



Staff Report to the Zoning Administrator

Application Number: **04-0475**

Applicant: Richard Kojak
Owner: Carrie Kojak
APN: 083-052-01

Agenda Date: **July 15, 2005**
Agenda Item #: **5**
Time: After 1000 a.m.

Project Description: Proposal to construct retaining walls with a maximum height of about 9 feet within the front yard setback and approximately 3.5 feet within a 35-foot wide private right-of-way (Band Road).

Location: The property is located on the north side of Band Road about 300 feet west from the intersection of Band Road and Sunset Road. Situs: 200 Band Road, Boulder Creek.

Supervisory District: 5" District (District Supervisor: Stone)

Permits Required: Residential Development Permits for a fence to exceed 3 feet and less than 6-feet and for a fence to exceed 6 feet within the front yard setback.

Staff Recommendation:

- Approval of Application 04-0475, based on the attached findings and conditions.
- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

Exhibits

- | | |
|---|--|
| A. Project plans | E. Assessor's Parcel Map |
| B. Findings | F. Zoning & General Plan Maps |
| C. Conditions | G. Comments & Correspondence |
| D. Categorical Exemption (CEQA determination) | H. Soils Report Conclusions and Review |

Parcel Information

Parcel Size:	14,069 square feet (estimate)
Existing Land Use - Parcel:	Residential
Existing Land Use - Surrounding:	Residential and vacant residential land
Project Access:	Band Road (private road)
Planning Area:	San Lorenzo Valley
Land Use Designation:	R-M (Mountain residential)

County of Santa Cruz Planning Department
701 Ocean Street, 4th Floor, Santa Cruz CA 95060

Zone District: R-1-15 (Single family residential - 15,000sq.ft. lot min.)
Coastal Zone: Inside Outside

Environmental Information

Geologic Hazards: Not applicable
Soils: Soils report completed
Fire Hazard: Not a mapped constraint
Slopes: Moderate to steeply sloping site
Env. Sen. Habitat: Not mapped/no physical evidence on site
Grading: Minor grading proposed
Tree Removal: No trees proposed to be removed
Scenic: Not a mapped resource
Drainage: Drainage plan adequate
Traffic: N/A
Roads: Existing roads improved with proposed retaining wall
Parks: Existing park facilities adequate
Archeology: None mapped

Services Information

Urban/Rural Services Line: Inside Outside
Water Supply: San Lorenzo Valley Water District
Sewage Disposal: Septic
Fire District: Boulder Creek Fire
Drainage District: Zone 8

Project Setting

This parcel is **part** of the Wildwood Number 1 Subdivision, an antiquated paper subdivision from 1909. The area is characterized by numerous substandard sized parcels, which have been **formed** by combining a number of the original 100x 25-foot lots. Most of the straight streets running north-south and east west on the parcel maps exist only on paper **as** the topography **makes** their construction impossible. Most of the developed lots in this area have older, often nonconforming, dwellings. The parcels are moderately to steeply sloped and accessed by winding, narrow private roads. A series of retaining walls and associated grading were completed on this parcel without permits, and the property was subsequently red-tagged for Code violations. A soils report has been completed for this site, which determined that engineered retaining walls are needed to stabilize the land under the dwelling (requires an approximately 9-foot retaining wall) and the existing road access (requires a 3.5 foot wall within the right-of-way).

Zoning & General Plan Consistency

The subject property is an approximately 14,069 square foot lot, located in the R-1-15 (Single family residential - 15,000sq.ft. lot minimum) zone district, a designation in which a single family dwelling is a principal permitted use. Fences are generally a principal ancillary use within this zone district, except where the height exceeds three feet within the front yard setback. The proposed retaining

walls requires a Residential Development permit as one wall exceeds 6 feet in height within the front yard setback (adjacent to the dwelling and septic system) and the other is over 3 feet high and within a private right-of-way. The proposed engineered retaining walls are necessary to the health and safety of the existing residence at 200 Band Road by supporting a steep cut into a steeply sloped hillside and necessary to maintain the existing access road which had been failing and is already a substandard width (less than 12 feet). The walls will replace the unpermitted retaining walls, thus will resolve a violation of the County Code. The project is consistent with the site's R-M (Mountain Residential) General Plan designation, as well as the implementing R-1-15 zone district.

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

- **APPROVAL** of Application Number **04-0475**, based on the attached findings and conditions.
- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

Supplementary reports and information referred to in this report are on file and available 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: Cathleen Carr
Santa Cruz County Planning Department
701 Ocean Street, 4th Floor
Santa Cruz CA 95060
Phone Number: (831) 454-3225
E-mail: cathleen.carr@co.santa-cruz.ca.us

DEVELOPMENT PERMIT FINDINGS

1. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL NOT BE DETRIMENTAL TO THE HEALTH, SAFETY, OR WELFARE OF PERSONS RESIDING OR WORKING IN THE NEIGHBORHOOD OR THE GENERAL PUBLIC, AND WILL NOT RESULT IN INEFFICIENT OR WASTEFUL USE OF ENERGY, AND WILL NOT BE MATERIALLY INJURIOUS TO PROPERTIES OR IMPROVEMENTS IN THE VICINITY.

