

Staff Report to the Zoning Administrator

Application Number: 111073

Applicant: Aaron Lingemann **Owner:** Aaron Lingemann **APN:** 062-141-04; 062-111-07

Agenda Date: September 2, 2011

Agenda Item #: **3**Time: After 10:00 a.m.

Project Description: Proposal to construct a two-story single-family dwelling, attached carport and garage totaling approximately 3,800 square feet, and to remove and replace, in kind, the surface deck of an existing bridge. Project includes grading of approximately 375 cubic yards cut and 225 cubic yards of fill.

Location: Project located on the southwest side of Smith Grade Road, off of an unnamed right-of-way, approximately 1.7 miles south of the intersection of Smith Grade and Empire Grade.

Supervisoral District: 3rd District (District Supervisor: Neal Coonerty)

Permits Required: Coastal Development Permit

Technical Reviews: Soils Report, Archaeological Report, Preliminary Grading Approval

Staff Recommendation:

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 111073, based on the attached findings and conditions.

Exhibits

A.	Project p	lans
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- B. Findings
- C. Conditions
- D. Categorical Exemption (CEQA determination)
- E. Assessor's, Location, Zoning and General Plan Maps
- F. Comments & Correspondence
- G. Registered Forester's Assessment of TP
- H. Archaeological Reconnaissance for proposed Building Site
- I. Geotechnical Report and Plan Review Letters

Parcel Information

Parcel Size:

42.9 acres

Existing Land Use - Parcel:

Timber Production

Timber Production and Residential Existing Land Use - Surrounding:

Unnamed private right-of-way off of Smith Grade Road Project Access:

Planning Area: Bonny Doon

Land Use Designation: R-M (Mountain Residential) Zone District: TP (Timber Production) __ Outside Coastal Zone: X Inside No

Appealable to Calif. Coastal Comm. X Yes

Environmental Information

Mapped potential landslide, evaluation completed by project engineer Geologic Hazards:

Soils:

Fire Hazard: Not a mapped constraint

Slopes: N/A

Env. Sen. Habitat: Laguna Creek, a perennial stream, is located 1,000 feet east of the

building site. No development is proposed in the vicinity.

Grading: Approximately 375 cubic yards of cut; 225 cubic yards of fill.

Tree Removal: No mature trees proposed to be removed

Building site not visible from Smith Grade; bridge evaluated and no Scenic:

negative impact found

Drainage: Existing drainage adequate

Mapped resource; evaluation performed with/no physical evidence Archeology:

found on site

Services Information

Inside Urban/Rural Services Line: X Outside

Private Well Water Supply: Private Septic Sewage Disposal:

Fire District: Cal fire None Drainage District:

History

This parcel was created by Minor Land Division 75-692, which was approved by the Planning Commission on October 21, 1975. The land division consisted of 7 lots and the subject parcel has remained undeveloped from the time of its creation until the present.

Project Setting

The subject parcel is approximately 42 acres in size and vacant, with the exception of an existing water tank. The site lies at the intersection of a northwest-southwest trending ridgeline with moderate to steep side slopes. The proposed building envelope is located at the top of the ridgeline and slopes within the building envelope range from level to about 10 percent. The site is generally forested with redwood, Douglas fir and madrone. Site drainage consists of sheet flow down the side slopes of the ridge.

A driveway has been graded into the site with minor cuts and fills of less than 2 feet in height. The site takes access from an unnamed 50-foot right of way, which intersects with Smith Grade, about ½ mile to the north of the site. Smith Grade Road is a mapped scenic road, however the site is not visible from Smith Grade due to topography and dense forest cover.

The unnamed right-of-way currently accesses Smith Grade via a 12-foot wide wood plank bridge. The bridge rests on two concrete abutments and has no railings.

Project Proposal

The proposal is to construct a two-story, 2,302 square foot house, with a 731 square foot garage connected by a 488 square foot carport. About 400 cubic yards of grading is required to accommodate the driveway, parking area and structures. Two 5,000-gallon water tanks are proposed to be located at the western edge of the parcel. The proposal also includes a 12-foot by 40-foot replacement bridge deck on parcel 062-111-07. The pre-fabricated replacement deck of steel construction will be placed on the existing concrete abutments. No grading or other work in the stream channel is proposed, and the bridge construction will consist of the placement of two sections of bridge from a crane situated outside of the stream channel. The replacement bridge will include steel railings along each side, of a weathering steel material.

Zoning & General Plan Consistency

The subject property is a parcel of approximately 41 acres, located in the TP (Timber Production) zone district, a designation which allows residential uses. The proposed single-family dwelling is an allowed use within the TP zone district and the zoning is consistent with the site's (R-M) Mountain Residential General Plan designation.

SITE STANDARDS TABLE

	TP Site Standards	Proposed Residence and Detached Garage
Front Yard Setback	40'	43'
Side Yard Setbacks	20'	~80' & 150'
Rear Yard Setback	20'	>400'
Lot Coverage	10%	1.5%
Building Height	28'	21'9" & 16'

Archeological Resources

The site is a mapped archaeological resource area. A Preliminary Archaeological Reconnaissance report was prepared by Archaeological Consulting (Exhibit H). Based upon both background research and surface reconnaissance, the consulting archaeologists determined that the project area does not contain any evidence of potentially significant archaeological resources.

Timber Resources

The property is zoned for Timber Production and contains timber resources. The proposed building site was inspected by a registered forester in order to determine whether the residential development would negatively impact the existing timber resource, future timber harvests, or the ongoing management of timber on the property. The proposed development is located on a non-timbered portion of the property and the assessment (Exhibit G) indicates that the proposed residence will not negatively affect timber resources, management, or harvesting on the site.

Riparian Resources

Section 16.30.050 of the County Code states that certain activities may be exempted from the provisions of the Riparian Corridor and Wetland Protection Ordinance. Specifically, subsection (a) exempts changes to preexisting nonagricultural uses which do not significantly increase the degree of encroachment into or impact on the riparian corridor.

The subject proposal includes the replacement of the decking on the existing bridge, which provides access to several residential lots. The existing foundation and abutment system is in good condition and will remain in place. All replacement decking is pre-manufactured and will be placed into position using cranes, which will be located on the existing roadway. No portion of the deck replacement will entail work within the stream channel or unprotected stream bank.

The proposed scope of work complies with Section 16.30.050 (a) and will, therefore, not require a Riparian Exception. A condition of project approval requires a preconstruction meeting by the contractor and Environmental Planning staff prior to the start of the bridge work. A detailed erosion control plan must also be submitted for review and approval by Environmental Planning prior to the bridge replacement portion of this proposal.

Geological Hazards

Several landslides are mapped along the side slopes of the ridge upon which the subject site is located and two potential landslides appear to extend onto the home site. A geotechnical engineer evaluated the proposed home site with respect to the potential for geological hazards and determined that the landslide potential within the proposed building envelope is low. The landslides that are mapped as being questionable are located more than 150 feet from the proposed building envelope.

To ensure that the project will not result in uncontrolled runoff, the project engineer has made several recommendations regarding drainage in addition to site grading. The County Civil Engineer has accepted the geotechnical report as submitted and the project is conditioned to

comply with all recommendations contained in the report. Therefore the proposed single-family dwelling is not expected to be impacted by geological hazards.

Local Coastal Program Consistency

The proposed single-family dwelling is in conformance with the County's certified Local Coastal Program, in that the structure is sited and designed to be visually compatible, in scale with, and integrated with the character of the surrounding neighborhood. Developed parcels in the area contain single family dwellings. Size and architectural styles vary widely in the area, and the design submitted is consistent with the existing range of styles. The project site is not located between the shoreline and the first public road and is not identified as a priority acquisition site in the County's Local Coastal Program. Consequently, the proposed project will not interfere with public access to the beach, ocean, or other nearby body of water.

Design Review

The proposed single-family dwelling complies with the requirements of the County Design Review Ordinance, in that the proposed project will incorporate site and architectural design features such as earth tone hues, and natural materials to reduce the visual impact of the proposed development on surrounding land uses and the natural landscape. The parcel and proposed building envelope are not visible from the scenic road (Smith Grade) and are screened from surrounding properties by both topography and natural vegetation. The proposed dwelling location is more than 600 feet away from the nearest adjacent residence. Surrounding parcels are developed with both one and two-story dwellings of similar size and design.

Although the bridge will be visible from Smith Grade, the new decking and railings are to be constructed from "weathering" steel, which is specifically designed to develop an aged, rustic look within a short period of time. This design will ensure that the new decking and railing will not impact the rural viewshed from the mapped scenic road and that the new construction will blend in with the surrounding natural environment.

Conclusion

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

Staff Recommendation

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- APPROVAL of Application Number 111073, based on the attached findings and conditions.

Supplementary reports and information referred to in this report are on file and available

Application #: 111073

APN: 062-141-04; 062-111-07 Owner: Aaron Lingemann

for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.co.santa-cruz.ca.us

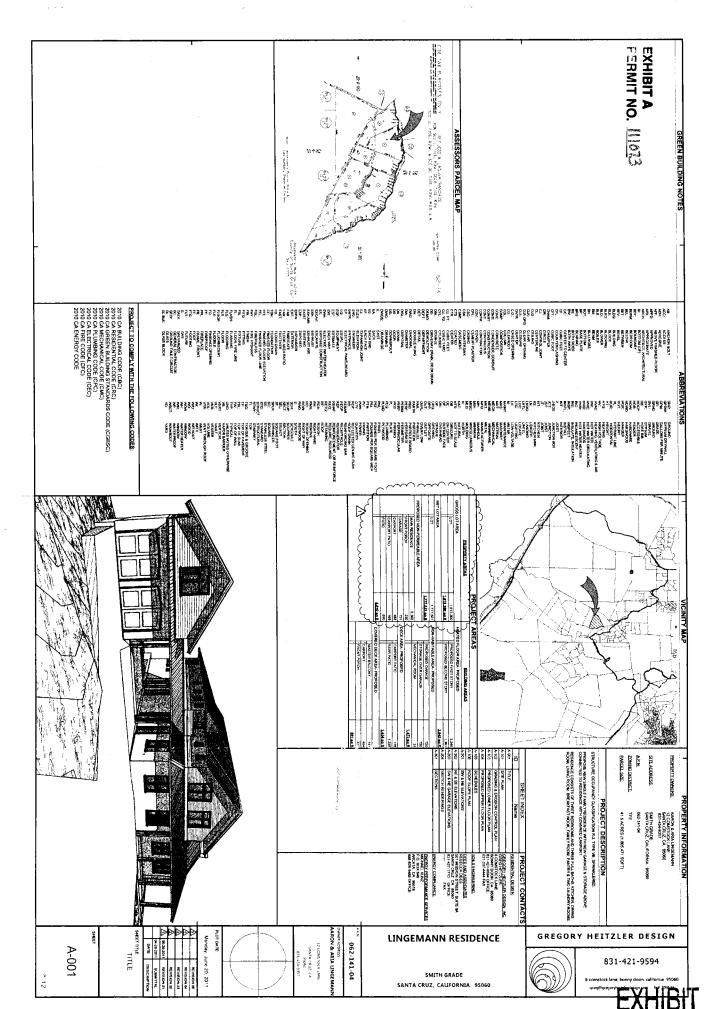
Report Prepared By: Robin Bolster-Grant

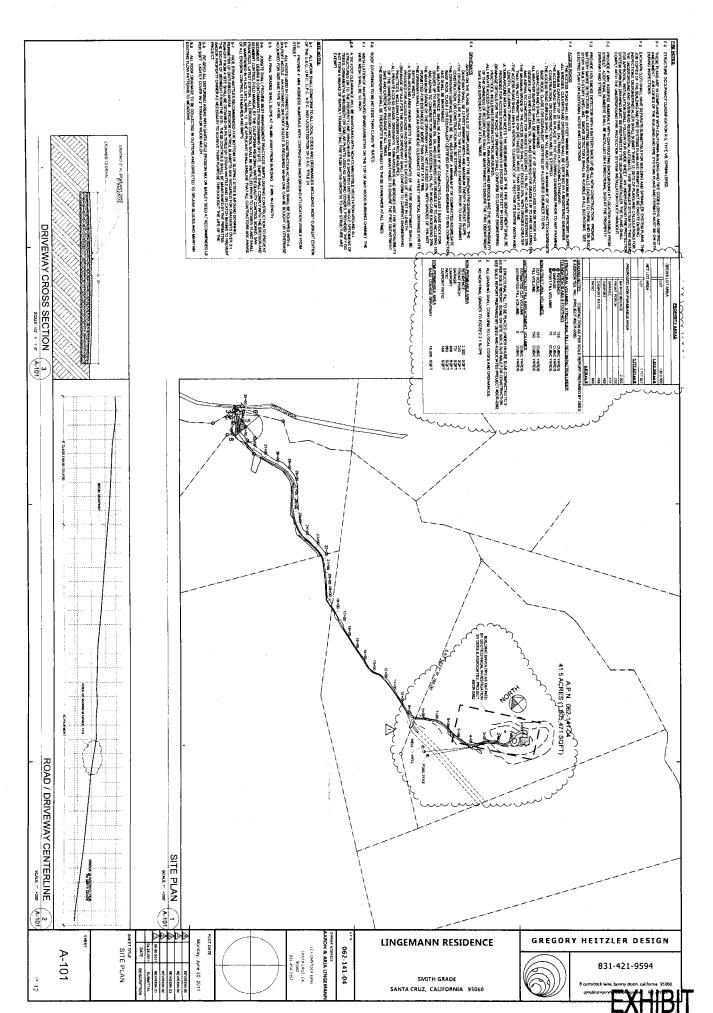
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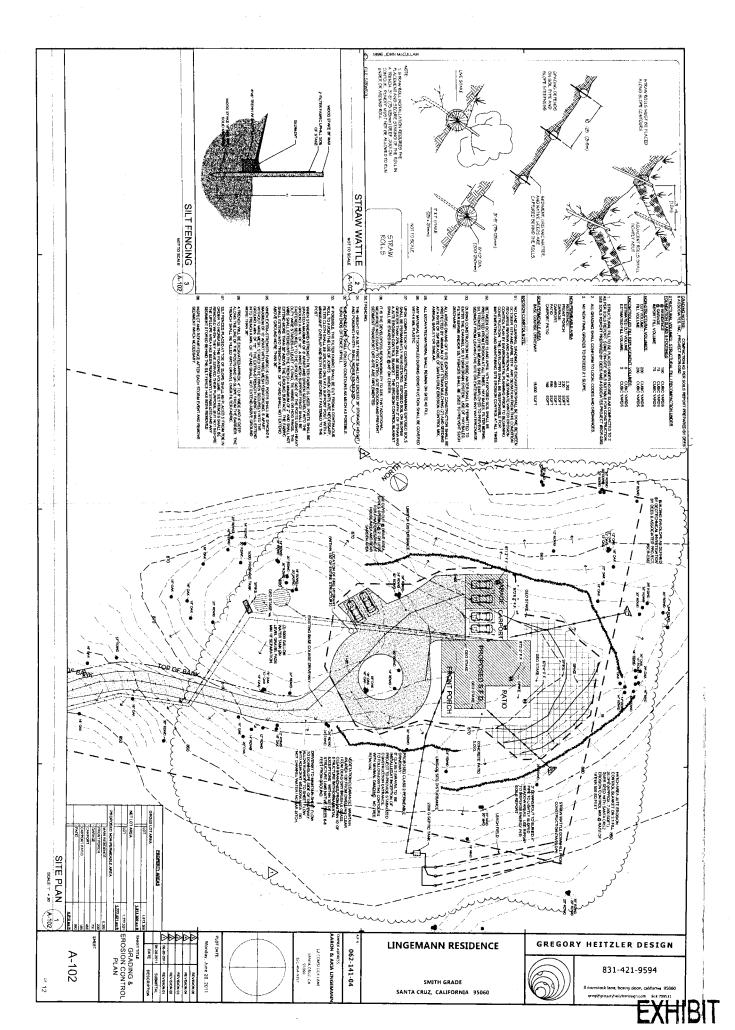
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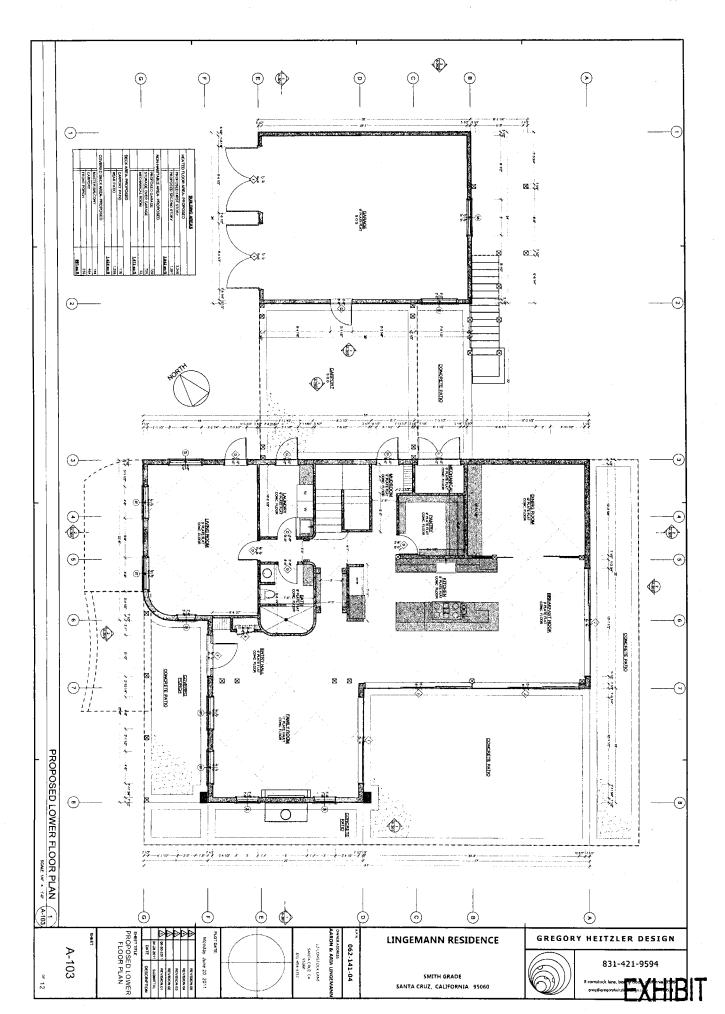
Phone Number: (831) 454-5357

