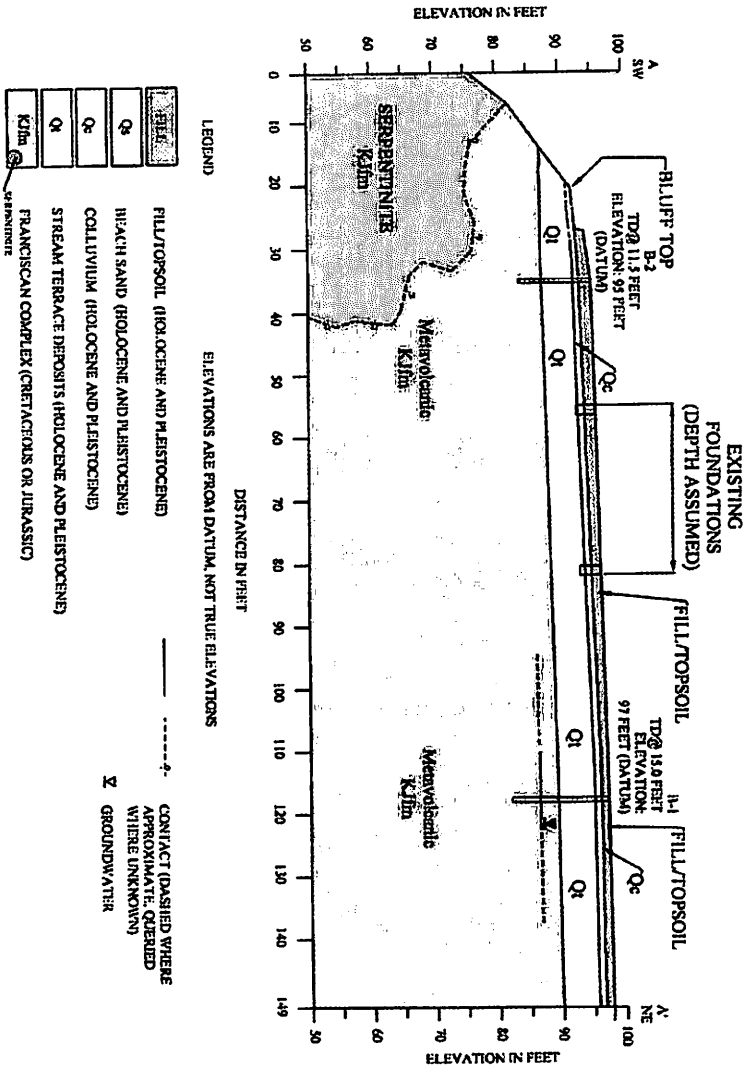
SITE ENGINEERING GEOLOGY MAP

1210 PACIFIC AVENUE,
CAYUCOS AREA, SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
1

PROJECT NO:



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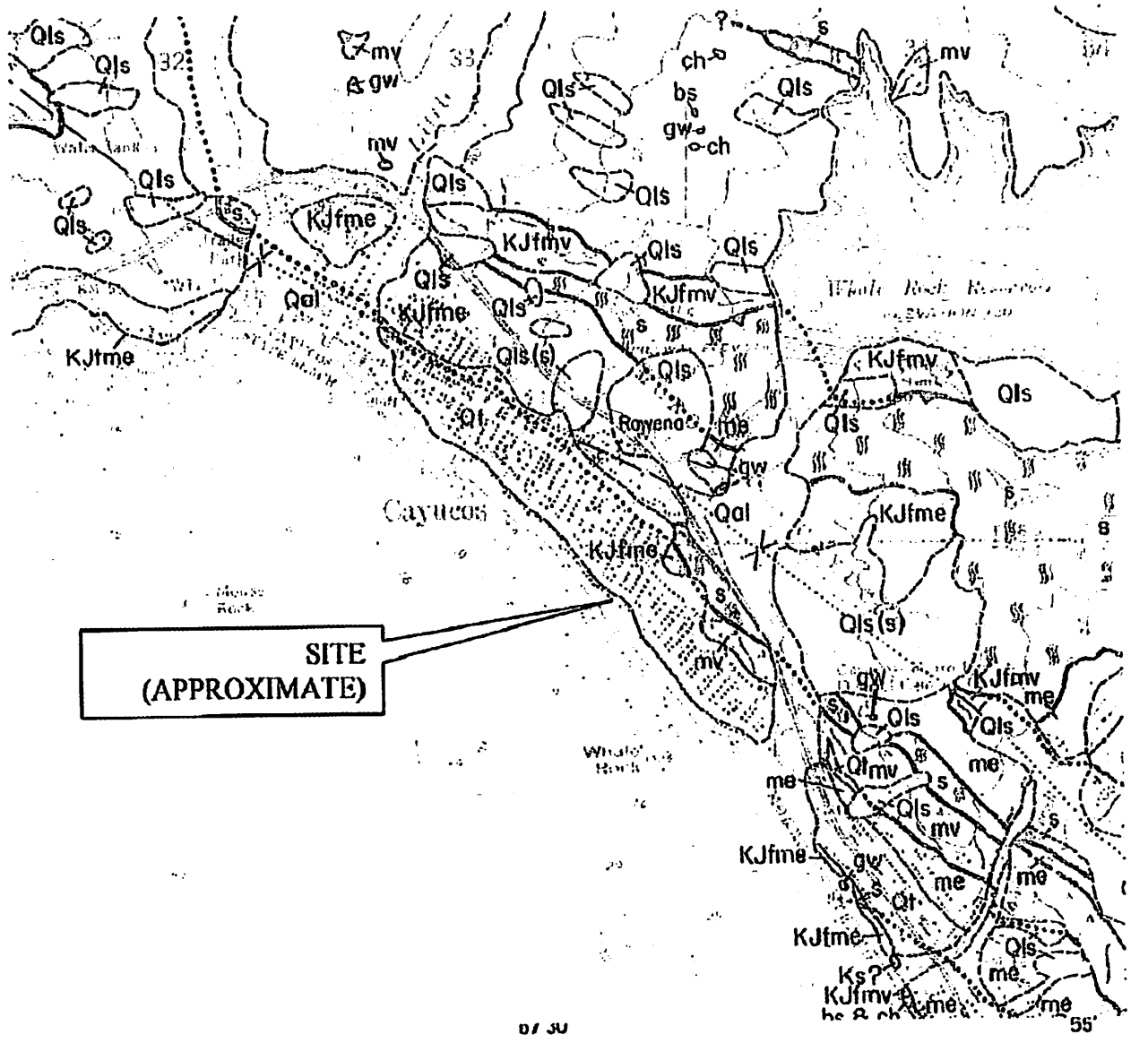
SITE CROSS SECTION

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
2

SL06635-1



MAP BY C.A. HALL, PRIOR, 1975

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REGIONAL GEOLOGIC MAP

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
3A

PROJECT NO:
SL06635-1

QUATERNARY

Qal

Alluvial deposits

Cobble-pebble gravel, sand, silt, and clay

Qs

Dune sand deposits

Unconsolidated, white to brown, windblown sand of actively moving and stabilized sand dunes

Qls / Qls(db)

Landslide deposits

Qls, rock and mudflow debris composed of material from source rocks upslope. Some small landslide deposits are omitted, and not all landslide deposits are shown in areas where Franciscan rocks crop out.
(d), (db), dominantly diabase and serpentinite debris

Qt

Stream and marine terrace deposits

Stream terrace deposits consist of unconsolidated cobble-pebble gravel, sand, silt, and some clay. Approximately 0.9 to 3 meters (3 to 10 feet) thick. Ages presumably Pleistocene and Holocene. Marine terrace deposits consist of loosely consolidated, white to buff sandstone and conglomerate. Clasts, subrounded to angular, as large as 1.2 meters (4 feet) in diameter, consist of Franciscan rocks, Cambria Felsite, or Monterey Shale. Approximately 0.6 to 3 meters (2 to 10 feet) thick. Marine terrace deposits occur at elevations of 10 and 20 to 100 feet. Near Cayucos they are late Pleistocene, 130,000 ± 30,000 and 140,000 ± 20,000 B.P. (Valentine, 1958; Veeh and Valentine, 1967). Terraces occur near 200, 400, and 600 feet. Age presumably Pleistocene

Qpr

Paso Robles (?) Formation

Sandstone, siltstone, claystone, and conglomerate; unconsolidated to well consolidated. Locally the dominant rock is sandstone and claystone. Clasts, other than chert, within the conglomerate are dominantly rocks from the Franciscan mélange. Poorly exposed. Locally deformed beds with dips of 20° to 30°. Lower Pleistocene (Calif. Dept. of Water Resources, 1972, p. 14), perhaps in part equivalent to Orcutt Sand (Woodring and Bramlette, 1950). Thickness unknown. Marine (?) (Calif. Dept. of Water Resources, 1972, p. 62-63) and nonmarine (?)

UNCONFORMITY

Miocene and Pliocene

Tpm / Tpc / Tpl

Pismo Formation

Tpm, upper member; white to buff, resistant, blocky, and conchoidally fracturing siliceous siltstone, silty siliceous mudstone, and opaline claystone with minor amounts of chert. Maximum thickness is 33.2 meters (125 feet). Lithologically similar to the Miguelito Member of the Pismo Formation near Montana de Oro State Park (Hall, 1973b). Fossils present are: [illegible] (Conrad) at the base of the member (UCLA loc. nos. 6197 and 6214). Upper Miocene at base. Marine.

Tpc, reddish-brown conglomerate and siltstone. Clasts, up to 12.7 centimeters (5 inches) in diameter, consist of diabase (90%) and small amounts of serpentinite and Vaqueros Sandstone. Maximum thickness is 915 meters (300 feet). Age assignment uncertain; no fossils. Lies with angular discordance upon Monterey Formation of Luisian age. Marine members of the Pismo Formation show similar stratigraphic and structural relationships. Presumably upper Miocene and Pliocene. Nonmarine.

Tpl, basal sandstone member; locally a conglomerate composed of either well-rounded serpentinite clasts and black chert or dolomitic siltstone and white or grey chert of Monterey Shale. The conglomerate contains [illegible] (Conrad) and is bituminous; maximum thickness approximately 4.6 meters (15 feet). Sandstone is well sorted, friable, and fine grained. Consists of quartz, 35% to 60%; chert, 15%; serpentinite, 5%; bioclastic debris, 8%; and a maximum of 45% silt-sized particles. Lithologically similar to Edna Member of the Pismo Formation (Hall, 1973a). Fossils present are: [illegible] (Conrad) (UCLA loc. nos. 6198 and 6214); [illegible] (Conrad) (UCLA loc. nos. 6194, 6198, 6198-6200); [illegible] (Conrad) (UCLA loc. nos. 6194, 6198, 6198-6200); [illegible] aff. P. [illegible] (Hanna and Hertlein) (UCLA loc. nos. 6201, 6202); and [illegible] sp. (UCLA loc. no. 6194). Upper Miocene; however, the presence of specimens assigned to [illegible] aff. P. [illegible], which also bear a close resemblance to [illegible] (Arnold), is also suggestive of an early Pliocene age. [illegible] and barnacle fragments are also present in Los Osos Valley (San Luis Obispo quadrangle)

JURASSIC AND CRETACEOUS

KJfg / KJfmv / KJfm

Franciscan rocks

KJfg, very fine-grained, greenish-brown graywacke, sandstone, or claystone. Composed of quartz, 60% to 70%; plagioclase, 15% to 25%; K-feldspar, 2% to 5%; biotite, 2% to 5%; and rock fragments of dark-gray siltstone. Sandstone is commonly massive and fractured, but locally it is well bedded or interbedded with [illegible] or clasts absent or rare.

KJfmv, metavolcanic rocks, primarily greenstone (metamorphosed from basalt), and diabase commonly associated with red chert (ch). In part correlates with "Jv" volcanic rocks of Morro Bay South Quadrangle (Hall, 1973b). Possibly equivalent, all or in part, to Jlv and mv.

KJfm, mélange of graywacke (gw), pervasively sheared and in large part composed of sheared greenish-black claystone. Includes exotic fragments or clasts of conglomerate (cg); blueschist (bs); schist (sch); metavolcanic rocks or greenstone (mv); white, red, or green chert (ch); serpentinite (s); shale (sh); silica-carbonate rocks (sc); and gabbro (g). Original structure of unit destroyed by shearing and mixing.

Contacts between metavolcanic rocks and other units of the Franciscan and serpentinite are everywhere inferred to be faults. No stratigraphic order can be determined for the mélange, metavolcanic rocks, and graywacke. Because the mélange contains exotic fragments or clasts of blueschist and schist and is pervasively sheared, inference could be made that the age of tectonism of the Franciscan mélange is older than other units of the Franciscan rocks that lack such clasts. If, however, the graywacke, metavolcanic rocks, and chert clasts are from units KJfg and KJfmv, then the age of tectonism would be younger than all of the Franciscan rocks. Age of the Franciscan rocks presumably Jurassic and Cretaceous

JURASSIC

Jvmv

Unnamed volcanic and metavolcanic rocks

Grey to black, mostly brown-weathering, fractured and weathered basalt or metavolcanic rocks. Includes abundant dikes and sills of diabase and gabbro. Mapped by Page (1972) as extrusive basalt and dike-and-sill complex. Exposed thickness uncertain, approximately 1,067.5 meters (3,500 feet). Jurassic (Hopson and others, 1975)

sp/db

Serpentinite and diabase

Serpentinite, serpentinized ultrabasic rocks, and diabase dikes (Page, 1972)

sp

Serpentinite and serpentinized ultrabasic rocks

GEOLOGIC SYMBOLS

Contact

Dashed where approximately located or inferred

High-angle fault

Dashed where approximately located or inferred; dotted where concealed and inferred

Thrust or reverse fault

Dashed where approximately located or inferred; dotted where concealed and inferred. Sawteeth on upper plate. Dip of fault plane between 30° and 60°

Anticline

Showing axis at surface. Dashed where approximately located; dotted where concealed

Syncline

Showing axis at surface. Dashed where approximately located; dotted where concealed

Synform

Trace of axial surface of a fold whose flanks converge downward and in which either younger or older rocks occur in the core of the fold. Dashed where approximately located

Antiform

Trace of axial surface of a fold whose flanks converge downward and in which either older or younger rocks occur in the core of the fold. Dashed where approximately located

Horizontal   Inclined   Vertical
Strike and dip of beds

x—6208
Megafossil locality
UCLA locality number

Fossils present or fossiliferous outcrop

Conglomerate
Sandstone
Siltstone
Tuff
Marker beds

Ranch name/property owner

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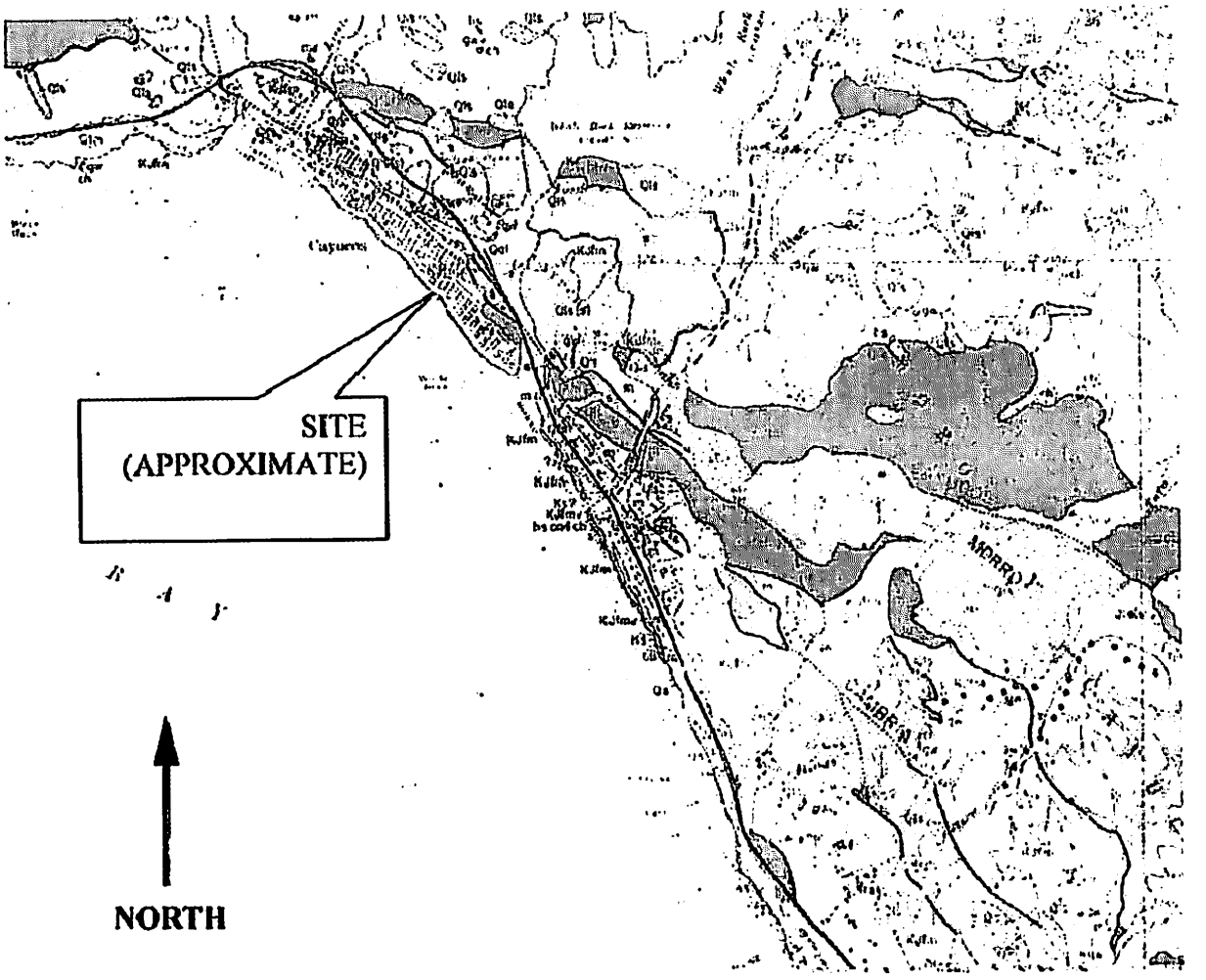
GEOLOGIC EXPLANATIONS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
3B
PROJECT NO.
SL06635-1



SCALE 1:48 000

1 ½ 0 1 2 3 MILES

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 20 AND 40 FEET
DOTTED LINES REPRESENT 10- AND 20-FEET CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET. DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET

C.A HALL, JR., W.G. ERNST, S.W.PRIOR, AND J.W. WIESE, 1979

PROFESSIONAL GEOLOGIST
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REGIONAL GEOLOGIC MAP

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
4A

PROJECT NO:
SL06635-1

DESCRIPTION OF MAP UNITS

Qal ALLUVIAL DEPOSITS (Holocene) - Cobble-pebble gravel, sand, silt, and clay

Qs DUNE SAND DEPOSITS (Holocene) - Unconsolidated, white to brown windblown sand of actively moving sand dunes

Qos OLDER DUNE SAND DEPOSITS (Holocene) - Unconsolidated and slightly cemented dune sand of stabilized sand dunes

Qls LANDSLIDE DEPOSITS (Holocene) - Rock and mudflow debris derived from rock units upslope. Not all landslide deposits shown. Dominant debris shown in parentheses; (m) where debris is Franciscan mélange, (s) where debris is dominantly serpentinite, (dbs) where debris is dominantly diabase or serpentinite. 1973 date of landslide

Qt STREAM TERRACE DEPOSITS (Holocene and Pleistocene) - Unconsolidated cobble-pebble gravel, sand, silt, and some clay. Approximately 0.9 to 3 m thick

Qtm MARINE TERRACE DEPOSITS (Pleistocene) - Loosely consolidated, white to orangish-brown sandstone and conglomerate. Clasts subrounded to angular, as large as 1.2 m in diameter, consist locally of Jurassic ophiolite, Franciscan rocks, Cambria Felsite, dacite, Monterey chert, and Cretaceous sandstone. Approximately 0.9 to 6 m thick. Marine terrace deposits occur at elevations of approximately 3, 5, 12, 30, 36, 61, 122, and 183 m. Age near Cayucos is late Pleistocene, 130,000 ± 10,000 and 140,000 ± 20,000 B.P. (Valentine, 1958; Veeh and Valentine, 1967

Qot OLDER TERRACE DEPOSITS (Pleistocene) - Poorly consolidated sand, brown sand with iron-oxide-rich sandy nodules, clay-rich sand, locally pebbles of Monterey shale at base. May include older dune sand deposits or shallow-water deposits. Cobble and boulder deposits uncommon. Possibly equivalent to Orcutt Sand (Woodring and Bramlette, 1950)

Qpr PASO ROBLES(?) FORMATION (Pleistocene) - Sandstone, siltstone, claystone, and conglomerate; unconsolidated to well consolidated. Locally dominant rock is sandstone and claystone. Clasts, other than chert, within the conglomerate are dominantly rocks from Franciscan mélange. Locally deformed beds with dips of 20° to 30°. Lower Pleistocene in Morro Bay area (Calif. Dept. of Water Resources, 1972, p. 15), perhaps in part equivalent to Orcutt Sand (Woodring and Bramlette, 1950) in Los Osos Valley area. Thickness unknown. Marine (?) (Calif. Dept. of Water Resources, 1972, p. 82-83) and nonmarine (?)