The location of the approximately seven to nine foot high retaining wall (fence) within the front yard setback from Band Road and the approximately 3.5 foot high retaining wall (fence) within the Band Road right-of-way are necessary for the health, safety and welfare of the persons residing at 200 Band Road and the public seeking access along Band Road as the engineered retaining walls will stabilize the building site and access road. Construction will comply with prevailing building technology, the Uniform Building Code, the County Building ordinance and the recommendations of the project soils engineer and the soils engineering report recommendations to insure the optimum in safety and the conservation of energy and resources. **The** proposed walls will not affect sight distance for vehicles on Band Roads.

2. THAT THE PROPOSED LOCATION OF THE PROJECT AND THE CONDITIONS UNDER WHICH IT WOULD BE OPERATED OR MAINTAINED WILL BE CONSISTENT WITH ALL PERTINENT COUNTY ORDINANCES AND THE PURPOSE OF THE ZONE DISTRICT IN WHICH THE SITE IS LOCATED.

The project site is located in the R-1-15 (Single family residential) zone district with a Mountain Residential General Plan designation. The proposed location of the retaining walls (about 9-feet within the front yard setback and about 3.5 feet within the right-of-way) and the conditions under which they would be operated or maintained will be consistent with the purpose of the R-1-15 zone district within the Mountain Residential General Plan designation in that the primary use of the property will be residential, and retaining walls are a common ancillary use in this zone district, when steep slopes are present. Specific regulations for fencing are contained in section 13.10.525. **This** proposal complies with the requirements and intents of that section in that:

- The retaining walls (fences) will be situated on the property in a manner that allows adequate sight distance for vehicles traveling along the roadway as well as entering and exiting the property, because the fence is set back from or below the level of the traveled.
- The fence will not adversely affect the lighting of the street area.
- The location and design of the retaining walls (fence) on the property does not contain any comers or pockets that would conceal persons with criminal intent.
- The location and design of the fences (retaining walls) will be compatible with the visual neighborhood character of the Band Road neighborhood, in which there are other retaining

walls in excess of three feet front or side yards along Band Road where the properties are **very** steeply sloped.

3. THAT THE PROPOSED USE IS CONSISTENT WITH ALL ELEMENTS OF THE COUNTY GENERAL PLAN AND WITH ANY SPECIFIC PLAN WHICH HAS BEEN ADOPTED FOR THE AREA.

The project is located in the Mountain Residential land use designation. The proposed 3.5 to 9-foot high retaining walls (fences) are either set back from the road as traveled, allowing adequate sight distance consistent with road standards specified in the General Plan or are located below the road grade.

A specific plan has not been adopted for this portion of the County.

4. THAT THE PROPOSED USE WILL NOT OVERLOAD UTILITIES AND WILL NOT GENERATE MORE THAN THE ACCEPTABLE LEVEL OF TRAFFIC ON THE STREETS IN THE VICINITY.

The proposed fences (retaining walls) will not utilize a significant electricity or utilities and will not generate any additional traffic on the streets in the vicinity in the Band Road area.

5. THAT THE PROPOSED PROJECT WILL COMPLEMENT AND HARMONIZE WITH THE EXISTING AND PROPOSED LAND USES IN THE VICINITY AND WILL BE COMPATIBLE WITH THE PHYSICAL DESIGN ASPECTS, LAND USE **INTENSITIES**, AND DWELLING UNIT DENSITIES OF THE NEIGHBORHOOD.

The location and design of the retaining walls (fences) will be compatible with the visual character of the Band Road neighborhood, in that the proposed fence will not impose upon the residential character of the neighborhood due to its height, design, and location. The design is consistent with engineered retaining walls in a rural mountainous neighborhood. The fence does not alter or increase the density or intensity of residential use within the neighborhood.

Conditions of Approval

Exhibit A. Project Plans prepared by Mike Van Horn, RCE, dated 5-21-04 and last revised on 2-2-05 (Sheet S1).

I. This permit authorizes the construction of an approximately 7 to 9-foot high engineered retaining wall within the front yard setback and a retaining wall about 3.5 feet high within the Band Road right-of-way. 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.
- C. Obtain a Grading Permit from the Santa Cruz County Building Official, if required.

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. The final plans shall include the following additional information:

- 1. Final plans shall reference the project soils report and shall include a statement that the project shall conform to the report's recommendations.
- 2. The project shall conform to the site development standards for the R-1-15 zone district.
- 3. Final grading, drainage, and erosion control plans.
 - a. A grading permit and applicable fees will be required if fills exceed 2 feet, earthwork exceeds 100 cubic yards or cuts exceed 5 feet or any engineered fill is proposed. The final grading shall be modified to conform to the soils engineer's recommendations.
 - b. Final erosion control plans shall show locations, details and notes for all erosion control measures and devices during construction.

B. Meet all requirements and pay any applicable plan check fee of the California Department of Forestry Fire Protection District.

C. Submit 3 copies of the project soils report accepted by the Planning Department. Two copies shall be wet stamped by the Geotechnical Engineer.