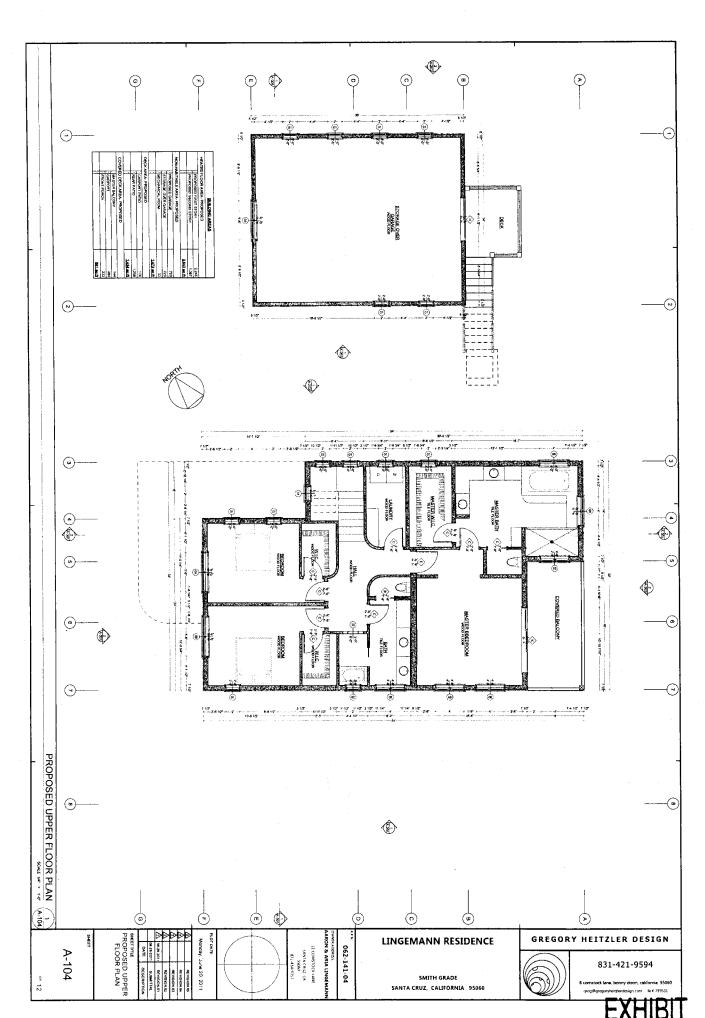
E-mail: robin.bolster@co.santa-cruz.ca.us