PISMO FORMATION (upper Pliocene to upper Miocene) - Includes:

Tps Squire Member (upper Pliocene) - Massive, white to tan, calcareous, arkosic sandstone, more calcareous and resistant near base, quartz, 5 percent to 80 percent; feldspar, 15 percent to 20 percent, less than 5 percent mafic mineral grains. Fine to medium grained, grains subrounded to subangular, moderately well sorted. Exposed thickness of 61 m. Contains *Lyropecten cerrosensis* (Gabb). Marine

Tpb Belleview Member (upper Pliocene) - Interbedded, buff to gray claystone and fine grained sandstone. Claystone spheroidally fractured. Exposed thickness 61 m. Marine

Tpg Gragg Member (upper Pliocene) Massive, resistant to soft medium-grained sandstone. White, weathering buff. Minerals include: quartz, 65 percent, feldspar, 30 percent; clay, 4 percent; and mafic minerals, 1 percent. Exposed thickness of 30.5 m. Fossils include *Lyropecten cerrosensis* (Gabb). Marine

Tpm Miguelito Member (lower Pliocene and upper Miocene) Brown claystone and siltstone; beds 5 to 10 cm thick, porcelaneous shale; opaline shale, locally thinly bedded chert, diatomite or diatomaceous shale, relatively soft, well-bedded siltstone, locally tuffaceous near base, locally bituminous or friable sandstone, and locally conglomeratic near base. Maximum exposed thickness of 914 m. Fossils include *Lyropecten* [illegible] (Conrad). Marine

Tpe Edna Member (lower Pliocene and upper Miocene) Poorly to moderately well indurated, orangish-brown to light-brown or gray sandstone. Fine to medium-grained arkosic sandstone, locally interbedded with yellow claystone. Sandstone consists of quartz, 35 percent to 80 percent, feldspar, less than 5 percent to 15 percent; locally, siltstone fragments, 5 percent; serpentinite, 5 percent; bioclastic debris, 5 percent, and a maximum of 40 percent silt-sized particles.

MONTEREY FORMATION (upper and lower Miocene) - Includes

Tm [illegible] Marine

Tmts Tuffaceous siltstone - Locally dolomitic siltstone with [illegible] chert. Exposed thickness of 137.2 m. Marine

Tmp Siltstone or blocky dolomitic claystone and [illegible] siltstone [illegible] Marine

Tpsm POINT SAL FORMATION [illegible] Marine

Tvr VOLCANIC ROCKS (middle Miocene) - Diabase and basaltic rocks [illegible]

FRANCISCAN ROCKS (Cretaceous or Jurassic) - Includes:

KJfg Graywacke and metagraywacke Fine- to coarse-grained, greenish-brown to tan sandstone, siltstone, and some claystone. Sandstone commonly massive and shattered, locally it is well bedded or interbedded with siltstone. Exotic blocks rare. Locally interbedded with sandstone is conglomerate that contains clasts of sandstone, siltstone, and boulders of green chert, coarse-grained sandstone, and metavolcanic rocks. Except for exotic blocks and locally sheared and shattered beds, part of unit is lithologically similar to unnamed graywacke (KJgk. Total thickness unknown but probably more than 600 m Marine.

KJfmv Metavolcanic rocks (greenstone) Primarily metamorphosed basalt and diabase. Commonly associated with red chert (ch) Locally dark red and extensively sheared. Considered to be tectonic blocks on or within or below Franciscan mélange and probably equivalent to upper part of Jurassic ophiolite. Thickness unknown

KJfm Mélange Graywacke, pervasively sheared and in large part composed of sheared greenish-black claystone. Includes exotic clasts of conglomerate (cg); Franciscan (fs), schist (sch), metavolcanic rocks or greenstone (fmv), white, red, or green chert (ch), graywacke (gw), shale (sh), diabase and serpentinite (dbs), serpentinite (s), tuff (t), gabbro (gb), and silica-carbonate rocks (sc). Original structure of unit destroyed by shearing and mixing. Provisionally considered here to be same age or younger than Toro Formation or unnamed shale (light brown rocks identical to those in these units are present as large blocks and clasts within the mélange

---?--- Contact Dashed where approximately located or inferred, queried where doubtful, dotted where concealed

---------? High-angle fault - Dashed where approximately located or inferred; dotted where concealed and inferred, queried where uncertain. Arrows show relative direction of movement on cross sections when known; queried where uncertain

--▲--?--▲- Thrust or reverse fault Dashed where approximately located or inferred. Dotted where concealed and inferred; queried where concealed or doubtful. Sawteeth on upper plate. Dip of fault plane between 30° and 50°

---------? Photo lineament - Queried where uncertain

--X------ Syncline - Trace of axis at surface. Dashed where approximately located. Flanks converge downward in folded rocks whose stratigraphic sequence is unknown

--()------ Anticline Trace of axis at surface Dashed where approximately located. Flanks diverge downward in folds on rocks whose stratigraphic sequence is unknown

Strike and dip of beds uncertain

20 Strike and dip of flow banding

x6193 Megafossil locality - U.C.L.A. locality number

Vollmer Ranch name/property owner

Marker beds

-------- Conglomerate or gravel bed

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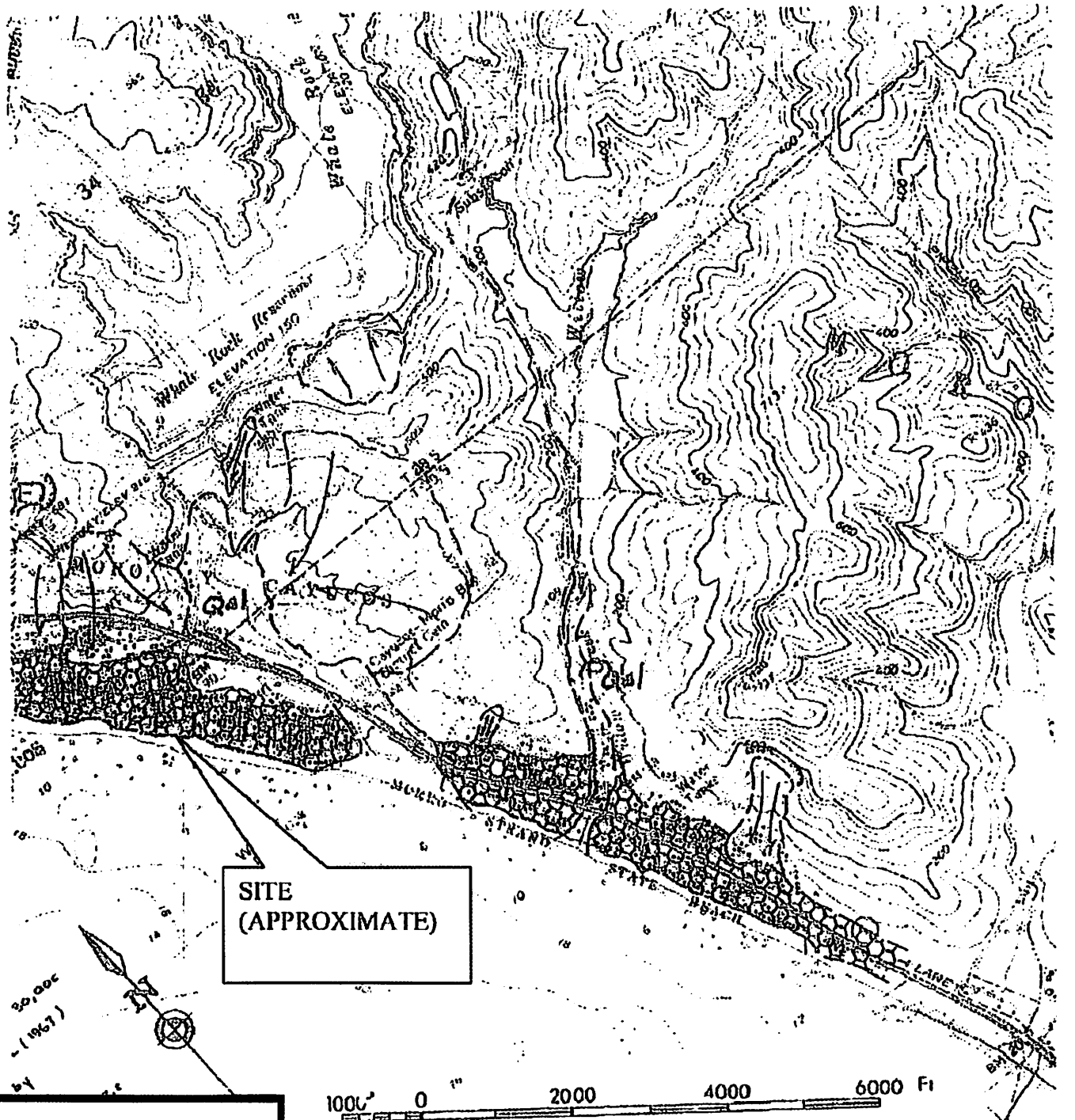
GEOLOGIC EXPLANATIONS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
4B

PROJECT NO:
SL06635-1



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WEBER, 1979

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REGIONAL GEOLOGIC MAP

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
5A

PROJECT NO:
SLO625-1

MAP UNITS

Holocene

- Qb — Beach Sand Deposits - Modern beach sands, unconsolidated.
- Qda — Dune Sand Deposits - Holocene. Actively moving sand dunes. Unconsolidated, white to brown windblown sand.
- Qdo — Older Dune Sand Deposits - Late Pleistocene to Holocene. Unconsolidated and slightly cemented dune sands. Stabilized by vegetation. Includes small areas of active dune movement associated with blow outs in recently de-vegetated areas. Qda/Qtm, Qdo/Qtm - Indicates a thin cover of dune sand, either active or stabilized overlying Pleistocene marine terrace deposits.

Pleistocene

- Qsd — Sangamon to Wisconsinan Stabilized Dune Sand Deposits. Weakly cemented (?), wind blown dune sands, stabilized by vegetation. Dune sands are present on the older and higher terraces and are believed to be of Sangamon-Wisconsinan age (isotope stages 3,4,5a,5b,5c of Shackleton and Opdyke, 1973). Recognizable barchan, longitudinal, and parabolic dune forms are indicated on map. Qsd/Qtm - Thin cover of stabilized dune sand overlying Middle to Late Pleistocene marine terraces.
- Qls — Landslide Deposits - Late Pleistocene. Rock, mudflow and debris flow materials derived from units lying upslope. Typically heterogeneous materials. Not all landslides are shown.
- Qal — Alluvial Deposits - Late Pleistocene to Holocene. Cobble, pebble, gravel, sand, silt, and clay. Includes presently active floodplains and channels of streams.
- Qoal — Older Alluvial Deposits - Middle (?) to Late Pleistocene. Obviously older stream valley fill, particularly high valley floors presently undergoing dissection.
- Qtr — Stream Terrace Deposits - Late Pleistocene. Terraces lying distinctly above the present floodplain and channel.
- Qaf — Alluvial Fan Deposits - Holocene and Late to Middle Pleistocene. Includes well formed, distinctly shaped alluvial fans, generally found near the back edge of modern floodplains and lower stream terraces; and older, partially dissected alluvial fans found near the back edge of lower marine terraces. Wide variability in age of deposits. Qaf/Qtm - Indicates presence of alluvial fan deposits overlying Pleistocene marine terraces. Fans often obscure and alter the shape of the marine terrace remnants and may completely bury low weakly developed risers between terraces that are closely spaced.
- Qc — Colluvium - Late Pleistocene and Holocene. Slope wash and assorted surficial deposits including soil slips and soil creep materials that have experienced short transport on slopes. Wedges of these materials are present on most slopes and along the back edge of all marine terraces, but the colluvium has been mapped only in areas where the deposits are thick and obscure geomorphic features or geologic relationships.
- Qm — Quaternary Marine Terrace Deposits - Early to Late Pleistocene. Marine terrace deposits, in most areas covered by a combination of alluvial fan deposits, colluvium, or windblown sand. Letters (cm, pb-s, oso...) refer to the informal stratigraphic name of the terrace; i.e., cm - Cambria Terrace.

Piedras Blancas Structural Block

- pb-s — Piedras Blancas Terrace - Lowest emergent terrace. This one broad prominent terrace consists of two distinct wave cut platforms - the higher Tripod and the lower San Simeon platforms. Both are continuously present along the coast from the mouth of Carpojo Creek to San Simeon Cove. This terrace is correlative with the lowest terrace on the San Simeon - Cambria Structural Block. The step between bedrock platforms varies between 10-20 feet, while the elevation difference between shoreline angles of the two platforms varies between 40-70 feet. The Tripod platform can be traced continuously southward to Cayucos where the terrace deposits contain a late Pleistocene fauna dated at 120,000-140,000 years B.P. using radiometric and amino acid age estimates. It appears to be equivalent to isotope stage 5e of Shackleton and Opdyke (1973).
- pb-Δ

MAP SYMBOLS

Geologic Contact - Solid line where well located, dashed where approximately located, dotted where concealed and queried where existence is uncertain. Most contacts between Pleistocene units can, at best, be only approximated because of poor exposure and the presence of slope wash and soils.

49 — Strike and dip of bedding.

Faults

Solid line where well located, dashed where approximately located, dotted where concealed and queried where existence is uncertain. Fault movement has been predominantly right lateral strike slip with a minor vertical component. Hachures on apparently downthrown side.

Thrust or high angle reverse fault. Movement predominantly dip slip. Number indicates dip of fault plane as measured in outcrop. Saw teeth on hanging wall block.

Recently Active and Late Pleistocene Fault

Youngest traces of the fault zone as determined by: (1) The offset of Late Pleistocene (ca. 130,000 to ca. 10,000 years B.P.) or Holocene sedimentary deposits associated with the first emergent marine terrace; and/or (2) Well preserved sag ponds and other closed depressions, offset streams, and linear scarps in either Holocene deposits or deposits of the first marine terrace.

Early to Middle Pleistocene Fault

Distinctly older traces of the fault as determined by: (1) The offset of Middle Pleistocene (ca. 700,000 to ca. 130,000 years B.P.) sedimentary deposits associated with marine terraces of pre-Sangamon age; and/or (2) subtle or moderately well developed offset streams and linear scarps in deposits of the older marine terraces, and markedly linear steep mountain fronts associated with concealed fault traces. Fault movement has been predominantly right lateral strike slip with a minor vertical component.

Pre-Pleistocene Fault

Fault traces which offset pre-Pleistocene bedrock. Geomorphic evidence consists of offset streams and linear scarps in pre-Pleistocene deposits. On some traces weak geomorphic evidence exists for possible Early Pleistocene (ca. 1,800,000 to 700,000 years B.P.) movement. (M) indicates bedrock faults mapped by Hall (1979).

Aerial Photo Lineaments - Fault Traces (?)

Aerial photo lineaments which may be related to faulting. Based on subtle and faint topographic features and/or tonal variations and vegetation changes on aerial photographs. No field evidence for faulting. No indication of the age of faulting.

GEOMORPHIC FEATURES RELATED TO FAULTING AND LANDSLIDING

Areas underlain by landslide deposits. Enclosed by solid line where limit is well defined and by dashed line where limit is uncertain. Arrows show generalized direction of movement. Hachured line indicates approximate location of prominent main scarps. Not all landslides are shown.

Pullapart (pa) - a graben-like feature formed by the movement of the slide block away from the main scarp. Mostly associated with block glide landslides. Contains closed depressions at many localities.

Small landslide, less than 15 m wide.

Closed depressions (CD) - sag ponds formed either along active faults or on landslide deposits.

Alluviated flat (AF) - anomalous flat areas in steep terrain, apparently former closed depressions now filled by recent sediments.

Offset ridge (OR) - topographic ridge apparently offset along fault trace.

Beheaded stream or abandoned drainage (BD)

Deflected, diverted, offset, or captured drainage (DD)

Fault scarp - hachured side topographically lower.