- D. Submit 3 copies of a letter of plan review and approval by the project Geotechnical Engineer to accompany the Environmental Planning, Building Plan Check and Department of Public Works, Drainage Section sets of plans. The plan review letter must reference the project plans (pages and dates of the reviewed plans) and shall specifically state that the grading, drainage, foundation and retaining wall designs conform to the recommendations of the soils report.
- 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 and Grading Permit plans shall be installed.
- B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official and Senior Civil Engineer, and in conformance to the conditions of the Soils Report Review letter dated March 8, 2005.
- C. The project must comply with all recommendations of the approved soils reports. The soils engineer shall submit a letter to the Planning Department verifying that all grading, drainage and construction have been performed according to the recommendations of the accepted soils report. A copy of the letter shall be kept in the project file for future reference.
- D. All foundation excavations shall be inspected and approved in writing prior to foundation pour. Copies of this letter shall be submitted to the Building Inspector and Environmental Planning (attn: Jessica DeGrassi).
- E. 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. 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.

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 one year from the effective date unless you obtain the required permits and complete construction.

Approval Date: **July 18,2005**
Effective Date: **August 1,2005**
Expiration Date: **August 1,2006**

Don Bussey
Deputy Zoning Administrator

Cathleen Carr
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.

Application Number: 04-0475

Assessor Parcel Number: 083-052-01

Project Location: 200 Band Road, Boulder Creek.

Project Description: Proposal to construct retaining walls with a maximum height of about **9** feet within the front yard setback and approximately **3.5** feet within a **35-foot** wide private right-of-way (Band Road). Requires a Residential Development Permit.

Person or Agency Proposing Project: Richard Kojak

Contact Phone Number: **(831) 419-6685**

- A. The proposed activity is not a project under CEQA Guidelines Section 15378.
B. The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060 (c).
C. Ministerial Project 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. Categorical Exemption

Specify type: Class 3 - New Construction or Conversion of Small Structures (Section 15303)

F. Reasons why the project is exempt:

Retaining walls ancillary to one single family residence in a residential zone district.

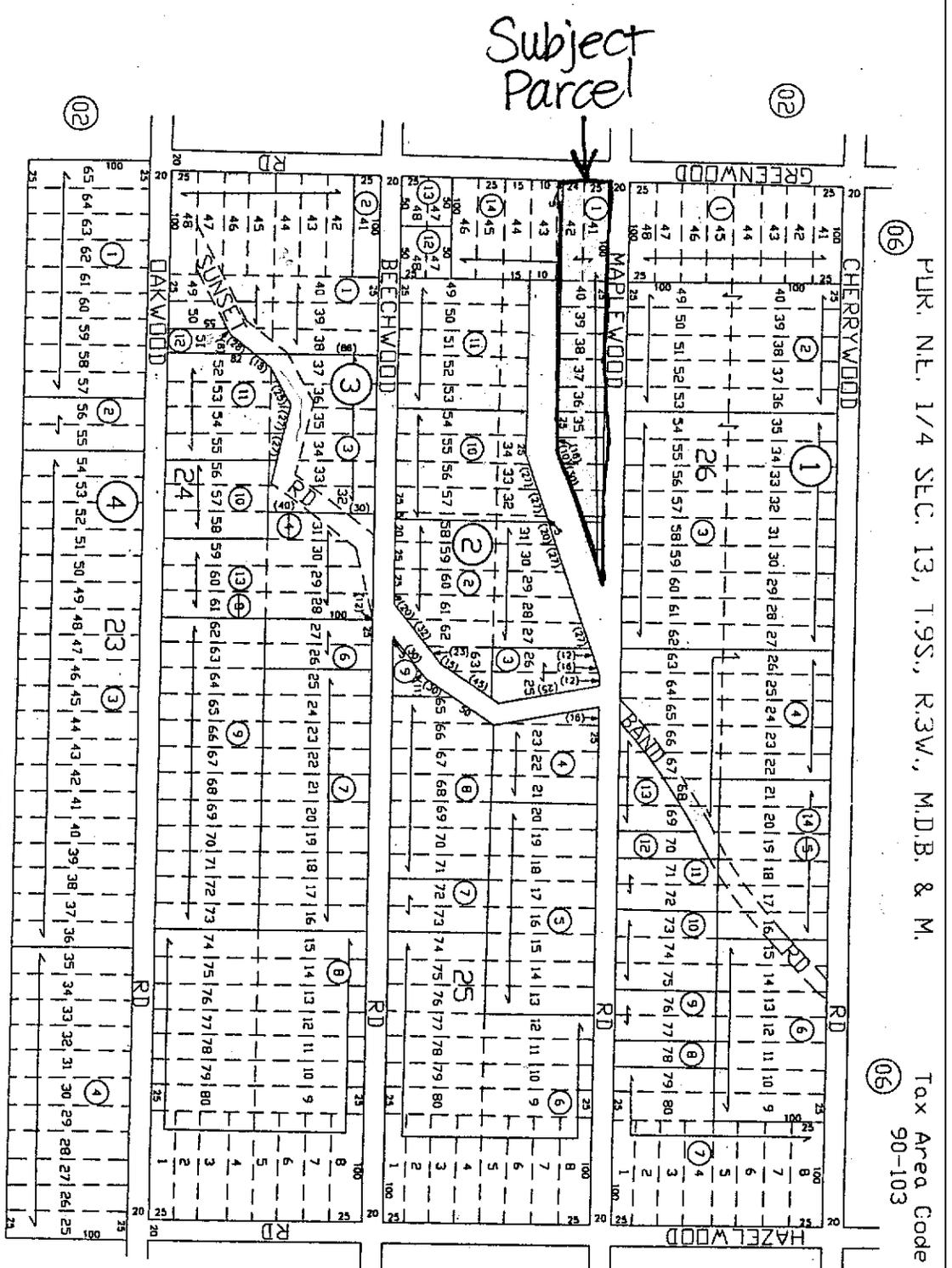
In addition, none of the conditions described in Section 15300.2 apply to this project.