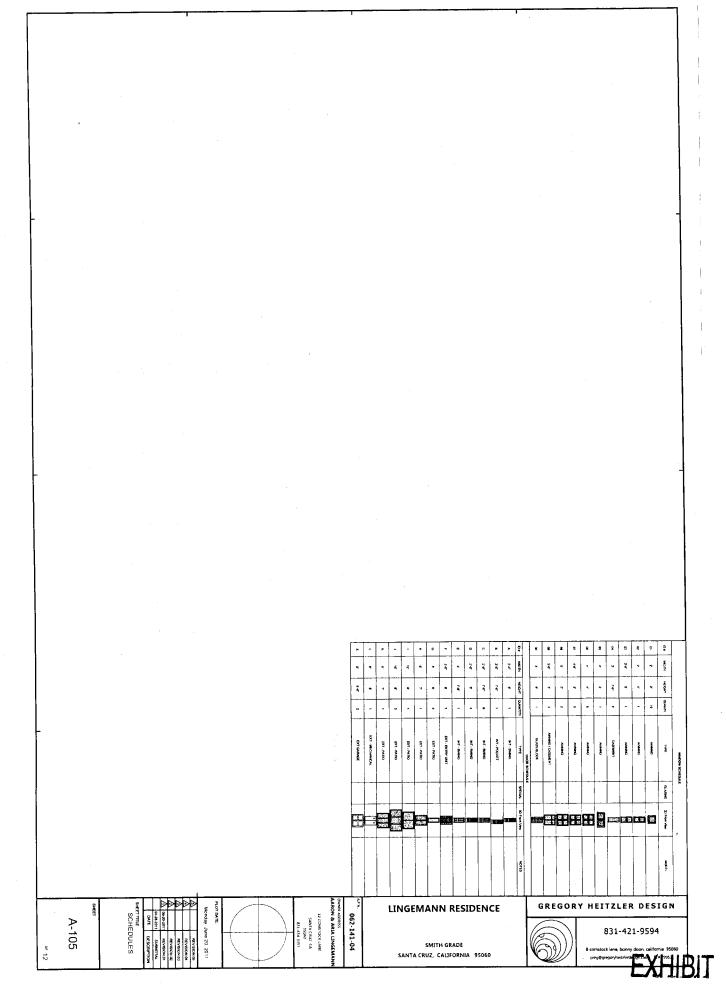


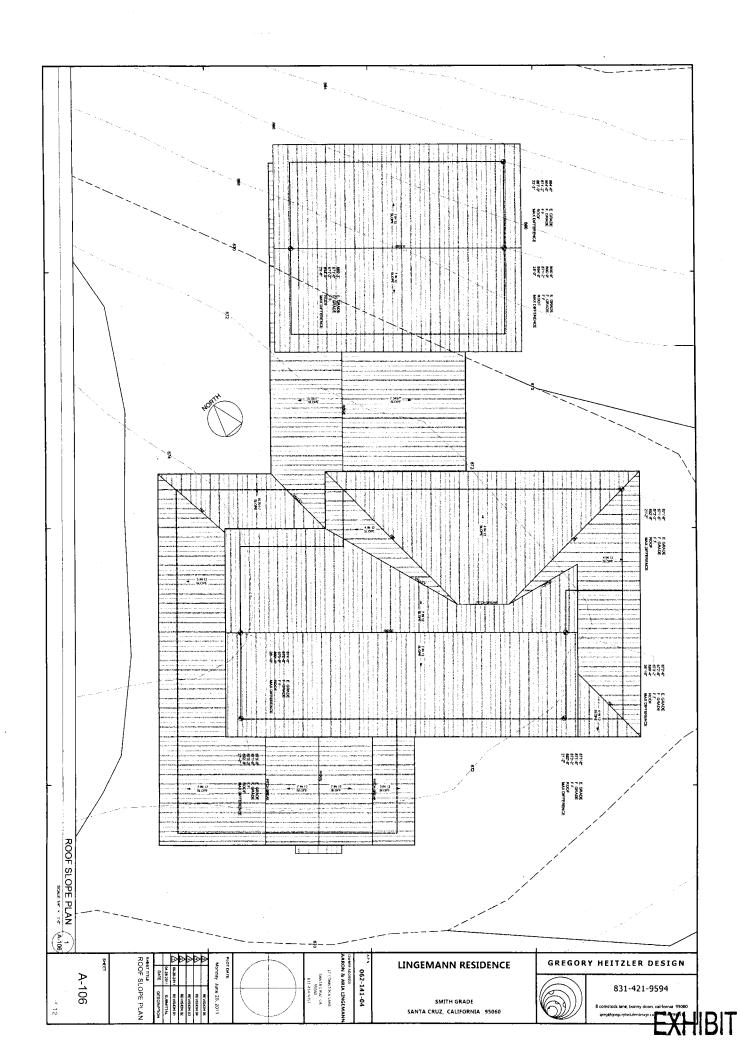


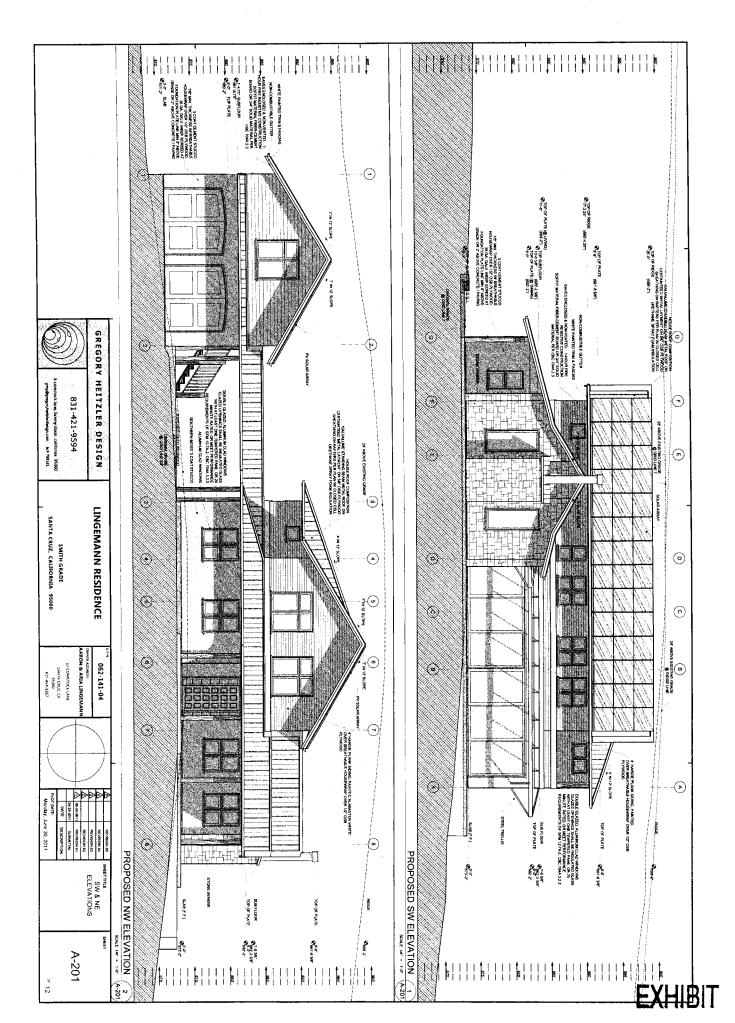


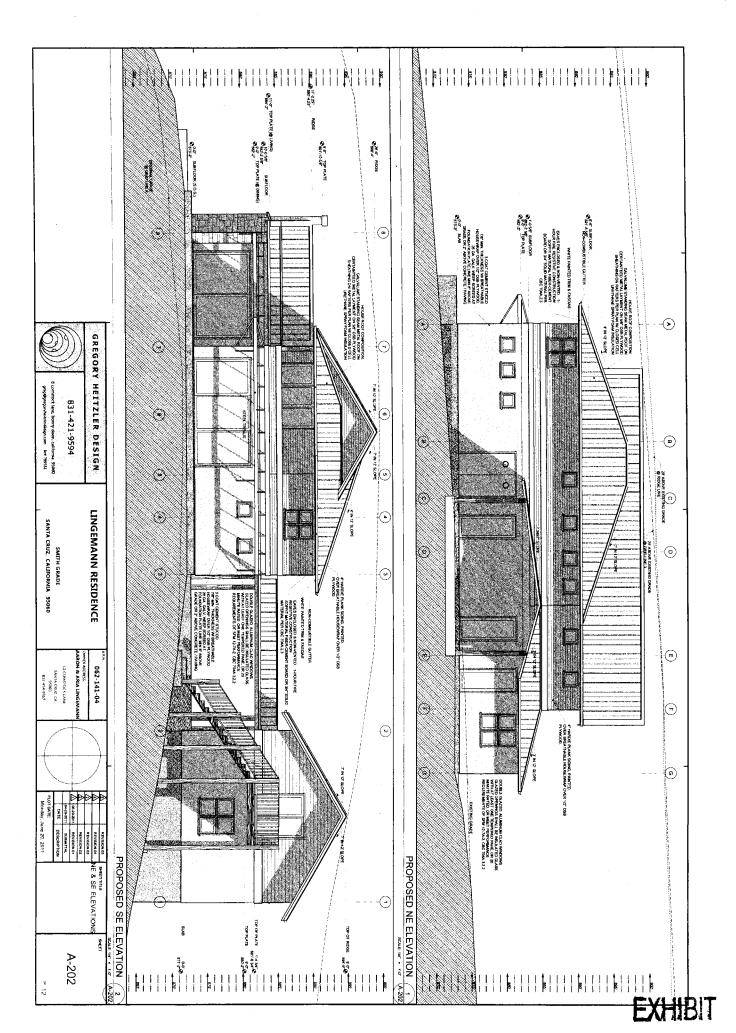


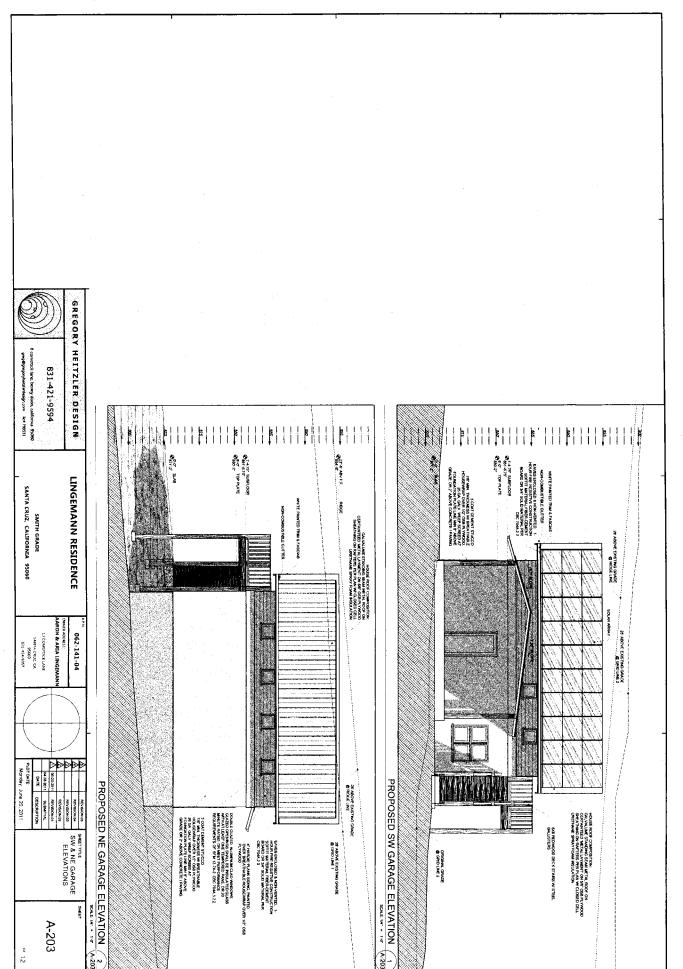


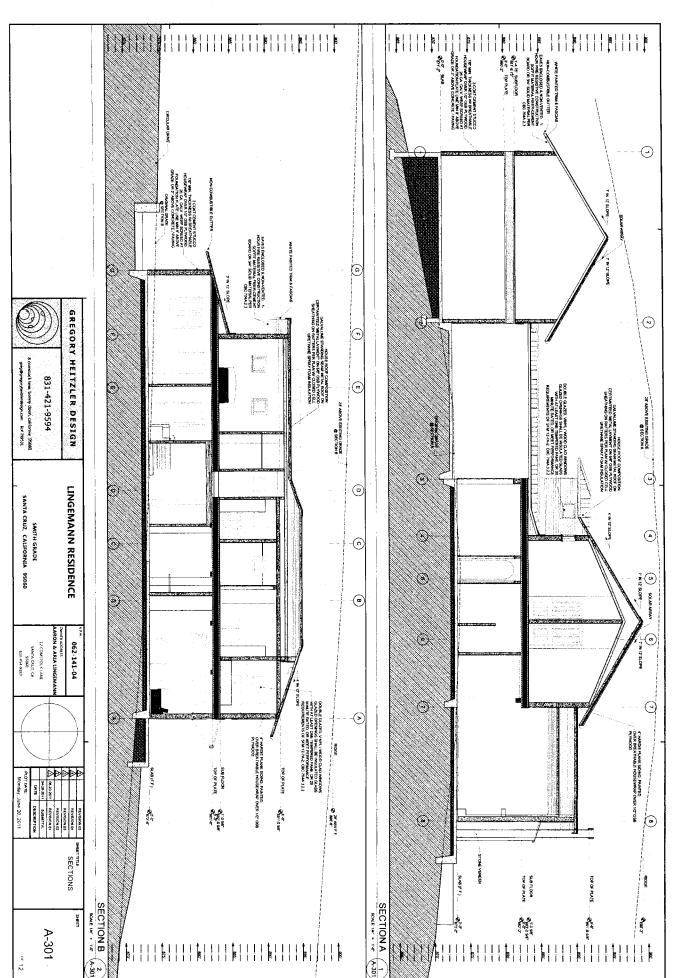


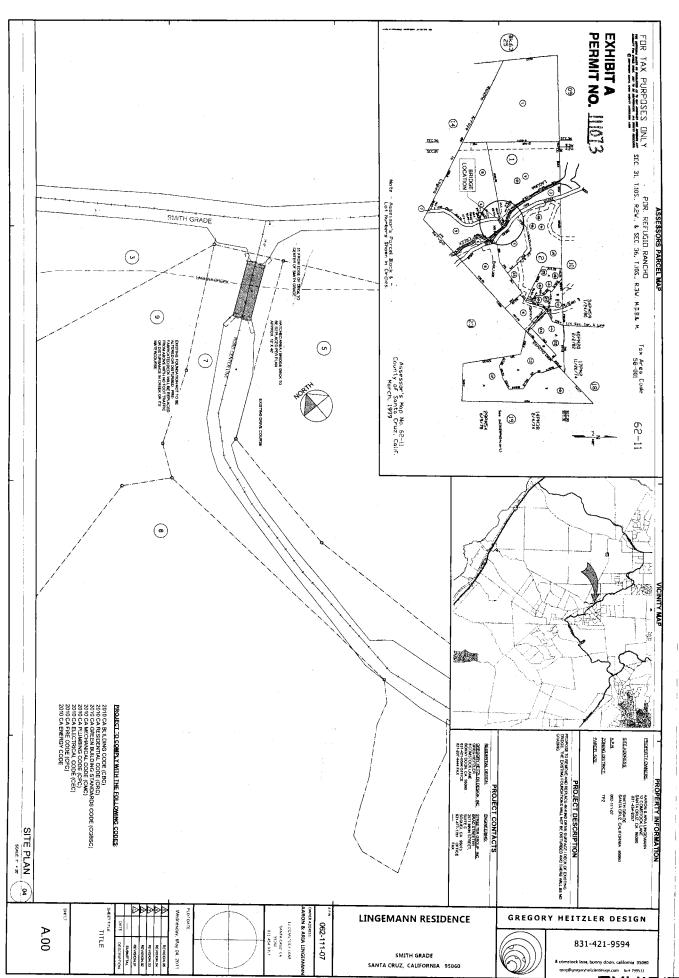


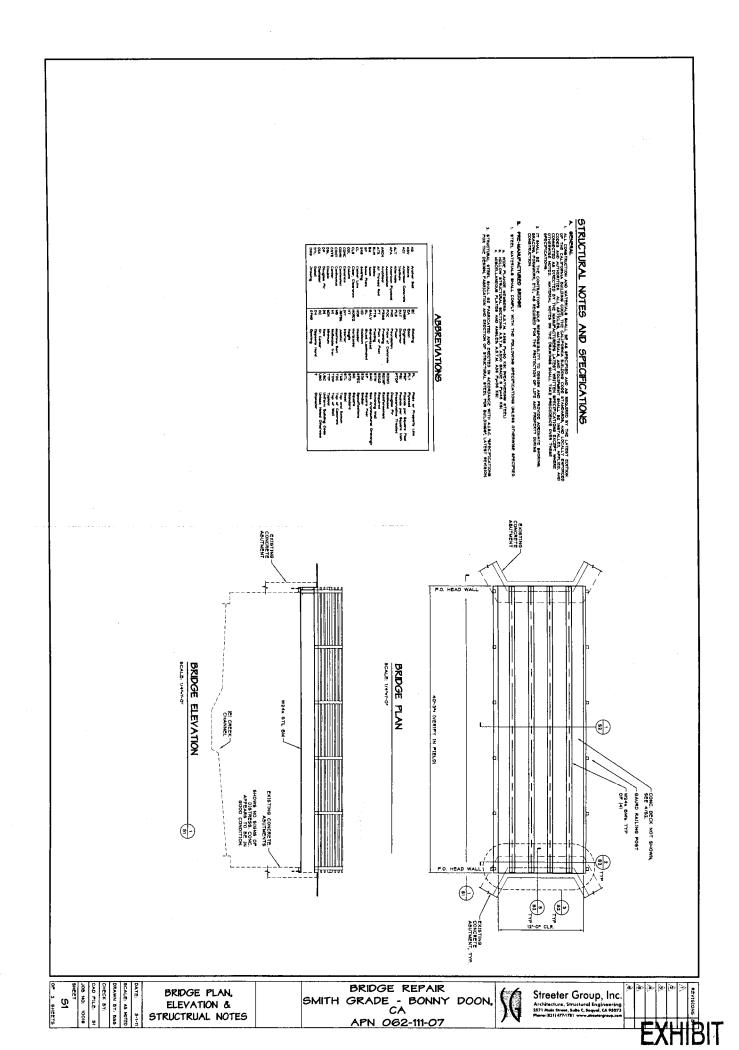


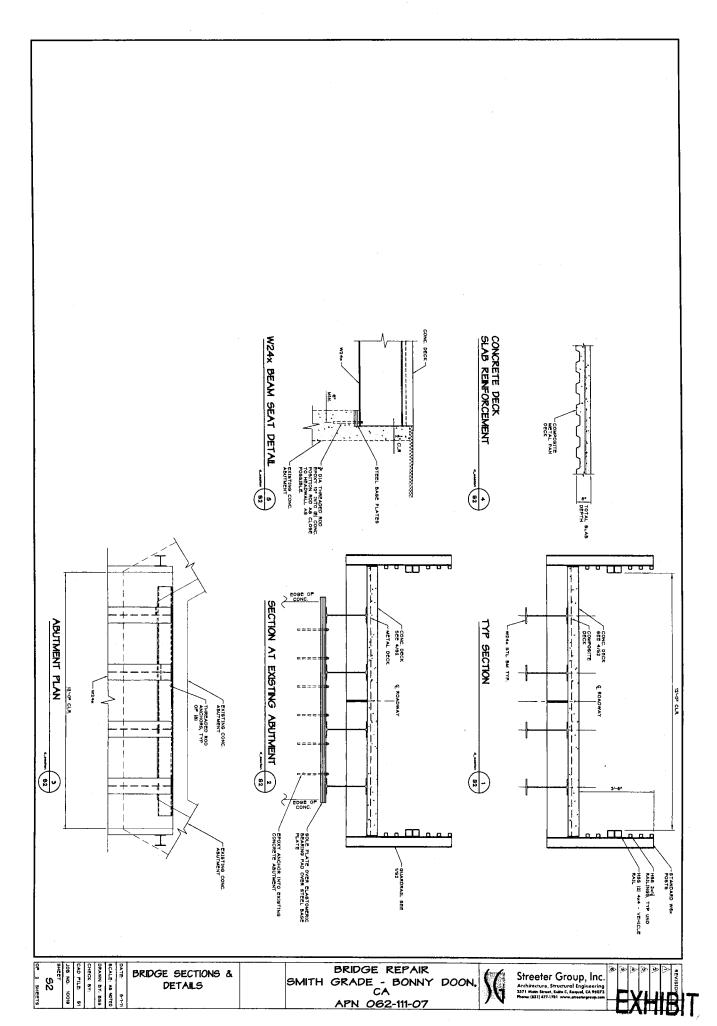












Coastal Development Permit Findings

1. That the project is a use allowed in one of the basic zone districts, other than the Special Use (SU) district, listed in section 13.10.170(d) as consistent with the General Plan and Local Coastal Program LUP designation.

This finding can be made, in that the property is zoned TP (Timber Production), a designation which allows residential uses. The proposed single-family dwelling is a principal permitted use within the zone district, and the zoning is consistent with the site's (R-M) Mountain Residential General Plan designation. The existing bridge serves several residences along the unnamed right-of-way, and the replacement of the existing decking and installation of new safety railings is ancillary to the principal permitted residential use on the subject property as well as other properties in the vicinity.

2. That the project does not conflict with any existing easement or development restrictions such as public access, utility, or open space easements.

This finding can be made, in that the proposal does not conflict with any existing easement or development restriction such as public access, utility, or open space easements. While the site does contain a 50-foot right-of-way, the proposed development is setback from the right-of-way by more than 40 feet.

The replacement of the existing bridge decking and railing system will not conflict with the unnamed right-of-way; rather the new decking will facilitate the use of the right-of-way by creating a higher degree of safety for ingress and egress from Smith Grade.

3. That the project is consistent with the design criteria and special use standards and conditions of this chapter pursuant to section 13.20.130 et seq.

This finding can be made, in that the development is consistent with the surrounding neighborhood in terms of architectural style; the site is surrounded by lots developed to a rural density; the colors will be natural in appearance and complementary to the site; and the development site is not on a prominent ridge, beach, or bluff top. The development is screened from view by a dense redwood and Douglas fir forest and is located more than ½ mile from Smith Grade, a mapped scenic road.

While the proposed bridge construction is visible from the scenic corridor, the proposed decking and railing material is "weathering steel" which is designed to age at an accelerated rate, resulting in an older, rustic appearance that is not visually impactful and consistent with the surrounding rural environment.

4. That the project conforms with the public access, recreation, and visitor-serving policies, standards and maps of the General Plan and Local Coastal Program land use plan, specifically Chapter 2: figure 2.5 and Chapter 7, and, as to any development between and nearest public road and the sea or the shoreline of any body of water located within the coastal zone, such development is in conformity with the public access and public recreation policies of Chapter 3 of the Coastal Act commencing with section 30200.

This finding can be made, in that the project site is not located between the shoreline and the first public road. Consequently, neither the proposed single-family dwelling nor bridge construction will interfere with public access to the beach, ocean, or any nearby body of water. Further, the project site is not identified as a priority acquisition site in the County Local Coastal Program.

5. That the proposed development is in conformity with the certified local coastal program.

This finding can be made, in that the new residence and bridge construction are sited and designed to be visually compatible, in scale with, and integrated with the character of the surrounding rural neighborhood. Additionally, residential uses are allowed uses in the TP (Timber Production) zone district of the area, as well as the General Plan and Local Coastal Program land use designation. General Plan Policy 5.12.7 requires that development on TP lands be located on non-timbered portions of the property. According to the Assessment of the subject parcel, performed by the project professional forester, the proposed residential construction and use is expected to have a negligible impact on the timber resources and timber management on the parcel.