Spring or seep

PLATE 5B

GEOLOGIC EXPLANATIONS
(WEBER, 1979)
1210 PACIFIC AVENUE, CAYUCOS
SAN LUIS OBISPO COUNTY, CALIFORNIA

A-3-SLO-19-0026
Exhibit 6
Page 44 of 80

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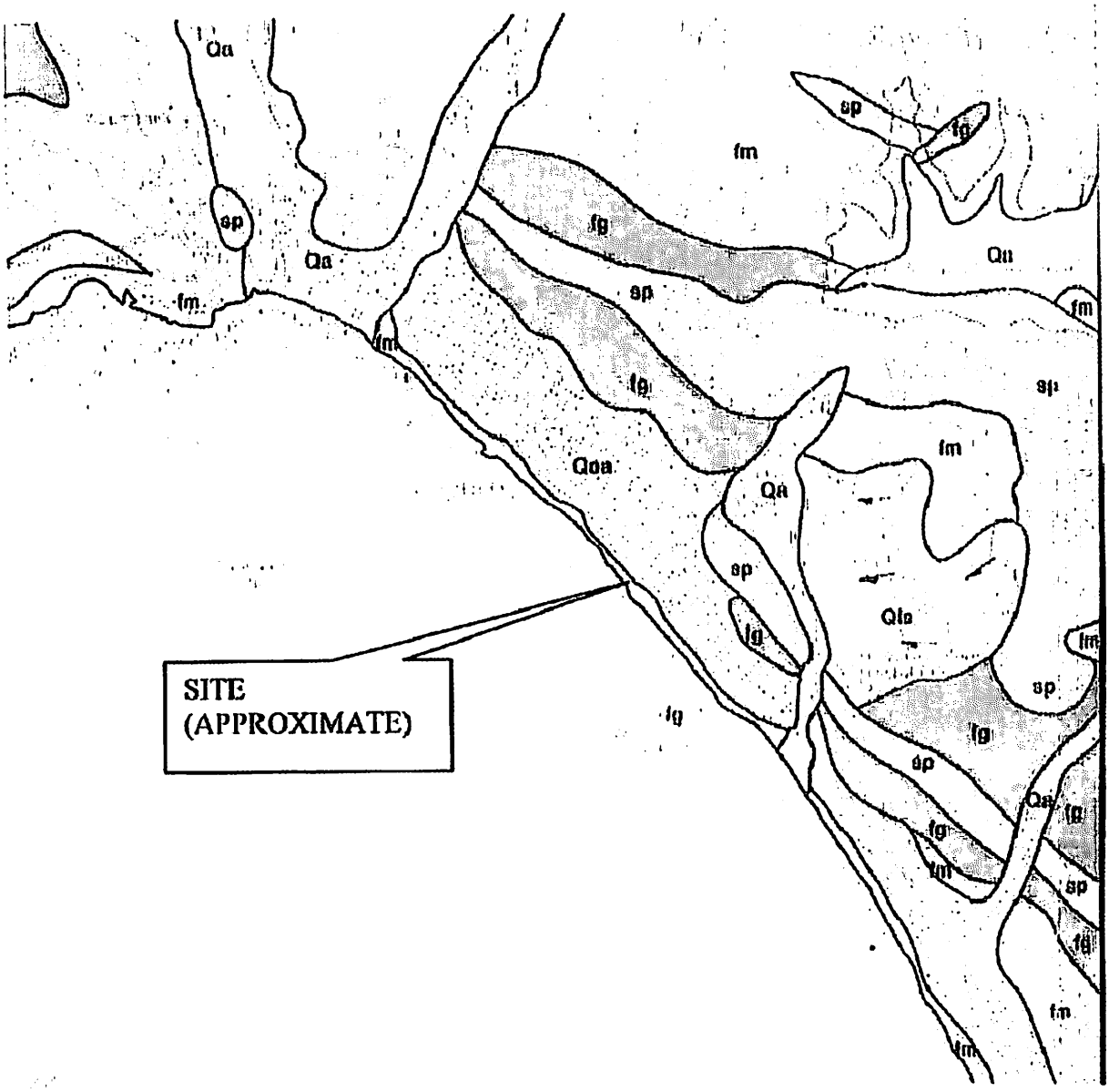
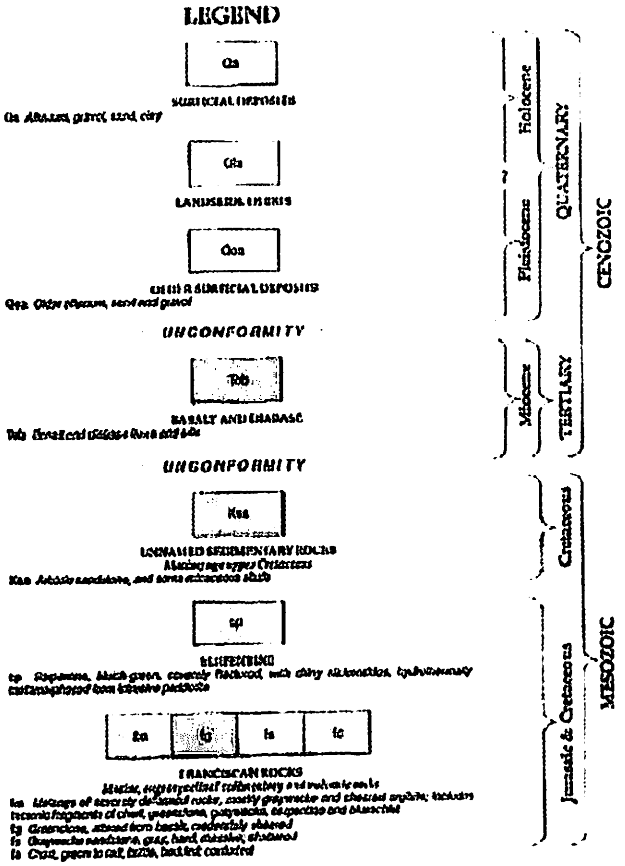
PROFESSIONAL GEOLOGIST · STATE OF CALIFORNIA · JOHN D. KAMMER NO. 2118 CERTIFIED ENGINEERING GEOLOGIST



GeoSolutions, Inc. 220 High Street San Luis Obispo, California 93401 (805) 543-8539 fax: (805) 543-2171	PROFESSIONAL GEOLOGIST · STATE OF CALIFORNIA	**GEOLOGIC MAP** DIBBLEE, 2006 1210 PACIFIC AVENUE, CAYUCOS AREA SAN LUIS OBISPO, CALIFORNIA	PLATE 6A PROJECT NO: SI.06635-1 **Exhibit 6** A-3-SLO-19-0026

CAYUCOS MAP (DF-216)



PERTINENT REFERENCES

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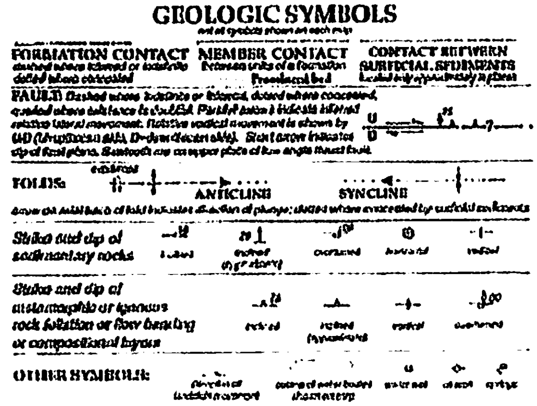
Hall, C.A. and Prior, S.W., 1975, Geology of the Cayucos-San Luis Obispo Region, San Luis Obispo County, California, U.S. Geological Survey, Misc. Field Studies Map MF 686, scale 1:24,000

GEOLOGIC SYMBOLS



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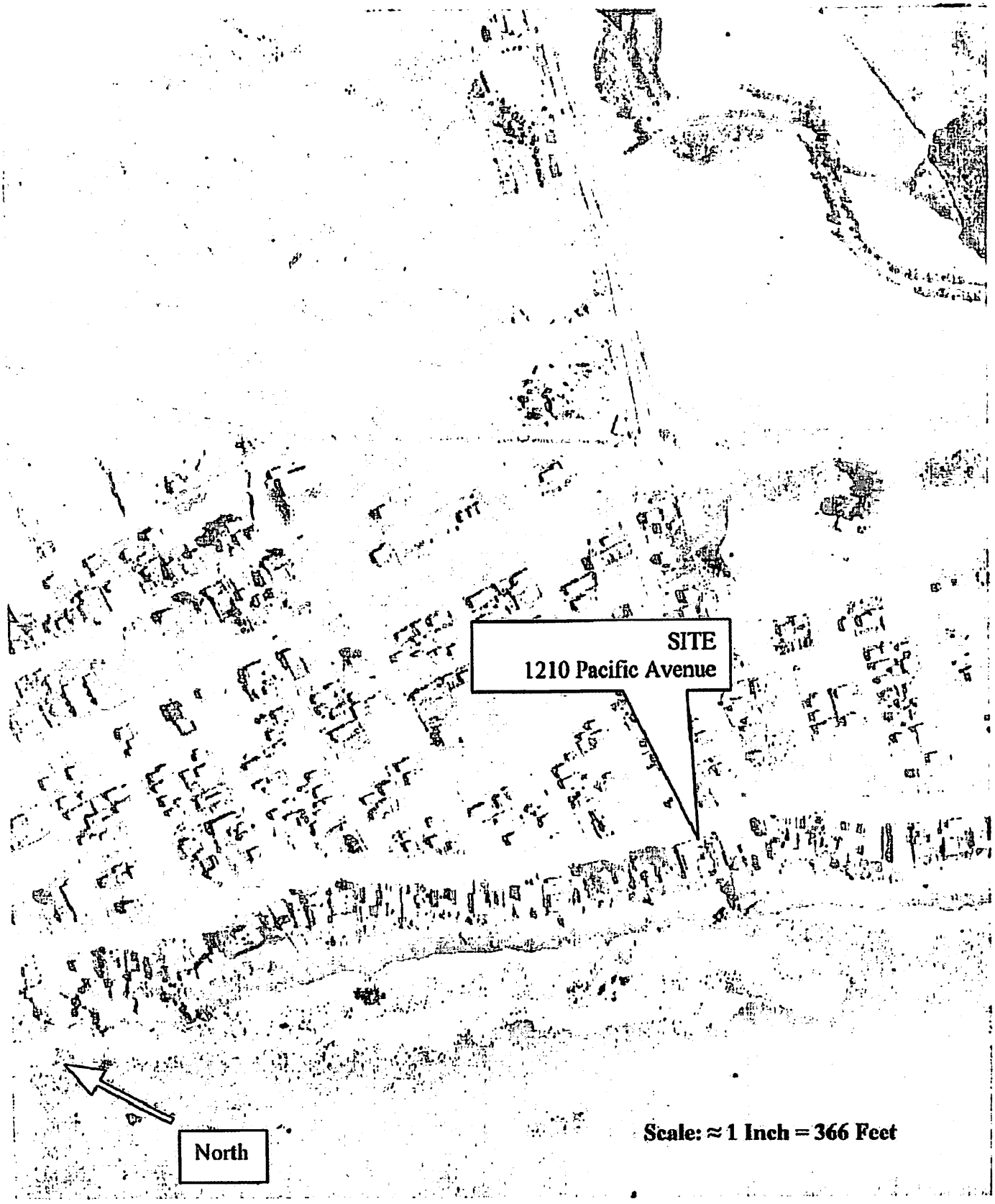
GEOLOGIC EXPLANIONS
DIBBLEE, 2006
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO, CALIFORNIA

PLATE
6B

PROJECT NO:
SL06635-1



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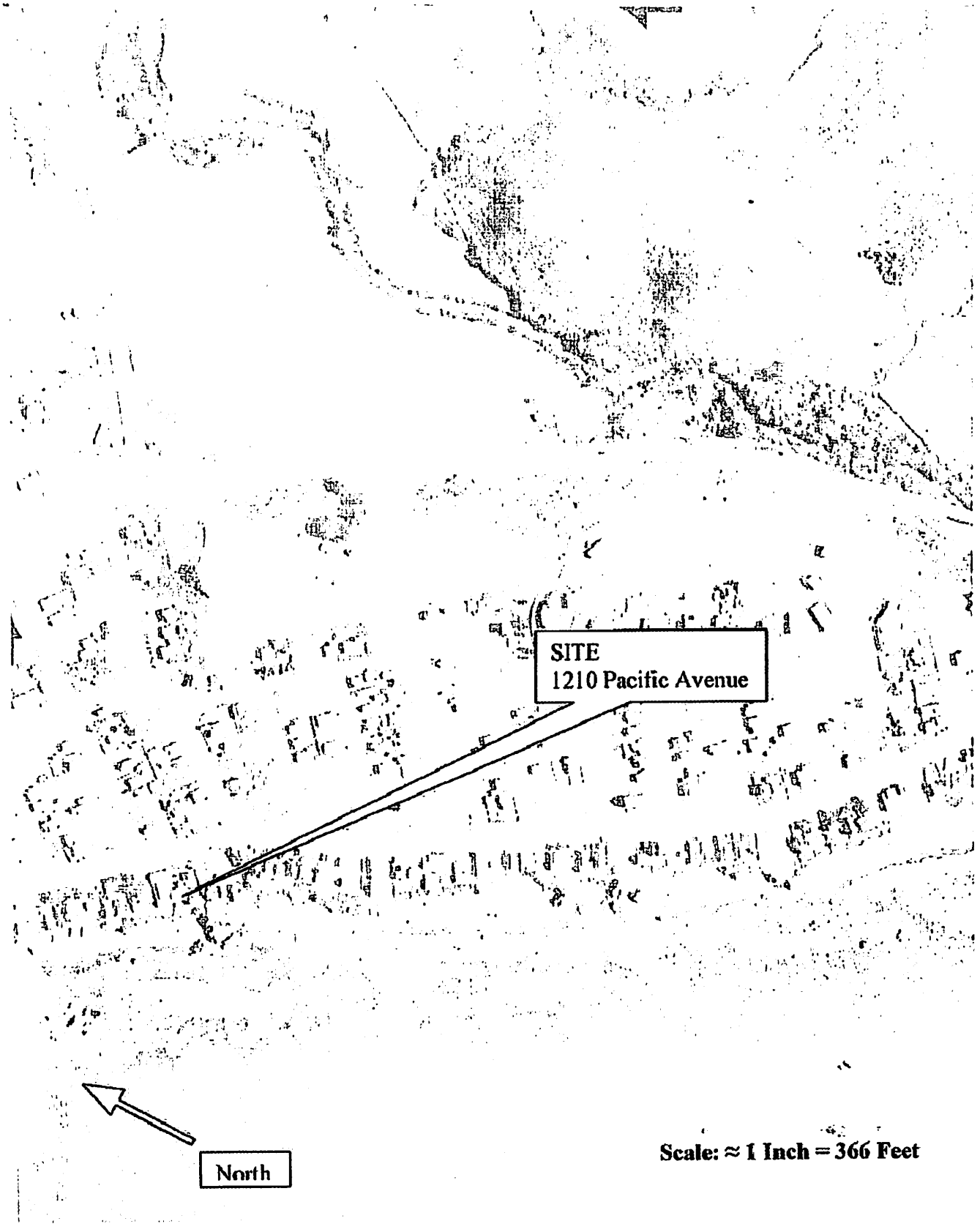
AERIAL PHOTOGRAPH

CALTRANS, 1953
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7A

PROJECT NO:
SL06635-1



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AERIAL PHOTOGRAPH

CALTRANS, 1953
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7B

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NO SCALE

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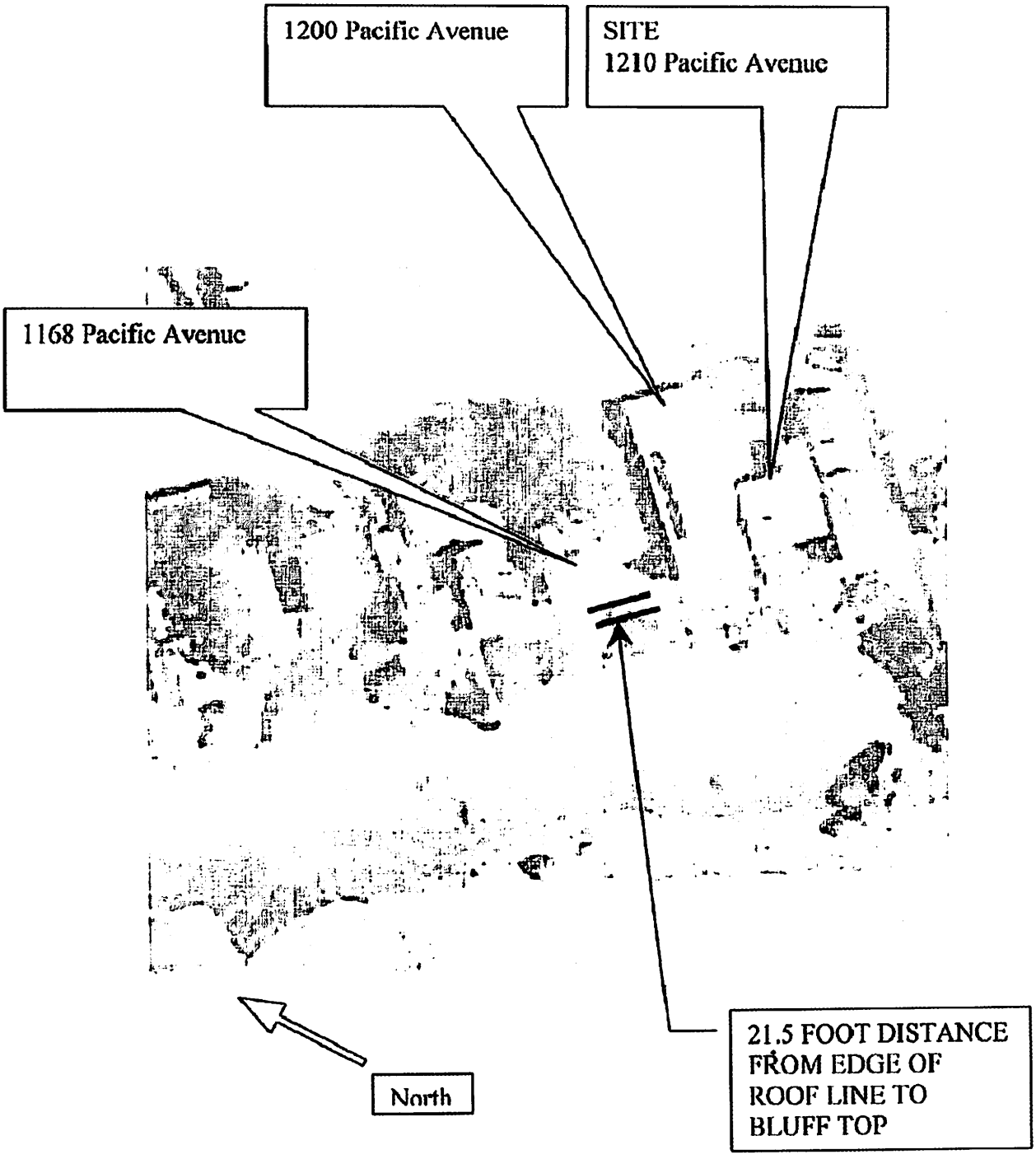
AERIAL PHOTOGRAPH
CALTRANS, 1953
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7C