Cathleen Carr, Project Planner

Date: 6/13/05

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Subject Parcel

PUR. N.E. 1/4 SEC. 13, T.9S., R.3W., M.D.B. & M.

Tax Area Code 90-103

83-05



01 WILDWOOD NO. 1
1/1/03
5/5/09

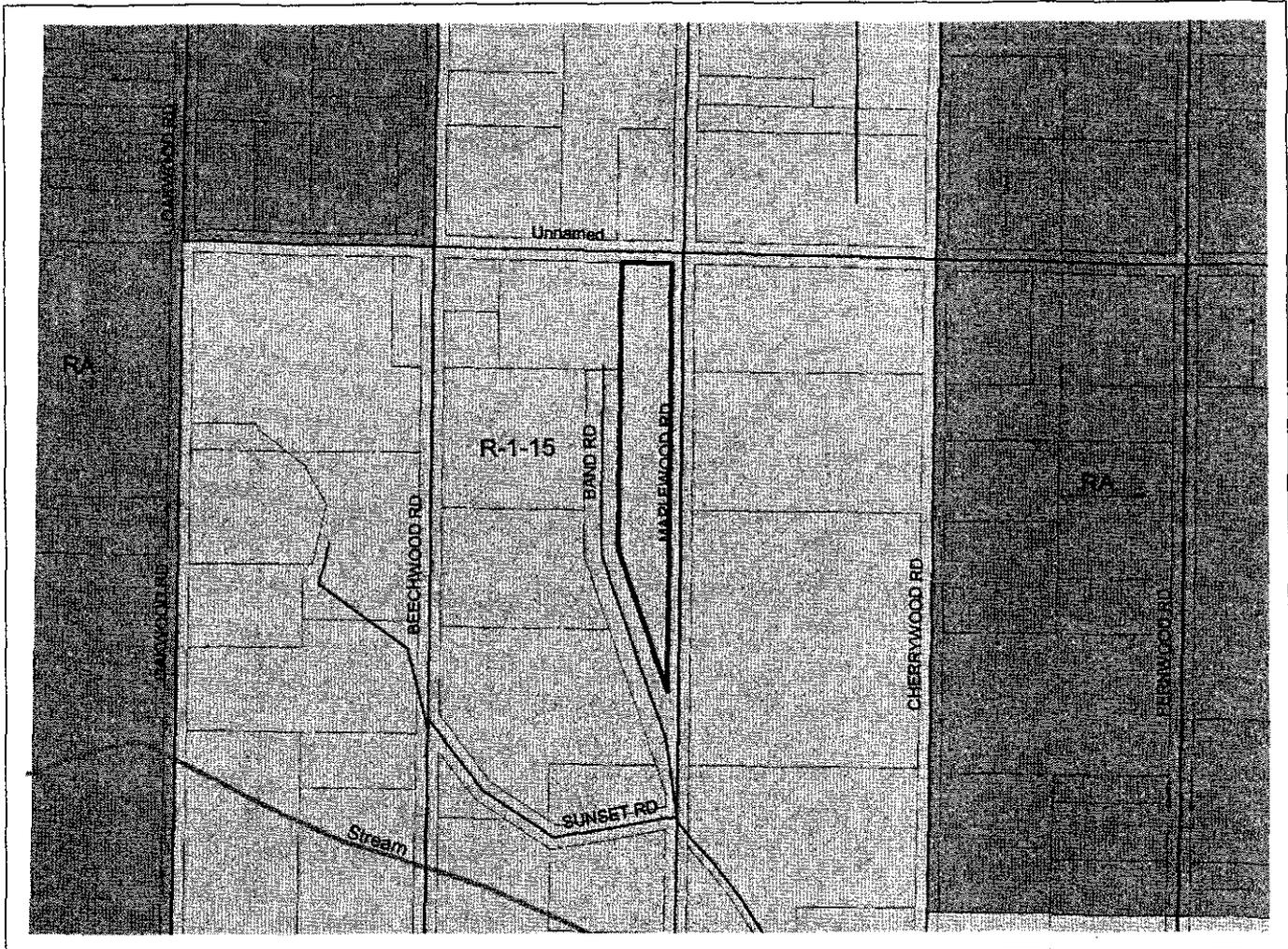
Assessor's Map No. 83-05
County of Santa Cruz, Calif.