The proposed architectural design and size of the structure is consistent with the existing range of surrounding rural dwelling styles and sizes and the proposed location of the dwelling will be minimally visible from surrounding properties and screened from the scenic road. The bridge construction is also designed to blend with the rural environment and have a rustic, ages appearance. Therefore, the project will have no significant impact on the visual resources in the area.

Conditions of Approval

Exhibit A: Project Plans (13 Sheets) prepared by Gregory Heitzler Design, last revised 6/20/11, Structural Drawings (2 Sheets), prepared by Streeter Group, Inc., dated 5/1/11

- I. This permit authorizes the construction of a two-story, 2,302 square foot house, a 731 square foot garage connected by a 488 square foot carport, approximately 375 cubic yards of grading and the in-kind replacement of existing wood bridge decking with new steel decking and guardrails. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:
 - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
 - B. Obtain a Building Permit from the Santa Cruz County Building Official.
 - 1. Any outstanding balance due to the Planning Department must be paid prior to making a Building Permit application. Applications for Building Permits will not be accepted or processed while there is an outstanding balance due.
 - C. Obtain a Grading Permit from the Santa Cruz County Building Official.
 - D. Obtain an Encroachment Permit from the Department of Public Works for all offsite work performed in the County road right-of-way in the vicinity of the replacement bridge decking.
 - E. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder) within 30 days from the effective date of this permit.
- II. Prior to issuance of a Building Permit the applicant/owner shall:
 - A. Submit final architectural plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "A" on file with the Planning Department. Any changes from the approved Exhibit "A" for this development permit on the plans submitted for the Building Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out and labeled will not be authorized by any Building Permit that is issued for the proposed development. The final plans shall include the following additional information:
 - 1. One elevation shall indicate materials and colors as they were approved by this Discretionary Application.

- 2. Grading, drainage, and erosion control plans.
- 3. A detailed plan showing the proposed bridge decking and rail replacement. The plan shall clearly indicate the location of the crane operation and staging areas, as well as all other equipment and materials staging areas needed in support of the bridge repair.
- 4. Details showing compliance with fire department requirements. The proposed structure(s) are located within the State Responsibility Area (SRA) and the requirements of the Wildland-Urban Interface code (WUI), California Building Code Chapter 7A, shall apply.
- B. Prior to ground disturbance, the applicant or contractor must convene a preconstruction meeting onsite with the contractor, project engineer and Environmental Planning staff for the purpose of reviewing the scope of work associated with the bridge deck replacement. The proposed limits of disturbance, including equipment and materials staging areas must be staked or otherwise identified in the field prior to the meeting.
- C. Submit four copies of the approved Discretionary Permit with the Conditions of Approval attached. The Conditions of Approval shall be recorded prior to submittal, if applicable.
- D. Meet all requirements of and pay drainage fees to the County Department of Public Works, Stormwater Management. Drainage fees will be assessed on the net increase in impervious area.
- E. Obtain an Environmental Health Clearance for this project from the County Department of Environmental Health Services.
- F. Meet all requirements and pay any applicable plan check fee of the CalFire Protection District.
- G. Submit 3 copies of a soils report prepared and stamped by a licensed Geotechnical Engineer.
- H. Pay the current fees for Parks and Child Care mitigation for 3 bedroom(s). Currently, these fees are, respectively, \$578 and \$109 per bedroom.
- I. Provide required off-street parking for 3 cars. Parking spaces must be 8.5 feet wide by 18 feet long and must be located entirely outside vehicular rights-of way. Parking must be clearly designated on the plot plan.
- J. Submit a written statement signed by an authorized representative of the school district in which the project is located confirming payment in full of all applicable developer fees and other requirements lawfully imposed by the school district.

K. Complete and record a Declaration of Geologic Hazards. You may not alter the wording of this declaration. Follow the instructions to record and return the form to the Planning Department.

- III. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:
 - A. All site improvements shown on the final approved Building Permit plans shall be installed.
 - B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.
 - C. The project must comply with all recommendations of the approved soils reports.
 - D. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.

IV. Operational Conditions

- A. If the scope of work involved in the bridge deck replacement is determined, by Environmental Planning staff, to expand or intensify the existing development within the riparian corridor, the property owner will be required to submit an application for a Level V Amendment to this Permit, with a new public hearing. A Riparian Exception will also be required to approve the expanded scale of disturbance to the riparian corridor.
- B. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

V. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.

- A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
- B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith.
- C. <u>Settlement</u>. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.
- D. <u>Successors Bound</u>. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires three years from the effective date listed below unless a building permit (or permits) is obtained for the primary structure described in the development permit (does not include demolition, temporary power pole or other site preparation permits, or accessory structures unless these are the primary subject of the development permit). Failure to exercise the building permit and to complete all of the construction under the building permit, resulting in the expiration of the building permit, will void the development permit, unless there are special circumstances as determined by the Planning Director.

Owner: Aaron Lingemann

Approval Date:

Effective Date:

Steven Guiney, AICP Robin Bolster-Gr

Steven Guiney, AICP
Deputy Zoning Administrator

Expiration Date:

Application #: 111073 APN: 062-141-04, 062-111-07

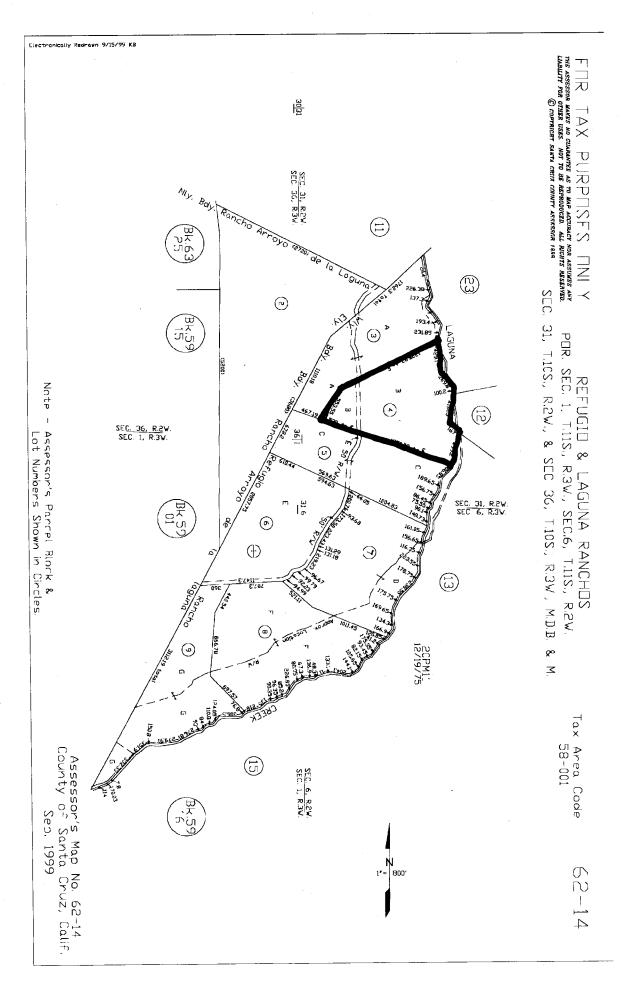
> Robin Bolster-Grant Project Planner

Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.

CALIFORNIA ENVIRONMENTAL QUALITY ACT NOTICE OF EXEMPTION

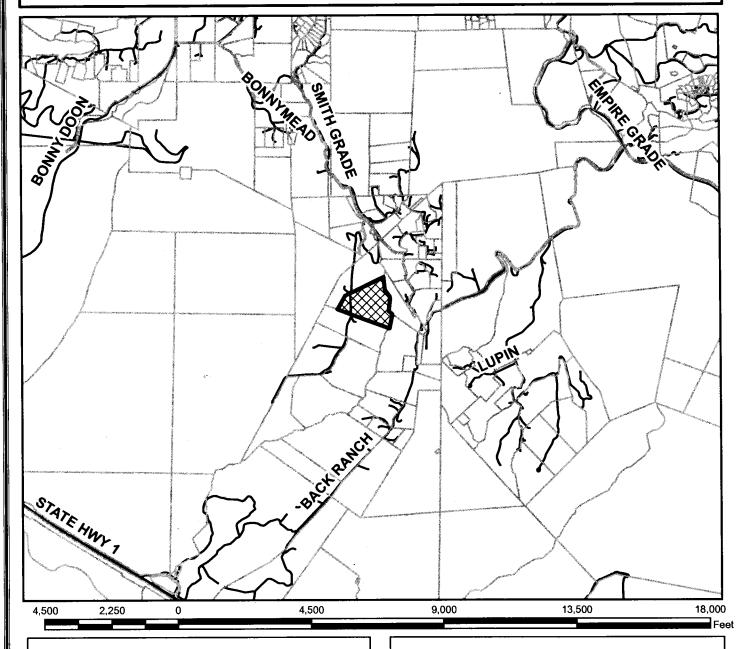
The Santa Cruz County Planning Department has reviewed the project described below and has determined that it is exempt from the provisions of CEQA as specified in Sections 15061 - 15332 of CEQA for the reason(s) which have been specified in this document.

	Jumber: 111073 sel Number: 062-141-04, 062-111-07 son: No situs		
Project Description: Proposal to construct a 3,643 square foot 2-story, single-family dwelling and attached garage and carport.			
Person or Ag	ency Proposing Project: Aaron Lingemann		
Contact Pho	ne Number: (831) 454-9357		
A B	The proposed activity is not a project under CEQA Guidelines Section 15378. The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060 (c).		
C	<u>Ministerial Project</u> involving only the use of fixed standards or objective measurements without personal judgment.		
D	Statutory Exemption other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).		
Specify type:			
E. <u>X</u>	Categorical Exemption		
Specify type:	Class 3 - New construction or conversion of small structures (Section 15303)		
F. Reaso	ons why the project is exempt:		
_	mily residence in a zone district that allows residential uses and replacement bridge does not result in new encroachment into a riparian corridor.		
In addition, n	one of the conditions described in Section 15300.2 apply to this project.		
	Date:		
Robin Bolste	r-Grant, Project Planner		





Location Map







APN: 062-141-04



Assessors Parcels

State Highways



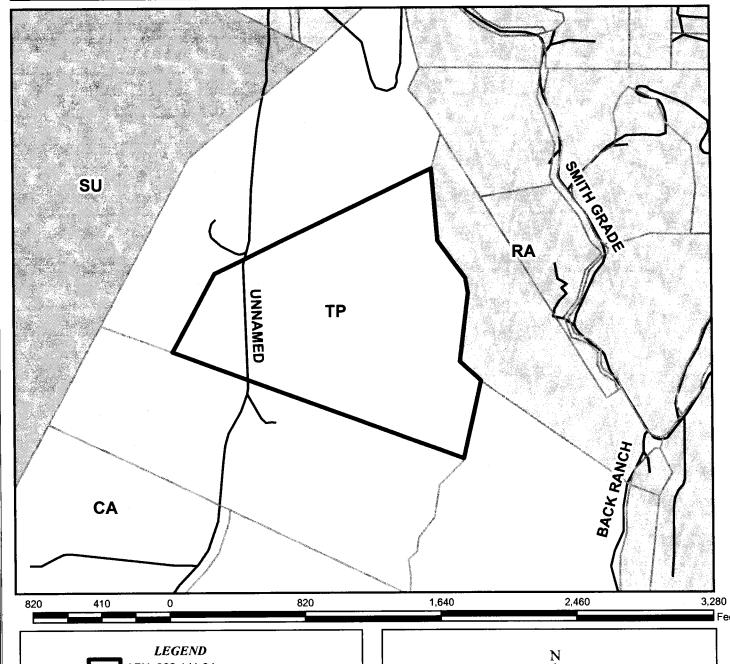
Streets



Map Created by County of Santa Cruz Planning Department May 2011



Zoning Map





TIMBER PRODUCTION

AGRICULTURE COMMERCIAL

AGRICULTURE RESIDENTIAL

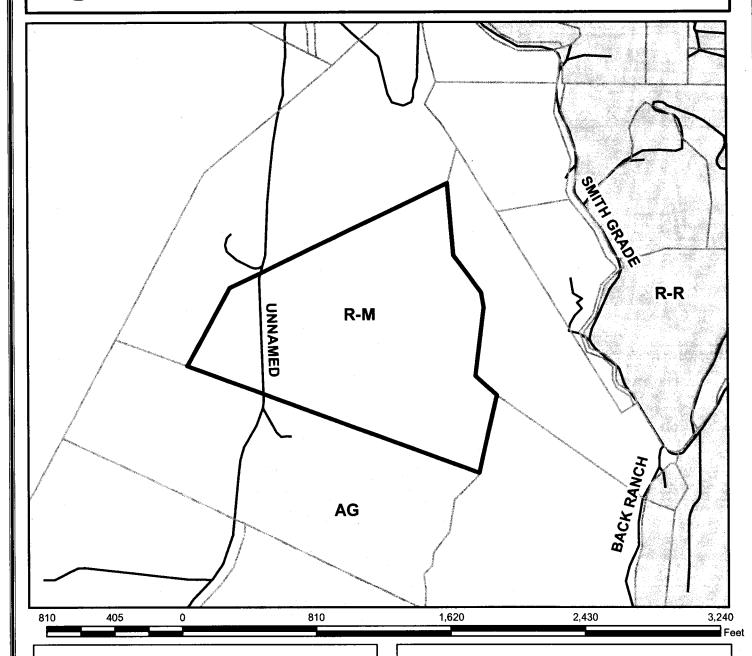
SPECIAL USE



Map Created by County of Santa Cruz Planning Department May 2011



General Plan Designation Map





—— Streets

Residential-Mountain

Agriculture

Residential-Rural



Map Created by County of Santa Cruz Planning Department May 2011

EXHIBIT

INTOR HANSENS

5/24/2011 08:43

Review # 47768 # 1 Review Type Fire

Planning Review

Issue Date
By
Department FIRE
Assigned To
System Generated True

Comments

MARSHAL

SANTA CRUZ COUNTY FIRE DEPARTMENT / CAL FIRE

CAL FIRE SAN MATEO-SANTA CRUZ UNIT

6059 HIGHWAY 9 P.O. DRAWER F-2 FELTON, CA 95018 Phone (831) 335-6748 Fax # (831) 335-4053 JOHN FERREIRA FIRE CHIEF

Date: 5/5/11

Planning Department County of Santa Cruz Attention: Name 701 Ocean Street Santa Cruz, CA 95060

Subject:

APN: 062-141-04 / Appl #111073 Address: NO SITIUS

Dear Name: APPLICANT

The Santa Cruz County Fire Marshals Office has reviewed the plans for the above cited project and has no objections as presented.

- Any other requirements will be addressed in the Building Permit phase.
- Plan check is based upon plans submitted to this office. Any changes or alterations shall be re-submitted for review prior to construction.

In order to obtain building application approval, recommend you have the DESIGNER add appropriate NOTES and DETAILS showing the following information on the plans that are submitted for BUILDING PERMIT.