PROJECT NO:
SI.06635-1

Exhibit 6



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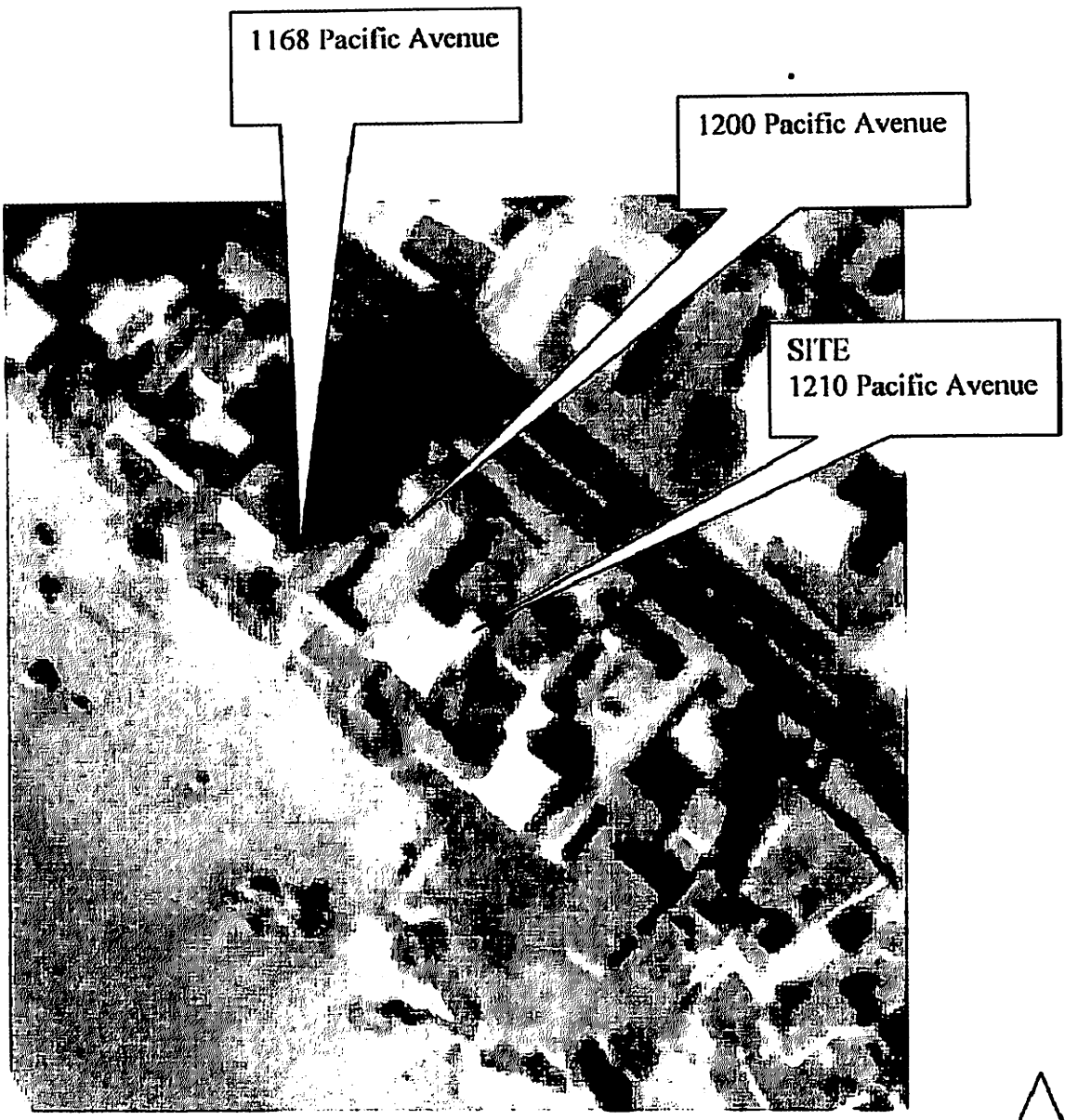
AERIAL PHOTOGRAPH

CALTRANS, 1953
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7D

PROJECT NO:
SL06635-1



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AERIAL PHOTOGRAPH
UCSB, 1973
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7E

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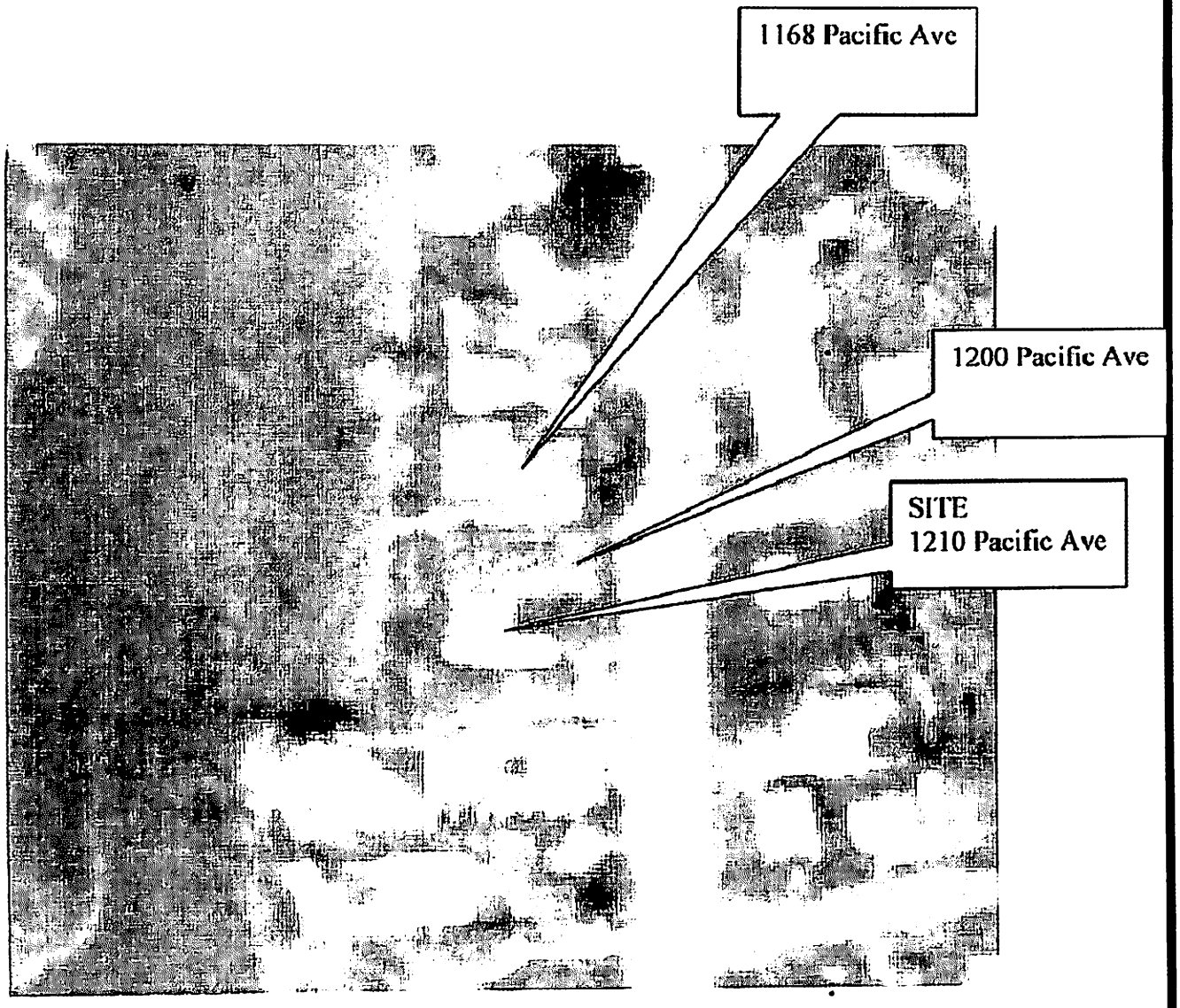
SL06635-1



NO SCALE

North

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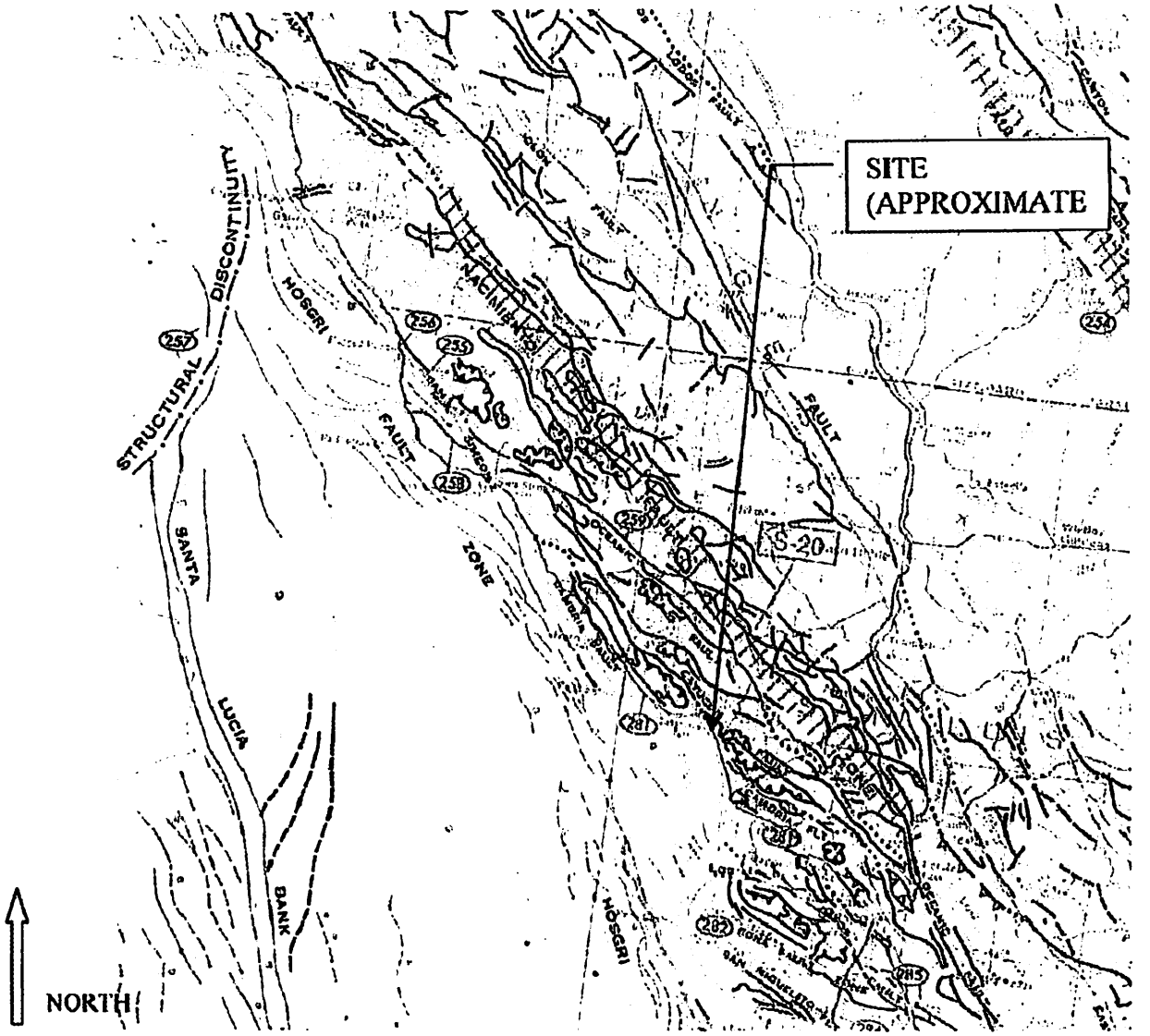
AERIAL PHOTOGRAPH

UCSB Map and Imagery Library, 1982
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
7F

PROJECT NO:
SL06635-1



SCALE 1:750,000
(1 INCH EQUALS APPROXIMATELY 12 MILES)

10 0 10 20 30 40 50 Miles

10 0 10 20 30 40 50 60 Kilometers

GRAPHICS BY ROSS MARTIN

JENNINGS, 1994, SEE PLATE 8B AND 8C FOR EXPLANATIONS

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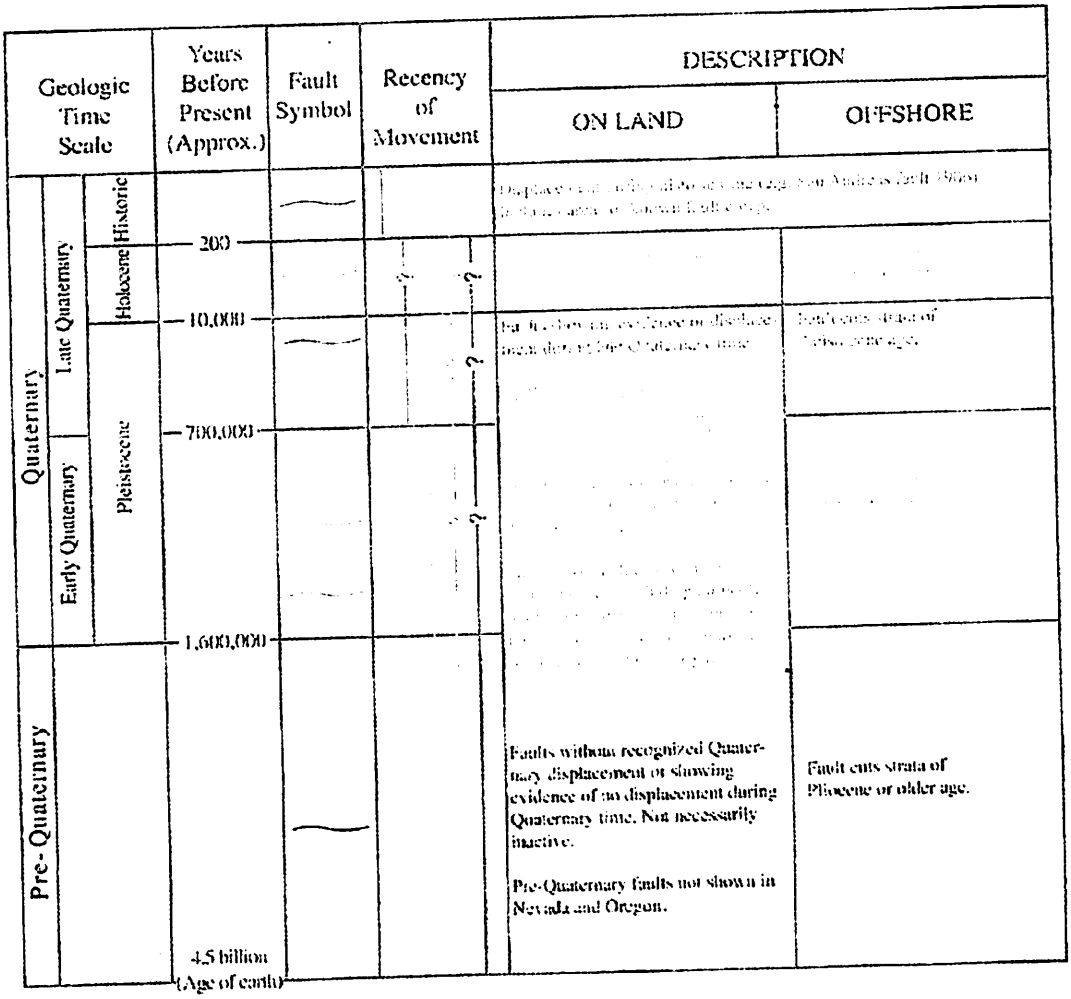
REGIONAL FAULT MAP

1210 PACIFIC AVENUE, SAN LUIS OBISPO AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
8A
PROJECT NO:
SL06635-1

Exhibit 6



EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.

(b) fault creep slippage – show ground displacement usually without accompanying earthquakes.

(c) displaced survey lines.

Pink band added to emphasize location of historic fault displacement.

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REGIONAL FAULT EXPLANATIONS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
8B

PROJECT NO:
SL06635-1

SPECIAL NOTATIONS

A triangle to the right or left of the date indicates termination point of observed surface displacement.

Date bracketed by triangles indicates local fault break.

No triangle by date indicates an intermediate point along fault break.

Dot on fault indicates location where fault creep slippage has been observed and recorded.

Square on fault indicates where fault creep slippage has occurred that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

Holocene fault displacement (during past 10,000 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offdate is based on the interpreted age of the youngest strata displaced by faulting. Pale orange band added to emphasize location of Holocene fault displacement.

Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

Late Cenozoic faults within the Sierra Nevada including, but not restricted to, the Foothills fault system. Faults show stratigraphic and/or geomorphic evidence for displacement of late Miocene and Pliocene deposits. By analogy, late Cenozoic faults in this system that have been investigated in detail may have been active in Quaternary time. (Data from PG&E, 1993).

Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissance nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

S-25

Fault segment associated with a significant linear trend of accurately located earthquake epicenters (magnitude 0.2 or greater). Generally aligned along strike slip faults having Quaternary displacement, but not necessarily with historic surface rupture. Lack of seismic activity along any fault is no indication that the fault may not be active in the future (e.g. San Andreas fault north of San Francisco). Epicenter data are derived from closely spaced seismic stations and include either continuing microseismicity or aftershocks associated with relatively large earthquakes.

Aligned seismicity on fault segments are referenced in Appendixes C and E

ADDITIONAL FAULT SYMBOLS

U = Upthrown side (relative or apparent)
D = Downthrown side (relative or apparent)

Bar and ball on downthrown side (used where space is limited).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS

529

Numbers refer to annotations listed in the Appendices of the accompanying report. Annotations include fault name, age of fault movement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass all potentially and recently active faults.

Cinder cone and other types of volcanoes. Most were active in Pleistocene time, some are Holocene, a few are historic.

Number in box or circle refers to Table 4 (Recent Volcanic Eruptions) in accompanying report. (Box refers to California, circle to Nevada.)

(1786 A.D.) = Date of historic volcanic eruption.

(9,500 B.P.) = Eruption occurrence in years before present (B.P.).

(0.5 m.y.) = Age of volcanic flow or eruption in million years (m.y.).