Assessor's Parcel Map

Exhibit E

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Zoning Map



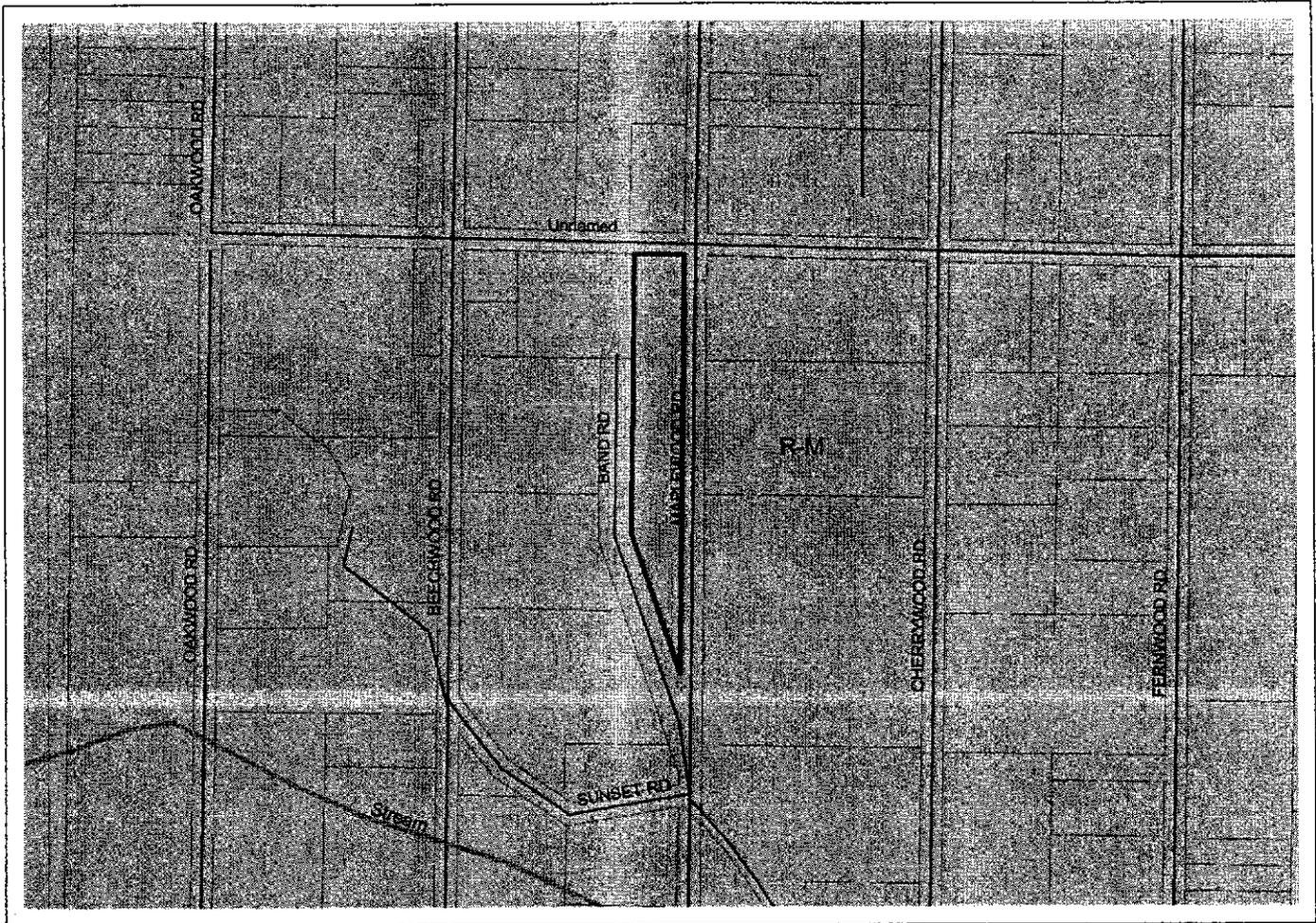
Legend

	APN 083-052-01
	Parcel boundaries
	Streets
	Perennial Stream
	RA
	R-1-15



Map created by Santa Cruz County
Planning Department:
September 2004

General Plan Map



Legend

-  APN 083-052-01
-  Parcel boundaries
-  Streets
-  Perennial Stream
-  Mountain Residential



Map created by Santa **Cruz** County
Planning Department:
September 2004

C O U N T Y O F S A N T A C R U Z
D I S C R E T I O N A R Y A P P L I C A T I O N C O M M E N T S

Project Planner: Cathleen Carr
Application No. : 04-0475
APN: 083-052-01

Date: June 27, 2005
Time: 10:57:58
Page: 1

Environmental Planning Completeness Comments

===== REVIEW ON OCTOBER 21, 2004 BY JESSICA L DEGRASSI =====
===== UPDATED ON MARCH 8, 2005 BY KENT M EDLER ===== Soils report accepted

Environmental Planning Miscellaneous Comments

===== REVIEW ON OCTOBER 21, 2004 BY JESSICA L DEGRASSI =====
A soils engineer will be required to recommend design specs for the wall.