Each APN (lot) shall have separate submittals for building and sprinkler system plans.

The County of Santa Cruz Emergency Services Department/Addressing must approve or assign an address before Fire Department approval is obtained.

NOTE on the plans "all underground piping systems shall comply with the County Standard FPO-006 and shall require plan submittal and permit approval prior to installation. The standard is available at the Santa Cruz County Fire Marshals Office upon request".

NOTE on the plans "the designer/installer shall submit three (3) sets of plans and calculations for the underground and overhead Residential Automatic Fire Sprinkler System to this agency for approval."

NOTE on the plans "an UNDERGROUND FIRE PROTECTION SYSTEM WORKING DRAWING must be prepared by the designer/installer. The plans shall comply with the UNDERGROUND FIRE PROTECTION SYSTEM INSTALLATION POLICY HANDOUT. Underground plan submittal and permit, will be issued to a Class B, Class C-16, Class C-36 or owner/builder. No exceptions."

SHOW on the plans DETAILS of the Fire Department Turn-a-round in compliance with FPO-015. Include dimensions. (See attached).

NOTE on the plans "the driveway / access road shall be in place prior to any framing

construction, or construction will be stopped."

Note: As a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with applicable Specifications, Standards, Codes and Ordinances, agree that they are solely responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source, and, to hold harmless and without prejudice, the reviewer and reviewing agency.

Should you have any additional concerns, you may contact our office at (831) 335-6748.

SHOW ON THE PLANS THE ACTUAL DIMENSIONS AND PLACEMENT OF THE TURNAROUND. DETAILS CAN BE FOUND ON OUR WEBSITE AT WWW.SANTACRUZCOUNTYFIRE.COM.



OFFICE OF THE FIRE MARSHAL

SANTA CRUZ COUNTY FIRE DEPARTMENT / CAL FIRE

CAL FIRE SAN MATEO-SANTA CRUZ UNIT

6059 HIGHWAY 9 P.O. DRAWER F-2 FELTON, CA 95018 Phone (831) 335-6748 Fax # (831) 335-4053 JOHN FERREIRA FIRE CHIEF

January 19th, 2011

Mr. Aaron Lingemann 12 Comstock Lane Santa Cruz, CA 95060

RE: Bridge requirements on a rural access road. APN # 062-141-04, Situs:

Dear Mr. Lingemann,

This letter is in response to your letter dated January 9th, 2011 addressing bridge requirements for a rural access road off of Smith Grade Rd. Below you will find the Santa Cruz County Fire Code sections that pertain to bridges:

Section 503.2.6 - Bridges and elevated surfaces. When a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HS-20. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the fire code official.

503.2.6.1 - Width. All bridges shall be a minimum of 20 feet of clear width. The fire code official may allow the width to be reduced for access to U-1, U-2 or R-3 occupancies in accordance to the Fire Safety Element of the Santa Cruz County General Plan.

503.2.6.2 - Certification. Every private bridge hereafter constructed shall be engineered by a licensed civil or structural engineer and approved by the fire code official. Certification shall be provided by the licensed engineer in writing that the bridge complies with the design standard required by this section to the fire code official.

503.2.6.3 - Recertification. Every private bridge shall be recertified every ten years or whenever deemed necessary by the fire code official. Such recertification shall be in accordance with the requirements of 503.2.6.2.

503.2.6.4 - Existing Private Bridges. An existing private bridge not conforming to these regulations may be required to conform when in the opinion of the fire code official, such repairs are necessary for public safety.

You are requesting that we allow you to replace the existing (non engineered) bridge decking with new decking that can be certified by an engineer to meet the HS-20 loading standard without widening the existing bridge. We would be willing to accept this request with several conditions:

- 1) The bridge deck must have a clear drivable surface a minimum of 12 feet wide: and
- 2) The bridge must be certified by a licensed engineer to meet or exceed the HS-20 loading standard; and
- 3) The bridge must be signed, in both directions, as to the weight limit (please reference Santa Cruz County Fire Prevention Standard # 8 for the sign); and
- 4) There must be a "full-sized" turnout on either side of the bridge (please reference Santa Cruz County Fire Prevention Standard #13 for turnout dimensions).

Should you have any additional concerns, you may contact our office at (831) 335-6748.

Sincerely,

JOHN FERREIRA FIRE CHIEF

By

Chris Walters

Deputy Fire Marshal Santa Cruz County Fire

ci ux

Cc: Chron

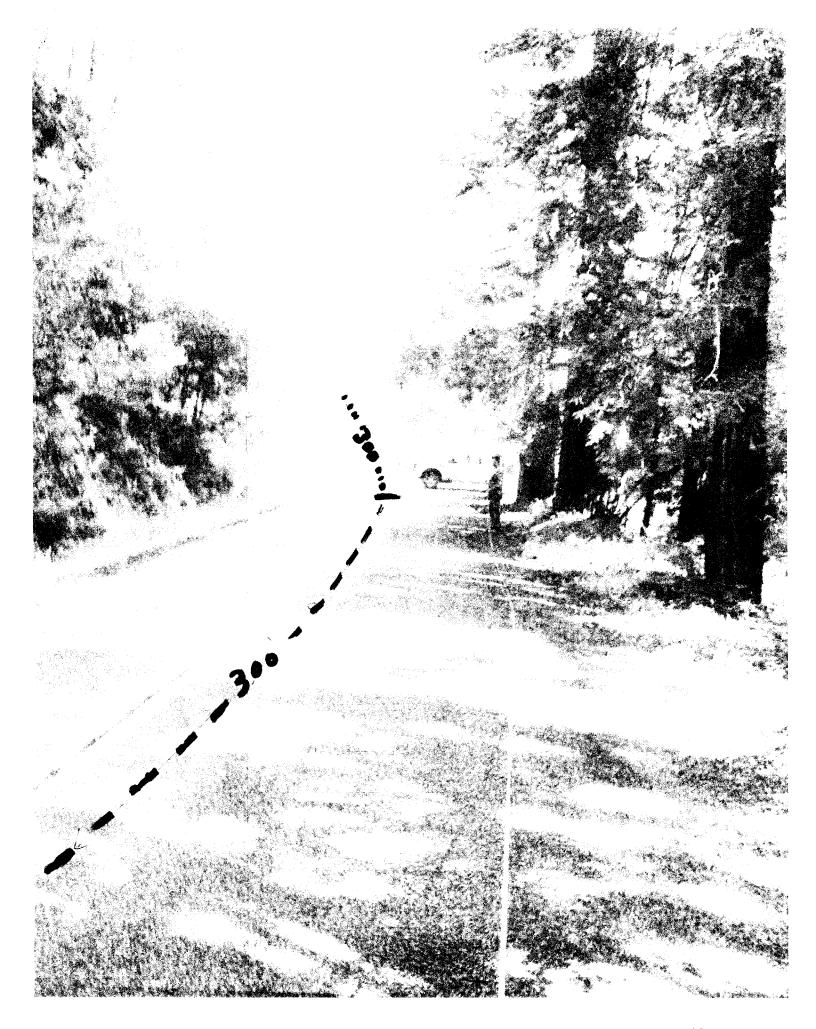


EXHIBIT F



FYHIRIT



County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 111073 APN 062-141-04

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

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

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

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

Coastal Commission Review

Routing No: 1 | Review Date: 05/19/2011

ROBIN BOLSTER (RBOLSTER): No Response

Drainage Review

Routing No: 1 | Review Date: 05/19/2011

GERARDO VARGAS (GVARGAS): Incomplete

Application No.: 111073

G V

5/19/11

Completeness Comments:

In order to consider this application complete the applicant has to submit an additional \$400.00 to supplement the \$800.00 already submitted. The proposed impervious area exceeds 4,500sqf there for the application is considered a significant single family dwelling. This fee is \$1,200.00.

Miscellaneous Comments:

- 1. What is the extent of the proposed driveway? Please show on the plan what is being proposed and what is existing. Indicate on the plan how driveway runoff will be handled.
- 2. Specify the surface for the proposed patio.

The applicant is encouraged to discuss the above comments with the reviewer to avoid unnecessary additional routings. A \$280.00 additional review fee shall be applied to all re-submittals starting

Print Date: 07/21/2011

Page: 1

FYHIRIT

Drainage Review

Routing No: 1 | Review Date: 05/19/2011

GERARDO VARGAS (GVARGAS): Incomplete

with the third routing.

Please call the Dept. of Public Works, Stormwater Management Section, from 8:00 am to 12:00 noon if you have questions.

Routing No: 2 | Review Date: 07/13/2011

GERARDO VARGAS (GVARGAS): Complete

Application No.: 111073

G V

7/13/11

Completeness Comments:

Application is complete in regards to drainage. See miscellaneous comments.

Miscellaneous comments:

- 1. What is the extent of the proposed driveway? Please show on the plan what is being proposed and what is existing. Indicate on the plan how driveway runoff will be handled.
- 2. Specify the surface for the proposed patio.

The applicant is encouraged to discuss the above comments with the reviewer to avoid unnecessary additional routings. A \$280.00 additional review fee shall be applied to all re-submittals starting with the third routing.

Please call the Dept. of Public Works, Stormwater Management Section, from 8:00 am to 12:00 noon if you have questions.

Environmental Planning

Routing No: 1 | Review Date: 06/02/2011

CAROLYN BANTI (CBANTI): Incomplete

<u>Completeness</u>

- 1. The soils report has not been accepted. Please see Comments 2-3, below, and letter dated 6/2/11.
- 2. The building envelope identified is located between two mapped potential landslides. The soils report states that the envelope is greater than 150 feet from the

Print Date: 07/21/2011

Page: 2

Environmental Planning

Routing No: 1 | Review Date: 06/02/2011 CAROLYN BANTI (CBANTI) : Incomplete

landslides (page 7), and that the landslide potential within the building envelope is low.

Our GIS mapping indicates that the border of the landslide mapped to the northeast is located between zero and 100 feet from the building envelope when compared with Figure 2 of the soils report.

Also, the maximum grades within the building envelope shown on Figure 2 are approximately 6%, while those shown on Figure 3 include grades of up to 40%.

Please provide the following:

- (a) Revise the building envelope to achieve the setbacks outlined in the soils report. The revised envelope should exclude moderately steep slopes to the northeast. The limits of the mapped landslide should be shown on a scaled version of Figure 2.
- (b) Alternatively, the applicant may apply for a Geologic Hazards Assessment (GHA) to assess the hazard posed by adjacent mapped landslides and to determine whether the features warrant additional study by a registered geologist.
- 3. The plans provide overexcavation/recompaction quantities "per soils report", but the report does not include such recommendations. Please include all pertinent addendums to the soils report for review and acceptance.
- 4. Please revise the grading and drainage plans to show the revised building envelope.
- 5. Prior to discretionary permit approval, please submit a geotechnical plan review letter from the project soils engineer that states the plans conform to the recommendations of the soils report. The letter must reference the final plan set reviewed by last revision dates.

Compliance

- 1. The reported grading quantities of 400 CY appear excessive given site topography. Please minimize the volume and footprint of grading and disturbance by utilizing stepped foundations or similar approaches that do not require major grading and employing retaining walls to minimize the extent of grading. (County Code Section 16.22.050a, General Plan 6.3.9)
- 2. The drainage shown on the grading plans does not reflect the recommendations outlined in the soils report. Please revise.

Print Date: 07/21/2011

Page: 3 FYH

Environmental Planning

Routing No: 1 | Review Date: 06/02/2011 CAROLYN BANTI (CBANTI) : Incomplete

Conditions of Approval

- 1. Provide grading and drainage plans prepared by a licensed civil engineer at the time of building permit application.
- 2. Prior to building permit approval, please submit a geotechnical plan review letter from the project soils engineer that states the plans conform to the recommendations of the soils report. The letter must reference the final plan set reviewed by last revision dates.
- 3. The erosion control plan will be reviewed at the time of building permit application, and should include temporary drainage during construction as well as soil stockpile areas along with associated erosion control measures.

Routing No: 2 | Review Date: 07/20/2011 CAROLYN BANTI (CBANTI) : Complete

Completeness

The soils report has been accepted. Please see letter dated 7/20/11 and Miscellaneous Comments, below.

Compliance

None

Miscellaneous Comments/Conditions of Approval

In addition to first routing comments/conditions:

Please submit an original, wet-signed, copy of the soils report addendum "Response to County of Santa Cruz Letter", 6/16/11, prior to hearing.

Prior to hearing, please submit a geotechnical plan review letter that states the project plans conform to the recommendations of the soils report and approves the location of the leach field and drainage outlet that lie outside the proposed building envelope.

Prior to building permit final, please record the Declaration of Geologic Hazards attached to the geotechnical investigation acceptance letter.

Fire Review

Routing No: 1 | Review Date: 05/04/2011 COLLEEN BAXTER (CBAXTER) : Complete

MARSHAL

Print Date: 07/21/2011

Page: 4 EXHIBIT



County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 111073

JOHN FERREIRA

FIRE CHIEF

APN 062-141-04

Fire Review

Routing No: 1 | Review Date: 05/04/2011

COLLEEN BAXTER (CBAXTER): Complete

santa cruz county fire department / CALFIRE

CAL FIRE

SAN MATEO-SANTA CRUZ UNIT

6059 HIGHWAY 9 P.O. DRAWER F-2 FELTON, CA 95018

Phone (831) 335-6748 Fax # (831) 335-4053

Date: 5/5/11

Planning Department County of Santa Cruz Attention: Name 701 Ocean Street Santa Cruz, CA 95060

Subject:

APN: 062-141-04 / Appl #111073

Address: NO SITIUS

Dear Name: APPLICANT

The Santa Cruz County Fire Marshals Office has reviewed the plans for the above cited project and has no objections as presented.

- Any other requirements will be addressed in the Building Permit phase.
- Plan check is based upon plans submitted to this office. Any changes or alterations shall be re-submitted for review prior to construction.

In order to obtain building application approval, recommend you have the DESIGNER add appropriate NOTES and DETAILS showing the following information on the plans that are

Print Date: 07/21/2011

Page: 5

Fire Review

Routing No: 1 | Review Date: 05/04/2011 COLLEEN BAXTER (CBAXTER) : Complete

submitted for **BUILDING PERMIT**.

Each APN (lot) shall have separate submittals for building and sprinkler system plans.

The County of Santa Cruz Emergency Services Department/Addressing must approve or assign an address before Fire Department approval is obtained.

NOTE on the plans "all underground piping systems shall comply with the County Standard FPO-006 and shall require plan submittal and permit approval prior to installation. The standard is available at the Santa Cruz County Fire Marshals Office upon request".

NOTE on the plans "the designer/installer shall submit three (3) sets of plans and calculations for the underground and overhead Residential Automatic Fire Sprinkler System to this agency for approval."

NOTE on the plans "an UNDERGROUND FIRE PROTECTION SYSTEM WORKING DRAWING must be prepared by the designer/installer. The plans shall comply with the UNDERGROUND FIRE PROTECTION SYSTEM INSTALLATION POLICY HANDOUT. Underground plan submittal and permit, will be issued to a Class B, Class C-16, Class C-36 or owner/builder. No exceptions."