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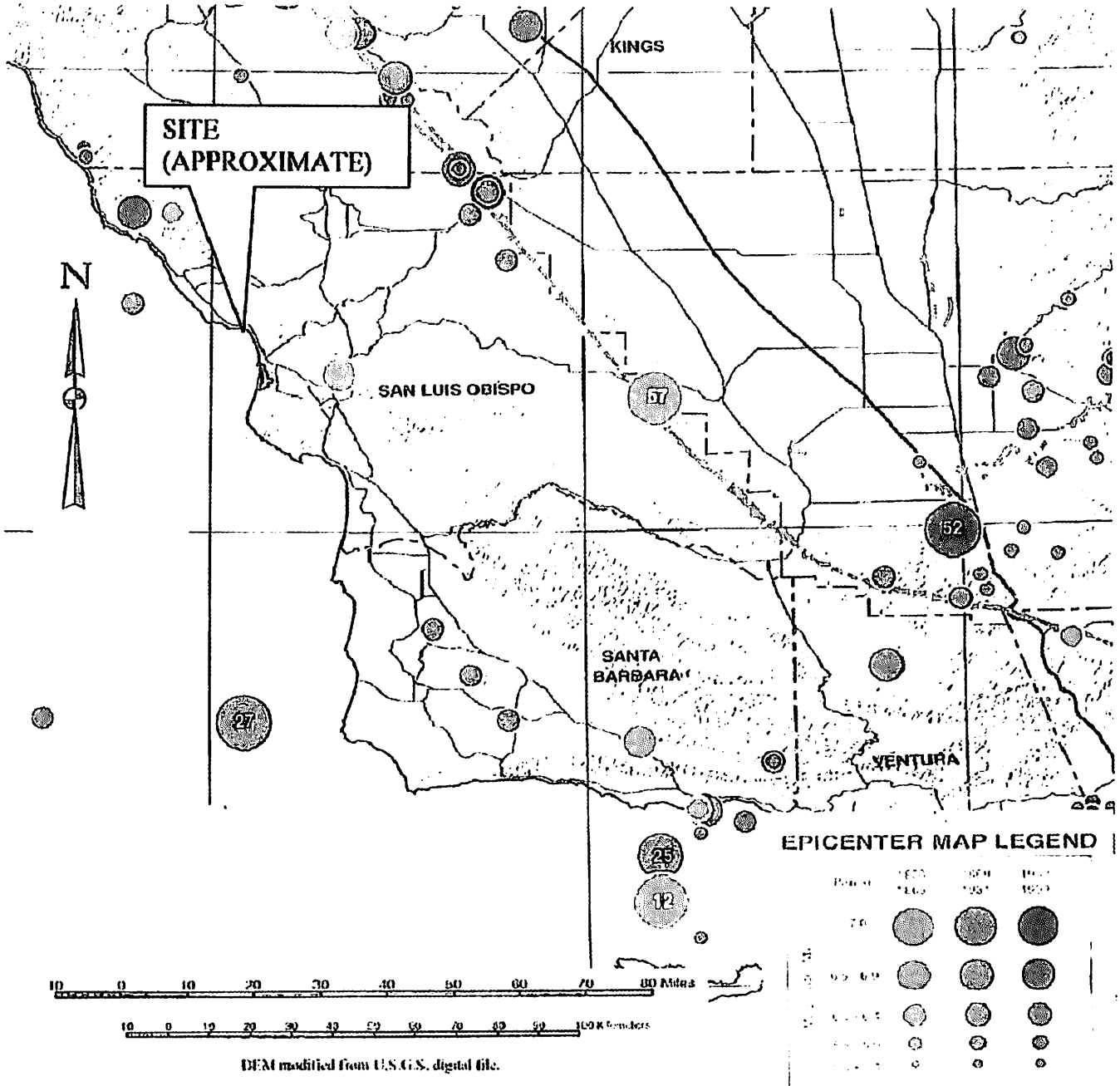
REGIONAL FAULT EXPLANATIONS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
8C

PROJECT NO:
SL06635-1



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T. TOPPOZADA, D BRANUM, M PETERSEN, C HALLSTROM, C. CRAMER, M. REICHLE, 2000

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HISTORICAL SEISMCITY MAP

1210 PACIFIC AVENUE, CAYUCOS AREA,
SAN LUIS OBISPO COUNTY, CALIFORNIA

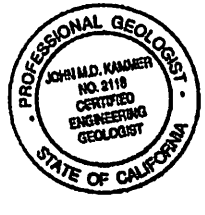
PLATE
9A

PROJECT NO:
SL06635-1

Significant Earthquakes That May Have Affected the Site in the Last 200 Years

DATE			TIME (GMT)	LATITUDE	LONGITUDE	MAG	LOCATION
Year	mth	day	hr	(N)	(W)		
1812	12	21	19:00	34 12.00	119 54.00	7.0	Santa Barbara Channel
1830	?	?		35 3	120 6	5.0	San Luis Obispo area (?)
1853	2	1		35 6	121 1	5.0	San Simeon area (?)
1857	1	9	16:00	35 42.00	120 18.00	8.25	Great Fort Tejon earthquake
1866	7	15	06:30	37 30.00	121 18.00	6.0	W. San Joaquin Valley
1881	2	2	00:11	36 0.	120 30.00	5.75	Parkfield
1881	4	10	10:00	37 24.00	121 24.00	6.0	W. San Joaquin Valley
1882	3	6	21:45	36 54	121 12.	5.75	Hollister
1883	9	5	12:30	34 12.00	119 54.00	6.25	Santa Barbara Channel
1885	3	31		36 7	121 3	5.5	San Andreas Fault (?)
1885	4	2		36 8	121 4	5.4	San Andreas Fault (?)
1885	4	12		36 4	121 0	6.2	San Andreas Fault (?)
1892	4	21	17:43	38 30.00	121 54.00	6.25	Winters
1892	11	13		36 8	121 5	5.5	San Andreas Fault (?)
1892	11	13	12:45	36 48.00	121 30.00	5.75	Hollister
1897	6	20	20:14	37 0.	121 30.00	6.25	Gilroy
1899	7	22		34 2	117 4	5.5	San Andreas Fault (?)
1899	7	22		34 3	117 5	6.5	San Andreas Fault (?)
1901	3	3	07:45	36 0.	120 30.00	6.4	Parkfield
1901	3	3		36 0	120 5	5.5	Parkfield Area
1902	7	28		34 75	120 33	5.4	Los Alamos area
1902	12	12		34 76	120 37	5.0	Los Alamos area
1906	4	18	13:12	37 42.00	122 30.00	8.25	Great 1906 earthquake
1907	9	20		34 2	117 1	6.0	San Andreas Fault (?)
1910	3	11	06:52	36 54.00	121 48.00	5.8	Watsonville
1910	12	31		36 8	121 4	5.0	Hollister Area
1913	10	20		35 12	120 58	5.0	Arroyo Grande area
1915	1	20		34 73	120 23	5.8	Los Alamos area
1916	8	6		36 7	121 3	5.5	Paicines area
1916	10	23	02:44	34 54.00	118 54.00	5.3	Tejon Pass region
1916	10	23		34 6	118 9	6.0	Tejon Pass Area
1916	10	23		34 7	119 0	5.5	Tejon Pass Area
1916	12	1		35 18	120 73	5.0	Avila area
1917	7	9		35 25	120 48	5.0	Lopez Canyon area
1919	2	16		35 0	119 0	5.0	Tejon Pass Area
1922	3	10	11:21	6 0.	120 30.00	6.3	Parkfield
1922	3	10		35 75	120 25	6.5	Cholame Valley Area
1922	8	18		35 75	120 3	5.0	Cholame Valley Area
1925	6	29	14:42	34 18.00	119 48.00	6.3	Santa Barbara
1926	7	25		36 6	120 8	5.0	Idria area
1926	12	27		36 2	120 3	5.0	Coalinga area
1927	11	4	13:50	34 42.00	120 48.00	7.3	SW of Lompoc
1932	2	26		36 0	121 0	5.0	San Ardo area
1934	6	8	04:47	36 0	120 30.00	6.0	Parkfield
1934	6	5		35 80	120 33	5.0	Parkfield Area
1934	6	8		35 80	120 33	6.0	Parkfield Area
1934	12	24		35 93	120 48	5.0	Parkfield Area
1939	6	24		36 80	121 45	5.5	Hollister Area
1939	9	21		34 87	118 93	5.2	Cuddy Valley Area
1939	12	28		35 80	120 33	5.0	Parkfield Area
1941	7	1	07:50	34 22.00	119 35.00	5.9	Carpenteria
1951	7	29		36 58	121 18	5.0	Southeast of Mulberry
1952	7	21	11:52	35 0.	119 1.00	7.7	Kern County earthquake
1952	11	22	07:46	35 44.00	121 12.00	6.0	Bryson
1955	11	02		35 96	120 92	5.1	San Ardo area
1956	11	16		35 95	120 47	5.0	Southwest of Coalinga
1960	1	20		36 78	121 43	5.0	South of Hollister
1966	6	28	04:26	36 0.	120 30.00	6.0	Parkfield
1966	6	28		120 50		5.1	Parkfield Sequence
1966	6	28		35 95	120 50	5.5	Parkfield Sequence
1970	9	12		34 27	117 54	5.4	Lytle Creek Area
1971	2	9	14:00	34 25.00	118 24.00	6.5	San Fernando
1972	2	24		36 58	121 21	5.0	Southeast of Hollister
1980	5	29		34 94	120 78	2.1	Orcutt Frontal Fault
1981	9	4	15:50	33 40.00	119 7.00	5.9	N. of Santa Barbara Island
1982	10	25		36 32	120 52	5.4	New Idria area
1983	5	2	23:42	36 14.00	120 19.00	6.5	Coalinga
1983	7	22	00:23	36 14.00	120 25.00	5.7	Coalinga
1983	8	29		35 84	121 34	5.4	San Simeon area
1984	1	23		36 35	121 91	5.2	Point Sur area
1984	4	24	21:15	37 19.00	121 39.00	6.1	Morgan Hill
1985	8	4	12:10	36 8.00	120 10.00	5.9	North Kettleman Hills
1989	10	18	00:04	37 2.19	121 52.98	7.1	Loma Prieta
2003	12	22	19:16	35 41.98	121 5.84	6.5	San Simeon
2004	09	28	10:15	35 8.15	120 3.74	6.0	Parkfield

S:\Misc Drawings\Geology\localfaultfaults.doc



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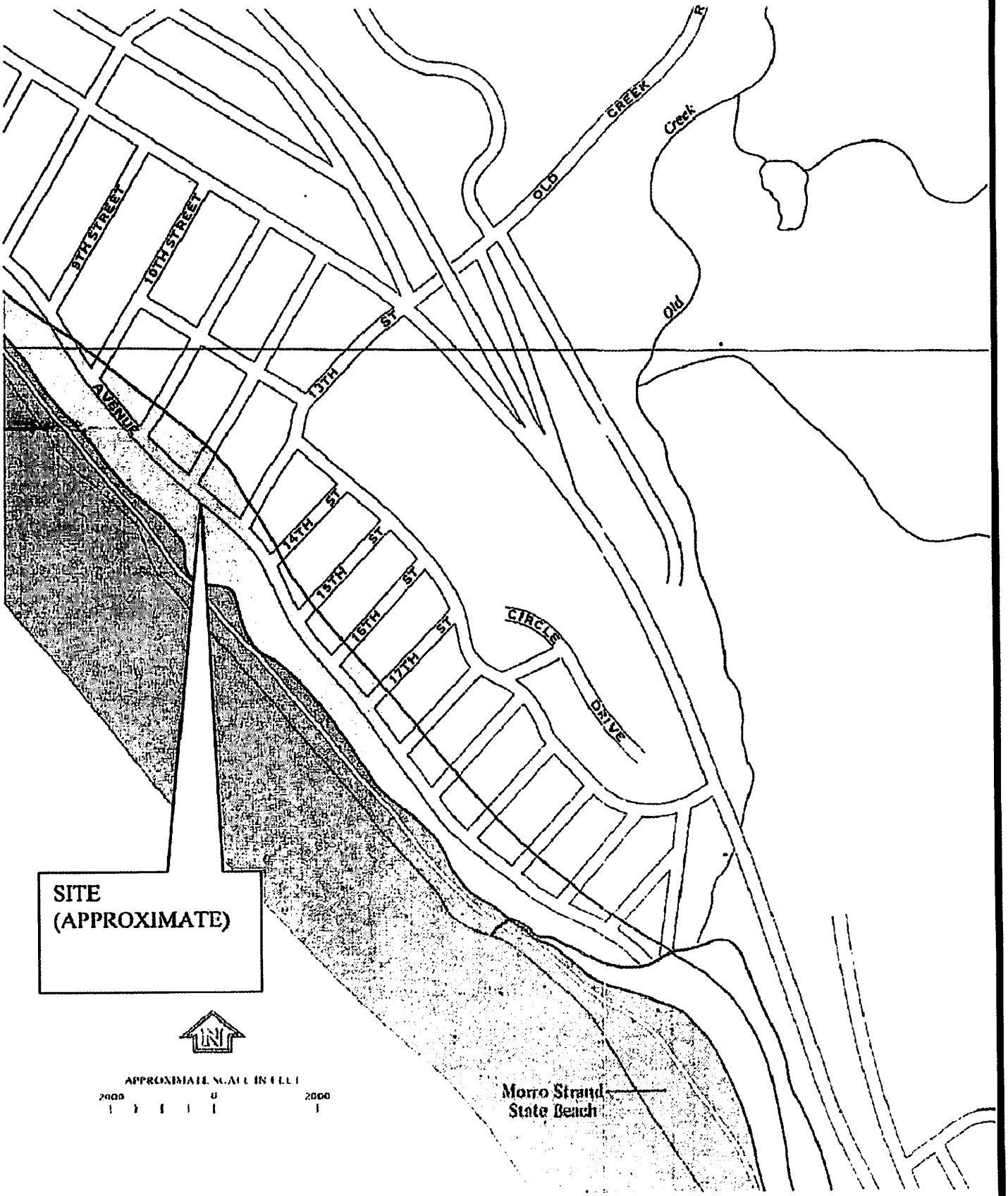
HISTORICAL SEISMCITY LIST

1210 PACIFIC AVENUE, AVILA BEACH AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
9B

PROJECT NO:
SL06635-1



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FLOOD INSURANCE RATE MAP

FEDERAL EMERGENCY MANAGEMENT AGENCY, 1985
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
10A

PROJECT NO:
[illegible]5-1

KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1
Zone Designations	ZONE A5
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation in Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7x
Zone D Boundary	
River Mile	•M1.6

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
AS0	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year floods; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Index to Map Panels.

INITIAL IDENTIFICATION:
JANUARY 3, 1975

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NOVEMBER 22, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 5, 1982

FLOOD INSURANCE RATE MAP REVISIONS:
Map revised July 16, 1985 to change flood plain boundaries, zone designations, base flood elevations, corporate limits, scale, cultural features, or map format.

NSO

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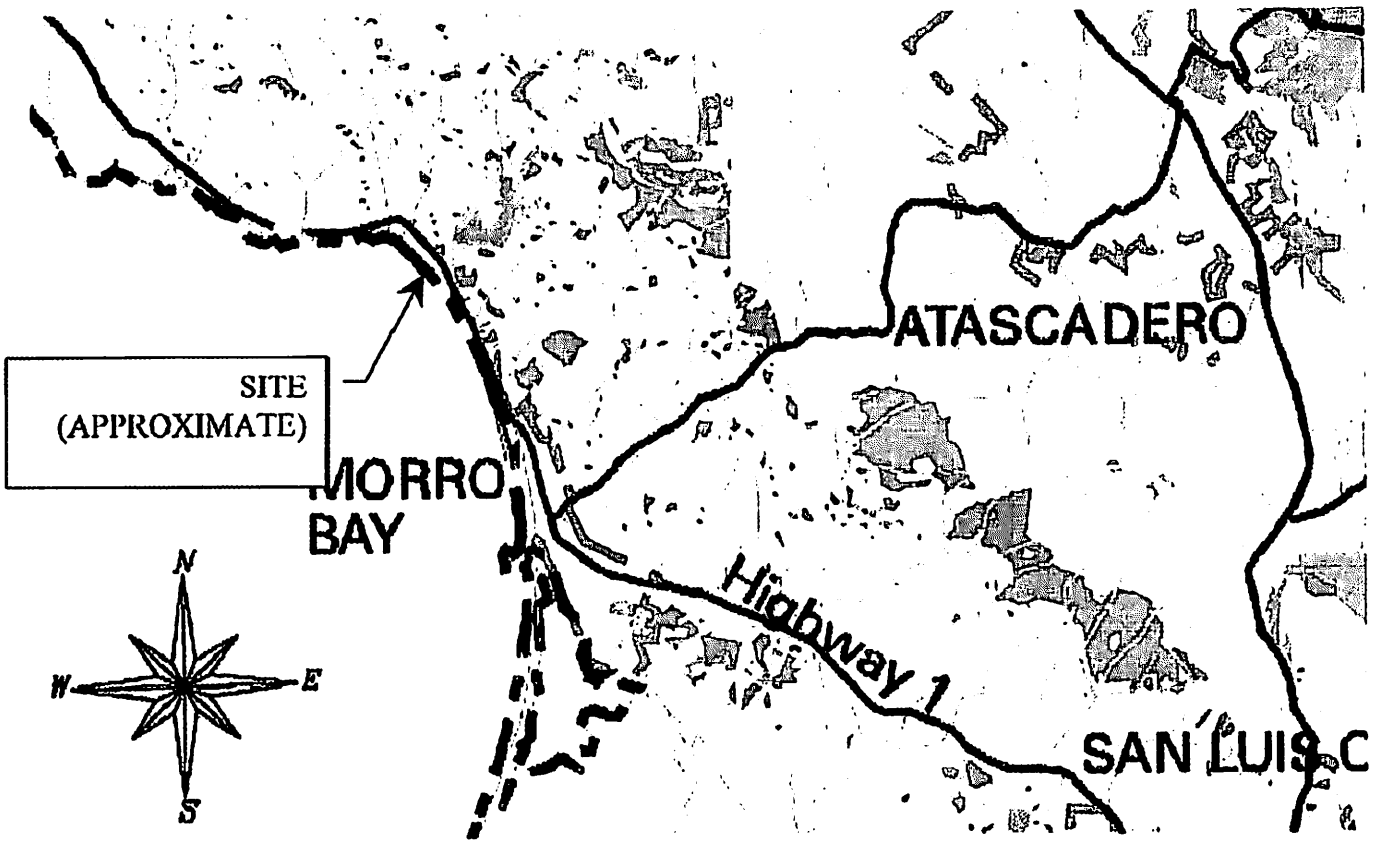
FLOOD EXPLANATIONS

FEDERAL EMERGENCY MANAGEMENT AGENCY. 1985
1210 PACIFIC AVENUE. CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
10B

PROJECT NO:
SLO635-1



SCALE: 1" = 50000'

0' 50000'

County Boundary
City Boundaries
Highways
Rivers, Lakes, and Streams

LANDSLIDE POTENTIAL

Very High
Existing Mapped Landslide
(Qls, Qlse)

High Potential
Franciscan and Other Potentially
Unstable Rocks (KJfmc, KJfmv,
KJt, KJfg, Tm, s, Tr, KJa, K)
and/or Slope Gradient > 50%

Moderate Potential
Formations Known to Have Localized
Areas of Instability (QTp, Ka, K)
and/or Slope Gradient > 20%

Low Potential
Slope Gradient < 20%

No Landslide Data

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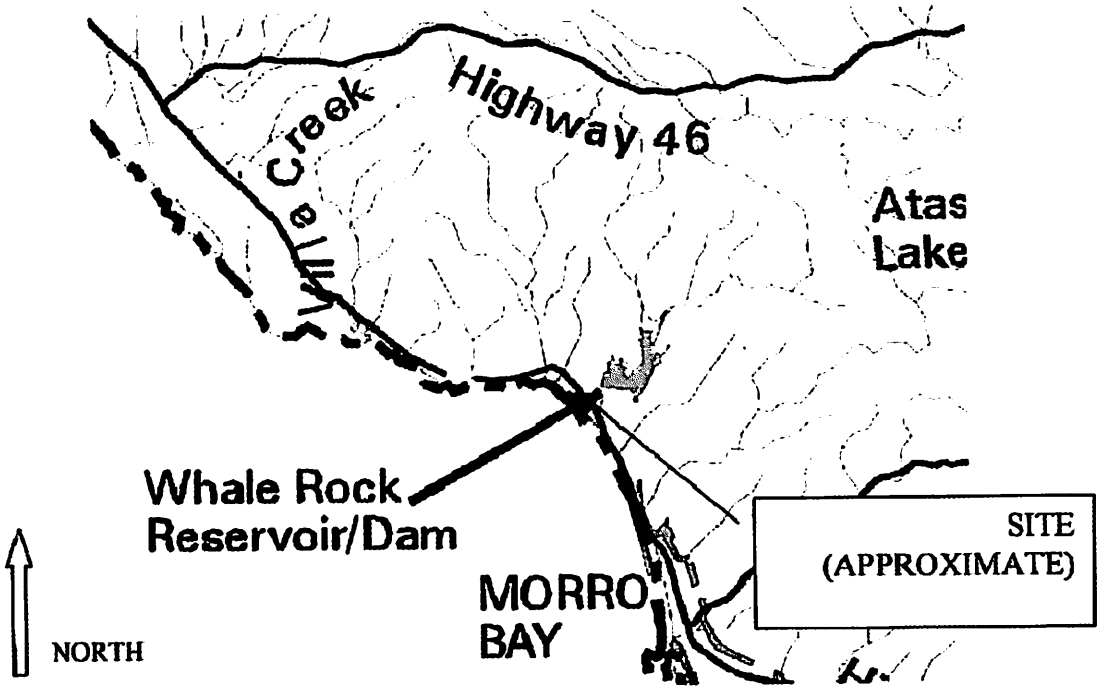
LANDSLIDE HAZARDS MAP