Code Compliance Completeness Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

===== REVIEW ON FEBRUARY 18, 2005 BY RICHARD W NIEUWSTAD =====

Code Compliance Miscellaneous Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

===== REVIEW ON FEBRUARY 18, 2005 BY RICHARD W NIEUWSTAD =====

Dpw Drainage Completeness Comments

===== REVIEW ON OCTOBER 26, 2004 BY CARISA REGALADO =====
Plans accepted as submitted and discretionary stage application review is complete for this division.

Please see Miscellaneous Comments for additional notes.

Dpw Drainage Miscellaneous Comments

===== REVIEW ON OCTOBER 26, 2004 BY CARISA REGALADO =====
For the building application stage. please submit a letter of approval by the geotechnical engineer for the drainage design in regards to the proposed retaining wall and outlet of runoff to the creek.

Please call or visit the Dept. of Public Works, Stormwater Management Division, from 8:00 am to 12:00 pm if you have any questions.

Dpw Driveway/Encroachment Completeness Comments

===== REVIEW ON OCTOBER 1, 2004 BY DEBBIE F LOCATELLI =====
No Comment, project adjacent to a non-County maintained road.

Dpw Driveway/Encroachment Miscellaneous Comments

===== REVIEW ON OCTOBER 1, 2004 BY DEBBIE F LOCATELLI =====
No comment.

Project Planner: Cathleen Carr
Application No. : 04-0475
APN: 083-052-01

Date: June 27, 2005
Time: 10:57:58
Page: 2

Environmental Health Completeness Comments

===== REVIEW ON OCTOBER 19, 2004 BY JIM G SAFRANEK ===== Is there a retaining wall below the expansion leachfield in addition to the proposed retaining wall above? If so, what is the setback?

===== UPDATED ON MARCH 1, 2005 BY JIM G SAFRANEK ===== The future expansion field for the septic is tight on this APN. The exact dimensions of approx 100' need to be drawn to scale given the importance of this sewage infrastructure for the future. Also, note that the site plan shows what appears to be a drain pipe (E) underneath the future expansion field. This would constitute a violation of the onsite sewage disposal code if the CE proposes to keep it in this location. JS 454-7585.

===== UPDATED ON APRIL 13, 2005 BY JIM G SAFRANEK ===== The applicant consulted with C. Wong of EHS who determined the site has limited expansion area for a future septic repair. This will require an acknowledgement letter from the owner. This can be completed prior to the building permit phase.

===== UPDATED ON APRIL 13, 2005 BY JIM G SAFRANEK =====

===== UPDATED ON MAY 11, 2005 BY JIM G SAFRANEK ===== Completeness comments for EH have been satisfied.

Environmental Health Miscellaneous Comments

===== REVIEW ON OCTOBER 19, 2004 BY JIM G SAFRANEK =====

===== UPDATED ON OCTOBER 19, 2004 BY JIM G SAFRANEK =====

NO COMMENT

===== UPDATED ON MARCH 1, 2005 BY JIM G SAFRANEK =====

NO COMMENT

Cal Dept of Forestry/County Fire Completeness Comm

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

===== REVIEW ON OCTOBER 7, 2004 BY COLLEEN L BAXTER ===== DEPARTMENT NAME: CDF/COUNTY FIRE Note on the plans that these plans are in compliance with California Building and Fire Codes (2001) as amended by the authority having jurisdiction. All Fire Department building requirements and fees 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. 72 hour minimum notice is required prior to any inspection and/or test. Note: As a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with the 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 reviewing agency.

Cal Dept of Forestry/County Fire Miscellaneous Com

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

===== REVIEW ON OCTOBER 7, 2004 BY COLLEEN L BAXTER =====



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

TOM BURNS, PLANNING DIRECTOR

March 8, 2005

Carrie Kojak
200 Band Road
Boulder Creek, CA, 95006

Subject: Review of Soil Investigation by Mike Van Horn
Dated February 4, 2005; File No. 1022
APN: 083-052-01, Application No: 04-0475

Dear Applicant:

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 building permit issuance a plan review letter shall be submitted to Environmental Planning. The author of the report shall write this letter and shall state that the project plans conform to the report's recommendations.

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

Our acceptance of the report is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please call the undersigned at **454-3168** if we can be of any further assistance

Sincerely,

Kent Edler
Associate Civil Engineer

Cc: Cathleen Carr, Project Planner
Jessica DeGrassi, Environmental Planning

Exhibit H

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Mike Van Horn, RCE, RGE
Registered Civil Engineer <- Registered Geotechnical Engineer

101 Forest Avenue, Santa Cruz, CA 95062-2622

(831) 429-9824

FAX (831) 429-9824

File Number: 1022

8 February 2005

Attn: Mr. Richard Kojak
Mountain Services Company
6576 Highway 9
Felton, CA 95018

Subject: Proposed Driveway Improvements
200 Band Road, APN 083-052-01
Boulder Creek, California

PLAN REVIEW

Dear Mr. Kojak:

As you requested I have reviewed the project drawings', hereinafter referred to as ("Project Drawings"), and I am providing herein a summary of my conclusions regarding that drawing plan review. I am the Project Geotechnical Engineer and have recently issued the Soil Investigation Report', hereinafter referred to as ("Soil Report"), for the subject project.