SHOW on the plans **DETAILS** of the Fire Department Turn-a-round in compliance with FPO-015. Include dimensions. (See attached).

NOTE on the plans "the driveway / access road shall be in place prior to any framing construction, or construction will be stopped."

Note: As a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with applicable Specifications, Standards, Codes and Ordinances, agree that they are solely responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source, and, to hold harmless and without prejudice, the reviewer and reviewing agency.

Should you have any additional concerns, you may contact our office at (831) 335-6748.

SHOW ON THE PLANS THE ACTUAL DIMENSIONS AND PLACEMENT OF THE TURNAROUND. DETAILS CAN BE FOUND ON OUR WEBSITE AT WWW.SANTACRUZCOUNTYFIRE.COM.

Print Date: 07/21/2011

Page: 6



Project Review

Routing No: 1 | Review Date: 06/02/2011

ROBIN BOLSTER (RBOLSTER): Incomplete

The title sheet shows conflicting figures for parcel size, gross lot area and net lot area. The net lot area should equal the gross lot area less the area of the unnamed right-of-way that crosses thelot.

Please clarify and revise if necessary.

Routing No: 2 | Review Date: 07/20/2022

ROBIN BOLSTER (RBOLSTER): Incomplete

Neighborhood Notification Sign must be posted before project can be deemed complete.

Road Engineering Review

Routing No: 1 | Review Date: 05/26/2011

ANWARBEG MIRZA (AMIRZA): Incomplete

Completeness Comments:

Development projects obtaining access to a county road needs to meet county road requirements. It is therefore required to the applicant to show on the plans existing conditions of intersection of Smith Grade and private road and bring the intersection up to county standards.

Sight Distance of 200 feet is required at the intersection for 30 MPH posted speed limit on roadway.

The minimum road/driveway required to access the County road system for this project is a paved 18-foot wide 35-foot long access road with returns at the intersection with the County road. Paving within the roadway shall be 3" AC over 9" AB class. This provides safe ingress/egress onto the road and eliminates tracking of mud or dirt onto the County road.

A taper may be needed to transition from the existing width to the 18 foot width.

An encroachment permit is required for all work in the County right-of-way.

Design Criteria is available at the following internet address: http://www.dpw.co.santa-cruz.ca.us/DESIGN%20CRITERIA.PDF For questions, please call Anwar Mirza at (831) 454 3255.

Routing No: 2 | Review Date: 06/27/2011 ANWARBEG MIRZA (AMIRZA) : Complete

Print Date: 07/21/2011

Page: 7

FXHIRIT

Road Engineering Review

Completed.

Urban Designer Review

Routing No: 1 | Review Date: 05/18/2011

LAWRENCE KASPAROWITZ (LKASPAROWITZ): Complete

Print Date: 07/21/2011

Page: 8



COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060 (831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123 **KATHLEEN MOLLOY PREVISICH. PLANNING DIRECTOR**

July 20, 2011

Aaron Lingemann 2600 Smith Grade Santa Cruz, CA 95060

Subject: Review of Geotechnical Investigation by Dees and Associates, Inc.

Dated July 28, 2009: Project: SCR-0382

"Response to County of Santa Cruz Letter", dated June 16, 2011;

APN 062-141-04, Application #: REV111024

Dear Mr. Lingemann,

The purpose of this letter is to inform you that the Planning Department has accepted the subject report and the following items shall be required:

- 1. All construction shall comply with the recommendations of the report.
- 2. Final plans shall reference the report and include a statement that the project shall conform to the report's recommendations.
- 3. Prior to discretionary permit issuance a plan review letter shall be submitted to Environmental Planning. After plans are prepared that are acceptable to all reviewing agencies, please submit a geotechnical plan review letter that states the project plans conform to the recommendations of the geotechnical report. Please note that the plan review letter must reference the final plan set by last revision date. The author of the report shall write the plan review letter. (Please note: Another geotechnical plan review letter will be required prior to building permit issuance.)
- 4. The building permit application shall include grading, drainage and erosion control plans prepared by a licensed civil engineer.
- 5. Prior to building permit final, please record the attached Declaration of Geologic Hazards.
- 6. Please submit an electronic copy of the soils report in .pdf format via compact disk or email to: Carolyn.Banti@co.santa-cruz.ca.us. Please note that the report must be generated and/or sent directly from the soils engineer of record.

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

NOTICE TO PERMIT HOLDERS WHEN A SOILS REPORT HAS BEEN PREPARED, REVIEWED AND ACCEPTED FOR THE PROJECT

After issuance of the building permit, the County requires your soils engineer to be involved during construction. Several letters or reports are required to be submitted to the County at various times during construction. They are as follows:

- 1. When a project has engineered fills and / or grading, a letter from your soils engineer must be submitted to the Environmental Planning section of the Planning Department prior to foundations being excavated. This letter must state that the grading has been completed in conformance with the recommendations of the soils report. Compaction reports or a summary thereof must be submitted.
- 2. Prior to placing concrete for foundations, a letter from the soils engineer must be submitted to the building inspector and to Environmental Planning stating that the soils engineer has observed the foundation excavation and that it meets the recommendations of the soils report.
- 3. At the completion of construction, a final letter from your soils engineer is required to be submitted to Environmental Planning that summarizes the observations and the tests the soils engineer has made during construction. The final letter must also state the following: "Based upon our observations and tests, the project has been completed in conformance with our geotechnical recommendations."

If the final soils letter identifies any items of work remaining to be completed or that any portions of the project were not observed by the soils engineer, you will be required to complete the remaining items of work and may be required to perform destructive testing in order for your permit to obtain a final inspection.



Staub Forestry & Environmental Consulting

Mr. Aaron Lingemann 12 Comstock Lane Santa Cruz, CA 95060

Re: Registered Professional Forester's Assessment of TPZ Compatibility with Residential Construction, Santa Cruz County Assessors' Parcel # 062-141-04.

Dear Mr. Lingemann,

At your request, I inspected your property named above to assess the compatibility of proposed home construction with the parcel's Timber Production (TP) zoning. At the time of my site inspection today, the proposed residence was staked, septic locations were apparent, and road access to the parcel was well established and obvious. In the Coastal Zone, the principal permitted uses on "TP" zoned land are the growing and harvesting of timber, watershed management, fish and wildlife habitat management, agriculture, and one single-family dwelling per parcel (Santa Cruz County Code 13.10.372.a.1).

As a result, my assessment of compatibility requires finding that residential construction and use as proposed will cause: 1) No significant reduction in overall timbered acreage or commercial productivity, and 2) No significant disruption or blockage of timber harvest infrastructure such as roads, landings, or skid trails.

<u>Field Review:</u> Parcel vegetation is predominantly redwood forest with a variable, sometimes dominant component of mixed evergreen hardwoods, principally tanoak, two species of live oak, and madrone. It appears that proposed residential construction will occur in locations that will not require removal of commercial conifers but will result in a small reduction in hardwood occupancy where facilities are constructed. The redwoods growing in the immediate vicinity of the homesite appear to have been conscientiously avoided so they can be retained to frame the setting of the residence. As a result, it is reasonable to expect that the trees in the immediate vicinity of the residence will be permanently retained. These trees are a tiny fraction of the parcel's timber resources and most are relatively short due to the soils and exposure of their ridgetop location.

Road access for management of the property's redwood resources has not been established except in the ridgetop area that also includes the proposed homesite. Redwoods not immediately adjacent to the residence will remain commercially available thanks to favorable topography surrounding the homesite as long as practices such as directional falling and temporary removal of landscape fencing during harvest operations are employed.

Since no roads as yet access the slopes east of the homesite where the vast majority of the property's timber is growing, I evaluated access and yarding methods for timber harvesting in that area. Selective harvesting can be accomplished by a combination of tractor and cable yarding methods, including a short reach cable system using a tractor with a small tower. Access for these yarding systems requires that no permanent improvements block access on or to the east facing slopes below the homesite and the nose of moderate slope that provides favorable yarding access to the lower portions of the property.

Summary of Findings:

1) The proposed homesite does not remove significant commercial timber from production and will not

have any measureable impact on the property's timber production capabilities.

2) The proposed residential facilities and developed access roads <u>do not</u> block or otherwise occupy or impair access needed for timber harvest infrastructure such as roads, landings, or skid trails.

As a result, proposed residential construction and use is expected to have a negligible impact on the timber resources and timber management activities on this TPZ parcel. With productivity and access for timber management effectively unimpaired, the proposed project is physically compatible with the growing and harvesting of timber, consistent with the intent of the Forest Taxation Reform Act of 1976, as well as the purposes of County Code Chapter 13.10.370 (Timber Production Zoning).

Sincerely,

Stephen R. Staub

Registered Professional Forester

Stofken R Hent

License Number 1911

ARCHAEOLOGICAL CONSULTING

P.O. BOX 3377 SALINAS, CA 93912 (831) 422-4912

PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FOR THE PROPOSED BUILDING SITE ON APN 062-141-04, BONNY DOON, SANTA CRUZ COUNTY, CALIFORNIA

by

Mary Doane, B.A. and Gary S. Breschini, Ph.D., RPA

April 14, 2011

Prepared for

Aaron Lingemann

SUMMARY	: Project 4486
RESULTS:	NEGATIVE

ACRES: <2 OF THE ±42 ACRE PARCEL

SITES: NONE

UTMG: 5.7750/40.9640

MAP: USGS 7.5 MINUTE DAVENPORT QUADRANGLE

For Planning Department:		Yes	No	N/A	See text
Evidence of:	Sacred/Religious site Native American Remains Anything of Archaeological Significance Findings of Historical Significance	_	_X_ _X_ _X	_X_ 	

INTRODUCTION

In April 2011 Archaeological Consulting was authorized by Aaron Lingemann to prepare a Preliminary Archaeological Reconnaissance report for the proposed building site on a rural parcel in Bonny Doon, Santa Cruz County, California.

As part of our methodology in the preparation of this report, we have: 1) completed a background records search at the Northwest Regional Information Center of the California Historical Resources Information System, located at Sonoma State University, Rohnert Park; and 2) conducted a field reconnaissance of the project area. The following report contains the results of these investigations as well as our conclusions and recommendations.

PROJECT LOCATION AND DESCRIPTION

The project parcel, APN 062-141-04, is located south of Smith Grade Road in Bonny Doon, Santa Cruz County, California (see Map 1 and Site Plan). The Universal Transverse Mercator Grid (UTMG) coordinates for the approximate center of the current project area are 5.7750/40.9640 on the USGS 7.5 minute Davenport Quadrangle (1955; photorevised 1968). The project proposes new construction on the ±42 acre parcel. The house site is situated just south of the high point of the parcel. The septic system will be located down the slope to the southwest. There was an existing road into the house site.

At the time of the field reconnaissance the project area was vacant and visibility was very good. Brush had been cleared from the construction impact areas and only short new grasses were growing there. Overall, soil visibility within the project area was considered adequate for the purposes of this reconnaissance.

PROJECT METHODOLOGY

The methodology used in the preparation of this report included two primary steps, as follows:

Background Research

The background research for this project included an examination of the archaeological site records, maps, and project files of the Northwest Regional Information Center of the California Historical Resources Information System, located at Sonoma State University, Rohnert Park, California. In addition, our own extensive personal files and maps were examined for supplemental information, such as rumors of historic or prehistoric resources in the general project area. These literature searches are undertaken to determine if there are any recorded archaeological resources within the project area, and whether the area has been included in any previous archaeological research or reconnaissance projects.

The Regional Information Centers, established by the California Office of Historic Preservation, are the local repository for all archaeological reports prepared under cultural resource management regulations. A background literature search at the appropriate Regional Information Center is required by state guidelines and current professional standards. Following completion of a project, a copy of the report also must be deposited with that organization.

Field Reconnaissance

The field reconnaissance was conducted by Mary Doane, B.A, on April 13, 2011. The survey consisted of a "general surface reconnaissance" of all project impact areas which could reasonably be expected to contain visible cultural resources, and which could be viewed without major vegetation removal, or excavation.

RESULTS OF THE RECONNAISSANCE

Background Research

The record search of the files at the Northwest Regional Information Center found that there are no recorded archaeological sites located within one kilometer of the project area. The search found no record of a previous archaeological reconnaissance study in the current project area.

In addition, the California Inventory of Historical Resources (March 1976), California Historical Landmarks, and the National Register of Historic Places were checked for listed cultural resources that might be present in the project area; none were discovered.

The project area lies within the currently recognized ethnographic territory of the Costanoan (often called Ohlone) linguistic group. Discussions of this group and their territorial boundaries can be found in Breschini, Haversat, and Hampson (1983), Kroeber (1925), Levy (1978), Margolin (1978), and other sources. In brief, the group followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop. Habitation is considered to have been semi-sedentary and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs. These original sources of water may no longer be present or adequate. Also, resource gathering and processing areas and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group. Factors that may influence the locations of these sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, ecotones, the presence of specific resources (oak groves, marshes, quarries, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas can also be found along ridges or other travel corridors.

Field Research

None of the materials frequently associated with prehistoric cultural resources in this area (dark midden soil, marine shell fragments, broken or fire-altered rocks, bones or bone fragments, flaked or ground stone, bedrock mortar outcrops, etc.) were noted during the survey. The native soil in the project area was generally a light tan to gray sandy clay. Shaley bedrock was apparent under the thin soil in areas of prior disturbance.

No evidence of potentially significant historic period resources was seen in any of the project areas.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the background research and the surface reconnaissance, we have concluded that the project area does not contain surface evidence of potentially significant archaeological resources. Because of this we make the following recommendation:

• The proposed construction project should not be delayed for archaeological reasons.

Because of the possibility of unidentified (e.g., buried) cultural resources being found during any construction, we recommend that the following standard language, or the equivalent, be included in any permits issued for the project area:

• If historic or prehistoric archaeological resources are accidentally discovered during construction, work shall be halted within ±50 meters (160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated, with the approval of the lead agency, and implemented.

REFERENCES

Breschini, G. S., T. Haversat, and R. P. Hampson

A Cultural Resources Overview of the Coast and Coast-Valley Study Areas [California]. Coyote Press, Salinas.

Kroeber, A. L.