COUNTY OF SAN LUIS OBISPO DEPARTMENT OF
BUILDING AND PLANNING, 1999
1210 PACIFIC AVENUE
CAYUCOS, CALIFORNIA

PLATE
11

PROJECT NO:
SL06635-1



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DAM INUNDATION MAP

COUNTY OF SAN LUIS OBISPO AND CITIES SAFETY ELEMENT UPDATE
1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE 12

PROJECT NO: SL06635-1

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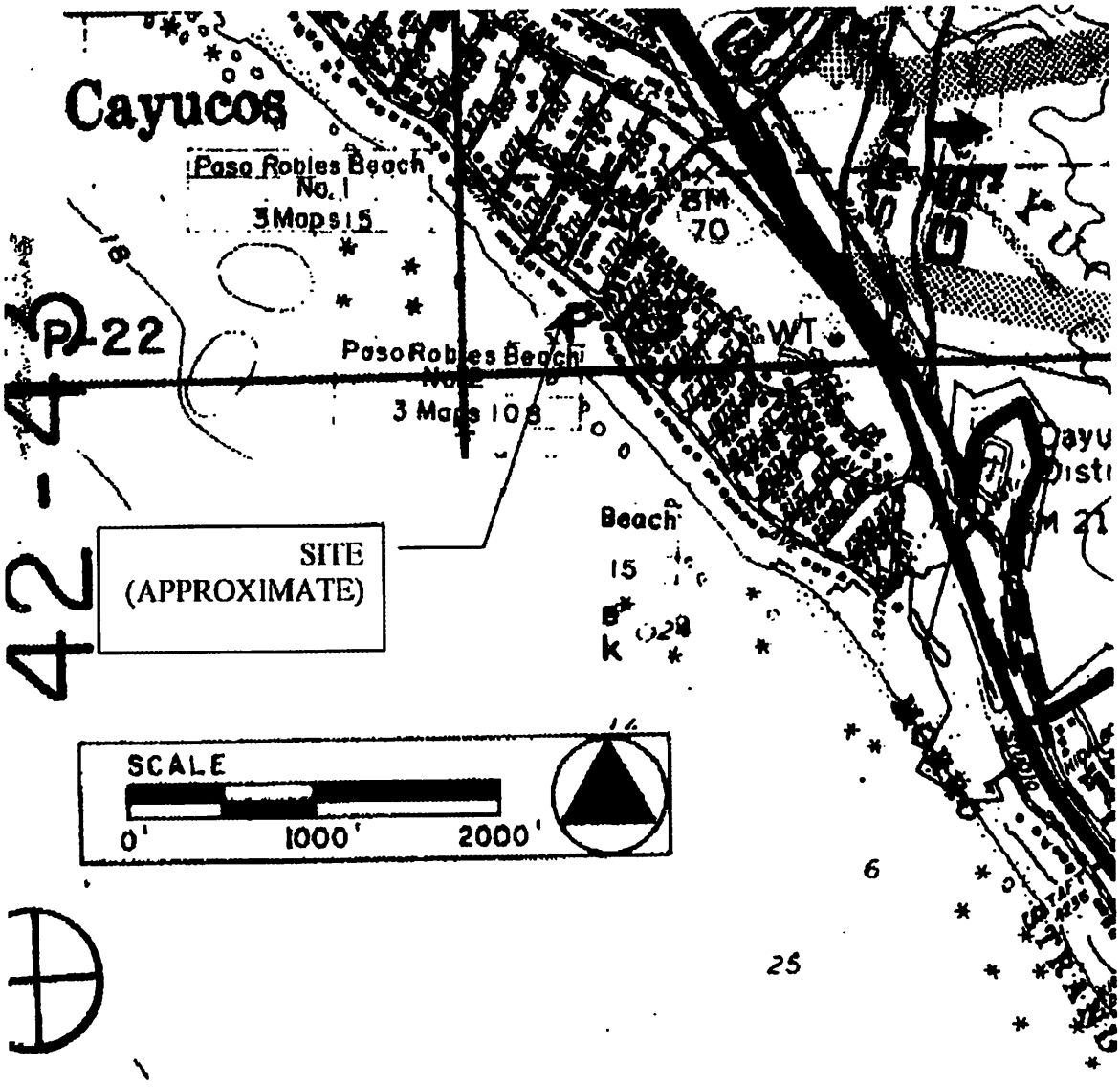
WHALE ROCK VULNERABILITY ASSESSMENT

1210 PACIFIC AVENUE, CAYUCOS
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE 13

SLO06351



San Luis Obispo County Department of Building and Planning, 1996

GeoSolutions, Inc. 220 High Street San Luis Obispo, California 93401 (805) 543-8539 fax: (805) 543-2171	PROFESSIONAL GEOLOGIST STATE OF CALIFORNIA	**GEOLOGIC STUDY AREA MAP** 1210 PACIFIC AVENUE, CAYUCOS AREA SAN LUIS OBISPO COUNTY, CALIFORNIA	PLATE 14A PROJECT NO: SL06635-1

LEGEND

LAND USE CATEGORIES

- AG AGRICULTURE
- RL RURAL LANDS
- REC RECREATION
- RR RESIDENTIAL RURAL
- RS RESIDENTIAL SUBURBAN
- RSF RESIDENTIAL SINGLE FAMILY
- RMF RESIDENTIAL MULTI-FAMILY
- OP OFFICE & PROFESSIONAL
- CR COMMERCIAL RETAIL
- CS COMMERCIAL SERVICE
- IND INDUSTRIAL
- PF PUBLIC FACILITIES
- OS OPEN SPACE

BOUNDARIES

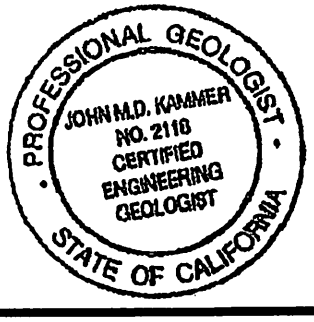
- LAND USE CATEGORY LINE
- URL - URBAN RESERVE LINE
- USL - URBAN SERVICE LINE
- VRL - VILLAGE RESERVE LINE
- CBD - CENTRAL BUSINESS DISTRICT
- COASTAL ZONE LINE
- PLANNING AREA

COMBINING DESIGNATIONS

- AR AIRPORT REVIEW AREA
- GS GEOLOGIC STUDY AREA
- FLOOD HAZARD
- EX ENERGY & EXTRACTIVE AREA
- H HISTORIC
- V VISITOR SERVING AREA
- LCP LOCAL COASTAL PLAN
- ARCHAEOLOGICALLY SENSITIVE AREAS
- SRA SENSITIVE RESOURCE AREA
- SRA's THAT ARE ALSO ENVIRONMENTALLY SENSITIVE HABITATS
- TH TERRESTRIAL HABITAT
- COASTAL STREAMS AND RIPARIAN VEGETATION
- WETLANDS
- MARINE HABITAT

PROPOSED PUBLIC FACILITIES

- HS HIGH SCHOOL
- JHS JUNIOR HIGH SCHOOL
- E ELEMENTARY SCHOOL
- PARK
- POLICE OR PUBLIC SAFETY FACILITY STATION
- R PROPOSED RESERVOIR
- WT WATER TREATMENT FACILITIES
- ST SEWAGE TREATMENT FACILITIES
- SW SOLID WASTE FACILITIES
- GF GOVERNMENT FACILITY
- L LIBRARY



San Luis Obispo County Department of Building and Planning, 1996

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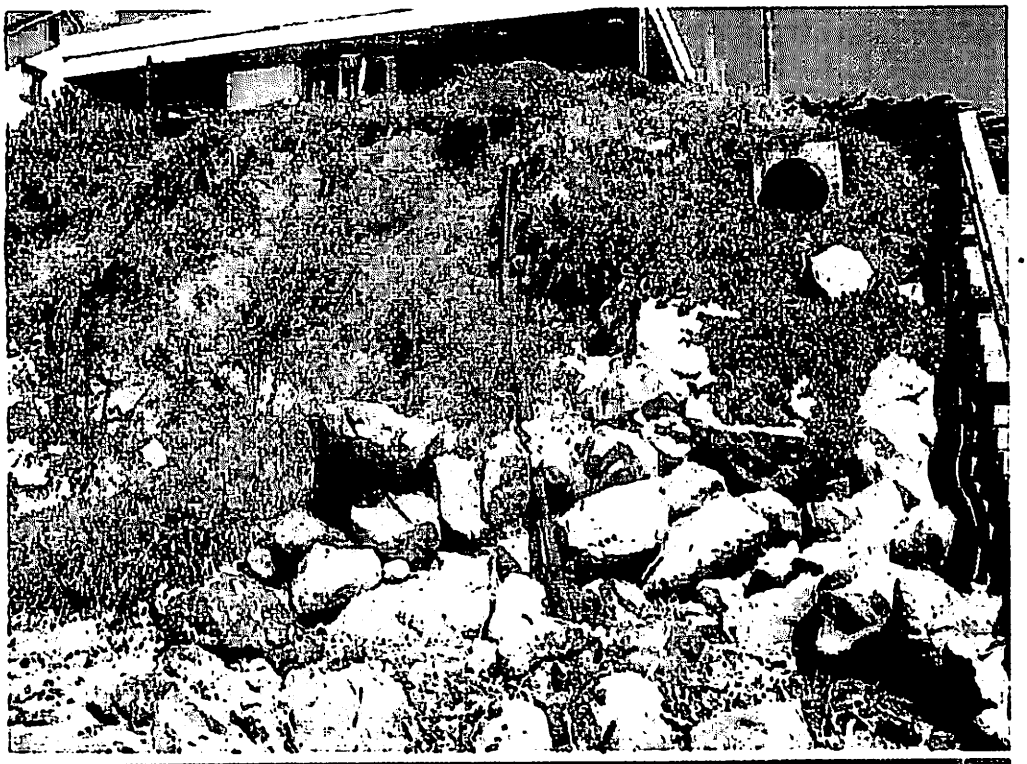
GEOLOGIC STUDY AREA MAP

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
14B

PROJECT NO:
SL06635-1

Exhibit 6
A-3-SLO-19-0026
Page 61 of 80



BLUFF AT 1168
PACIFIC AVENUE

BLUFF AT 1200
PAICIFC AVENUE

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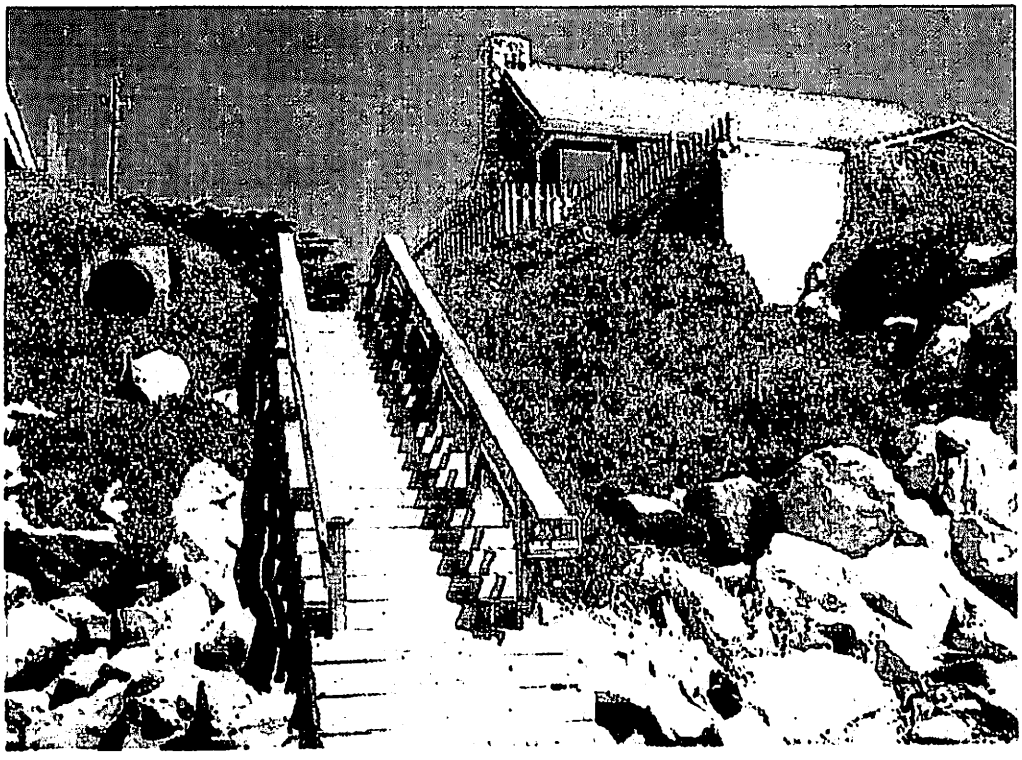
SITE PHOTOGRAPHS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
15A

PROJECT NO:
SL06635-1



STAIRS TO BEACH BETWEEN 1168 AND 1200 PACIFIC AVENUE

BLUFF AT 1210 PACIFIC AVENUE

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SITE PHOTOGRAPHS

1210 PACIFIC AVENUE, CAYUCOS AREA
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
15B

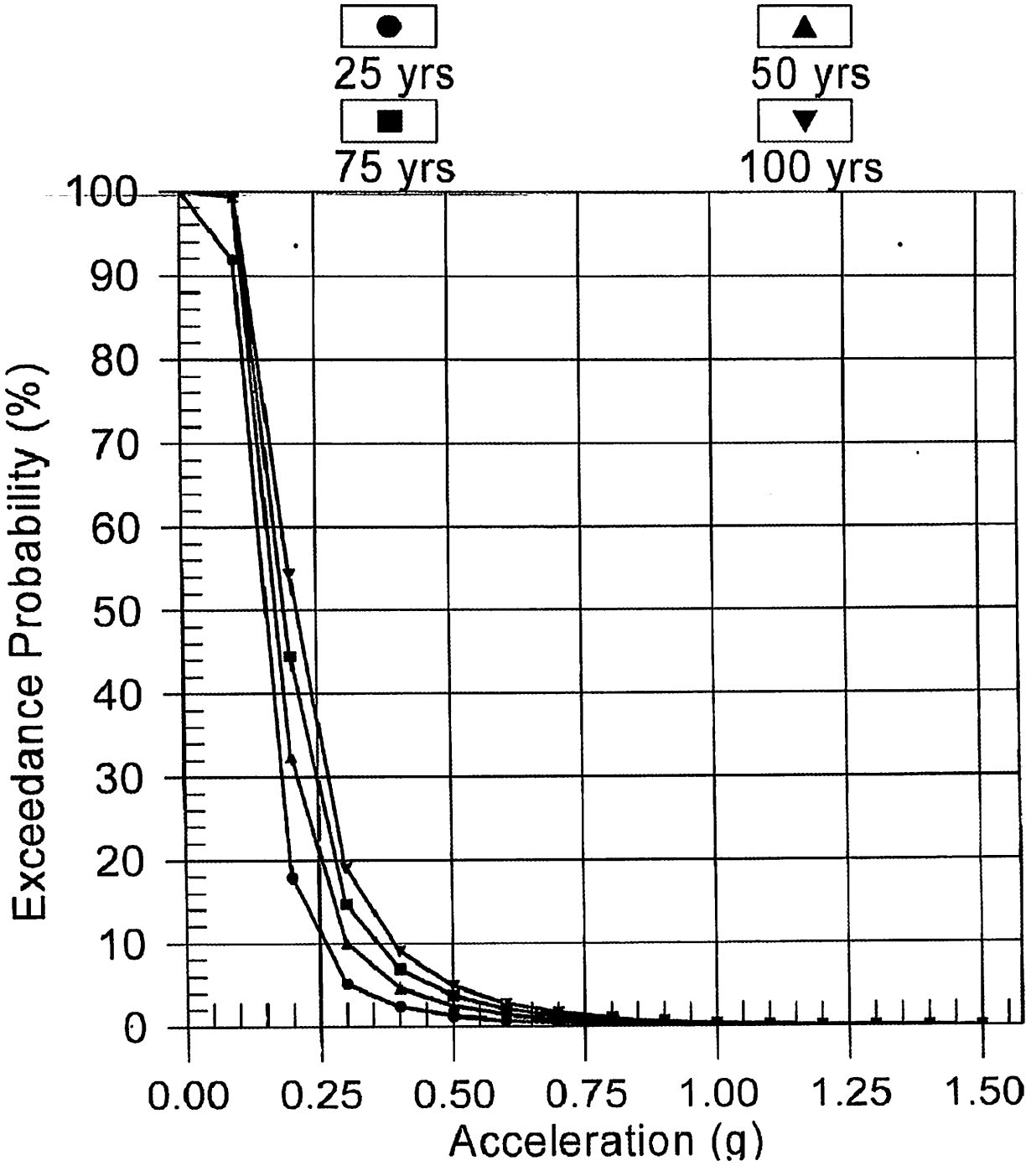
PROJECT NO:
SL06635-1

APPENDIX A

Probability of Exceedance Graph

PROBABILITY OF EXCEEDANCE

BOORE ET AL(1997) NEHRP D (250)1



APPENDIX B

Boring Logs

Laboratory Testing

GeoSolutions, Inc.

220 High Street

San Luis Obispo, CA 93401

BORING LOG

BORING NO. **B-1**

JOB NO. **SL06635-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	1210 Pacific Avenue, Cayucos	DRILL RIG:	CME 55
DRILLING LOCATION:	35.44014 N, 120.893720 W	HOLE DIAMETER:	8 Inches
DATE DRILLED:	March 21, 2008	SAMPLING METHOD:	CA/SPT
LOGGED BY:	LZ, RG	HOLE ELEVATION:	~36 Feet ASL

▼ Depth of Groundwater: **10.8 Feet BGS** Boring Terminated At: **15.0 Feet BGS** Page 1 of 1

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/12 IN	$(N_1)_{60}$	FRICTION ANGLE (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	PLASTICITY INDEX (PI)
0	SANDY CLAY: dark brown, moist (fill/topsoil)	SC										
-1	CLAYEY SAND: brown, moist (Colluvium)	SC										
-2				A			32.7	0	7.4	118.0	29	
	CLAYEY SAND: dark yellowish brown, medium grained, moist, Terrace Deposits (Qt), denser with depth	SC		X	41							
-3												
-4				X	56							
-5				B			22.3	262	10.8	124.7	22	
-6												
-7												
-8	FRANCISCAN COMPLEX METAVOLCANIC: with serpentinite, slightly moist, (KJfmv)											
-9				X	50/5"							
-10												
-11												
-12												
-13												
-14				X	50/3.5"		4.9	270				
-15												
-16												
-17												
-18												
-19												

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GeoSolutions, Inc.