I conclude that the Project Drawings are in conformance with the Soil Report. If you have any questions, please give me a call.

Sincerely Yours,



Mr. Mike Van Horn, RCE 35615, RGE 2047 (expires 9/30/05)

COPIES: 4 to Addressee
1 to File

¹ Three "D" Sized Drawings: (1) Sheets S1 and S2, by Mike Van Horn, Inc., Sheet S1 revise dated 2/2/05, Sheet S2 dated 13 April 2004, File Number 1022, (3) Sheet 2, by MSC, dated 5/20/2004.

² Mike Van Horn, Inc., Soil Investiaation Report, (Santa Cruz, CA, 4 February 2005), File Number 1022.

CONCLUSIONS

The following conclusions are drawn from the data acquired and evaluated for the proposed project. Refer to the **RECOMMENDATIONS** and **RECOMMENDED FUTURE SERVICES** sections of this report for additional details and requirements in regards to the conclusions below.

- A. Site Suitability: The site is suitable for the subject retaining wall project, from a geotechnical viewpoint, provided the recommendations presented herein are closely followed. Please note the uncontrolled fills at the driveway, which is a common feature in the Santa Cruz Mountains, may or may not settle and/or lateral translate at an unknown time in the future. Therefore, future performance of uncontrolled fills at the driveway area cannot be guaranteed unless they are properly re-graded. It is possible to a minor extent future movement of uncontrolled fills at the driveway may disrupt surface and/or subsurface drainage at the site.
- B. Foundation System: The west retaining wall lines are partially situated on surface uncontrolled fills and associated steep slopes. You have indicated vertical cantilever retaining walls are acceptable for the east retaining wall lines. Therefore it is concluded that a drilled, poured-in-place, concrete pier (vertical cantilever) foundation system is suitable for the all subject retaining walls. If another foundation system is desired, please contact my office, and the necessary design criteria and recommendations for that alternate foundation system can be provided.
- C. Erosion: The composition of the site profile is evaluated as contributing a moderate erosion hazard level to the subject project. The topography of the site is evaluated as contributing a moderate to high level of erosion hazard to the subject project. A relatively moderate to high volume of surface subsurface water appears to be directed toward the subject development. In conclusion it has been evaluated that there is a high level of erosion hazard to the subject project. Careful attention to constructing adequate drainage design to portions of the site designated by the Engineer is very important for the proper performance of slopes and the proposed foundation systems.
- D. Erosion Scar: I conclude that the erosion scar located south of the south rip-rap dissipater should be repaired. Given the small size of the scar, filling the scar with small rip-rap should be adequate for this scar repair. The other drainage termini and associated rip-rap structure appear to be functioning adequately at the time of the site visit.
- E. Groundwater: Based primarily on the data gathered during this investigation, I conclude that the potential variations in groundwater elevations and groundwater movements are as follows. Groundwater may or may not be present in the pier holes if drilled in the rain season. However, I conclude the site profile indicates a no significant sloughing should occur and a simple pump-off of accumulated

groundwater prior to placement of concrete in the pier holes should be possible.

- F. Springs: No spring activity was observed at the subject site. Note however that springs may be masked and may exist within the subject property. If spring activity is observed, please contact the Geotechnical Engineer, so that he can evaluate the potential geotechnical hazards caused by such spring activity.

- G. Debris Slides: I conclude debris slope phenomenon does not significantly impact the proposed retaining wall construction nor should it permanently nor significantly damage proposed and existing site drainage features. Therefore no evaluation of debris flows is provided. Evaluation of debris flows with respect to the existing residence is beyond the scope of this work.

RECOMMENDATIONS

SITE PREPARATION

1. Drilling: It is anticipated that the native soil and bedrock materials below the area of proposed deep piers will be drillable with conventional, heavy drilling equipment. Refer to the **CONCLUSIONS** section of this letter for additional comments. A conventional, truck-mounted drill-rig with a "Kellybar" or similar drill bar is recommended.
2. Fill Specification: The following applies for all fills compacted for this project.
 - a. Structural Fill¹ is specified as follows:
 - i. Be free of debris, organics and other deleterious material;
 - ii. Be essentially nonexpansive, having a Plastic Index of less than or equal to 12;
 - iii. Have less than three percent (3%) organics by weight;
 - iv. Have a maximum rock size of three inches in diameter, as measured across the greatest circumference of the rock; and
 - v. Contain sufficient clay binder to allow for stable foundation and utility trench excavations.
3. General Compaction Criteria: Compaction of all new structural fills and scarified soils should be to at least 90% relative compaction, except as specifically stated in other paragraphs in this report. Import baserock materials under asphalt pavements should be compacted to at least 95% relative compaction. Compaction criteria will be based on the laboratory test procedure ASTM D1557-93(C). The uppermost six inches of subgrade soil under baserock for concrete slabs-on-grade and asphalt pavements should be compacted to not less than 95% relative compaction.