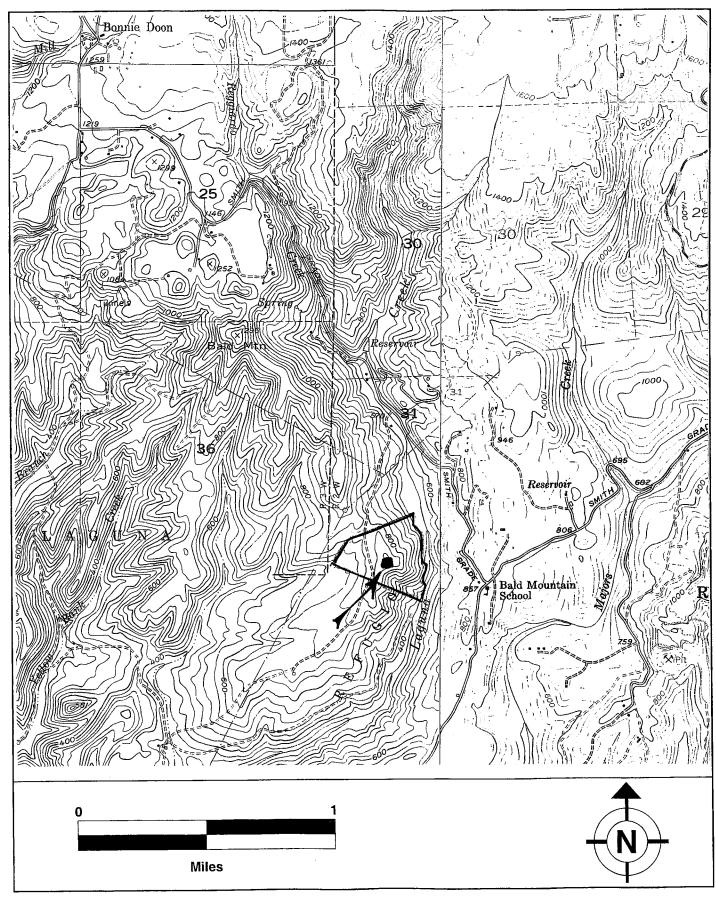
Handbook of the Indians of California. Bureau of American 1925 Ethnology Bulletin 78.

Levy, R.

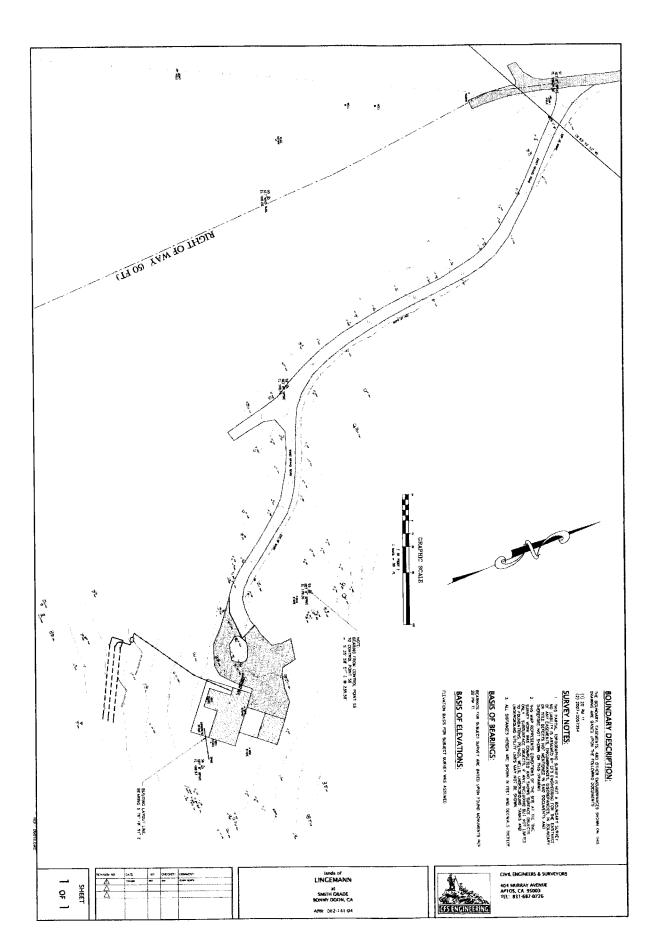
Costanoan. Pp. 485-495 in Handbook of North American Indians, 1978 Vol. 8, California. Smithsonian Institution, Washington, D.C.

Margolin, M.

The Ohlone Way. Heyday Books, Berkeley. 1978



Map 1. Project Location.



Phone (831) 427-1770 Fax (831) 427-1794

June 15 2011

Project No. SCR-0382

MR AARON LINGEMANN 2700 Smith Grade Road Bonny Doon California 95060

Subject

Response to County of Santa Cruz Letter Dated June 6, 2011

Reference

Proposed Single Family Residence and Detached Garage

2700 Smith Grade Road, Bonny Doon

AFN 062-141-04

Santa Cruz County, California

Dear Mr. Lingemann

This letter is in response to the County of Santa Cruz letter, dated June 6, 2011. Their letter requested a revised building envelope showing the limits of the mapped landslides and recommendations for recompaction of the foundation zone soils.

Figure 2 in our report indicated an approximate building envelope location and suggested the homesite was at least 150 feet from the mapped landslide. We had originally measured the distance from the homesite to the landslide using USGS maps at a small scale. We have redrawn the homesite using the new County of Santa Cruz GIS website. The new GIS map includes topography and the location of mapped landslides at a large scale. The redrawn homesite is setback at least 60 feet from landslides. The homesite indicated on the revised Figure 2, attached, should be used in design and supersedes the homesite indicated on Figures 2 and 3 of our report.

Our report provided recommendations for spread footing foundations that mitigate loose soil and expansive soil conditions in the proposed foundation zone. You indicated that you would like to use a station grade toundation and mitigate the loose and expansive soil conditions by replacing the top 3 feet of soil as angineered fill. If the top 3 feet of soil within 3 feet of the foundation is removed and replaced as compacted engineered fill placed in accordance with the *Grading* section of our report, the foundation may consist of a slab-on-grade foundation. The slab on-grade foundation can be designed using the *Gunventional Spread Footings and Stab-on-Grade with Thickened Edges* recommendations provided in the input report except the allowable bearing capacity used in design should be no more than 2 300 psf.

Very truly yours

DEES & ASSOCIATES, INC

Retiecca L. Dees Geotechnical Engineer

G E 2623

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Figure 2 Revised to Show Homesite in Relation to Mapped Landshides

Scale: 1"=300"

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Phone: 831 427-1770 Fax: 831 427-1794

June 23, 2011

Project No. SCR-0382

MR. AARON LINGEMANN 2700 Smith Grade Road Bonny Doon, California 95060

Subject:

Geotechnical Plan Review

Reference:

Proposed Single family Residence

2700 Smith Grade Road

APN 062-141-04

Santa Cruz County, California

Dear Mr. Lingemann:

As requested, we have reviewed the geotechnical aspects of the project plans for the new single family residence proposed at the referenced site. The plans reviewed included Sheets A-001, A-101, A-102, A-103, A-104, A-201, A-202, A-203, A-204 and A-301, last dated June 20, 2011 and prepared by Gregory Heitzler Design. Geotechnical recommendations were presented in our report, dated July 28, 2009 and letter, dated June 15, 2011.

The plans indicate the new residence will be located in the southeast portion of the building envelope at the top of the knoll. The building envelope indicated on the plans is located per the recommendations of our June 15, 2011 letter.

The home will be supported on a spread footing foundation with slab-on-grade floors. Foundations will be embedded into native soil and engineered fill will be used where necessary to raise grade inside the foundation to support the slab floors. A thin fill wedge will be constructed on the southeast slope below the homesite. The fill is about 2 to 3 feet thick.

Drainage from the driveway will sheet flow onto the adjacent slope. Drainage from the homesite will be collected and discharged into two rip rap energy dissipaters. The collected runoff is about 4800 square feet and there will be a large amount of runoff directed to each dissipater. The soil is clayey and the runoff water could flow down the slope and form a stream. We recommend using at least 5 discharge points to disperse runoff around the homesite, using splash blocks at the base of downspouts or discharging runoff into dissipater trenches designed to disperse runoff over a wider area.

Our review indicates the plans will be in general conformance with our recommendations once the drainage is dispersed around the homesite as recommended above.

Very truly yours,

DEES & ASSOCIATES, INC.

Rebecca L. Dees Geotechnical Engineer G.E. 2623

Copies:

2 to Addressee

1 to Gregory Heitzler Design

July 28, 2009

Project No. SCR-0382

MR. AARON LINGEMANN 2700 Smith Grade Road Bonny Doon, California 95060

Subject:

Geotechnical Investigation

Reference:

Proposed Single Family Residence and Detached Garage

2700 Smith Grade Road, Bonny Doon

APN 062-141-04

Santa Cruz County, California

Dear Mr. Lingemann:

As requested, we have completed a Geotechnical Investigation for the new single family residence and detached garage proposed at the referenced site.

The purpose of our investigation was to evaluate the site soil conditions and provide geotechnical recommendations for the proposed development.

This report presents the results, conclusions and recommendations of our investigation. If you have any questions regarding this report, please call our office.

Very truly yours,

DEES & ASSOCIATES, INC.

Rebecca L. Dees Geotechnical Engineer G.E. 2623

Copies:

1 to Addressee

5 to Grace Gurreri



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GEOTECHNICAL INVESTIGATION

Introduction

This report presents the results of our Geotechnical Investigation for the new single family residence and detached garage proposed at the referenced site located in Bonny Doon, California. The residence and garage will both be situated on top of a narrow ridgeline. An existing dirt driveway will be improved and used for access to the homesite.

Purpose and Scope

The purpose of our investigation was to evaluate the surface and subsurface soil conditions within the proposed homesite in order to provide geotechnical recommendations for design and construction of the proposed residence and garage.

The specific scope of our services included: 1) A site reconnaissance and review of available data in our files regarding the site and region. 2) Exploration of subsurface soil conditions consisting of logging and sampling of five (5) exploratory test borings drilled between 8.5 and 16.5 feet deep. The test borings were drilled with 6-inch diameter solid stem auger equipment mounted on a truck drill rig. Soil samples were obtained from the test borings and returned to the laboratory for testing. 3) Laboratory testing to evaluate the engineering properties of the subsoils. Laboratory classification of selected samples included moisture content and dry density tests, grain size analyses, Atterberg Limit tests and a direct shear test. 4) Engineering analysis and evaluation of the resulting data. Based on our findings we have developed geotechnical design criteria and recommendations for general site grading, building setbacks, foundations, retaining walls, concrete slabs-ongrade and general site drainage and erosion control. 5) Submittal of this report presenting the results of our investigation.

Project Location and Description

The 41.4 acre, irregular shaped parcel, is located of Smith Grade Road in the Bonny Doon area of Santa Cruz County, California, Figure 1. The property is bordered by mountain residential property on all sides.

The site lies at the intersection of a northwest-southeast trending ridgeline with moderate to steep side slopes. The proposed building envelope is located at the top of the ridgeline, Figure 2. Slope gradients in the proposed building envelope range from level to about 10 percent. The side slopes of the ridge are on the order of 20 to 40 percent at the top and steepen to about 65 percent about a hundred feet downslope. The existing dirt driveway lies on gentle to moderate slopes. The driveway was graded with minor cuts and fills less than 2 feet in height.

The site is generally forested with small to large diameter trees and underbrush and the proposed building envelope has been mostly cleared. Site drainage is by sheet flow down the side slopes of the ridge.

Field Investigation

Subsurface conditions at the site were explored on May 28, 2009 with five (5) exploratory

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test borings drilled from 8.5 to 16.5 feet below grade. The borings were drilled with 6-inch diameter solid flight auger equipment mounted on a truck. The approximate location of our test borings are indicated on our Boring Site Plan, Figure 3. Our boring site plan is based on the topographic map provided to us.

Representative soil samples were obtained from the exploratory borings at selected depths, or at major strata changes. These samples were recovered using the 3.0 inch O.D. Modified California Sampler (L), the Standard Terzaghi Sampler (T). The penetration resistance blow counts for the (L) and (T) noted on the boring logs were obtained as the sampler was dynamically driven into the in-situ soil. The test was performed by dropping a 140-pound hammer a 30-inch free fall distance enough times (blows) to drive the sampler 6 to 18 inches. The number of blows required to drive the sampler through each 6-inch penetration interval was recorded. The "blow count" recorded on the boring logs present the accumulated number of blows that were required to drive the sampler through the last 12 inches of that sample interval, unless otherwise noted. The blow counts indicated for the Modified California Sampler (L) have been converted to an equivalent SPT blow count on the logs of test borings.

The soils encountered in the exploratory borings were continuously logged in the field and described in accordance with the Unified Soil Classification System (ASTM D2487 and D2488), Figure 4. The test boring logs are included on Figures 5 to 9 of this report. The test logs describe the soils encountered in our borings and may not reflect soil conditions in other areas of the site.

Laboratory Testing

The field and laboratory testing program was directed toward a determination of the physical and engineering properties of the soils underlying the proposed building site. The natural moisture contents (by weight) and dry densities were determined on selected samples and are recorded on the boring logs. The strength parameters of the underlying earth materials were determined from direct shear testing in the laboratory, penetration resistance encountered during sampling and hand held pocket penetrometer readings taken from the collected samples. Atterberg Limits were performed on a representative caly sample to determine the soils relative shrink/swell potential. Grain size analysis, including hydrometer analyses, were performed to aid in soil classification.

The results of our field and laboratory testing appear on our Test Boring Logs. Graphical results of our direct shear test, grain size analyses and Atterberg Limit tests are presented on Figures 10 to 12.

Subsurface Conditions

The Santa Cruz County Geologic Map, Figure 13, indicates the site is underlain by the Monterey Formation (Tm) and Lompico Sandstone (Tlo). The ridgetop and the proposed building envelope are underlain by the Monterey Formation. The Lompico sandstone is layered below the mudstone and the formation daylights further down the ridge to the east.

The Monterey Formation is described as, "medium-to thick-bedded and laminated olive-gray to light-gray semisiliceous organic mudstone and sandy siltstone. Includes a few thick dolomite interbeds. Thickness about 2,675 ft on north limb of Scotts Valley syncline (Clark, 1981, p. 21)".

Our borings indicate the bedrock is overlain by 11 to 15 feet of soil and completely weathered bedrock. The soil consists of clay with the exception of Boring 1 where a silty sand was encountered from 4 to 15 feet. The top 4 to 4.5 feet of clay is expansive, the clay below 4 feet is lean. The clays vary from soft to very stiff, the silty sand in Boring 1 is medium dense and the bedrock is dense.

Groundwater

Groundwater was not encountered in our test borings; however, groundwater levels may vary at the site due to seasonal variations and other factors not evident during our investigation. The soils were generally dry to damp throughout the explored profile.

Seismicity

The project site is located about 21.0 km (13.1 miles) southwest of the San Andreas fault zone, 16.3 km (10.1 miles) southwest of the Zayante fault and 9.2 km (5.7 miles) northeast of the offshore San Gregorio fault. The San Andreas Fault is the largest and most active of the faults, however, each fault is considered capable of generating moderate to severe ground shaking. It is reasonable to assume that the proposed development will be subject to at least one moderate to severe earthquake from one of the faults during the next fifty years. Structures designed in accordance with the most current seismic design codes should react well to seismic shaking.