220 High Street
San Luis Obispo, CA 93401

BORING LOG

BORING NO. **B-2**
JOB NO. **SL06635-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	1210 Pacific Avenue, Cayucos	DRILL RIG:	Continuous Hand Auger
DRILLING LOCATION:	See Plate 2, Eng Geo Map	HOLE DIAMETER:	8 Inches
DATE DRILLED:	April 3, 2008	SAMPLING METHOD:	None
LOGGED BY:	LZ	HOLE ELEVATION:	Not Recorded

▼ Depth of Groundwater: Not Encountered — Boring Terminated At: 11.5 Feet — Page 1 of 1

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	PLASTICITY INDEX (PI)
0 to -1	SANDY CLAY: brown, moist (fill/topsoil)	SC										
-1 to -2	CLAYEY SAND: brown, moist, organics, Colluvium, (Qc)	SC										
-2 to -8	CLAYEY SAND: dark yellowishbrown, medium grained, with gravel up to 1/3 inch diameter, rounded, moist, Terrace Deposits (Qt)	SC										
-8 to -11.5	FRANCISCAN COMPLEX SERPENTINITE: green/gray, fractured, moderately hard (KJfm)											

Depth scale: 0, -1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19

PROFESSIONAL GEOLOGIST
JOHN M.D. K[illegible]
NO. 2[illegible]

GeoSolutions, Inc.

220 High Street

San Luis Obispo, CA 93401

BORING LOG

BORING NO. **B-1**

JOB NO. **SL06634-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	1200 Pacific Avenue, Cayucos	DRILL RIG:	Continuous Hand Auger
DRILLING LOCATION:	See Plate 2, Eng Geo Map	HOLE DIAMETER:	8 Inches
DATE DRILLED:	April 3, 2008	SAMPLING METHOD:	None
LOGGED BY:	LZ	HOLE ELEVATION:	Not Recorded

▼ Depth of Groundwater: **Not Encountered** Boring Terminated At: **12 Feet** Page 1 of 1

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	PLASTICITY INDEX (PI)
0	SANDY CLAY: dark brown, moist (fill/topsoil)	SC										
-1	CLAYEY SAND: brown, moist, organics, Colluvium, (Qc)	SC										
-2	CLAYEY SAND: dark yellowish brown, medium grained, with gravel up to 1/3 inch diameter, rounded, moist, Terrace Deposits (Qt)	SC										
-3												
-4												
-5												
-6												
-7	CLAYEY SAND: olive green, with gravel up to 1/3 inch diameter, rounded, moist, Terrace Deposits (Qt), wet	SC										
-8												
-9	FRANCISCAN COMPLEX SERPENTINITE: green/gray, fractured, moderately hard (KJfm)											
-10												
-11												
-12												
-13												
-14												
-15												
-16												
-17												
-18												
-19												

PROFESSIONAL GEOLOGIST
JOHN D. KNOX
NO. 2113
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

GeoSolutions, Inc.

220 High Street

San Luis Obispo, CA 93401

BORING LOG

BORING NO. **B-1**

JOB NO. **SL06637-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	1221 Pacific Avenue	DRILL RIG:	CME 55
DRILLING LOCATION:	35.440275° N, 120.893631° W	HOLE DIAMETER:	8 Inches
DATE DRILLED:	April 8, 2008	SAMPLING METHOD:	CA
LOGGED BY:	JK	HOLE ELEVATION:	~30 Feet Above Sea Mean Level

Depth of Groundwater: Not Encountered   Boring Terminated At: 10 Feet

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	PLASTICITY INDEX (PI)
0	CLAYEY SAND: very dark grayish brown, slightly moist (Colluvium)	SC										
-1				A					10.8	123.4	35	22
-2	CLAYEY SAND: interpreted as Terrace Deposits (Qt): dark yellowish brown, with some rounded gravels, moist, mottled light brown/grey/red brown, increasing gravel with depth, gravels are rounded, slightly moist at depth, increasing clay with depth, very dense	SC		CA	58	89	38.9	3				
-3				B					10.4	126.1	41	22
-4				CA	50/5"		39.9	141				
-5												
-6												
-7	FRANCISCAN COMPLEX SANDSTONE: interpreted as Franciscan Complex Sandstone (KJfm): dark yellowish brown, greywacke and serpentinite, dry, very hard											
-8												
-9				CA	50/5"							
-10												
-11												
-12												
-13												
-14												
-15												
-16												
-17												
-18												
-19												

PROFESSIONAL GEOLOGIST · JOHN KARLIN · NO. 21 · CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

GeoSolutions, Inc.

220 High Street

San Luis Obispo, CA 93401

BORING LOG

BORING NO. **B-2**

JOB NO. **SL06637-1**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	1221 Pacific Avenue	DRILL RIG:	CME 55
DRILLING LOCATION:	35.440275° N, 120.893631° W	HOLE DIAMETER:	8 Inches
DATE DRILLED:	April 8, 2008	SAMPLING METHOD:	SPT
LOGGED BY:	JK	HOLE ELEVATION:	~30 Feet Above Sea Mean Level

▼ Depth of Groundwater: Not Encountered — Boring Terminated At: 10 Feet —

DEPTH	SOIL DESCRIPTION	USCS	LITHOLOGY	SAMPLE	BLOWS/ 12 IN	$(N_1)_{60}$	FRICTION ANGLE, (degrees)	COHESION, C (psf)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	EXPANSION INDEX (EI)	PLASTICITY INDEX (PI)
0	CLAYEY SAND: very dark grayish brown, slightly moist, (Colluvium)	SC										
-2	CLAYEY SAND: interpreted as Terrace Deposits (Qt): dark yellowish brown, with some rounded gravels, moist, mottled light brown/grey/red brown, increasing gravel with depth, gravels are rounded, slightly moist at depth, increasing clay with depth, very dense	SC		SPT	58	88						
-7	FRANCISCAN COMPLEX SANDSTONE: interpreted as Franciscan Complex Sandstone (KJfm): dark yellowish brown, greywacke with serpentinite, dry, very hard			SPT	50/5"							
-10												

PROFESSIONAL GEOLOGIST
JOHN M.D. IGLAMER
NO. 2118
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

GeoSolutions, Inc.

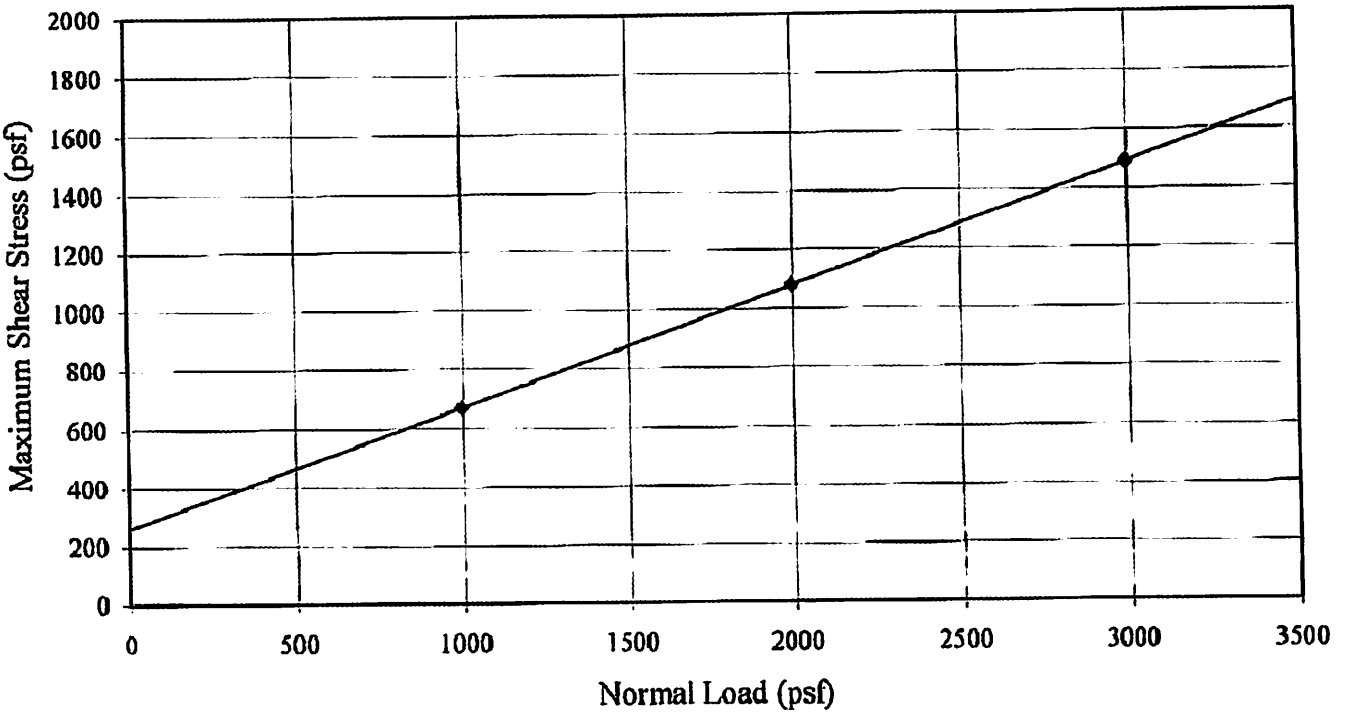
DIRECT SHEAR TEST REPORT
D3080-04

(805) 543-8539

Project:	1200 and 1210 Pacific Avenue	Date Tested:	4/10/2008
Client:		Project #:	SL06635-2
Sample #:	B Depth: 5.0 ft.	Lab #:	13455
Location:	B-1	Sample Date:	3/24/2008
Material:	Dark Yellowish Brown Clayey SAND (SC)	Sampled By:	RG

Test Data

Specimen Number	Void Ratio	Saturation, %	Normal Load, psf	Max Shear Stress, psf	Water Content, %	Dry Density, pcf	Relative Density*,%
1	-	-	1000	671	19.9	110.4	90
2	-	-	2000	1083	18.6	110.4	90
3	-	-	3000	1491	19.0	110.4	90
4							
5							



*The test specimens were initially remolded at 90% of the maximum dry density (ASTM D1557) and at 2% above the optimum moisture content of the material.

Maximum Dry Density, pcf:	124.7	Optimum Moisture, %:	10.8

Angle of Internal Friction @ 90% Rel. Compaction, Phi:	22.3 °
Cohesion @ 90% Relative Compaction, C:	261.67 psf

Report By: Aaron Eichman

GeoSolutions, Inc. | **SOILS REPORT** | **(805) 543-8539**

Project:	1200 and 1210 Pacific Avenue			Date Tested:	3/26/2008
Client:				Project #:	SL06635-2
Sample:	A	Depth:	1.5 ft.	Lab #:	13455
Location:	B-1			Sample Date:	3/24/2008
				Sampled By:	RG

Soil Classification
ASTM D2487-00, D2488-00

Result: Dark Yellowish Brown Claycy SAND

Specification: SC

Sieve Analysis
ASTM D422-63R02

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	98	
No. 8	97	
No. 16	96	
No. 30	94	
No. 50	81	
No. 100	44	
No. 200	38.1	

Sand Equivalent Cal 217 (11/1999)

1		SE
2		
3		
4		

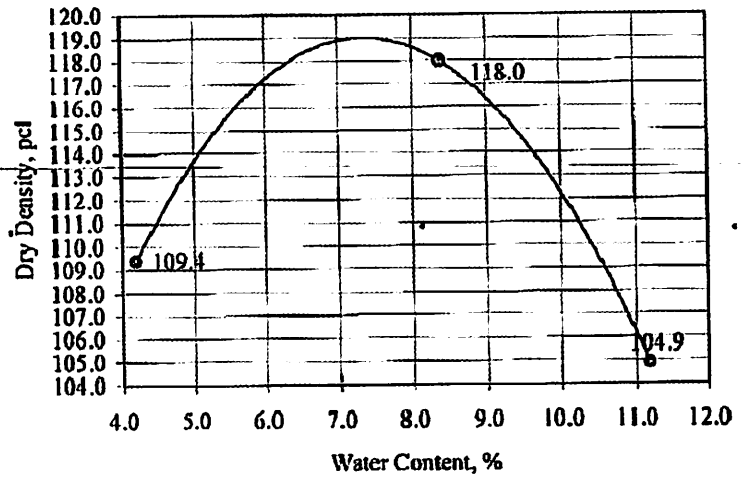
Plasticity Index
ASTM D4318-05

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829-03

Expansion Index:	29
Expansion Potential:	Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557-02 e1



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve = 2.25

Trial #	1	2	3	4
Water Content:	4.2	8.4	11.2	
Dry Density:	109.4	118.0	104.9	

Maximum Dry Density, pcf:	119.0
Optimum Water Content, %:	7.4

Moisture-Density ASTM D2937-04, ASTM D2216-05

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description
B-1	2.0	15.5	110.3		Dark Yellowish Brown Claycy SAND
B-1	4.0	15.0	113.7		Dark Yellowish Brown Sandy CLAY

Report By: Aaron Eichman

GeoSolutions, Inc.

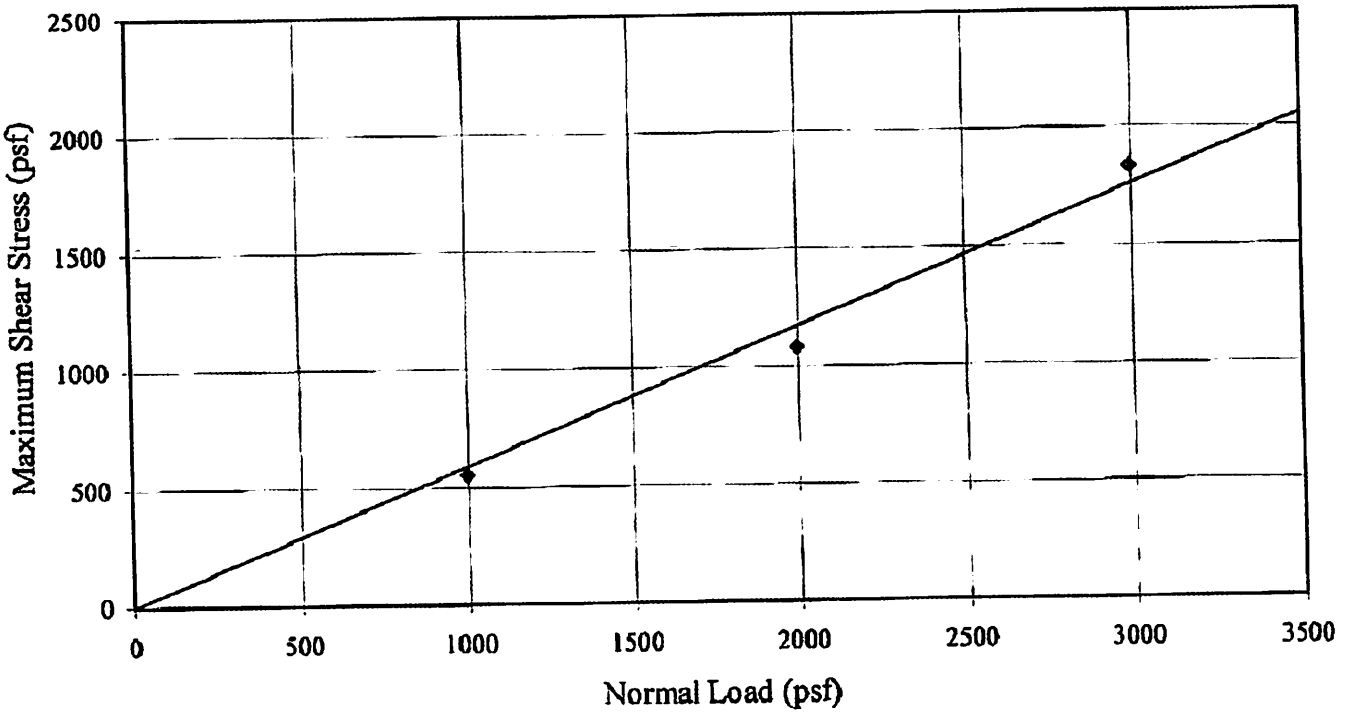
DIRECT SHEAR TEST REPORT
D3080-04

(805) 543-8539

Project:	1200 and 1210 Pacific Avenue			Date Tested:	4/1/2008
Client:				Project #:	SL06635-2
Sample #:	A	Depth:	1.0 ft.	Lab #:	13455
Location:	B-1			Sample Date:	3/24/2008
Material:	Dark Yellowish Brown Clayey SAND (SC)			Sampled By:	RG

Test Data

Specimen Number	Void Ratio	Saturation, %	Normal Load, psf	Max Shear Stress, psf	Water Content, %	Dry Density, pcf	Relative Density*,%
1	-	-	1000	553	21.6	105.4	90
2	-	-	2000	1084	19.4	105.4	90
3	-	-	3000	1836	19.2	105.4	90
4							
5							



*The test specimens were initially remolded at 90% of the maximum dry density (ASTM D1557) and at 2% above the optimum moisture content of the material.

Maximum Dry Density, pcf:	119.0	Optimum Moisture, %:	7.4

Angle of Internal Friction @ 90% Rel. Compaction, Phi:	32.7 °
Cohesion @ 90% Relative Compaction, C:	0 psf

Report By: Aaron Eichman

GeoSolutions, Inc. | **SOILS REPORT** | **(805) 543-8539**

Project:	1200 and 1210 Pacific Avenue	Date Tested:	3/27/2008
Client:		Project #:	SL06635-2
Sample:	B Depth: 5.0 ft.	Lab #:	13455
Location:	B-1	Sample Date:	3/24/2008
		Sampled By:	RG

Soil Classification
ASTM D2487-00, D2488-00

Result: Dark Yellowish Brown Clayey SAND

Specification: SC

Sieve Analysis
ASTM D422-63R02

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	100	
No. 8	99	
No. 16	97	
No. 30	95	
No. 50	78	
No. 100	39	
No. 200	34.0	

Sand Equivalent Cal 217 (11/1999)

1		SE
2		
3		
4		

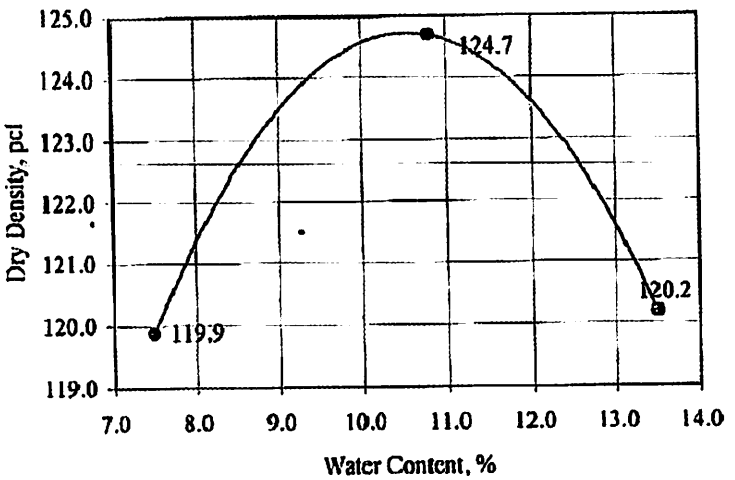
Plasticity Index
ASTM D4318-05

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829-03

Expansion Index:	22
Expansion Potential:	Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557-02 e1



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve = 2.65

Trial #	1	2	3	4
Water Content:	7.5	10.8	13.5	
Dry Density:	119.9	124.7	120.2	

Maximum Dry Density, pcf:	124.7
Optimum Water Content, %:	10.8

Moisture-Density ASTM D2937-04, ASTM D2216-05

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description
B-1	9.0	7.6	131.0		Olive Brown Clayey SAND with Gravel

Report By: Aaron Eichman

GeoSolutions, Inc.