RETAINING WALLS

4. General: The following guide specifications, recommendations, and design criteria apply only for the subject exterior retaining walls which are to be installed as part of the proposed project (refer to **PROJECT DESCRIPTION** portion of this report for details). Please contact this office if other conditions are anticipated or the location(s) of proposed retaining wall(s) change. The retaining wall

¹ Structural Fill is defined herein a soil/rock material, which when properly prepared and compacted will support pavements and other man-made structures without detrimental movement or settlement.

foundations should be constructed with a drilled, poured-in-place, concrete pier (vertical cantilever) foundation system.

5. Lateral Earth Pressures: The following lateral earth pressures should be included in the design of retaining walls stipulated above. The active and at-rest lateral earth pressures include a seismic component as required by the County of Santa Cruz.

Lateral Earth Pressure	(equivalent fluid wt.)
West Retaining Wall: 3 Max. Retain Height : 4' Min. Pier Depth	
Passive	193
Active (with Seismic)	37
Northeast Retaining Wall: 9' Max. Retain Height : 5' Min. Pier Depth	
Passive	500
Active (with Seismic)	81
East at House Retaining Wall: 7' Max. Retain Height : 5' Min. Pier Depth	
Passive	500
Active (with Seismic)	40

6. Pier Design Criteria: The following recommendations apply for the drilled, poured-in-place, concrete pier foundations of the above stipulated retaining walls.
 - a. All piers should be a minimum of 12 inches in diameter.
 - b. West Retaining Wall Only: All piers should be constructed at least four feet below the existing ground surface.
 - c. Both East Retainina Walls Only: All piers should be constructed at least five feet below the existing ground surface.
 - d. West Retainina Wall Only: The soil should be discounted in the computation of lateral and vertical load carrying capacity of the uppermost three feet embedment of all piers.
 - e. Piers should not be placed any closer than three pier diameters center to center spacing.

7. Retainina Wall Drainaaae: Adequate and proper drainage is important for the proper performance of retaining walls. A drainage blanket should be constructed behind all retaining walls in order to prevent subsurface water from accumulating behind the wall. Class II, Caltrans specification, Permeable Material, or clean, import gravel (1 and 1/2 or 3/4-inch diameter) should be placed as backfill behind the retaining walls. This gravel blanket should extend along the entire length of the walls and be at least 12 inches wide as measured perpendicular to the walls. The drainage blanket should extend from the top of the foundation footing or grade beam to within one foot of the final backfill soil surface. The uppermost one foot of soil over this drain blanket should consist of native soil compacted to at least 90% relative compaction. An at least four inch diameter perforated pipe should be placed at the base of the blanket drain. The perforations should face

up. The pipe should discharge to an appropriate discharge facility. Optionally since this is an open plank landscape retaining wall, the drain blanket may be lined with filter fabric consisting of Nicolon/Mirafi Filterweave 40/10 or equivalent material (prior approval of equivalent material by Geotechnical Engineer required).

DRAINAGE

8. General: Surface drainage control should be provided throughout the completed project to protect the future stability of retaining wall foundations, roadways and slopes. Where possible surface runoff should sheet drain and not allowed to concentrate. The site should be graded to provide rapid removal of surface water away from the tops of graded slopes, areas of identified landslide potential, slope instability, or soil creep. Concentrations of surface water runoff should be controlled by the appropriate drainage structures as required by the project Civil Engineer. **All** surface drainage should be properly intercepted and discharged into appropriately designed facilities.
9. Erosion Control Planting: Planting for purposes of erosion control should be installed as quickly as possible after the completion of grading operations on all graded slopes. Ideally such planting should be restricted to indigenous vegetation which requires minimal amounts of irrigation water. Potentials for erosion and slope instability are created by excessive irrigation. Tacking agents or matting to secure vegetation should be used on all slopes greater than 25% grade.
10. Notify Enaineer: The Geotechnical Engineer should be contacted if any spring activity is observed, so that he can provide additional recommendations and mitigating measures related to this spring activity.

RECOMMENDED FUTURE SERVICES

The following is an outline of the presently anticipated Geotechnical Engineering Services related to future construction operations for the subject project. These services are necessary in order to provide an adequate level of service, as presently required by professional and legal standards. Please contact this office at least one week prior to construction operations, so that I can provide you with a proposal to provide the recommended services.

1. Plan Review: This office should review preliminary foundation plans, grading plans, site improvement plans and all other appropriate construction plans and specifications, prior to submission of construction documents to the County of Santa Cruz for building permits, to verify conformance with said recommendations.
2. Pier Drilling Inspection: The Geotechnical Engineer should be present during drilling operations for the piers so that he can confirm that adequate soil/bedrock materials have been encountered and adequate installation methods are utilized.

This concludes this report. If you have any questions, please give me a call.

Sincerely Yours,



Mr. Mike Van Horn, RCE 35615, RGE 2047 (expires 9/30/05)

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