The Seismic Design Category (SDC) for structures with an occupancy category of I or II is "D" for analysis using the 2007 California Building Code. The following ground motion parameters may be used in seismic design and were determined using the USGS Ground Motion Parameter Calculator: Ss, Site Class B (0.2 sec) = 1.500g; S1, Site Class B (1.0 sec) = 0.600g; SMs, Site Class D (0.2 sec) = 1.500g; SM1, Site Class D (1.0 sec) = 0.600g; SDs, Site Class D (0.2 sec) = 1.000g; SD1, Site Class D (1.0 sec) = 0.600g.

Landsliding and Slope Stability Hazards

There are several landslides mapped along the side slopes of the ridge on the Preliminary Map of Landslide Deposits in Santa Cruz County, Cooper-Clark, Figure 14. Both landslides that extend onto the property are indicated as questionable.

The landslide mapped to the west of the homesite is mapped within the broad gentle sloping valley located at the base of the driveway and is about 800 feet wide and about a mile long. The topography within the valley is very uniform and subdued and there is no evidence of recent landslide activity. Any landslides that may have occurred in this area would have been very old to allow the topography to become so uniform. Due to the gentle topography there is a low potential for landslides to develop in the vicinity of the landslide mapped west of the homesite.

The landside mapped northeast of the homesite is very large and extends along a large section of the side slope of the ridgeline. The mapped slide is almost 4000 feet wide and about 1000 feet long and lies on a very steep slope. The mapped slide is located more than 150 feet from the proposed building envelope.

The slopes immediately below the proposed improvements are on the order of 20 to 40 percent and there were no signs of slope instability noted near the top of the ridge.

The landslide potential within the proposed building envelope is low. The two landslides mapped at the site are mapped as being questionable; the landslides, if they exist, are located more than 150 feet from the proposed building envelope, the slopes immediately below the proposed building envelope are moderate and no landslides were observed in the vicinity of the proposed improvements.

Since uncontrolled runoff can cause landsliding, all concentrated runoff from improvements should be dispersed away from steep slopes and the natural drainage patterns at the site should be maintained as much as possible.

Liquefaction Hazards

Liquefaction occurs when saturated fine grained sands, silts and sensitive clays are subject to shaking during an earthquake and the water pressure within the pores build up leading to loss of strength. The excess pore water pressures then start to dissipate upwards and sideways. The primary movement is in an upward direction towards the ground surface which often results in ground settlement. Lateral dissipation of pore pressures could result in lateral spreading if soils liquefy near a slope face.

There is a very low potential for liquefaction to occur below the homesite due to the lack of a groundwater table and the stiff nature of the subsoils.

DISCUSSIONS & CONCLUSIONS

Based on the results of our investigation, the new single family residence and detached garage proposed at the site are feasible from a geotechnical standpoint provided the recommendations presented in this report are incorporated into the design and construction of the proposed improvements. Structures designed in accordance with our recommendations will be subject to an "Ordinary" level of risk, as defined in the <u>Scale of Acceptable Risks from Seismic and Non-Seismic Geologic Hazards"</u>, included in Appendix B.

Primary geotechnical concerns for the project include locating structures away from steep slopes, mitigating the expansive soil conditions, providing uniform support for foundations, controlling site drainage and designing for strong seismic shaking.

There are landslides mapped on the steep side slopes of the ridge. Structures should be set back from steep slopes and should be located within the building envelope indicated on Figure 3. Structures located within the building envelope have a low potential to be affected by landslides.

The surface soils are moderately expansive. Our calculations indicate the expansive soil could swell up to 2.69 inches under the existing conditions. If 18 inch deep footings are used and the footing excavations are wetted prior to placing concrete, the potential swell is reduced to 0.53 inches and if a 100 psf footing load is maintained in addition to the above, the swell potential is reduced to nearly zero. Conventional spread footing foundations that are embedded at least 18 inches below grade may be used to support structures as long as the supporting subgrade is wetted prior to placing concrete.

Expansive clays should be removed from retaining wall backfills to prevent excessive lateral loads on the walls from expanding soils. Expansive clays should be removed within 4 feet of the back of retaining walls.

Concrete slabs will not have enough depth or weight to prevent swell uplift, therefore interior floor slabs should not be used for the residence. The garage may have a slab floor as long as there are no interior partition walls, the slab is separated from the foundation and the owner accepts the risks associated with uplift of the garage slab.

With the exception of the soils encountered at the surface of Boring 2, the near surface soils are suitable for foundation support. The top 3 feet of soil is loose and soft in the vicinity of Boring 2. Foundations in the vicinity of Boring 2 should penetrate the loose/soft soils and be embedded into firm, native soil.

The proposed structures will most likely experience strong seismic shaking during the design lifetime. The foundations and structures should be designed utilizing the most current seismic design standards.

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RECOMMENDATIONS

The following recommendations should be used as guidelines for preparing project plans and specifications:

Site Grading

- 1. The soil engineer should be notified <u>at least four (4) working days</u> prior to any site clearing or grading to make arrangements for construction observation and testing services. The recommendations of this report are based on the assumption that the soil engineer will perform the required testing and observation during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.
- 2. Areas to be graded should be cleared of obstructions and other unsuitable material. Organic soil and any other unsuitable material should be removed where engineered fill is planned. The resulting voids should be backfilled with engineered fill.
- 3. Areas to receive engineered fill should be scarified, moisture conditioned to 2 to 4 percent over optimum moisture content and compacted to at least 90 percent relative compaction.
- 3. Engineered fill should be placed in thin lifts not exceeding 6 inches in loose thickness and moisture conditioned to 2 to 3 percent over optimum moisture content. Engineered fill should be compacted to at least 90 percent relative compaction.
- 5. The relationship between moisture content and dry unit weight shall be based on ASTM Test Designation D1557-00. The relative density and moisture content of the compacted soil shall be based on ASTM D2922-04.
- 6. Non-expansive native soils may be used as engineered fill. The expansive clays may be spread in landscape areas or removed from the site. Non-expansive native soils should be moisture conditioned to about 2 percent over optimum moisture content prior to compaction. We estimate shrinkage factors of about 15 percent for the on-site materials when used in engineered fills.
- 7. Imported soils used as engineered fill should be moisture conditioned to within 2 percent of optimum moisture content prior to compaction. Soils used for engineered fill should be granular, have a Plasticity Index less than 15, be free of organic material, and contain no rocks or clods greater than 6 inches in diameter, with no more than 15 percent larger than 4 inches.
- 8. Temporary cutslopes (less than 12 feet high) should be inclined no more than 1:1 (horizontal to vertical). Permanent cutslopes excavated into clayey soil should be inclined no more than 3:1 (horizontal to vertical) and permanent cutslopes excavated into weathered bedrock or bedrock should be inclined no more than 2:1 (horizontal to vertical). Fill slopes should be no steeper than 2:1 (horizontal to vertical).

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- 9. The upper 8 inches of subgrade below pavements should be moisture conditioned to 2 to 3 percent over optimum moisture content and compacted to 90 percent relative compaction. The aggregate base below driveways and pavements should be compacted to 95 percent relative compaction.
- 10. Engineered fill should be observed and tested by our firm. At a minimum, in-place density tests should be performed as follows: one test for every 500 cubic yards of material placed for embankments, one test for every 100 to 200 cubic yards of material for backfill in trenches or around structures, one test for every 500 to 1,000 cubic yards of material for relatively thin fill sections and one test whenever there is a definite suspicion of a change in the quality of moisture control or effectiveness in compaction.
- 11. After the earthwork operations have been completed and the soil engineer has finished their observation of the work, no further earthwork operations shall be performed.

Foundations

12. Foundations for structures may consist of conventional spread footings or concrete slabs-on-grade with thickened edges.

Conventional Spread Footings and Slabs-on-Grade with Thickened Edges

- 13. Conventional spread footings or thickened slab edges embedded into firm native soil may be used to support structures as long as the footings penetrate the loose/soft soils encountered in the vicinity of Boring 2.
- 14. Load bearing foundations designed in accordance with the above should be embedded at least 18 inches below the lowest adjacent grade and be at least 12 inches wide for onstory structures and 15 inches wide for two-story structures.
- 15. Foundations designed in accordance with the above may be designed for an allowable soil bearing pressure of 3,000 psf. The allowable bearing capacity may also be increased by 1/3 for short term seismic and wind loads.
- 16. Total and differential settlements under the proposed light building loads are anticipated to be less than 1 and ½ inch respectively for footings designed and constructed in accordance with the above.
- 17. Lateral load resistance for structures supported on footings may be developed in friction between the foundation bottom and the supporting subgrade. A friction coefficient of 0.25 is considered applicable. Where footings are poured neat against firm, native soil a passive lateral pressure of 200 pcf, equivalent fluid weight, may be assumed.
- 18. Footings and utility trenches located adjacent to other footings should not extend within an imaginary 1.5:1 plane projected downward from the bottom edge of the adjacent footing.

- 19. The foundation trenches **MUST BE KEPT MOIST** during excavation and **WETTED** prior to placing concrete.
- 20. Prior to placing concrete, foundation excavations should be thoroughly cleaned and observed by the soils engineer.

Retaining Walls and Lateral Pressures

- 21. The surface soils are moderately expansive. If the soil behind the retaining walls expands, the walls could experience very high lateral pressures. We recommend removing 4 feet of the expansive soil behind each wall and replacing it with non-expansive engineered fill to reduce the design pressure behind the walls.
- 22. <u>Unrestrained Retaining Walls Retaining Non-Expansive Fill or Native Material</u> Retaining walls retaining native soil should be designed to resist an active lateral earth pressure of 44 pcf, equivalent fluid weight for level backfills and 53 pcf EFW for backslopes inclined up to 3:1 (horizontal to vertical). Retaining walls retaining fill material should be designed to resist an active lateral earth pressure of 37 pcf, equivalent fluid weight for level backfills, 42 pcf EFW for backslopes inclined up to 3:1 (horizontal to vertical) and 60 pcf, EFW for backslopes inclined up to 2:1 (horizontal to vertical). The walls should also be designed to resist any surcharge loads imposed on the backfill behind the walls.
- 23. Restrained Retaining Walls Retaining Non-Expansive Fill or Native Material Restrained walls retaining native soil should be designed to resist uniformly applied wall pressure of 61 pcf, equivalent fluid weight for level backslopes and 82 pcf for sloping backfills inclined to 3:1 (horizontal to vertical). Restrained retaining walls retaining fill material should be designed to resist an active lateral earth pressure of 56 pcf, equivalent fluid weight for level backfills, 76 pcf EFW for backslopes inclined up to 3:1 (horizontal to vertical) and 100 pcf, EFW for backslopes inclined up to 2:1 (horizontal to vertical). The walls should also be designed to resist any surcharge loads imposed on the backfill behind the walls.
- 24. Retaining walls requiring seismic design should include a dynamic surcharge load of 20 pcf, equivalent fluid weight. Dynamic surcharges should be added to the above active lateral earth pressures. The resultant force should be applied at a point located 0.3H above the base of the wall, where H is the height of the wall.
- 25. The above lateral pressures assume that the walls are fully drained to prevent hydrostatic pressure behind the walls. Drainage materials behind the wall should consist of Class 1, Type A permeable material (Caltrans Specification 68-1.025) or an approved equivalent. The drainage material should be at least 12 inches thick. The drains should extend from the base of the walls to within 12 inches of the top of the backfill. A perforated pipe should be placed (holes down) about 4 inches above the bottom of the wall and be tied to a suitable drain outlet. Wall backdrains should be plugged at the surface with clayey material to prevent infiltration of surface runoff into the backdrains.
- 26. Retaining wall foundations should be designed in accordance with foundation section

of this report.

Interior Slabs-on-Grade

- 27. Interior floor slabs should not be used in the residence unless the top 3 feet of subgrade soil is removed and replaced with non-expansive engineered fill.
- 28. Interior floor slabs may be used for the garage provided the floor slab is separated from the foundation with felt, the owner accepts all risks associated with movement of the floor slab and there are no partition walls founded on the slab.
- 29. Dees & Associates, Inc. are not experts in the field of moisture proofing and vapor barriers. In areas where floor wetness would be undesirable, an expert, experienced with moisture transmission and vapor barriers should be consulted. At a minimum, a blanket of 4 inches of free-draining gravel should be placed beneath the floor slab to act as a capillary break. In order to minimize vapor transmission, an impermeable membrane should be placed over the gravel. The membrane should be covered with 2 inches of sand or rounded gravel to protect it during construction. The sand or gravel should be lightly moistened just prior to placing the concrete to aid in curing the concrete.

Exterior Slabs-on-Grade

- 30. Exterior concrete slabs-on-grade should be founded on firm, well-compacted ground. These exterior slabs can be expected to suffer some cracking and movement. Thickened exterior edges, a well-prepared subgrade including pre-moistening prior to pouring concrete, adequately spaced expansion joints and good workmanship should reduce cracking and movement.
- 31. Reinforcing should be provided in accordance with the anticipated use and loading of the slab. The reinforcement of exterior slabs should not be tied to the building foundations.

Site Drainage

- 32. Controlling surface and subsurface runoff is important to the performance of the project and the adjacent slopes.
- 33. Surface drainage should include provisions for positive gradients so that surface runoff is not permitted to pond adjacent to foundations or other improvements. Where bare soil or pervious surfaces are located next to the foundation, the ground surface within 10 feet of the structure should be sloped at least 5 percent away from the foundation. Where impervious surfaces are used within 10 feet of the foundation, the impervious surface within 10 feet of the structure should be sloped at least 2 percent away from the foundation. Swales should be used to collect and remove surface runoff where the ground cannot be sloped the full 10 foot width away from the structure. Swales should be sloped at least 2 percent towards the discharge point.
- 34. Full roof gutters should be placed around the eves of the structure. Discharge from the roof gutters should be conveyed away from the downspouts and discharged away from improvements in a controlled manner.

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- 35. Due to the potential for landslides to occur on steep slopes, runoff from improvements should be dispersed on gentle slopes and natural drainage patterns should be maintained as much as possible. The location of all discharge points should be observed and approved in the field prior to installation.
- 36. No concentrated runoff should be allowed to flow down the slopes in an uncontrolled manner. Collected runoff should be carried to the discharge point in solid pipe. Flexible pipes may be used to carry runoff down the slope as long as the flexible pipes are staked to the ground surface and not be buried.
- 37. Rip rap, or other suitable dissipation devices should be placed at all discharge locations to reduce the potential for erosion at the outlet.

Erosion Control

38. Drainage and erosion should be controlled at all times. Between October 15th and April 15th when erosion it most likely to occur, the following measures should be implemented until a permanent vegetative cover can be established.

Plan Review, Construction Observation, and Testing

39. Dees & Associates, Inc. should be provided the opportunity for a general review of the final project plans prior to construction to evaluate if our geotechnical recommendations have been properly interpreted and implemented. If our firm is not accorded the opportunity of making the recommended review, we can assume no responsibility for misinterpretation of our recommendations. We recommend that our office review the project plans prior to submittal to public agencies, to expedite project review. Dees & Associates, Inc. also requests the opportunity to observe and test grading operations and foundation excavations at the site. Observation of grading and foundation excavations allows anticipated soil conditions to be correlated to those actually encountered in the field during construction.