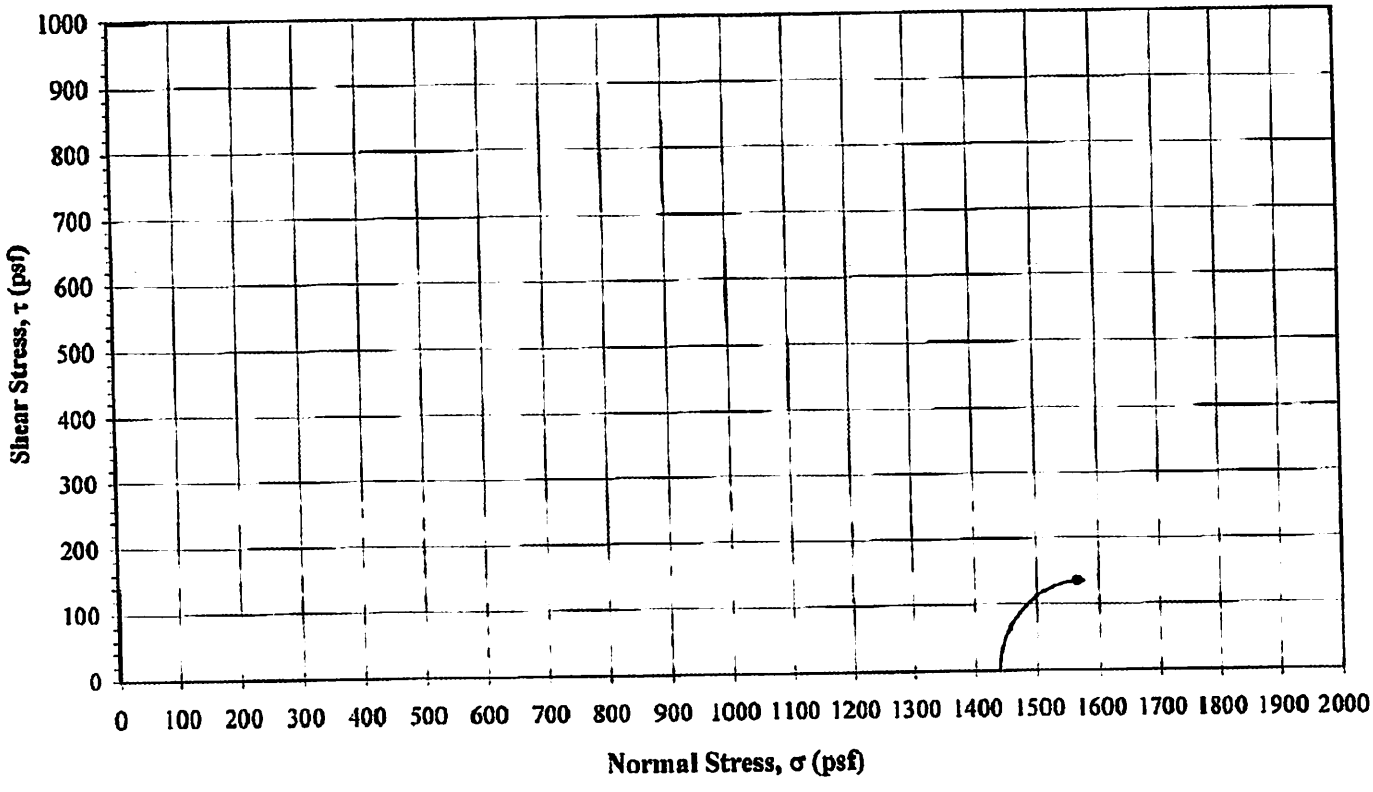
TRIAX SHEAR TEST REPORT
D-2850

(805) 543-8539

Project:	1200 and 1210 Pacific Avenue			Date Tested:	4/1/08
Client:				Project #:	SL06635-2
Sample #1:	B-1	Depth:	14.0 ft.	Lab #:	13455
Sample#2:		Depth:		Sample Date:	3/21/08
Material:	Very Dark Gray GRAVEL with Sand and Clay			Sampled By:	RG

Test Data

Specimen Number	H_o in.	D in.	γ_d pcf	G_s	Peak Stress tsf	Cell Pressure psi	Water Content, %		Dry Density, p	Relative Density, %
1	5	2.42		2.7	0.135	10	6.2	-	-	-
2										
3										
4										
5										



The test specimens were in-situ samples.

Δx =	-1575
Δy =	-135
α =	4.9

Angle of Internal Friction (In-Situ), Phi:	4.9 °
Cohesion (In-Situ), C:	270 psf

Report By: Darren Harrold

GeoSolutions, Inc. | **SOILS REPORT** | **(805) 543-8539**

Project:	1200 and 1210 Pacific Avenue	Date Tested:	3/27/2008
Client:		Project #:	SL06635-2
Sample:	B Depth: 5.0 ft.	Lab #:	13455
Location:	B-1	Sample Date:	3/24/2008
		Sampled By:	RG

Soil Classification
ASTM D2487-00, D2488-00

Result: Dark Yellowish Brown Clayey SAND

Specification: SC

Sieve Analysis
ASTM D422-63R02

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	100	
No. 8	99	
No. 16	97	
No. 30	95	
No. 50	78	
No. 100	39	
No. 200	34.0	

Sand Equivalent Cal 217 (11/1999)

1		SE
2		
3		
4		

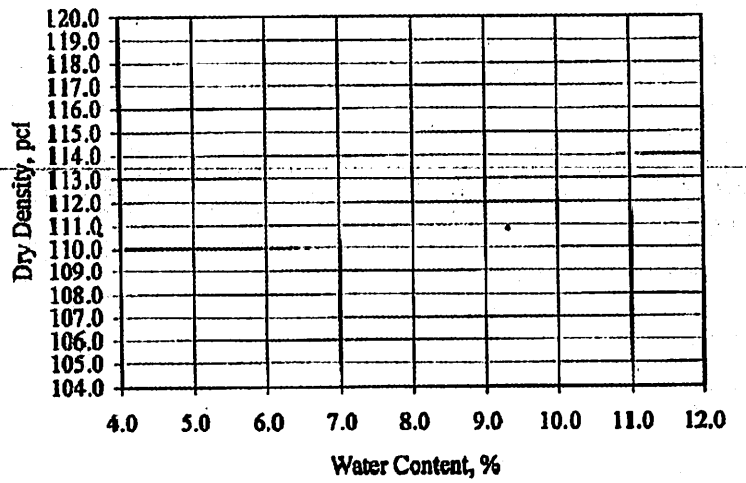
Plasticity Index
ASTM D4318-05

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829-03

Expansion Index:	22
Expansion Potential:	Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557-02 [e1]



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve =

Trial #	1	2	3	4
Water Content:				
Dry Density:				

Maximum Dry Density, pcf:	
Optimum Water Content, %:	

Moisture-Density ASTM D2937-04, ASTM D2216-05

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description
B-1	9.0	7.6	131.0		Olive Brown Clayey SAND with Gravel

Report By: Aaron Eichman

GeoSolutions, Inc.

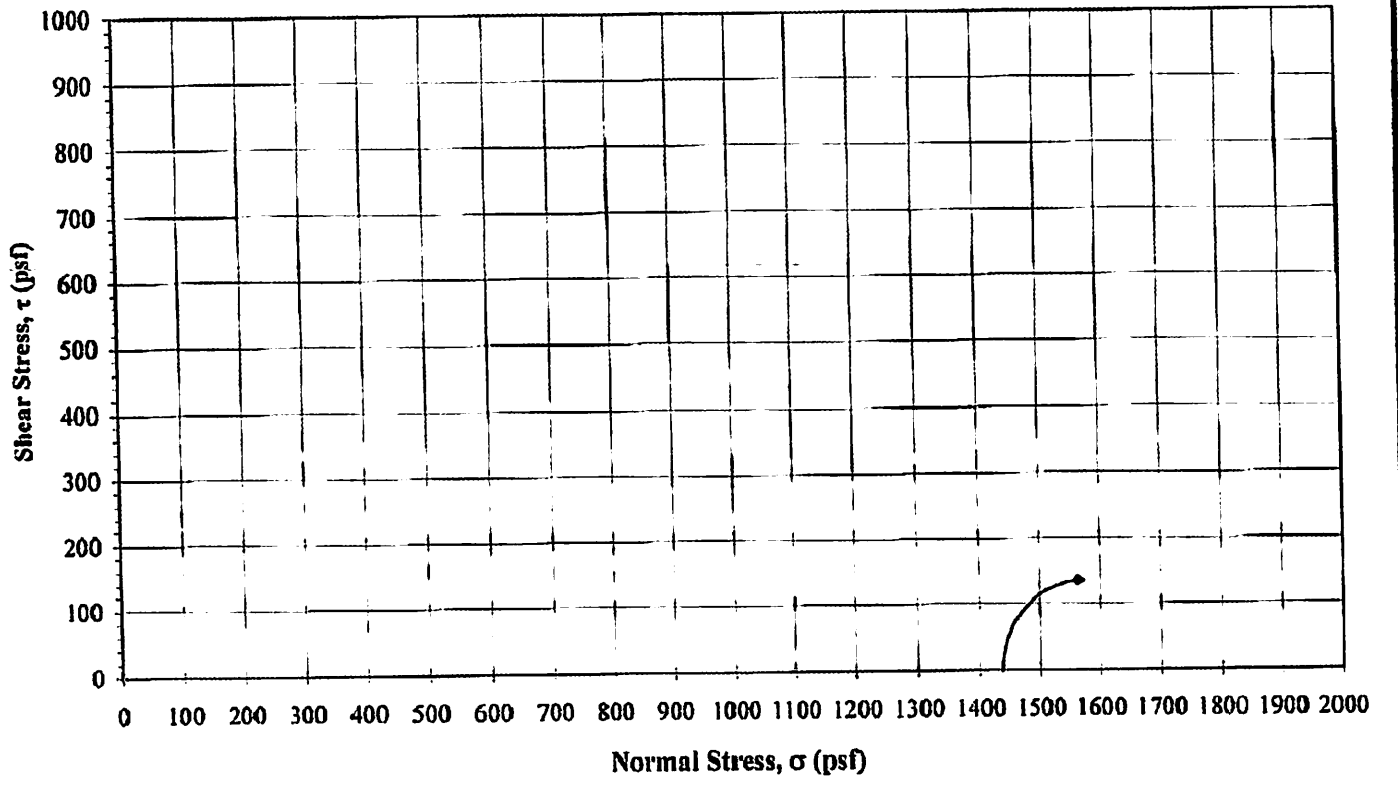
TRIAX SHEAR TEST REPORT
D-2850

(805) 543-8539

Project:	1200 and 1210 Pacific Avenue			Date Tested:	4/1/08
Client:				Project #:	SL06635-2
Sample #1:	B-1	Depth:	14.0 ft.	Lab #:	13455
Sample#2:		Depth:		Sample Date:	3/21/08
Material:	Very Dark Gray GRAVEL with Sand and Clay			Sampled By:	RG

Test Data

Specimen Number	H_o in.	D in.	γ_d pcf	G_s	Peak Stress tsf	Cell Pressure psi	Water Content, %		Dry Density, p	Relative Density, %
1	5	2.42		2.7	0.135	10	6.2	-	-	-
2										
3										
4										
5										



The test specimens were in-situ samples.

Δx =	-1575
Δy =	-135
α =	4.9

Angle of Internal Friction (In-Situ), Phi:	4.9 °
Cohesion (In-Situ), C:	270 psf

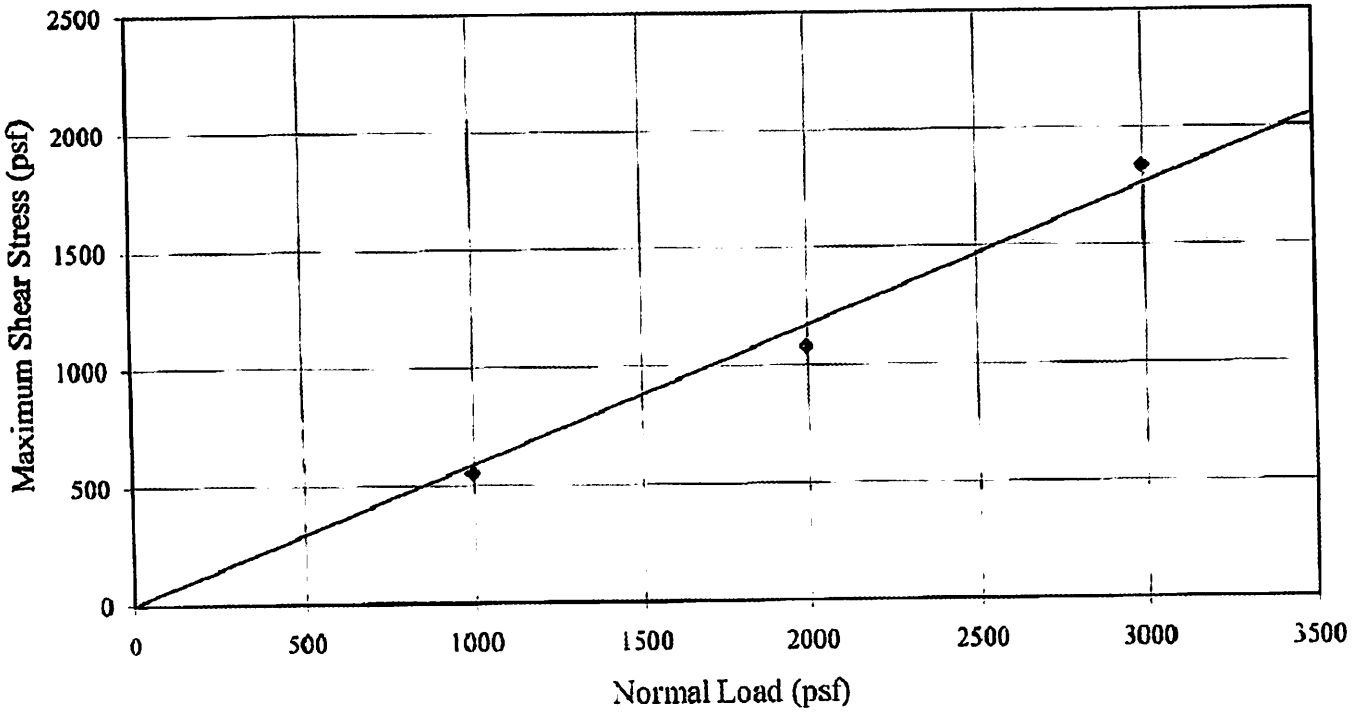
Report By: Darren Harrold

GeoSolutions, Inc.	DIRECT SHEAR TEST REPORT D3080-04	(805) 543-8539

Project:	1200 and 1210 Pacific Avenue			Date Tested:	4/1/2008
Client:				Project #:	SL06635-2
Sample #:	A	Depth:	1.0 ft.	Lab #:	13455
Location:	B-1			Sample Date:	3/24/2008
Material:	Dark Yellowish Brown Clayey SAND (SC)			Sampled By:	RG

Test Data

Specimen Number	Void Ratio	Saturation, %	Normal Load, psf	Max Shear Stress, psf	Water Content, %	Dry Density, pcf	Relative Density*,%
1	-	-	1000	553	21.6	105.4	90
2	-	-	2000	1084	19.4	105.4	90
3	-	-	3000	1836	19.2	105.4	90
4							
5							



*The test specimens were initially remolded at 90% of the maximum dry density (ASTM D1557) and at 2% above the optimum moisture content of the material.

Maximum Dry Density, pcf:	119.0	Optimum Moisture, %:	7.4

Angle of Internal Friction @ 90% Rel. Compaction, Phi:	32.7 °
Cohesion @ 90% Relative Compaction, C:	0 psf

Report By: Aaron Eichman

GeoSolutions, Inc. | **SOILS REPORT** | **(805) 543-8539**

Project:	1200 and 1210 Pacific Avenue			Date Tested:	3/26/2008
Client:				Project #:	SL06635-2
Sample:	A	Depth:	1.5 ft.	Lab #:	13455
Location:	B-1			Sample Date:	3/24/2008
				Sampled By:	RG

Soil Classification
ASTM D2487-00, D2488-00

Result: Dark Yellowish Brown Clayey SAND

Specification: SC

Sieve Analysis
ASTM D422-63R02

Sieve Size	Percent Passing	Project Specifications
3"		
2"		
1 1/2"		
1"		
3/4"		
No. 4	98	
No. 8	97	
No. 16	96	
No. 30	94	
No. 50	81	
No. 100	44	
No. 200	38.1	

Sand Equivalent Cal 217 (11/1999)

1		SE
2		
3		
4		

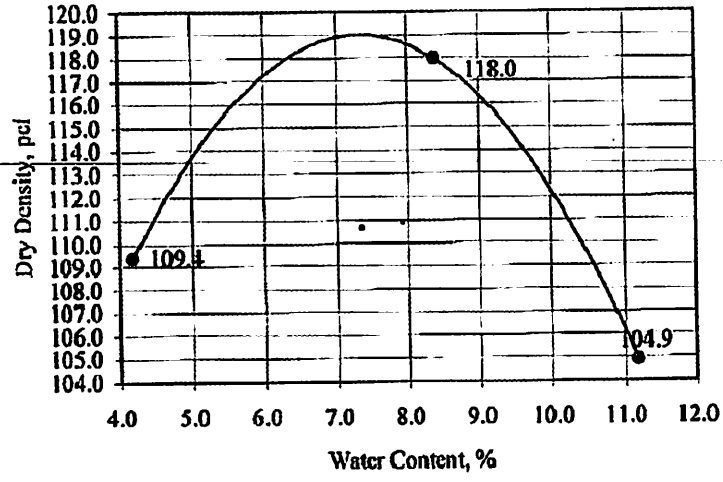
Plasticity Index
ASTM D4318-05

Liquid Limit:	
Plastic Limit:	
Plasticity Index:	

Expansion Index
ASTM D4829-03

Expansion Index:	29
Expansion Potential:	Low
Initial Saturation, %:	50

Laboratory Maximum Density
ASTM D1557-02 [c]



Mold ID	n/a	Mold Diameter, ins.	4.00
No. of Layers	5	Weight of Rammer, lbs.	10.00
No. of Blows	25		

Estimated Specific Gravity for 100% Saturation Curve = 2.25

Trial #	1	2	3	4
Water Content:	4.2	8.4	11.2	
Dry Density:	109.4	118.0	104.9	

Maximum Dry Density, pcf:	119.0
Optimum Water Content, %:	7.4

Moisture-Density ASTM D2937-04, ASTM D2216-05

Sample	Depth (ft)	Water Content (%)	Dry Density (pcf)	Relative Density	Sample Description
B-1	2.0	15.5	110.3		Dark Yellowish Brown Clayey SAND
B-1	4.0	15.0	113.7		Dark Yellowish Brown Sandy CLAY

Report By: Aaron Eichman